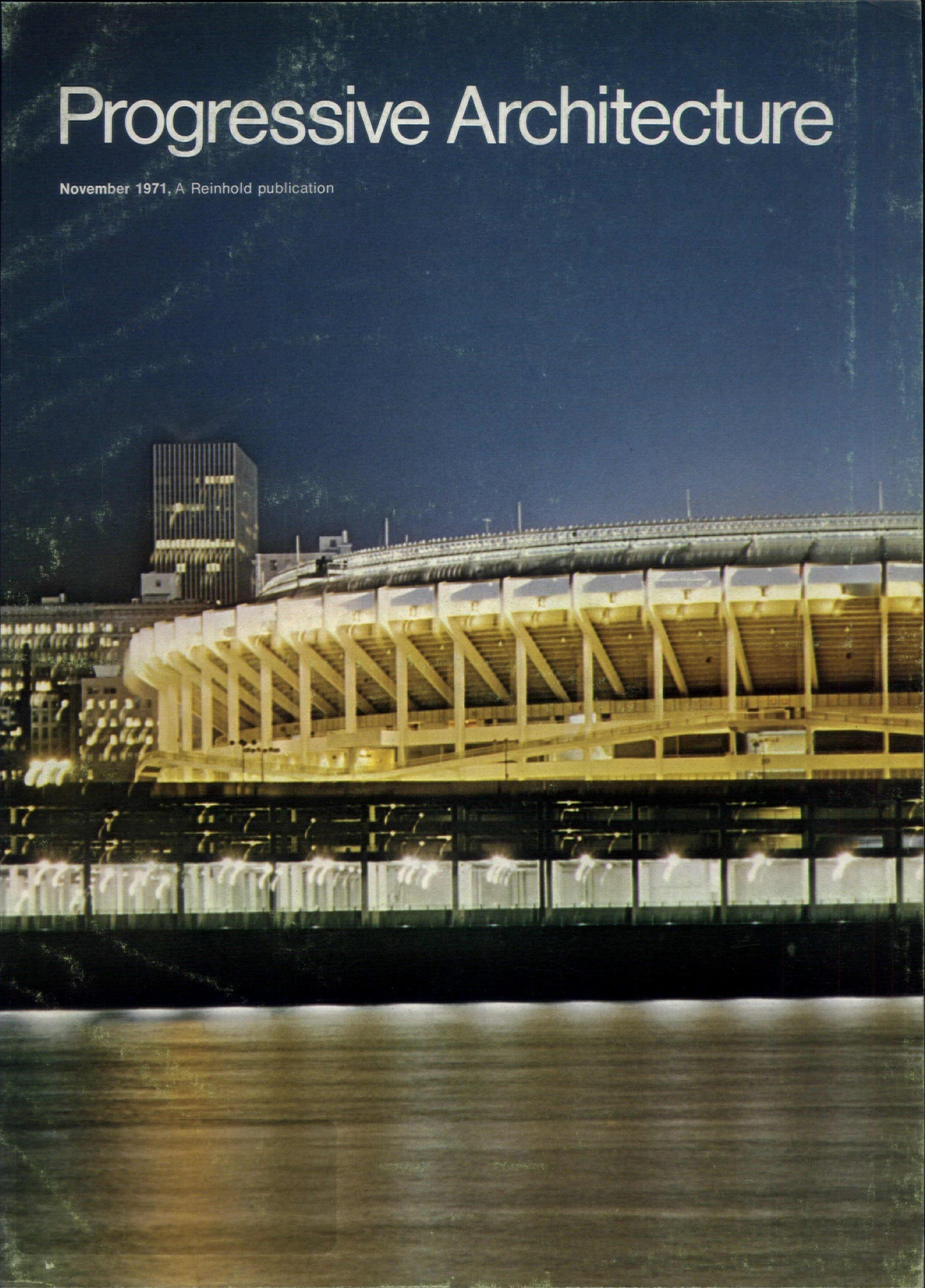
Progressive Architecture

November 1971, A Reinhold publication



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November, 1971

Progressive Architecture

Cover: Cincinnati Stadium, designed by Finch-Heery photographed by Allan Kain, Cincinnati Enquirer

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MECHANICAL CONTRACTOR: Frank Krist Company, Detroit, Michigan
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CEILING SYSTEMS CONTRACTOR: R. E. Leggette Company, Dearborn, Michigan
INTERIOR DESIGNER: Pipsan Saarinen Swanson, AID-HAIA, Bloomfield Hills, Michigan

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Views

A protest by the author

Dear Editor: I write to protest the superficial treatment of my book, *Beyond the Automobile,* reviewed by John Lobell together with *Highways and Our Environment* and *Autokind vs Mankind* in your September "Books" section. A "protesting-a-pan" type of letter is the worst kind of cliché, but Mr. Lobell's cavalier approach has goaded me into writing.

My book is a proposal for transferring a significant portion of regional commuter movements from the automobile to other forms of people transport, and it outlines in great detail the whys and wherefores of doing so, including quite a bit of elaboration regarding the issue of "comprehensiveness": the crux of the proposal is the region-wide scale of its application. A careful reader of the text would discover that the primary argument against conventional transit system planning is that it is so limited, does not serve "suburbia" appropriately, and does not begin to function in the role I would have it. This careful reader will have discovered that I dedicated a significant portion of the text to an examination of the San Francisco Bay Area system, and have outlined its limitations at length, including quotes further attesting to its lack of "comprehensiveness" by two of the BART project's consultants.

It is ironic, then, to find Mr. Lobell raising issue with my proposal on the basis that the BART system is apparently not serving as a successful solution to the Bay Area's movement problems! The careful reader would learn in my text not only why the BART system is not the ultimate answer to the Bay Area's problems, but also how that system, as any other, *could* be developed to a form where it *could* handle regional movement problems.

It is helpful, when advocating new approaches, to demonstrate the limitations of older approaches: how ironic indeed to find a reviewer panning the new approach because the older approaches are demonstrating their limitations!

To examine Mr. Lobell's review a bit further . . . he implies that the books reviewed do not begin to address his review criteria (debatable), and since they do not, they add up to "nothing more than idle utopian speculations." This is a bit amazing, because it suggests that any speculation regarding possible reallocations of resources, or outlining the potential benefits of implementing alternate movement techniques, and the potential costs for not doing so, without addressing the question of how such a changeover could be accomplished, should never reach print at all. Perhaps I should not rise to this, as my entire concluding chapter is written to this topic, but Mr. Lobell (unquestionably a careful reader) says that none of the three books do so, and he knows best.

Mr. Lobell asks for workable positive alternatives to the automobile, and predictably enough, looks to the halls of MIT to deliver us a new set of gadgetry to deal with the problem. He might have done his readers a greater service had he pointed out that the technological solutions have long been with us, and that the true places to seek "breakthroughs" are in the areas urban economics and the restructuring of urban and regional regulatory and planning agencies to meet the shifting and growing needs of region-scaled urbanized areas. It is my contention that the great hunt for new gadgetry is but a stall . . . no one in office seriously wants to challenge the political and economic power of the automobile/highway industry. And you may be sure that no assembly line is going to cease production while waiting for Mr. Lobell to work out to his personal satisfaction all the myriad philosophical implications of a "technology as an extension of a human being" (the topic of my seventh chapter, which escaped the notice of Mr. Lobell, who states that none of the books touched this issue either).

It is tempting to focus my ire on Mr. Lobell personally. More importantly, however, I would call the attention of the professional readership of this journal to the fact that transportation planning has a tremendous amount to say about the type and quality of use of any parcel of landspace in the total environment, and it behooves the person who considers himself an environment-shaper to become as informed as possible with the various aspects of this topic, in this time of growing concern with environmental issues.

Tabor Rodger Stone
Washington, D.C.

Credit due

Dear Editor: Your August 1971 issue has an article entitled "The House That Walt Built" (p. 64) which concerns the design of the 1050 room Contemporary Hotel in Orlando, Florida.

I should like to call your attention to the fact that this office was the structural engineering consultant on the project. This detail is neglected in the article.

Richard R. Bradshaw
Van Nuys, Calif.

Dear Editor: In your article "Designing for a dry climate" (P/A, Aug. 1971, p. 50) you mentioned my good friend Luís Barragán as the architect of the Camino Real Hotel. As it was very clearly specified in your June 1969 article (p. 82), Luís Barragán was landscape consultant in that project, Ricardo Legorreta Associates were architects.

Ricardo Legoretta
Mexico City

Controversy re Convention Center

Dear Editor: Your uncritical description of Los Angeles' new convention center (P/A Sept. 1971, p. 41) does a disservice to the public and to forward-looking engineers and architects generally.

This horrendous $42 million monstrosity destroyed large numbers of irreplaceable low and moderate cost dwellings at a time when their vacancy ratio is estimated at below one percent. Incidentally, Los Angeles officials have, to date, avoided release of statistics on housing vacancy ratios: such figures would reveal just how critical the housing shortage is.

Here in Los Angeles, our 19th Century Bourbon officials have stimulated cancerous growth of freeways and parking lots which have consumed 60 percent of downtown land while strangling the population with smog. For years, these same officials have allowed housing, mass transit, schools and other first priority services to slide dowhill. Under these conditions, our officials are swayed either by stupidity or corruption in pledging the city's credit for $5000 denomination tax-exempt bonds in order to build a tenth priority mausoleum for the profit of hotel and restaurant owners.

Name withheld upon request

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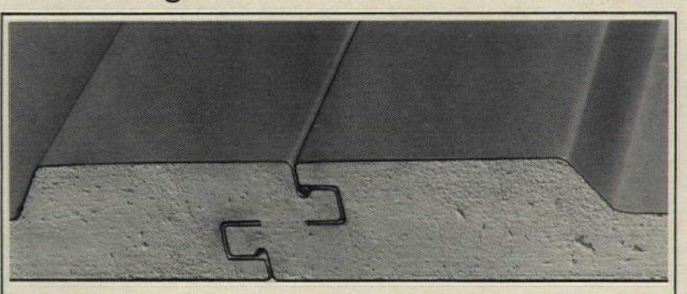

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3-70 A

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A little essay of sorts about The Noise Explosion, and what can be done about it, by U.S. Plywood.

Noise (someone brilliant once said) is sound at the wrong time in the wrong place.

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As a nation, we haven't made a Federal case of it. Yet.

But we're making a national *cause* out of it. The Environmental Protection Agency in Washington, D.C., has now established an office to find out just how noisy the United States is, and how much noisier it's likely to get.

Well, if you ever had a gaggle of typewriters —or a giggle of secretaries—outside your office...or been hit by Rock from parties in the apartment across the hall...and even though the door is closed, the noise seeps in maddeningly:

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ITEK's Corporate Office... incorporates high-strength steel for interior flexibility and exterior beauty

High-strength structural steel played a predominant role in providing a column-free interior and an attractive exterior for this two-story corporate office building in Lexington, Massachusetts.

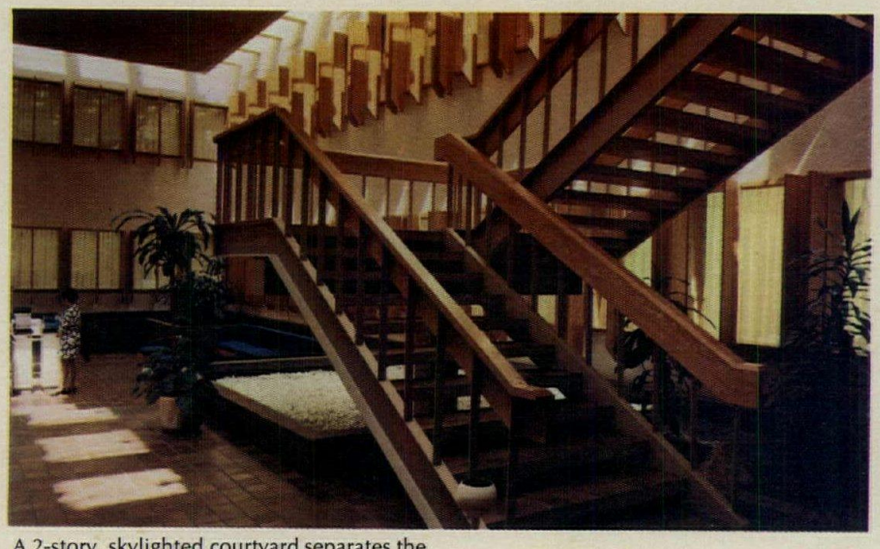
Neal Mitchell Associates, Inc., architects and engineers for the project, developed a framing scheme utilizing 58-ft-long trusses to insure maximum freedom for future space division.

Columns are spaced on 5-ft centers thus providing independent support for the second floor and roof levels. This contributed substantially to simplifying and speeding up erection of the frame. Top and bottom chords of the 2-ft, 6-in.-deep trusses are fabricated of ASTM A572 Grade 50 (Bethlehem V50) high-strength steel.

The floor system is designed for a live load of 100 psf and consists of a 4½-in. concrete floor slab placed atop permanent steel forming. The sandwich area within the 2-ft, 6-in.-deep trusses is layer-zoned for the electrical, heating, air-conditioning, sprinkler, and plumbing systems. Integration of these systems into the clear-span frame provides for complete partition flexibility.

Mayari R Weathering Steel sunscreens

The harmonious blend of Mayari R Weathering Steel and hard-burned, iron-spot brick adds warmth and beauty to the building's exterior.



A 2-story, skylighted courtyard separates the senior executive offices from the L-shaped, 2-level tier of supporting staff offices.

Shrubbed beds of crushed stone serve as drains to catch the oxidized run-off from the maturing Weathering Steel.

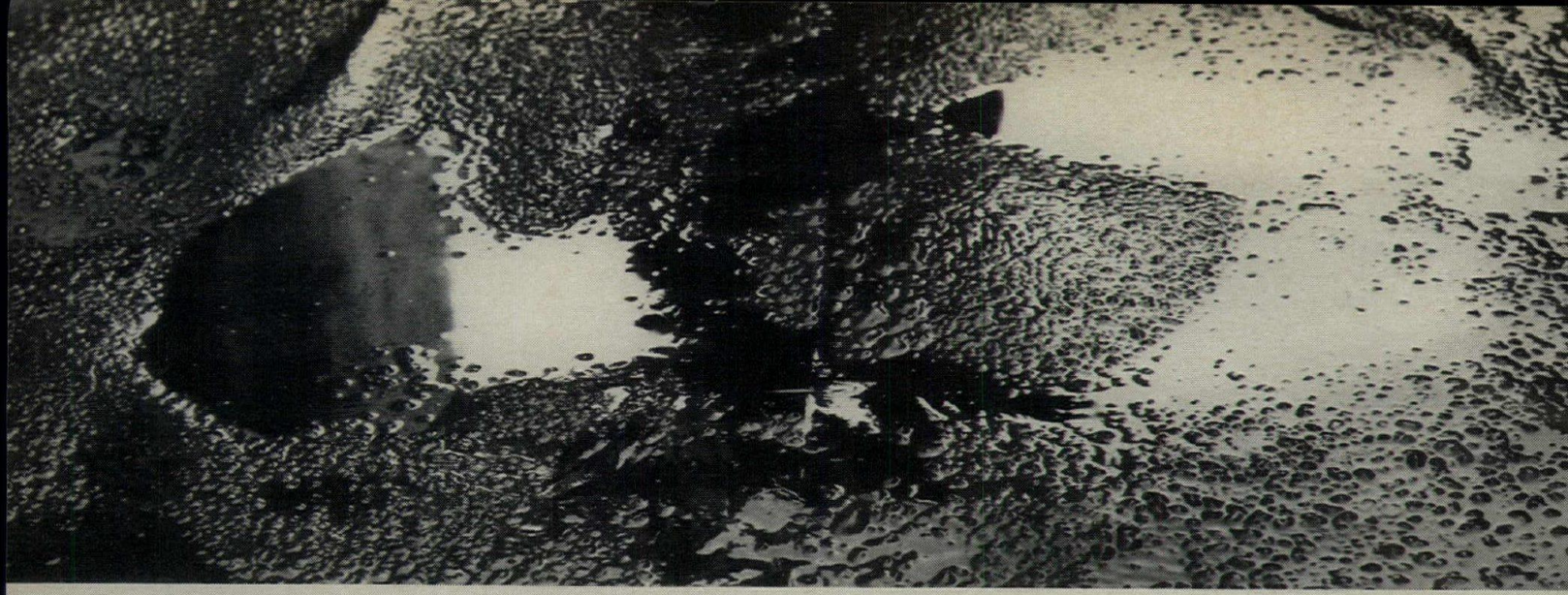
Owner: Itek Corporation; Architect-Engineer: Neal Mitchell Associates Incorporated; Fabricator and Erector: Novel Iron Works, Inc.; General Contractor: Lewis C. Bowers, Inc.

The sunscreens, which protect the exterior office windows from outside elements, are fabricated of high-strength Mayari R Weathering Steel. They are supported by Mayari R rolled sections which are completely independent of the building's structural steel frame. As it weathers, Mayari R forms a richly-textured, deep-brown coating, which gradually minimizes oxidation of the steel and eliminates the need for painting.

Steel framing offers many advantages: economy, fewer interior columns, speed of erection, greater design flexibility, simplified installation of mechanical services, low-cost expansibility, and of course, permanence. Want to discuss your next building? Get in touch with our Sales Engineer at the Bethlehem sales office nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.

BETHLEHEM STEEL

Main office entrance. Loose bricks, placed in sand around base of Weathering Steel columns to catch oxidized run-off, will be replaced and mortared after the steel matures.



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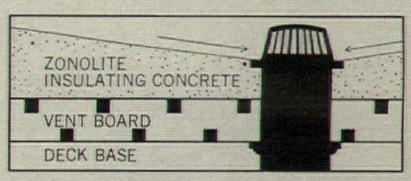

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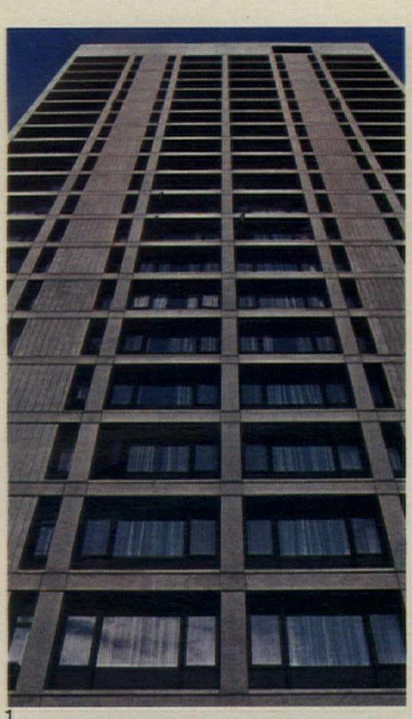

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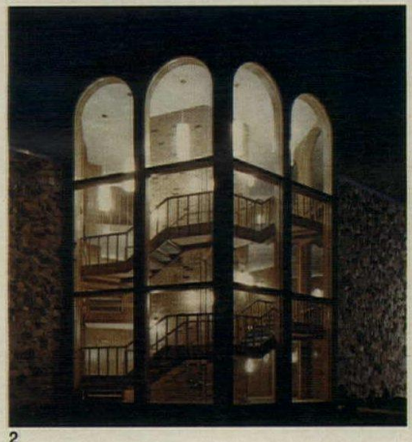

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4

5

1. Residential Complex, The Children's Hospital Medical Center, Boston, Mass. Architects: The Architects Collaborative, Cambridge, Mass.
2. Imperial House Apartments, Kenosha, Wisconsin Architect: Sheldon Segel, A.I.A., Milwaukee, Wisconsin
3. Delta Airlines Waiting Rooms, Standiford Field, Louisville, Kentucky Architect: Pierce, Wolf, Yee & Assoc.
4. Ashland Ski Bowl, Ashland, Oregon Designer: Robert L. Bosworth, Medford, Oregon
5. Bismarck Municipal Airport Terminal, Bismarck, North Dakota Architects: Ritterbush Brothers, Bismarck, North Dakota

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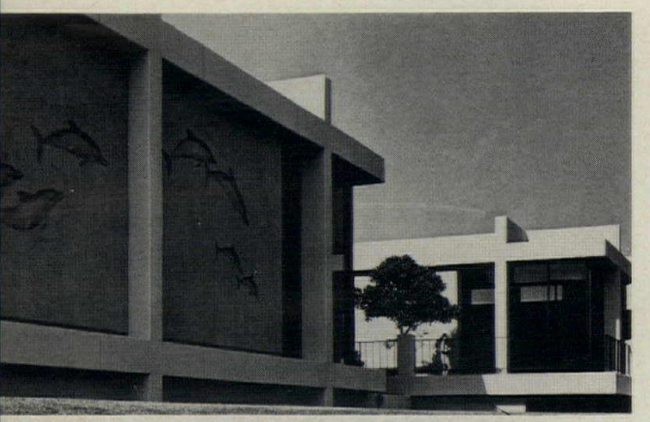

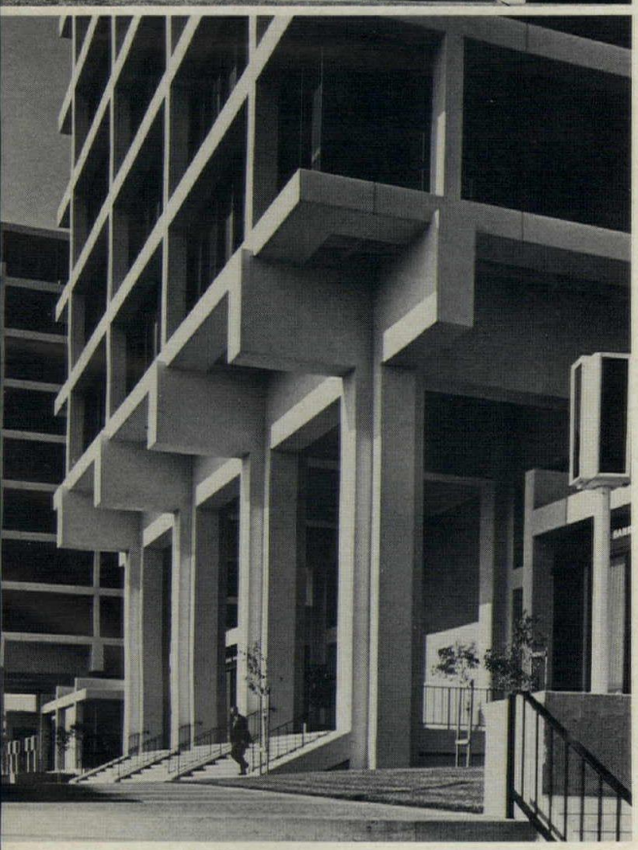

Owner: The Irvine Company.
Architect: William L. Pereira Associates.
Structural Engineer: Brandow & Johnston Associates.
General Contractor: Diversified Builders, Inc.
Ready-Mixed Concrete with POZZOLITH admixture:
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Twin nine-story towers of the new Financial Plaza in Newport Center are forerunners of high-rise structures which will soon transform the skyline of Newport Beach in megalopolitan Los Angeles.

The Plaza is a distinctive addition to an already auspicious neighborhood. The 622-acre Newport Center site already features Fashion Island shopping center, a medical building, an elegant theatre, a resort and convention hotel, and a championship golf course and country club.

Each concrete tower in the $9-million complex is a grid of cast-in-place structural members: slender perimeter columns and horizontal beams. They frame windows of solar gray glass overlooking the Pacific Ocean.

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The functional design demanded uniformly high-quality concrete. *POZZOLITH* polymer-type admixture was specified throughout to improve workability, control setting time, assure early and ultimate strength development, minimize shrinkage cracking, and facilitate finishing of the exposed surface.

As it does on any project, *POZZOLITH* admixture delivers its many performance benefits where performance counts—on the job and in the finished structure. That's why, over the years, *POZZOLITH* has earned the name "The Performance Admixture."

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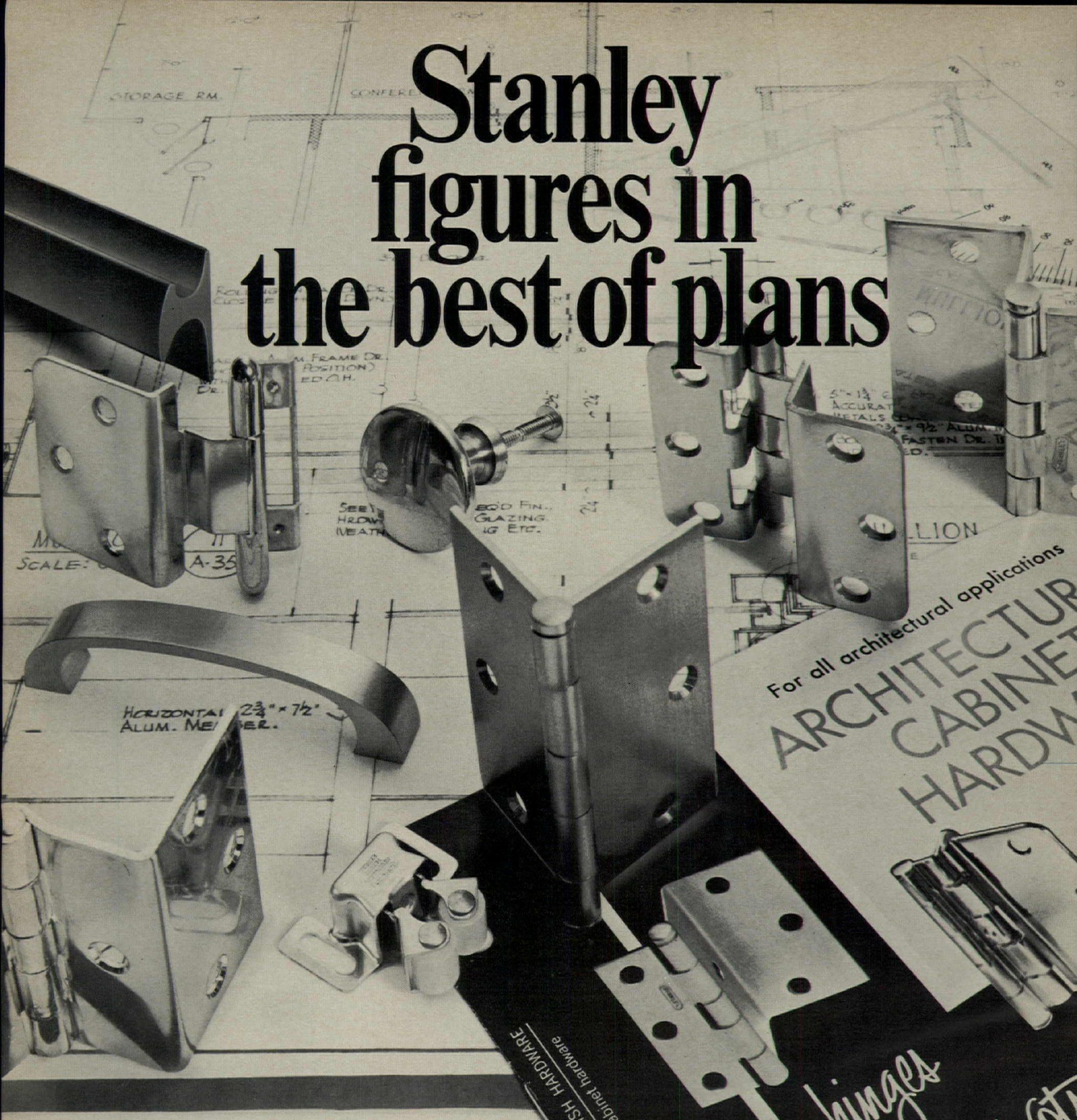

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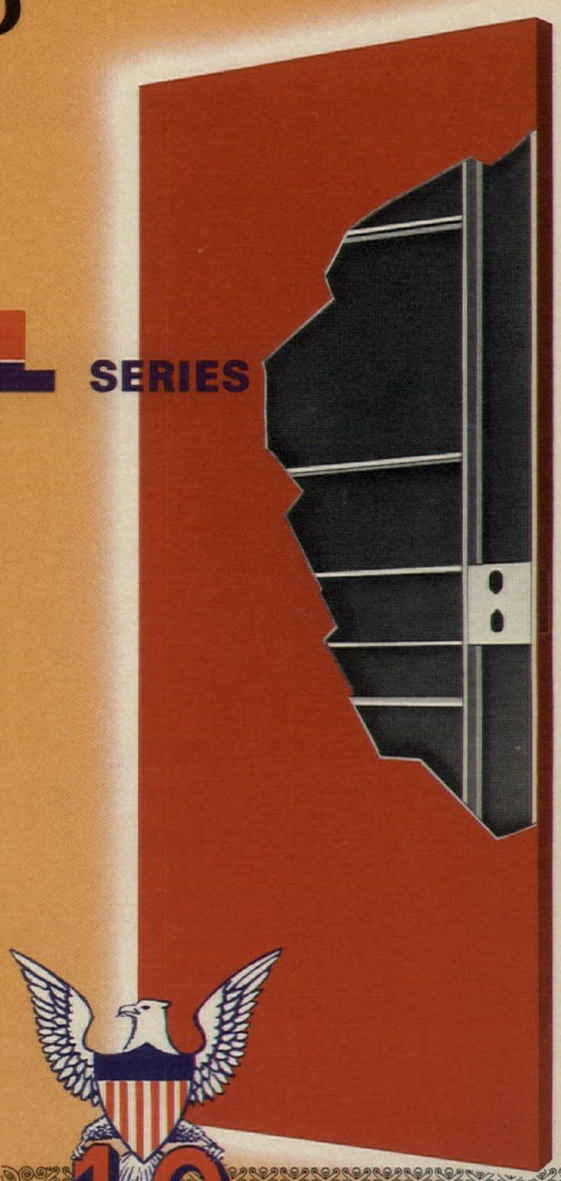

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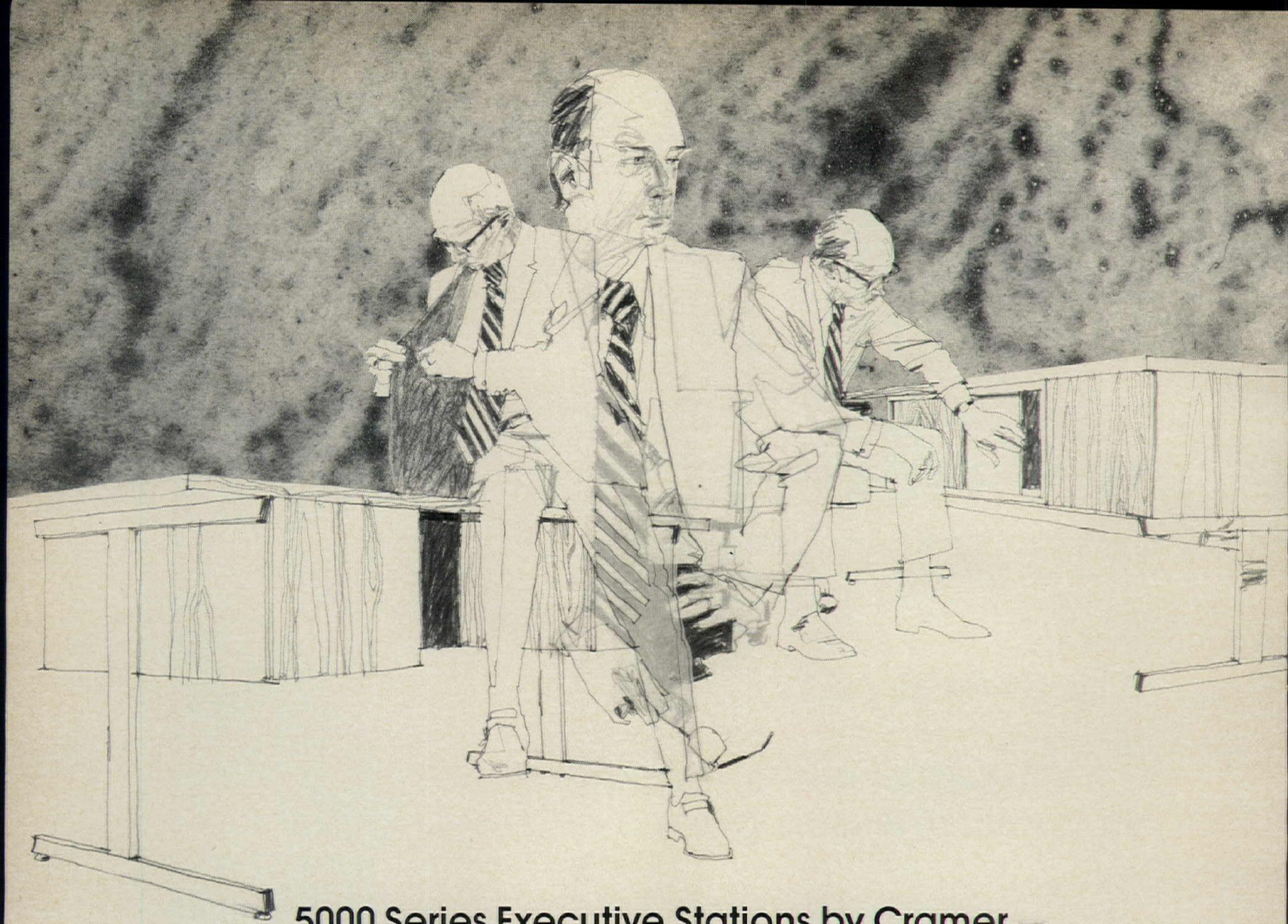

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ACRILAN

Contents

News report

Tampa Picasso to go Chicago one better

Chicago has its giant economy size Picasso sculpture, and now the University of South Florida in Tampa is going to have an even larger one. Titled "Bust of A Woman," the sculpture will be 100 ft high when finished—the largest Picasso in the world.

It will be something of a challenge for J.E. Greiner Co., Inc. whose Tampa office is donating the engineering work. Although the statue will be about 10 stories tall, it will have slender lines and dimensions; complicating the matter is the fact that the sculpture will have to withstand the same sort of environmental forces as any 10-story building.

The engineers' first step was a preliminary structural analysis, which determined the sizes and strengths of materials necessary to withstand gravity and hurricane wind loads. Based on the results of those studies, the firm will prepare sketches of the sculpture using concrete (complete with thickness, reinforcing, prestressing and foundation requirements) or steel frame with steel skin (indicating sizes of elements, skin thicknesses and stiffening and foundation needs). These studies will let prospective donors make their decisions and the type of construction will then be chosen.

Jury for AIA's 1972 Honor Awards includes student

Five architects and a student of architecture have been named to the American Institute of Architects' 1972 Honor Awards jury. Jury members are Henry N. Cobb, New York City, chairman; Antonin Aeck, Atlanta, student representative; Gerald L. Allison, Honolulu; John G. Dinkeloo, Hamden, Conn.; Harry M. Weese, Chicago; Harry C. Wolf, Charlotte, N.C. Milton L. Grigg, the chairman of the 1971 jury, will serve as advisor.

BAC to host international systems symposium

Systems building experts from England, Italy, the Netherlands, Peru, Canada and the U.S. will meet in Boston for the First International Systems Building Round Table Discussion Conference this month. The Boston Architectural Center is hosting the affair, which is set for Nov. 17–19.

The three-day conference will offer an opportunity to hear general experiences in systems building; small seminar groups will allow detailed discussions of specific projects,

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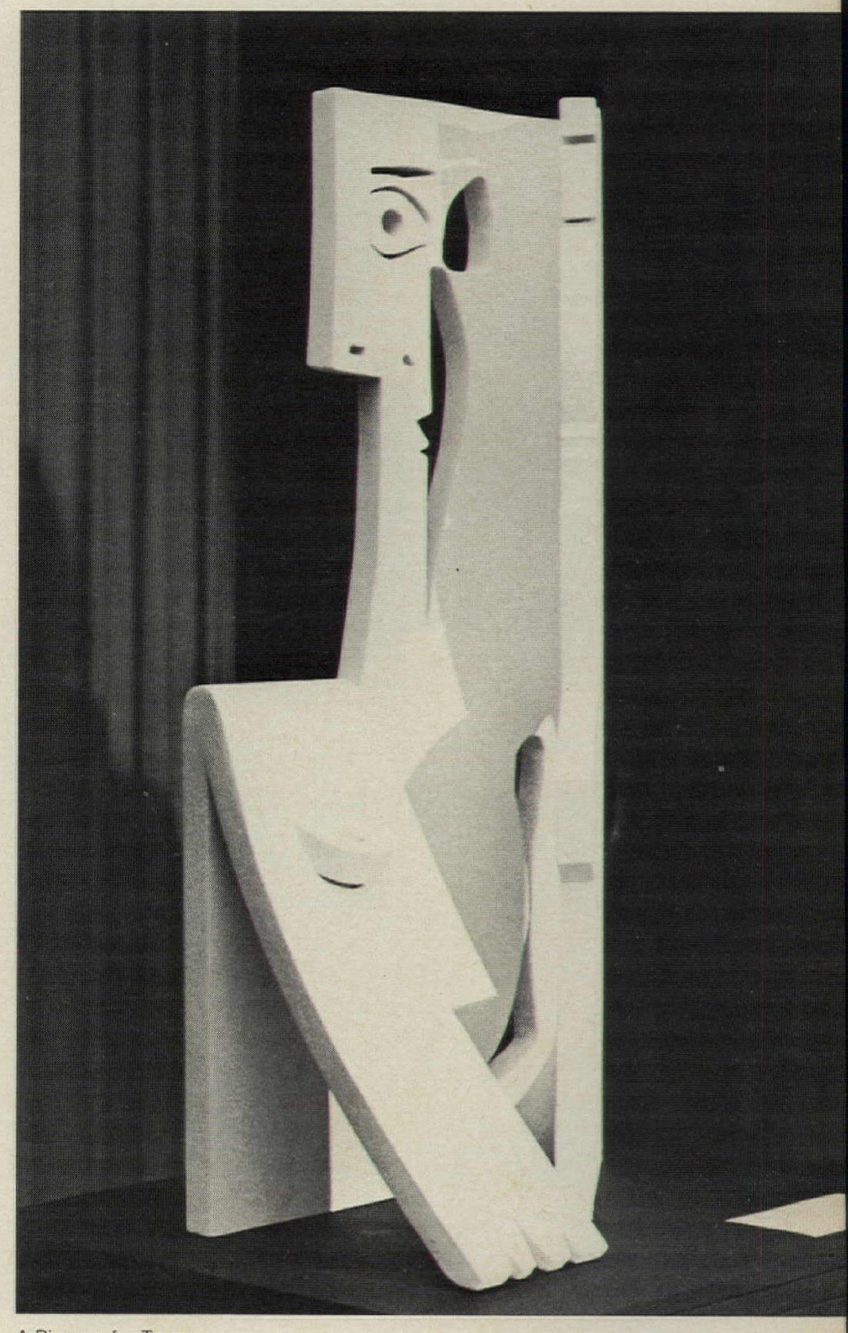
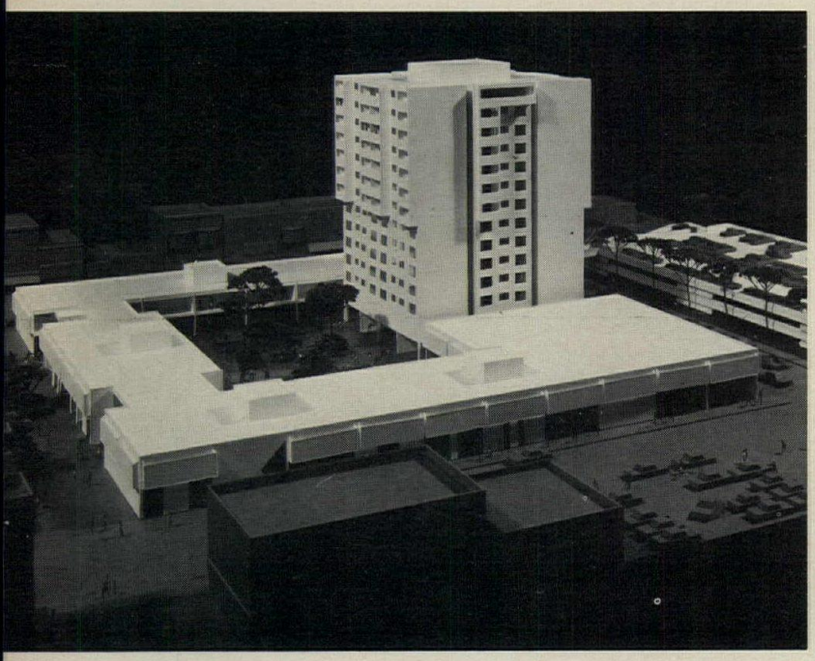


A Picasso for Tampa

Buildings on the way up



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1 One square block in downtown Winona, Minn. has been cleared to make way for commercial, residential and entertainment complex that will be an extension of town's block and a half long mall; enclosed center court-plaza will be ringed by two-story shops and stores, and high rise structure will contain apartments. Cost is put at $4.5 million, with another $500,000 for three-level parking ramp. Apartment tower offers views of the Mississippi from three sides. Setter, Leach and Lindstrom are architects and engineers.

2 Two towers, each 20 stories high and glazed with gold reflecting glass, mark Campbell Centre, an office park being built on a 15.7-acre site in north Dallas, Tex. When completed, towers will be joined by a quarter-mile enclosed mall. First phase (one tower plus its adjoining mall building) is already underway; completion is set for late next year. When first phase is finished, second phase (other tower and mall building) will start, with mid-1974 seen as full completion. Center will be surrounded by 3-story parking structure for 3300 cars; on one side of project, parking garage will be underground. Architects are Neuhaus & Taylor; engineers are: Herman Blum Consulting Engineer (m,e); Ellisor & Tanner, Inc. (s).

3 Modular multi-story prison for New Orleans will hold 1550 inmates when completed. Smaller of six modules are for women and work release prisoners; remaining four are for sentenced inmates or those awaiting trial. Six-story units are classified for maximum, medium or minimum security. Architect is Charles J. Rowe; engineers are Linfield & Hunter (s) and Vivien & Associates (m,e).

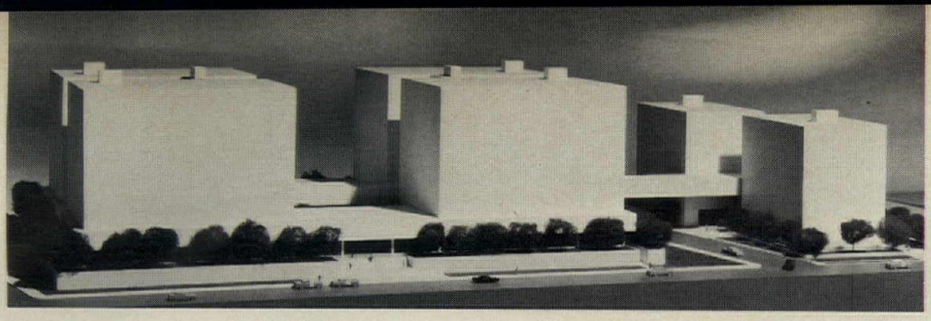
4 Downtown YMCA for San Antonio, Tex. provides usual Y facilities—pool, gym, handball courts, exercise rooms and others—in compact two-story-plus-basement building. Exterior walls are sand blasted warm tone concrete; glazing is dark bronze solar glass. Parking for 80 cars is provided adjacent to building. Marmon & Mok Associates are architects.

5 "Do touch" is the watchword for new science center designed for Detroit, Mich. by William Kessler and Associates. Basic structure of three-level project will be square circulation utility towers and variable sized modular exhibit halls enclosed by a dia-grid roof and floor framing systems. Cores can be rearranged for future expansion. Mechanical system will be designed to re-cycle water, produce minimum pollutants. Among museum's special features is a "sensorium"—an auditorium designed to show impact of natural and physical world on the total senses. First of three phases will break ground in 1973.

6 City court building for Buffalo, N.Y. has steel frame and 18-ft floor-to-floor height; exterior walls are precast concrete with continuous bush-hammered vertical striations. Entrances, window frames and glazing are dark bronze in color. Exterior brick pavers are used throughout first floor. Behind 10-story courts building is 650-car parking structure of precast concrete; paving and exterior lighting will match city court building. Architects for both structures are Pfohl · Roberts · Biggie: total cost is $15,075,811.

7 Tulsa's tallest, the First National Tower, will rise more than 516 ft when completed in 1973. Bank's existing 20-story building and office complex will be tied in to new structure. Designed by Murray Jones Murray, the 41-story building will have a steel structural frame sheathed in pre-cast concrete. Set back from three of the four streets it fronts on, building will provide landscaped and covered pedestrian malls, along with a lower level mall and 300-seat auditorium.

8 Skip-corridor design of 26-story condominium apartment building is reflected on exterior. Corridors occur at every third level, with interlocking two-story units between corridors. Living and dining areas in apartments get view of Atlantic Ocean at Ocean City, Md. Structure is cast-in-place reinforced concrete; structural loads are collected at the raised first floor and transmitted to bearing through 15 clusters of cast-in-place concrete pilings. Play area for children is provided underneath raised structure; adults get cocktail lounge, game room and health club. Architect is William Robert Wakeham of Valand, Benzing and Associates.



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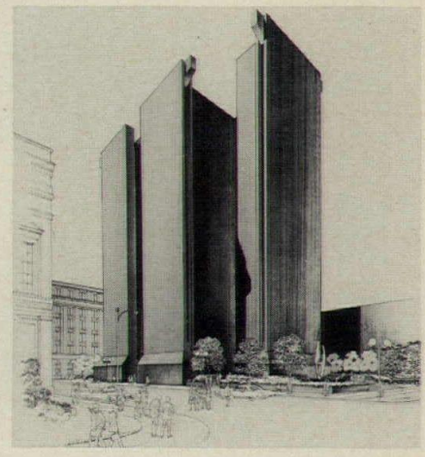

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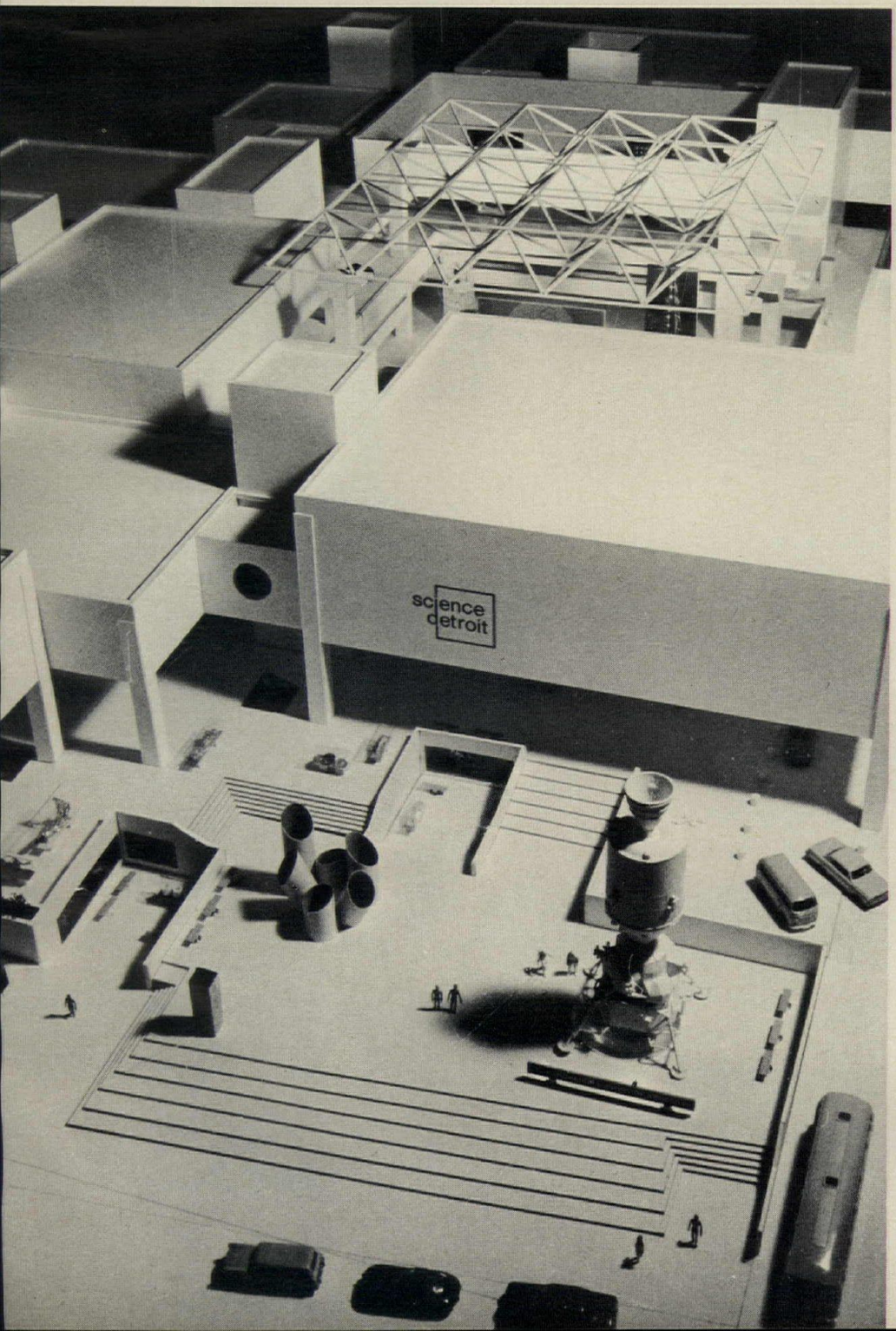

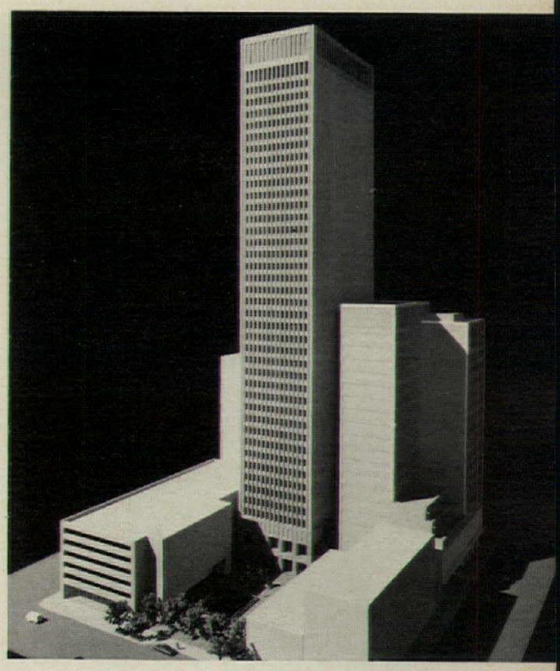

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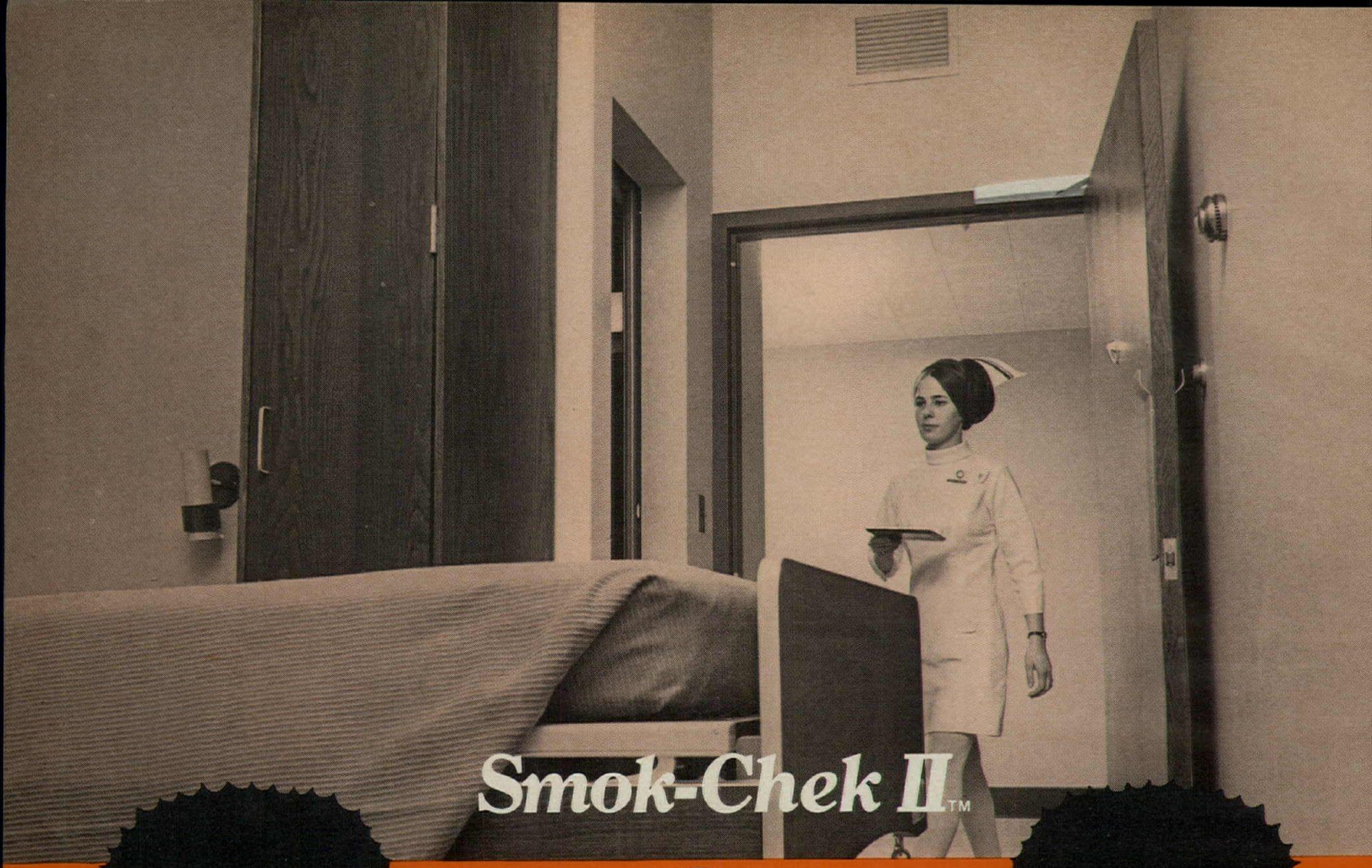

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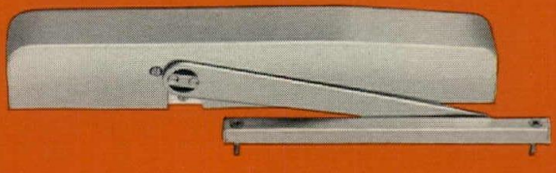

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stressing building types and the roles of the client/user, architect, engineer and other team members.

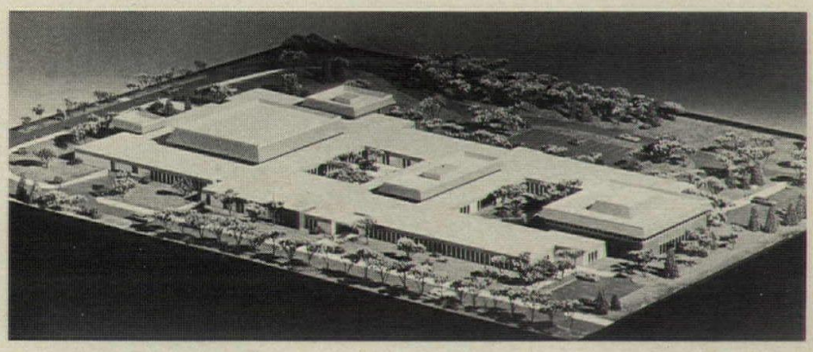
Colin H. Davison is the conference moderator. Among the speakers are Jan van Ettinger, Jr. of Boucentrum in Rotterdam; Ernesto Parades Arana of Lima, Peru; Roderick Robbie of Toronto, and a host of British systems architects. John Eberhard, Ezra Ehrenkrantz and other American speakers will be there also.

Registration for the conference is $100. Further information is available from Ken Wilson, BAC, 320 Newbury St., Boston.

New college campus to echo landmark design

One of the country's great houses, Olana, built in the 19th Century by landscape architect Frederick Edwin Church, is going to get a new neighbor—a community college. Columbia-Greene Community College will eventually move out of its home in an abandoned grade school and a remodeled supermarket and into a new campus designed by Edgar Tafel; the site adjoins Olana.

Construction will start next spring on the $6.2 million campus, designed to accommodate 900 students and 150 faculty and staff members. The plans call for a large one-story building with a two-story library and two interior courts. The 131,000-sq-ft building will house 13 classrooms, lecture halls, laboratories, the library, gym, cafeteria and student center and offices. The exterior brick (cream, rust and dark brown in color), the roof tiles (light green) and window frames (black) will match the colors of Olana; roof forms of the major elements will echo those of the more or less Moorish house.



A new college to echo Olana

U.S. Steel dedicates Pittsburgh headquarters

After being occupied a year, and widely talked about for even longer, the high rise headquarters of U.S. Steel was dedicated in Pittsburgh late in September. Triangular in plan, the 841-ft building boasts a rooftop heliport; fully automated heating, cooling, ventilating and lighting systems; modular floor, ceiling and wall systems and water filled structural columns for fire protection.

Designed by Harrison & Abramovitz & Abbe, with Skilling, Helle, Christiansen, Robertson and Edwards & Hjorth as structural engineers, the building is, as expected, a showcase for its owners. The frame is steel—there are 18 columns, all made of weathering steel, which stand outside the building walls—and the wall framing and window frames are, too. All the exterior steel, in fact, is the self-coating type, which has earned the tower the local nickname, "Weathering Heights."

U.S. Steel

Bridging the shopping gap in Charleston

Squeezed as it is into the narrow Kanawha River valley, Charleston, W. Va. doesn't offer much land for retail expansion; yet as the city and region grow and as new interstate highways make travel through the area easier, expansion will be needed to meet the competition of other shopping areas. One solution, proposed by architect Tinsley A. Galyean, Jr., is to bridge the river with a shopping center.

On the south side of the river, according to Galyean's proposal, would be an eight-story parking building. Built against the hillside and above a railroad line, it would have entrances

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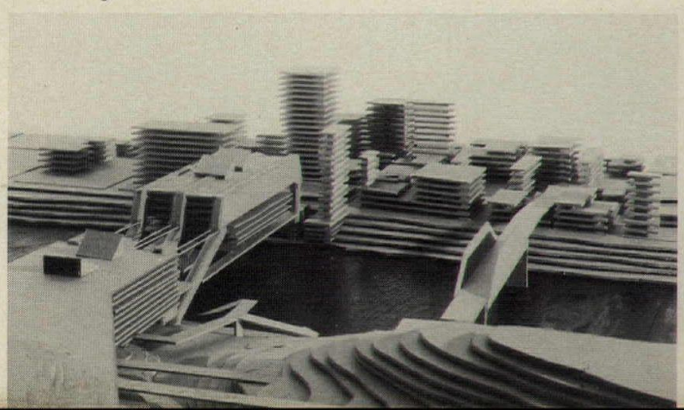
Retail bridge for Charleston



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at the top and the bottom. Three hinged arms, tied to the parking structure by cables, would support the south end of the bridge; on the north bank are upright supports. The bridge's main girder would be made of precast concrete blocks hung on cables which would then be jacked tight against the end supports. The main girder would be three stories high, and below it would hang seven stories of shopping space. A walkway for pedestrians and a roadway for electric minibuses would cross the river through the shopping bridge.

The project is structurally and economically feasible, Galyean says, and it has local support. What's probably more important is that there are developers interested in the $30 million project.

Reynolds nominations open

Nominations for the 1972 R.S. Reynolds Memorial Award for distinguished architecture with significant use of aluminum are now being received by the AIA. They may be submitted on a form enclosed with a brochure mailed to all AIA members, or by letter to the Reynolds Award, American Institute of Architects, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036.

Greenwich Village parade moves plaza to park

There was an unusual parade—complete with music—in New York's Greenwich Village early in October. Local residents, Washington Square bench warmers and anybody else who was interested helped lug 700 glass and cement components across the Village to the Square where they will be assembled to form a 40-ft circular plaza.

The Villagers themselves helped design the plaza, arranging the colored glass into mosaic patterns in 2-ft equilateral triangles. Susan Shapiro, head of the New York Community Arts Workshop, which is doing the plaza, sees it as a "Grauman's Chinese Theater of the people," preserving not footprints, but "visual statements."

