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BUILDING TYPES STUDY: STORES AND SHOPS
FULL CONTENTS ON PAGES 4 AND 5

ARCHITECTURAL RECORD

AUGUST 1973 **8** A MCGRAW-HILL PUBLICATION THREE DOLLARS PER COPY



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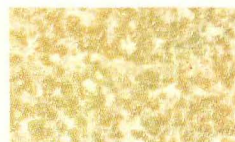
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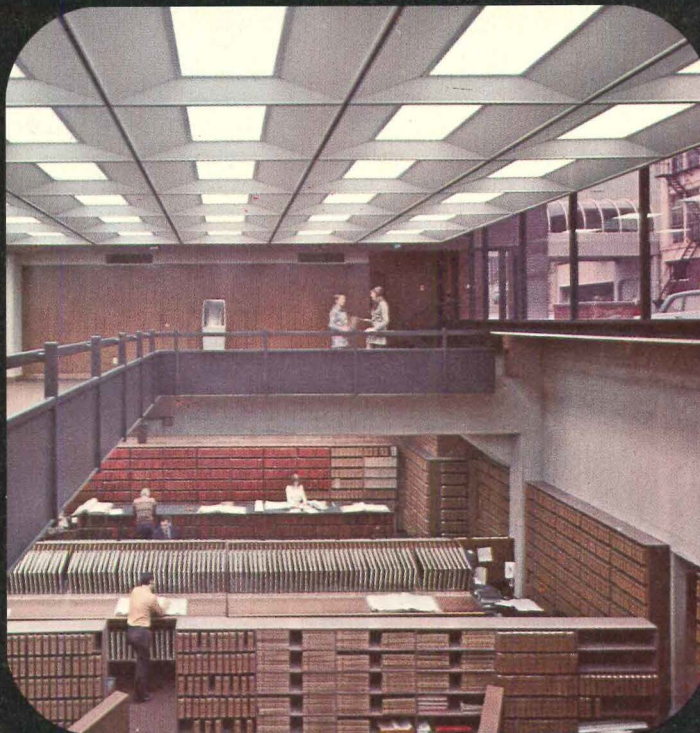
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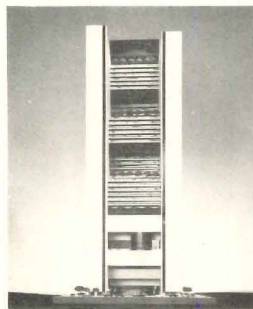
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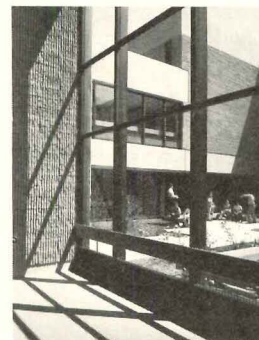


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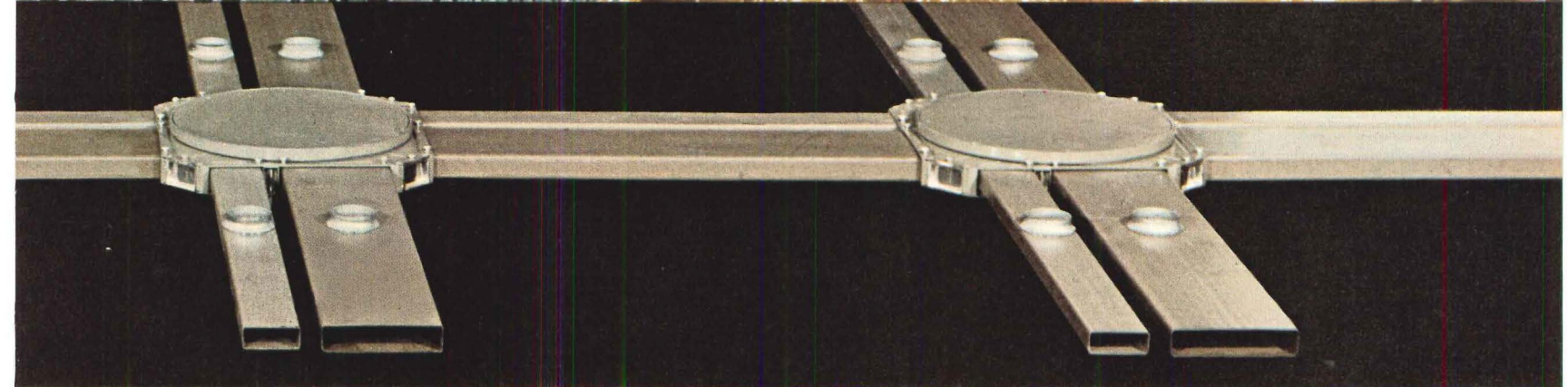
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Why all the French go to the French Riviera, and other observations