The triangular components, which weigh 60 pounds each, were cast and cured in special handmade molds; they are 3 in. thick and reinforced with wire lath. Assembly will take a few months, says one spokesman.

Bubble and cubes house NYC festival

For three summers now, Phoenix House, a New York drug rehabilitation program, has put on a summer event billed as a "Festival of Life." There are events, performances and displays and music, music, music. To shelter many of the activities, architect Yukihisa Isobe has come up with something interesting each summer. This year he designed a "Bubble Habitation"—750,000 cu ft of space inside a plastic bubble. The 170′ x 170′ polyethylene structure, said to be the largest ever made, is supported solely by air pressure and provides room for more than 1000 people.

Isobe also designed a modular structural system that was used for two other festival structures. The modules, cubes 8 ft and 16 ft on an edge, were made of plywood and 2 x 4s. Six square surfaces make a cube; three of the joining surfaces were taken out of each cube and the cube was then placed on the points, forming a tripod cone. From this system, Isobe designed a "play sculpture maze" of 17 of the 8-ft tripod

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cones bolted together and painted in bright colors. For a graphics art booth, he used one 16-ft module raised 4½ ft above the ground.

Stamford architect runs for mayor

After a decisive victory in the city's Democratic primary, Stamford, Conn. architect Thomas Hume is campaigning for mayor. Long active in civic affairs, he had never really thought of running for mayor, he says, until local party leaders convinced him that he had what it takes to run for office.

That "political awakening" was preceded by an "architectural awakening," Hume says. He realized that as an architect he had little or no control over the forces—economic, political and social—that "say what gets built and where it gets built." As mayor, he feels he would have more.

Obviously, Hume is not the only architect this directly involved in politics. P/A would like to hear from others who are.

Self-service bank: no bankers, bankers' hours

An employee-less self-service bank planned by a Columbus, Ohio bank will make bankers' hours a round-the-clock proposition. Instead of tellers, the Handy-Bank as the Huntington National Bank calls it, will employ a machine for deposits, checks and loans; a currency and coin changer; and a direct telephone to the main bank. Huntington plans to put the self-service units into high traffic locations such as convenience shopping areas; the first is to open early in 1972.

Along with the banking equipment are other services: a pay phone, a postage stamp machine, a night depository. There will be promotional material for other bank services and for security's sake a closed circuit television camera and video tape machine.

Venturi at the Whitney: message into medium

Everybody, it seems, has an opinion about Robert Venturi and Denise Scott-Brown, and whether it's pro or con, that opinion is strong. Whatever the opinion, last month's exhibition at New York's Whitney Museum of the work of Venturi and Rauch will probably reinforce it.

As if to show that the message can indeed become the medium, the exhibit was designed by Gerod Clark and Steven Izenour to look like a pair of gigantic billboards. Plastered on them was a montage of sketches, photos and words, augmented by films of Las Vegas and Levittown, covering projects that range from individual buildings to city plans, advocacy planning and research studies.

Venturi talks about his buildings as being dumb and ordinary, a form of verbal overkill, for what he's really saying is that they aren't extraordinary. Maybe not, but Venturi is.

Carpet, carpet everywhere

The governor was there, backed up by the mayor, a Boy Scout Troop and Miss Georgia, to take part in the dedication of the national headquarters of the Carpet and Rug Institute. The Dalton, Ga. building was designed by Derthick & Henry.

Simple on the outside and open on the inside, the building sits on a wooded slope overlooking an interstate highway. The first floor houses a reception area, a sunken conversation area in the center of the floor, a library and an exhibit area which includes a working model of a vintage-1800 loom. The upper floor is open at the center and overlooks the first floor; it houses, besides offices, a board room and a confer-

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ence room. Hanging partitions are covered on both sides with rugs and carpets.

It's a train, it's a plane, it's Cushion Rail

It may not be able to leap tall buildings in a single bound, but a new transportation idea known as Cushion Rail might do a few things locomotives can't. The inventor, Dr. Wayne M. Mann, of Citrus Heights, Calif., says it will answer one big problem—how to make public transportation operate in the black.

Cushion Rail is a module-carrying jet-powered vehicle that rolls on wheels at low speeds and uses an air-foil design to provide lift at high speeds, cruising along at 400 to 450 mph on what the inventor calls "slippers." It won't stop to pick up passengers or cargo; instead it would slow down to 100 mph to tie in with a series of shuttle systems in which smaller vehicles, their speeds synchronized, run on parallel tracks.

The vehicle will look more like an airplane than a railroad car, says Mann, and it will be built to aircraft standards. Mann has considered the objections of environmentalists in his plans: the device needs only 5 percent fuel consumption for takeoff purposes; natural gas is the basic fuel, but when the vehicles are running on wheels, they will be driven by electric motors. Sound deflectors attached to the track will keep noise levels low at high speed.

The proposed system has been shown to the Department of Transportation, and Mann and his backers are trying to get permission to use government facilities to test a nearly completed scale model. Test speeds would range from 200 to 600 miles per hour.

Awards

Top awards in the 1971 Awards Program of the Prestressed Concrete Institute were given for 11 structures. Winning projects were: American Can Building, Greenwich, Conn. (**Skidmore, Owings & Merrill**, architects; **Paul Weidlinger**, structural engineer); American Life Insurance Building, Wilmington, Del. (**I. M. Pei & Partners**, architects; **Weiskopf & Pickworth**, structural engineers); **Florida State Museum, Gainesville, Fla.** (**William Morgan**, architect, in association with **Forrest M. Kelley, Jr.**, architect to Florida Board of Regents; **Keister and Kelley**, structural engineers); Headquarters Building for Department of Housing and Urban Development, Washington, D.C. (**Marcel Breuer & Herbert Beckhard** and **The Nolen & Swinburne Partnership**, architects; **Paul Weidlinger**, structural engineer); Indiana University Libraries, Bloomington, Ind. (**The Eggers Partnership**, architect; **James Associates**, associate architect; **Floyd E. Burroughs & Associates, Inc.**, structural engineers); Lyndon Baines Johnson Library and Sid W. Richardson Hall, University of Texas, Austin, Tex. (**Skidmore, Owings & Merrill** and **Brooks, Barr, Graeber & White**, architects; **Paul Weidlinger** and **W. Clark Craig & Associates**, structural engineers); Memorial Medical Center, Sterling Heights, Mich. (**Savin Wycoff Phillips, Inc.**, architects; **I. Daniel Peisner**, structural engineer); Office Building for North Carolina Farm Bureau Federation, Raleigh, N.C. (**Owen F. Smith**, architect; **Shelton Y. Adcock**, structural engineer); Office for Barrett Daffin and Figg, Tallahassee, Fla. (**Barrett Daffin and Figg, Architects, Engineers, Planners, Inc.**, ar-

[continued on page 44]

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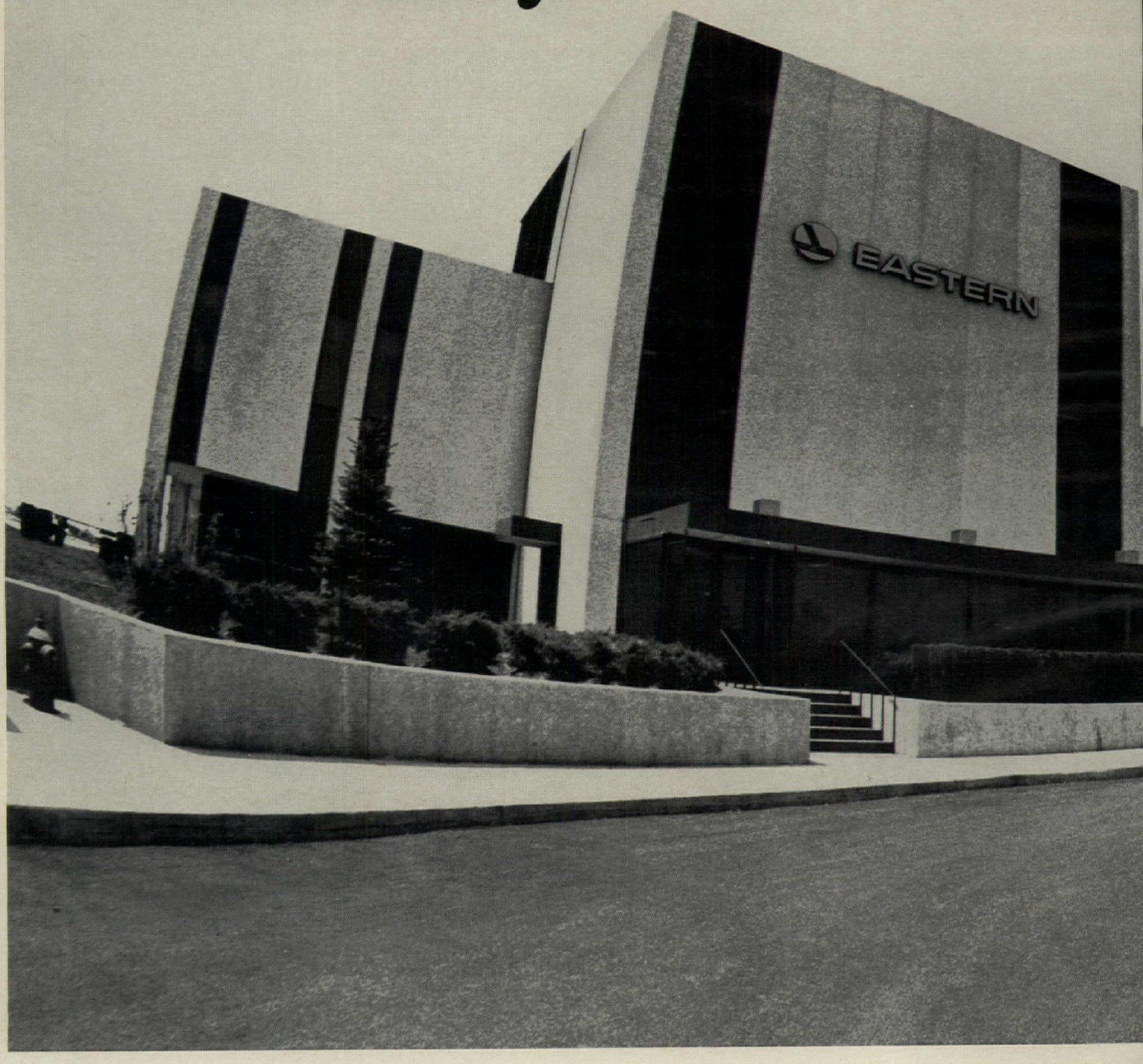
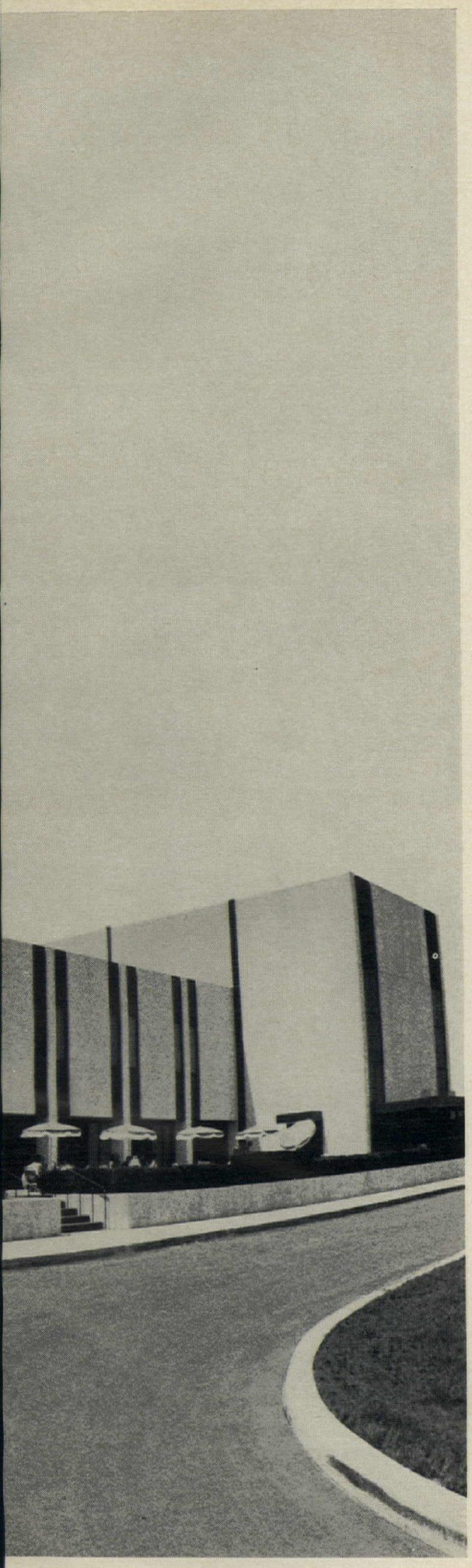
The electric climate is for architects who want unlimited design flexibility.





Read how it helped Holabird & Root design a 5-million dollar airline reservation center that saves thousands of dollars annually for its owners.

Before designing the new Eastern Airlines' reservation center in Oak Brook, Illinois, architect-engineers Holabird & Root of Chicago had studies done to determine the most favorable environmental system for their client. The findings? *The electric climate* won out over all other systems.

By planning everything electric, including the heat, the architect-engineers *and* their client benefited. The architects could design with unlimited imagination because there's an electric system to fit any building. And Eastern Airlines? They got first cost savings with *the electric climate*! Furthermore, they saved time, space and money–because electrical equipment is easy and fast to install, is compact and doesn't require a large maintenance staff.

Your electric utility company can tell you how *the electric climate* can add new flexibility to your next architectural assignment. Call them today.

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News report continued from page 40

chitect and engineer); Philadelphia Veterans Stadium, Philadelphia, Pa. (**Hugh A. Stubbins, Jr.**, executive architect and designer; **Stonorov and Haws, George M. Ewing Co.**, associated architects; **McCormick and Taylor Associates**, structural engineers); Stafford Road Interchange Pacific Highway, Washington County, Ore. (**Oregon State Highway Div.**, engineer). Three Awards of Honor were given in the 1971 Awards Program of the Michigan Society of Architects to **Smith, Hinchman & Grylls Associates, Inc.** (Michigan Bell Telephone Co. Woodward District Plant Office and Garage, Detroit); **Swanson Associates, Inc.** (Condominium Group No. 1, L'Arbre Croche, Harbor Springs, Mich.); and **Tarapata-MacMahon-Paulsen, Inc.** (Birney Elementary School, Detroit).

Calendar

Nov. 16–18. National Fire Protection Association Fall Conference, Sheraton Cleveland Hotel, Cleveland, Ohio.

Nov. 17–19. First International Systems Building Round Table Discussion Conference, Boston Architectural Center, Boston, Mass.

Nov. 29–30. Second Architects/Engineers Conference on Federal Agency Construction Programs, Chase-Park Plaza Hotel, St. Louis, Mo.

Personalities

Wayne F. Koppes, architectural consultant in Basking Ridge, N.J. has received the American Society for Testing and Materials Award of Merit and was named an ASTM Fellow.

John Everetts, Jr., has retired as professor of architectural engineering at The Pennsylvania State University, with the rank of professor emeritus.

Walter Eugene George, Jr., formerly with the firm of Page Southerland Page of Austin, Tex., has become resident architect for The Colonial Williamsburg Foundation.

Benjamin Thompson of Benjamin Thompson & Associates, Cambridge, and **Frederick A. Stahl** of Stahl-Bennett, Inc., Boston, have become members of the Design Advisory Committee of the Boston Redevelopment Authority.

William G. McMinn AIA has been appointed professor and head of the department of architecture at Louisiana State University.

Bernard Zimmerman AIA has been named to the board of the Southern California Chapter AIA.

Louis Menk FAIA received the Gold Medal Award for 1971 of the Michigan Society of Architects.

Charles Thomas Stifter and **Noel Michael McKinnell** have been named professors of architecture at the Harvard Graduate School of Design. **Robert B. Newman** was named professor of architectural technology.

Olivio C. Ferrari and **Alan W. Steiss** have been named assistant deans at Virginia Polytechnic Institute and State University's College of Architecture. Ferrari is assistant dean for the division of architecture and environmental services; Steiss, for the division of environmental and urban systems.

Clarence M. Rosa FAIA is a new director of the Michigan Region of the AIA.

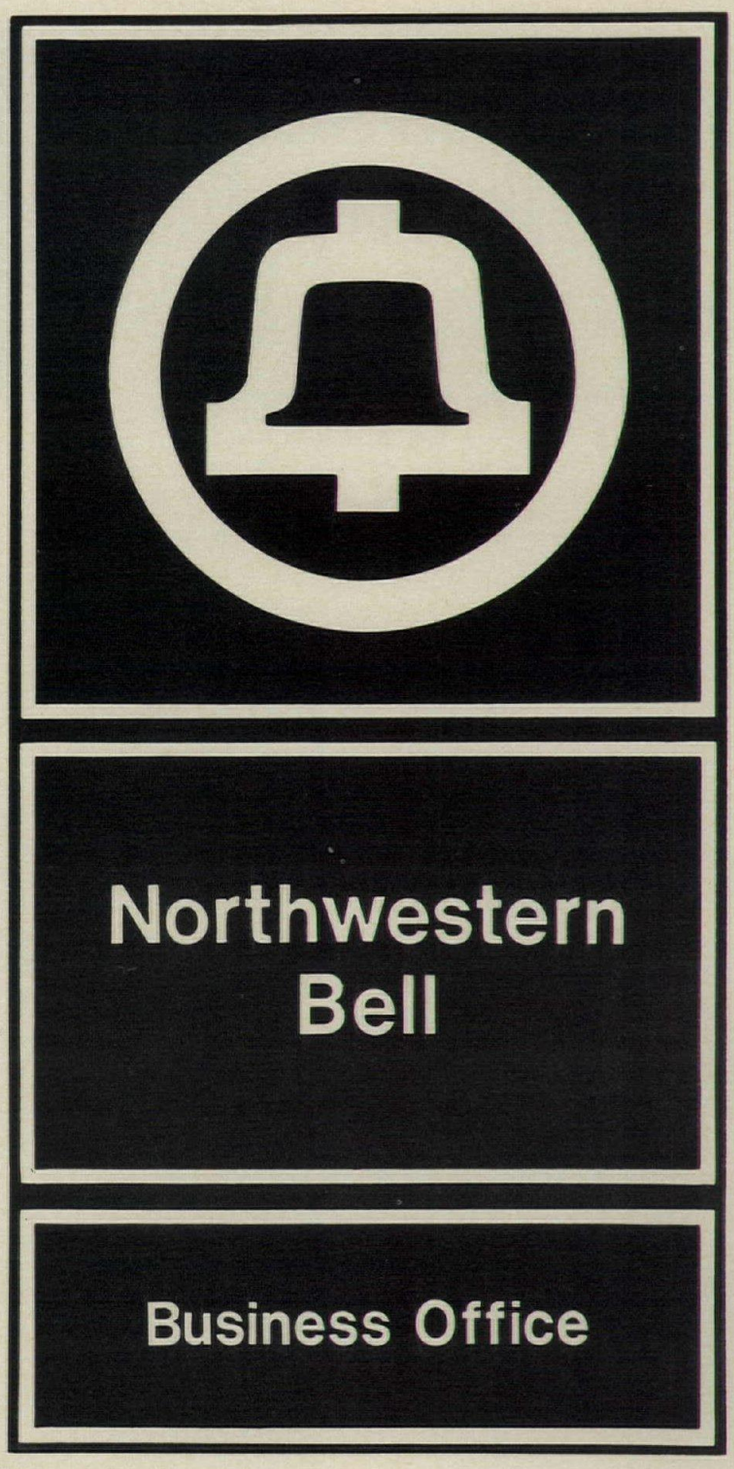
Richard A. Little, executive vice president of the Flint, Mich. firm of Samborn, Steketee, Otis and Evans, Inc. has been appointed university architect at the University of Michigan.

[continued on page 48]

Identify with metal

. . . and Matthews

See us in Sweet's Ⓢ Architectural Design File 10.14.



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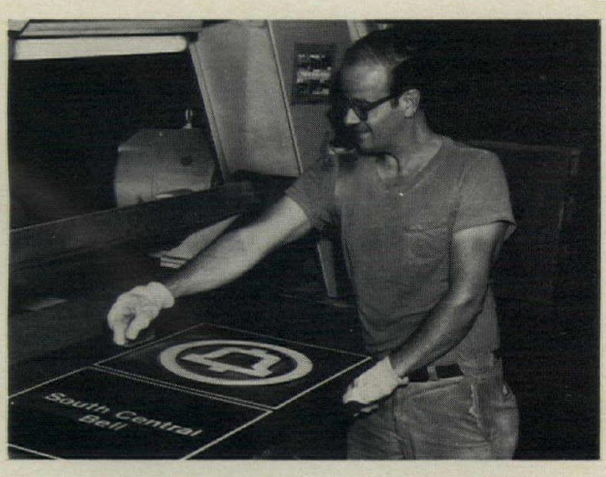

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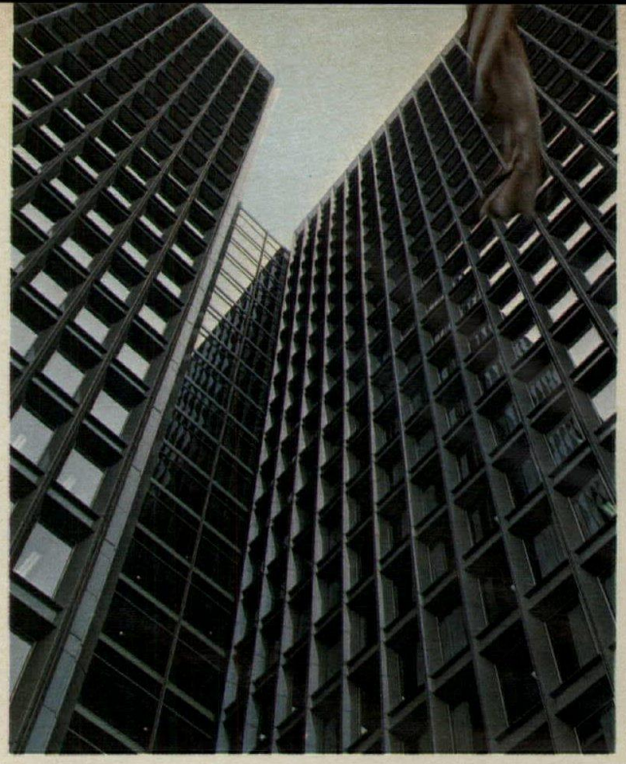
SUN CITY, CALIFORNIA; SENECA FALLS, NEW YORK; EL MONTE CALIFORNIA.

If granite is so hard to install, why didn't someone tell First Federal Savings and Loan, Detroit?



Sure. They'd heard the myth about granite posing costly installation problems. But they also knew you can't plan buildings on myths, so they went over the facts about Cold Spring granite with their architect. And they liked what they found: the natural beauty of Cold Spring's polished granite resists weather, stains and all types of traffic as no other building material can; it won't fade or deteriorate; it requires virtually no maintenance; it comes in a wide spectrum of colors; *and . . . it's economical to install, thanks to Cold Spring's development of new fabrication techniques that include improvements like steel-backed granite panels.*

In fact, they liked the idea well enough to use granite inside as well. In heavy traffic, high wear areas like check writing tables, teller's counters, and the wall facing that encloses the elevators.

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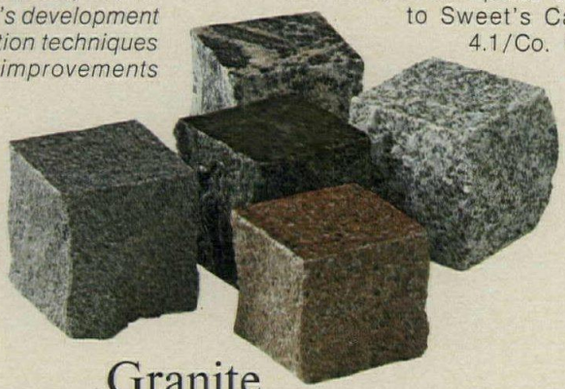

Granite
can color
your thinking.

First Federal Savings & Loan,
Main Office, Detroit, Michigan
Architect:
Smith, Hinchman and Grylls
Contractor:
Fuller Construction Co.
Granite:
Dark Pearl

COLD SPRING GRANITE COMPANY / COLD SPRING, MINN.

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U.S.MAIL

News report continued from page 44

Herman D.J. Spiegel was appointed dean of the faculties of design and planning and director of studies in architecture at the Yale University School of Art and Architecture.

Washington report

Turnkey contracts: promise or threat?

Engineering professionals were hastily marshalling all available forces, in early fall, to combat a move they saw as a major threat to all the design professions: Federal actions to encourage turnkey contracts. For the moment, the proposed federal action struck directly at engineering consultants, with architects affected only peripherally. But the threat to all was clear enough.

What happened was that the Environmental Protection Agency, bulling its way toward accomplishing its Presidential mandate, announced (in mid-September) a "proposed regulation" that would "encourage" municipalities to use contracts making a single contractor responsible for design, construction and operation (for a specified period of time) of waste treatment plants, to insure that the new plants meet all water quality requirements.

EPA happily ground out a press release on its action, with Administrator William Ruckelhaus hailing the idea as (1) assuring that projects would meet all water quality standards; (2) shortening the time-lag between the initial application for a federal grant and the start-up of the completed plant; (3) encouraging use of new technology, since the turnkey contractor must guarantee performance. EPA added another requirement: Projects would not be advertised or put out for bids until the final design or performance plans and specifications had been approved by the agency.

That brought immediate opposition from such organizations as the prestigious Consulting Engineers Council, obviously smarting because it hadn't been consulted by EPA, which argued that turnkey is no insurance that a better, faster, less expensive job will be done. Said William A. Sowers, CEC president, "turnkey may produce plants that are both unsatisfactory and more expensive."

"Independent professions are looking for the best solution to each community's wastewater treatment problems, cost and other factors considered. Turnkey firms, on the other hand, frequently operate with an engineer as subordinate to either the contractor or the manufacturer, and as such, are locked in to a single process which may or may not be appropriate for a specific community's needs ... Under such circumstances, economic conditions related to construction or proprietary products may overrule professional ... considerations."

The designers also challenged a stipulation in EPA's proposed rule that contracts be awarded on the basis of the lower acceptable bid—a direct counter to codes of ethics of most U.S. professional societies. And they pointed out a final anomaly: How could design and performance plans—required to be approved by EPA before projects are advertised—be prepared without the services of consultants? The only alternative would be a two-step process, in which design would be prepared separately either on bids, or more likely by the same turnkey firms who would later bid on the actual performance. CEC suggested that most of the delay in obtaining federal grants lies in local and federal red-tape mazes, not in design, and could be ended by administrative action.

CEC's protest brought immediate support from the Water Pollution Control Federation, which scheduled a joint meeting early in October to discuss future action. Meanwhile, professionals wanted to make enough noise to alert other design specialists to the danger that they saw: if EPA is able to get its ideas through, then other federal construction agencies would follow, in building work, highways and the like.

The furor over contract form arose at a time when professionals had some other key concerns in the Capital. For one thing, Congress was beginning to grind through some of the numerous bills now before it concerning such matters as establishment of a nongovernmental building materials and codes coordinating commission; national land-use planning legislation, which would set up a sort of national zoning ordinance for vast areas of the U.S.; the content and enforcement of local building code ordinances, and their effect on costs and type of construction (particularly housing). AIA and other groups appeared before Congressional committees on these matters—in one instance (on building codes) arguing that local communities are not yet completely able to handle all code regulations without some sort of federal direction.

In an unlikely turn of events, the Federal Trade Commission suddenly appeared in the middle of the building industry. It started hearings in New York City on various aspects of building, with particular emphasis on practices that affect the cost of housing. Such matters as building codes, labor practices, zoning ordinances, availability of finance, materials used came in for discussion. The purpose, said FTC, is to gain a basis for legislation to be recommended to Congress, presumably to extend FTC's regulatory power to these areas.

On the nongovernment side, the Building Research Institute concluded its annual fall conference, a two-day series of panel discussions that concentrated on "coping with uncertainty." Detailed discussions were devoted to the creation of convertible space to cope with changing requirements of businessmen, schools and universities and homeowners and renters, and to fire safety, systems building and the growing use of plastics in the construction industry.

And all concerned in the construction industry were closely watching a financial phenomenon: housing continued to run counter to all trends, jumping up again in August to an annual rate of 2.228 million units (not even counting some 500,000 mobile home units)—an alltime record. At the same time, however, the general construction picture showed some sign of faltering, though the portents were admittedly early and sketchy. Nevertheless, total construction as of the end of July was reported at an annual rate of $104.1 billion—healthy enough and well above 1970, but a drop of about $700 million from June. It is worth noting that the annual rate of new construction seems to have peaked in April, and hasn't risen since, according to Census Bureau figures.

This was one of the reasons that as part of his new economics "game plan" the President moved fast to direct Federal Housing Administration, Federal National Mortgage Association, and other agencies to pump more money into housing, through additional funds, reduction of collateral requirements on lending institutions and other devices. The objective is to sustain the housing boom in the economy. [E. E. Halmos]

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Architecture west

With his resignation this fall after 11 years as director of the Graham Foundation for Advanced Studies in the Fine Arts, John Entenza rounds out a 33-year commitment to architecture. The first 22 were spent editing and publishing *Arts & Architecture* magazine in Los Angeles.

When he bought A & A in 1938 it was a staid, poorly designed journal publishing the best local eclectic work—Andalusian to Monterey. Buying it took a certain daring because there is no faster way to lose money than on a little magazine, unless it is on a little theater.

His transformation of the contents and format was reckless during the depression years. How many people in Southern California were there to support a magazine devoted strictly to modern architecture *and* modern music *and* modern art? The answer: a great many. A & A was a rallying point for those ready for change. It created a climate in which architectural and other talents developed—designers of furniture, textiles, lighting fixtures, graphic designers, photographers.

Entenza began early to cut A & A away from its regional moorings; his first act was to delete the word California from the title. The east and Europe were represented in buildings or projects. It was soon a haven for the critical article too long for the eastern architectural journals.

At the end of the war he initiated his famous Case Study House program in which A & A was the client for eight houses by eight architects, each of whom was invited to experiment in materials, plan and form. Most of them were local but Wurster and Bernardi, Ralph Rapson and Eero Saarinen were also selected. Some remained projects but in the continuing program nine houses were completed in the first five years—by Davidson, Neutra, Abell, Wurster, Eames, Saarinen, Soriano and others.

In the next years there was a crop of third generation moderns brought in. Craig Ellwood was only 30 when he designed his first Case Study, and Koenig was 33. What is best remembered today about the program is the steel-framed houses by Eames, Soriano, Ellwood and Koenig. Their fame extended to Europe and Japan. A Japanese architect described them to me as "the only victory we knew in Japan after the end of the war. We passed each issue of A & A around among us until it fell to pieces."

The magazine performed another function for young Los Angeles architects. It was a kind of wailing wall for those having trouble getting or keeping clients. The red Eames chair facing Entenza's desk was occupied often by someone needing encouragement. Entenza's quick sympathies and wit tided many of them over a rough period.

When he sold A & A in 1961 to David Travers (after commuting for a year between Chicago and Los Angeles) it had taken its place among the prestigious architectural journals. It had also left a good cultural silt on Los Angeles. (The pressures of rising costs forced Travers to suspend publication in 1967.)

By the time Entenza took over the directorship of the Graham Foundation he had acquired a special knowledge of architects and architecture. I don't think he ever separated the two. He was sensitive to the impatience of the young who had something to say and no one to listen; he was equally attuned to the aging architect who had fought hard and was tired. Entenza has a long memory for those who have made singular contributions, and he seems to think they deserve hallelujahs, even if sometimes their desire for absolute control of the orchestration poses a problem.

With his sense of fair play, which comes right straight out of the 19th Century, and his streak of Calvinism, which demands character and industry to go hand-in-hand with talent, he was a perfect choice for the Graham job.

Graham is a small foundation with modest funds, and to distribute them broadly and effectively required as much imagination as wisdom. Entenza began by uncovering areas where grants could be decisive. He anticipated needs. He would call it "goading a situation into being." It was the same approach as he had used in the Case Study House program—watching first-rate ideas rise and then finding a way for them to be heard. The ideas might be conflicting; it was good if they were. What was important was the quality of the thinking.

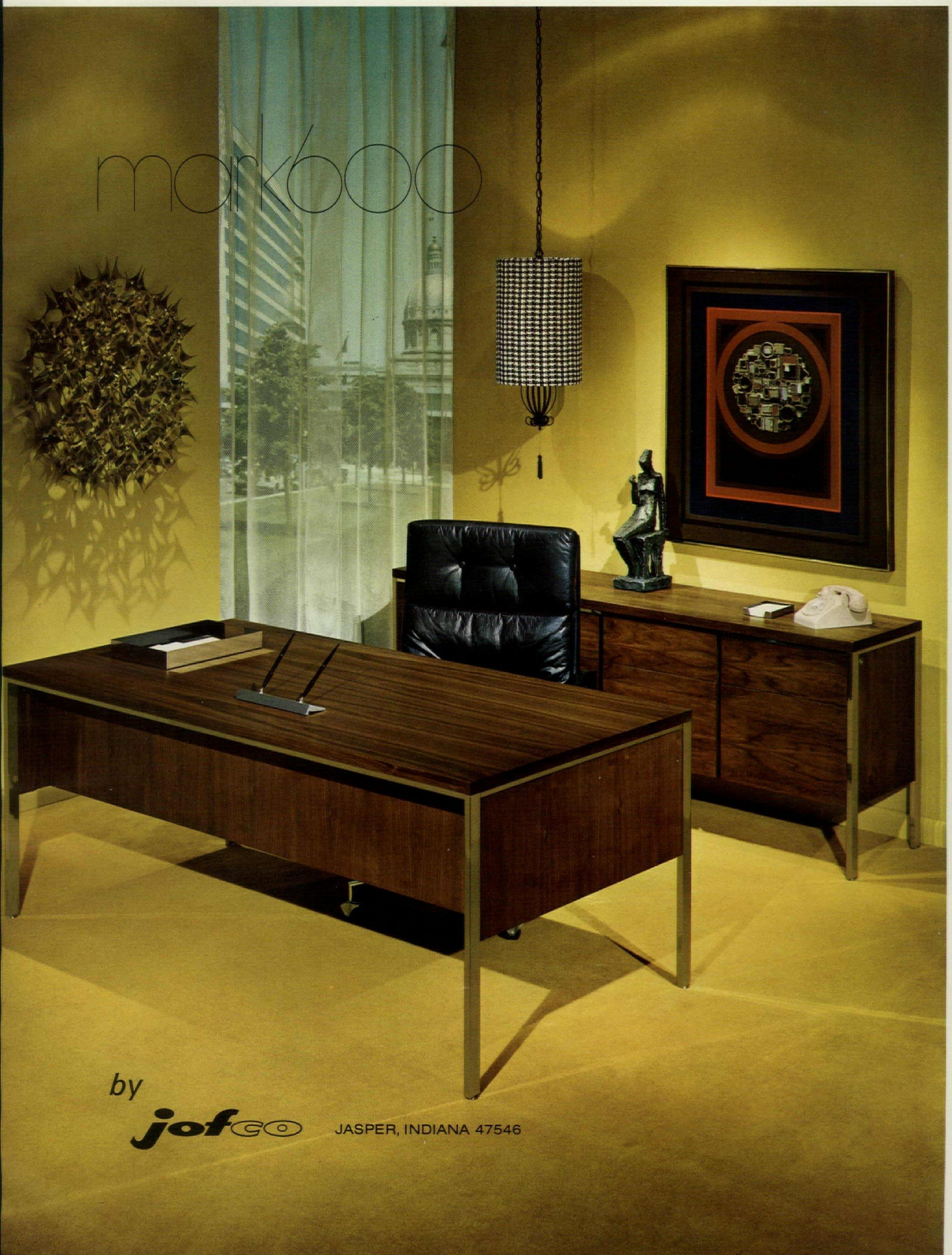
A chain of firecrackers

Funds went for the exhibition of such disparate work as that of Frei Otto at the Museum of Modern Art, Robert Venturi and John Rauch at the Whitney and Konrad Wachsmann at USC. He solved the problem of helping students by putting limited funds at the disposal of the faculty to apply in small doses; this has kept a number of brilliant students from dropping out. Funds were often pooled with those of institutions for ventures such as the joint publication with MOMA of "Papers on Architecture." Initiating grants were given to faculty members at various schools to prepare evidence of the value of a long term study. One of these went to Ralph Knowles at USC, whose problem was aimed at taking the environmental load off buildings through an analysis of the behavior of materials and shapes in different climates.

They were a chain of fire crackers rather than the sky rockets of the big foundations. But they illuminated all sorts of new dark patches in the communication of ideas.

It is hard to imagine Entenza away from a desk. During his years as editor of A & A he couldn't have left California more than half a dozen times. He doesn't avoid travel, he simply makes plans and postpones them. Perhaps he'll write a book. Yet he has had two platforms from which to speak out but let the contents of A & A and the quality of the Graham grants express his views. He prefers not to speak publicly although he does it with grace and wit.

One thing is certain, he will not write his memoirs. He always deals steadfastly with the present. [Esther McCoy]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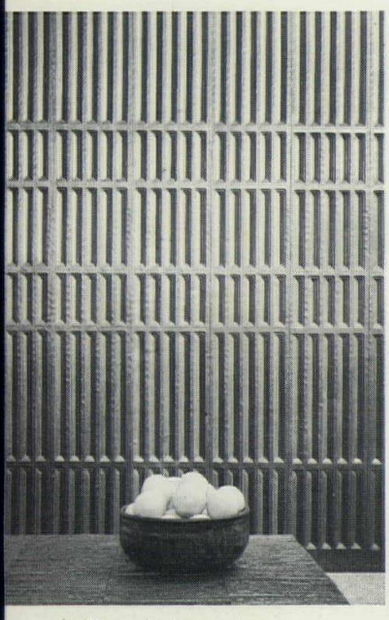

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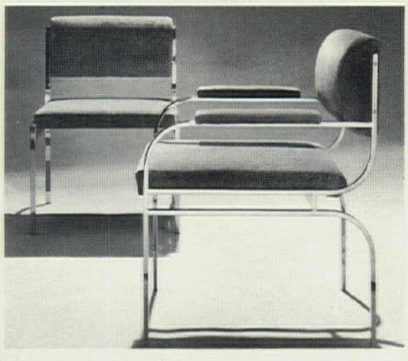
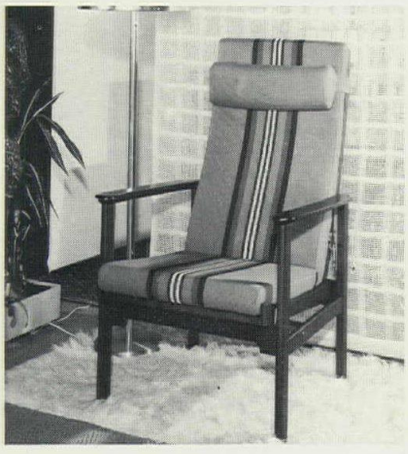
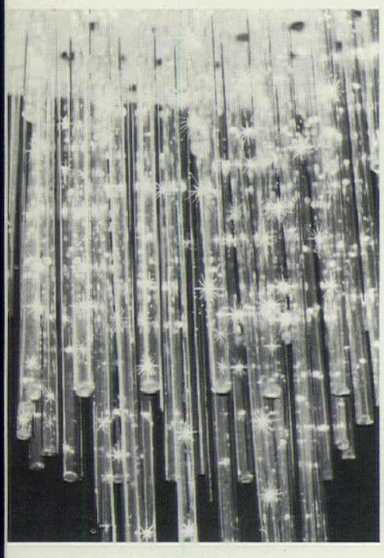


Stainless steel



Furniture for the elderly



Lighting tubes

Planters

It's square. Surface mounted, square lighting fixture suitable for such commercial applications as office buildings and department stores. Baked white enamelled steel basket is contrasted against black housing. Available in 2′ x 2′ and 3′ x 3′. Smithcraft Lighting Division, Keene Corp.
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Carved. Wood panels in geometric and abstract patterns are suggested for walls, doors and other applications. Designs are carved from ¾″ thick by 11¼″ wide vertical grain redwood in standard lengths of 96″ and in other lengths and woods on special order. Tongue and groove detail permits ease of assembly. Forms & Surfaces.
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Lighting tubes. Miniature lights within plastic tubing offer varied design possibilities. The tubing comes flexible or rigid—can be formed to the user's needs or used for permanent-shaped rigid designs. Lamps are spaced at a choice of specific centers. For indoor or outdoor use. Gruen Lighting.
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Stainless steel. Upholstered furniture in stainless steel complements this firm's stainless collection of tables, shelves and etageres. Pull-up or dining chair is upholstered in velvet. Brueton Industries, Inc.
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Spiral. Adjustable spiral stairs fit into narrow spaces, come in stock sizes, adjust in floor-to-floor height from 8′7½″ to 10′. Reversible treads to fit left or right hand conditions are available in plain tread that can be floored or carpeted and diamond tread for exterior use. Logan Co.
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Furniture for the elderly. Based on 10 years of research and human engineering studies, this furniture has been designed to answer the special needs of senior citizens. Chairs, sofas, beds, tables and accessories are available—the chair has an adjustable high back, offers nine different sitting positions. Skandi-Form, Inc.
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Incipient fire detector. Early warning fire alarm provides advance notice of impending combustion conditions before smoke or combustion actually take place. The sensitivity of the detector is adjustable zone by zone—incipient fire conditions are detected by the measuring of invisible airborne particles generated by a rise in surface temperature. Particle concentration is measured once each second; any increase in the concentration generates an electrical signal which activates an alarm relay. Only when 10^{-10} gm/cc of combustion particles are present in the monitored area can the alarm be activated. Environment/One Corp.
Circle 107 on reader service card

Planters. Made of Synceram, a material said to be lighter and stronger than other materials used in planters, these come in over 150 sizes, ranging from 8″ to 48″ and in 10 colors. L. Paul Brayton Ltd.
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[continued on page 66]

Offices: Sarah Coventry, Inc., Newark, New York. Architects: Sherman and Sherman, Newark, New York.

A hardware consultant worked here...

and you see his handiwork in a very well equipped doorway. Note particularly the LCN Smoothee® Closers mounted on the top jamb, and finished to match the architectural metal. The "Smoothee" in this position is completely out of the doorway, has adjustable back check and spring power, and permits the easy door opening for which LCN has always been noted. LCN Closers, Princeton, Illinois 61356.

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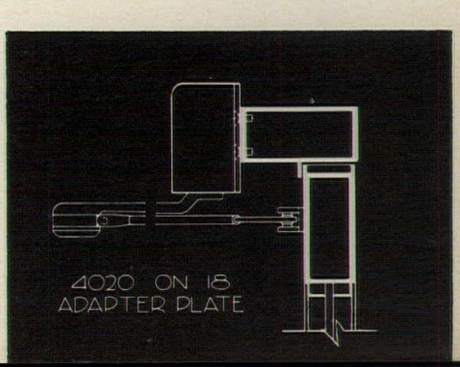
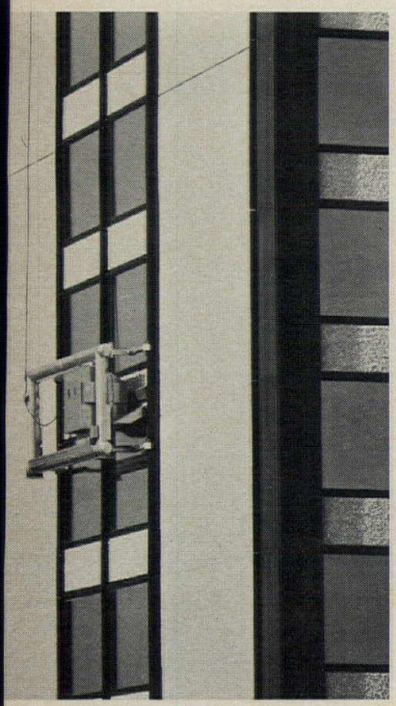


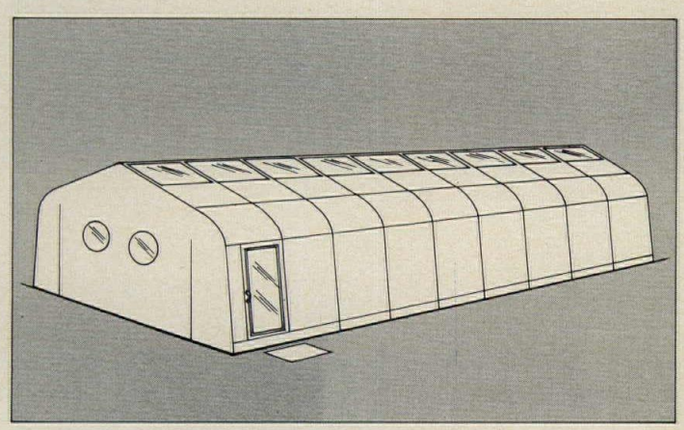
Products continued from page 54

Roofing



Window washer

Pregrouted



All weather enclosure

Roofing. Self-sealing asphalt roof shingles with the look of natural wood shakes and with an Underwriters Laboratories' Class "C" fire rating. The self-sealing feature bonds each shingle to the one below, making the roof resistant to high winds. Designed for application over existing shingles or for new construction. Johns-Manville.
Circle 109 on reader service card

Window washer. An automatic window washing machine for building exteriors cleans at the rate of 4000 sq ft an hour—about 10 times faster than a man—and offers safety features to meet or exceed manned platform window washing codes. Interchangeability between automatic cleaning module and manned platform allows accessibility to the building face for maintenance needs. Patent Scaffolding Co.
Circle 110 on reader service card

Pregrouted. Sheets of waterproof ceramic tile—2 sq ft each—are factory grouted with a silicone rubber grout that the manufacturer claims will not mildew, powder or crack out with building movement. Called Redi-Set, the tile can be applied over gypsum board, masonry or existing tile installations. American Olean Tile Co.
Circle 111 on reader service card

Weatherproofing. A silicone weatherproofing for use on roofs, walls and most substrates, Granusil is a special ceramic colored granule applied during the application of the second, or color coat of silicone rubber weather coating. It resists streaking and discoloration caused by dirt—its textured surface hides joints and surface defects. Lightweight, it adds ½ lb per sq ft. General Electric Co.
Circle 112 on reader service card

Shower head. A choice of finishes including antique bronze, satin chrome and polished chrome is available in this adjustable shower head. Spray patterns vary from a soft vapor mist to needle jet. Price Pfister.
Circle 113 on reader service card

Total opening. Designed to speed jobsite interior work, this door package can be installed in about 15 minutes according to its makers, as against the several hours it normally takes to frame an opening, hang a door and install the hardware. Shipped directly to the site, the package contains a preassembled, prefinished door, frame and hardware. Installation can take place after the building is finished and furnished. Kwik-Dor Industries, Inc.
Circle 114 on reader service card

All weather enclosure. Vinyl panels mounted on metal framing provide almost instant buildings—workshop, field office, greenhouse, exhibit building, interplant or building passageway. The arched structure, of square galvanized steel members arranged as trusses in 4-ft modules, has been tested to withstand extreme wind and cold. Locking arms keep the vinyl stretched taut. Available in 24′ and 28′ widths, variable lengths; clear or opaque vinyl. The entire enclosure retracts to one-fourth its extended length. Relatively low in cost and easy to erect and maintain. Cascade Industries.
Circle 115 on reader service card
[continued on page 68]

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Architect: Reid & Tarics, San Francisco, Calif.

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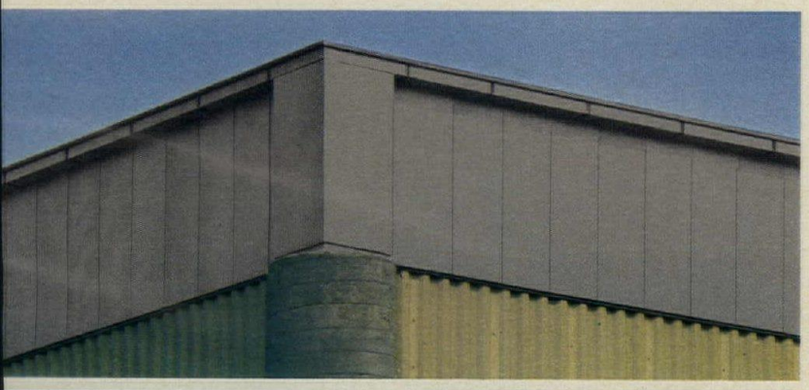

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Products continued from page 66

Bathroom. When all three fiberglass reinforced plastic units are installed, they complete two walls in a 5′ x 8′ bathroom: one-piece fiberglass tub/shower and molded cap; vitreous china toilet bowl and tank and fiberglass wall section which conceals the tank and plumbing; lavatory with medicine cabinet, lighting fixture, china bowl and brass fittings. According to the designers, this bathroom should achieve up to a 20 percent reduction in total in-place costs, and is suitable for multi-unit, commercial and residential construction. Eljer Plumbingware Division, Wallace-Murray Corp.
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Beamed-like wood. Polyurethane beams have wood grain detail and improved color as the result of a process which eliminates the plastic look so often associated with nonwood beams. For residential or commerical use, beams are fire-resistant and come in prefinished colors, lengths and sizes. Urethane Fabricators, Inc.
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Air lift stool. A self-contained air piston adjusts the seat height of this stool to any position within a 6¼″ range. The control lever lowers the stool while a person is seated, raises it when weight is removed. Polished aluminum base, Naugahyde upholstery. IE Industries.
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Literature

Anti-graffiti. A spray-on plastic protects buildings from graffiti. Called Hydron 300, it is basically the same polymer being used for soft contact lenses and antifogging coatings. It can be sprayed, brushed or rolled onto masonry and stone making it possible to remove graffiti by wiping it off. Samson Chemical Corp.
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Decision resource service. A consulting service, organized to provide management with a picture of individual work and communication patterns is described in a 16-page brochure. A case study, illustrated with network diagrams and floor plans, defines each step of the analysis. Herman Miller.
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Revealed. The Reveal modular desk system is illustrated in this brochure which features the Raceway desk with wire concealing elements. Variety of pedestal configurations, sizes and finishes. JG Furniture Co., Inc.
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Delft tiles. A selection of authentic old Dutch hand-painted Delft ceramic tiles and tableux is detailed in a 6-page brochure. Tiles are 5″ x 5″, come in blue, sepia or polychrome on white, in crackle or noncrackle finish. Motifs include windmill and rural landscapes, florals, birds, animals, sports and other traditional designs. Amsterdam Corp.
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Color-fused building panels. Inorganic pigmentation, in a choice of 16 colors, thermally fused to a core of asbestos cement makes a 10-year colorfast guarantee possible for Miraweld building panels. Recommended for use as curtain and window walls, facings over new or existing structures, store fronts, fascias, balcony fronts, mansard roofs and other applications. Panels also available laminated back to back. Kaiser Aluminum and Chemical Corp.
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Power failure plan. "Power Failures Can Be Security Failures" is the title of a folder presenting problems that can occur when the normal source of electric power is interrupted in a manufacturing or commercial facility. An emergency electric power system is suggested. Onan Corp.
Circle 124 on reader service card

Automatic sliding doors with sensor. Two scanning heads and an electronic control that scans two oval areas inside and outside a set of slide-n-swing doors are described in this bulletin. Scanner heads emit a silent, invisible signal—listen for a return echo and actuate the door operator control circuit automatically. Unit requires no mats, grids, plates or wiring in the floor. Dor-O-Matic Division, Republic Industries, Inc.
Circle 125 on reader service card

Fountains. Guide to selecting and planning fountain or water displays offers a history of fountains, a catalog of fountains and fountain kits, a design guide, accessory and engineering data. Roman Fountains Inc.
Circle 126 on reader service card

Household trash compactor. Designed to combat the household waste problem, this compactor compresses all kinds of solid waste—metals, glass, paper—to about one-fourth its original bulk. Free-standing and built-in models can be plugged into any 115 v. electrical outlet. In-Sink-Erator, Emerson Electric Co.
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Locksets in color. Molded in thermoplastics, locksets are offered in two-tone color combinations and solid colors. Brochure illustrates available designs and colors—locksets are available for passage use and in privacy sets with matching dummy knobs. Acme General Corp.
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Wall system. Windows, doors, trim and miscellaneous hardware are included in prefabricated, total wall units complete with interior and exterior surface finishes. Face brick, stone, marble, exposed aggregate, acrylic stucco, decorative vinyls and other combinations are offered. Brochure from ESB Inc.
Circle 129 on reader service card

Noise control. This bulletin features sound-absorbing 4″-thick panels, which can be fastened to ceilings or walls in new or existing buildings. A technical review of the Noise-Foil sound absorption system, engineered to assist commercial, industrial and institutional buildings to achieve acceptable noise control as required by recent legislation is presented. Industrial Acoustics Co., Inc.
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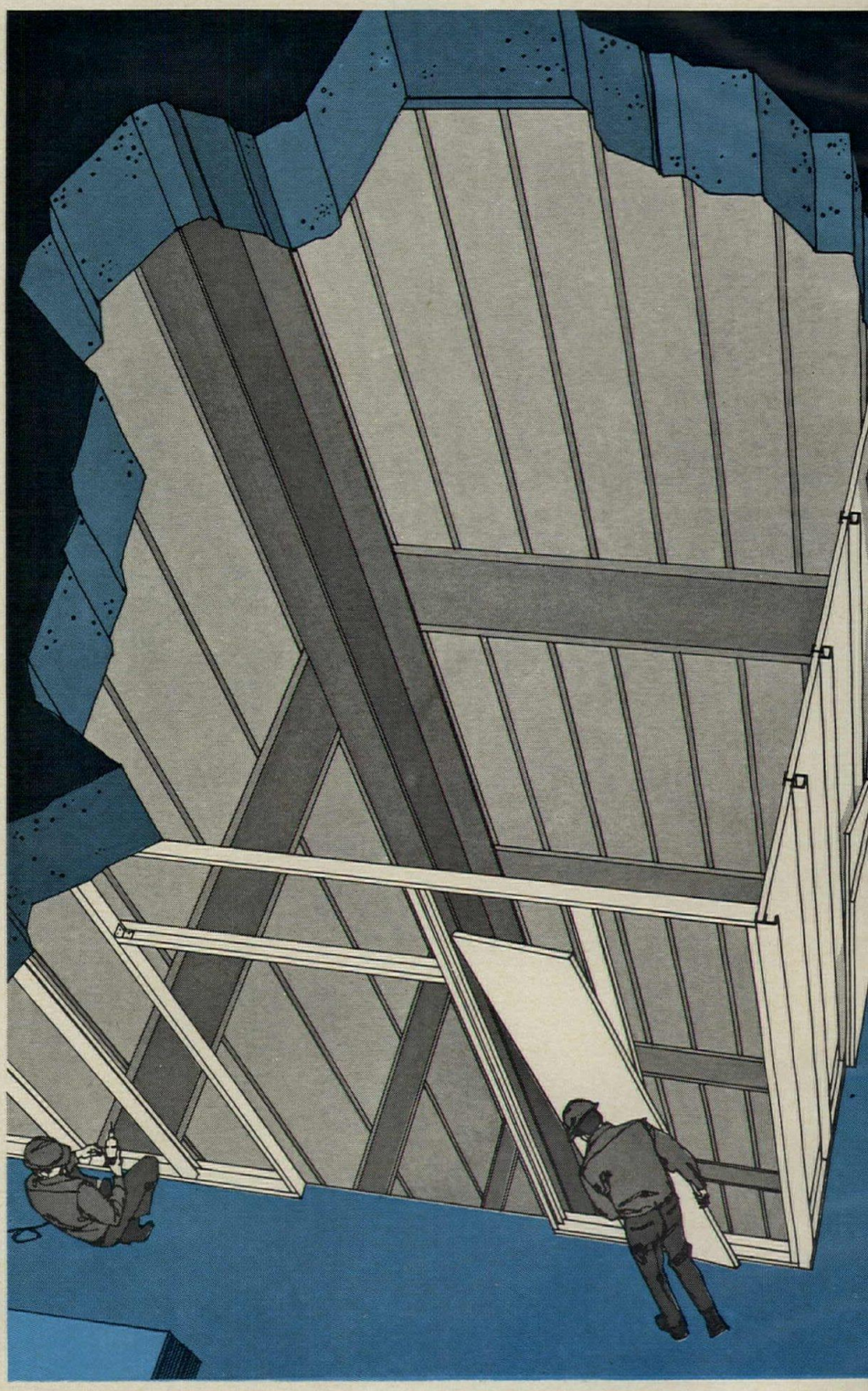

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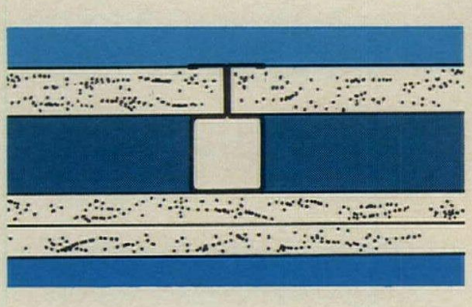

This non-load bearing assembly is comprised of 1" thick FIRECODE Shaft Wall Liner applied vertically between floor and ceiling "J" runners and supported by steel box "T" studs that engage each vertical liner edge 16" or 24" o.c. Opposite side is finished with double layer ⅝" SHEETROCK® gypsum panels screw attached to studs. Or, IMPERIAL* Veneer Plastering may be used. Assembly is 3¾" thick for ceilings to 14 ft. For complete information, see your U.S.G. Architect Service man; or write 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. **PA-111**

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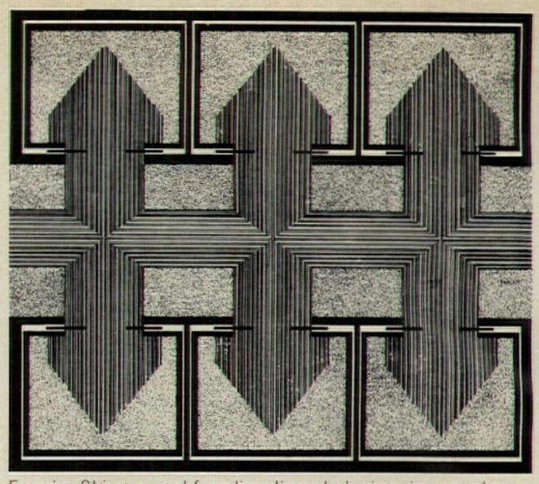
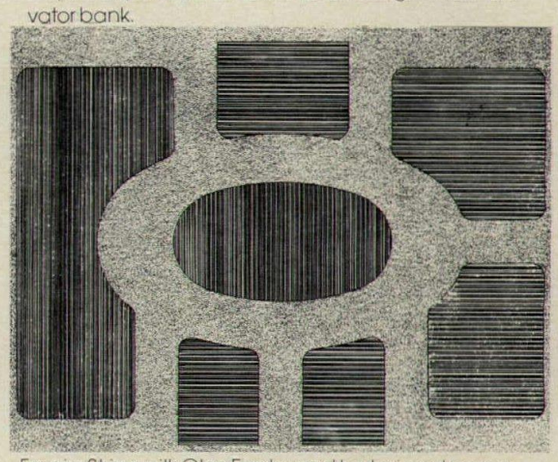
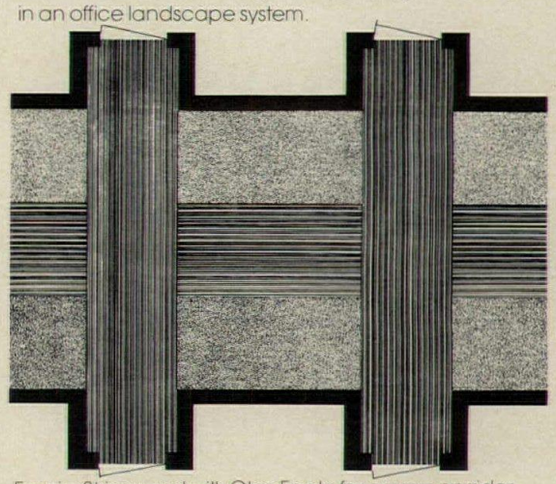


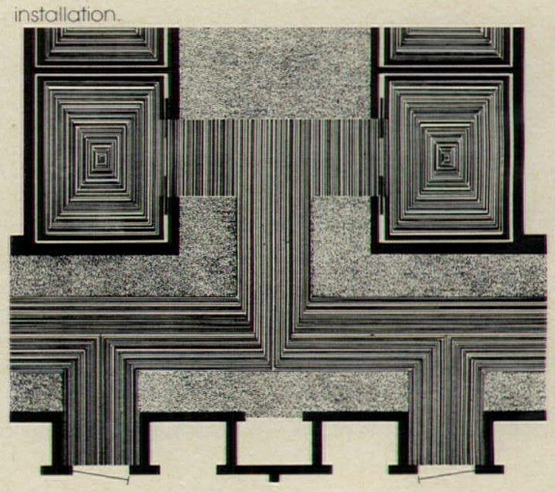
Empire Stripe used for directional design in an elevator bank.



Empire Stripe with Glen Eagle used to designate areas in an office landscape system.



Empire Stripe used with Glen Eagle for a cross corridor installation.



Empire Stripe and Glen Eagle used for corridor directions and office pattern.

Progressive Architecture

November 1971

As the article on page 78 points out, designing a stadium involves the architect and engineer in all sorts of planning, political and financial problems. Nathaniel C. Curtis, Jr. of Curtis and Davis outlines some of his experiences with the New Orleans Superdome in this guest editorial

The designer's nightmare, on any project of unprecedented scope and complexity, is that some unsuspected element of obsolescence will be incorporated in the program. He must explore all prior experience in related projects and go beyond them, in technical skill and imagination, if possible.

An intensive study of stadium design and operating experience confirmed our assumption that the future of sports and of the entertainment, trade and tourist business in Louisiana favored the enclosed type of stadium. An open sports stadium provides only enough income to pay its operating expenses. And, although the indirect economic benefits to a community may go well beyond restricted economic feasibility considerations, it is usually necessary to justify the expenditures of great sums of money in terms of profit and loss. Thus, the once-sufficient sports-use capabilities of such a structure must be expanded into completely new dimensions to include exhibit and convention setups, arena and theatrical events, large screen television theater programs and—for sustained and expanded revenue—non-event parking.

In order to accommodate this wide range of uses, it becomes necessary to enclose and air condition the building. To assure the ebb and flow of large crowds, it is essential to acquire the use of a downtown site within walking distance of the main hotels. These features naturally add considerably to the cost, but it is more than offset by the increased income capabilities thus produced. The Louisiana Superdome, because of this multi-use flexibility and its downtown location, is expected to generate about $60 million in direct earnings over and above the cost of operation and after payment of principal and interest on the bonds.

Design of the Superdome began with a long range master plan for downtown New Orleans to anticipate and provide for the orderly impact of the complex on the city. This required, at stages early enough to help design, a study of the vast web of related influences affecting the stadium area and the city: traffic patterns, pedestrian flow, parking needs, new development potential that might have beneficial effect on the city as a world trade center. The study further confirmed the importance of the downtown site when it was found that the traffic network for the central business district was already adequate for any peak events, provided only that they were held apart from the rush hour traffic. A large reservoir of existing parking spaces, within walking distance, would be vacant during the night and weekend events, and thus would be available to supplement the on-site stadium parking facility which in turn supplements them during non-event hours.

Design of the stadium itself began with the seating configurations for football (78,057 seats expandable to 82,000 for Superbowl use), baseball (56,596) and arena sports (18,000 close-in seats). Convention spaces were then arranged and each element properly related to the others, to the whole and, most important, to the pedestrian traffic. At the end came the problem of enclosing the structure.

There are no precedents, in all history of building, for enclosing a column-free room of 85 million cu ft. The range of costs for alternative methods was unexpectedly broad and the final solution came out of cost analyses of every possible framing method. The one selected for the 680-ft span roof was, therefore, the only practical solution. Other unprecedented design problems involved a large screen color TV system and its 130-ft diameter elevator gondola, the mechanized movement of 18,000 spectator seats and draining the tremendous amounts of rain (store it in a canal around the roof and feed it gradually to the city drainage system).

The task of getting the project contracted for within the budget became monumental, taking into account the size of the project in dollars, tight money, inflation, the risk to the contractor, the number of other large projects underway around the country, and the comparatively few contractors who would be available, interested and large enough to handle the job. With a fixed cost limit and only two general contractors showing any interest in bidding, we restructured the bid packages into small bite sizes and included construction management procedures as an option. As a result, the project was contracted well within the budget.

The final "go" was acceptance of a bond issue bid at a City Hall ceremony. And, as could happen perhaps only in New Orleans, the Olympia Brass Band marched in to the thundering harmonies of "When the Saints Go Marching In."

All-American monument

The ball park used to be a playing field surrounded by seats, but those good old days are gone forever. Today the grass is plastic, the game is big business and the sports stadium is a civic monument; getting it built is more an exercise in politics and economics than it is in design

There was a newspaper headline in Buffalo not too long ago that ran something like this: "Suburb seen as site for doomed stadium." Yes, that *was* a typo. Only the dome was doomed, and the Buffalo stadium is alive and kicking as a project, along with several others around the country. It looks as if, despite high costs and political squabbles, the sports stadium is going to continue as one of the most visible urban structures. No matter how a visitor comes to town, he will more than likely see the stadium. And if by some freak chance he misses it, some one will surely point it out to him, for stadiums are a focus of civic pride (and resentment). For many people, in many ways, they are the mark of a big league city.

A major sports stadium is a mammoth undertaking, with a tremendous physical, social and economic impact on a city. A few years ago there was a surge of cultural center construction, with cities boasting of their new gems as magnets drawing people and money back downtown, boosting business, increasing tax revenues, spurring development and generating money for broader urban improvements. Sports stadiums are now described in the same glowing terms and their numbers are growing.

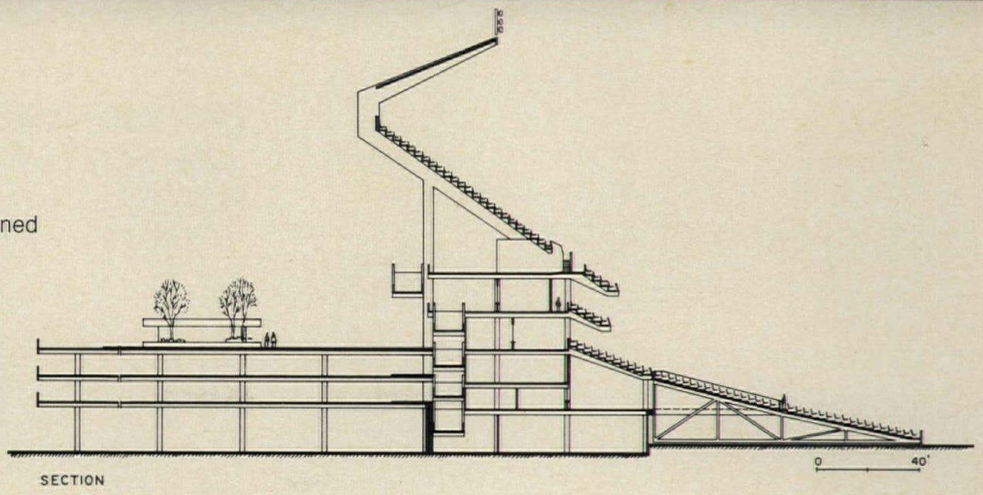
"The current rash of stadiums," says James Finch, half of the Atlanta-based joint venture of Finch-Heery, which has designed a number of major stadiums, "is typical of the cycles architecture goes through. They are generated by developers; what goes well in one place is assumed to go well in another."

Whatever the reason—another explanation is the rapid growth of public interest in professional sports—since 1965, when the Houston Astrodome opened, not a year has gone by without the completion of another new stadium. In 1966, Atlanta, St. Louis and Oakland opened theirs; in 1967, San Diego; in 1967, Montreal; 1969, Pittsburgh; 1970, Cincinnati. This year saw new stadiums open in Philadelphia and Foxboro (near Boston), Mass. And that list doesn't include additions to existing stadiums, ones still under construction (like Kansas City), ones on the drawing boards, including the stadium complex in suburban New Jersey that is to be the N.Y. Giants new home; the New Orleans Superdome, which promises to out-do the Astrodome; either of the two proposed for the Detroit area (it's not clear yet just where the Lions will play football); and the Buffalo stadium, now without a dome but backed by the New York State Urban Development Corp.

Huge and complex

As a project, a stadium is almost like a shopping center in its multiplicity of clients, says Finch. There is the legal client—the authority building the stadium; there are the teams that will use it, and the leagues themselves; the concessionaires

The biggest game in town, the all-American monument, the mark of the major league city—that's the stadium. In Cincinnati it's Riverfront Stadium, dominating the downtown skyline. Designed by Finch-Heery, it has seats for 56,062 football fans or 51,730 baseball buffs and parking for 2970 cars on three levels. Pedestrian bridges link stadium to business district. Cost for stadium alone was $26.4 million; bill for the whole project totaled $41 million.



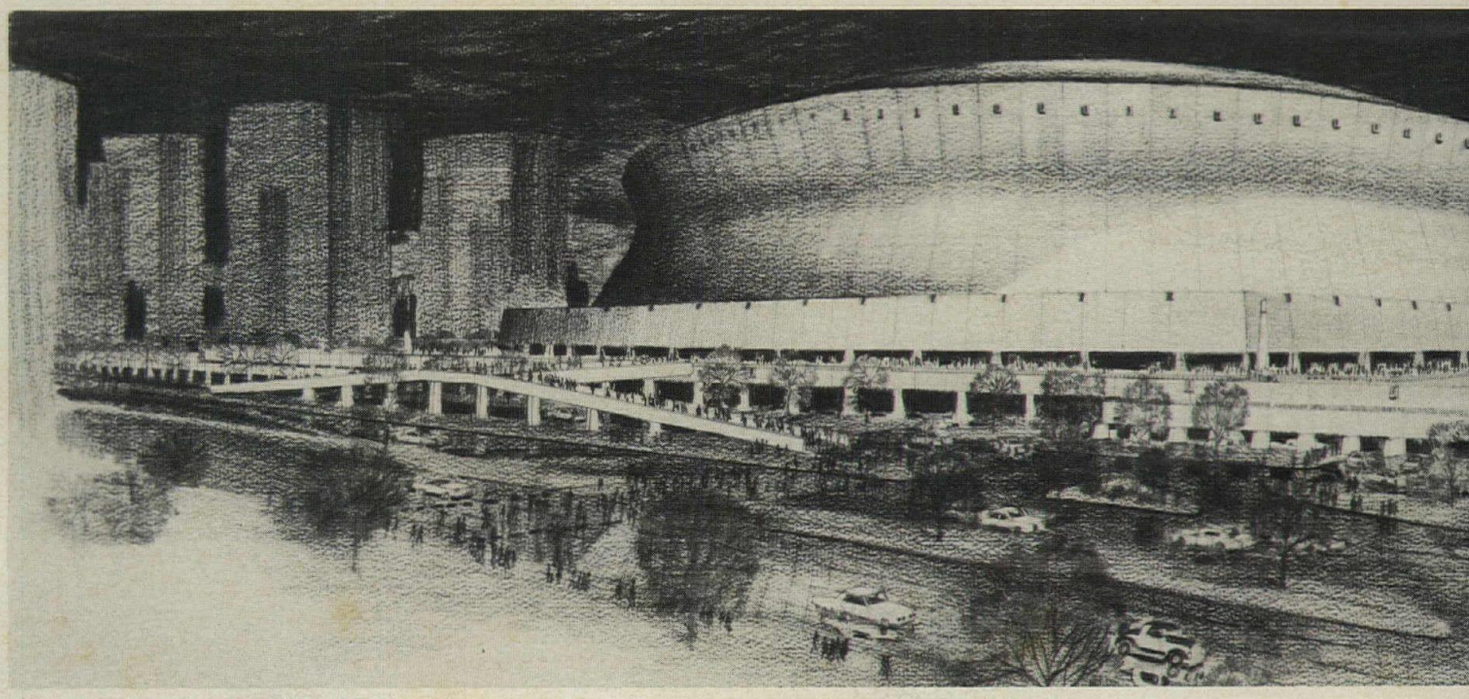
SECTION

and the press, all of whom seem to have conflicting requirements. "In our early experience, we completely underestimated the complexity of the problem. We thought a stadium was a playing field and seats. But a stadium isn't only complex, it is huge and complex; little problems get multiplied 60,000 times."

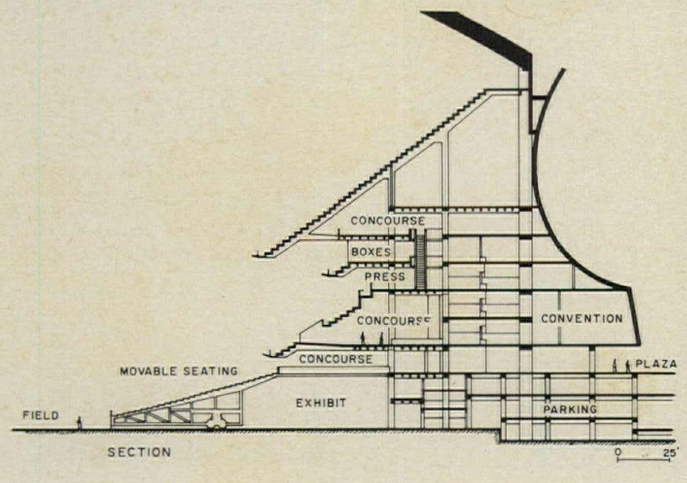
At the heart of the stadium design problem is the relationship of the spectators to the field. Football fans all want to sit on the 50 yd line, which is impossible (picture a football stadium with a line of seats one seat wide and a mile and a half long on either side of the field), so the goal is to put the maximum number of seats on the side lines. Baseball fans on the other hand, want to sit along the foul lines or behind home plate. To design a stadium for either sport you have to sculpture the seats, putting extra rows in the most desirable areas.

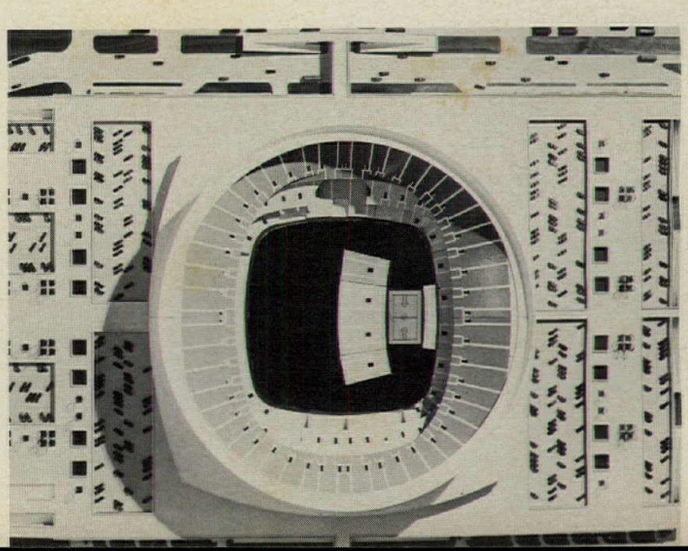
There are some interesting psychological ploys that come into effect in stadium seating, says Finch. People object to climbing, but they object less if the climbing is done in the seating area rather than on the concourses. Another ploy is to put the front row of seats as close to the action as possible, because no matter how many rows of seats there are, the back row seems closer. The business of putting seats between the goal lines has its own little psych: by curving the rows, seats physically beyond the goal line visually put the spectator where he wants to be.

Because everybody understands the ideal in football and baseball seating, there is little variety in stadium layouts. Stadiums for football only put the field at the bottom of a valley of



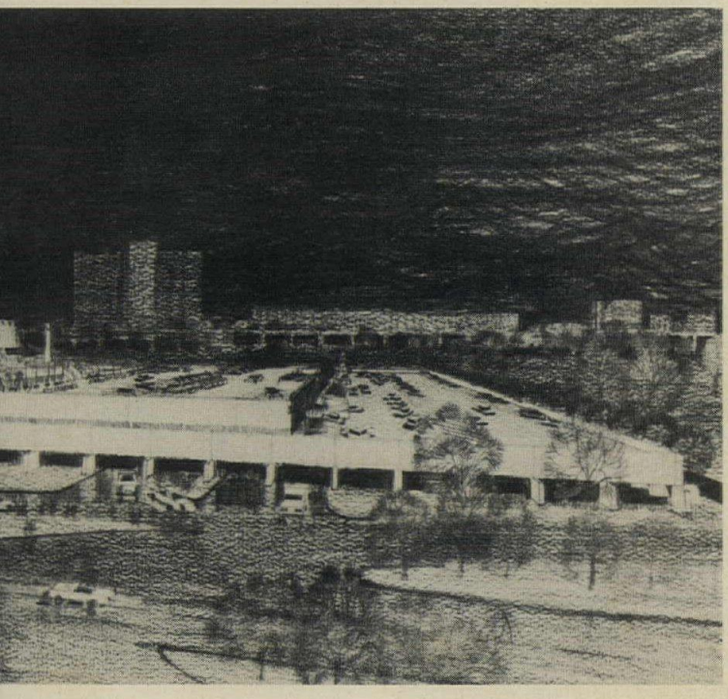
Designers of the second domed stadium tried harder, and the New Orleans Superdome outdoes the Astrodome by all statistics. Big (680-ft clear spans) and costly ($150 million), it is planned as a multi-purpose facility seating from 29,000 for basketball (below) to over 100,000 for conventions (right). For football there will be 78,000 seats; for baseball, 56,000. Designed by Curtis and Davis, it also provides 300,000 sq ft of exhibit space and parking for 5100 cars.

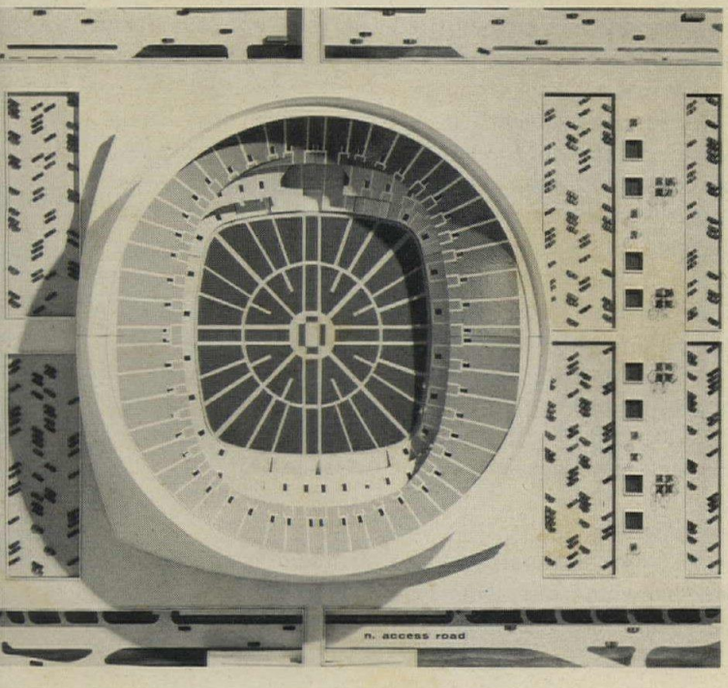




seats; baseball parks have the field between the arms of a vee. The newer dual-purpose stadiums encircle, or almost encircle, the field in an attempt to provide something for everybody. The result is a compromise: "it is difficult to get the maximum seats for both sports in the same location," says Roy Marshall of Parkin Architects Engineers Planners, who have been involved in several stadium studies. "As a result, the solution we often see today, a perfectly circular stadium for both baseball and football, means that only about half the seats are really ideal seats and the others are second class."

The problem with the circular dual-purpose stadium is that while it puts spectators in good locations, they are a long way from the field; stadiums laid out as squares or polygons get the fans closer to the action, but sometimes at odd angles.





For Philadelphia's new stadium, Hugh Stubbins, who was executive architect on the project associated with George M. Ewing Co. and Stonorov and Haws, planned an octorad—a slightly arced square based on eight points of radii of two concentric circles.

The different requirements of football and baseball have made movable seats almost the order of the day. When football ends and baseball begins in Philadelphia, 6000 seats are moved to make way for the outfield and another 9000 are screened off by giant scoreboards; the same general thing happens in other dual-purpose stadiums, with the exception of Atlanta, where there are no movable seats.

All the people watching the game and buying the hotdogs have to get in and out of the stadium, so the design of concourses and ramps becomes important; they also have to get to and from the stadium, so the designer must design for cars as well as people. The problem here is that while their arrival may spread over a couple of hours before the game, everybody wants to leave at the same time.

Where there is room (a suburban stadium) the answer is to spread the parking areas around the stadium, perhaps color-keying them to seating sections as at Dodger Stadium in Los Angeles. But downtown there just isn't room, and the multi-story parking building, which might not have been practical in the suburbs, becomes very practical; it can be used for shopping and business parking when no game is scheduled, which helps defray the added cost. In Cincinnati, for example, non-event parking is expected to bring in about $900 million; in Atlanta, dual-use parking is also paying off.

Cincinnati's new stadium solved that problem well, but came up with a different one, Finch says. "In Cincinnati a high percentage of the people walk to the stadium from the central business district. That takes a load off the traffic but it causes a pedestrian jam. We really should have made the pedestrian bridges twice the width they are. We underestimated the number of people who would walk: in other places you can usually figure that about 88 percent of the spectators come by car, but in Cincinnati the proportion was way lower."

While little seems to be happening to the configuration of the sports stadium, there are some innovations to be aware of. Number one is artificial turf. It is on its way to being universal in the pro stadiums (in New Orleans it will be blue) and is showing up in many college fields. (There is one prep school coach in New York City whose team plays on artificial turf at school; he takes the boys to Central Park every so often, just to let them play on real grass.) Lighting gets brighter, and better, as time goes on, in terms of intensity and color standards, a result of television's interest in pro ball. The spectator only needs something like 100 footcandles on the playing surface to be content, but the camera requires three times that amount of light. And of course, each new stadium offers more of the amenities that the paying public demands for its dollars—restaurants, clubs, bar, and those air-conditioned carpeted status symbol boxes.

Generation gap

In all this designing and building of stadiums, there are some real trends, one of them so clear that it defines a first and second generation of stadiums, with a third beginning to

take shape. It is, quite simply, the growth of dual-purpose stadiums.

The break point—the stadium that kicked off the second generation—is the Robert F. Kennedy Stadium in Washington, D.C., the first designed to handle baseball and football without compromising one more than the other. Stadiums built prior to the D.C. stadium either were baseball stadiums only or, if they did double duty, baseball stadiums into which football fields had been plunked.

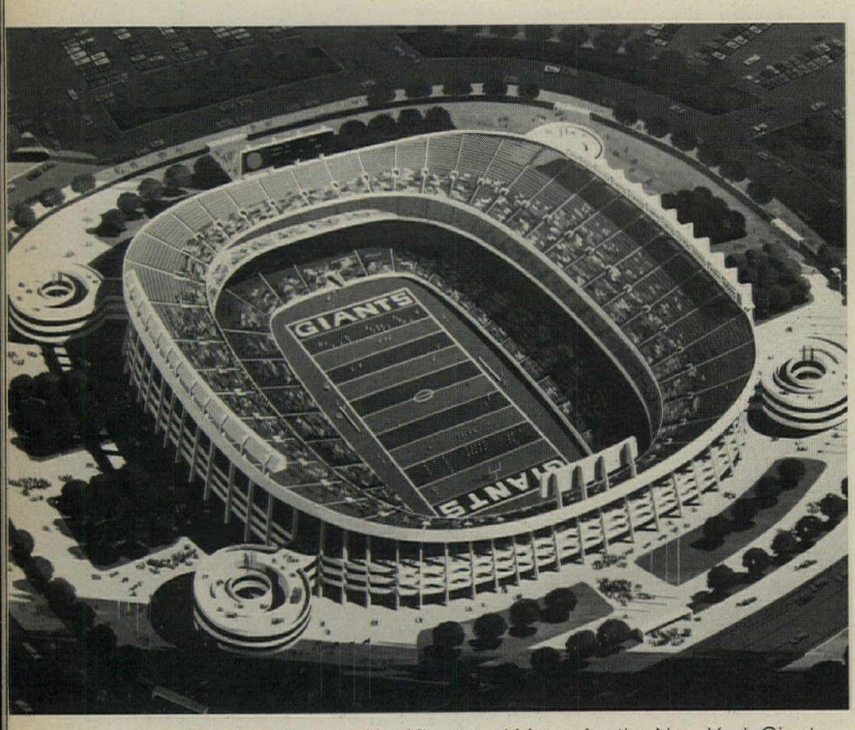
Dual purpose may not be the answer

On paper, the dual-purpose stadium looks good. There's no duplication: the same land, parking area structures, seats and other facilities get used for both sports, and the stadium is in use for more of the year. But in practice there are problems, and the only way to solve them is to compromise.

The cost figures favor the dual-purpose stadium. But as the problem has been solved, says George Heery, the other half of Finch-Heery, the stadiums get more and more elaborate and expensive. "They are getting so complicated in section, they're coming close to the Roman Colosseum. We may have reached a point at which two single purpose stadiums could be built as cheaply as one multi-purpose one." Or, says his partner Finch, for little more: "not a substantial amount."

Offsetting the higher cost, says Finch, would be real advantages. Configuration is one—the ideal stadium for each major sport. Avoiding the overlap between seasons is another. "Shifting from one configuration to another is costly, time consuming and traumatic for those involved."

Finch-Heery didn't invent the idea of two single purpose stadiums side by side; they haven't done one yet. They did, however, consider such a set-up for Buffalo and for a maverick football and auto-racing facility proposed for North Carolina. Kivett and Myers, on the other hand, have designed just such a stadium for Kansas City. And there we might have the first faint outlines of a third generation of stadiums.



Stadium designed by Kivett and Myers for the New York Giants (soon to cross the river and become the New Jersey Giants) football team will be part of a sports complex in north Jersey.

"We can't take any credit for the two-stadium idea," says K & M's Ron Labinski. "The idea came from the Kansas City Athletics."

The project, its completion delayed by a 13-month strike, consists of a 48,000-seat baseball stadium cheek by jowl with a 70,000-seat football stadium. The Chiefs had wanted a large facility of their own; and at the time of decision, Kansas City had temporarily lost its baseball franchise. The football stadium, Labinski says, is the first designed for pro football only. "Football is the most penalized in a multi-purpose stadium. A baseball field takes about 150,000 sq ft, a football field about 90,000. So to design a multi-purpose stadium, you design for baseball and then add football, maybe putting in movable seats."

The differences go beyond the playing fields and seating arrangements, however. "In programming the two separate stadiums," Labinski says, "we discovered some interesting things. Each game has its own pace—baseball fairly slow, football with constant action. That makes spectator facilities different for each sport. In baseball you have about 18 opportunities to get up, walk around, go to the bathroom, buy a beer; in football, all of that is concentrated at half time. For football, you need fast food service, high turnover and a limited menu; baseball allows time for slower service and more choices. Sales are greater at football games, and more vending facilities are needed. Ticket sales differ, too: season tickets are the thing in football, but baseball seems to draw a walk-in, one-game-at-a-time crowd."

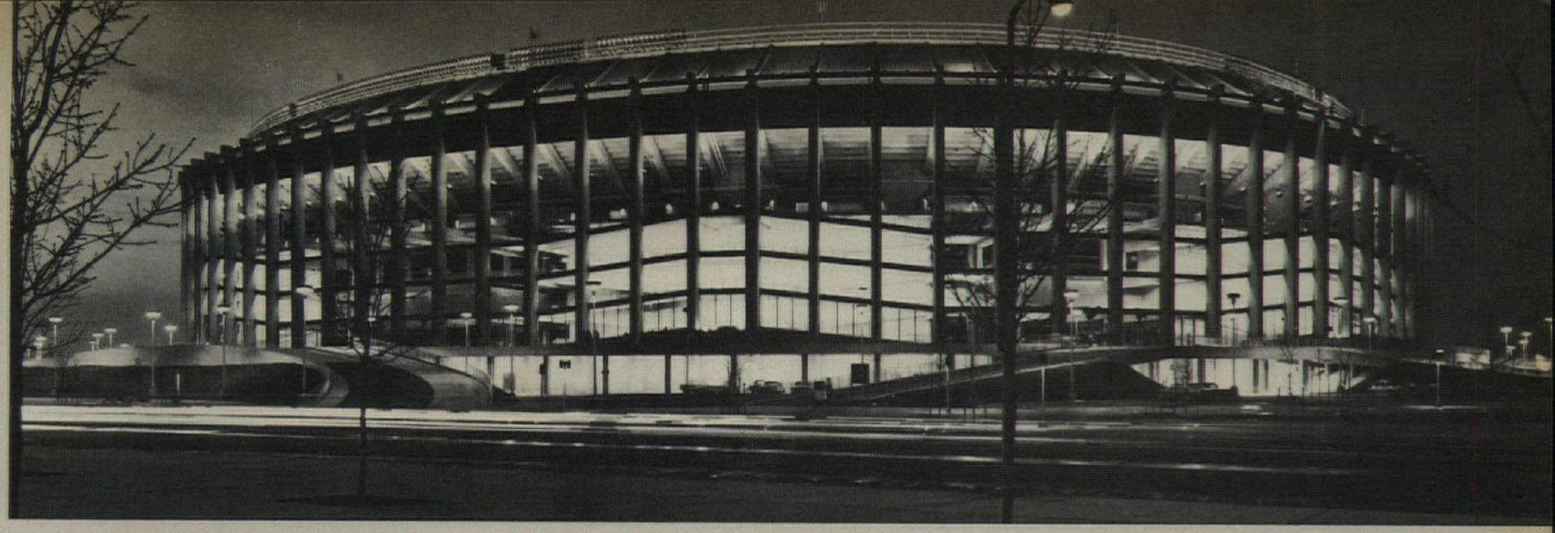
Carrying the idea one step further, Kivett and Myers are the architects for a new football stadium for the New York Giants. The 70,000-seat stadium will be part of a sports complex in New Jersey that will include a separate baseball park, indoor facilities for hockey and basketball, a race track and a hotel and exposition hall.

This doesn't indicate that the dual or multi-purpose stadium is on the verge of becoming outdated. There are, says Heery, "situations for single-purpose stadiums and situations for dual-purpose ones."

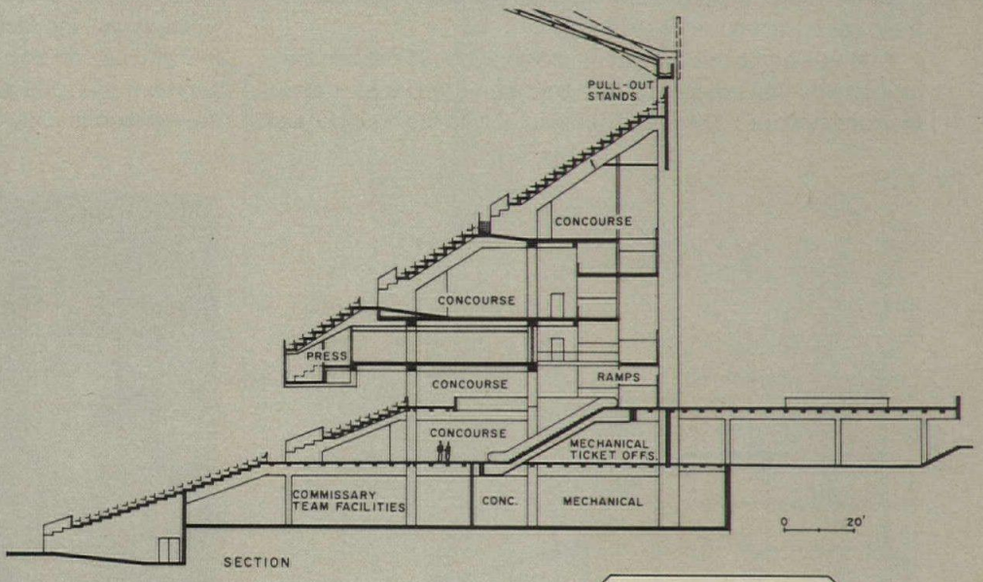
The key requirement, of course, is a city with professional teams in both major sports. "Only two major sports events can consistently draw large crowds," points out economist Robert Sigafoos, who has worked with the Parkin firm on its studies, "football and baseball. The pro football teams as a rule want 70,000 seats, baseball teams from 45,000 to 50,000. Now here's the problem area: football is a 10-event season in most NFL-AFL cities, major league baseball runs up to 80 home games a season. So if a city doesn't have a major league baseball team, there's no need for a multi-purpose stadium. Most cities that will be building stadiums in the next 25 years won't be major league baseball cities."

Indoor sports

The terms "dual-purpose" and "multi-purpose" are often used interchangeably when talking about stadiums, but the truth is that most stadiums that are more than single-purpose



Study of stadium configurations led Hugh Stubbins to octorad plan for Philadelphia's Veterans Stadium, brand new replacement for venerable Connie Mack Stadium. Stadium opened this fall with 65,000 seats for football games; during baseball season, 15,000 seats disappear on rollers and behind screens so that full house is 50,000 fans. Stubbins was executive architect on $31 million project (stadium only); George M. Ewing Co. and Stonorov and Haws were associate architects.



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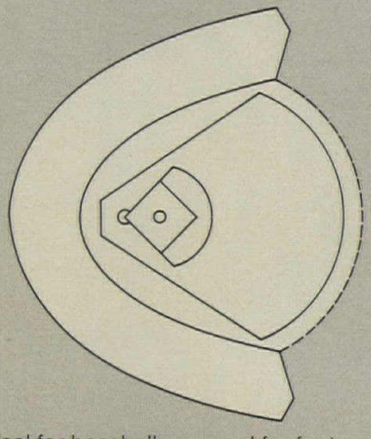
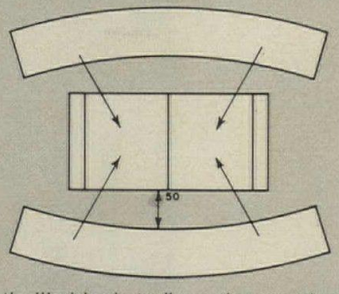
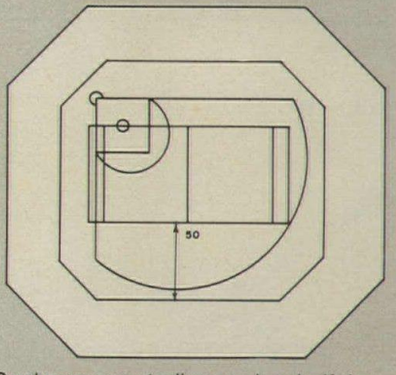


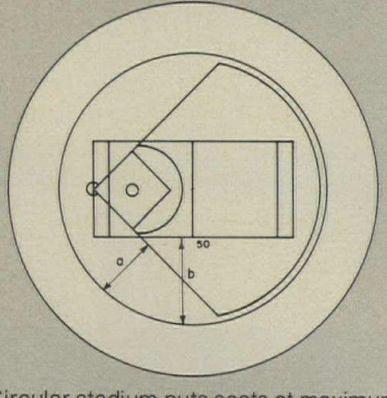
Ideal for baseball, no good for football: major portion of the seats are near the action with good sight lines.



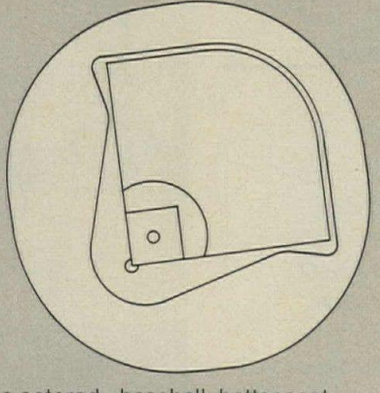
Football's ideal stadium: the arc gives more comfortable sightlines, puts more fans in best seats between goal lines.



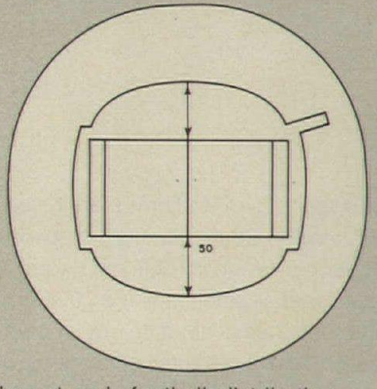
Dual purpose stadium makes half the seats good baseball seats, but distances are too great for football.



Circular stadium puts seats at maximum distance for football, excessive distance for baseball; distribution isn't good.



The octorad—baseball: better seat distribution with larger portion of the seats put closer to action.

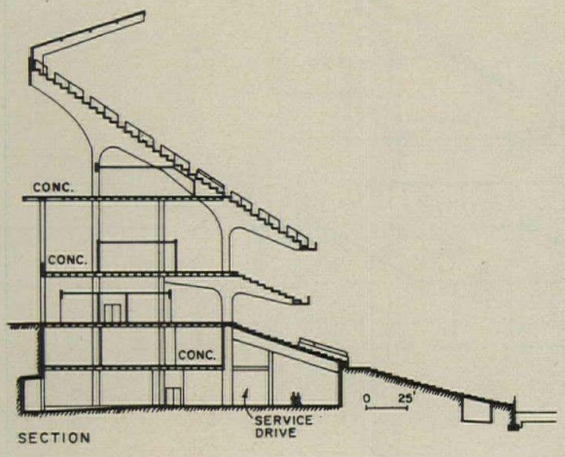


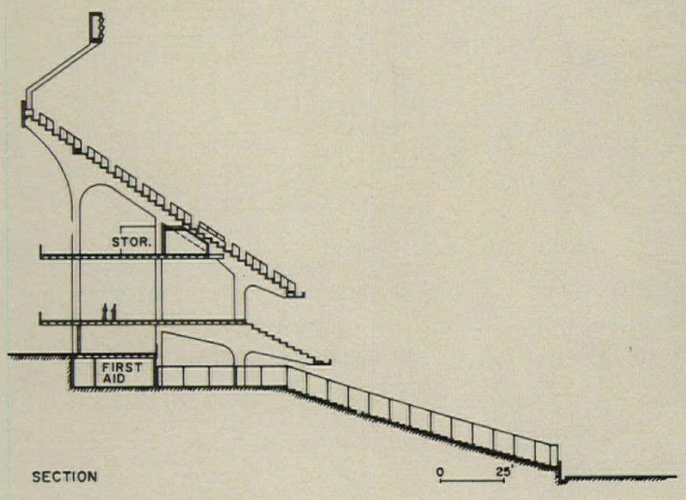
The octorad—football: distribution and proximity to action better than either the circle or square.

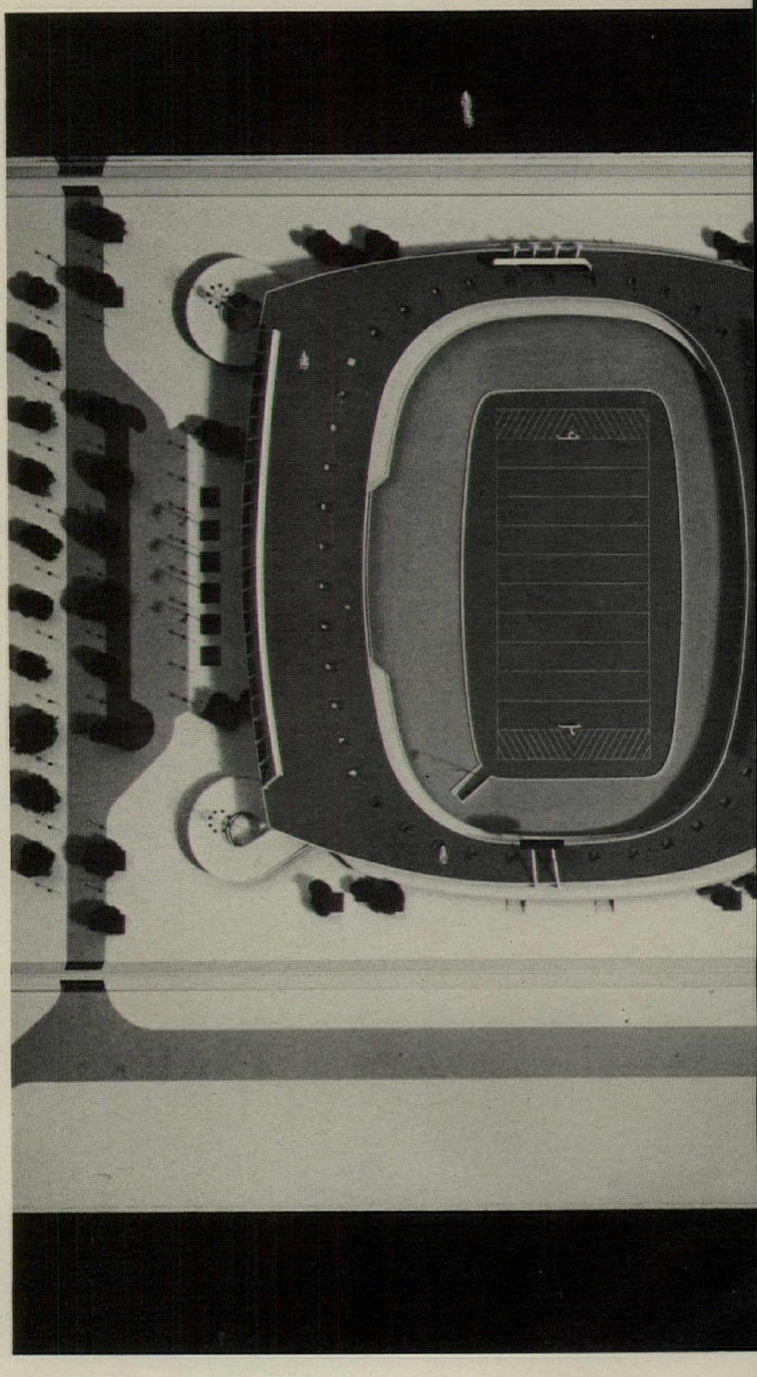
stadiums are really less than multi-purpose ones. Although religious events and rallies of various sorts do take place from time to time in sports stadiums, the idea of multiple use seems to be wishful thinking fostered by the construction of the Astrodome. Since Houston, everybody starts out the stadium dream by talking about a dome, more than likely a "yearning rather than a trend," says Finch. "Damn near everybody wants a domed stadium until they find out what it costs." He points out two basic mistakes in thinking about domed stadiums. People "usually underestimate the probable cost and they overestimate the capabilities."

Putting a dome over a stadium costs about $5 million; the air-conditioning equipment that goes along with it runs about the same amount. This adds considerably to the cost per seat. The Houston Astrodome, at $32 million, came in around $640 a seat (in 1963/65 dollars), and the New Orleans Superdome, which is designed to out-do the Astrodome in every way, including cost, will run about $150 million, or around $2000 a seat. Compare those figures with the normal cost per seat of around $500 (they range from $315 a seat in Atlanta to $700 in Pittsburgh), and it's easy to understand why the dome is the first thing tossed out when it comes time to lower the cost of a stadium design.

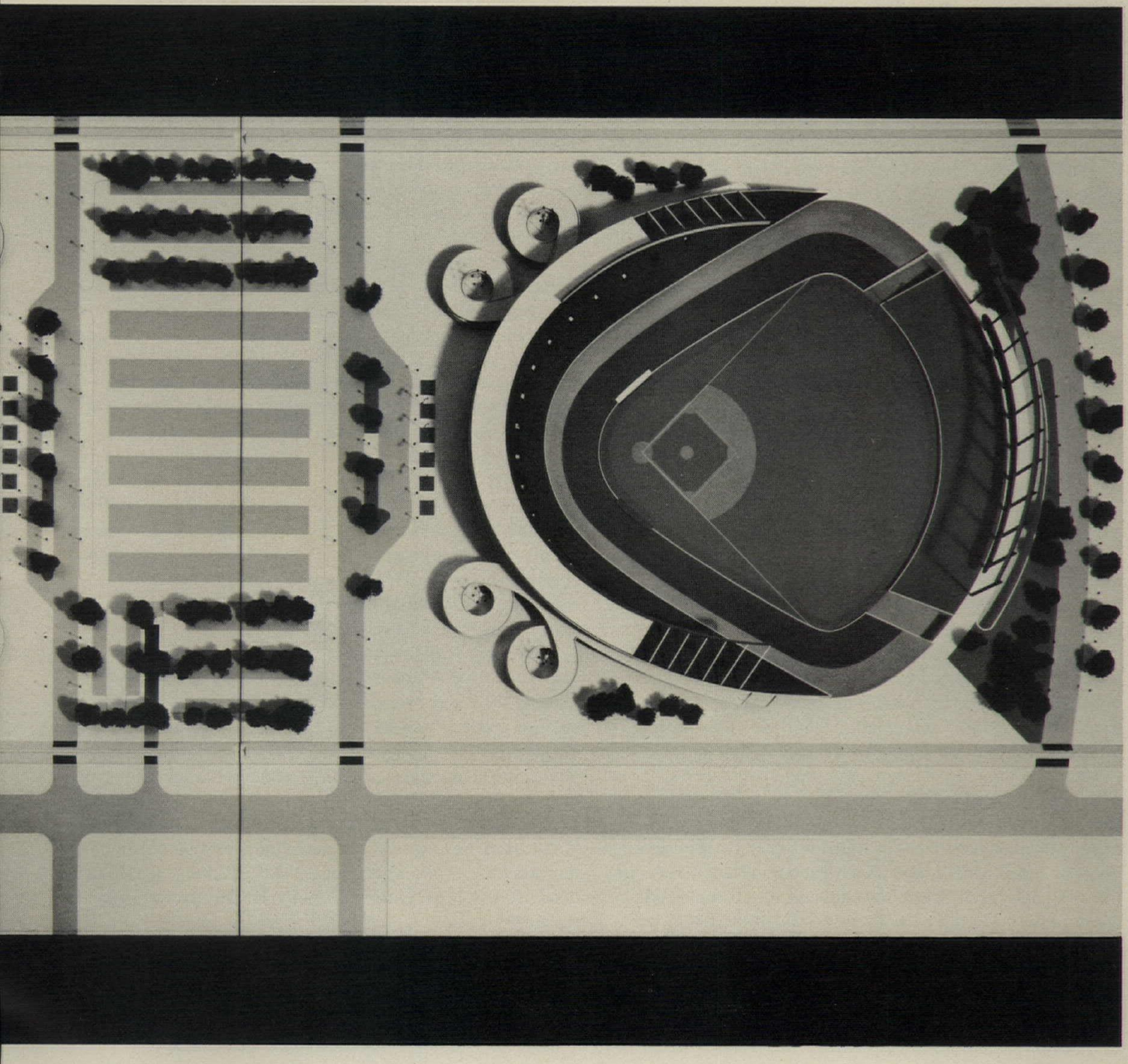
Domes, says Labinski, "are a nicety, sold on the basis that with a dome, the facility will be more useful; the argument is that you can do anything and everything in a domed stadium and stay open 365 days a year. . . ." This he says is a fallacy: the Astrodome only schedules 20 or 30 events beyond the







Two sports, two stadiums mark Kivett and Myers' design for Jackson County Sports Complex, Kansas City. Under construction (delayed by lengthy strike) are a 48,000 seat baseball stadium and a 70,000 seat football stadium. Spectator needs are different for each sport, leading to two quite different stadiums on common site; twin stadium approach avoids compromises of dual purpose stadiums. Cost is around $54 million: a movable roof, costing an estimated $11 million, may come later.



normal football and baseball schedules, staying busy only 220 days a year.

Besides, what do you schedule into a domed stadium anyway? Even championship basketball games and prize fights get lost in the vastness of the Astrodome, and show promoters don't want to draw their smaller crowds to a house that surrounds them with empty seats.

In the New Orleans domed stadium, however, architects Curtis and Davis plan an arrangement of movable seats that can provide the right number of seats for any given event. Moving on tracks under the artificial turf surface, the seats can be set up for anything from a Super Bowl game (82,000 seats) to basketball (28,229 seats) to concerts and shows with varying audiences. Also included in the plans is an assortment of meeting rooms, convention halls and exhibition spaces that might make it a real multi-purpose facility.

That's one of the arguments. What about the advantages of being able to ignore the weather? In cities with severe weather problems—Buffalo with its bitter winter cold, New Orleans with its oppressive humidity—a domed stadium offers a good deal of comfort for player and spectator alike. But football and baseball aren't played from January to March, and in most cities the weather is just not that much of a factor. Baseball games get rained out, of course, but football goes on and on, and to the serious fan, part of the fun may be in braving the elements. Whatever the case, says Labinski, the absence of a dome doesn't keep sports fans away.

Everybody loves a winner.

What does keep them away—often in droves—is a losing team. There is nothing like a winner to draw crowds, and although a winning team won't guarantee the financial success of a stadium, it sure does help.

The economics of stadiums are such that two things can be said for certain: stadiums cost piles of money, and they don't pay for themselves. "We haven't found any stadium that pays for itself," says Finch. "They have to have other sources of support; they have to be part of a complex where one part supports another." Along with that, Finch notes that stadiums, at least in Finch-Heery's experience, are not direct profit making activities, but they are great sources of spending and revenue. The Atlanta stadium generates some $39 million worth of spending each year, which goes a long way toward repaying the city for its two-thirds share of the stadium deficit. (Atlanta was not a costly stadium—at $14 million it was "pretty austere," according to Finch—but it ran into enormous initial costs in getting the team to Atlanta.)

Because of the high cost of construction and the high cost of money, it takes high attendance just to break even, says Sigafoos. And if the teams don't draw, the percentage leases based on ticket sales don't provide enough money to cover debt service expenses, and parking and concession revenues fall off. "I can recall," says Roy Marshall about Maple Leaf Gardens, home of the Toronto hockey team, "that they could tell whether the home team was ahead at intermission by the amount of money spent on concessions. If the team is doing well, people are happy to spend their money on souvenirs and hotdogs." Everybody, it seems, loves a winner.

Still, says Sigafoos, stadiums aren't big money-makers. The closest, he says is probably Shea Stadium, owned by the New York Port Authority. And even the big name stadiums can be foolers: Houston Stadium Authority pays a yearly rental of $750,000 which just covers debt service on $15 million in bonds. There are big losers aplenty, from coast to coast. Anaheim, home of the California Angels, put some $21.5 million into a stadium; they predict losses for the next 10 to 15 years.

Political football

Anything that costs as much as a stadium costs, and that has such an impact on the city—physically, socially and economically—automatically enters the realm of politics. Individuals stand to gain or lose fortunes and prestige, public authorities can be made or broken, taxpayers always get the bill in the end, and there are those who see the stadium as the greatest thing for the city while others who feel it diverts money from more worthwhile use; and there are folks who just plain don't care about sports. It is all resolved, however, in the political arena.

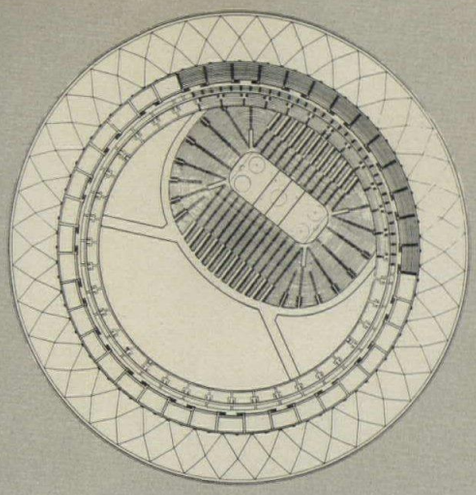
Nearly all those elements are included in the political jambalaya that has the New Orleans Superdome as its basic ingredient. Backers of the stadium foresee a $60 million profit and $3 billion in extra spending over the next 30 years from the $150 million domed stadium; opponents have called it illegal and expensive. One taxpayer's group went so far as to label it a swindle.

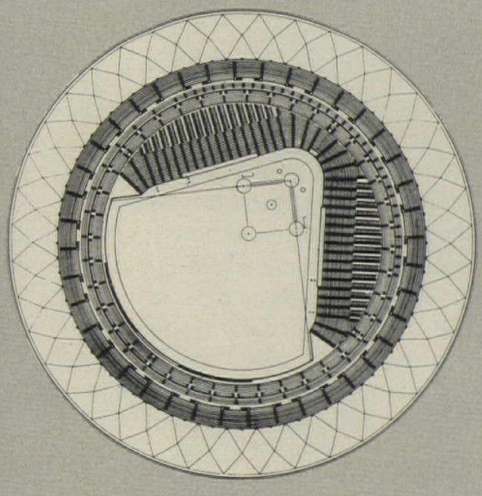
It is a long story, starting in 1966 when voters approved the stadium under what one state senator suggests is a misapprehension. At that time, according to John Schewegmann, the stadium cost was put at $30 million, none of it coming out of taxpayers' pockets. Since then, he says, the cost has risen and the stadium will now be paid for by the taxpayers. What really happened was that the state signed a 40-year lease on the stadium for an annual rental equal to the yearly deficit, in effect pledging the state general taxes to pay it off.

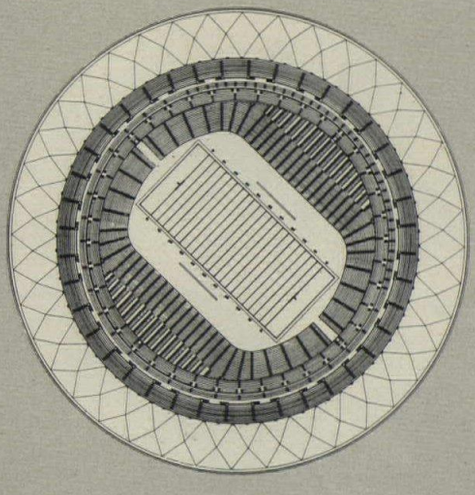
The story got more complicated. One lawsuit after another was filed in attempts to block the project. None were successful, at least not directly; they did however create an air of uncertainty that made it hard to sell the stadium bonds. That went through, finally, and there is now $113 million in the bank to build the stadium.

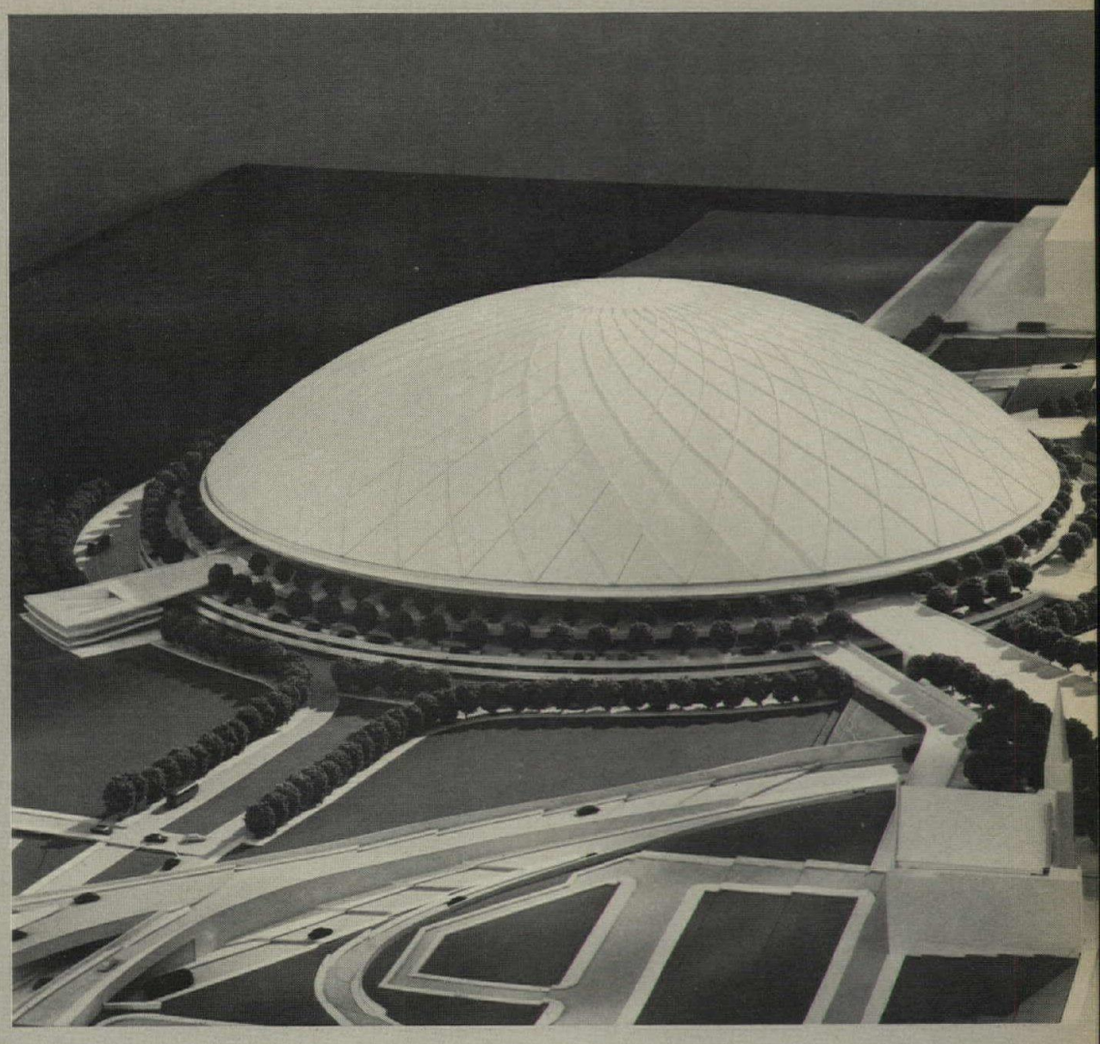
Politics is one of the many specialities of New Orleans, but many of the arguments against the Superdome are not unique. "There is always some opposition, some objection to stadium projects," says Finch. "There is always something else to spend the money on. The only real answer is that the money the stadium generates will help afford other things on a continuing basis." It is a vague sort of answer, at best, and while it doesn't do a lot to reassure the most doubtful, it does hold true in the long run. Thanks to the movement of money through the city and what economists call a multiplier, the city does eventually get back what it puts into the project, and maybe then some.

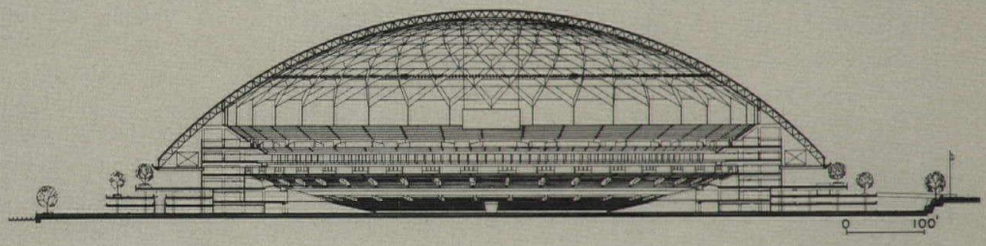
As long as pro ball remains the big business it has become, there will have to be some place to play. But as economist Sigafoos puts it, the overall forecast is "mixed trends in the stadium business." Or, as your friendly local bookmaker would say: "six-five and pick 'em." [CP]

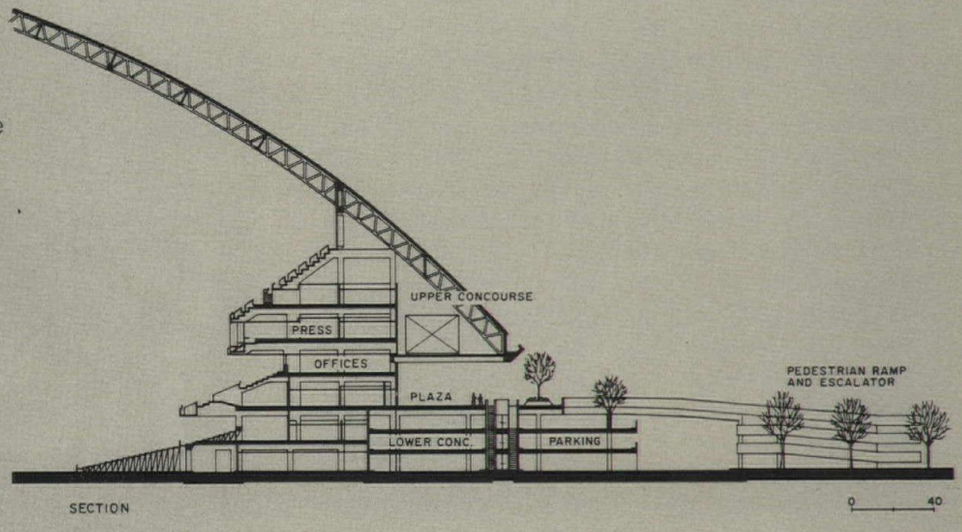












Newest domed stadium design is for Wayne County Stadium in Detroit. To be built next door to Cobo Hall, it will seat 60,000 for football, 55,000 for baseball and 25,000 for basketball or ice hockey. Below rim of 872-ft diameter dome will be an open plaza overlooking Detroit River; below the plaza, parking for 2500 cars. Pedestrians will have their own system of ramps and bridges. Architects for $85 million project are Giffels/Finch-Heery/Stone, a joint venture of Giffels Associates, Inc., Edward Durrell Stone and Associates and Finch-Heery.