As noted on this page in June, I recently had the opportunity to join a tour of planned communities in Germany and France, sponsored by Owens-Corning, PPG, TICOR, Westinghouse, and Arthur Sworn Goldman & Associates. The varied interests of the participants—which included builders and developers, architects and landscape architects, government officials (from the U.S., Germany, and France), manufacturers, lenders, editors, and (happily) enough wives to lighten the conversation and enliven the mix—provided a strong background for questioning and comment on the various communities we visited, and let the professionals from each discipline profit from the insights and outrages of the others.

We visited communities in and near Stuttgart, Munich, Mannheim, Nice, St. Tropez, Montpellier, and Paris. Thanks to the painstaking training of other RECORD editors skilled in photography (don't forget the lens cap!), for the first time I came back from a trip with good pictures, and plan—in an early issue—an article that will give you a look at what struck me as truly interesting housing. But in the meantime, herewith some observations, in no particular order of itinerary or importance about the quality of outdoor and indoor environment in two very different countries:

- Heathrow Airport in London (stopover to change planes for Germany) is calm and clean and has great signs—I managed a change to a different terminal via bus in 20 minutes without a moment's doubt which passageways and which bus to take. Even had time for a heart-warming experience:

- Asked whether I could buy a postcard with American money (not really hoping). Answer, yes: The girl held out a card with pictures of U.S. coins, said "I'll need one of these and one of these [a quarter and a dime, including stamps, which newsstands here never have]." Told me that the mailbox was way at the other end of the terminal so if I liked she'd mail the card. Can you imagine an Englishman with a handful of shillings and pence getting similar treatment from the gumchewers at most U.S. airport newsstands?

- Stuttgart has adopted an effective system for cutting down the number of cars downtown. It has prohibited the building of any more parking spaces and garages (including private-house garages in the downtown area) and prohibits parking on the street except in designated areas. Anyone who complains to the city council is directed to the nearest station of the fast, complete, and clean mass transit system (buses and

trolleys, plus a new subway now under construction).

- Stuttgart's central park (the Schlosspark) is a linear greenbelt—with a minimum width of 200 yards but mostly much wider—extending several miles down the valley in which the city is located. At one end (downtown) the park is quite formal—forming a green forecourt for the opera house, a concert hall, and city buildings; with a formal pool and fountain. Farther along, it has informal gardens and fountains, and places to buy beer (what else?) and soft drinks along meandering paths. Still farther along, the paths are merely trails through a thickly wooded area. Thus, by walking through the park, or entering it at different places, you can choose any variety of recreation activity or any amount of company you wish.

The city spends \$3300 per acre per year on maintenance and upkeep, and many private people help keep up the plantings as a hobby. As I guess I would have expected, but was nonetheless surprised, the parks are spotless—I found one (1) piece of paper in the park in the course of two tours totaling perhaps five hours.

- Stuttgart is a heavily industrialized city (Mercedes and Porsche, for two) and deeply concerned about smog. The city climatologist must approve any new furnace or pollution-producing industrial process, and his approval is a key checkpoint in any building-permit application. The city continuously calculates the amount of green space necessary to "absorb" the smog, and then—in addition to the extensive park system—plants green strips (mostly grapes, which they say are an excellent absorbent) on the hillsides in the surrounding residential area. Sort of a double benefit (triple benefit, if the wine turns out well!).

- You know that sloped-back (or terrace) housing that every American architect draws into his preliminaries but no one (as far as I know) has gotten to build? Well, in Stuttgart, two young architects named Schröder and Faller have built it—99 units, 33 each of two-, three-, and four-bedroom. And it's great! Two-bedroom units have 810 square feet of living space (bedrooms and kitchens are smaller than U.S. standards) plus a 225-square-foot terrace which because of the sloped-back shape is open to the sky and from which you cannot see any other terrace. Privacy is complete, and most of the tenants have planted gardens on the terrace which trail down (just as in Rudolph drawings) to soften and brighten the concrete walls. These units (if one dares making conversions from marks to dollars these days) cost \$23

per square foot when built in 1967-8; and according to the architects would cost \$35 to \$40 per square foot today. The developers on the tour (predictably) thought it was too low, and there was a lot of mumbling about all that concrete being too cold. Myself, I'd pay \$195 a month for those apartments anytime, (especially if I was a government worker—this housing is for government employees—and received a 40 per cent subsidy).