Organic architecture at Goddard College

Students at a small college in Vermont are learning to design and build in a radically new way: from the ground up, with hammer and saw in hand, but no drawings

Goddard College is a small, private, liberal arts school nestled high in the mountains of northern Vermont. The school opened its doors 34 years ago in some beautiful, old, dark-shingled buildings that had once been part of an early model farm. Seeming to have escaped the vicissitudes of time, Goddard pursued a comfortable program of liberal education until a new president took over a few years ago. As one of 14 members of the Union for Experimentation in Higher Education, Goddard has innovated, and has continued to examine carefully, new educational programs they consider more realistic to the climate of today.

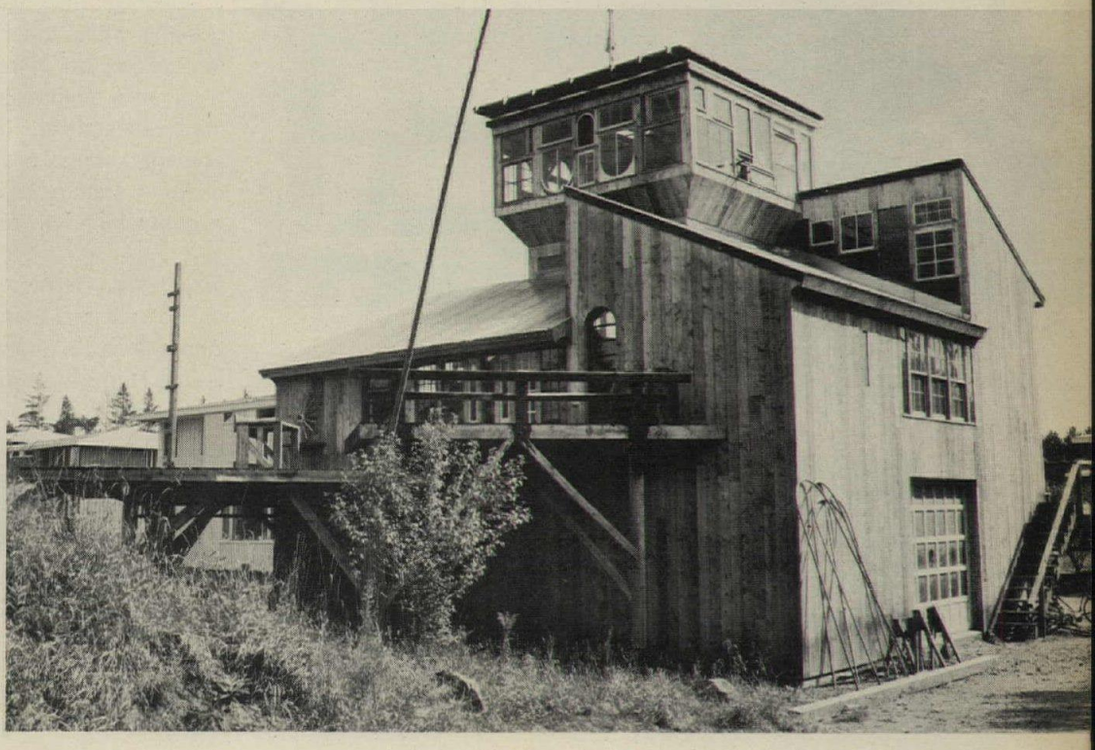
In the school's concern with exploring the possibilities of loosening many of the usual restraints on students, learning has been organized around a curriculum of individualized study where the student works at his own pace, pretty much establishes his own goals and pursues his own interests. With an enlightened faculty who do not teach, in the normal sense of the word, but act more as guides to the students, the result is an atmosphere of involvement in learning that few schools seem able to equal. In educational parlance this method of education is called experiential learning and, at Goddard, it is probably carried farthest in the architecture department.

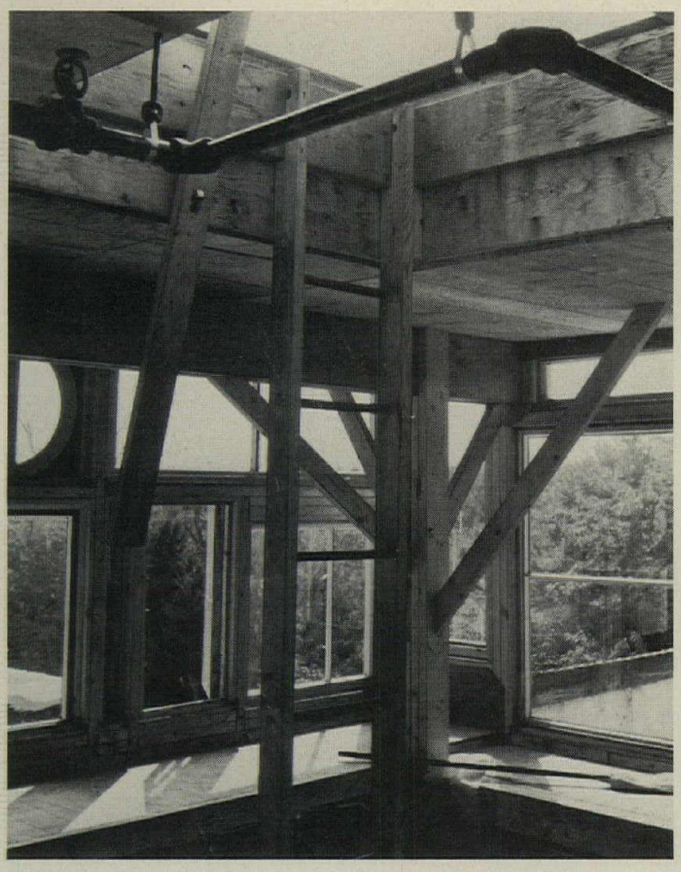
In the fall of 1970, when the president asked John Mallery and David Sellers if they would be interested in establishing an architecture school, the three came to quick agreement that the school should, in the traditional sense, have no faculty or rigid, systematized class structure, and that the students should build their own facility, the Design Center. The program for the first year's beginning students was exactly that: building the Design Center.

Mallery and Sellers, although they may disagree slightly on the amount of autonomy they feel the individual student should have, are basically in accord as to the direction of the program, namely that it should not be prescribed and that students be given as many choices as possible. They feel that decision-making capabilities are inherent in everyone, but that one problem with many students is their inability to make decisions, simply because they are rarely given choices.

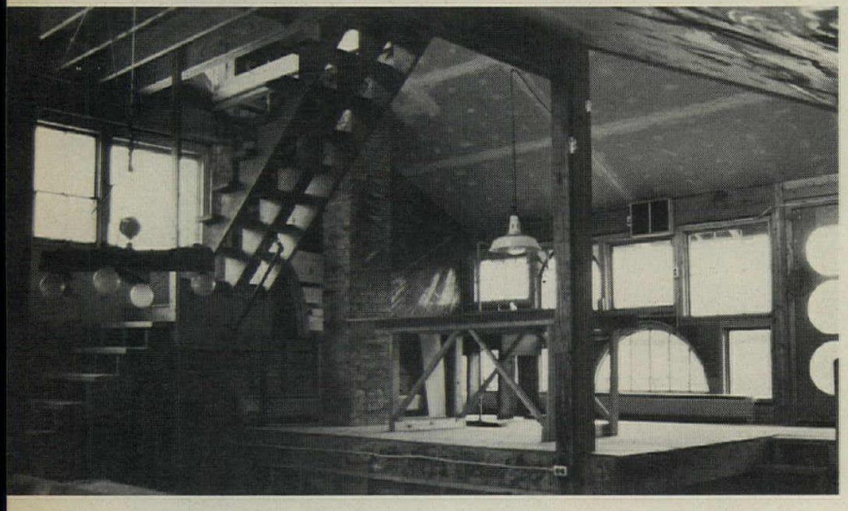
At Goodard, where the choices are given, the only excuse for not making a decision is lack of information—this is overcome by gathering more information. The basic plan is to teach students to make rational, coherent decisions based upon all available information—a term that is redefined to include not only facts and ideas, but also material realities such as columns or beams. Initially, there may be no other source of information than a poured concrete foundation, which is then developed into growing design concepts. The faculty believes the student will never really maximize his learning until he begins to deal, out of necessity, with reality. As John Mallery says, they want to bring the student out of his romantic dreams, to explode the mysteries of how a building goes to-

Windows from a local housewrecker bring light to interior of the student-built Design Center. Skylight widow's walk is reached by inside stairs and levels or exterior staircase.





The widow's walk (top) is a rest-and-think place, and below it are various levels of work spaces that emerged during design and construction of the Design Center.



Data

Project: Design Center, Goddard College, Plainfield, Vt.
Architect: John Mallery in association with students in Design Center.
Program: meeting areas, offices and studios for class in architectural design.
Site: a small, treeless rise near the college dormitories.
Structural system: post and beams allowing window placement to be decided later.
Mechanical system: oil-fired hot water boiler, baseboard and unit heaters.
Major materials: wood, chosen as the easiest for students to deal with, and windows picked up from a house wrecker.
Costs: $26,000 complete.

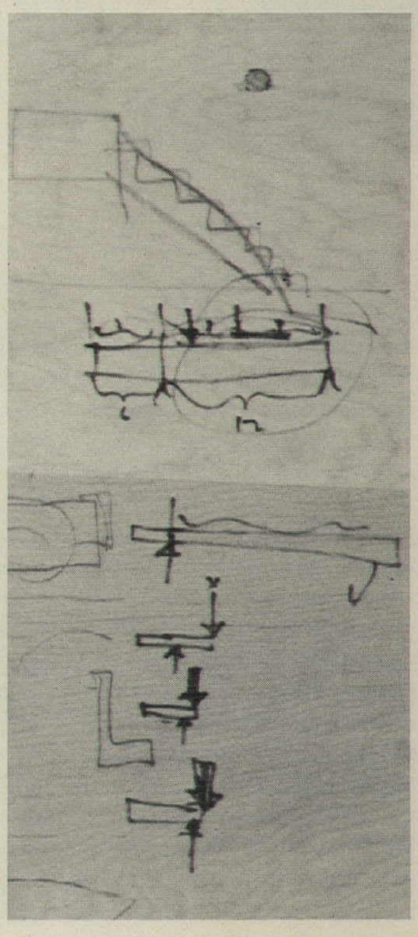
gether, so he will ultimately be able to produce his own, real dreams. They want to train students to conceptualize a problem with real materials, and then to go out and pick up a hammer and do it. This, they feel, is the only way the individual can be liberated from the constraints or preconceptions he may have had, allowing him to gain the insight and direction necessary for a realistic foundation of learning. There are no standardized courses in design, structures, architectural history or the like. It is preferred that students, who may or may not decide to become professional architects, begin the program with as few preconceived notions as possible. Later, if the students themselves decide they want them, courses of a more traditional nature may be offered.

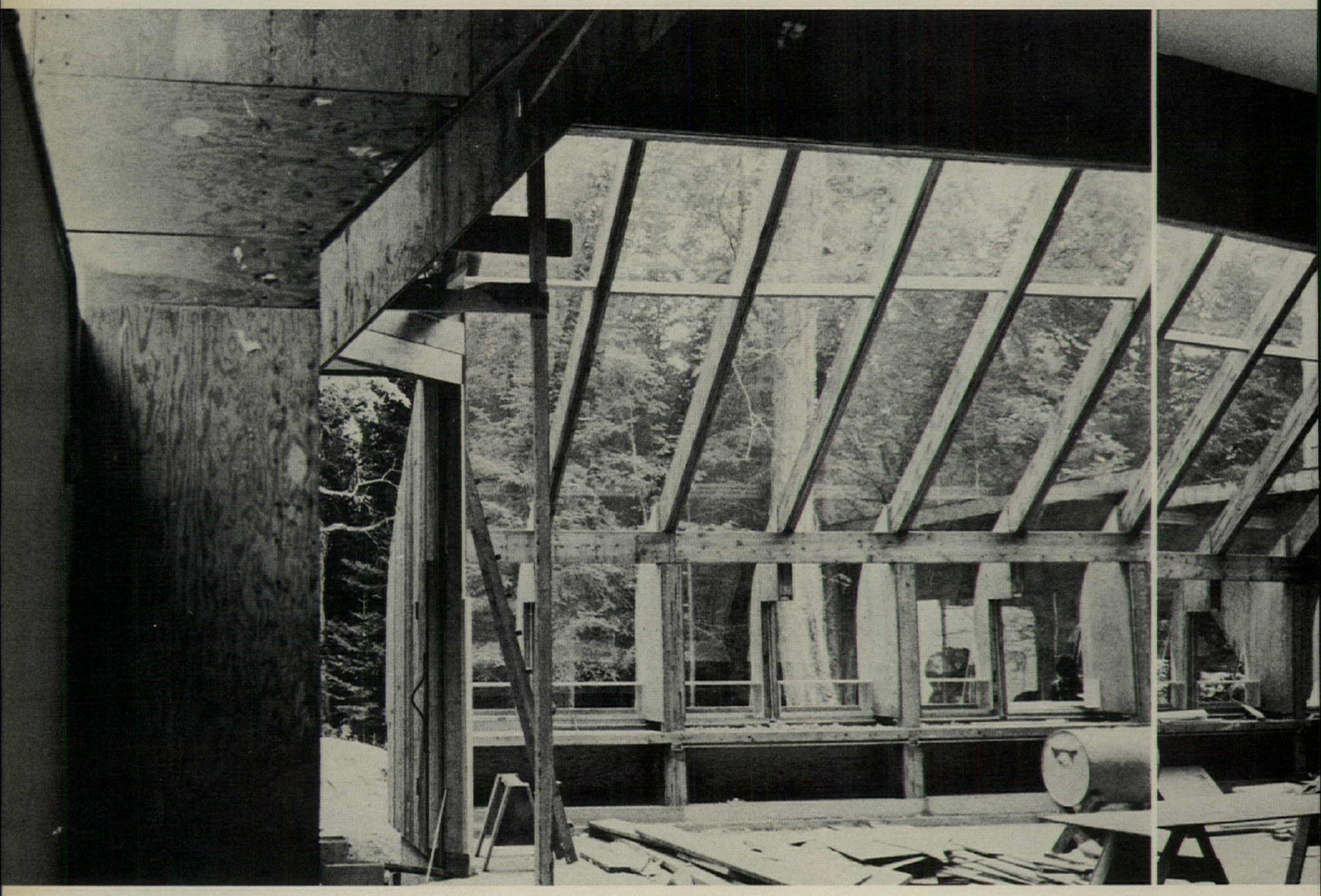
The program—the actual design and construction of a building—is, of course, a very old way to learn, but Mallery and Sellers believe it to be the best way. They feel that the architectural profession suffers a real drawback in that architects, who rarely build the buildings they design, deal less directly with their medium than most other groups involved in the arts. The student suffers a double disadvantage in that he is required to spend years working out imaginary solutions to artificial problems that have little, if anything, to do with reality. Dave Sellers says it is easy for a student to go through school spending years making pretty pictures without ever gaining the understanding that what he is doing is actually sound, that it would actually work. The enormous virtue of having students build their own designs is that they are provided the rare opportunity of instant feedback (information); if the student makes a mistake he knows it immediately and can quickly change it on the spot, resulting in a positive learning experience rather than in emotional turmoil for having failed to do better. Furthermore, the experience of direct involvement in construction and in design decisions on a day-to-day basis, of dealing with real budgets, of scheduling work hours and of ordering materials to arrive at appropriate times, creates a learning situation that could obviously never be possible within the framework of the usual "paper architecture" school of training. And when students are personally involved in building a structure, they learn first hand that even the smallest design decision or construction detail may present complex problems that could affect other parts of the building, such as its electrical or plumbing system, which might never have come to light through a drawing.

The Design Center

The buildings that have actually been built—the Design Center and the Sculpture Building—are referred to by the staff and students as "organic architecture" because they were conceived as a continuing process which grew from day to day, without the need for formal working drawings, as ideas became material realities. The first project of the 40 first-year students was to design and build their own Design Center because they had no place to meet. Using only $26,000 (less than half of what would have been needed to build in the conventional manner) of their $40,000 budget from the school, the students set to work. The first decision to be made was where to place the building—a difficult decision because there are many beautiful sites on the Goddard campus. But as the discussions progressed, the staff and students decided

Light is brought to the Sculpture Building through large areas of acrylic glazing. Walkway (above) will house studios. Drawings (right) were sketched on walls as work progressed.





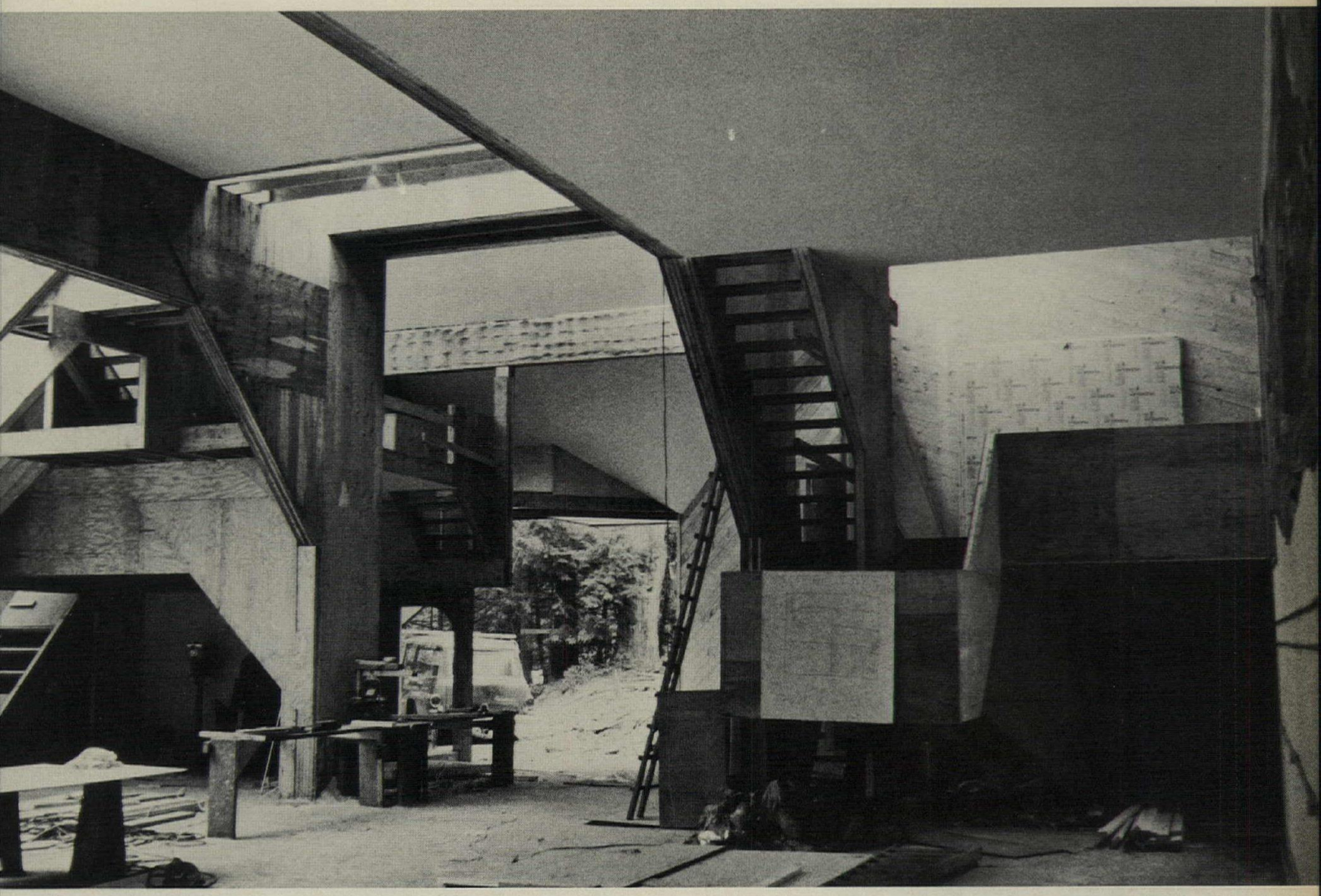
they did not want the building in a beautiful place, but rather in what is probably the least inspiring spot on campus. That spot is at the perimeter of a small, treeless rise that is scattered with cheerless, two-story dormitories the school built several years ago. Why put the Design Center there? Because it is the one place on campus that really needs help, and the architecture department hopes that one day they may be able to relocate some of those scattered buildings closer to the Design Center to create a more sensible and more densely organized environment of much greater vitality.

It was decided that the Design Center should be similar in scale to the dormitories, but that it be flexibly designed to accommodate other possible uses in the future. The concrete foundation was sublet to a contractor who worked by redrawing student sketches; after it was poured the students finished the building by working from a quarter-inch model that was periodically updated as construction progressed. To gain maximum height, laminated wood beams were used for the column system. Once they were in, the students began enclosing volumes for various activity areas. The ground floor is mainly a shop and utility space, and above it, on various levels reached by a variety of stairs and ladders, are the studios and offices, which are topped by a widow's walk rest-and-think place; from there, an exterior staircase descends around three sides of the building. The exterior is clad in hemlock shiplaps, insulated, then sheathed with sheetrock on the inside. Most of the windows were picked up cheaply from a local housewrecker, and the roof is ordinary corrugated metal.

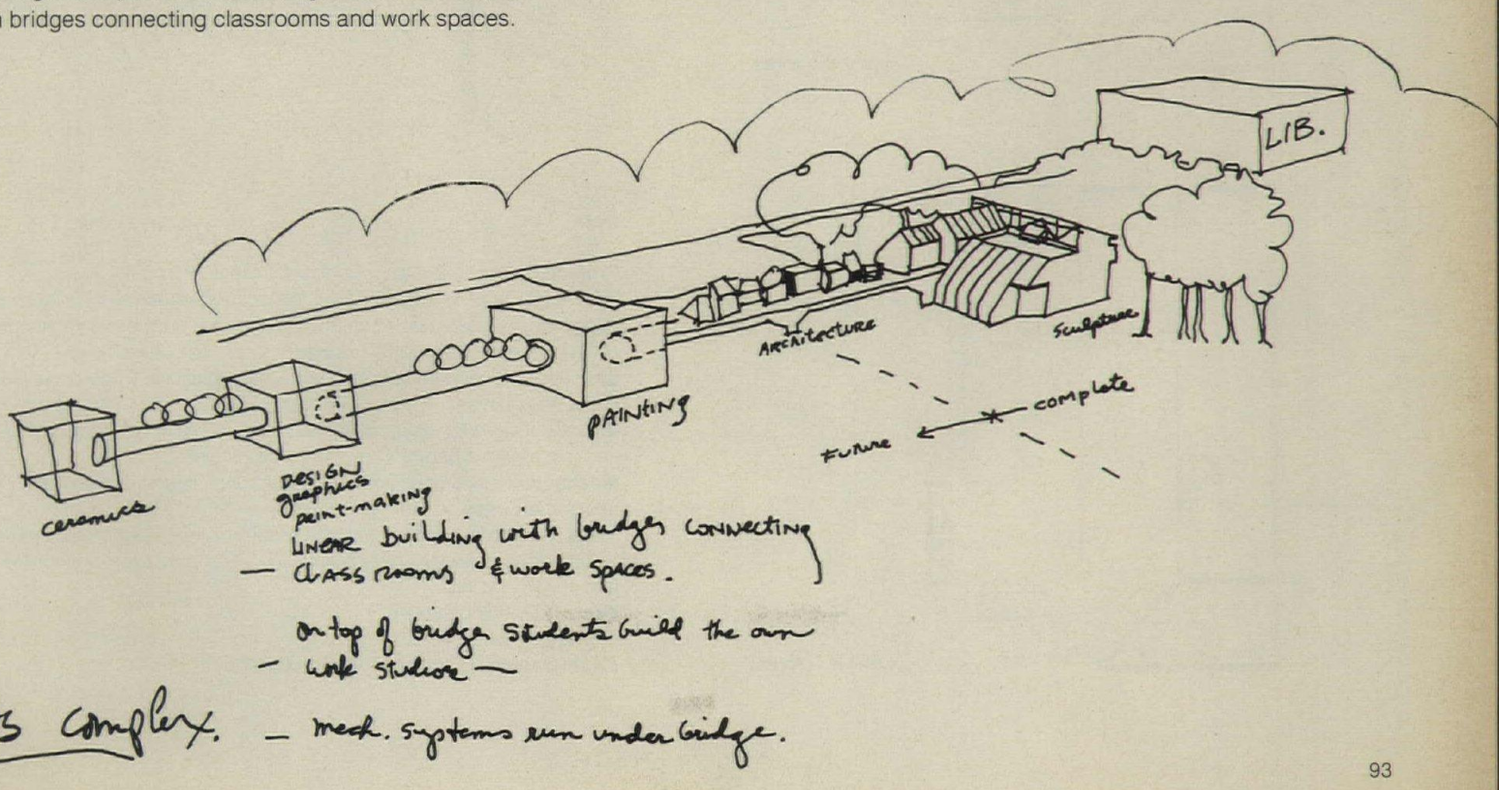
There is an undeniable quality of joy, exuberance and spontaneity to the Design Center, which in the Sculpture Building—done by most of the same students during their second year—has matured into a genuine and intelligent sensitivity to design and construction.

The Sculpture Building

The Sculpture Building, which was planned in close association with the arts faculty and students, is actually only part of a proposed arts complex which, when finished, will be a



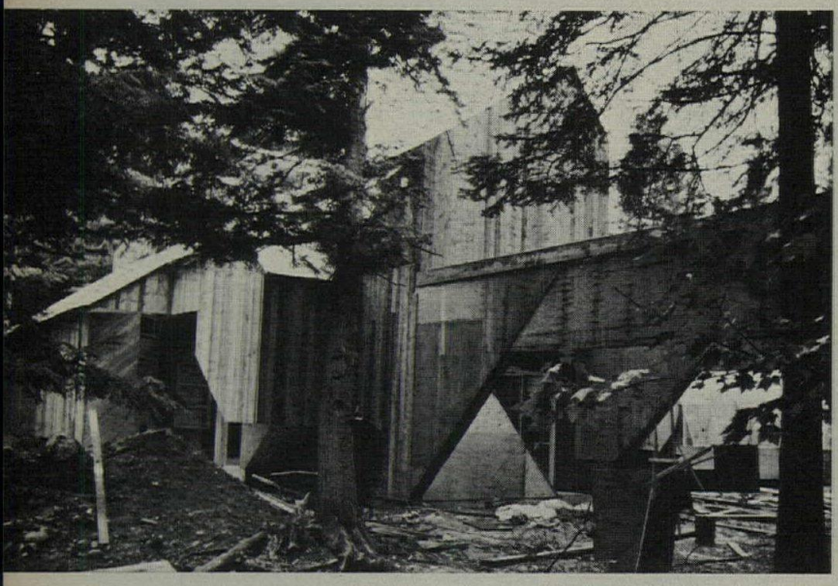
Photomontage of main sculpture studio whose space is framed around two large plywood bents. Sculpture Building is first part of a 500-ft long linear Arts Complex with bridges connecting classrooms and work spaces.

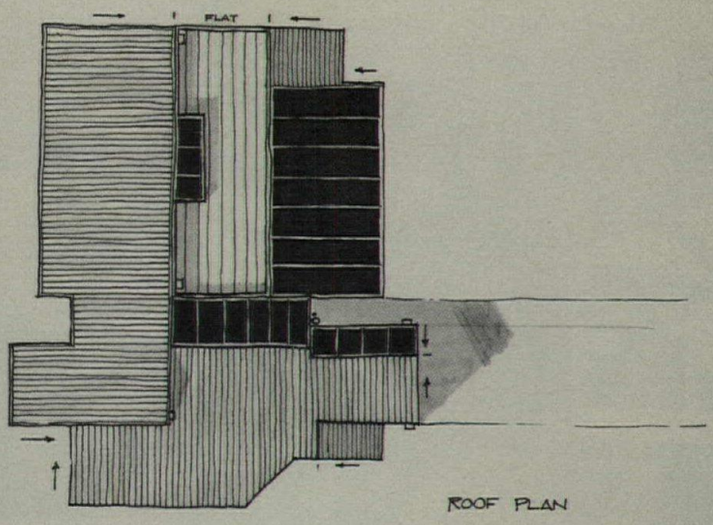


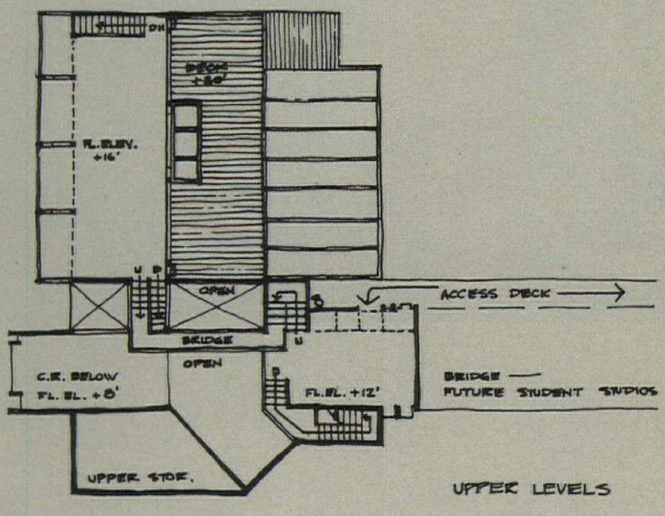
LINEAR building with bridges CONNECTING
— CLASS rooms & work spaces.

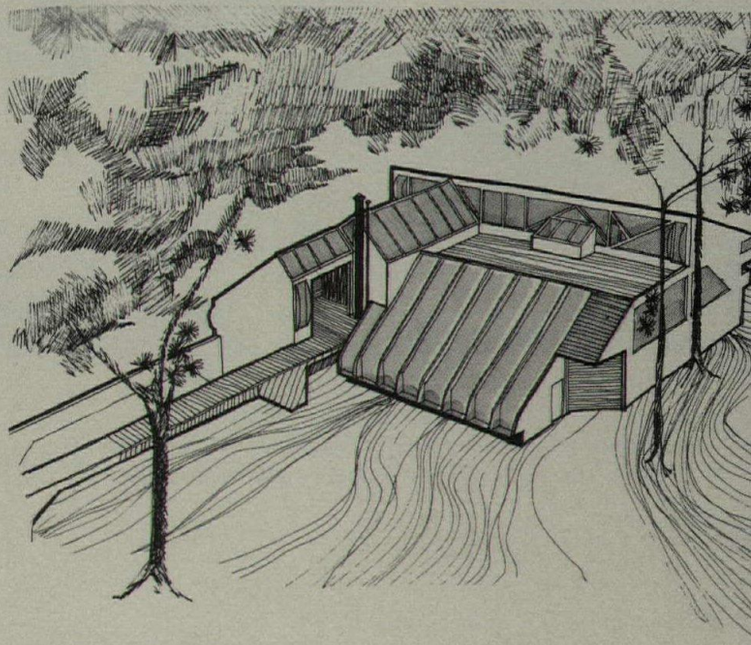
On top of bridges students build their own
— work studios —

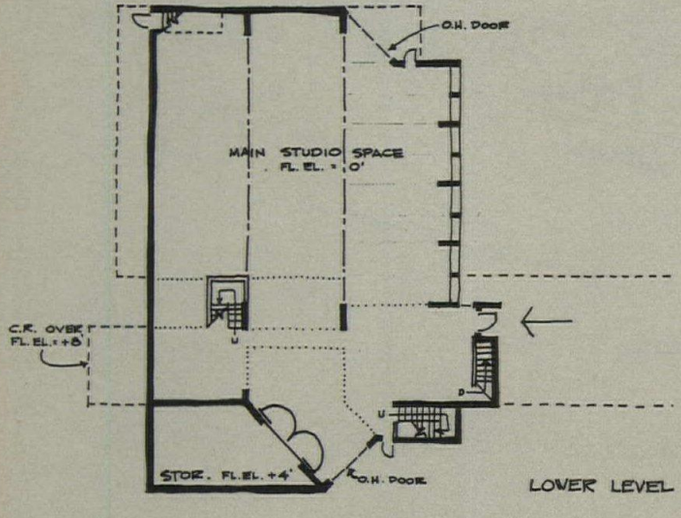
ARTS Complex. — mech. systems run under bridge.





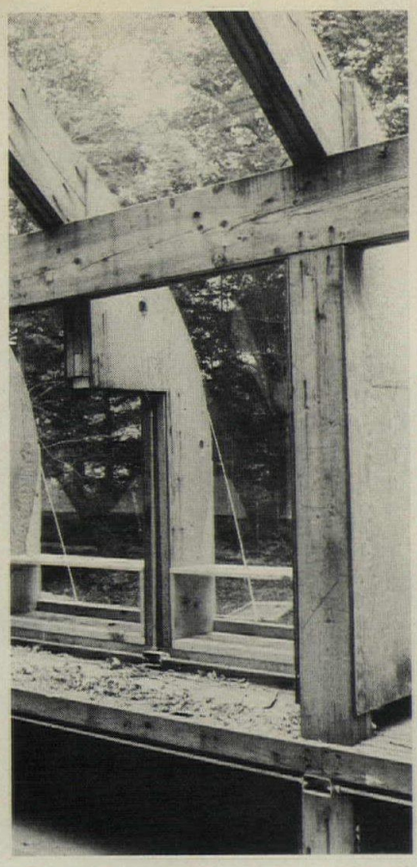


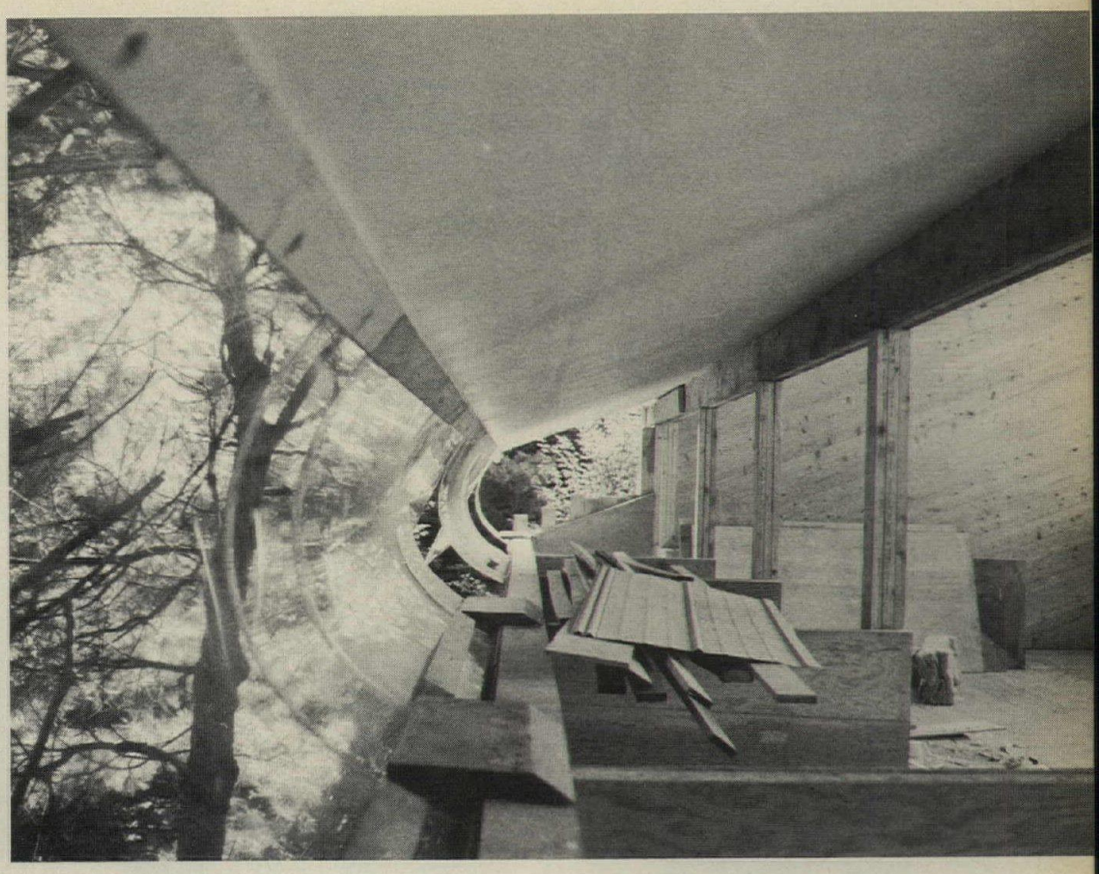




Data

Project: Sculpture Building, Goddard College, Plainfield, Vt.
Architect: David Sellers with John Mallery and students of Design Center.
Program: sculpture workshop and classrooms, program worked out in collaboration with students and instructors in sculpture.
Site: densely wooded part of campus that will ultimately become site of entire arts complex.
Structural system: separate areas framed in around plywood box beams and two plywood bents, large span, trussed ceiling.
Mechanical system: oil-fired hot water boiler, baseboard and unit heaters; exposed conduit for electricity.
Major materials: cedar siding with sheetrock inside, exposed plywood bents and box beams, sheetrock ceiling, spruce decking, sheetmetal roof and acrylic glazing.
Costs: $55,000 complete.
Drawings: James A. Murphy.
Photography: David Sellers, David Morton.





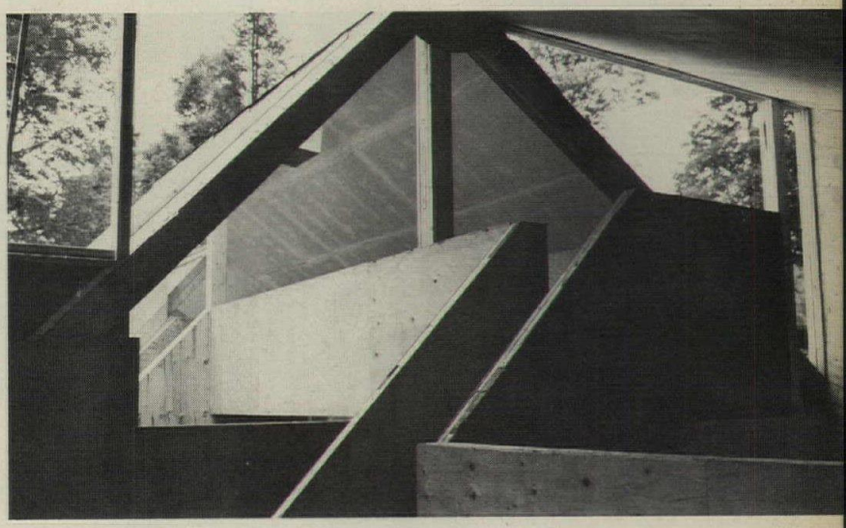
Upstairs sculpture studio is reached by interior bridge (below) under skylight roof. Detail (left) of acrylic-glazed wall.
On facing page, photo shows first stage of connecting bridge.
Drawings were made from sketches after completion of building.

500-ft-long linear arrangement of four buildings running through a densely wooded part of the campus. The buildings will be connected to each other by a bridge-walkway upon which students will either build or hang their individual studios. The main part of the Sculpture Building is formed around plywood box beams and two large plywood bents connected by a roof. From one end of the roof, acrylic glazing slopes down to sill level to form a spacious, north-light sculpture studio. Atop the south bent is a truss that rises to form the major part of a long, glazed wall that brings light into another, top level studio area, which extends back under the truss-raised roof in the opposite direction from the north studio. Other areas of the building, the offices and faculty rooms, are framed in around the bents.

Even though it is constructed of similar materials, this building cost $29,000 more to build than the Design Center. Its larger size accounts for much of that, but to carry out the design as planned, it was necessary to use large amounts of acrylic glazing, which also increased the cost significantly. A large part of that expense, however, was defrayed by a generous contribution of material from the acrylic sheet division of Swedlow, Inc.

There is still a lot of building to be done at Goddard—enough to last at least 10 more years—and the president hopes the design group will continue right on as they have for the past two years. With the telescoping of the design-to-finished-building process, future campus needs can quickly become buildings within only one year's time.

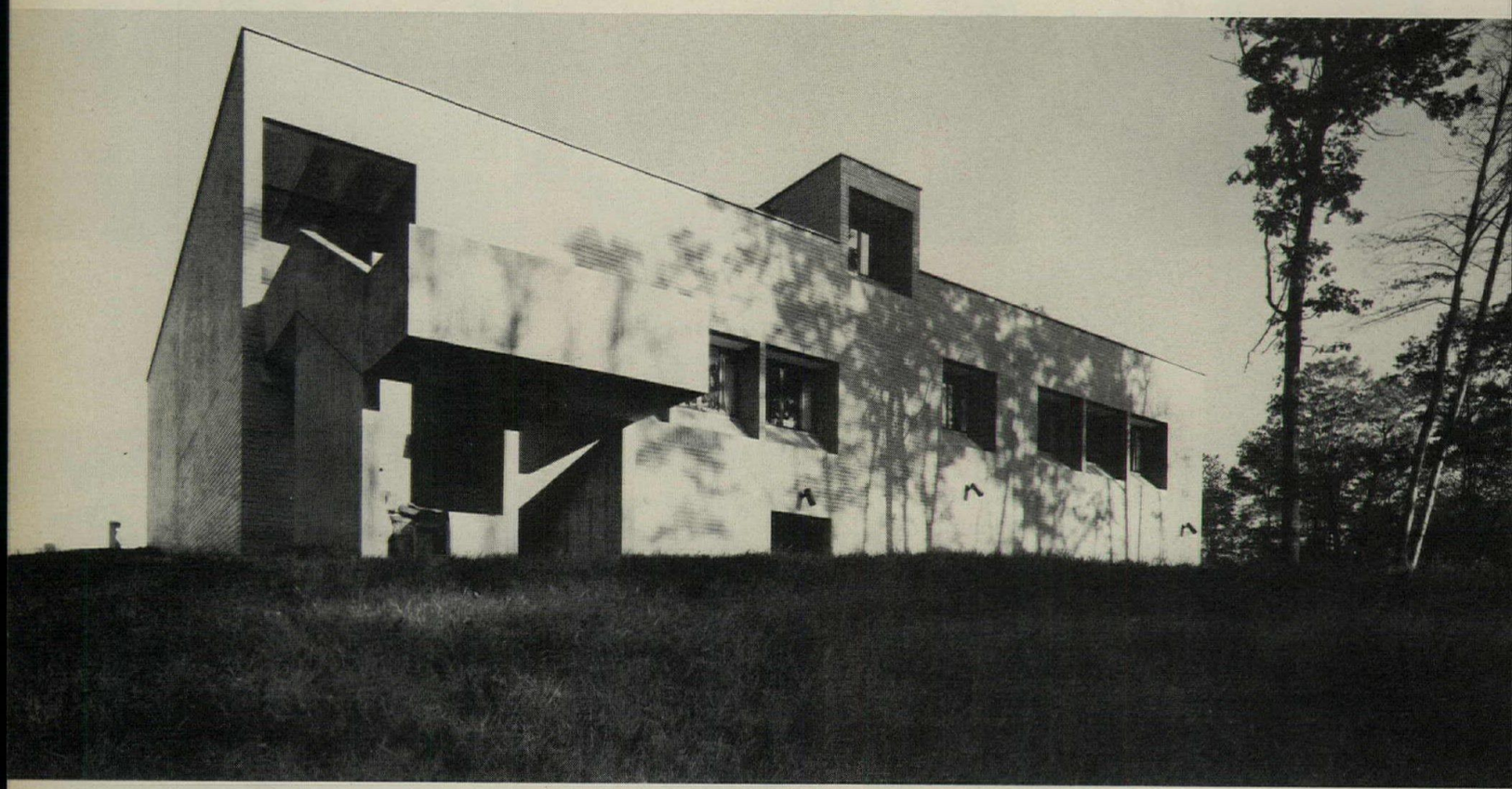
There are other plans afoot, too. As the school grows, John



Mallery and Dave Sellers would like to see the group become more involved in local community affairs (they have already done some work in nearby Plainfield). And there is other work they see to be done, such as a serious study of the rapid population growth in Vermont. They would like to initiate a student exchange program, and ultimately to establish the department as a base for students who could periodically leave to study at other schools or with expert professionals. Then Goddard could become an important center for the interchange of information on new methods, equipment and materials pertinent to the profession. [DM]

Northern branch, New Haven YMCA

Single wythe Y

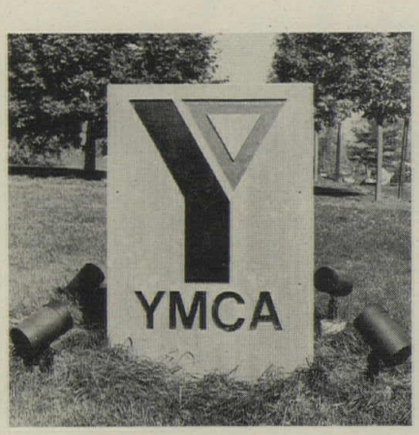


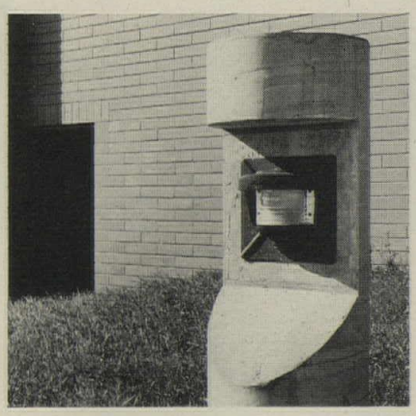
Design for a neighborhood YMCA in a residential area makes full use of materials and opens its functions to public view, inviting broader family participation

Although still evoking thoughts of endless corridors leading to obscure meeting rooms or to a pool buried who-knows-where in the bowels of a dreary building, the image of the YMCA is changing. Architects Harold Roth and Edward Saad, in their design for the northern branch, New Haven YMCA, have left no trace of yesterday's standard. Charged with providing a family recreational center which could be operated with minimal staffing and maintenance, Roth and Saad imposed on themselves the additional task of breathing "new life into this traditional building type." Phase one is completed, and phase two and three (handball courts and a gymnasium) will be added as financing permits.

Focus of this new life is the skylighted central lobby, a large multilevel space offering an invitation to the major activities that are accessible both physically and visually from it. This open space also allows supervision of the entry and social activities from the main office counter on the upper level.

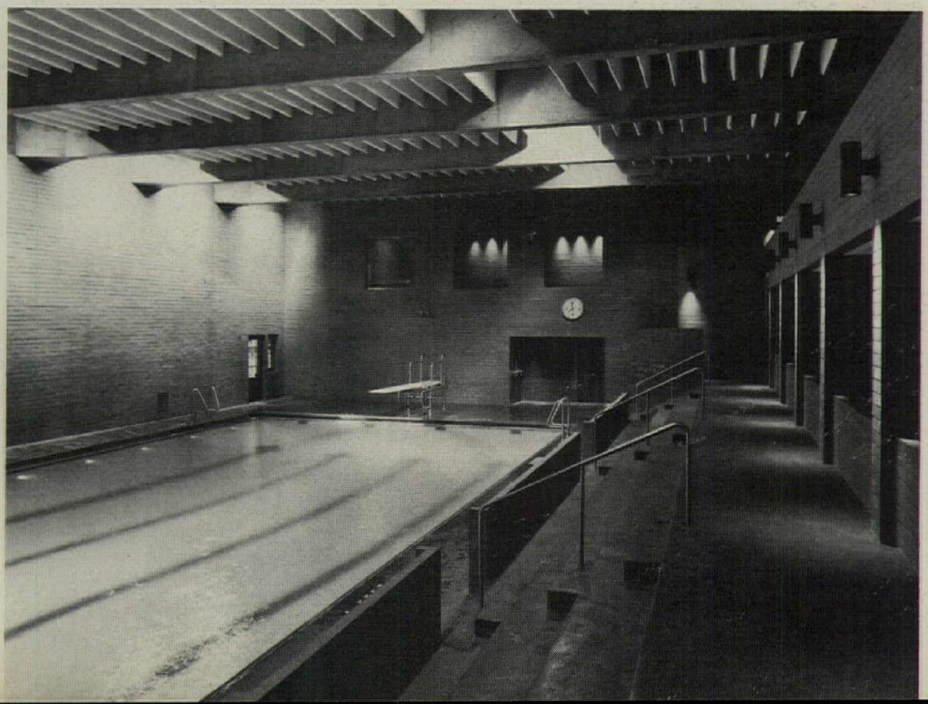
Use of single wythe jumbo brick in both bearing and non-bearing walls throughout the building provides the additional advantage of relatively maintenance free surfaces. Poured concrete floor and roof structure is used throughout, including 56-ft members that span the swimming pool and rest on expressed brick buttresses. Stock brick shapes also form battered sills, display cases, air grilles and even structural lintels, with a little help from some reinforced concrete. Floor

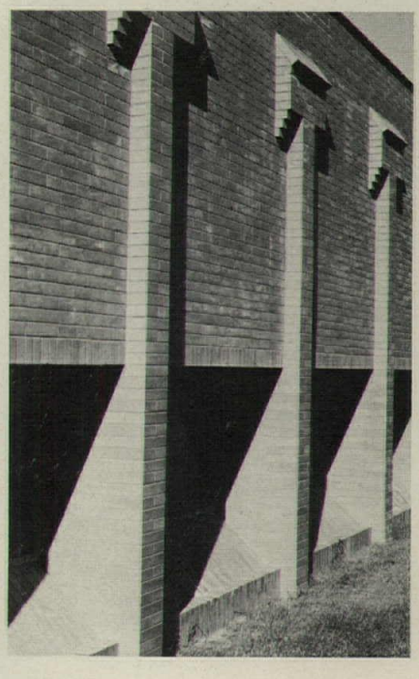




Attention to detail and lighting is evident in the sign (top) and outdoor light fixture/bollard (bottom). Side and rear elevations (opposite page) and stair will connect with future phases.

Multi-level lobby allows control from deak (left, in photo above) and connects with pool (below). Brick buttresses (right) carry and express loads from cast-in-place beams spanning swimming pool.





surfaces are primarily quarry tile except for carpeting in the offices and health club, and maple flooring in the multi-purpose room. The overall effect is a warm monotone, broken slightly by the white painted concrete overhead and the exit signs, and lightened by the "butcher block" woodwork.

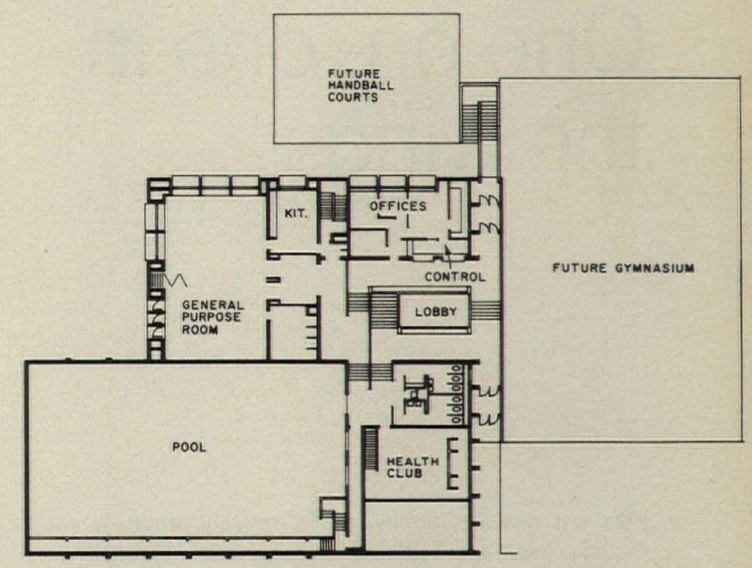
Lighting design was a carefully integrated part of the concept. The central lobby is lighted with wall washers and downlights, combined with continuous fluorescent strips built into trim atop the low walls. the multi-purpose room has both fluorescent and incandescent systems for exercise-game-day-nursery uses and for meeting-lecture-dinner uses.

The swimming pool uses quartz floodlights on the wall opposite the windows, and on the ceiling. Acoustical treatment in the swimming pool area is provided by fiberglass blankets covered with white perforated mylar. Baffles are 2 ft deep and 10 ft long, hung 18 in. o.c. from the slab between main structural members. [JM]

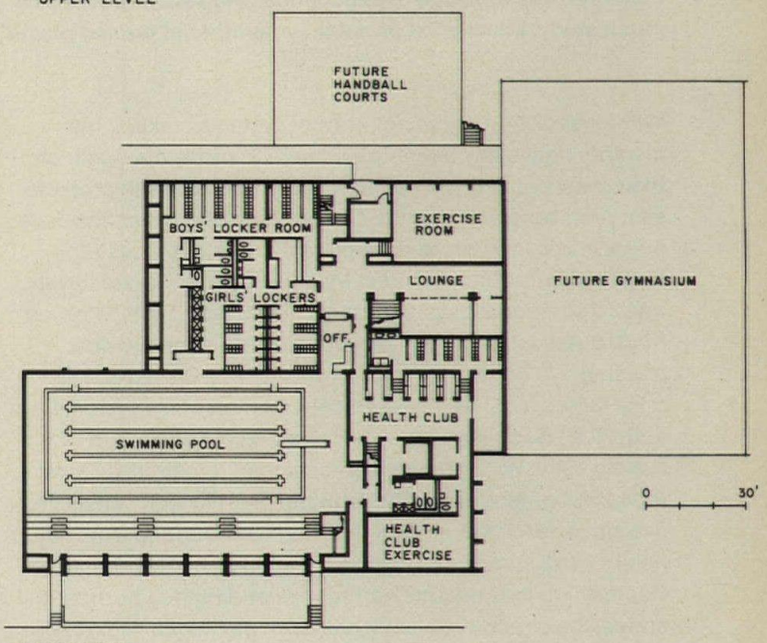
Data

Project: northern branch, New Haven YMCA, Hamden, Conn.
Architects: Harold Roth & Edward Saad.
Site: sloping, wooded land, parallel to a ravine, within a residential area.
Program: family oriented YMCA to incorporate, in three phases, complete recreational facilities including swimming pool, lockers, health club, exercise rooms, multi-purpose rooms, offices, running track, gymnasium, squash and handball courts.
Structural system: load bearing jumbo brick walls and buttresses carrying poured concrete roof and floor.
Mechanical system: heating and mechanical ventilation from central gas-fired boiler. Future air-conditioning provisions for administrative area.
Major materials: jumbo brick, poured concrete, quarry tile floors except for maple flooring in multi-purpose room and carpet in offices and health club.
Costs: $750,000 excluding fees and cost of land, furnishings and equipment ($30.00/sq ft).
Consultants: structural, Associated Engineering; mechanical, Hubbard, Lawless & Osborne; lighting, Sylvan R. Shemitz & Associates; Acoustical, Bolt Beranek & Newman.
Photography: Robert Perron.

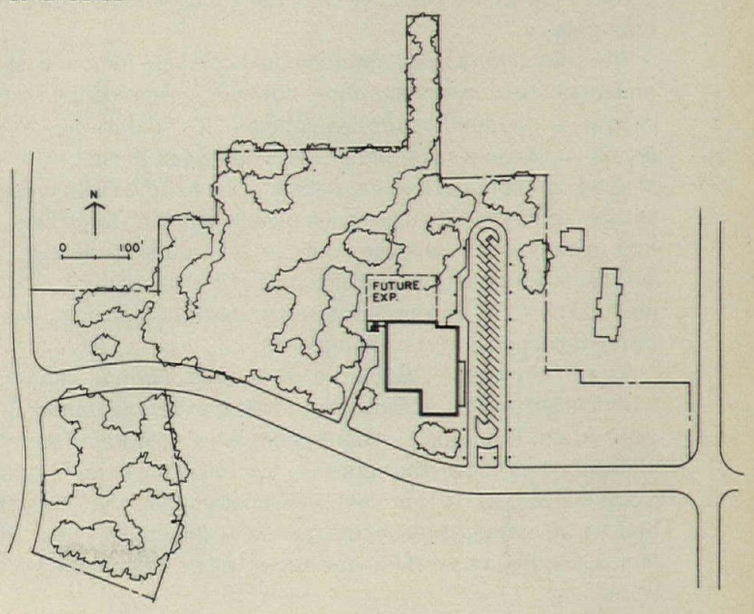
Dual level health club (above) with two story exercise area.



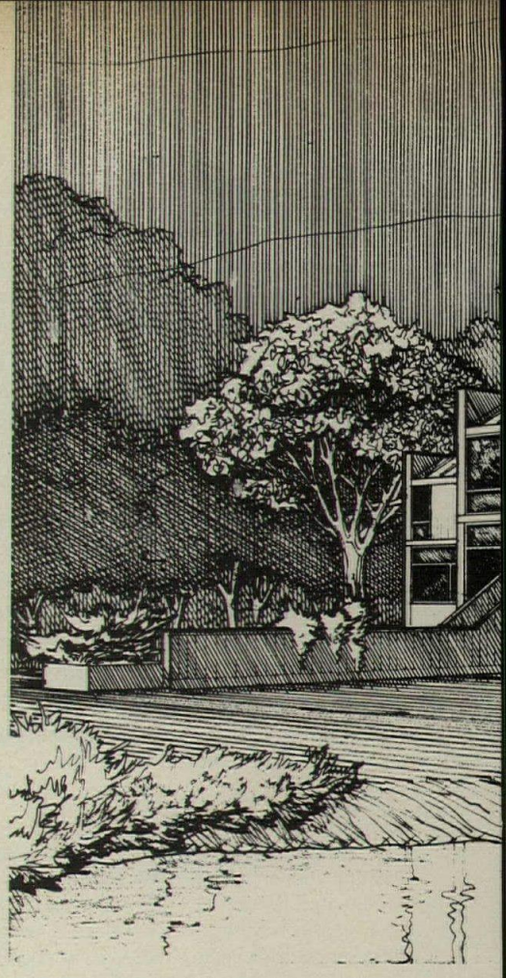
UPPER LEVEL



LOWER LEVEL



One on, one in the wings



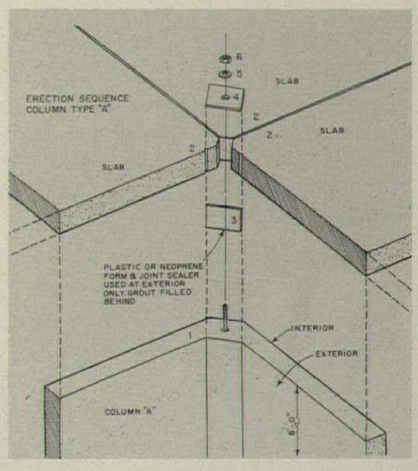
Plastic materials, literally and figuratively, are the bases for two approaches to systems building. One, of precast concrete, has the edge of experience. Proposais, backed by much study, show great promise for another of formed plastic

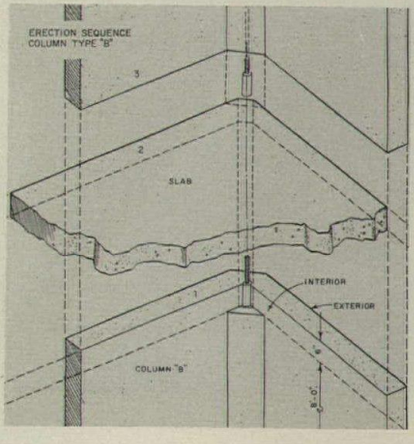
Within the ever-increasing ranks of systems makers, few members have any tangible evidence to prove the worth of their creation. One exception is Sepp Firnkas. With projects spanning several years, the German-born engineer has developed, and continues to develop, a number of precast concrete systems. With architect Maarten Denhartog, he developed a component system called "Precreate," and with Carl Koch & Associates, the "Techcrete" system for low-cost housing.

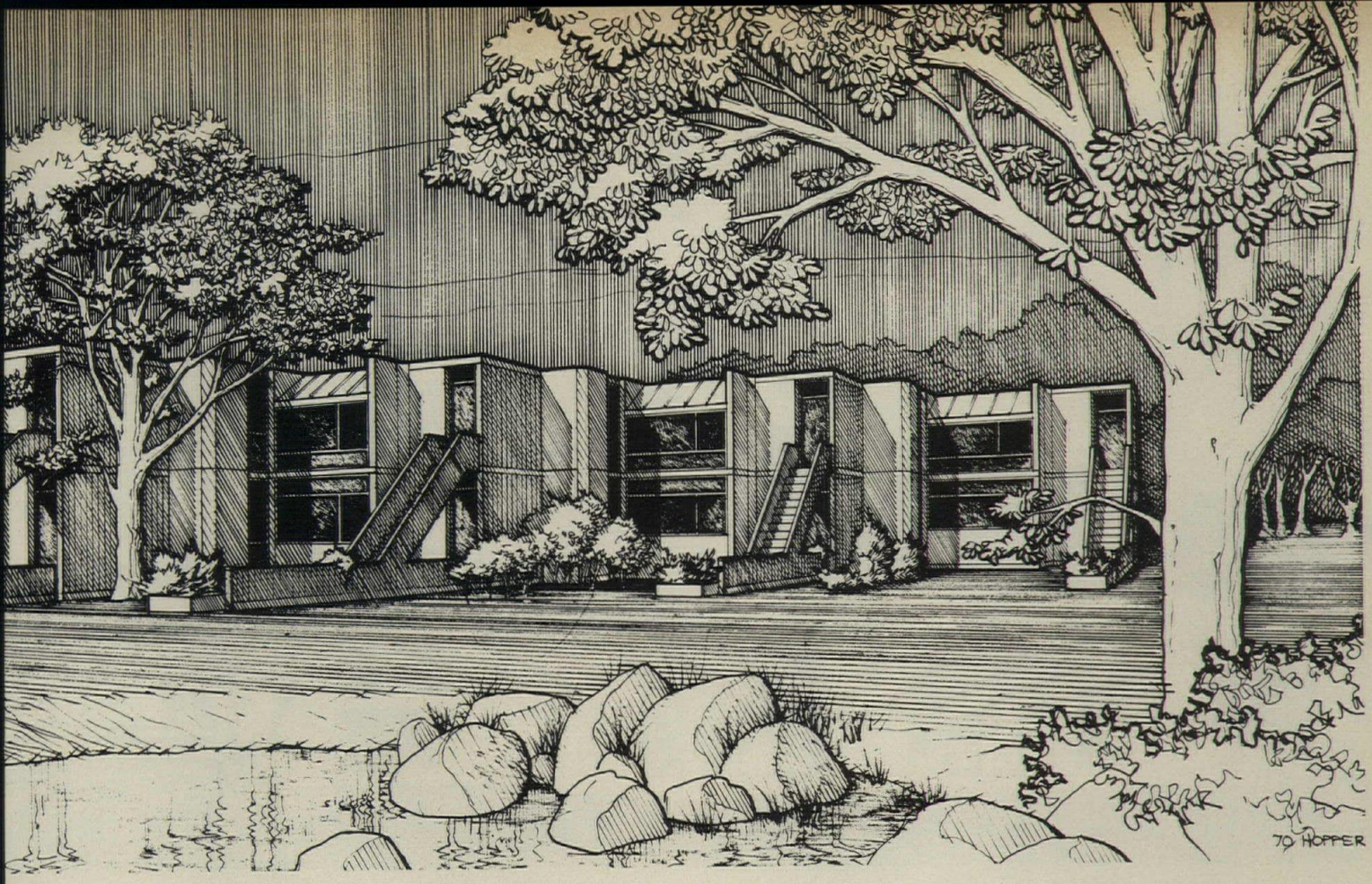
By far the most widely used continuation of his systems is, aptly, the "Sepp Firnkas System," a precast panel and slab system using continuous post-tensioned, prestressed steel rods through preformed holes in the bearing wall panels. In use since 1965, this system reportedly is bound to a maximum height of 32 stories only by the capabilities of present cranes. Conforming to California earthquake and Florida hurricane codes, the structural system has been packaged with other subsystems for marketing by Omniform, Inc., who now own the rights.

The search for a system which could compete for low-cost one- and two-story construction, however, prompted the concept of yet another Firnkas development, ICO-L. Projected for use in at least two projects next year, these L-shaped components and flat slabs may be handled with much smaller equipment than previous panels, effecting large savings in crane charges alone. They are inherently stable in a vertical position, and they will be cast in vertical battery molds. The 12′ x 12′ basic module conforms to highway transportation dimension maximums.

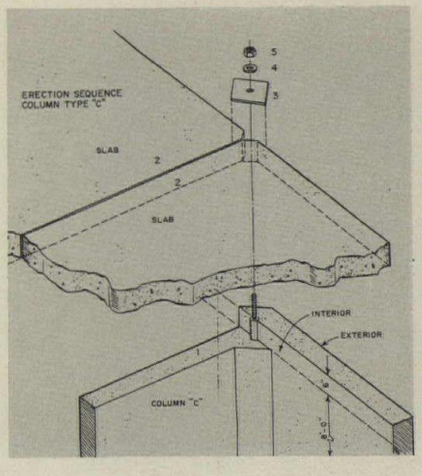
As with any system, ICO-L is a set of tools. It brings with it certain set design factors, while inviting experimentation with others. The Sepp Firnkas System, when integrated early in design, has shown the versatility evident in the PARD TEAM's North Harvard 221(d)3 project. New enough that it has not yet had the advantage of exposure gained by the earlier system, ICO-L begins what Firnkas hopes will be an equally varied life.

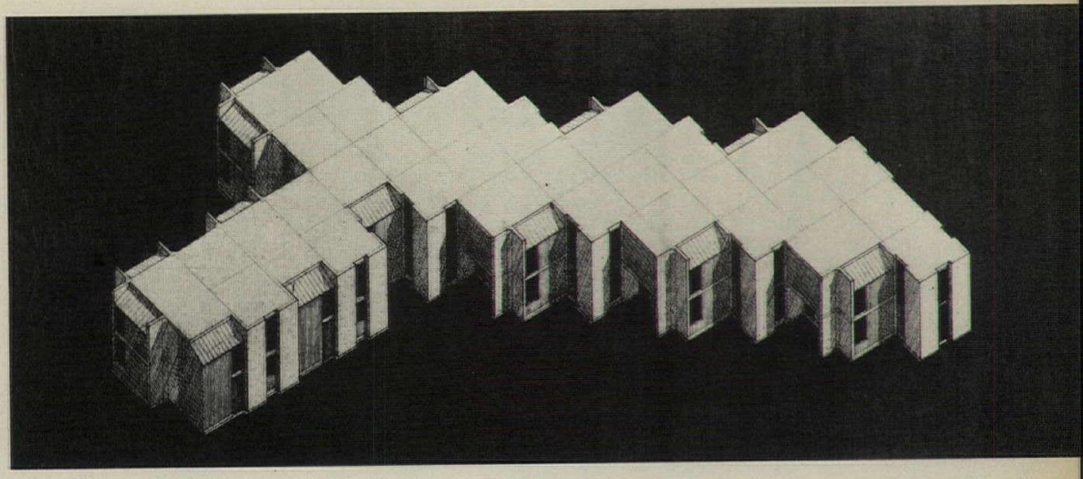


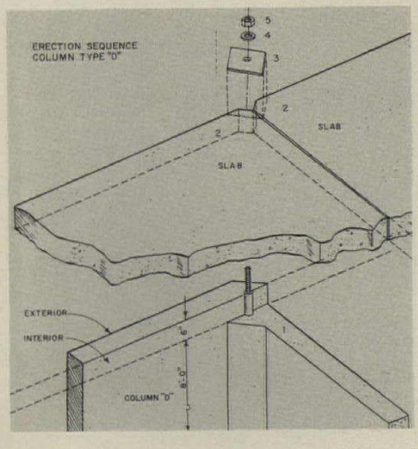


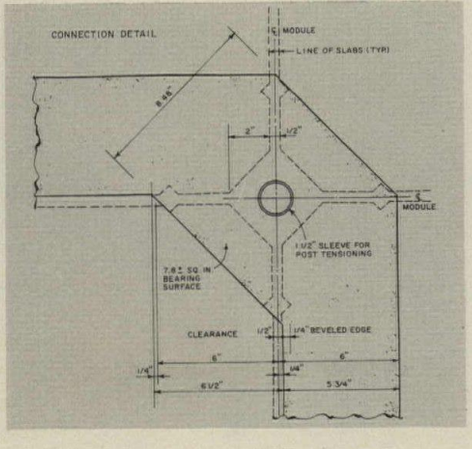


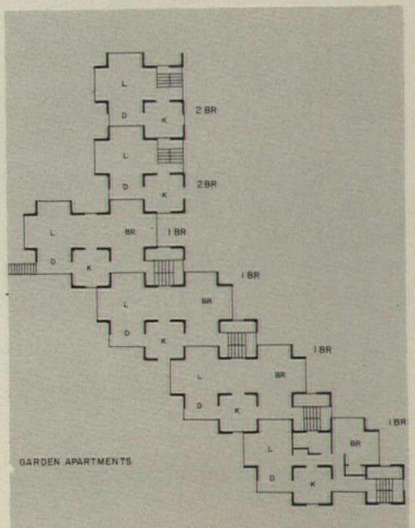
Erection sequences of four typical column conditions (below, left and opposite page) of the ICO-L system. With basic "L" wall-columns and slabs, many plan configurations may be used for garden apartments (below, center), townhouses and other low rise structures. Within the next year, two projects based on this system are scheduled for construction.











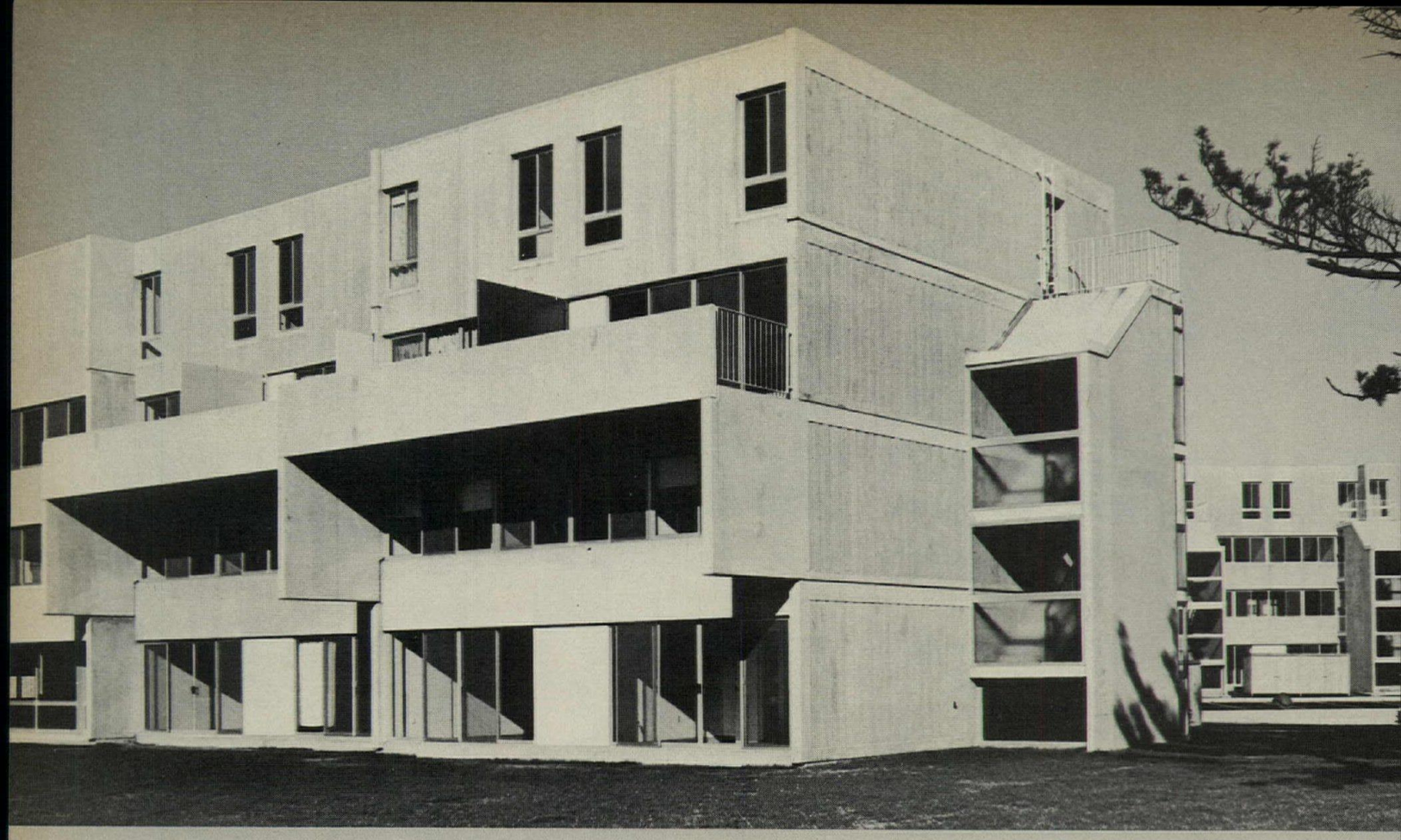
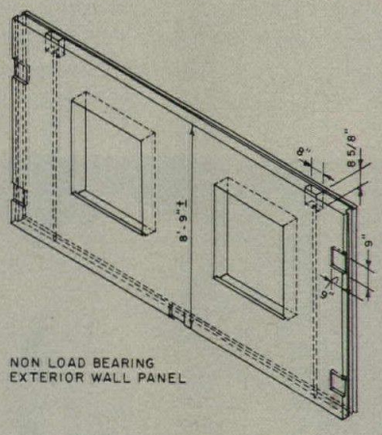
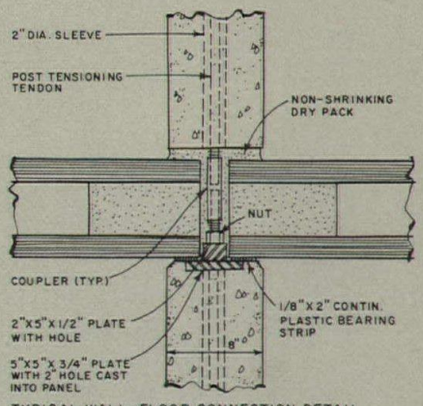


Photo: Arnie Lerner

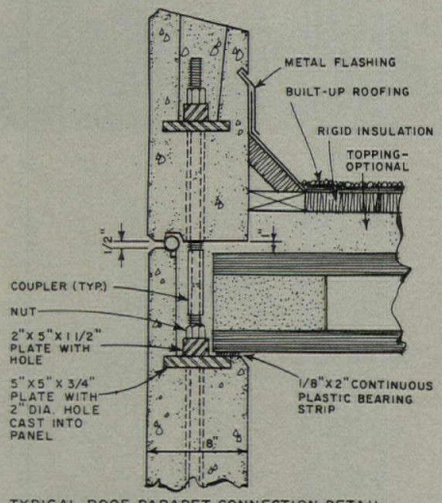
The "Sepp Firnkas System," with typical components (below and right) has shown its potential most dramatically in the recently completed North Harvard Project in Boston. Working within the system from the beginning of design, PARD TEAM has added its imagination and skill to produce the apartments shown above.



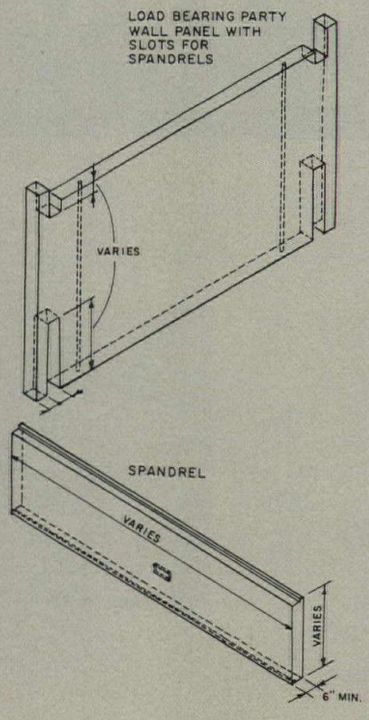
NON LOAD BEARING
EXTERIOR WALL PANEL

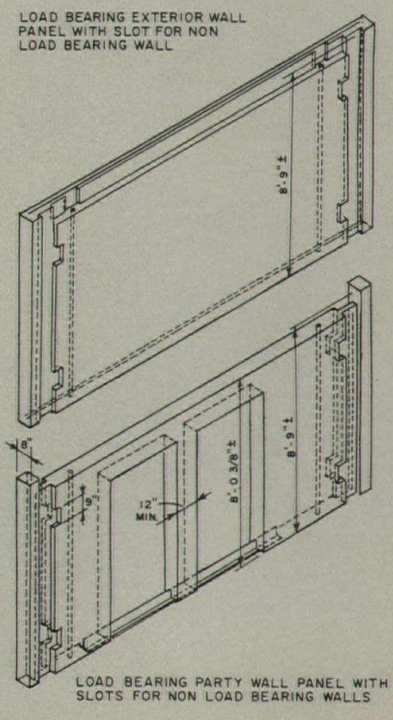


TYPICAL WALL-FLOOR CONNECTION DETAIL



TYPICAL ROOF-PARAPET CONNECTION DETAIL





LOAD BEARING PARTY WALL PANEL WITH SLOTS FOR NON LOAD BEARING WALLS

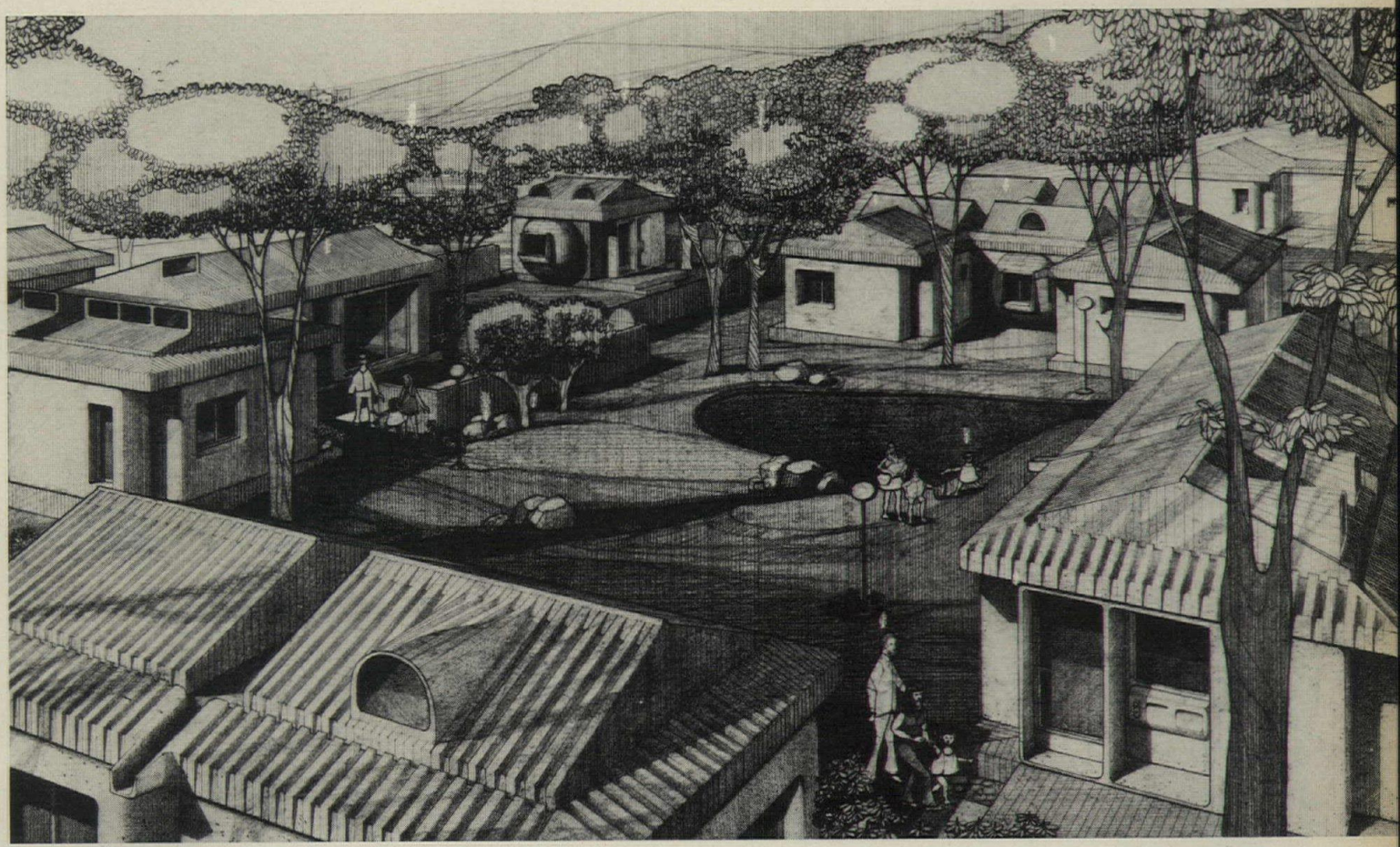
One on, one in the wings

Designing with plastics

The path to realization of a new idea's production is known to be difficult by those who have tried it. Ask Jerry Loving or Valerie Batorewicz, of Housing Systems Associates in New Haven. Their design for a vacuum formed plastic/foamed urethane housing system has been detailed, researched, tested and temporarily put on "hold."

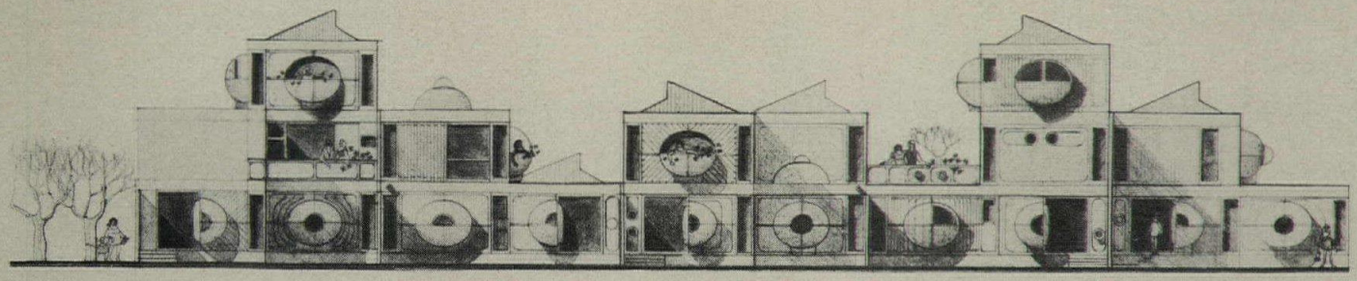
Over two years ago, a design team composed of Yale faculty members and graduate students from several disciplines began investigating technologies and building systems available in the United States and Europe. With the results of their search, they hoped to have the basis for developing a new building system. Their search took them into user needs analysis, market analysis and aerospace and automotive technologies. Increasing effectiveness and use of plastics in the aerospace and automotive fields demanded that the team give at least as much thought to this approach as to traditional methods. After a thorough evaluation, plastics and related thermoforming were selected as having the most potential. Noting inherent structural/insulative/waterproof capabilities of plastics, and the ability to assume any shape or color, the designers sought a company with the required experience. The Uniroyal Chemical Division of Uniroyal, Inc. seemed a good prospect. Possessing vacuum forming molds for components up to 5′ x 12′ x 25′, the company also has had many years of experience in chemicals in general, and plastics in particular. Presentations succeeded in interesting William Chandler of Uniroyal in the potential plan. Two years of engineering studies, models, panels and production cost estimates later, few, if any, technical impediments remain. However, corporations are seldom of one mind about bold ventures, and speculative R & D is usually first candidate for budget cuts in tough economic times. Thus the "hold."

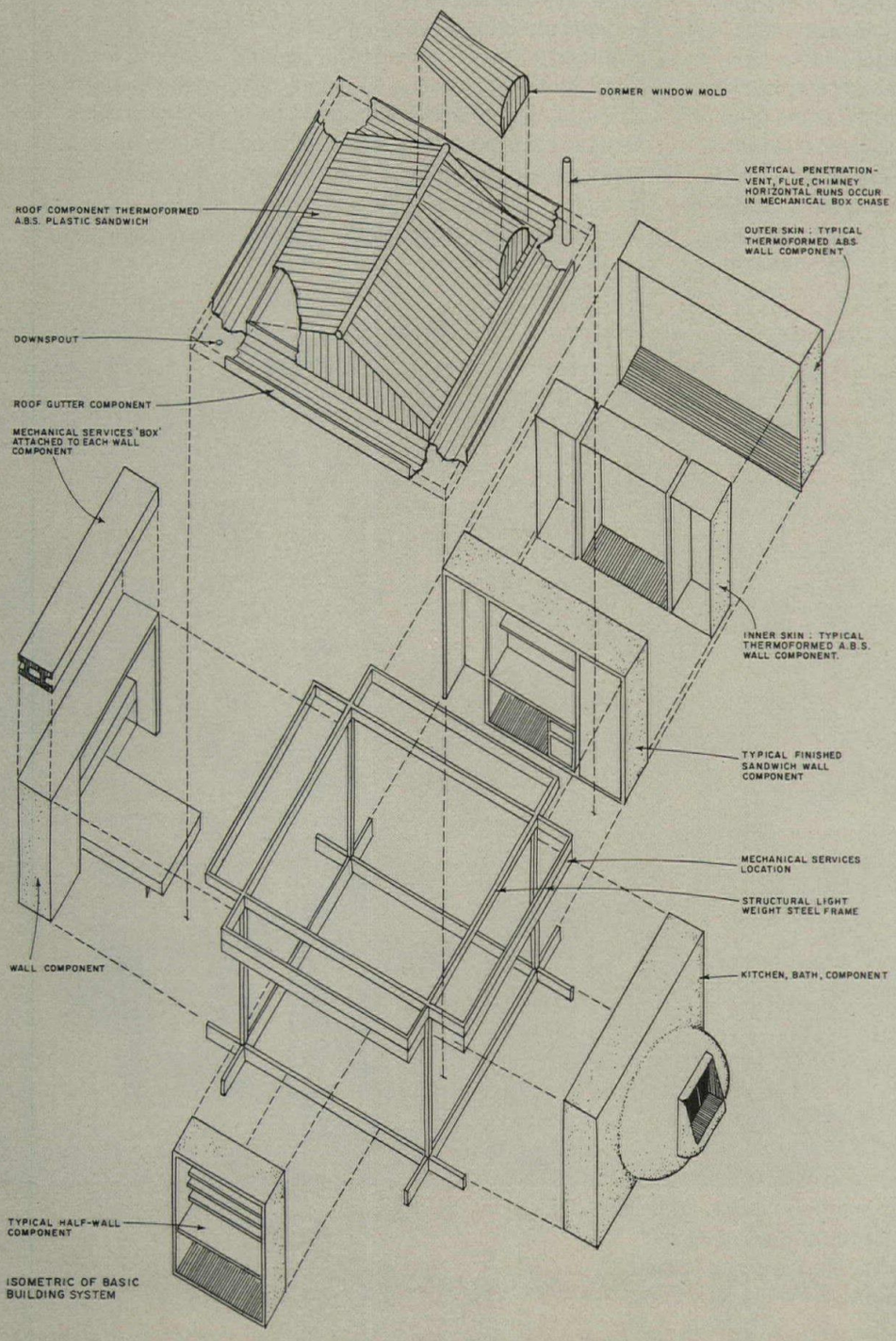
Should the project come to life again, it is generally agreed that a joint venture with a third party, an experienced contractor, would be wise. Although all fabrication of components and much technical assistance could come from Uniroyal, they do not pretend to be builders. With vision and a boost from the economy, this system could become a reality. Housing Systems Associates and Uniroyal have done a lot of homework. [JM]



Special mention should be made of support given to the development of this system by the William N. Feaster Memorial Housing Corp. Part of the First Church of Christ in New Haven, the group formed to seek solutions to housing problems, involving the church more actively, and sponsoring this study by Housing Systems Associates.

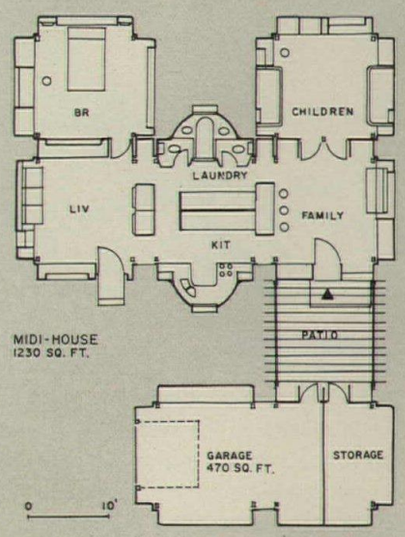
One on, one in the wings



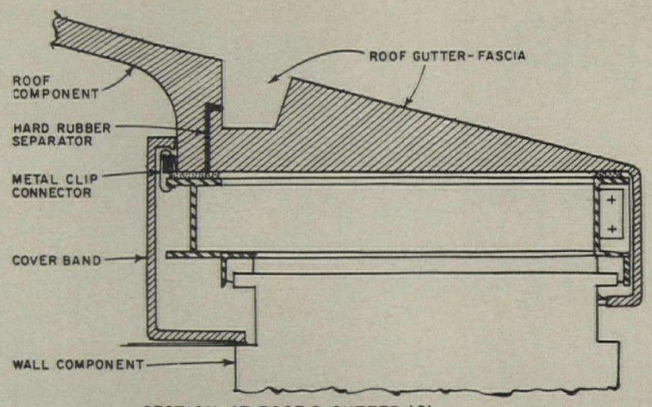


ISOMETRIC OF BASIC BUILDING SYSTEM

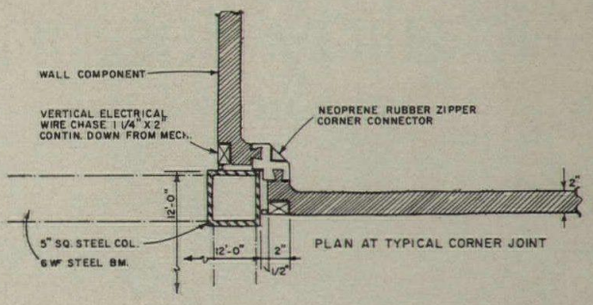
Using basic system components shown in isometric (left) and detail sections on opposite page, such arrangements as the "midi-house" (below) and moderate density multifamily groupings (above) are possible. Proposals for the system also include rehabilitative units to be inserted in place of outmoded parts of otherwise sound buildings. Others are assembled for insertion into steel or concrete superstructures for high rise applications on constricted sites.



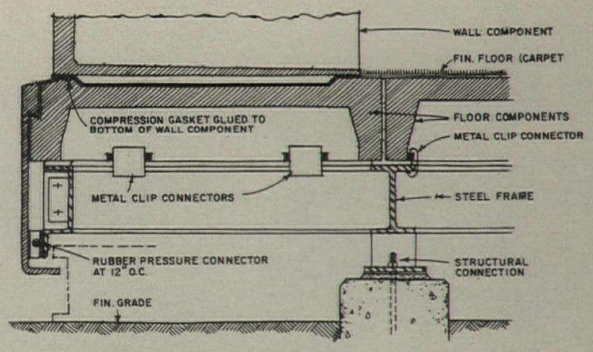
MIDI-HOUSE 1230 SQ. FT.



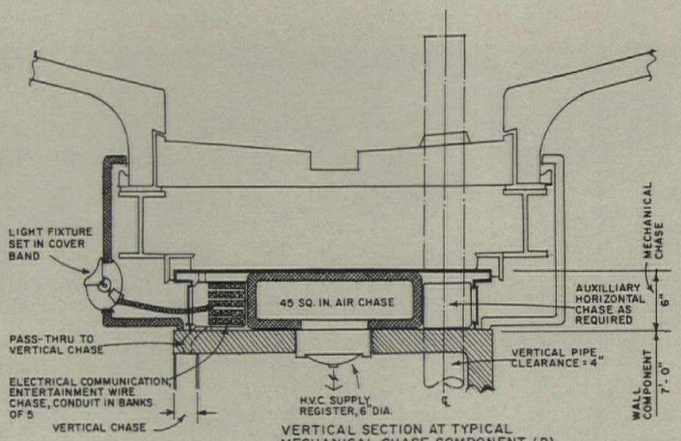
SECTION AT ROOF & GUTTER (C)



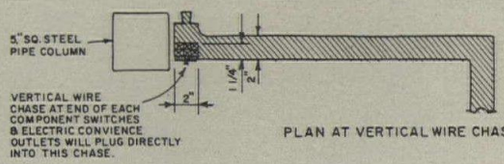
PLAN AT TYPICAL CORNER JOINT



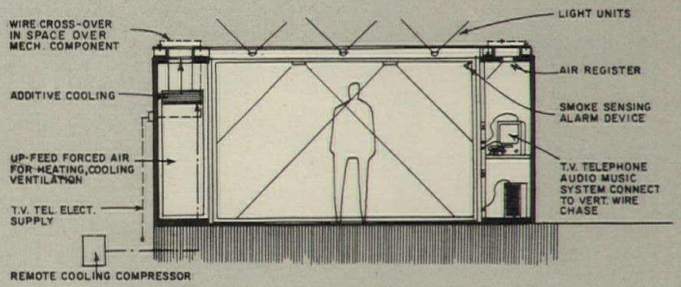
SECTION THRU FLOOR AT WALL (A)



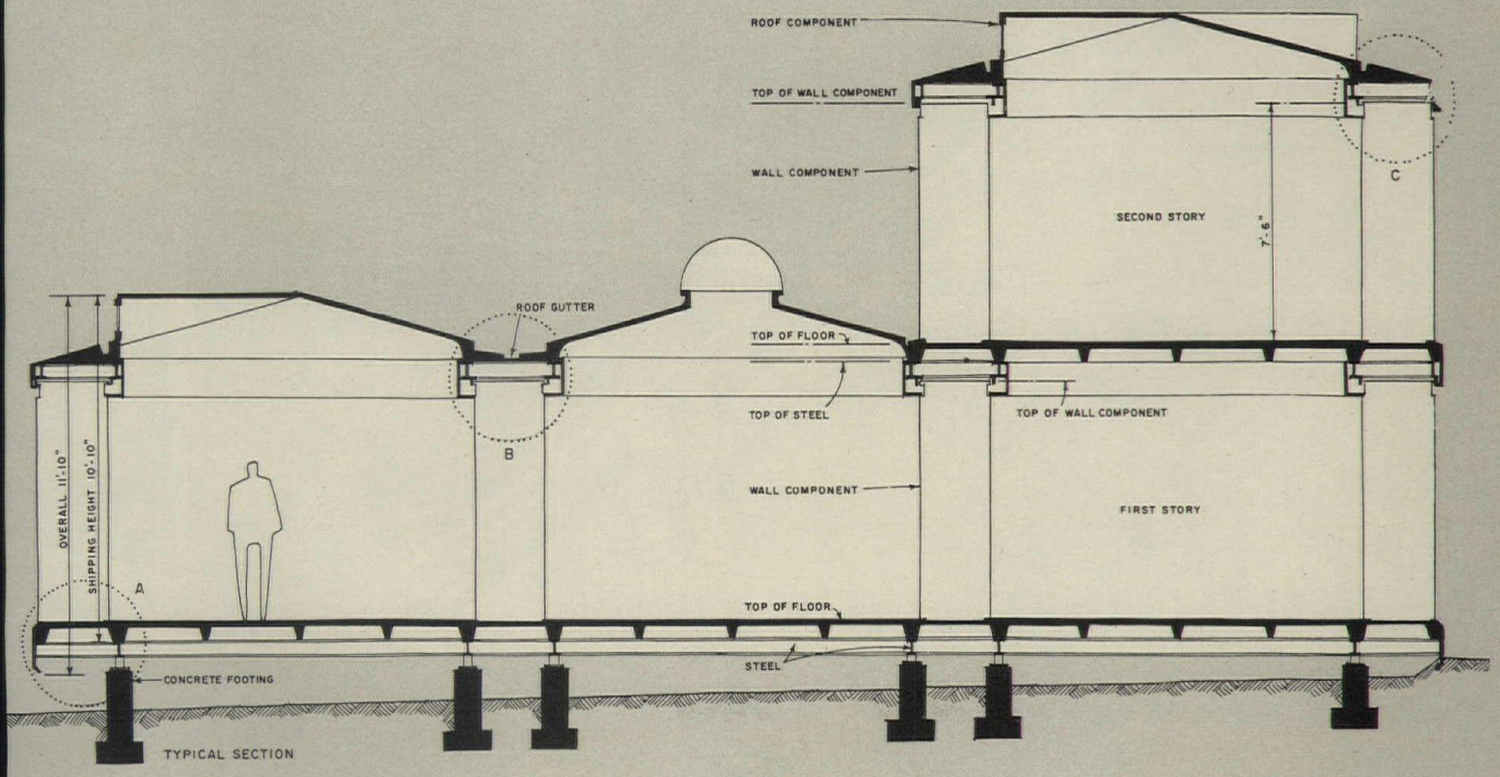
VERTICAL SECTION AT TYPICAL MECHANICAL CHASE COMPONENT (B)



PLAN AT VERTICAL WIRE CHASE



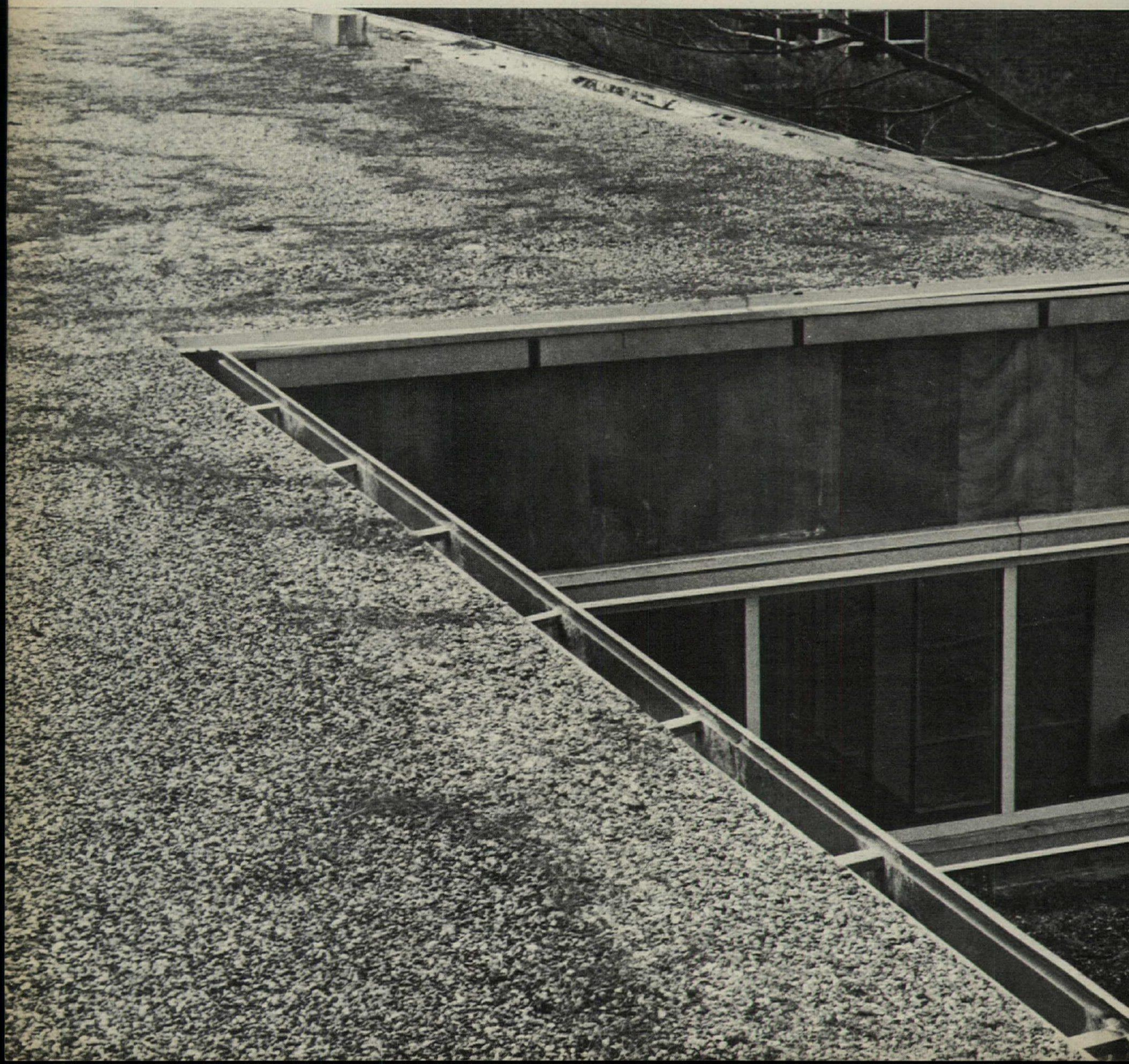
SECTION & SCHEMATIC MECHANICAL SERVICES



TYPICAL SECTION

Materials and methods

Zinc alloy design data



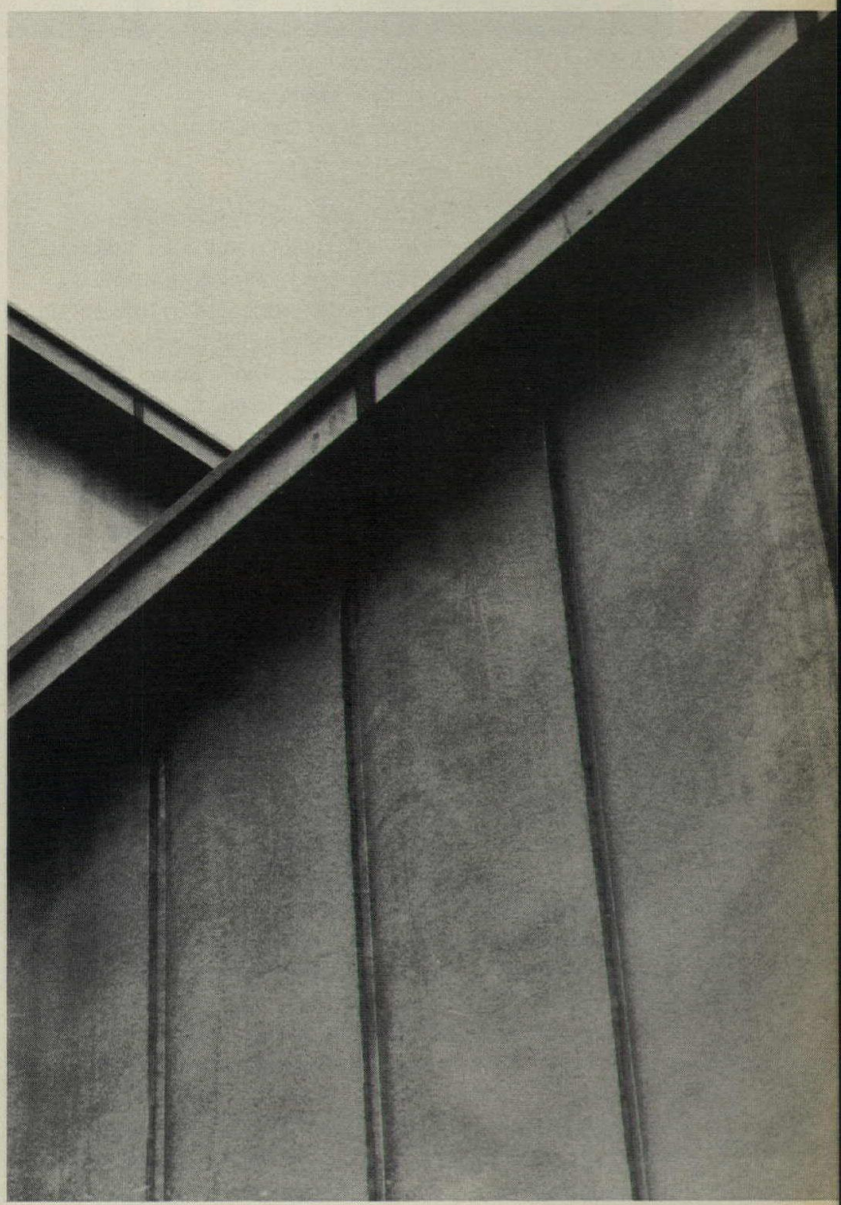
Detail drawings and physical properties are reviewed for the use of Zn-Cu-Ti alloy, today's version of old time zinc sheeting, in roofing, coping, gutters and fasciae

Commercial zinc is far from new as an architectural material, having been popular for almost two centuries in Europe. It is claimed that a view from the Eiffel Tower would show about 80 percent of the roofing to be zinc, much of it over 100 years old. Commercial rolled zinc, however, has encountered problems in certain applications in this country. Frequently installed by inexperienced workmen, it was found to creep with time or under load. It also has a coefficient of thermal expansion requiring fabrication techniques unfamiliar to most domestic craftsmen.

Zinc-copper-titanium alloy, however, successfully overcomes these and other problems. Zinc producers note that it is about 20 percent lighter and 40 percent less expensive than copper. The alloy contains about 0.5 to 0.8 copper and from 0.08 to 0.16 titanium. It weathers to a deep gray patina that seems to pick up a bit of blue from the sky. In contrast with copper and ferrous sheet metal used architecturally, this matte finish will not bleed or discolor wood, stone, metal or masonry that it may contact. The alloy is also highly resistant to corrosion, and in rural applications may be expected to provide at least a century of trouble-free service. Suburban areas can expect only slightly less service life. Documented case histories show life expectancy in industrial areas can exceed 20 years.

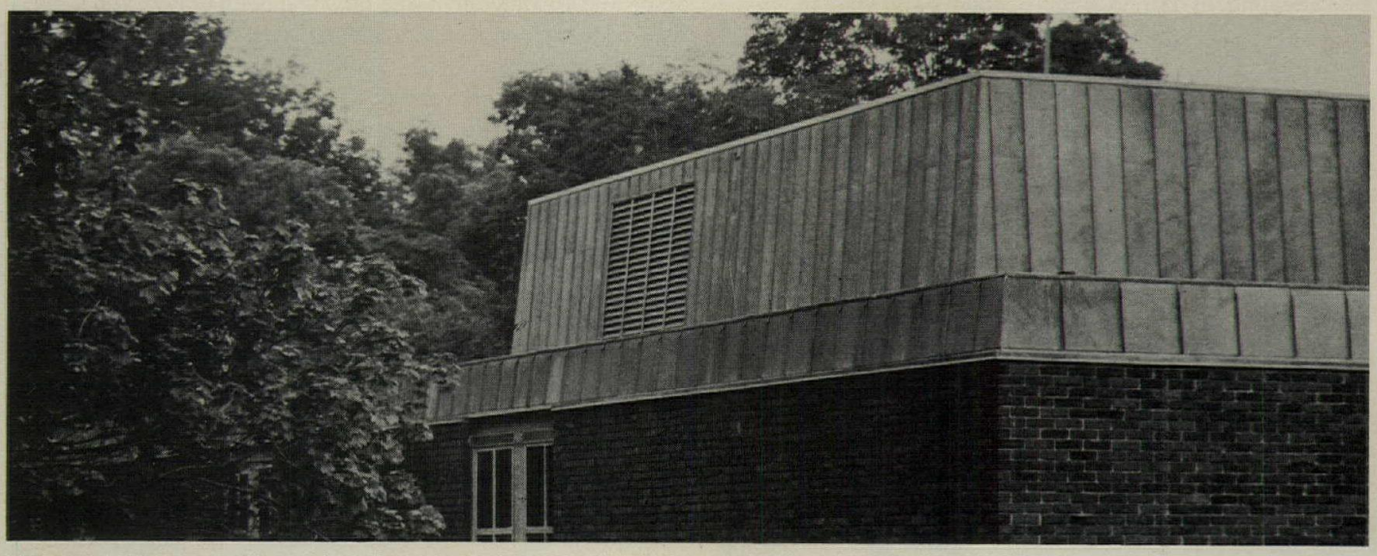
More recently, the zinc-copper-titanium alloy has been further improved, as a result of heat treating and hot-rolling procedures. Major improvements are in tensile strength, creep resistance and coefficient of thermal expansion.

The Greenwich (Conn.) High School roof contains approxi-



Twenty-inch wide fascia sheets were preformed in shop to be assembled with standing seams, vertically.

Gutter is made from .027 in. sheets joined with 1 in. soldered laps. Expansion joints are placed approximately every 20 ft.



Horizontal joints on roofing and penthouses are lapped approximately 2 in. and every other lapped joint is soldered to provide for expansion and contraction.

mately 30,000 lbs of 0.027 in. zinc alloy stock delivered in widths from 20 in. to 36 in., as called for in the architectural specifications. (Zinc-copper-titanium alloy is available in widths to 60 in.) All materials were fabricated by the roofing contractor, in shop, and forms delivered to the site. Six men (average) worked over a one-year period to install the zinc alloy units on the roof, fascia and penthouse storage areas as the rest of the construction went forward. A rolling roof stage was used to install the fascia.

Fabrication was done on standard brakes and roll-forming machinery. Techniques were the same as those used to work with copper. Because the roofer was using the alloy for the first time, slightly different procedures were initiated at the jobsite. Periodic measurements were made as the job progressed so that any necessary adjustments in size or shape could be made. This avoided rejects or misfits, and approached "zero defects" savings in materials. Additional conservation of the material was accomplished by establishing a pattern of smaller orders with greater delivery frequency from manufacturer's stock to the shop—on a four- to six-week delivery schedule.

The Zn-Cu-Ti was laid over roofing felt, followed by a layer of neutral rosin-sized building paper, with customary precautions taken to avoid moisture entrapment under the metal or in the felt. Standing seams were used almost exclusively to join sheets of metal. Gutters, flashing, and coping were soldered with standard 50/50 solder, using a noncorrosive flux and medium heat (the alloy melts at the same temperature as pure zinc, about 792 F).

A small amount of 0.040 in. alloy was also used for closures over the massive beams that support the gymnasium roof. Expansion joints were sealed with a nonhardening mastic cement. All nails were galvanized.

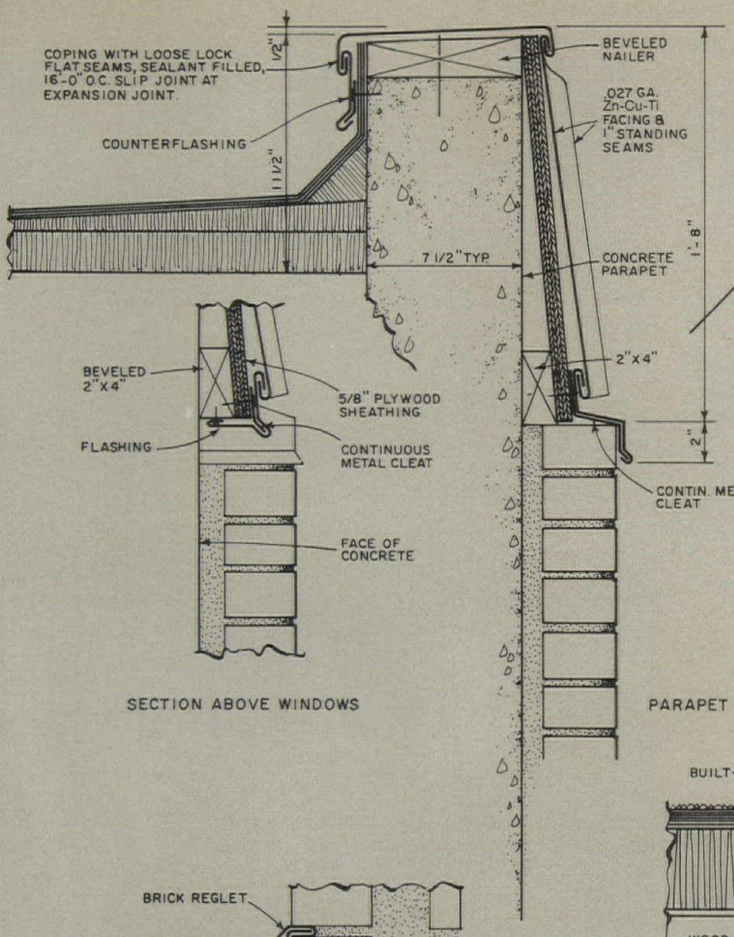
Finished appearance

No extra precautions were necessary in handling the alloy during installation. Scratches or scuff marks tend to disappear as the material weathers. Already, most of the roofing and fascia have taken on a rich, blue-gray matte finish. The areas last sheathed still show a slight metallic glint, but they have been exposed to the elements less than a few months. If at any future time the material should be scratched, possibly during routine maintenance or inspection, the damaged area will automatically weather to the original gray patina without further treatment. Penetration of the sheathing is easily repaired by soldering a patch over the hole. The alloy can be painted, if that is deemed desirable, with only the usual precaution of removing dirt or grease. An undercoat of metallic zinc paint is recommended as a primer. Any color may be applied as a finish coat. [BHH]

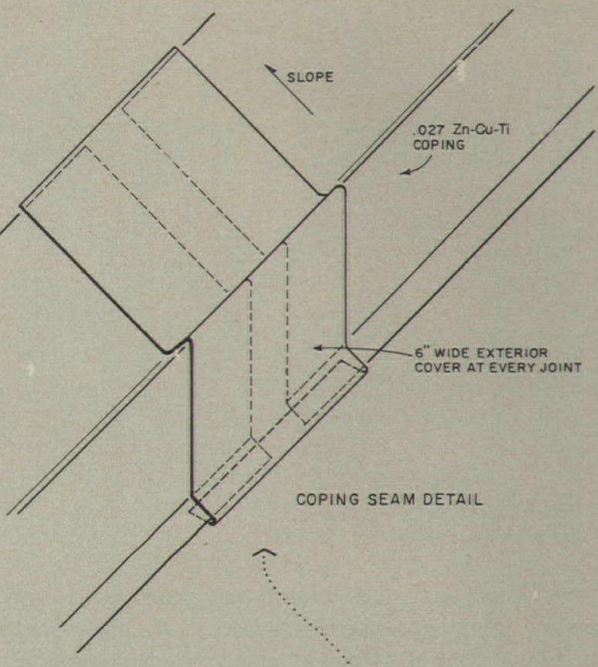
Zn-Cu-Ti: Physical properties

	Sheet		Strip	
	with grain	across grain	with grain	across grain
Tensile strength Ultimate psi	30,000	40,000	25,000	34,000
Coef. thermal expan. in./in./F	0.000013	0.0000098	0.000013	0.0000098
Tensile elongation % in 2 in.	25	14	42	22
Creep days/%/elongation 10,000 psi 77 F	3000	5000	1000	1500
Hardness, superficial Rockwell, 15T	68-72	68-72	65-70	65-70

Strip: thickness: .012" to .125" inclusive width: 1" to 36"
Sheet: thickness: .016" to .125" inclusive width: 3" to 60"

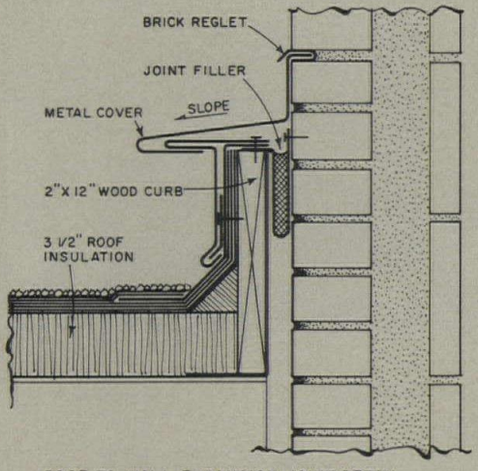


SECTION ABOVE WINDOWS

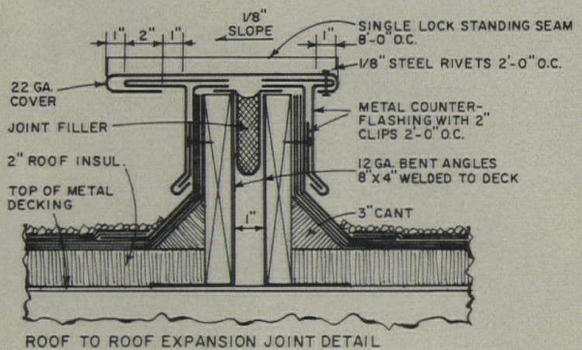


COPING SEAM DETAIL

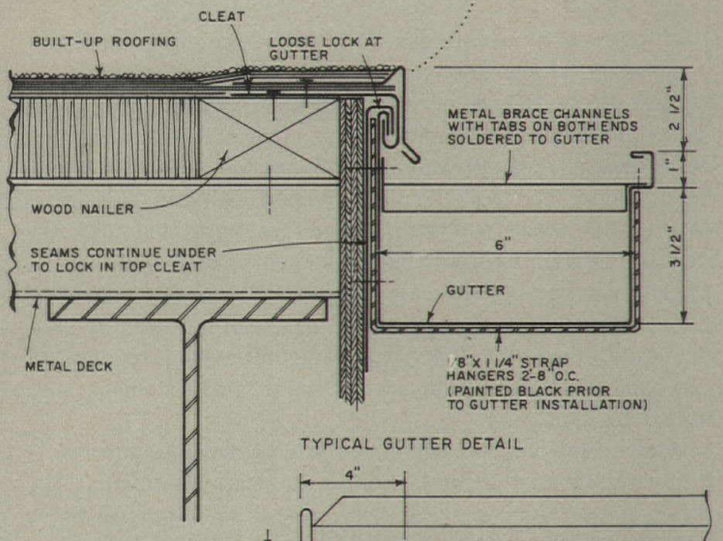
PARAPET DETAIL



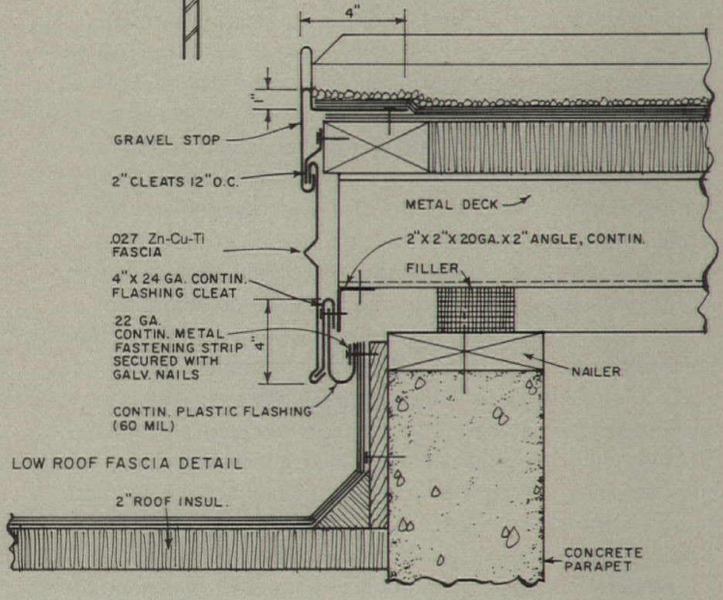
ROOF TO WALL EXPANSION JOINT DETAIL



ROOF TO ROOF EXPANSION JOINT DETAIL



TYPICAL GUTTER DETAIL



LOW ROOF FASCIA DETAIL

Data

Project: Greenwich (Conn.) High School
Architect: John Lyon Reid, San Francisco, Calif.
Structural engineer: Dr. Alexander G. Tarics, San Francisco, Calif.
Zn-Cu-Ti (Titanaloy) producer: Matthiessen & Hegeler Zinc Co., LaSalle, Ill.

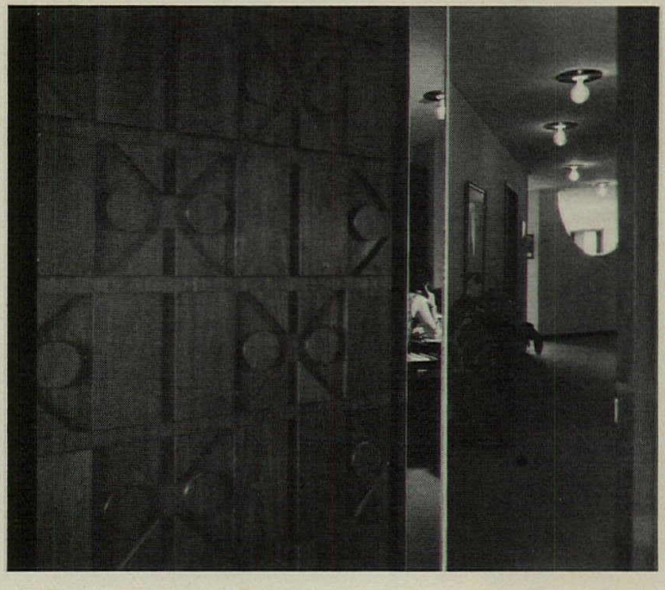
Round and round

With curved walls and circular rooms, master discs on ceilings and logos on walls and doors, the image for Electra's new headquarters comes from its product—the record

Electra Records is a young company whose young executives see it as one of the major creative forces in the record industry and who had some very strong ideas about what they wanted their new headquarters to be. Many of the specific design solutions resulted from what the architect called working "with" rather than "for" the client—a series of informal talks from which casual comment was turned into planning concept by the architects. Two such comments made by the president were that he liked the angled, irregular walls of his old office and wanted, also, to have visual contact with his secretary. This lead to the design of an office with a 100 degree wall and a mirrored door jamb that reflects a six-inch strip of his secretary.