■ Food for thought by architects having trouble with competition: In Stuttgart (pop. 600,000), there are 1500 architects, including 50 or 60 firms with 10 or more employees. "Stuttgart is," said one architect in untypical German understatement, "a bit of an architectural center."

■ Neue Heimat, a building organization operated by the German trade unions and capitalized by union pension funds, builds three to four per cent of all housing built in Germany each year—between 2000 and 3000 units per year—and is growing. This is almost all subsidized "social housing," and Neue Heimat is limited to a 4 per cent profit on this work. It also builds commercial work on a competitive basis. In some urban centers, its share of all construction is near 20 per cent.

■ On the train between Stuttgart and Munich, we were all impressed with how hard-edged the towns were. The three- and four-story buildings marched along the streets and then—abruptly—the fields began.

■ I wasn't prepared to see deer from the train. I counted eight, including two not 10 miles from Munich.

■ The Olympic Village housing is not selling well, at an asking price of \$70,000 for a three-bedroom, two-bath unit with a large living room and (again) sloped fronts creating very attractive, open-to-the sky terraces. The project is very dense and urban, and many of the group found it (again) "too cold." I think when it gets "lived in," with people moving along the pedestrian spaces, it will be a very exciting place to live. And, of course, the recreation facilities are something else. Including a swimming pool that gave a new dimension to what some of the builders on the tour had previously referred to as "an Olympic-size pool!"

■ In France: We visited La Colle Sur Loup, one of nearly 50 vacation villages built for middle- and low-income families throughout France. These villages—hotel rooms and apartments in low-rise clusters with recreation, day care, and dining facilities—are 75 per cent financed by low-interest loans, but 25 per cent financed by French companies as an employee benefit: A given investment entitles that company's employees to so many rooms during the peak season. Off-season, these villages, which now total 14,000 beds, are used by retirees and others at modest fees (\$6 per adult per day, including meals, at La Colle Sur Loup). Seems to me a great alternate to campers, but then I'm paranoid about campers.

■ While the French Riviera around Nice and Cannes has long been the playground of the rich and near-rich, the marshy coast near the Spanish border has long been left to the mosquitoes. The government has recently set out to develop this long stretch of coast. In each of six areas, a development company has been set up



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by the government in association with local governments. The development company sets up a plan, puts in water, sewage, and other facilities and sells land at a government established price (near cost) to any builder who will work within the planned framework. We visited La Grand Motte, a community which will eventually accommodate 42,000 people on 1700 acres. Land development started there in 1966, and there are now 3200 units in pyramidal-shaped buildings (see photos, coming soon) plus two hotels and two more abuilding. Nearby Cap d'Agde is a 1500-acre development started in 1969 with an eventual population of 60,000. It now has 1200 units. There, an artificial island has been built to protect the marina and quay.

■ Speaking of quays: like fountains, the world needs more quays. At Cap d'Agde, the space between the seawall and the fronts of the houses and shops seems just right—right for strolling, right from a scale point of view, and just right for sitting at the waterfront outdoor cafes.

■ Then there was St. Tropez. According to all the travel books I've read, St. Tropez is out. Too crowded, water polluted, folk singers singing a little too loudly and not being all that gracious about the coins you put in the cap they thrust under your nose. I don't care. It's gorgeous. It's a place to walk, then to sit down and watch the harbor. We were there pre-season, so I can't reliably report on the girls and those special bikinis.

Which reminds me, finally, that we passed by (didn't actually visit) a pre-cast concrete, circular, 12,000-capacity nudist colony. It's name (ready for this?) is Port Natur. The architect is Claude Comolet, and a 400-square-foot apartment costs from \$18,000 to \$25,000. Of course, you save on bathing suits.

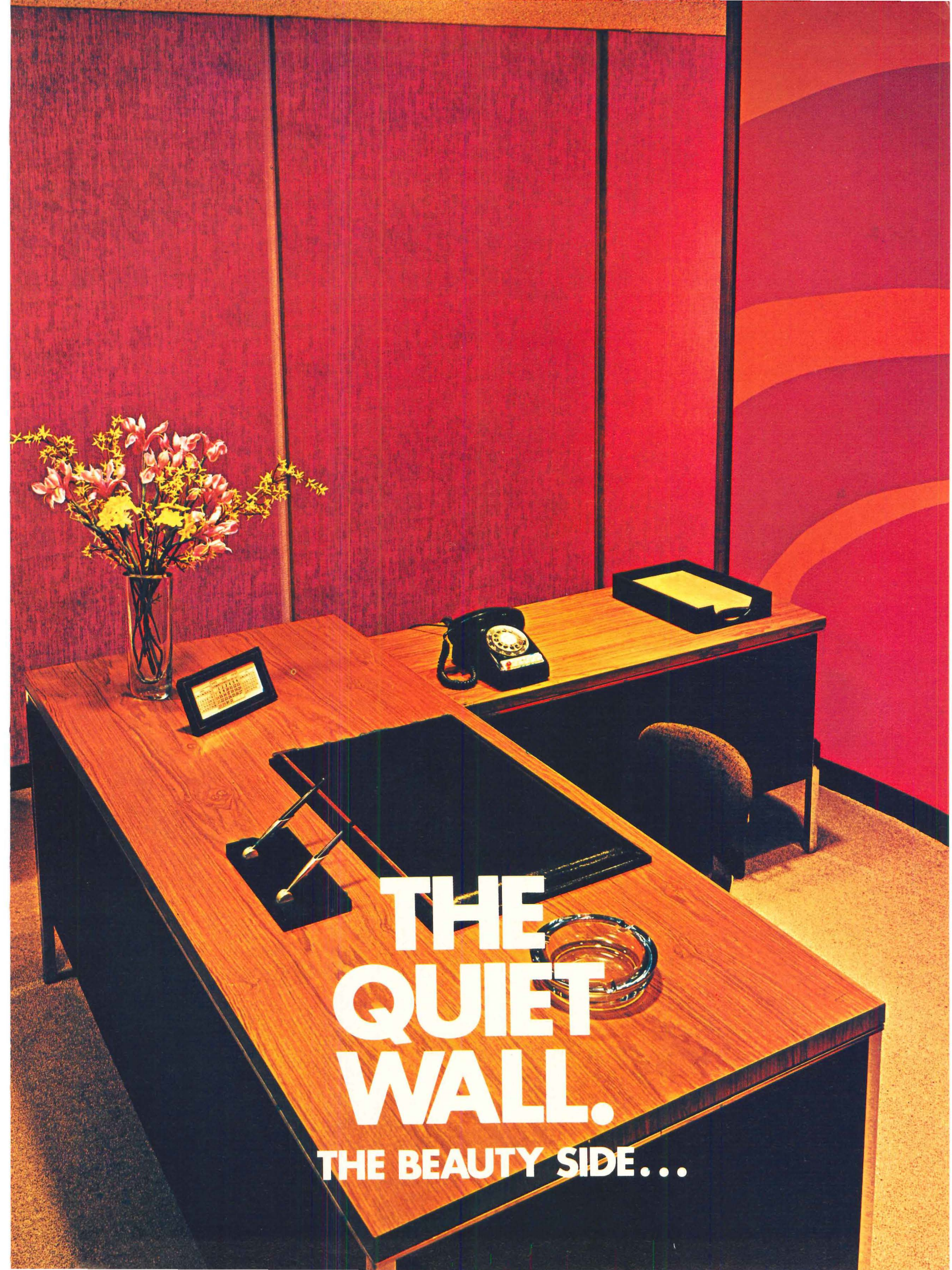
—Walter F. Wagner, Jr.

Now is the time for all good architects to . . .

. . . send in their submissions for RECORD INTERIORS of 1974 (which will be published in the January issue) and RECORD HOUSES plus Apartments 1974. The editors will be studying submissions for both these issues beginning about September 1st. No special procedure is involved in sending in material for either of these issues. We need a few pictures, and they need not be of publishable quality at this stage. We need a plan, and, if they're important to the concept, a site plan, or section. And we need a brief description of the program and solution. And then put them in a plain brown envelope (with your return address) and send them to Barclay Gordon, Associate Editor, ARCHITECTURAL RECORD, 1221 Avenue of the Americas, New York City, New York 10020. If you need more details, you'll find them in a house ad on page 58 of this issue. And if you're still worried, call Barclay at 997-2334 or call me, 997-4565.

Please don't try to decide what kind of house, apartment, or interior "they'd publish." Most particularly for these issues, we're looking for fresh ideas. Small budget jobs are as liable to be selected as lavish affairs (more liable in fact). We're especially interested in built-for-sale housing—either single-family, or good high density but low-rise apartments, townhouses, or condominiums. And especially we're looking for new architects. We get an awful lot of letters suggesting that we publish "too many of the big names." We deny that, of course. We hope what we're doing is publishing the best work. But if you're one of those who keep asking for "more work by new names," here's your chance.