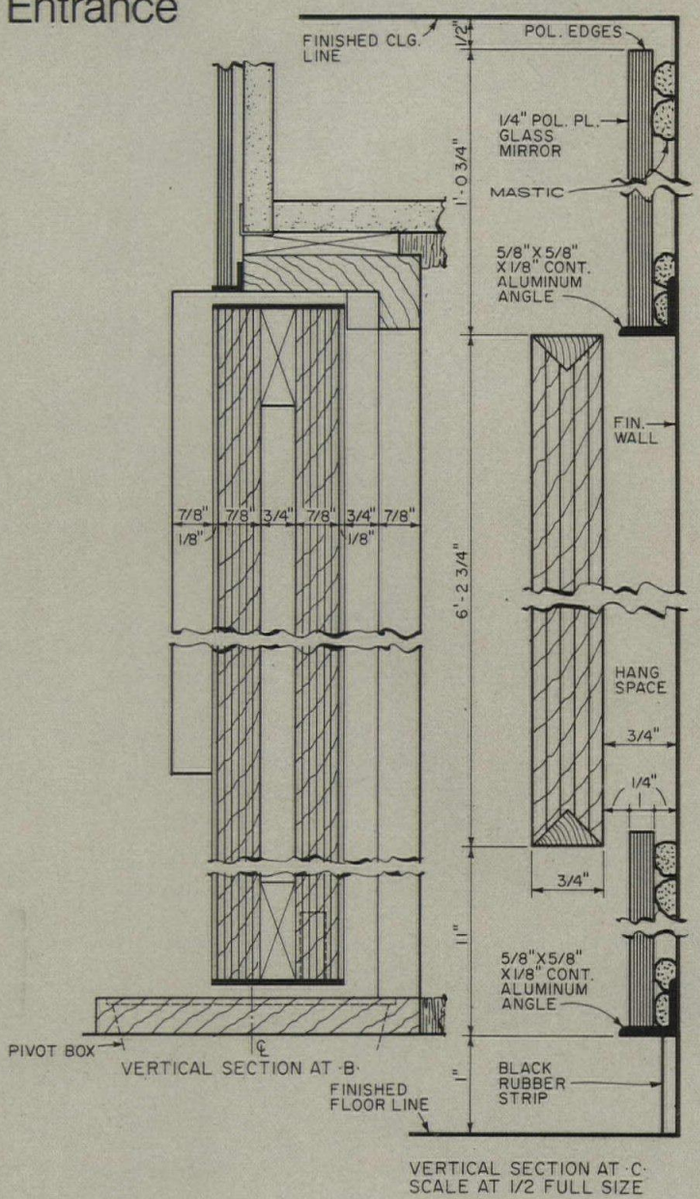
What design the clients themselves did not inspire, the architects drew from Electra's product—the disc. Mounting the "stamper" or master disc—available in any quantity at no cost—on the ceiling in a random pattern, the architect placed a 30 cent porcelain receptacle in the center of the disc to house a bare incandescent bulb for overall ceiling illumination. Use of union labor raised the nominal cost to $100 each for installation. The form of the disc was repeated again to create the visitors' waiting area and the curved walls of the main corridor. The waiting area is two off-set circles—one containing seating; the other used for slide projections of Electra album covers. At the end of the curving corridor the geometry changes to the 60 degree walls of the conference room. Completely free-standing, the conference room wall is mirrored at the head and base section to effectively reduce the mass and float the room. Facilities in the conference area include a projection room, kitchen, speaker system, hexagonal conference table in trapezoidal sections that can be put together in various ways, and six huge pillows for meditation.

The Electra logo is repeated throughout the offices: on the elevator doors, in paint over the receptionist's desk, in metal letters on the conference room wall and in three-dimensional wood blocks on the president's door. And if there is still doubt about where you are, there's music in every room to remind you. [SLR]

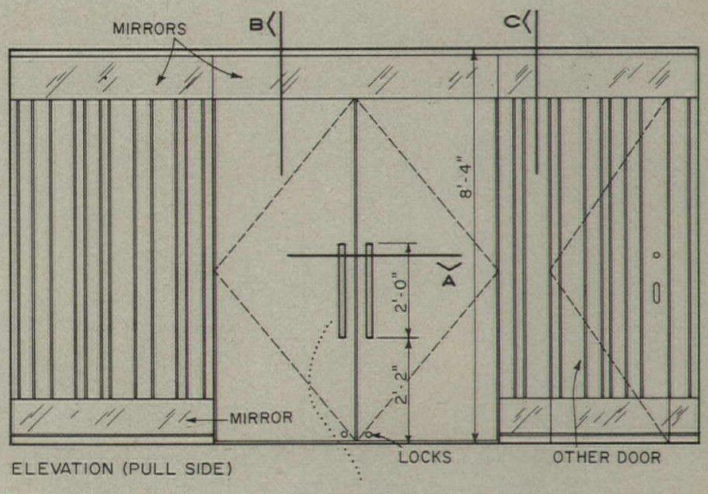


Corporate logo is used as design element at elevator doors and lobby (above), on president's door (below). Master discs serve as lighting fixtures. Photos: Dennis Hatfield.

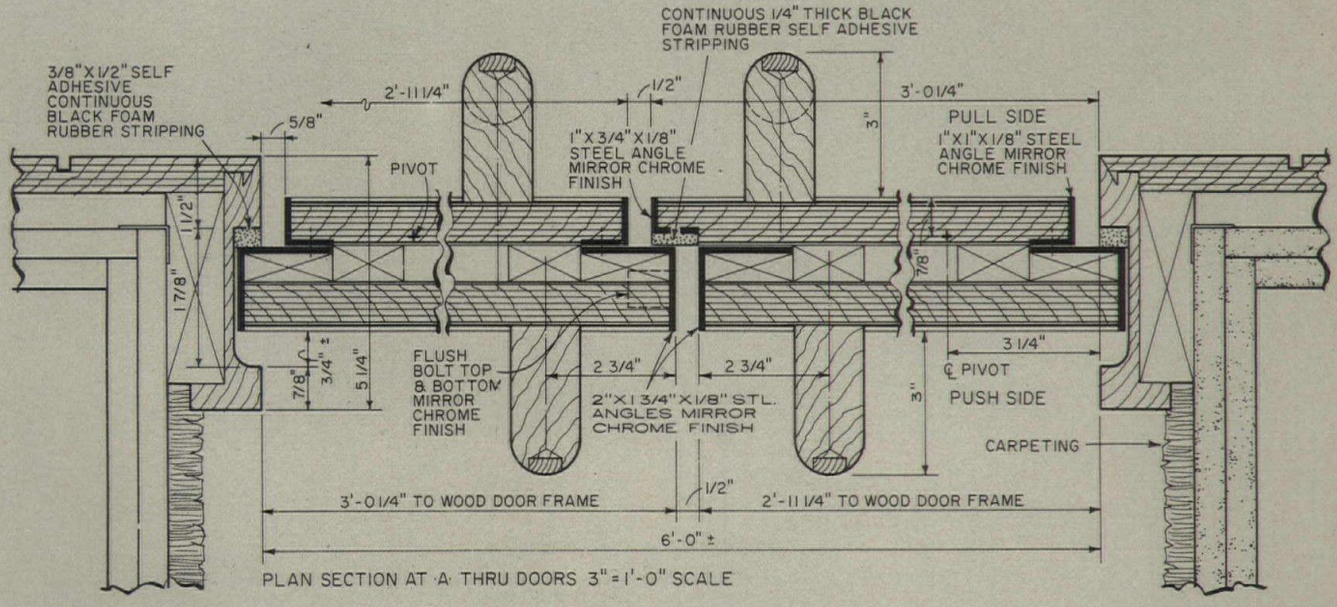
Entrance



VERTICAL SECTION AT C
SCALE AT 1/2 FULL SIZE



ELEVATION (PULL SIDE)

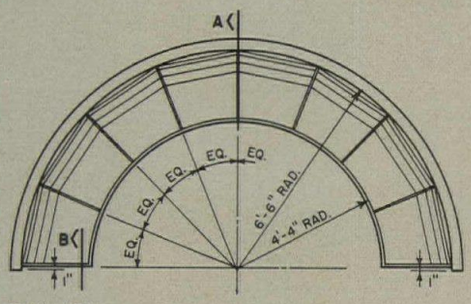


PLAN SECTION AT A THRU DOORS 3" = 1'-0" SCALE

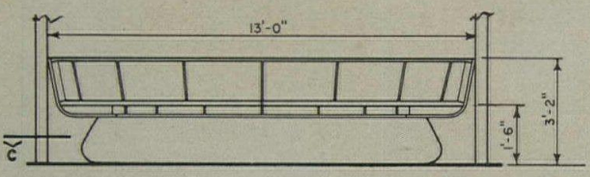
Electra Records, New York City
Designer: Montgomery Winecoff & Associates, Inc.

Round and round

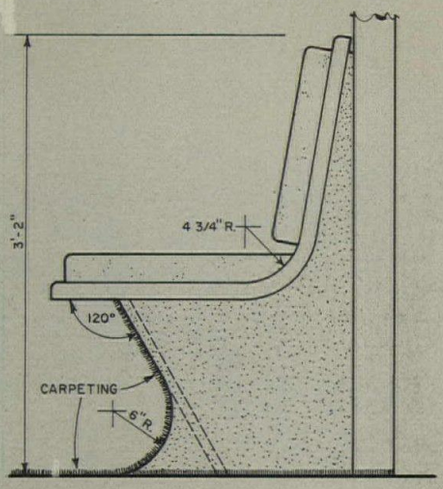
Lobby seating



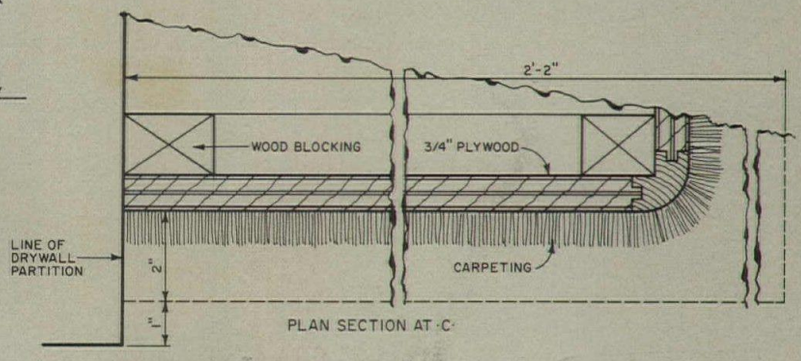
PLAN VIEW



ELEVATION

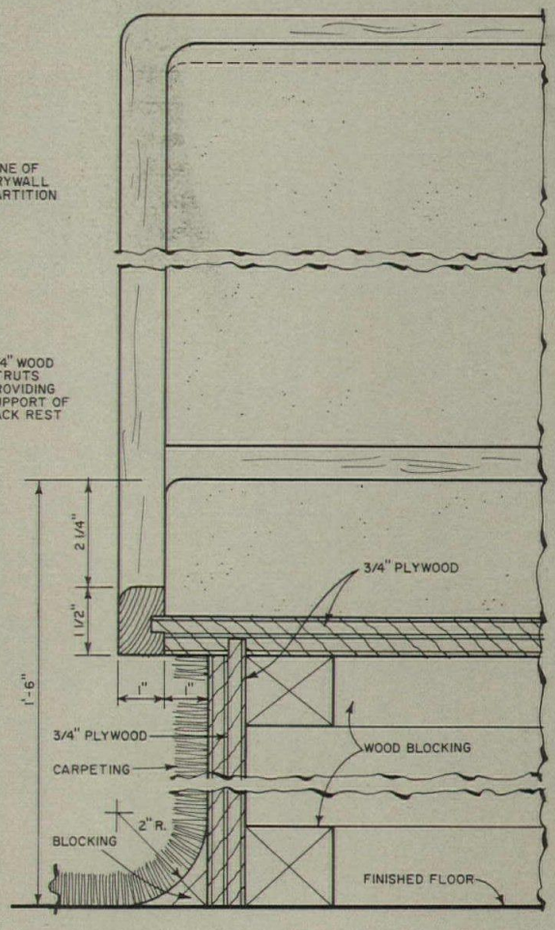


END ELEVATION



PLAN SECTION AT ·C·

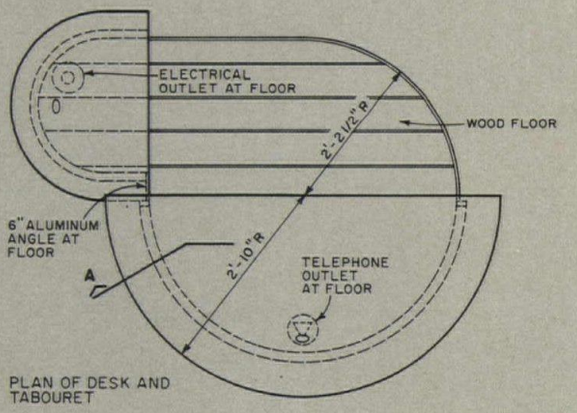
VERTICAL SECTION AT ·A·



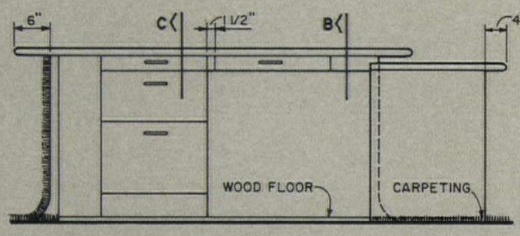
VERTICAL SECTION AT ·B·

Electra Records, New York City
Designer: Montgomery Winecoff & Associates, Inc.

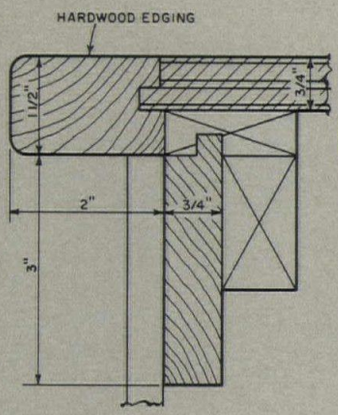
Reception desk



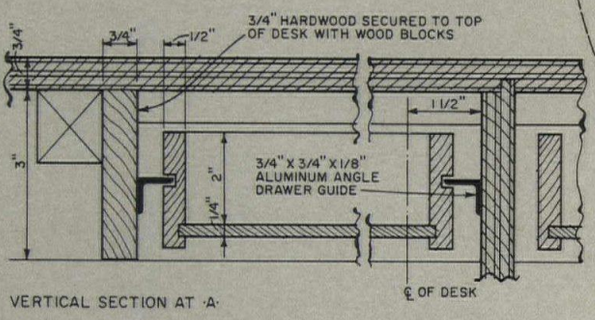
PLAN OF DESK AND TABOURET



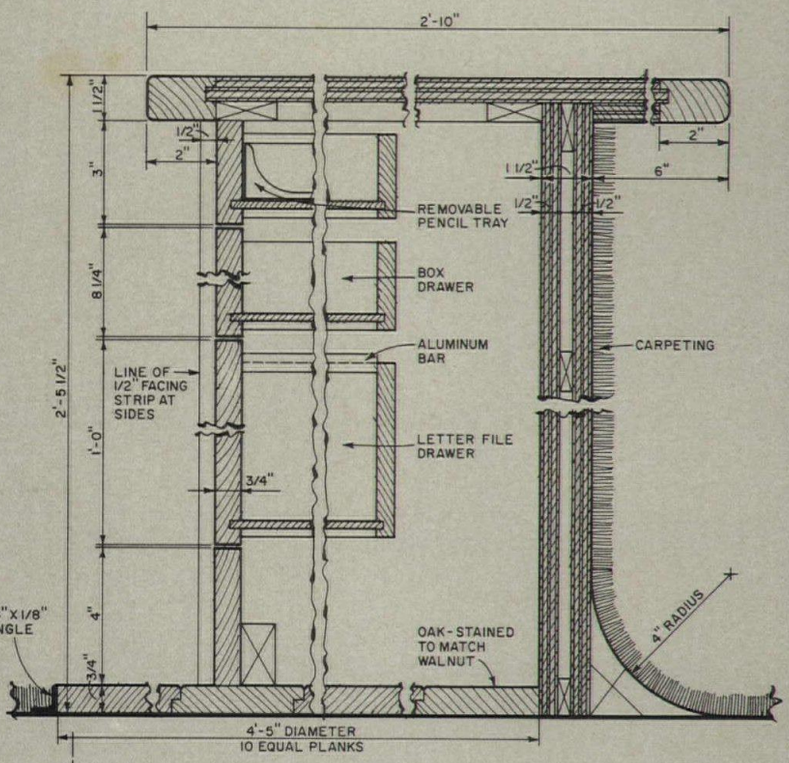
REAR ELEVATION



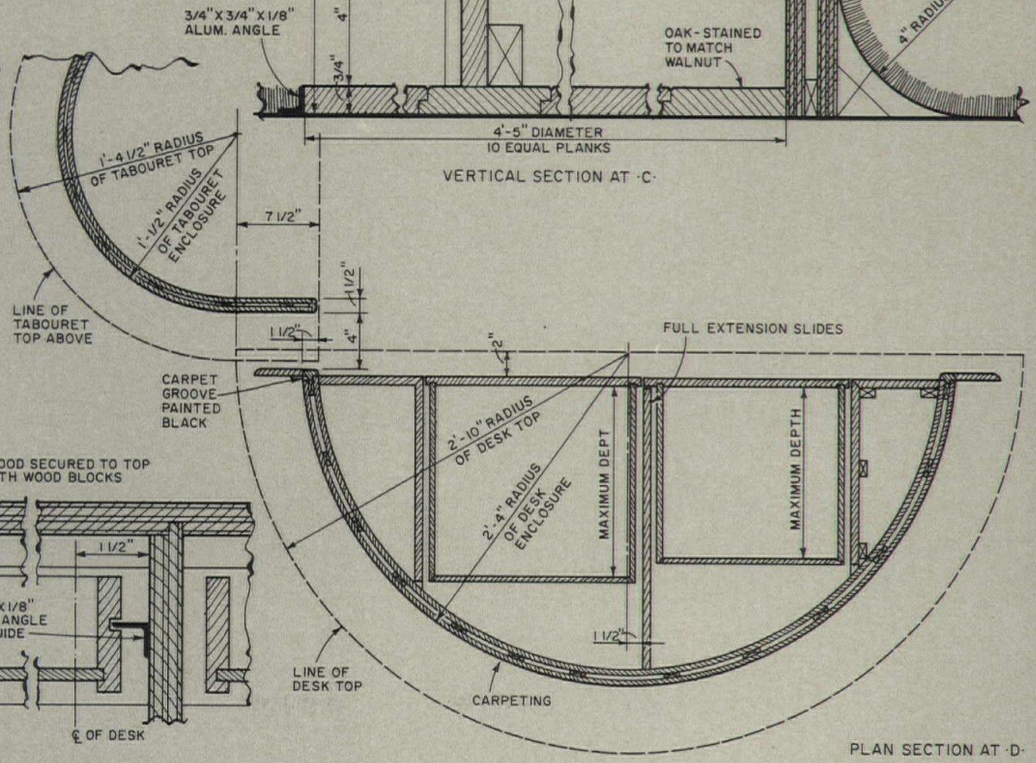
EDGE DETAIL AT ·B·



VERTICAL SECTION AT ·A·



VERTICAL SECTION AT ·C·



PLAN SECTION AT ·D·

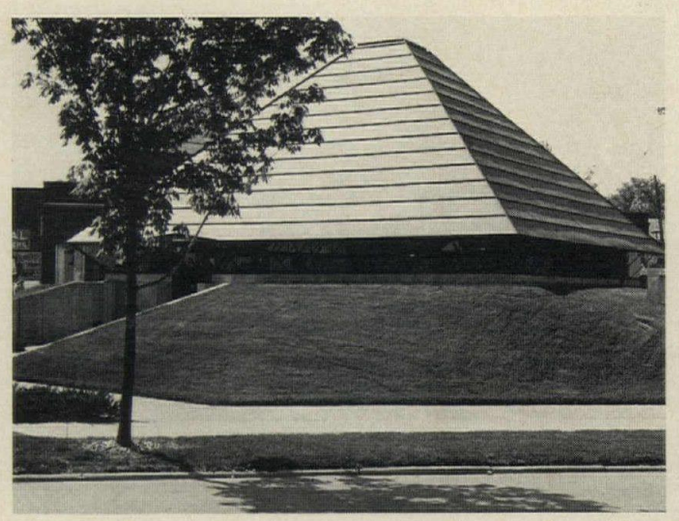
Electra Records, New York City
Designer: Montgomery Winecoff & Associates, Inc.

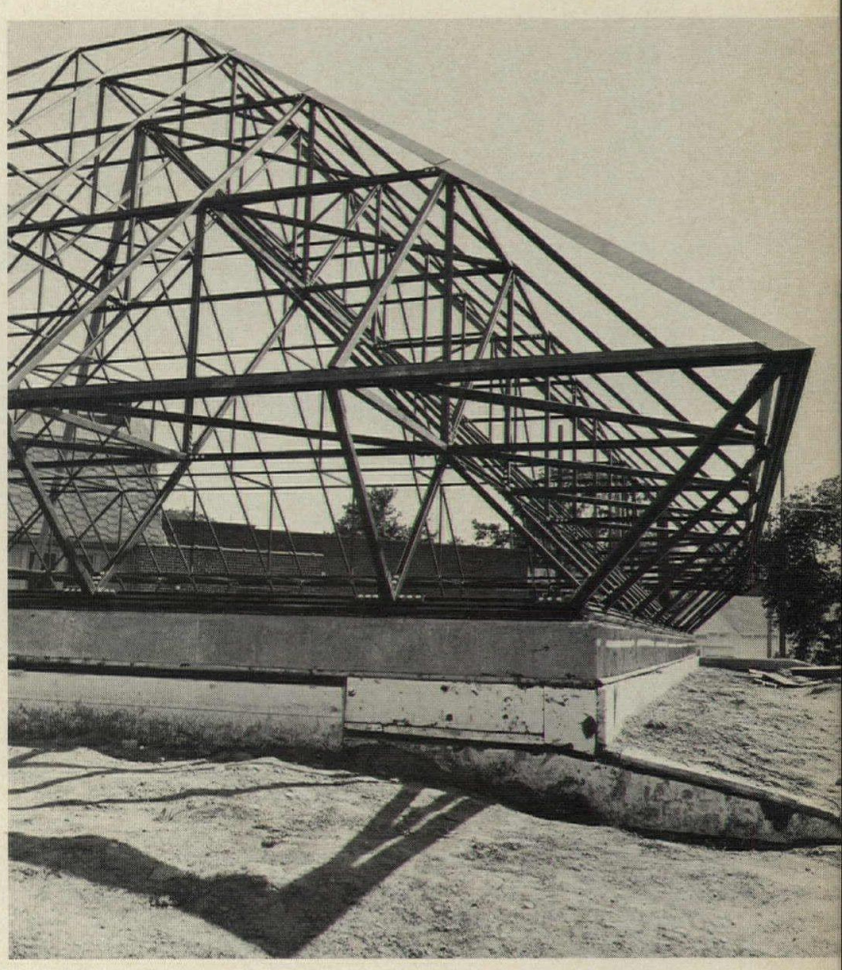
Dollars and sense buy design

The small banks presented in this issue leave no doubt that the image consciousness—although vastly changed in its character—is still a large part of the banking institution

Money, conservatism, and pin-striped suits have traditionally been synonomous with banking, an image built in marble columned rotundas with Greek temple façades. The splendid marble halls have given way to plastic Federal, Early American or the chaos of a strip-city drive-in. The conservative image began to be cast off as banks emerged from their tomb-like temples to be housed in glass boxes, and officers—once closeted in inner sanctums of wood paneling—were lined up right out front behind neat rows of desks. But the evolution of an image didn't stop with exposed vaults. Banks have become more of a competitive business attracting customers with conveniently located branches, gifts for opening accounts and design in plastic, chrome and paint.

Beyond the image, nothing is new. Programs for small banks and what goes on in them have remained the same, leaving little for the architect except to demand much of his imagination in the visual aspects of design. One design ele-



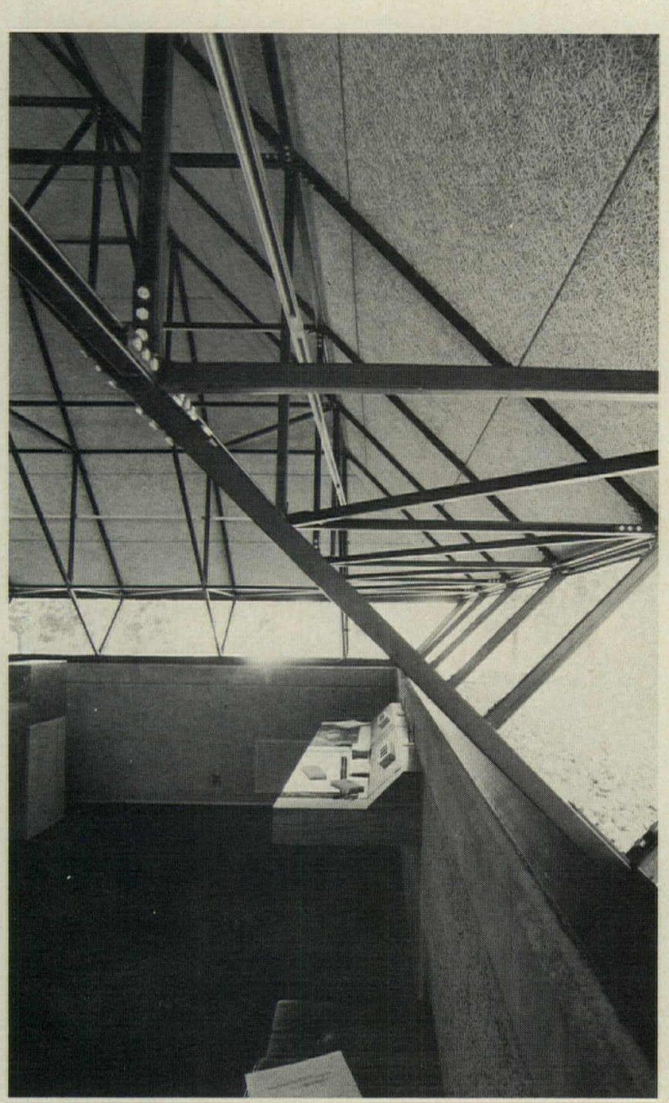


Peoples Trust of Fort Wayne is the first of 10 branch banks. Interior space (opposite) has banners hung from the space frame over the tellers' counters. Exterior (above and right) during construction and after completion of the earth berms.

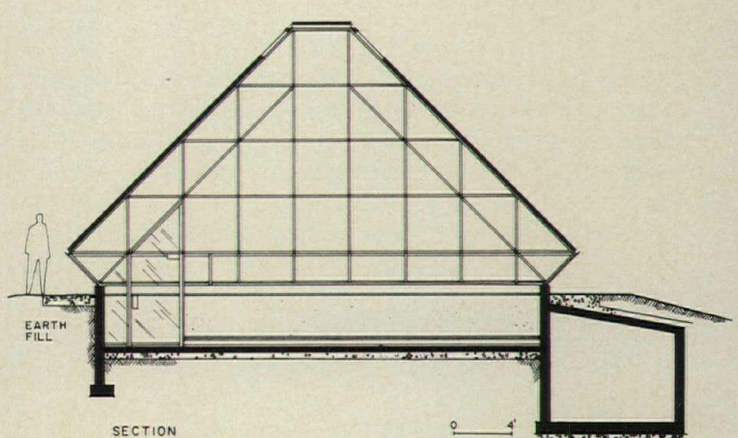
ment common to all the banks in this issue is their placement in a heavily commercialized area, and the consequent need to advertise and compete with the visual chaos. In new building, the architect can determine the massing, but in an existing building to be renovated, the architect has fewer tools with which to deal with the surrounding mess.

The Peoples Trust of Fort Wayne, Ind. is the first of 10 or 12 branch banks that will be located around the perimeter of that city. The bank wanted a series of buildings that could be identified as theirs without extensive signage. George Nelson, in speaking of the client's desire for image recognition, related it to the successful orange roof of Howard Johnson. He chose what he considered to be a very uncontroversial form—a pyramid—as both roof and building for the new facility. As there was no view in any direction, windows were kept to a minimum and placed at eye level in a 1-ft band between the wall and the space frame structure of the roof. Earth berms are the only landscaping, simplifying the form of the building and uniting it and the ground in a way that makes a unique contribution to the asphalt world of highway architecture.

The first two banks are new buildings and, unlike the renovations which had to rely on color and graphics for their impact, external form becomes a dominant factor in their design. The North Carolina National Bank in Charlotte presents a blank wall to the automobile, saving its amenities for its patrons by placing the plaza in the parking lot. Designed by Wolf Associates, the plaza was conceived as a "mini-environment" shielded from the street by the bank and from the parking lot by a row of trees. The interior planning suffers from the external form. The tellers' counter—the most frequently used facility—is pushed into one corner of the triangle, which makes standing in line somewhat of a chore, while the vault, coupon booths, toilets and employees lounge are placed on axis with two Wassily chairs. The design, unfortunately, gives as much room to two officers as is given to four tellers and the bank's customers.

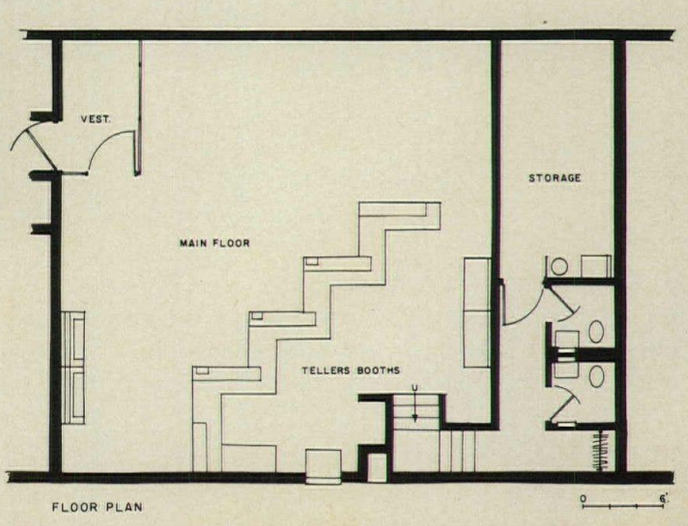


Corner detail of exterior (above) and interior (right) show angle of window. Writing desk is cantilevered from wall.

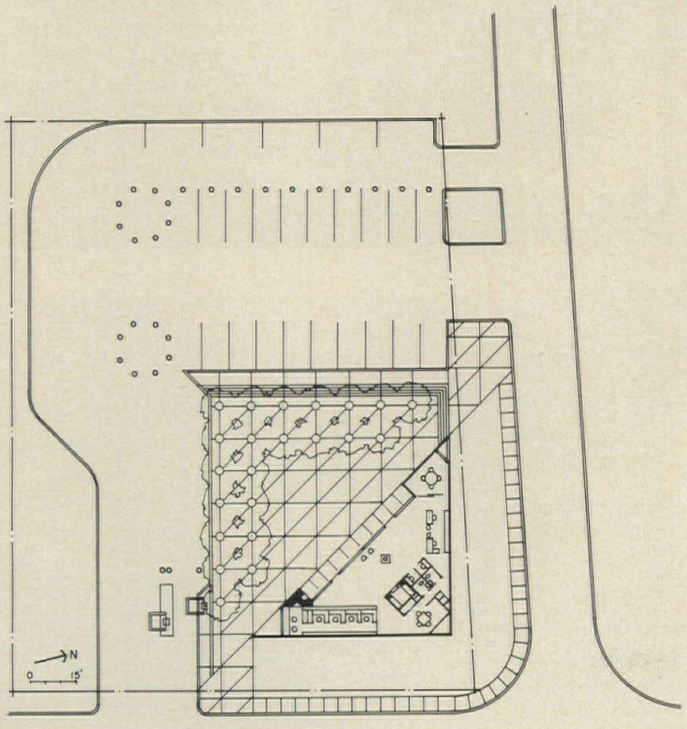


Data

Project: Peoples Trust Company Mini-Bank, Fort Wayne, Ind.
Architect: George Nelson and Company. Project director, Gerald Jones.
Structural system: poured in place concrete retaining walls. Space frame Unistrut A-1000 Series members with custom designed joint connectors.
Mechanical system: forced air electric heating and cooling system supplied by under floor ducts.
Major materials: exterior galvanized metal roofing. Interior exposed concrete, painted space frame, carpet and deck board on the ceiling.
Costs: $77,000 including site work.
Consultants: Alan Grinsfelder, supervising architect. Peter Rolland, landscape architect.
Photography: George Nelson, Stedman Studio.



The North Carolina National Bank (above) opens up towards the plaza and parking lot and presents two blank walls to the motorist. Interior (left) is furnished in massive black furniture.

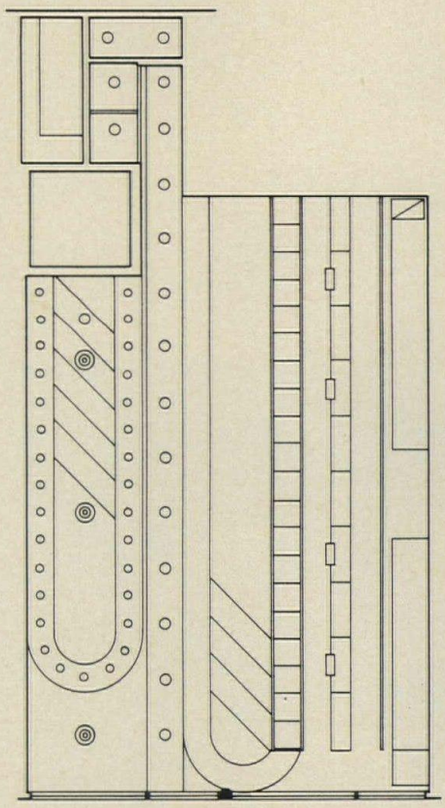


Data

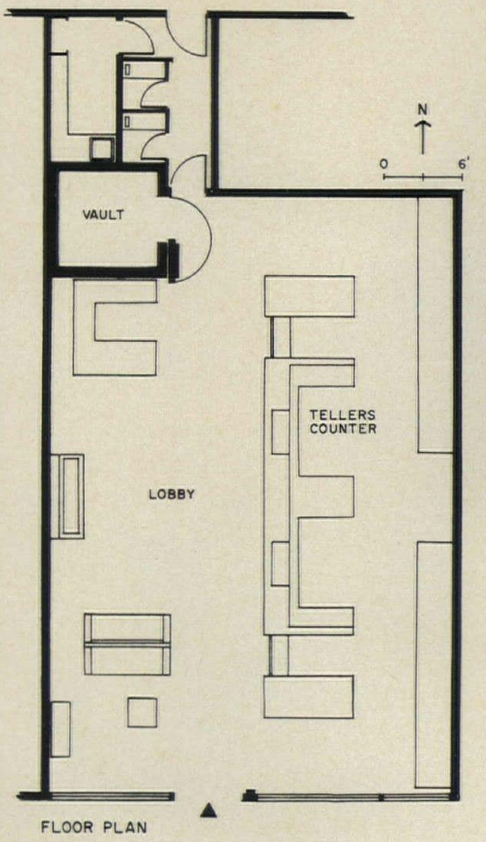
Project: branch bank for North Carolina National Bank, Charlotte, N.C.
Architect: Wolf Associates.
Structural system: load bearing masonry walls.
Mechanical system: rooftop split package forced air heating pump.
Major materials: white painted brick on exterior and interior.
Costs: not available.
Photography: Tom Walters.

Spatial billboard

The first of the bank renovations, the Golden West Savings and Loan of Corte Madera, Calif., does the least with the façade—nothing at all. Already part of a strip development which could not be altered, the effort was concentrated on the interior to make a self-advertising, spatial billboard. Unable to change the space—except to remove a hung ceiling—or alter the natural light source, the architects, Turnbull Associates, turned to color to effect a memorable new space. Instead of hanging works of art in its offices, the bank used large mural graphics designed by Barbara Stauffacher. Two strips of artificial lighting and a chrome duct were positioned to strengthen and become part of the graphic pattern on the walls and ceiling.



REFLECTED CEILING PLAN



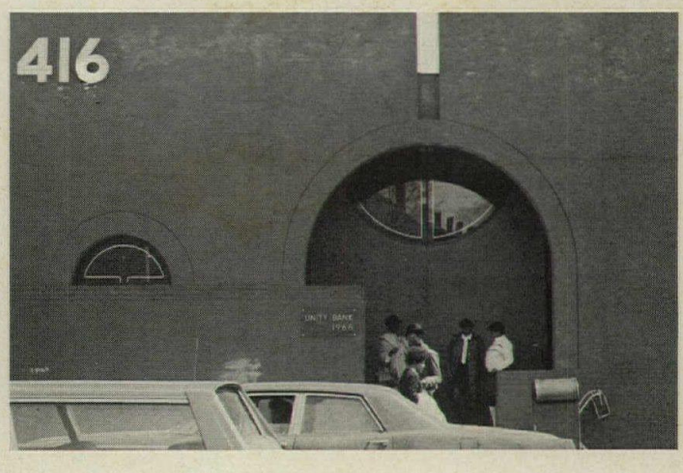
FLOOR PLAN

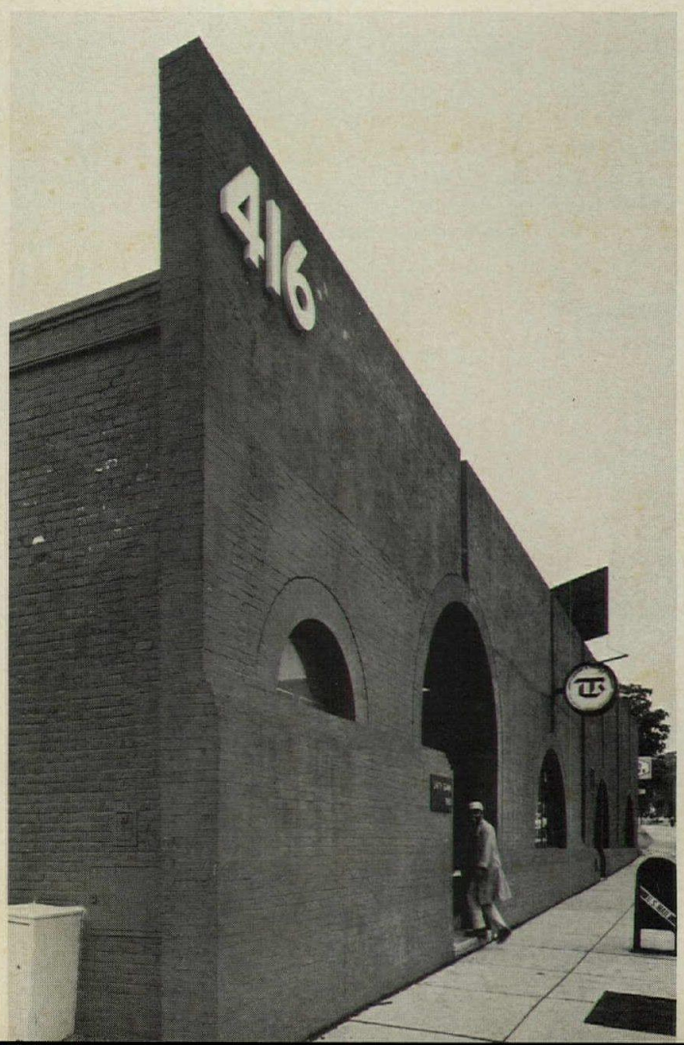
Data

Project: Golden West Savings and Loan Association, Corde Madera, Calif.
Architect: MLTW/Turnbull Associates.
Major Materials: existing exterior. Sheetrock walls and ceiling, and carpeting on interior.
Costs: not available.
Consultants: Barbara Stauffacher Solomon, graphics; Richard Peters, lighting.
Photography: Morley Baer.

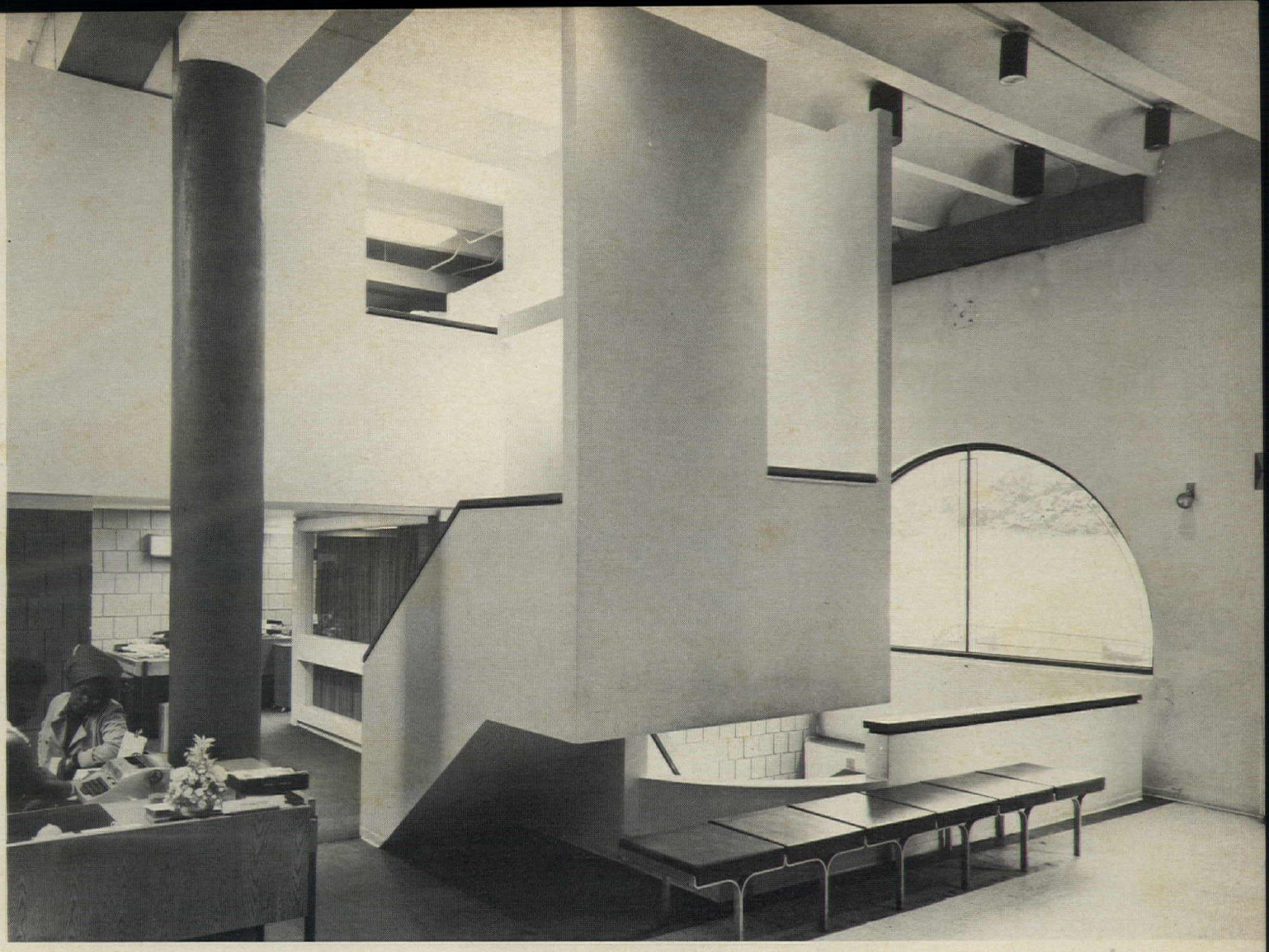
Dollars and sense buy design

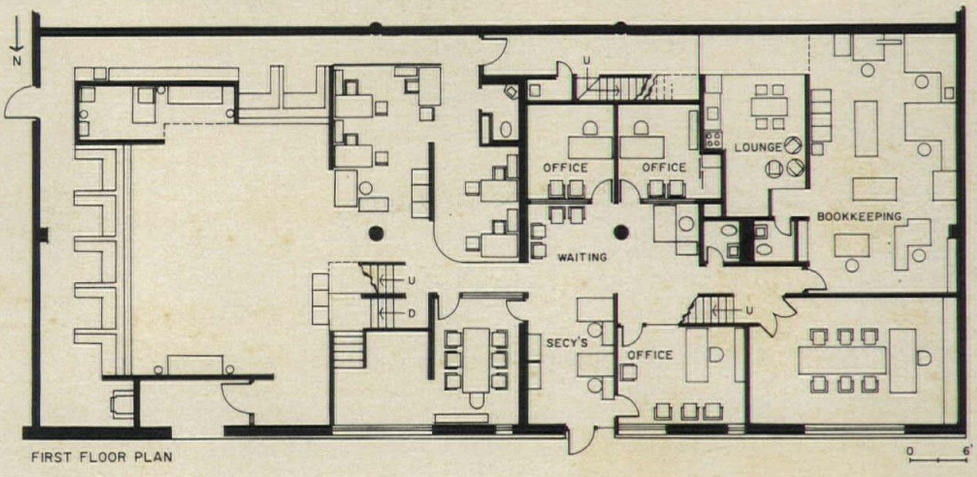
Black-white duality



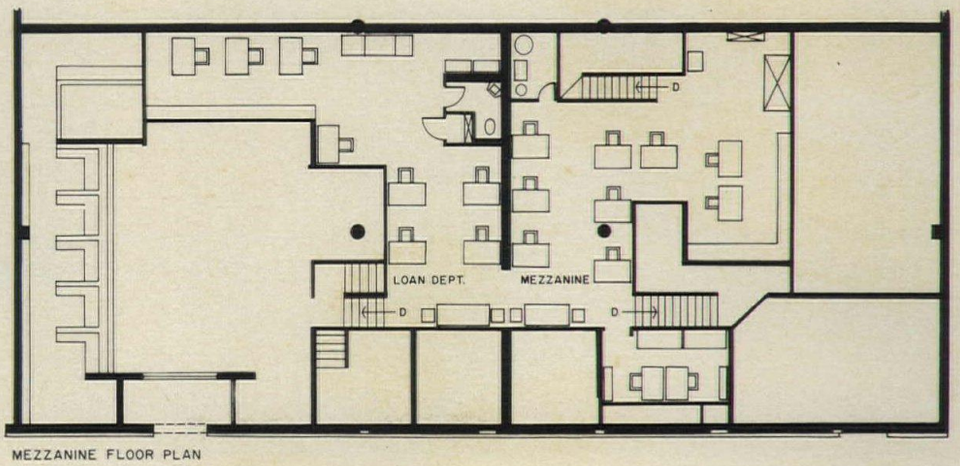


Unity Bank, designed by Stull Associates, was converted from an automobile dealer showroom to a black-owned, white-financed bank in Boston's Roxbury area which has undergone intensive urban renewal. Presenting a massive dark façade with small punched out windows to the street side, the bank turns inward into a sequence of cut-out white walls and strong colors. The heating and air-conditioning ducts as well as the electrical conduits and lighting that were added to the ceiling were left exposed and painted. The mural over the tellers' counter, showing a faceless black man in search of an identity, was executed by a local black artist. The tension between the black façade and white interior, like the duality of white financing and black ownership, is a direct translation of the black-white social conflict. The façade, perhaps, deals more directly with the conflicts of the ethnic community it serves than with its site.





FIRST FLOOR PLAN



MEZZANINE FLOOR PLAN

Data

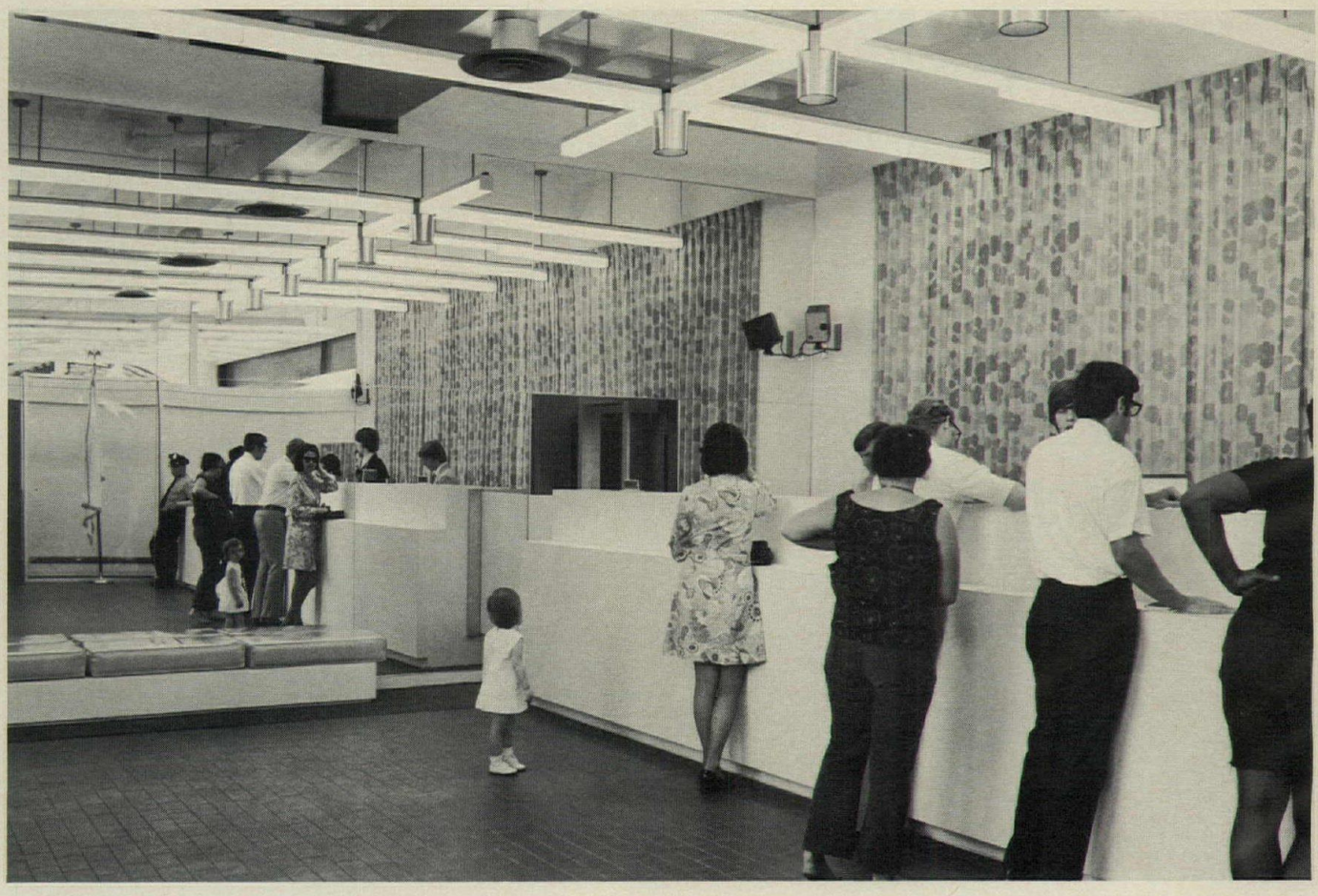
Project: Unity Bank and Trust Company, Boston, Mass.
Architect: Stull Associates, Stephen Tise, designer.
Major materials: new exterior brick wall. Sheetrock, block, carpet, tile and paint on interior.
Costs: $130,000.
Photography: Robert Perron.

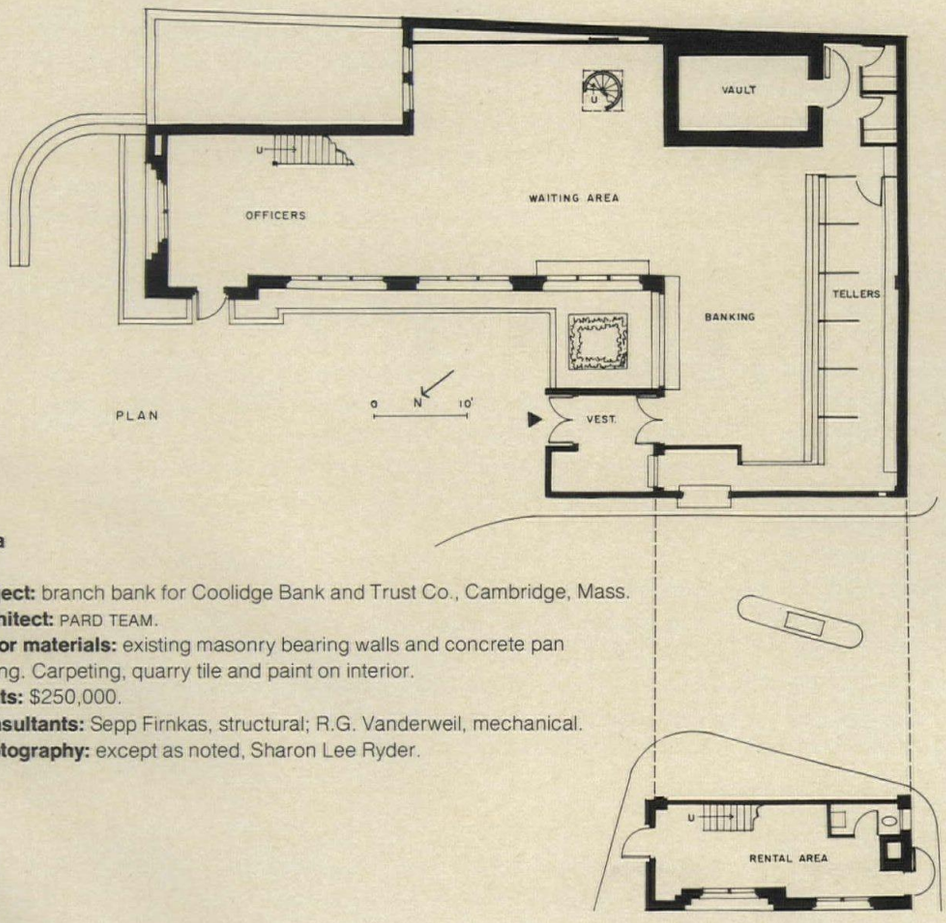
Dollars and sense buy design

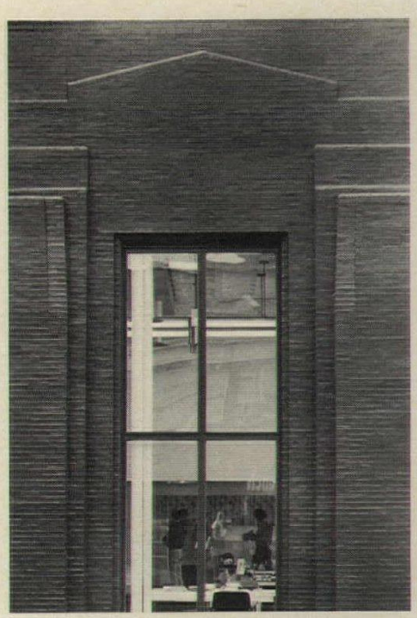
In place of a high-rise

Coolidge Bank, adjacent to Harvard Square in Cambridge, Mass., was formerly a '30s gas station—complete with brick detailing—before its conversion to a bank. Designed by the PARD TEAM, the façade—with two sides exposed at a busy intersection—deals with its surroundings in a simple, direct way with one strong color and large insistant graphics. The bank had originally planned to erect a high rise on the site, but with a cutback in spending, plans were stopped just before construction and the architects were told to do what they could with what existed on the site. Fortunately, the gas station had not been torn down. With minor structural changes painted red, it adds more liveliness to Harvard Square than would any high rise.

Photo: Daniel Dimancescu







Data

Project: branch bank for Coolidge Bank and Trust Co., Cambridge, Mass.
Architect: PARD TEAM.
Major materials: existing masonry bearing walls and concrete pan ceiling. Carpeting, quarry tile and paint on interior.
Costs: $250,000.
Consultants: Sepp Firnkas, structural; R.G. Vanderweil, mechanical.
Photography: except as noted, Sharon Lee Ryder.

Water conservation: reuse and recycling

Herbert Panzer, PE

While the country's water supply is constant, consumption is growing markedly due to population growth, higher living standards and industrialization. Hence, man's need to cleanse the water he uses grows greater day by day

The statistics on water usage are startling. Some examples: It takes 10,000 gallons to manufacture one car, 75,000 gallons to produce one ton of steel, 62,500 gallons to manufacture a ton of paper; 118 billion gallons are used each day in the manufacturing industry in the United States.

Through the hydrologic cycle nature itself purifies waste water, but the tremendous growth of industry has made it impossible for natural processes to keep up with society's demands. The hydrologists know well that these huge quantities cannot be supplied indefinitely without reusing and recycling our limited water supplies. To prevent our streams and lakes from dying as a result of pollution loadings, and to reduce and optimize our water withdrawals, man must consider reuse and recycling.

For some years industry has been applying certain methods of purifying and reusing its waste water. The present recirculation ratio is 2.5 for the entire manufacturing industry. In other words, every gallon of water withdrawn is used two and one-half times before it is discharged or wasted. Most of this recirculated water is cooling water. The only contaminant to be removed is heat, a relatively easy process.

Some industries have gone one step further and are reusing water contaminated by products of their process. In general, however, this is done on a very small scale. The most important realization that has come out of these limited applications of water reuse is that pollution is in fact uneconomical. The valuable reusable waste materials recovered from the effluent, the elimination of a surcharge on excess strength wastes, and the lower water bills often have the net effect of making a manufacturing process most economical when pollution discharge is the least.

One good example of an industrial application is the Guide Lamp Division of General Motors, which at one time discharged over 10 billion gallons of waste water a year that contained large amounts of chrome and cyanide. A water and waste treatment plant has been constructed that enables recovery of these wastes for use in the manufacturing process, and provides a clear effluent that can be used in the process water supply.

Municipalities also must consider reuse of waste water. In Nassau County, N.Y., for example, the principal source of water supply is wells. With sewage treatment plant expansion and development, and the elimination of cesspools as individual sewage disposal systems, the county is faced with a dilemma. The cesspools help in recharging the ground water supply, but the pollution contribution from them has been affecting the quality of the water supply. Depletion of the ground water causes salt water intrusion which will eventually contaminate the supply. The ground must be recharged with sewage treatment plant effluent if the necessary balance is to be maintained, as has been done in Los Angeles since 1962.

Some famous examples of municipal water reclamation do exist. However, since the standards of quality for discharged water are being increased regularly, they are not ideal models. At the Santee Project in San Diego, the discharge from a secondary sewage treatment plant is retained in an oxidation pond and then pumped a mile and a half up a canyon. Here it is put into shallow basins where it percolates down into the sand and gravel earth layer, providing tertiary treatment. It then moves downstream through the earth to a series of man-made lakes that are used for boating, fishing and swimming on a limited basis.

Another famous plant is the South Tahoe (Calif.) water reclamation plant which produces water of drinking quality from sewage effluent. Denver has embarked on a program in which, by the year 2000, 25 percent of its total water requirements will be provided by recycling sewage treatment plant effluent.

Hesitancy on the part of municipalities and industry in setting up water reuse and recycling programs seems to center around the lack of definitive standards, fear of the construction cost and fear of delaying production. Of these, the cost is certainly the least important. In essence, considering the importance of water to society, we cannot afford not to reuse and recycle our water.

Author: Herbert Panzer, PE is an associate of Syska & Hennessy, Inc., Consulting Engineers, New York City.