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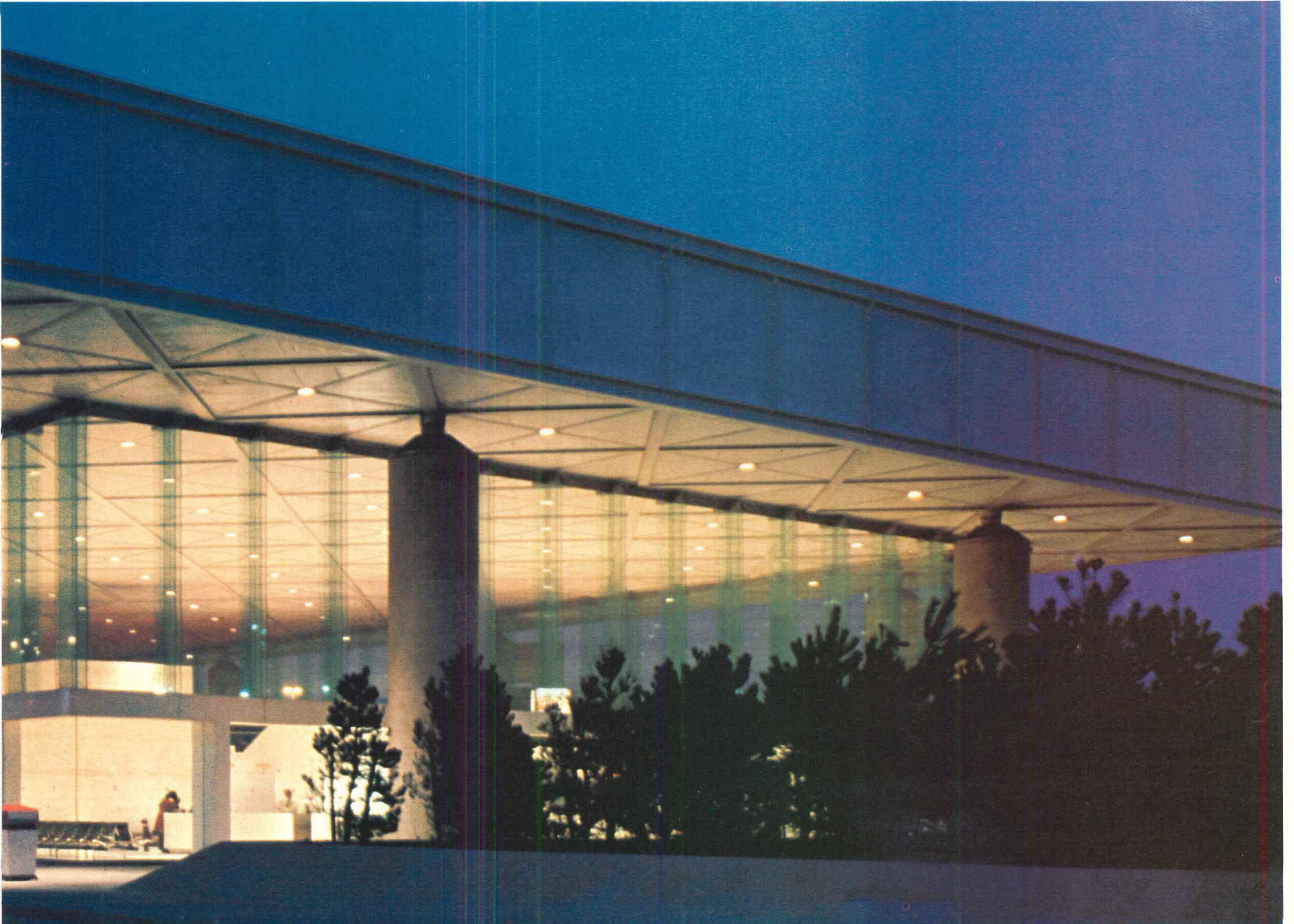
Top and Lower left: Owner: National Airlines. Architects: I. M. Pei & Partners, New York. Building Contractor: John Lowry, Inc., New York. Glazing Contractor: Collyer-Sparks Company, Inc., New York.

Lower right: Owner: Houston Lighting and Power Company. Architects: Caudill, Rowlett & Scott, Houston. Assoc. Architect: Robert O. Biering. Building Contractor: Schneider Construction Co. Glazing Contractor: Collyer-Sparks Co.

LOF



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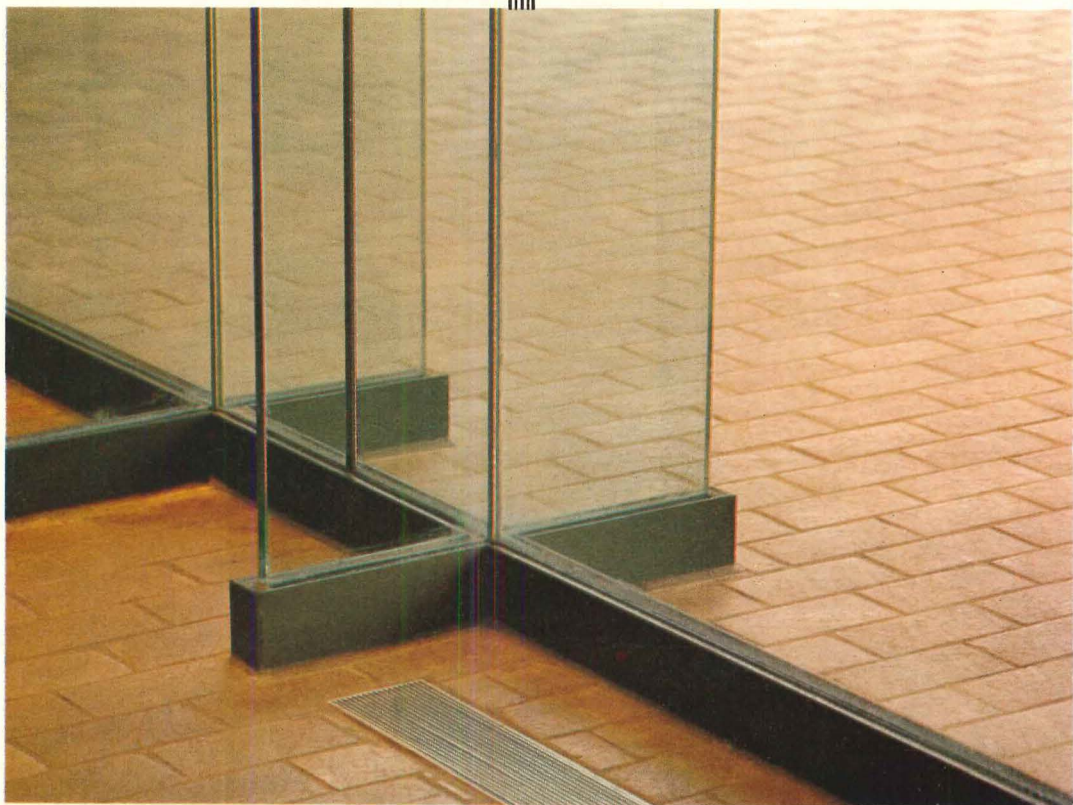
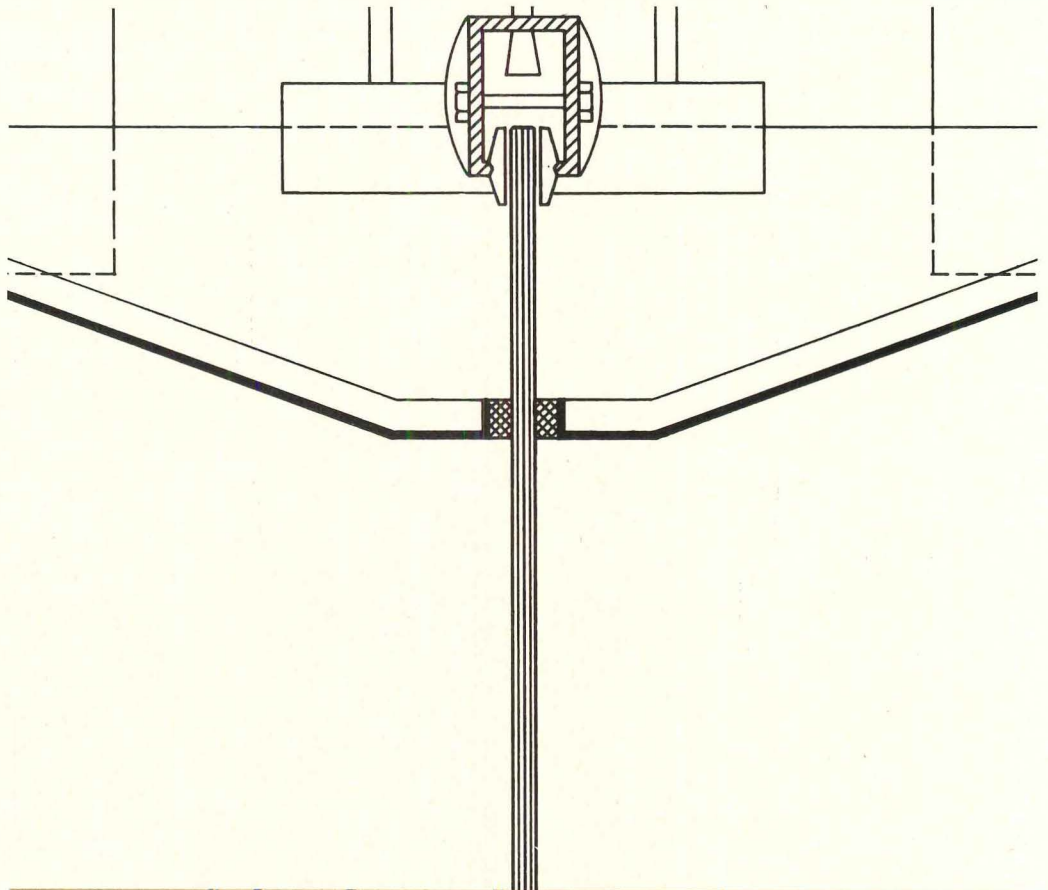
Suspended glazing offers you the uninterrupted transparent vertical mullions that provide new opportunities to include large hanging walls of glass in your designs. Each light is suspended from the structure above by specially designed rods and clamps.