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Development of reference standards

Harold J. Rosen, PE, FCSI

A review of organizational procedures used in the development of reference standards by technical societies to insure proper research, review and representation

Reference standards issued by technical societies are used by architects, engineers and specifiers for design purposes and for specification reference. In addition, many standards are incorporated in building codes and many are used internationally. Most technical organizations, such as NFPA, ASTM and ACI, whose standards have gained national and international acceptance have standing national committees composed of experts in their particular field.

The objectives of NFPA are "to promote the science and improve the methods of fire protection and prevention, to obtain and circulate information on these subjects and to secure the cooperation of its members in establishing proper safeguards against loss of life and property by fire." Standards for fire protection are developed by about 100 standing national technical committees of NFPA. The personnel rosters of these technical committees include foremost experts in each field such as doctors, architects, engineers, fire prevention engineers and fire chiefs. The committees are carefully made up to ensure a representative and balanced cross-section of all groups interested in fire protection. Every effort is made to consider all individuals or groups interested in any standard, with opportunities offered to present their views to the committee involved. Standards are periodically revised to keep step with progress in science, invention and industrial arts. When a committee has compiled a proposed standard or a revision to an existing standard it is printed in advance of annual meetings of the NFPA for distribution to members, to affected industries and to the technical press. It is then acted upon officially at the annual meeting.

ASTM is a international technical society devoted to "the promotion of knowledge of the materials of engineering, and the standardization of specifications and methods of testing." The society operates through more than 109 main technical committees that function in prescribed fields under regulations that ensure balanced representation nationwide among producers, consumers and general interest participants. The standards produced by ASTM represent the combined efforts, experience and abilities of a great number of technical experts serving on numerous ASTM standing technical committees. These committees work out and agree upon the details of various specifications and methods and make their recommendations to the society. This is done in accordance with a standard procedure designed to give ample opportunity to all concerned to express their views and reach agreement. Standards comprise those test methods, definitions, recommended practices, classifications and specifications that have been formally adopted by the Society, requiring letter ballot approval by the entire membership.

ACI is a technical society devoted to concrete technology and has nationwide standing committees concerned with five broad areas: research and administration, materials and properties, design and construction practices, structural analysis, and special products and processes. Proposed standards and proposed revisions to standards are prepared by the standing committees and printed in the *Journal of the American Concrete Institute*. Discussion is invited on the proposals by members and others interested in concrete technology, with the discussions printed in the *Journal*. The standing committee reviews the discussions and after these are incorporated in the proposed standard it is submitted to a letter ballot by the membership.

In these technical organizations, the committee memberships are listed with the standards for which they are responsible. This permits those desiring interpretation of standards to question the committee and receive clarification. It also enables the committee to make the necessary revisions when the standard is up for review.

The Construction Specifications Institute is a technical organization devoted primarily to the improvement of specifications. It issues technical studies and documents for the guidance of specifiers. The CSI members who are specifiers use the standards developed by the other societies regularly and they are sensitive to the need for credible, authoritative standards. The procedures, however, for developing CSI documents do not follow the format of the other major societies.

Most CSI standards are produced on the basis of local chapter development. A chapter is assigned a study and a committee of local chapter members prepares the first draft. In many instances, the members are not necessarily expert in the particular field. Although review and comment is solicited from other members, it is difficult to rewrite complete drafts. The promulgation of the document is not based on a letter ballot of the entire membership but on the review of a single Technical Documents Committee consisting of seven members who cannot be expert in the approximately 500 projected standards. Occasionally the proposed document is submitted to an industry group that has proficiency in that specific area.

After a document has been published, questions concerning interpretation cannot be handled since there is no standing committee that can offer clarification. Only a handful of documents that have been prepared by special national task forces have received acceptance, particularly the CSI Format and Uniform System. It would seem appropriate for CSI to review the procedures used by the other major technical societies in developing standards with a view toward improving the content and quality of its documents.

Author: Harold J. Rosen is Chief Specifications Writer of Skidmore, Owings & Merrill, New York City.

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Zoning regulations for population control

Bernard Tomson and Norman Coplan

A significant case concerned with the question of zoning restrictions used to control residential development is defined in the first of two articles

The rapid growth in suburban population in recent years has created complex and difficult problems for suburban communities. Many have sought to slow down residential development by various zoning techniques. Some of these efforts have been successful and others have been declared invalid.

The legal basis for controlling residential development through zoning regulation to avoid overcrowding and urban sprawl is reflected in the opinion of the U.S. Supreme Court (*Berman* vs *Parker,* 348 U.S. 26), which states that "the concept of the public welfare is broad and inclusive" and that "the values it represents are spiritual as well as physical, aesthetic as well as monetary." The Supreme Court has further stated that "it is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as well-patrolled."

However, zoning restrictions which are directly aimed at preventing the entry of newcomers into a community have generally been found invalid. One effort to regulate and restrict residential development was attempted by the town of Ramapo, N.Y., which adopted a zoning ordinance requiring a residential developer to obtain a special permit before submitting a subdivision plat plan to the Town's planning board for approval.

The standards for the issuance of such a permit were based upon the availability to the proposed subdivision plat of certain essential facilities or services, including 1) public sanitary sewers; 2) drainage facilities; 3) public parks or recreation facilities, including public school sites; 4) accessibility to state, county or town roads and 5) firehouses. The ordinance provided that no permit would be issued unless the proposed residential development could be awarded 15 development points computed on a sliding scale of value points. The purpose of this procedure was to phase residential development with the town's ability to provide such facilities or services.

The town had duly adopted a capital budget and capital improvement plan under which it had committed itself to a program of continuing capital improvement over a period of 18 years, designed to insure the complete availability of public facilities and services. Success in obtaining a special permit was closely tied in via the point system to the proximity of the proposed plat subdivision to the available municipal facilities or services and the time within which the permit could be secured was directly related to the capital budget and plan pursuant to which various facilities and services would become available.

The validity of this ordinance was challenged by a developer who had submitted a subdivision plat to the town's planning board for approval. The subject parcel was located in an area requiring a minimum of 50,000 ft for each residence and the plot consisted of 53 acres which was sought to be subdivided into 41 lots. The subdivision was not approved on the ground that the developer had not secured a special permit and the validity of the ordinance requiring such permit was thereafter challenged in court. The trial court upheld the ordinance pointing out that the Town Laws of the State of New York authorized local communities to adopt regulations to, among other things, "avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks and other public requirements." The court stated:

"Consideration of the history of land development and planning in the town of Ramapo, together with the enormous population growth which the town has experienced in the past 15 years and the impact which that growth has been and is having upon existing municipal facilities particularly in the unincorporated area of the town, demonstrates that the amending ordinance was not only enacted within the town's statutorily delegated zoning powers and as a result of considerable forethought as to the land use problems of the town, in conformity with a comprehensive plan, but that on their face the restrictions imposed on residential subdivision developments are reasonable and necessary in meeting the needs of the community as a whole; that they are not inherently discriminatory or confiscatory; and that they do not constitute an arbitrary infringement on petitioners' rights to use their land". . . .

"Zoning and zone use regulations are 'essentially a balancing of interests—the weighing of individual property rights and the enjoyment thereof, against the needs and interests of the public.' As we have already observed, the grant of power to enact zoning regulations by towns requires as a prerequisite that they be made in accordance with a comprehensive plan and the general welfare. 'Nevertheless, it is the plain prerogative of the town authorities to make changes of zoning policy in order to adjust to changing patterns of living; they are not helpless to view the changing scene and not make provision for the present and future need of [The Town of Ramapo].' In forming its legislative judgment in enacting the challenged ordinance the Town Board has, in our judgment, complied with the statutory requisites."

Upon appeal, this decision was reversed (*Golden* v *The Planning Board of the Town of Ramapo,* 166 N.Y.L.J. No. 28), and the zoning ordinance was held invalid. The decision of the Appellate Court will be discussed in next month's column.

Authors: Bernard Tomson is a County Court Judge, Nassau County, N.Y., Hon. AIA. Norman Coplan, Attorney, is Counsel to the New York State Chapter of the AIA.

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Report on the revolution

Across the Barricades *by Richard Rosenkranz. Philadelphia/New York: J.B. Lippincott Co., 1971. 291 pp. $6.95.*

Although at first glance Richard Rosenkranz may seem to have written a screenplay for a youth-in-revolt flick, what he has really done in *Across The Barricades* is to provide a very readable account of the real revolution—the one that is going on in the thinking of a lot of people, young and old alike. It's easy to imagine Elliot Gould and Dustin Hoffmann and other young film stars in the screen version. Scene: Avery Hall, the architecture building at Columbia University, just as everybody is putting finishing touches on design projects. The story: word comes that the administration is closing the school because of a student strike. Everyone is told to go home. The students, angered, keep the building open. Their anger slowly grows into an alliance with SDS and black student factions that brought about the closing of the school. There are meetings and discussions and demands and explanations and statements and harangues. There are light moments and tender moments; you can almost see generation gaps widening and narrowing. Mostly, however, there is tension: will the university call the cops? Will the students leave peacefully or will they resist? Will there be police brutality? The answer is yes, and the climactic bust is the stuff movies are made of.

Hollywood, if they are still making movies there, might not get to the real substance of the story, though, for what really happened at Columbia, at least in the architectural school, seems unfilmable. The real strike, the real and lasting revolution, took place in the heads of the students, and it is that revolution that Richard Rosenkranz is concerned with: thoughts, not actions.

Rosenkranz, who was doing research on a journalism fellowship at Columbia, followed his reporter's instinct to Avery Hall. He was first impressed by the people there, and even more impressed by the issues. The students at Avery were for the most part graduate students, older than the strikers at other campus buildings. They weren't really revolutionaries: concerned, yes—many had made peace marches, been to Washington, protested peacefully—but not revolutionaries. They were, Rosenkranz says, more serious and democratic than the rest, and "much more than nihilists." The issues included the university gymnasium, which the school was going ahead with in spite of strong objections from students and the surrounding community; university expansion policies in general; defense research and student-administration relations. He was so impressed that he stayed on to become part of the Avery Commune. He took notes, later tape recorded recollections to recreate the mental mood of that April week back in 1968.

The issues, for the campus as a whole and for the students in Avery, were political, not architectural, although the gym combined elements of both. But there are no sharp lines between architectural and political problems any more; ask anyone involved in urban planning. For the 80 students who had at first been angered simply because their work had been interrupted, it was a week of growing political awareness. And the importance of what happened—in their heads and on campus—shows in the way students continued after the strike. Some stayed in demonstration style politics, some moved into advocacy design and planning, some finished their degree, some dropped out of school. One group in particular—students in architecture, planning, law, journalism, sociology, history and other subjects—got together to form Urban Deadline, a nonprofit corporation that has taken on projects ranging from slum repairs to playground design to a riverfront park for Paterson, N.J.

There are times in the book when the students seem dead wrong, hopelessly naive or just plain stubborn, and other times when their concern (which was already there) and their political awareness (flourishing in the hothouse climate of the strike) can be clearly seen. Taken all together, the thoughts and recollections of these students offer some insight into something that is happening throughout the architectural profession—the politicizing of architectural issues and the architecturalizing of political issues. [CP]

The Social Impact of Urban Design *by Bruno Bettelheim, M. Paul Friedberg, Lee Rainwater and Wolf Von Eckardt. Chicago: The University of Chicago: Center for Policy Study, 1971. 75 pp. $3.95.*

Distinguished authorities of varied disciplines have contributed papers on city building to this book. Their diverse approaches meet in their concern for the people of the cities, who come before any concern about building and design.

Lee Rainwater, professor of sociology in the Department of Social Relations and the John F. Kennedy School of Government at Harvard, is also principal investigator of the research program on family behavior and social policy, a joint Harvard and MIT urban studies program. His paper examines some of the effects of the use of space in cities on the lower class, particularly lower-class blacks.

[continued on page 138]

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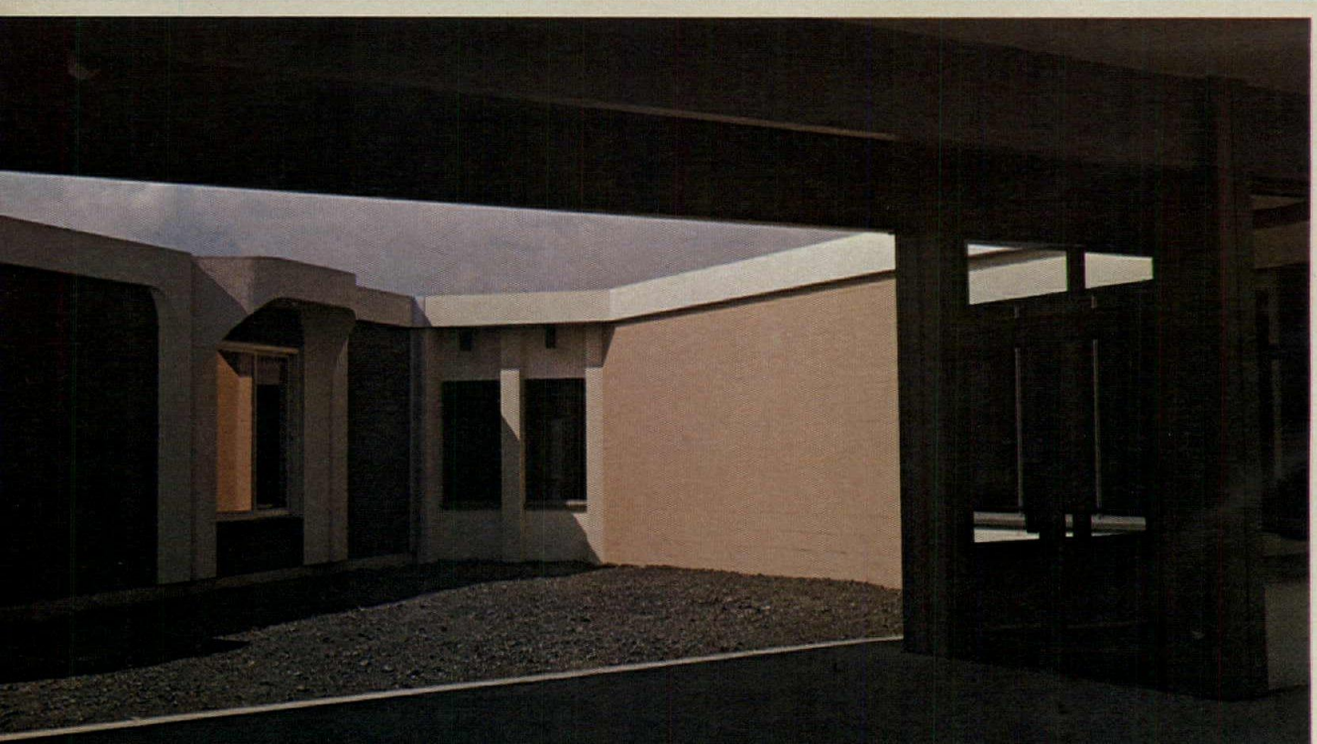
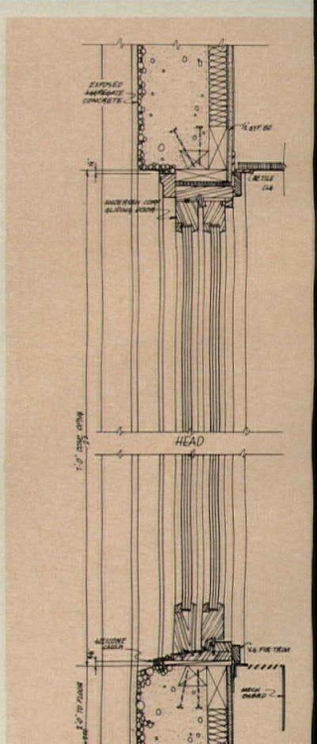



HEAD

When is a window not only a window?

When it's an emergency door.

The windows in Wonder Park School, Alaska, are in fact Andersen Gliding Doors.

This was the architect's creative solution to the problem of providing adequate emergency exits without limiting his freedom of design.

Placed 24" above the floor, these gliding doors become "window-exits." They are easily opened at any time and in emergencies the students can be evacuated through them in a matter of seconds.

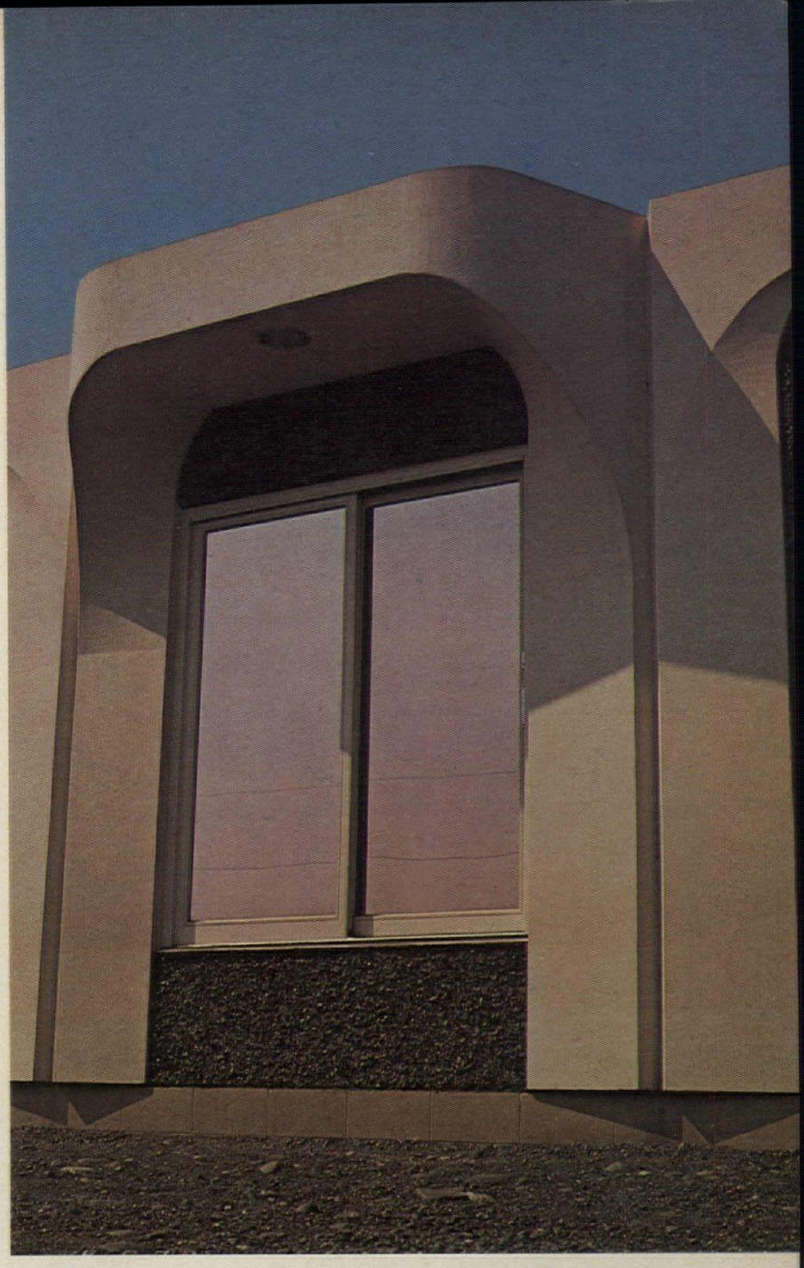
These Andersen Gliding Doors solved more than one problem. Their welded insulating glass eliminates the need for storm windows—even in Alaska. And the glass is tinted to reduce glare from the low winter sun.

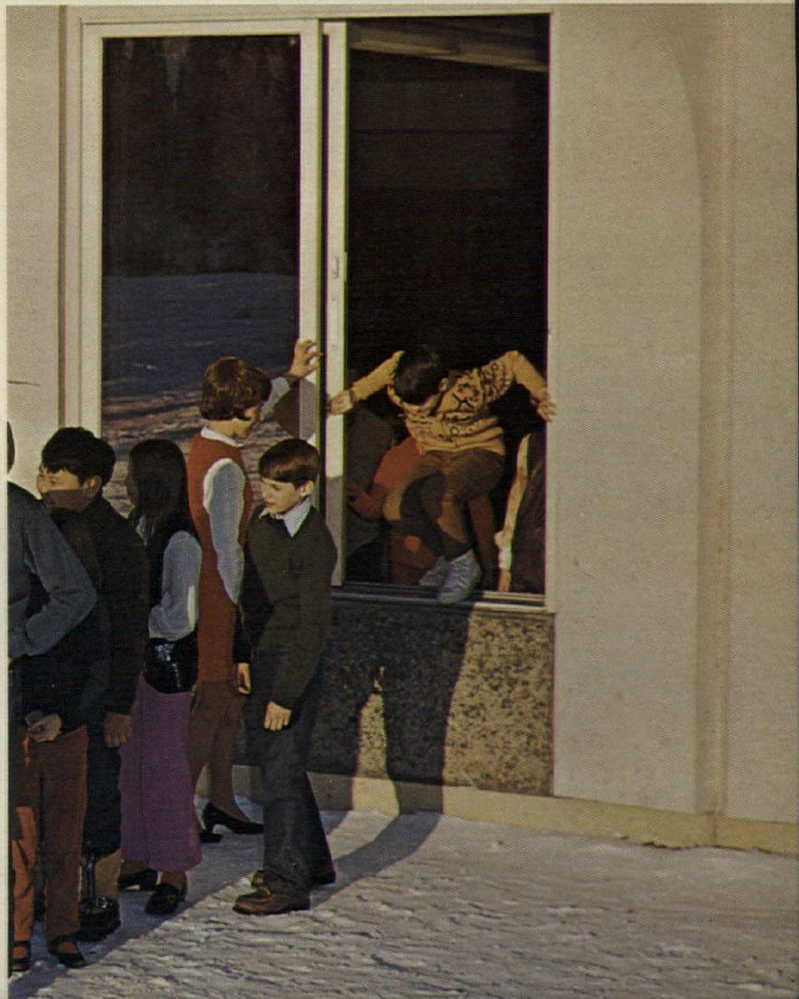
The superior insulation properties of wood, and Andersen's weather-tight construction, make these doors even more winter-worthy.

Wonder Park School is an example of how Andersen Windows and Doors—and a little imagination—can solve several problems at once—beautifully!

For details on all Andersen Windows and Doors (or even Window-Doors) see Sweet's File (Sections 8.16/An and 8.4/An) or your nearest Andersen distributor.

Wonder Park Elementary School, Anchorage, Alaska. Architect: D. J. Coolidge, AIA, Anchorage, Alaska. Consulting Architect: Ralph M. Alley, AIA.





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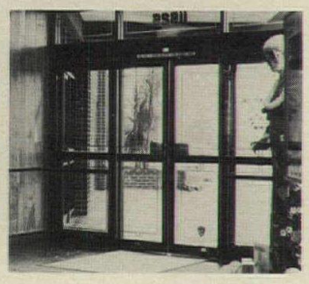
The design flexibility offered by Horton Automatic entrances is virtually limitless. Somewhere among Horton's vast creative design possibilities you'll find an eminently functional door of distinctive beauty. A door that can pretty the facade of any commercial or industrial building you're designing. □ Horton developed the first successful commercial sliding door mechanism in 1956, and has been synonymous with imaginative innovation ever since. For example, Horton's automatic door, with the patented Swing-Slide Breakaway Feature, has been approved by Underwriter's Laboratory as an exitway, meeting or exceeding the strictest building codes. □ Horton Automatic entrances. Another fine product from a company famed for quality products, Overhead Door Corporation. For more information on Horton Automatics and the name of your local Horton distributor, write us. They can pretty any face you can create.



THE "OVERHEAD DOOR" TRADE MARK

Horton Automatics
A Division of Overhead Door Corporation

For a free 2' x 3' reproduction of the original art on the opposite page, write: Overhead Door Corporation, Dept. PA471, 6250 LBJ Freeway, Dallas, Texas, 75240

With Powerbond you don't have to decide between carpet and tile.

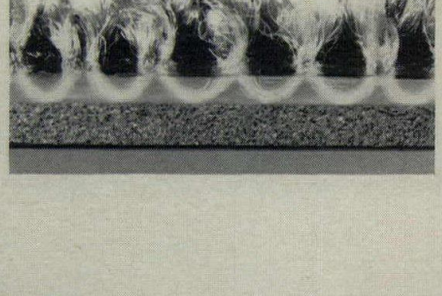
Powerbond pile vinyl is carpet and vinyl together! And only Collins & Aikman makes it.

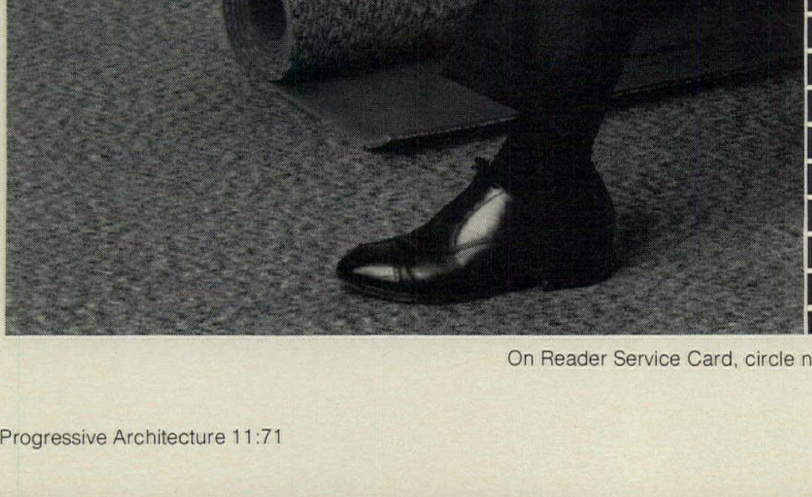
A floor covering whose luxurious soft surface provides the esthetic beauty of carpet. A tough, dense pile surface made from a second generation, anti-soil nylon. Which allows for maintenance as low or lower than other floor coverings. It's fused to a closed-cell sponge vinyl that resists indentation and is virtually waterproof. And provides dimensional stability so Powerbond pile vinyl can't crawl, bag or sag. In short, with Powerbond pile vinyl you get the best of carpet fused to the best of vinyl.

And we'll also tell you about Powerbond Tex-Tiles. The 18"x18" miracle squares of vinyl-backed carpet that need little or no adhesives for installation. You can put them down and pick them up at will. Making a truly "portable" floor covering.

Don't decide on a floor covering until you get the full Powerbond pile vinyl and Tex-Tile story. From Bill Wiegand or Harry Vorperian at (212) 371-4455. Or send in the coupon. And we'll have a man out to you in a jiffy to show you the unique floor coverings that make practical, beautiful sense. Powerbond pile vinyl and Tex-Tiles.

Collins & Aikman, 919 Third Avenue, New York, New York 10022.





P-11

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Pittsburgh, Pennsylvania
Architect: William F. Pleva, AIA
Pittsburgh, Pennsylvania

Gimbel Gymnasium
University of Pennsylvania
Philadelphia, Pennsylvania
Architect:
Bartley, Long, Mirenda, Reynolds & Noble
Philadelphia, Pennsylvania

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This system of stock parts is available through local fabricators everywhere, and engineering data are provided to insure compliance to local building codes. Request catalog, special bulletins, or see Sweet's Architectural File, Industrial File or Interior Design File.

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THE MOST COMPLETE SOURCE FOR ARCHITECTURAL METALS

Books continued from page 130

"Mental Health in the Slums" is the focus of the paper contributed by Bruno Bettelheim, professor of psychology and psychiatry at the University of Chicago. In a few brief pages he portrays the lives and needs of the ghetto child, emphasizing the need for hope for the future if the child is to grow up to be a mentally healthy adult. His question becomes "Does physical design affect the psychology of hope?"

M. Paul Friedberg, landscape architect and urban design professor, in asking "Is This Our Utopia?" points up the need for community participation in making decisions about the development of public facilities. He portrays several successful public and privately owned housing projects to illustrate his argument. Wolf Von Eckardt, architecture critic of the Washington Post and author of books on planning and new communities, talks to the problems of "Our Design Behavior" and its influence on human behavior.

In all, this group of papers, some of them just a few pages long, contribute to the need for a growing awareness of the social impact of urban design and is worthwhile reading for those whose work creates this influence.

Making the City Observable *by Richard Saul Wurman. Cambridge: The MIT Press, 1971. 96 pp. $7.50 cloth, $3.95 paper.*

This special issue of "Design Quarterly" is described by its author as a "catalog of projects, ideas, books, guides, maps, advertisements and curricula that offer some means to a better understanding of the environment. Making the city observable means making the plethora of public information public."

Some 80 projects and sources of availability are offered, beginning with Falda's Plan for Rome to a variety of city maps, aerial photographs, computer graphics, Baedeker guides, area highway networks, AIA guides and more. Like any well-planned catalog (including the "Whole Earth") this one is broad in scope, highly imaginative and suggests resource material not generally found in the average book on cities.

Architectural Structures: An Introduction to Structural Mechanics *by Henry J. Cowan. New York: Elsevier, 1971. 400 pp. $15.75.*

Cowan, who is professor of architectural science at the University of Sydney, Australia, has written an extremely lucid textbook on structure for architectural students. He avoids the two extremes that usually plague users of such texts: the one that overwhelms the student with physics and math, and the other that omits all theory and calculations, leaving the student no way to choose between alternative solutions. The language and drawings are clear and the book is well organized.

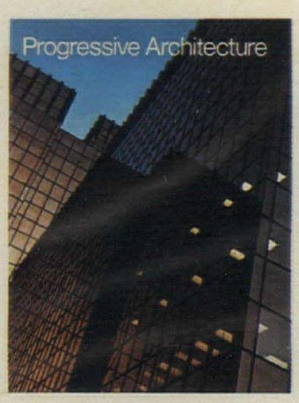
An appendix is, by itself, a mini-textbook on teaching structure.

Architecture by Team: A New Concept for the Practice of Architecture *by William Wayne Caudill. New York: Van Nostrand Reinhold Co., 1971. 337 pp., $17.95.*

This is William Caudill's personal account of the development of his office's team practice. According to Caudill, a team is composed of "a group of specialists solving problems in an atmosphere where the opinions of each are respected, but the highest value is placed on the opinions of a specialist within his specialty." Almost diarylike in its account, it looks to the team as the new genius in architecture and illustrates how the firm of

[continued on page 150]

One of our editors recently went back to college to design a library.



Writing about someone else's work is a lot easier when you're also working in the same field.

Recently one of the editors of Progressive Architecture designed a 100,000-volume college library that had some unique architectural features.

It's this type of professional involvement that makes our editors better editors.

It's also one of the reasons why the profession considers Progressive Architecture "The Voice of Architecture In America." And why Litton Publications is one of the fastest-growing publishers in the business press.

Professionals rely on professionals for information that is accurate and useful. So anything we publish, on any subject, reflects the efforts of seasoned journalists, working with professionals experienced in that subject. Our approach to architectural publishing is working. Circulation is at an all-time high. Response to new product and literature items continues greater than any other magazine in the field. Submissions of designs from architectural firms have increased.

There are now 19 Litton publications with a combined circulation of almost two million. (We just started another publication this July.)

It is because we are members of the Litton family of distinguished publications that we are able to sustain an aggressive program of product improvement. To make P/A more than ever "The Voice of Architecture in America."

Publication	Market/audience	Frequency	Circulation
Air Transport World	Airline executives	Monthly	45,000
Chemical Engineering Catalog	Chemical process industries	Annual	26,000
Chemical Materials Catalog	Chemical process industries	Annual	22,000
Drug Topics	Pharmacists	Biweekly	66,000
Drug Topics Red Book	Pharmacists	Annual	69,000
Drug Trade News	Drug & cosmetic manufacturers	Biweekly	12,000
Heating, Piping & Air Conditioning	Specifiers & buyers of mechanical equipment	Monthly	23,000
Hospital Physician	Physicians	Monthly	77,000
Materials Engineering	Engineering materials specifiers	Monthly	60,000
Materials Selector	Engineering materials specifiers	Annual	60,000
Medical Economics	Physicians	Biweekly	175,000
Medical Laboratory Observer	Clinical laboratories	Bimonthly	55,000
Medical Surgical Review	Surgical	Bimonthly	125,000
Nursing Opportunities	Nurses	Annual	230,000
Physicians' Desk Reference	Physicians	Annual	341,000
PDR for Radiology and Nuclear Medicine	Physicians	Annual	18,000
Progressive Architecture	Architectural professionals	Monthly	63,000
RN Magazine	Nurses	Monthly	231,000
Used Equipment Directory	Used equipment and machines	Monthly	75,000

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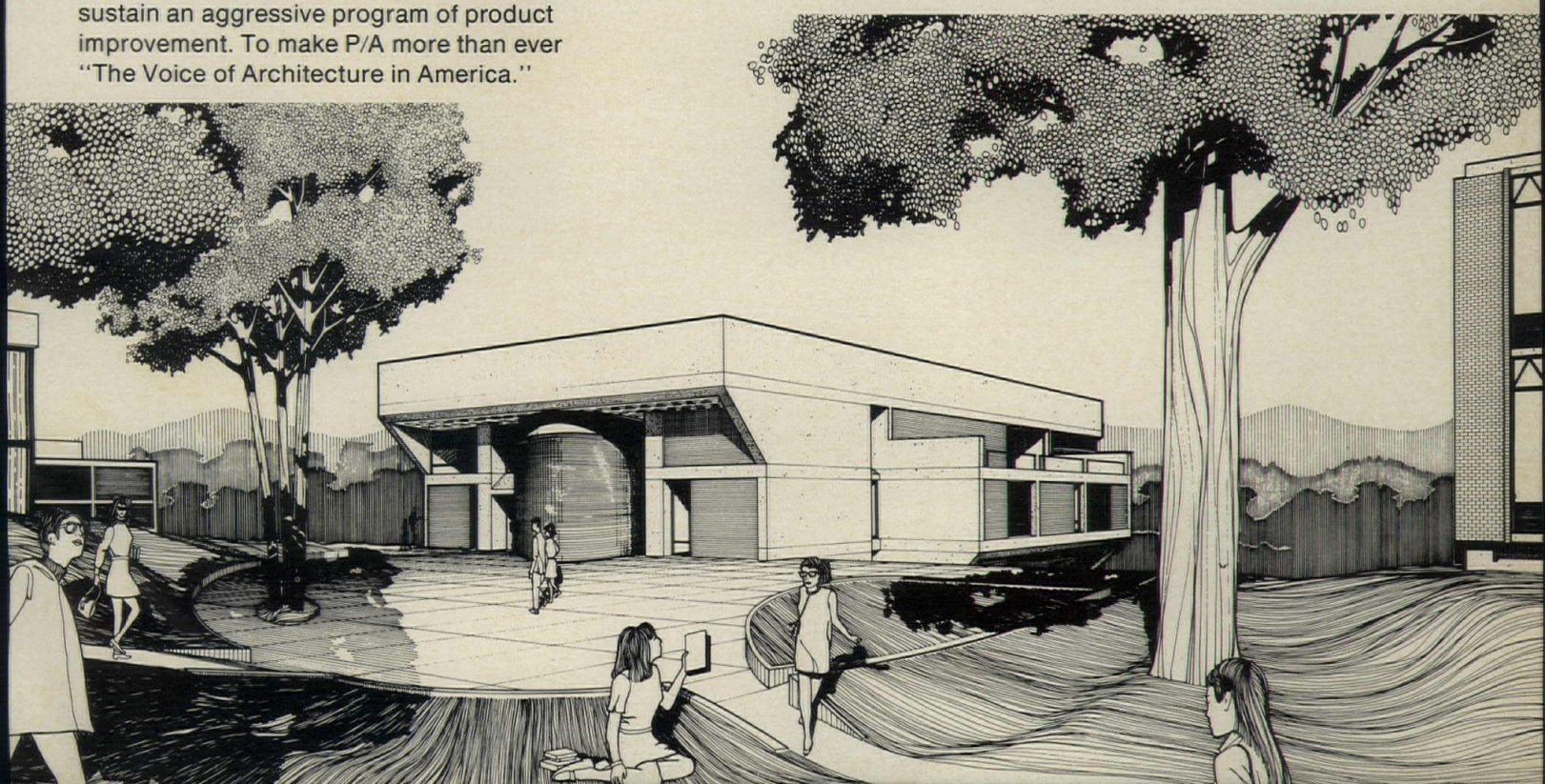

Knoll International

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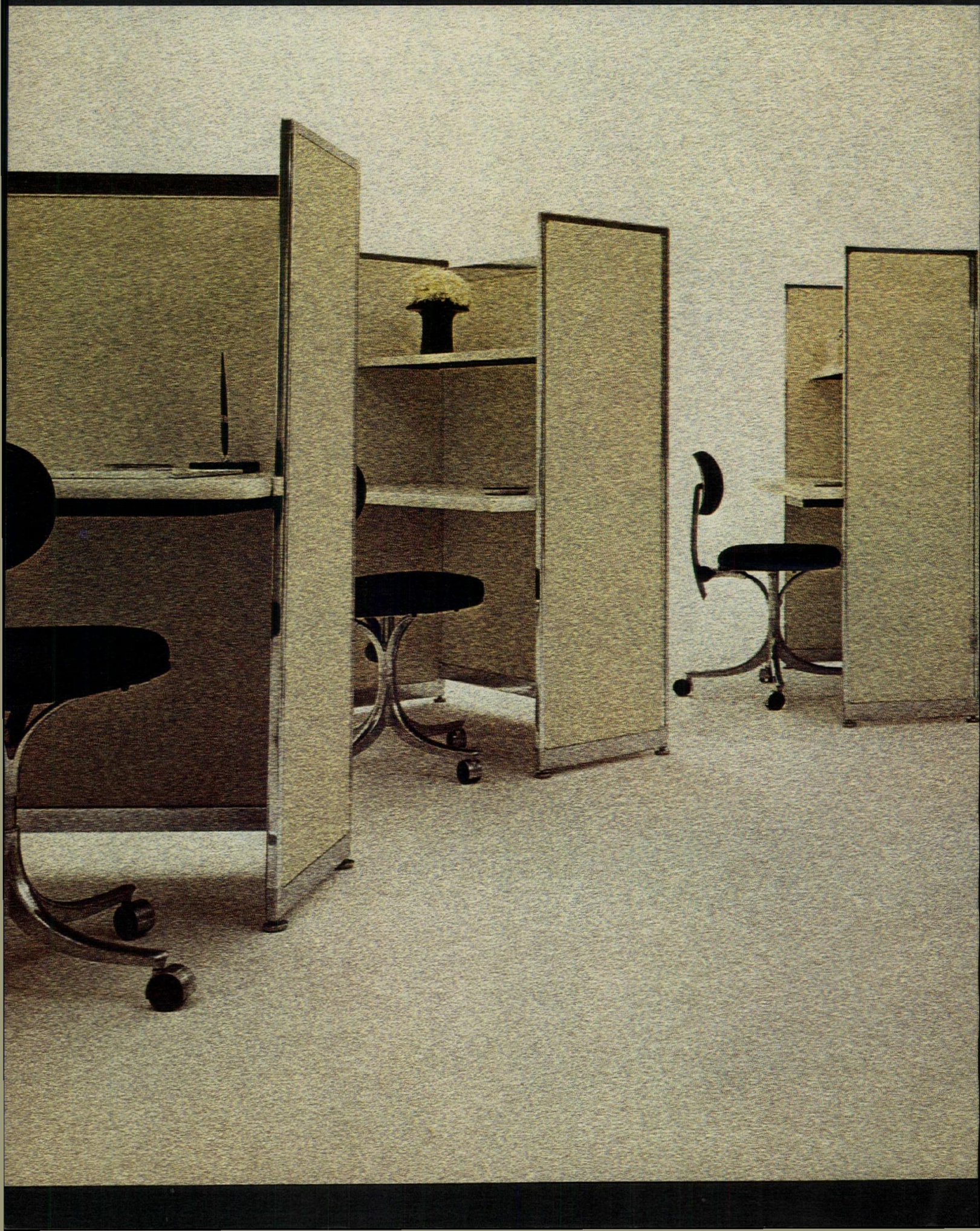
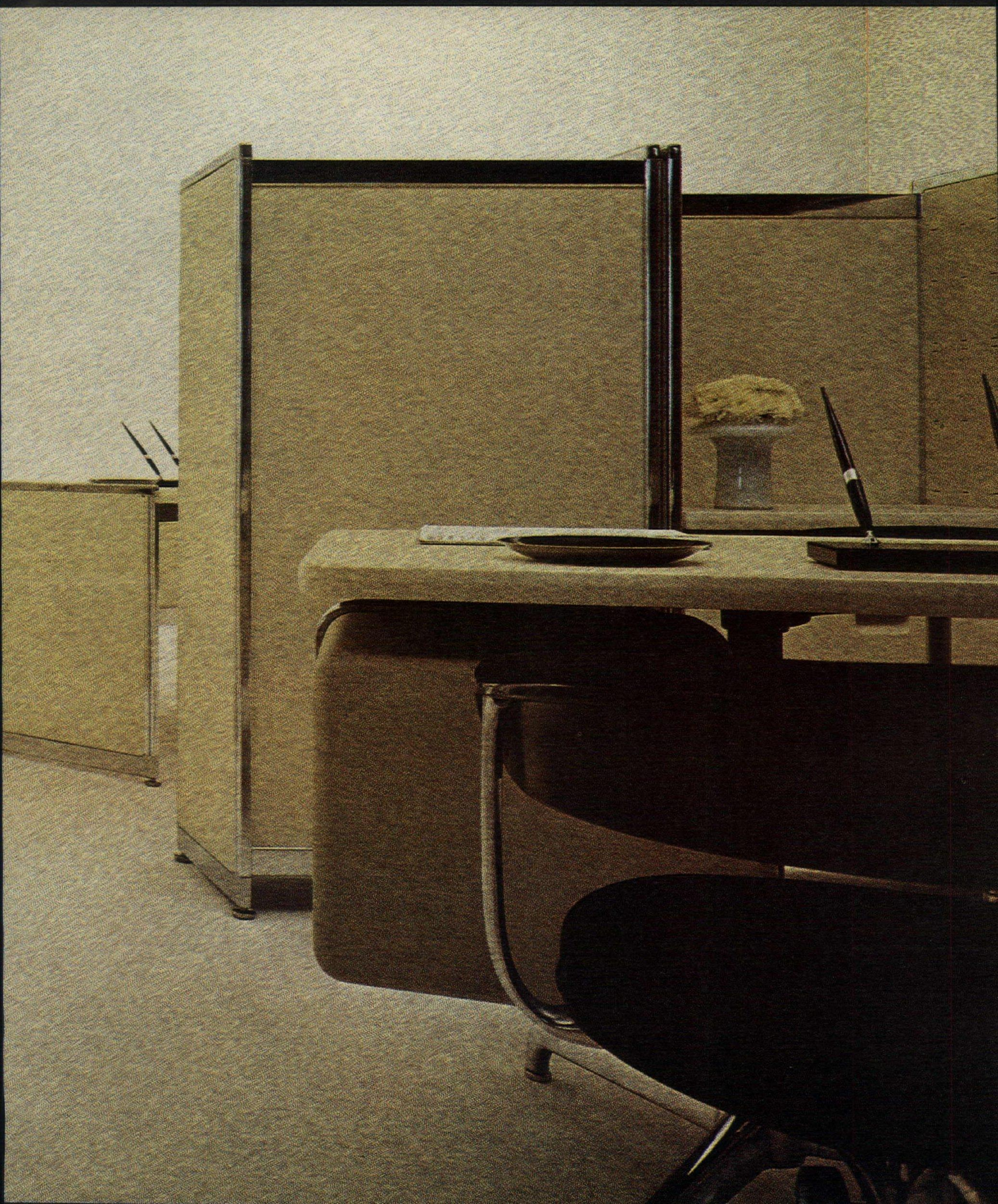


Andreas Christen designs for Knoll

His Landscape System makes an impressive contribution
to the art of open office planning. It is one of two landscape systems previewed by Knoll
at the June meetings of the A.I.A. and NEOCON.

Knoll International operates in 31 countries.



Books continued from page 138

Caudill Rowlett Scott has successfully integrated the talents of a broad range of specialists.

Although Caudill in its preface states that the book is written primarily for the layman—for people who serve on building committees, government officials and others—there is small question that the design professional can benefit from this open account of the activities of one of the country's most successful firms.

The Modern Theater: Architecture, Stage Design, Lighting *by Hannelore Schubert. New York: Praeger Publishers, 1971. 221 pp. $35.*

This book offers a documentary survey of the development of theater building since 1945, including the rebuilding of many structures destroyed during World War II. Examples of new theaters have been chosen from all over the world, although a major section of the book deals with theaters in Germany, Switzerland and Austria. Included are Andre Wogenscky's Maison de la Culture in Grenoble, Jacques Cuisinier's National Theater in Brussels, Peter Moro's Nottingham Playhouse, Sven Markelius's Folkets Hus in Stockholm, The Lincoln Center in New York and Ulrich Franzen's Alley Theater in Houston. Developments in American college theaters and competitions for new theaters and experimental designs these have produced are included. Photographs, illustrations and plans are given for each theater shown.

Documents

[The documents listed below are available from the associations and agencies cited. Request for such documents should be directed accordingly.]

Canadian Dimension Lumber. *Canadian Wood Council, 300 Commonwealth Building, 77 Metcalfe St., Ottawa 4, Ontario, Can. On request.*

One-step span tables and working stresses for new sizes of dimension lumber specified in American Softwood Lumber Standard PS20-70, and for new grades, uniform among all U.S. and Canadian rules-writing agencies are included in this booklet.

Aluminum Statistical Review. *The Aluminum Association, 750 Third Ave., New York, N.Y. 10017. On request.*

Information on all phases of the aluminum cycle from primary production to markets for finished goods is included in this 64-page publication, covering data up to and including 1970.

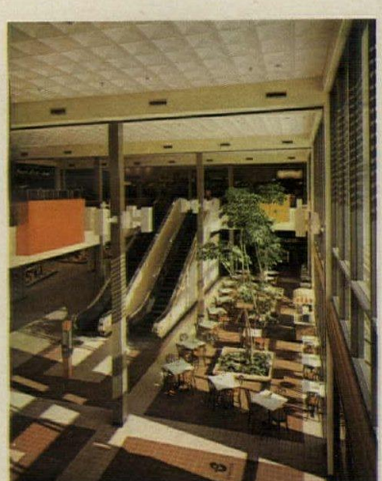
Divided into five major sections—supply, shipments, markets, world statistics and seasonal factors—it also includes uses of aluminum and graphs and tables showing statistical data and trends.

Four Architectural Movement Studies for the Wheelchair and Ambulant Disabled *by Felix Walter. The Disabled Living Foundation, 346 Kensington High St., London, W. 14. 60 pp. $2.90.*

Design data for the disabled based on field tested material is offered in this publication. Disabled people who are principally residents of the City of Westminster and of the London Borough of Camden cooperated in compiling the information, with the help of the two Councils and their medical and welfare staffs and of the King's College Teaching Hospital Group. Several hundred disabled people, well enough to leave their homes, went through the required maneuvers with the results measured and tabulated. Included are needs for housing, parking spaces and ramp gradients.

LENNOX PROVIDES

The atmosphere: a critical element in "shop" design



The Mall at Echelon, Voorhees Township, New Jersey, a totally enclosed shopping environment with over 100 stores. The shopping mall is the first development in a projected total urban community that will include office buildings, apartments, recreation and health care facilities. Developers: Echelon Mall, Inc., a subsidiary of The Rouse Company, Columbia, Maryland. Architects & Engineers: Day & Zimmerman, Philadelphia.

Shops and stores pose special problems for HVAC systems. Occupancy can change quickly from zero population to a massive congestion of heat-generating bodies. Spaces vary in size from intimate boutiques to landscaped plains of openness. Lighting is intense and critical, adding heat unevenly to the

(continued overleaf)

continued . . .

The atmosphere...

environment. And there is need for continuous flexibility in the size and uses of space. And in the availability of power.

A study of user requirements, and the performance criteria into which they translate, establishes Lennox rooftop systems as an optimal solution. Available in single or multizone systems, they can adjust to any change in the critical areas of ceiling, lighting, power and partitions. And adjust to any change in space configuration or size. A Lennox Direct Multizone System can heat and cool at the same time, thus meeting any demand imposed on it.

Lennox HVAC systems also fit the economics of shop and store design. Costs are fully predictable. They are packaged systems, eliminating much on-site labor. Cost of owning can be fixed by service contracts. Operating economies are provided by POWER SAVER,™ which begins to cool free at temperatures under 70°F. And by re-use of heat removed by refrigeration. Because the equipment is a single-source package, it offers single-source responsibility.

Lennox HVAC systems offer the designer precise, known performance data with which to work, and complete flexibility with which to design the other critical, highly visual environments of his project.

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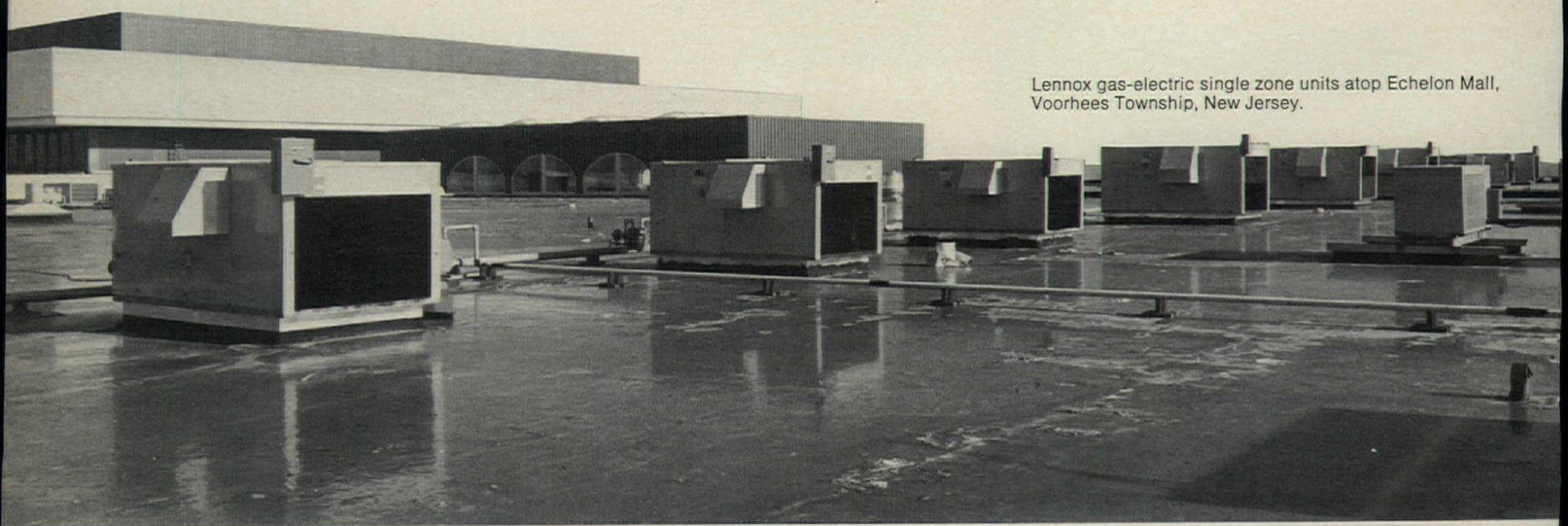
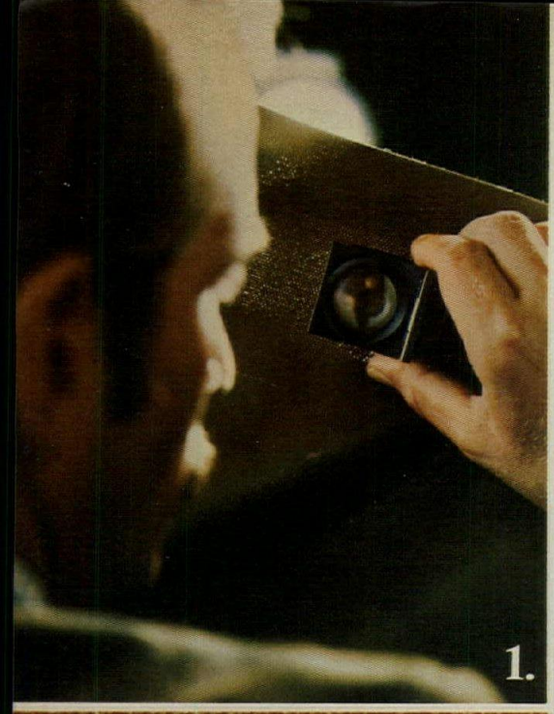


Lennox gas-electric single zone units atop Echelon Mall, Voorhees Township, New Jersey.

The Mercado, a cluster of 48 shops built around cobblestoned plazas in Rancho Bernado, a development in Southern California. Developer: AVCO Community Developers. Architects: Gary Coad, Dale Naegle Architecture & Planning, Inc., La Jolla, California. Engineers: University Mechanical Engineers & Contractors, Inc., San Diego. This open mall and Spanish design fit the climate, the history, the life style of Southern California.

Fashion Square Shopping Center, La Habra, California, an open air mall. Lennox roof mounted heat pumps provided an ideal design solution in Southern California's mild climate. Owner: U.I.D.C., Inc. Architect: Welton Beckett & Associates, Los Angeles.



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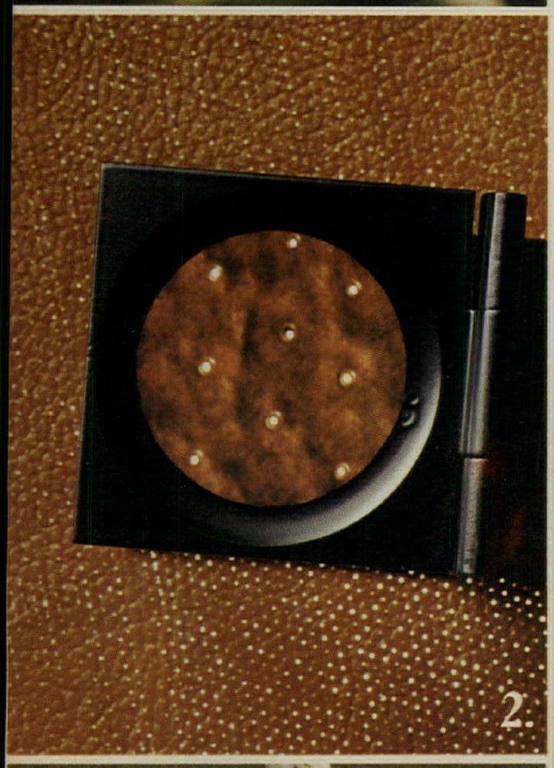

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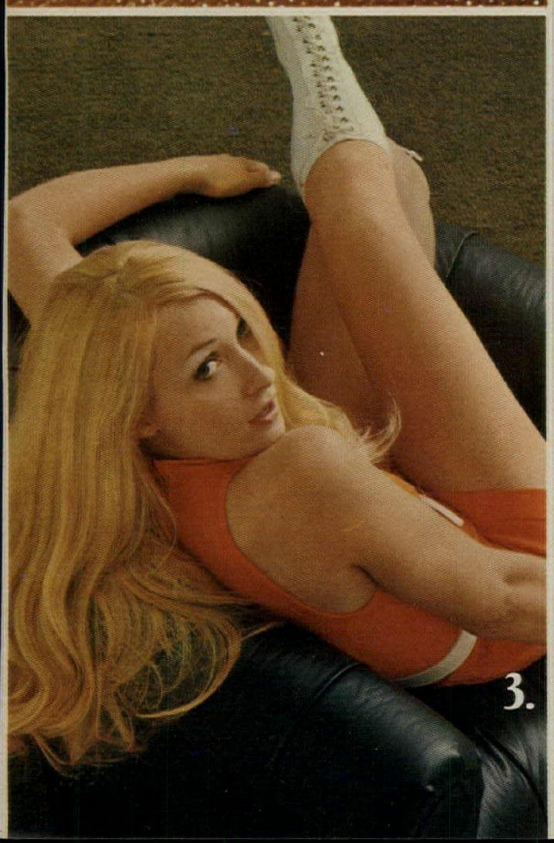

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Now Naugahyde® breathes.

Cover anything with new Breathable Naugahyde vinyl fabric, from posh living room furniture to a butterfly collection. Fresh air flows in and out.

You can't feel the thousands of pinhole pores. But plunk down on a cushion covered with Breathable Naugahyde and you'll feel air move through them.

Uniroyal stylists and engineers can now make any Naugahyde pattern breathe through these near-microscopic air passages. They can also make any design, any feel come to life in this easy-to-live-with material. So you can now create things that are not only beautiful and carefree . . .

You can also make them superbly sit-able.

Do it all with the 13 colors of Breathable Naugahyde immediately available in the elegant new Aerflo line. (See several samples beneath the butterfly.) Or special order Breathable Naugahyde in any other pattern. One from the catalog. Or one we create especially for you.

We'll make air flow through the design, color and texture you choose . . .

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2. A magnified view shows 300 of these pinhole passages in every square inch of Breathable Naugahyde. They let the same amount of air in and out inch after inch, yard after yard.

3. Now breathing is easy for fabric and filling. Sitting is cool and comfortable.

Ask your Uniroyal representative to put a breath of fresh air in your upholstered pieces. Call him for full details on new Breathable Naugahyde. Or write Uniroyal Coated Fabrics, Mishawaka, Indiana 46544.

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Control Data asked its architects how to lower costs. Their answer: Vari-Tran®

A dynamic computer corporation like Control Data needs space to grow in. But it wants to keep costs down. While at the same time managing to look good. With all that in mind, building architects Henningson, Durham & Richardson specified Thermopane® insulating glass with an outer pane of golden Vari-Tran for Control

Data's new three-tower office complex.

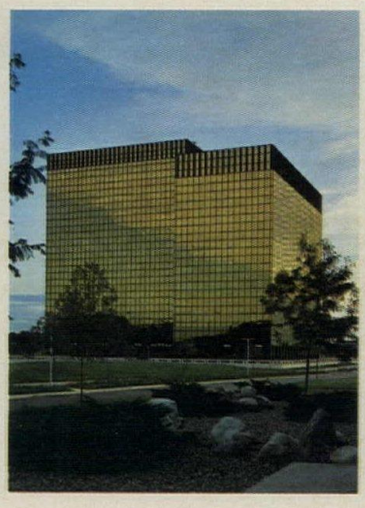
Vari-Tran has the ability to reflect part of the sun's radiant heat. This reduces cooling requirements both in tonnage and mechanical equipment like fan-coil machinery, duct work, etc. Which means the amount of usable floor space increases.

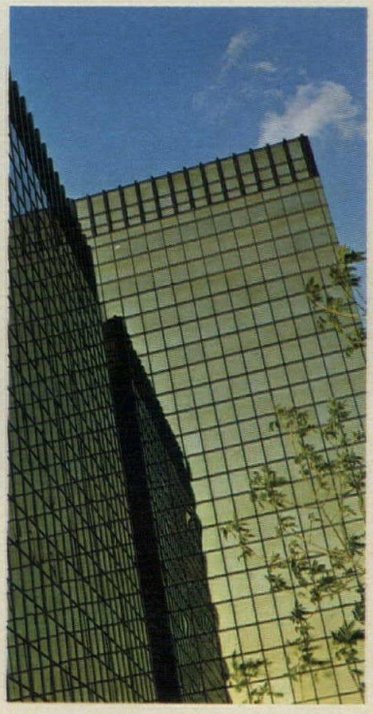
Image? No problem. Vari-Tran's golden coating adds desired warmth and beauty. Each building is reflected in the other. And all three towers present an ever-changing mural of sky, clouds and sun.

Most important, there's cost. Control Data's architects developed a computer program to compare the results of using reflective glass with grey or clear glass. They found Vari-Tran saved enough air conditioning tonnage to pay for itself, even though it's our most expensive glass. Not to mention the future reduction in operating costs.

Vari-Tran is available in silvery as well as golden coatings with light transmissions of 8, 14 and 20 percent.

If you'd like a computerized cost analysis of glazing alternatives for a building you're planning, give us a call. We'll be glad to do it for you. Contact your L-O-F Architectural Representative or Architectural Dept., Libbey-Owens-Ford Company, Toledo, Ohio 43624. You'll see how lowering costs can be a beautiful idea.





The Control Data Headquarters Building
Owner: Control Data Corporation, Minneapolis, Minn.
Architect: Henningson, Durham & Richardson, Omaha, Neb.
General Contractor: Kraus-Anderson of St. Paul Co., St. Paul, Minn.
Glazing Contractor: Larry's Glass & Mirror Co., St. Paul, Minn.