The glass mullions bracing this patented system are assembled using a soft setting adhesive sealant. The absence of metal mullions creates a feeling of visual freedom and light.

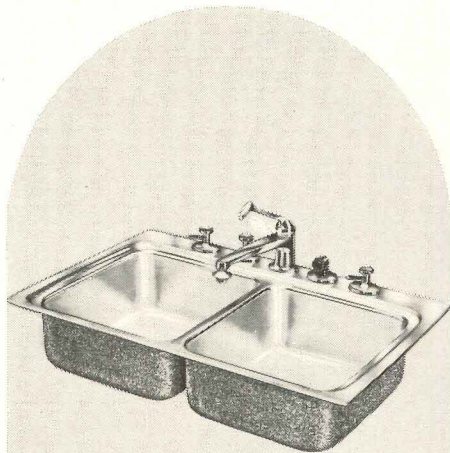
For further information on the architectural applications of suspended glazing, write Libbey-Owens-Ford, 811 Madison Ave., Toledo, Ohio 43695.

Houston Lighting and Power Energy Control Center.

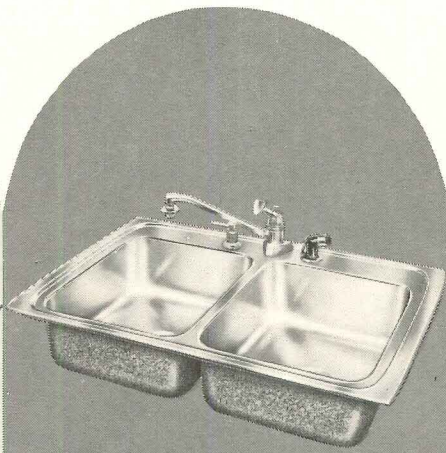
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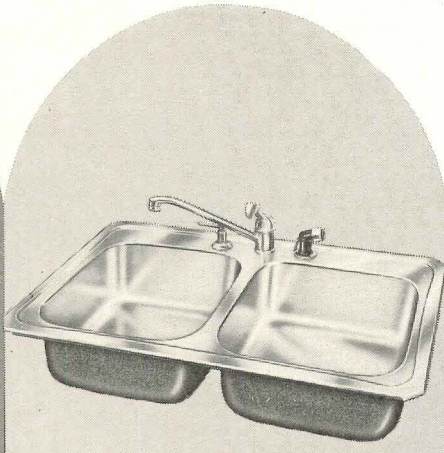
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Cuisine Centré sinks are the top Elkay line, available in many designs with the widest variety of fittings and accessories. Model shown LCR-4322.