LOF GLASS

Hi-Performance Glass

The glass that cuts building costs

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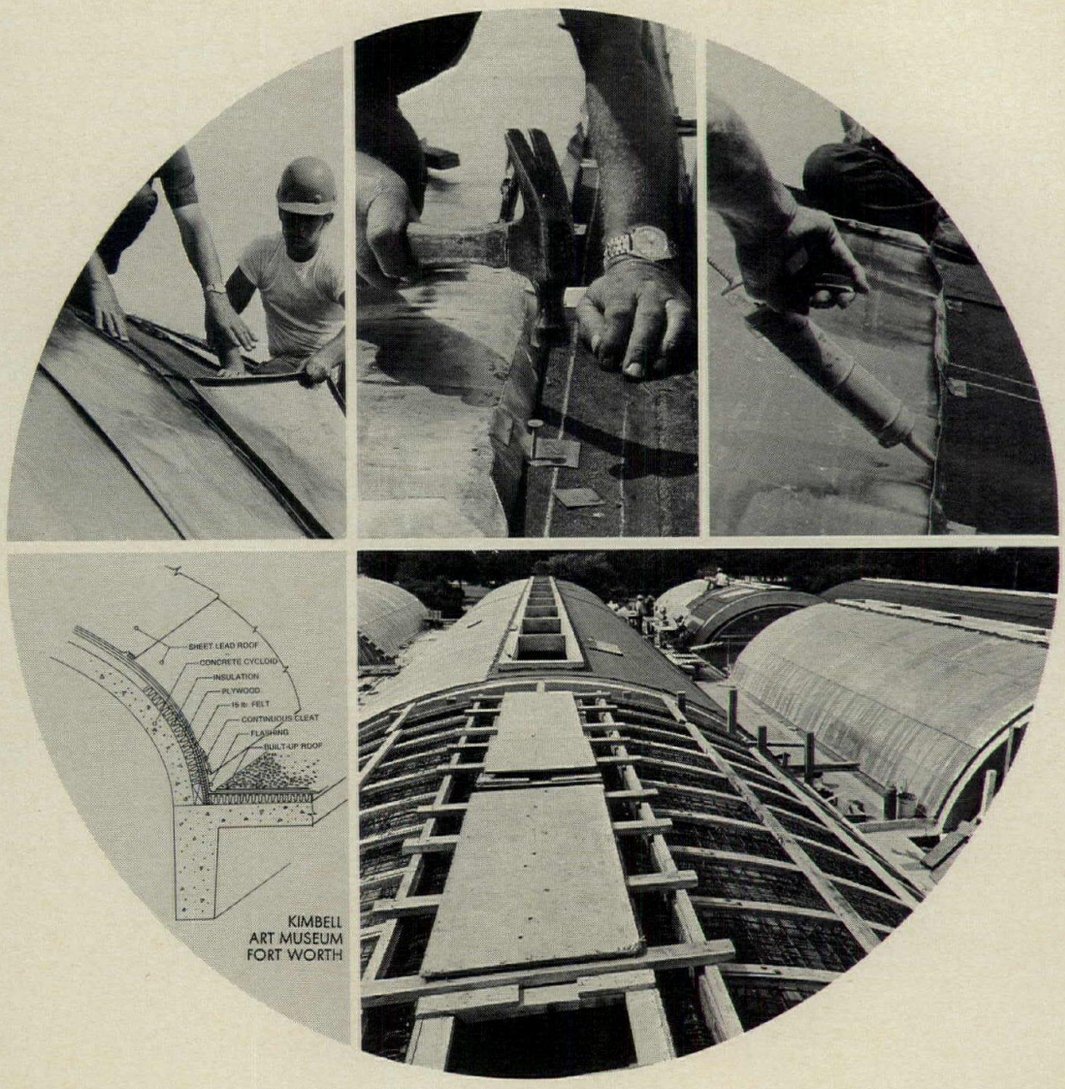

The arts in Texas specify lead for beauty... and practicality.

The new Kimbell Art Museum in Fort Worth, the work of famed architect Louis I. Kahn, is designed as a series of cycloid vaults that will provide an unobstructed view of the Kimbell collection. Crowning the Museum is a beautiful lead roof that was easy to install and will be easy to maintain.

Sheet lead was selected by the architect to complement the richness of the displays within the building. The entire roof area required 40,000 square feet of lead. Panels of 3-lb. (3/64-in. thick) lead, 2-feet in width, are carried in horizontal runs for the first two widths above the fascia level and vertically from that point up. Looselock flat seams formed in the direction of flow are used throughout the roof construction. Joints are waterproofed with a bead of non-hardening calking compound that was applied before the last fold of each joint was made.

Find out how simple it is to install a beautiful, long-lasting lead roof. For a free copy of the illustrated "Lead Roofing and Flashing" write Lead Industries Association, Inc., Dept.M-11, 292 Madison Avenue, New York, New York 10017.

Lead Industries Association, Inc.

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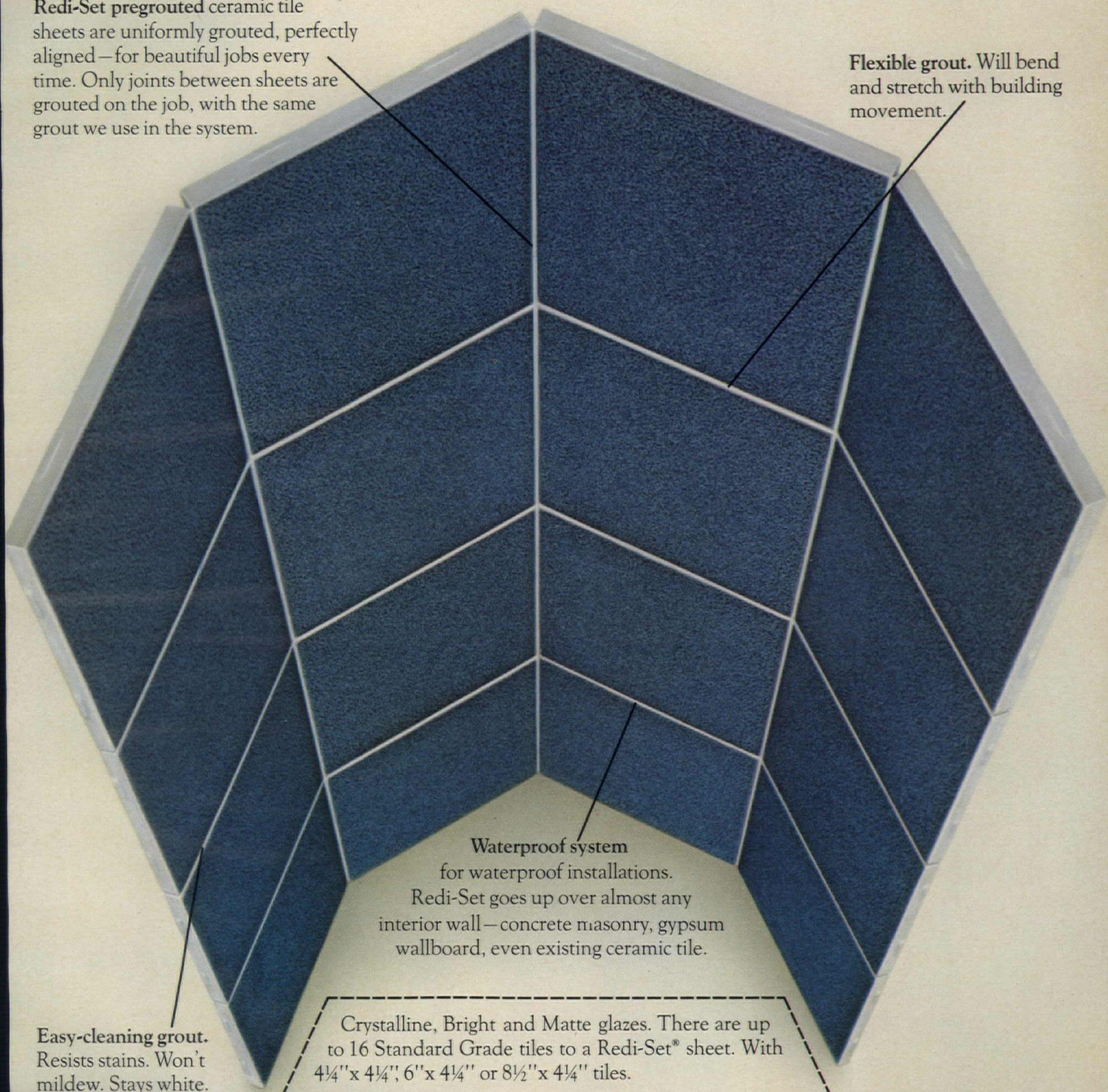
New! The American Olean ceramic tile system.

Redi-Set pregrouted ceramic tile sheets are uniformly grouted, perfectly aligned—for beautiful jobs every time. Only joints between sheets are grouted on the job, with the same grout we use in the system.

Flexible grout. Will bend and stretch with building movement.



Waterproof system for waterproof installations. Redi-Set goes up over almost any interior wall—concrete masonry, gypsum wallboard, even existing ceramic tile.

Easy-cleaning grout. Resists stains. Won't mildew. Stays white. Cleans with a damp cloth.

Crystalline, Bright and Matte glazes. There are up to 16 Standard Grade tiles to a Redi-Set® sheet. With 4¼"x 4¼", 6"x 4¼" or 8½"x 4¼" tiles.

American Olean Tile Company, 1592 Cannon Ave., Lansdale, Pa. 19446.
Send me literature.

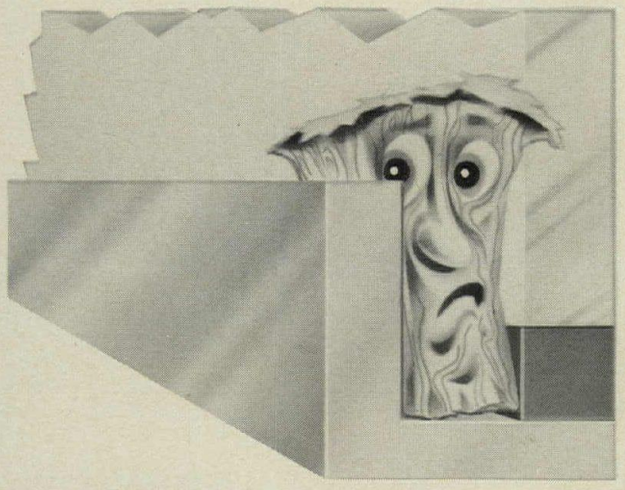
Name _____
Firm _____
Street _____
City _____ State _____ Zip _____

American Olean
A Division of National Gypsum Company

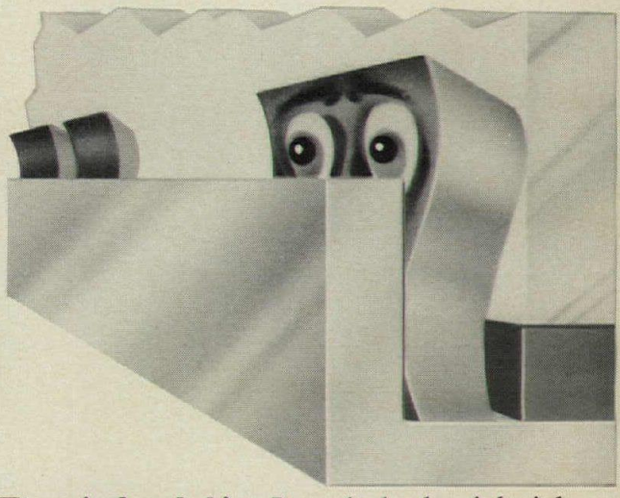
Redi-Set pregrouted tile. It's the natural thing to use.™

On Reader Service Card, circle no. 324

To avoid glazing problems caused by faulty shimming, avoid three of these shims.



The makeshift shim. It might do the job for a while.



The misplaced shim. It can't do the right job when it is in the wrong place.

All but the Pre-shimmed Tremco 440 Tape can cause problems that might crack or break glass, or cause sealant pump-out or failure.

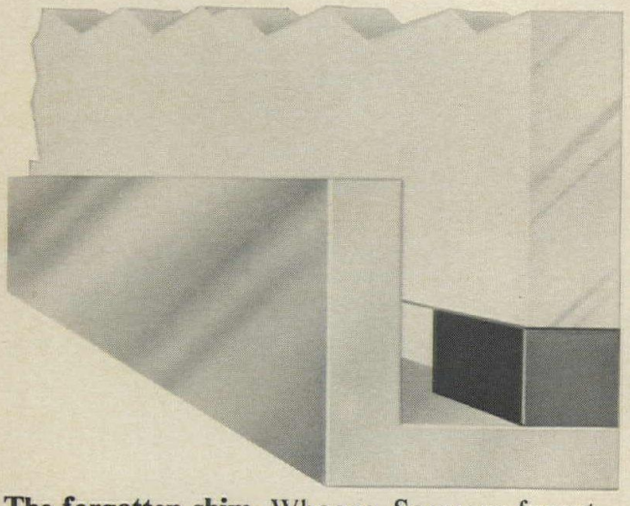
If a shim is unevenly spaced it creates pressure points which could cause glass breakage. A makeshift shim, like a splinter of wood or piece of floor tile, could cause sealant adhesive failure resulting from improper wind load transfer from glass to seal. And if there is no shim at all, the pumping action of the glass will soon squeeze out the sealant.

That's why you should specify Pre-shimmed Tremco 440 Tape. It's a highly adhesive, preformed, shrinkproof sealant with a built-in shim running through the center.

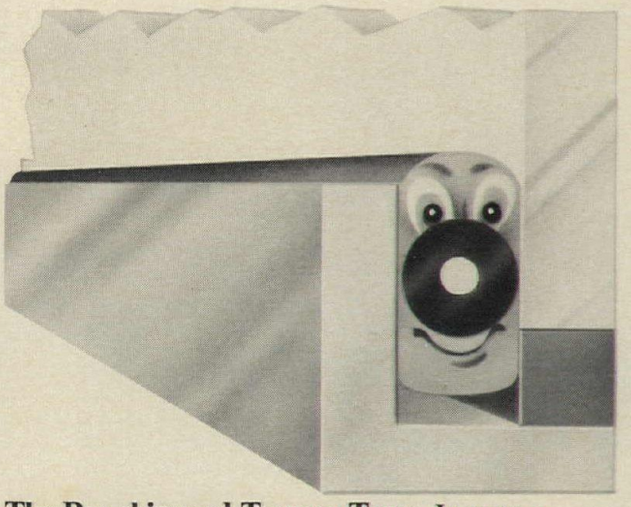
This shim — a continuous elastomeric rod reinforced by a fiberglass core — distributes loading stress uniformly around the perimeter of the frame.

So you don't get pressure points. Or sealant squeeze-out. Or adhesive or cohesive failure.

And with the trend to larger, heavier, more



The forgotten shim. Whoops. Someone forgot to put it in.



The Pre-shimmed Tremco Tape. It puts a continuous spacer-cushion all the way around the perimeter.

versatile glass, Tremco's ability to provide a leakproof glazing system from a variety of compatible components is more critical than ever.

For all the details on Pre-shimmed Tremco 440 Tape, see your Tremco man. In fact, your Tremco man has the answer to any sealant problem. Because for over 40 years now, solving sealant problems has been our primary business. In addition to our exclusive glazing systems, we have over 15 basic sealant formulations for construction joints . . . including such familiar names as MONO (our job-proven acrylic terpolymer), DYmeric (the Tremco-developed polymer), and Lasto-Meric (our polysulfide).

Contact your local Tremco representative, or write: The Tremco Manufacturing Company, Cleveland, Ohio 44104, Toronto 17, Ontario.

TREMCO
The water stoppers

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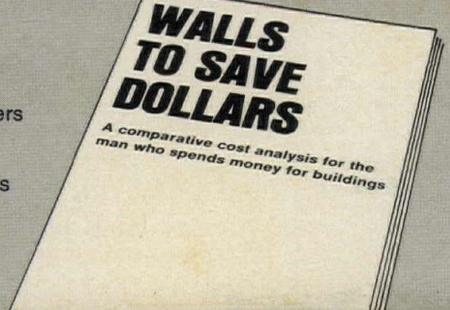
Today and every day for fifty years a masonry wall will cost you less.

The permanent quality of masonry comes through in economy. A new comparative cost analysis by professional engineers demonstrates both the *initial* and *ultimate* cost advantages of masonry. Comparing comparable walls of different materials, the study shows that initially, a six-inch precast concrete panel wall costs 24 per cent more than a 10-inch brick and block cavity wall; a metal sandwich panel costs 29 per cent more than the masonry wall, and a double plate glass wall costs 33 per cent more. Over the 50-year life of a building, "ultimate cost" analysis shows that the precast concrete panel will cost 16 per cent more than masonry, the metal panel 21 per cent more, and the double plate glass 217 per cent more. This study is contained in a booklet which also provides the methodology by which an architect, engineer, businessman, or public official can make his own "ultimate cost" analysis of comparative wall materials. Can you afford to pass up savings this large (with the permanent beauty of masonry thrown in free of charge)?

INTERNATIONAL MASONRY INSTITUTE
Please send me *Walls to Save Dollars*, by professional engineers of the Structural Clay Products Institute, plus the National Concrete Masonry Association's analysis of the "ultimate cost" of concrete block walls in multi-family housing.



b

(name and title)

(firm)

(address)

Mail this coupon to: IMI, 823 15th St., N.W.
Washington, D.C. 20005
(202) 783-3908

circle no. 364

Notices

Appointments

Charles Redmon has become a principal of Cambridge Seven Associates, Inc., Cambridge, Mass.

Constantin V. Micuda has been named vice president of O'Dell/Hewlett & Luckenbach, Inc., Birmingham, Mich.

Robert B. Sullan was named vice president and general manager of the Washington office of Perkins & Will.

Richard A. Drever, Jr. AIA has been appointed senior associate in charge of management for Rex Whitaker Allen and Associates, San Francisco; **Mark A. Lechowski AIA** was made senior associate in charge of design.

Charles William Brubaker has been appointed president of Perkins & Will Architects, Inc., Chicago.

New firms

Osmont & Tribble AIA Architects, 1265 Battery St., San Francisco, Calif. 94111.

John G. Voit, Landscape Architect and Site Planning, 13 Grove St., Darien, Conn. 06820.

Beamon and Associates, Inc., Interior Designers, Colony Square Building, Atlanta, Ga.

Stewart Woodward & Associates, 17851 Skypark Circle, Irvine, Calif. 92664.

Mergers and expansions

Robert York and Jiro Yodogawa have merged their practices to form **York & Yodogawa,** 1942 Northwest Kearny St., Portland, Ore. 97209.

Reorganizations

Environmental Design Associates/Equipo de Disenadores Ambientales of San Juan, Puerto Rico, has been changed in name and structure to **John B. Frazier Associates, Inc., Land/Edge/Water Capability Planners** of Baton Rouge, La. and San Juan, P.R.

New addresses

Regional Plan Association, 235 E. 45th St., New York, N.Y. 10017.

Daniel, Mann, Johnson & Mendenhall, One Park Plaza, 3250 Wilshire Blvd., Los Angeles, Calif. 90010.

Walker Grad, 745 Fifth Ave., New York, N.Y. 10022.

Envirodynamics, Inc., One Lemmon Park North, McKinney Ave. at Blackburn, Dallas, Tex. 75204.

For 20th Century castles an 18th Century floor.

The next time you hear some mail order decorator say "wood flooring is fine for traditional, but . . .", show her this picture. Nothing emphasizes today's new furnishings as well as beautiful wood textures properly used. Like New Bruce Fireside Monticello Floor and Bruce Solid Cherry Wall Plank.

Fine hardwoods are one of the real luxuries of life. Like sunshine, clean air and space. If you're going to specify the new things they're doing in furniture with glass and plastic and metal, you'll be looking for the right, softer textures to work with them. Solid wood has the honesty and integrity of genuineness. A warmer, natural texture that is the real thing.

Not everybody understands wood. We hope you do. If so, we'd like to show you the tremendously exciting things we're doing with solid hardwood floors and walls. We'll send you color literature. Or samples. Or a Bruce hardwood expert. Not to sell you. But to tell you what you'd like to know.

Of course, if you would have just carpeted this whole office, and stuck in a couple of framed velvet bullfighters, we're sorry to have taken your time.

If you are on the West Coast, visit our new Designers' Showroom at 8908 Beverly Blvd. in Beverly Hills. You can see six different species of prefinished solid wall plank and all the New Bruce Floors.

New Bruce Hardwood Floors

ci Division of Cook Industries, Inc.

Please send me free information on:
- ☐ Bruce Floors
- ☐ Bruce Wall Plank

$1 each enclosed for sample kit of:
- ☐ Bruce Floors
- ☐ Bruce Wall Plank

Mail to: Bruce Flooring, 1648 Thomas, Memphis, Tenn. 38101

Name (please print)

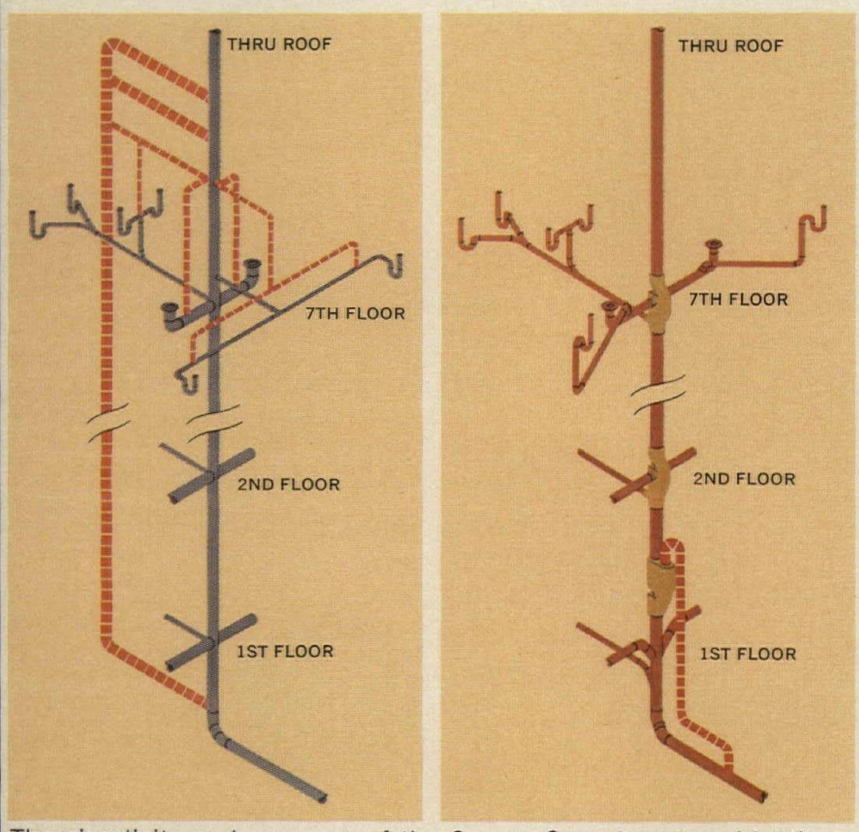
Firm Name

Address

City State Zip

On Reader Service Card, circle no. 339

Copper Sovent single-stack plumbing system. The new way to cut multi-story drainage costs.



The simplicity and economy of the Copper Sovent system (right) are dramatically shown in this graphic comparison with the traditional two-pipe system. One contractor, on a recent 200-unit job, returned a credit of $13,000 to the Housing Authority, based on savings with Sovent.

Even though the Copper Sovent single-stack plumbing system is a major construction breakthrough, it's really very simple.

The soil and vent stacks are combined into one Sovent self-ventilating stack.

What you don't need any more is a separate vent pipe.

So you can put fixtures, like island sinks, where you want them. Not where the old two-pipe drainage system forced you to put them.

Plus you get more square feet of income-producing space because the Copper Sovent system takes up less space in the walls.

And because the Copper Sovent system weighs less, you get more room in your structural load estimates.

There's more room in your budget too because the Copper Sovent system is easier and cheaper to install.

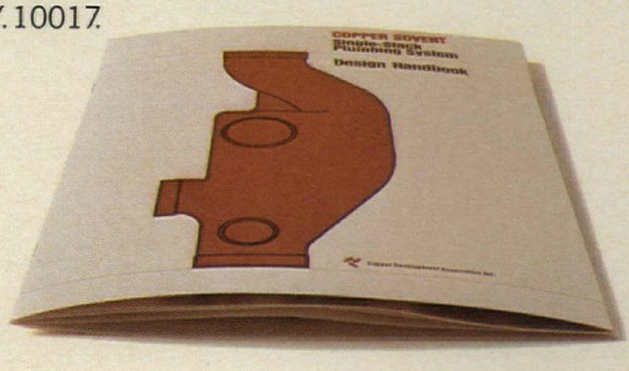
Since it was first installed in the Habitat Apartments at Montreal's Expo '67, the Copper Sovent system has been used in 18 high-rise buildings across the United States.

But that's just the beginning. Forty additional major installations are being planned right now, for a grand total of more than 8,000 apartments.

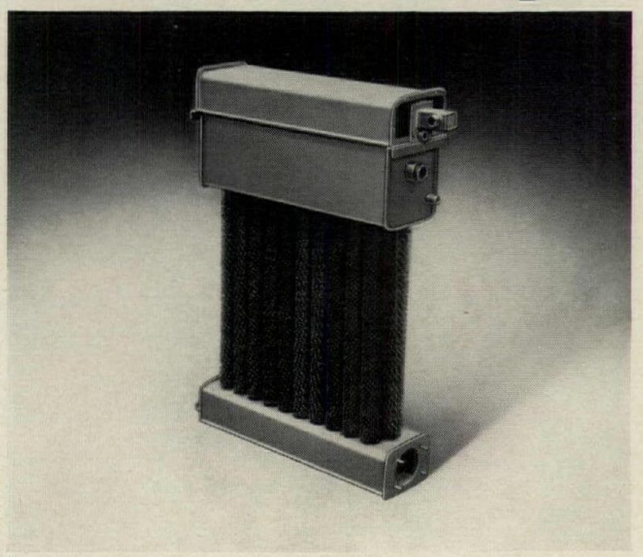
Couldn't you use more room or flexibility in your new building design?

For a detailed design handbook on the Copper Sovent single-stack plumbing system, write us: Copper Development Association Inc., 405 Lexington Ave., New York, N.Y. 10017.

COUNT ON COPPER



GE's gas/electric combustion chamber withstands heat like a jet engine.



We use a super alloy metal that was developed for jet engines in the combustion chamber of our rooftop gas/electrics for the same reason—both get hot. While the jet engine runs steadily at higher temperatures, the rooftop unit is constantly being turned on and off.

Making the combustion chamber out of a very tough metal is only one of the many things we've done to make our rooftop units more competitive.

To get the maximum heat out of the hot gases, the GE gas/electric has stainless steel tubes with serrated steel fins in its heat exchanger. In addition to being very efficient, the 140,000 BTUH size is so compact that it is no larger than a two-suiter suitcase.

The GE gas/electric uses a forced air combustion system for a number of reasons. It's smaller than a non-pressurized system for one thing. And we've put the burner on top. That way, nothing can fall down and clog the burner.

Due to the fact that no primary air is mixed with the gas prior to combustion, there is practically no chance for flashback. Conversion to liquid petroleum gas is accomplished with greater ease.

With all our gas/electric models you can have the General Electric National Service Contract Plan at the time of installation. Service is available from the installing dealer or any other authorized servicer.

Look up your GE dealer in the Yellow Pages under "Air Conditioning Equipment and Systems."

Now that you've met the newest thing in gas/electrics, meet the man who'll give you the ones you'll need.

GENERAL ELECTRIC

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On Reader Service Card, circle no. 385 →

S.O.P.

Since 1881 the Standard Operating Procedure at R-Way has been to build the finest furniture possible. Styling and faultless craftsmanship are blended to create distinctive pieces that will enhance any office. The choicest woods, perfectly matched veneers and flawless finishes are combined to make R-Way a preferred source in the office furniture field. R-Way also produces a complete line of chairs, settees and occasional pieces to complement all desk styles.

S.O.P. at R-Way also means a large inventory for prompt delivery, blanket wrapped in R-Way trucks, plus custom designing in quantity orders. Write R-Way Furniture, Box 718, Sheboygan, Wisconsin 53081, for our catalog of contract furniture.

R·WAY

Showrooms in New York, Chicago, San Francisco, Denver, Detroit, Dallas, New Orleans, and Minneapolis.

Peace-of-mind secrets revealed

Let's face it. Everyone worries about lockset security these days . . . whether he runs a plant, a school, an office building or any other building that must be kept under lock and key.

And if you are among those worriers, chances are you're insecure about two potential cracks in your security armor, namely key control and pick resistance of your locksets.

On both counts, the Sargent Maximum Security System offers reassuring news.

Take key control. The exclusive Sargent Maximum Security System key operates the lock cylinder by raising three rows of overlapping pins to a precise "shear" line. The key, unlike any ordinary key, has carefully milled depressions along its length rather than the typical serrations on its edge. Result: ordinary key cutting machines cannot duplicate this key, and you remain in control.

Now look at pick resistance. With three rows of pins, as shown in the cut-away cylinder above, instead of just one, the Sargent Maximum Security System cylinder all but defies picking or raking.

And the chance of any one key operating another lock cylinder by accident just doesn't exist. That's because there are 24,500 unduplicated key combinations available in any one system at even the master key level.

Look at it this way: when the Sargent Maximum Security System goes in, surreptitious entry is locked out. For full details, write to Sargent & Company, 100 Sargent Drive, New Haven, Conn. 06509 • Ontario, Canada. Member Producers' Council.

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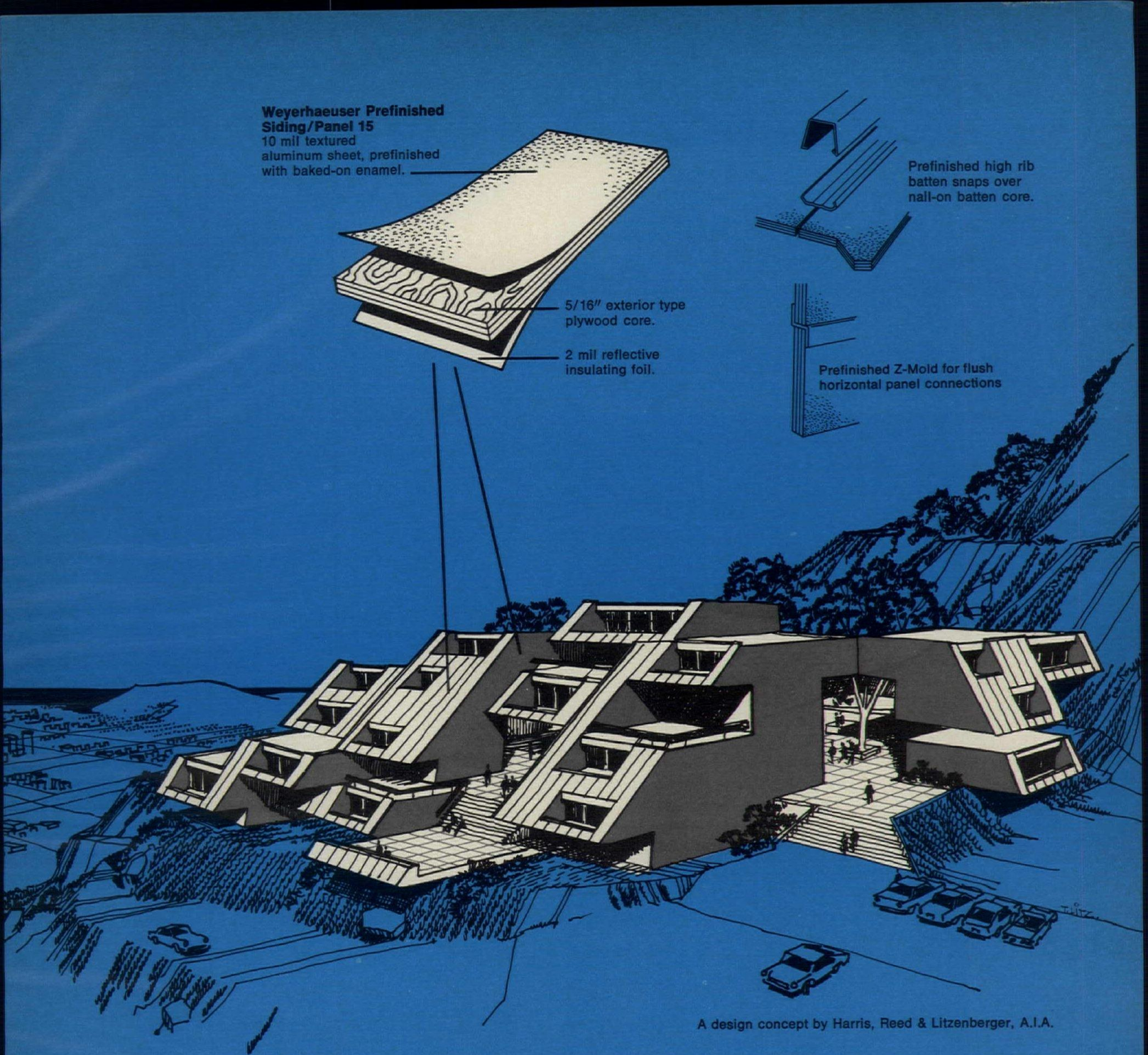
SARGENT®

A complete line of architectural hardware



A design concept by Harris, Reed & Litzenberger, A.I.A.

Why not design factory-builts for ignored hillsides, and use Panel 15 to cut costs even more?

Putting low-income housing where the air is fresh and the view is more than a brick wall could become a practical idea, if the land is reasonably low cost —like an ignored hillside.

Architects Harris, Reed and Litzenberger concentrated on hillsides alone and based their concept on (1) the environmental advantage of expanded space (2) the cost advantages of low-cost land and a low-cost Weyerhaeuser panelized system.

The slope design (above) not only settles the architecture into the hill, but it gives each unit a built-in view deck. It also breaks the industrialized housing look.

The dominant building material is Weyerhaeuser Prefinished Siding/Panel 15, an aluminum overlaid plywood that provides, in one product, a strong structural sheathing, reflective insulation and a low maintenance finish quaranteed for 15 years.

More than a material, Panel 15 is a Weyerhaeuser panelized system consisting of 4 x 8′ and 4 x 10′ panels in 8 prefinished colors (stocked for immediate delivery) and in 14 special order colors.

There are a wide variety of accessories in all stock colors, plus matching nails and touch-up paint.

Everything fits together perfectly.

Note: Panel 15 is an ideal material for a variety of exterior or interior applications. For further information refer to your Sweets Architectural File. File Number 6.10 Wey.

To: Weyerhaeuser Company, Box B-8485 Tacoma, Washington 98401

☐ I may have a place for Panel 15 now and would like to have your Weyerhaeuser Architectural Representative show me the complete color line and accessory application details.

Name _____

Firm _____

Address _____

City _____

State _____

Zip _____

Weyerhaeuser

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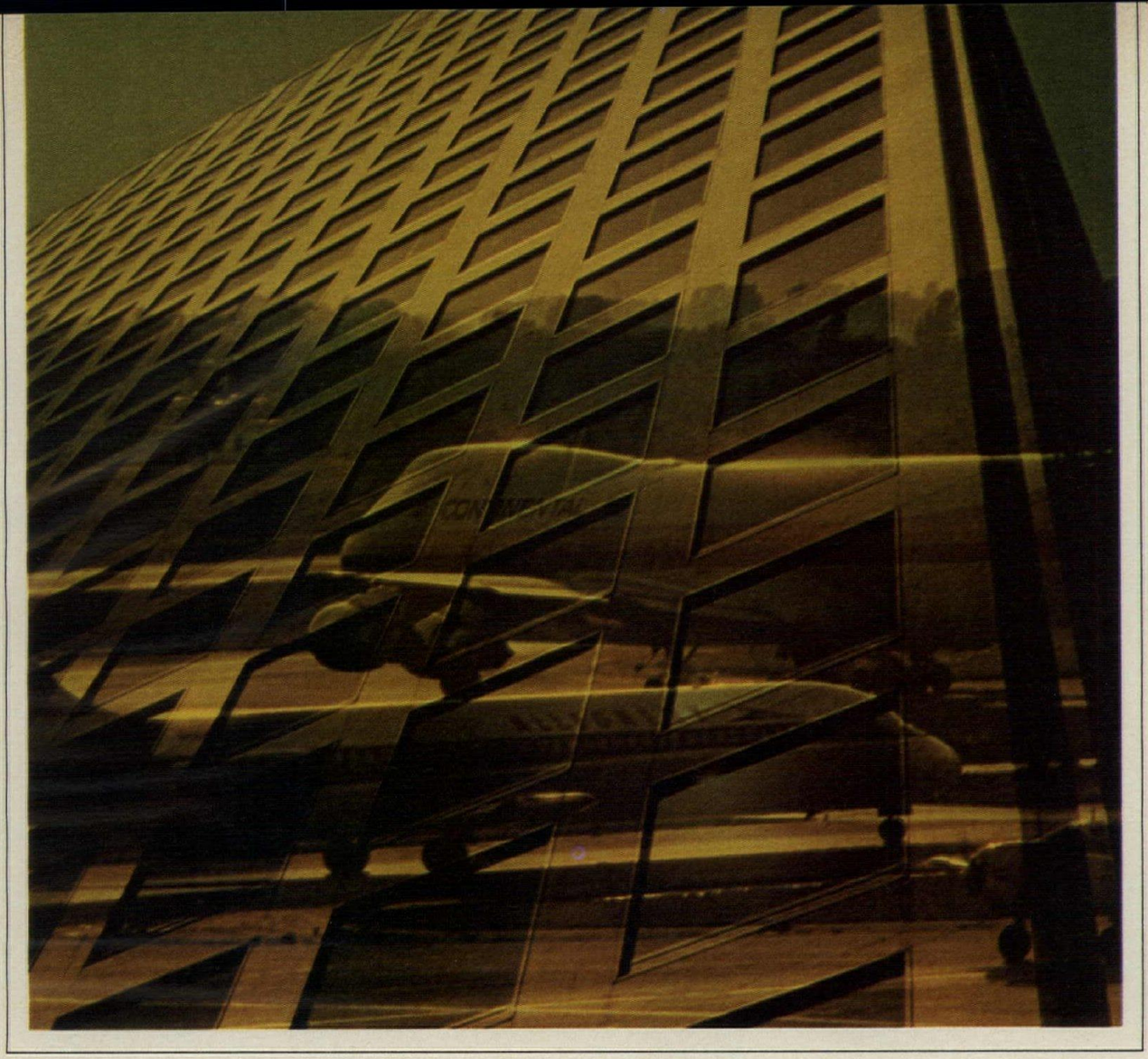
Thonet Club Tub characteristically Bauhaus in its simplicity and implicit integrity. With a polished chrome-plated steel frame, the Club Tub is available in a wide selection of vinyls and soft fabrics. Compact. Comfortable. Luxurious. And like all Thonet furniture...built to endure. See all the new excitement in contract furniture at a Thonet Center of Design. New York. Chicago. Los Angeles. San Francisco. Dallas. Miami. Or write Thonet Industries, Inc., One Park Avenue, New York, 10016.

THONET
CENTER OF DESIGN



You're looking at Sound Control

Shatterproof Sound Control Glass doesn't look different, it just sounds different. Quiet, peaceful, relaxed.

Take a good look. Sound Control is serious business. Without it . . . health is endangered, productivity falls off, vacancies occur, and businesses are forced to re-locate.

With it a building has everything going. Especially when Sound Control is combined with other Shatterproof functions such as Heat and Cold Protection, Solar Rejection, Glare Reduction, Security and Safety. And reduced operating costs.

In clear and tones of bronze and gray as well as subdued reflective tones of bronze, gold, gray, and chrome . . . in the largest quality sizes in the industry.

For a deeper look at Sound Control write for our Sound Control Brochure. Shatterproof Glass Corporation, Dept. 101B, 4815 Cabot Ave., Detroit, Michigan 48210. Phone: 313 / 582-6200.

Shatterproof
GLASS CORPORATION *Architectural Division*

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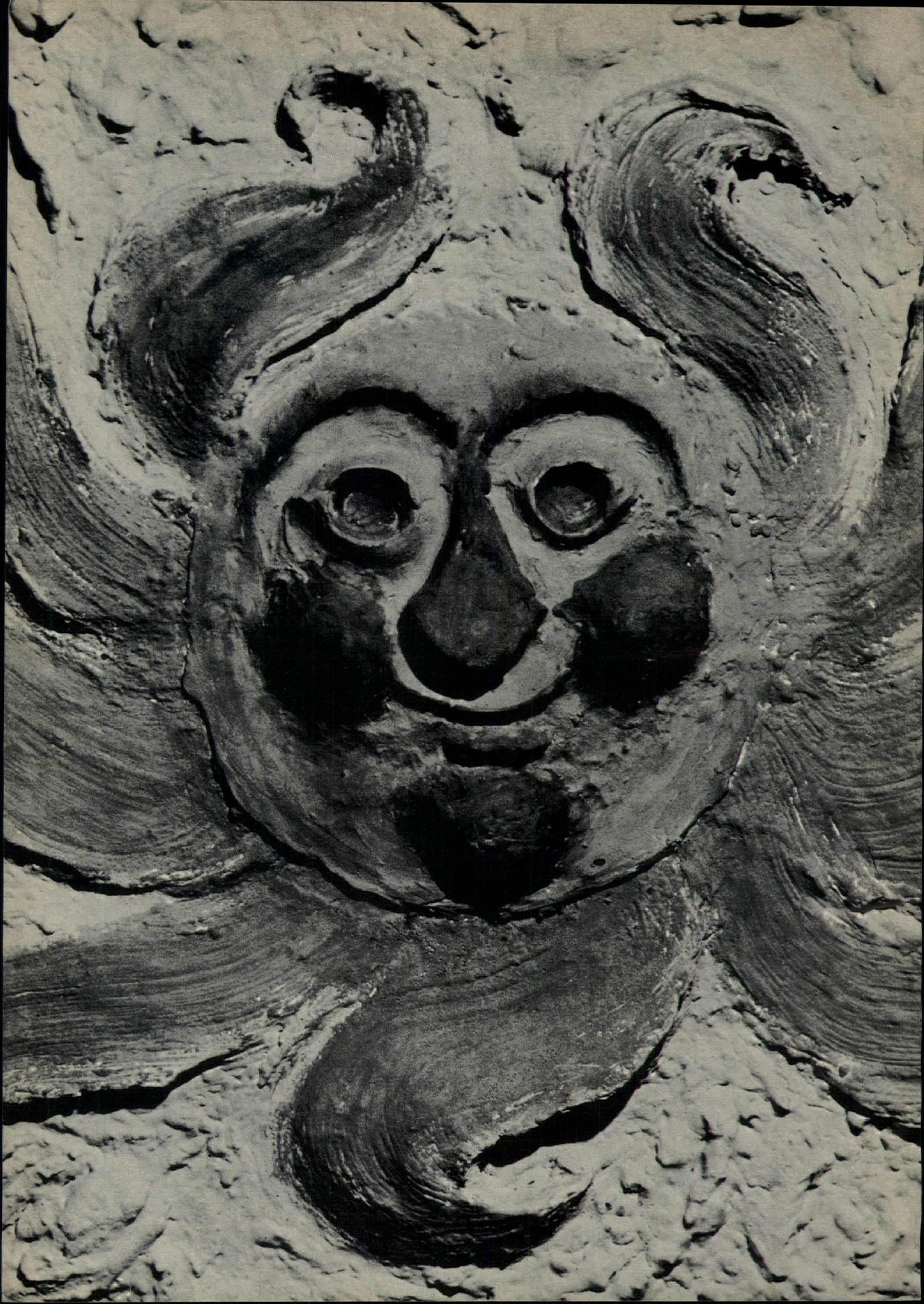


Follow-the-Sun and save.

Barber-Colman's Follow-the-Sun concept conserves building space, saves Btu's, and cuts heating/cooling costs in the bargain.

It costs money to heat a building. And it costs money to cool it—two systems are operating and your client pays for both.

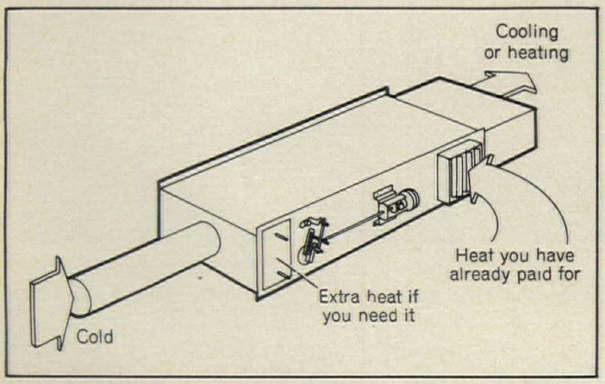
He pays for what the sun does to the environment inside his building. On the sunny side he pays to remove the sun's heat. And on the shady side he pays for a sun substitute.

Now there's a better way—Follow-the-Sun.

Instead of compensating for the sun's absence by adding heat, Barber-Colman's Follow-the-Sun concept uses heat that's already paid for to warm zones where the sun isn't present. And it virtually shuts down heating in zones warmed by the sun.

The costsavings are substantial:

- Three times less terminal heat required.
- 25 to 50% saving in terminal Btu's.
- 15 to 30% less operating tonnage.



Induction reheat follows the sun and cuts costs.

This induction reheat unit is one of Barber-Colman's Follow-the-Sun products. It mixes the heated air that you are now paying to get rid of with varying amounts of cold primary air. The warm air created by people, equipment, and lighting loads is thus utilized to provide energy conservation as well as economy.

- 30% or more reduction in control system cost.
- Positive humidity control.
- Simpler, easier to install air-handling systems.
- Conserves building space with a 10 to 30% reduction in ductwork.
- Eliminates summer/winter changeover.
- You reheat only when necessary—using heat that's already paid for.

Borrow our computer to evaluate the Follow-the-Sun concept for your next building.

Our computer studies each floor of your building . . . evaluates factors affecting air systems in your building . . . calculates zone supply air quantity and temperatures . . . primary air quantities . . . and enables you to evaluate a wide variety of Follow-the-Sun concepts for your building.

A call to your nearest Barber-Colman Environmental Systems field office gets things started. It can also bring you a 15-minute color slide presentation with complete facts and figures on Follow-the-Sun. Or if you prefer, write us at the address below for our new Follow-the-Sun booklet.

"We care about air."

Barber-Colman Company, Environmental Systems
Dept. 2350, Rockford, Illinois 61101

BARBER COLMAN

AD 71-2

Job mart

Situations open

Administrative architect: For effective aggressive midwest state housing authority. Housing experience necessary. An opportunity to be effective and do socially useful work. Send complete resume to Box #1361-286, *Progressive Architecture.*

Architect: Project manager for medium size quality office with housing, medical, educational and planning work. Field experience and references required. Baltimore. Send resume to Box #1361-268. *Progressive Architecture.*

Architects: Design and planning orientated with established ability and record of accomplishment. Must be capable not only of developing fresh planning and architectural concepts for projects, but also thoroughly conversant with practical development of supporting details and effectively presenting work to clients. Submit resume and salary requirements to: Howard, Needles, Tammen and Bergendoff, 6815 W. Capitol Drive, Milwaukee, Wisconsin. An equal opportunity employer.

Architectural job captains: Experienced in working drawings, specifications, and project management. Excellent opportunity for highly skilled personnel in expanding practice. Submit resume and salary requirements to: Howard, Needles, Tammen & Bergendoff, 6815 W. Capitol Drive, Milwaukee, Wisconsin. An equal opportunity employer.

Architect/designer: In established medium size architectural firm with varied practice. Projects include educational, medical facilities and office buildings. Excellent opportunity for advancement for talented, energetic person. Salary and benefits commensurate with experience. Send confidential resume of education, experience, responsibilities and projects worked on to Box #1361-287, *Progressive Architecture.*

Architect/planner: Expanding young firm located in metropolitan Boston needs talented architect/planner. The firm specializes in the programming, master planning and design of hospital and educational facilities on a national basis and currently has projects underway that assure a backlog of work. Position open requires a minimum of 5 years experience in programming and master planning. Salary is commensurate with abilities and experience. Hospital experience is mandatory for consideration. Send resume to Box #1361-288, *Progressive Architecture.*

Chief architect: Aggressive Atlanta architectural firm seeks head of production with responsibility for architectural drawings, technical quality, manpower scheduling. Key position in growing firm with opportunity for advancement to the top. Send resume and salary requirements to Architects, P.O. Box 7422, Station C, Atlanta, Georgia 30309

Designer: Architect for large developer and builder offers excellent opportunity for permanent position and growth in architectural design for developing new communities. A need exists for both commercial and residential design work. Based in Florida, the vast expansion of work will require a move as soon as possible. Send resume to Box #1361-289, *Progressive Architecture.*

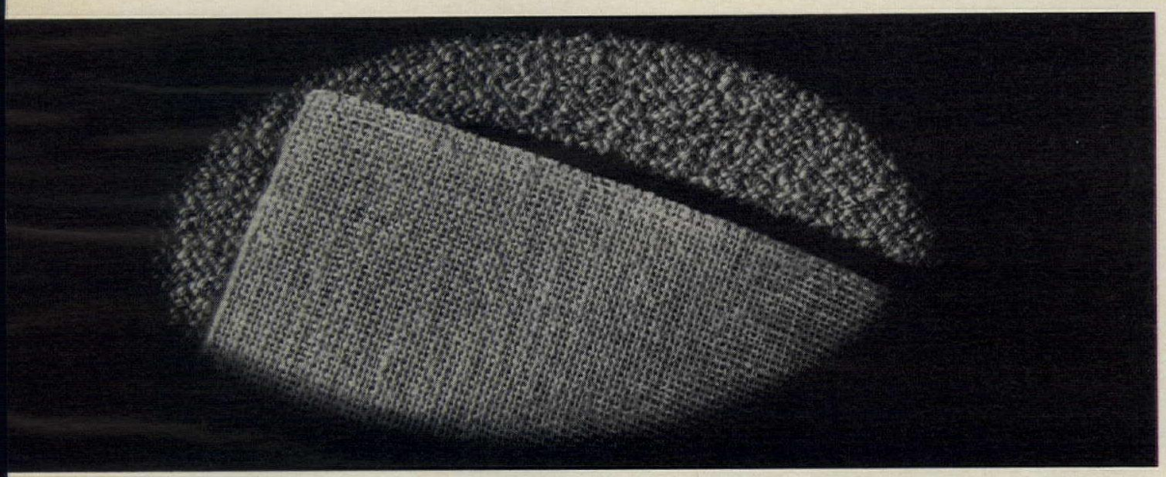
Designer-draftsman: Established, progressive architectural firm needs talented young

(continued on page 181)

Key to successful glue-down carpet installations...

JUTE

double carpet backing



The benefits of this system with double jute-backed carpets are well known:

- Easy wheel and caster mobility (no pads needed under secretarial chairs.)
- Lower cost than same carpet plus separate underlayment, or cushion-backed carpet with equal pile specifications.
- Protection against seams opening, with no lateral stress under traffic.
- Sound absorption, low-cost maintenance, aesthetics, insulation, comfort underfoot, improved morale.

But why only jute backing? For many reasons, including:

- Jute's interstices and fibrous qualities assure secure bond with minimum adhesive, fully absorbing compound on the surface.
- Adheres to any sub-floor, or over previously installed hard-surface flooring.
- Unmatched dimensional stability, vital with cut-outs for outlets and junction boxes.
- Jute's thickness, over double that of other non-cushion backings, provides extra area for beading with adhesive at seams.
- When pulled up, carpet is generally intact for re-installation.
- Helps meet fire safety codes, if carpet otherwise qualifies.
- When installed over padding in selected areas, jute hooks over tackless strip gripper pins without loosening up and buckling later.

Write for Architectural Guide Specification
by William E. Lunt, C.S.I.

JUTE CARPET BACKING COUNCIL, INC.
25 Broadway • New York, N. Y. 10004

American Industries, Inc. • BMT Commodity Corp. • C. G. Trading Corp. • Delca International Corp. • Dennard & Pritchard Co., Ltd. • A. de Swaan, Inc. • Robert F. Fitzpatrick & Co. • Gillespie & Co. of N. Y., Inc. • Hanson & Orth, Inc. • O. G. Innes Corp. • Jute Industries, Ltd. • Lou Meltzer Co. • Pak-Am Inc. • William E. Peck & Co. of N. Y., Inc. • R. L. Pritchard & Co. • Revonah Spinning Mills • Stein, Hall & Co., Inc. • White Lamb Finlay Inc. • Willcox Enterprises, Inc.

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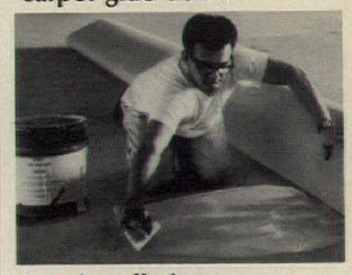
Editorial reports on double jute-backed carpet glue-down



Jute installations proven successes

"The only case studies documented to date have been of no-pad installations with double jute-backed carpeting — with success reported in each instance."

—from BUILDINGS, February, 1971

Hospital's experience a guide for any site

"Does direct jute glue-down really work? To get the answers . . . an earlier installation was revisited that has received grueling treatment . . . It is a large and exceptionally active general hospital — St. Luke's in Duluth, Minn. St. Luke's added a sizeable new wing and carpeted throughout all patient rooms, nursing stations, corridors, lounges and reception areas with the direct jute glue-down system.

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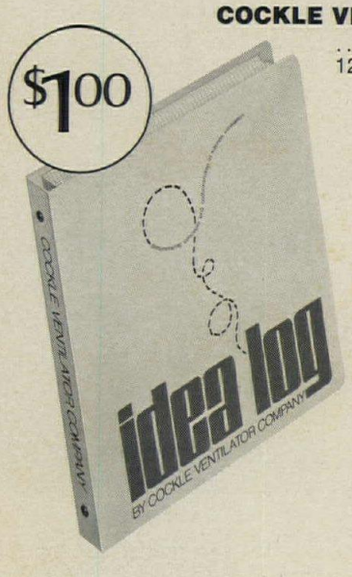

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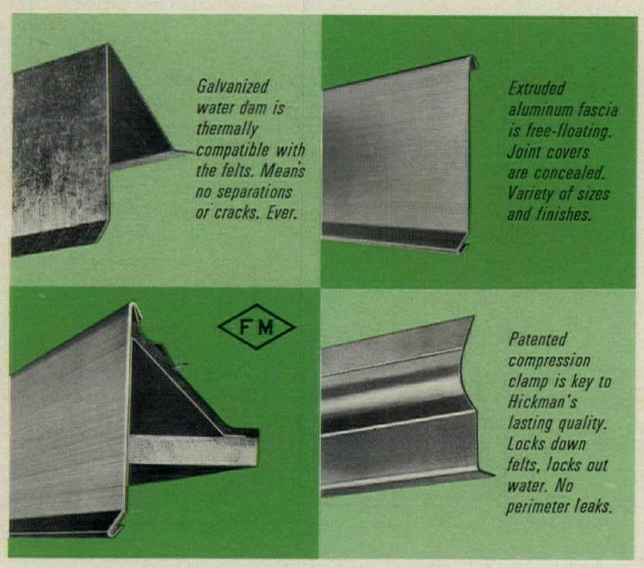

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(continued on page 184)

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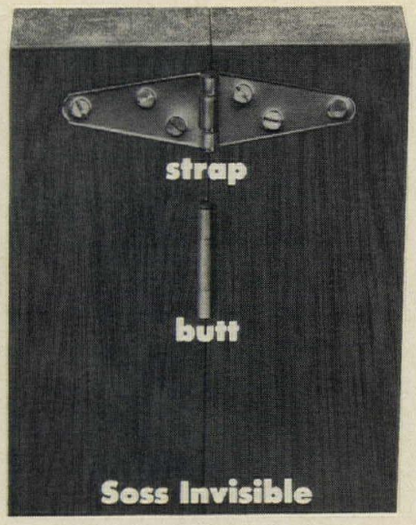

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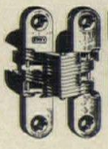

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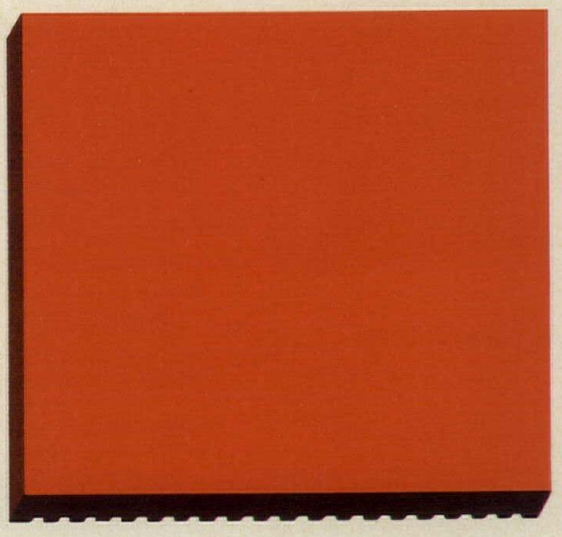

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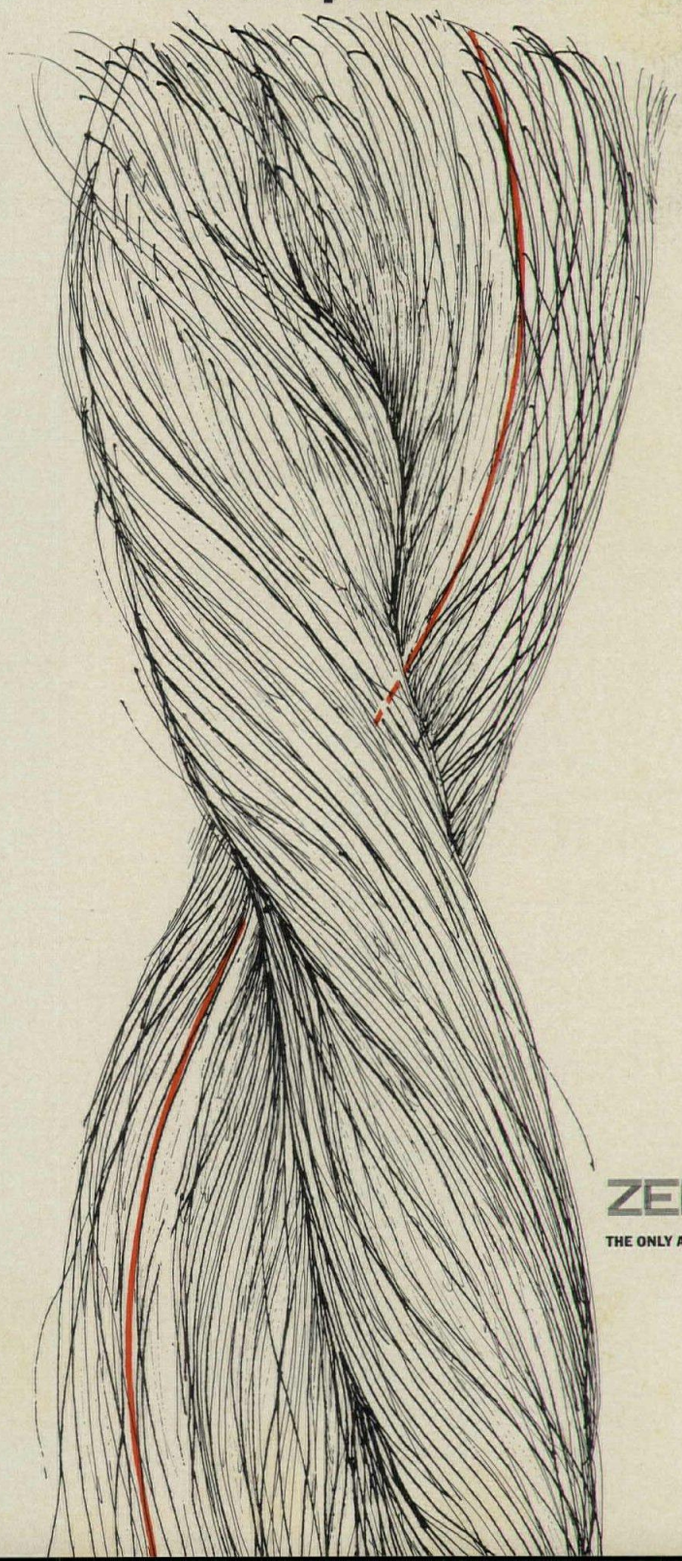

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