Four Quality Grades



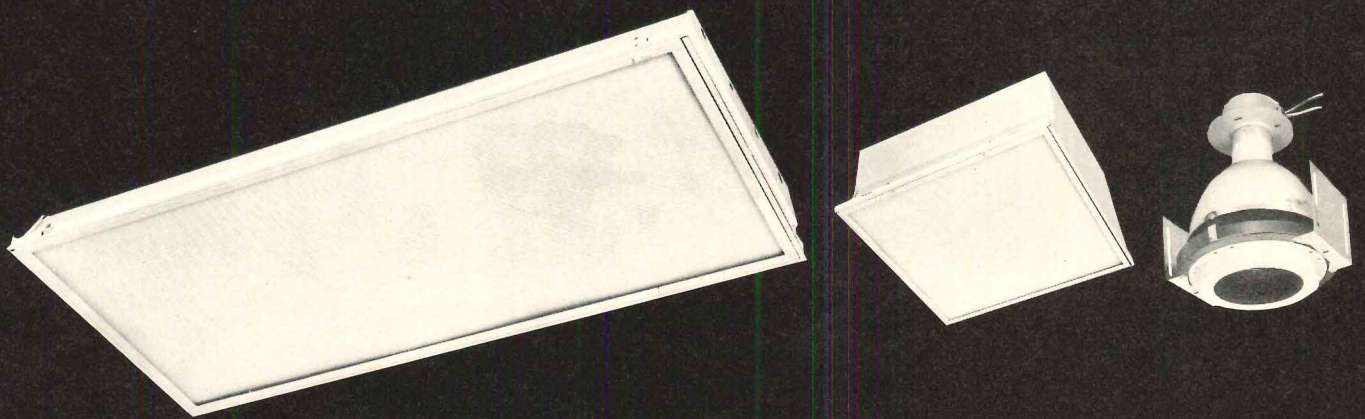
With every line and model of Elkay sink sell matching Elkay faucets and fittings, and you sell Elkay quality throughout. Model shown LK-220.

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From U.S.G.



More sound control concepts.

RC-1 SHEETROCK* Resilient Channels put walls on rails to stop noise in its tracks.

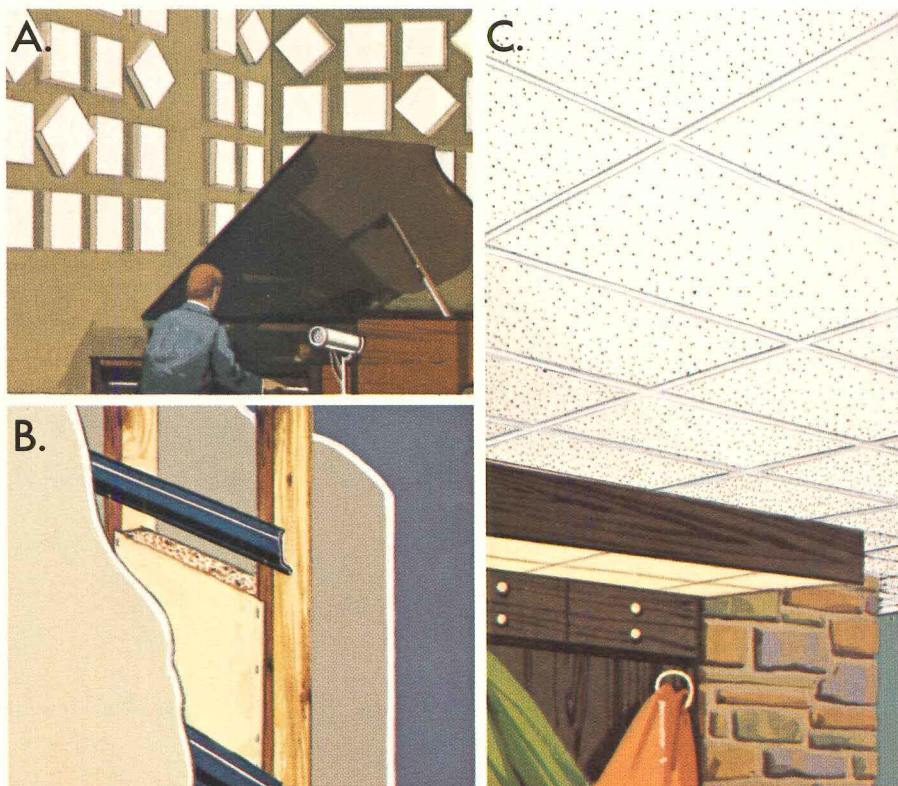
Today's builders know well the selling value of effective sound control. But, until U.S.G. research showed the way, many builders found the cost of silence too golden. The solution was a strip of springlike steel that made sound control economical for every party wall and ceiling in all wood frame buildings, from motels to offices and apartments. This strip, RC-1 Resilient Channel, is attached to the wood framing. Then drywall panels are attached to the channel which decouples them from the framing. Sound waves are derailed between the partitions, then absorbed and dissipated in the insulation. RC-1 is so unique it's patented.† And it's so obviously effective and economical that builders have already made it the most popular sound control system in the industry.

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Cor-Ten Steel: The next best thing to nature.

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The Farm Bureau Building, which houses the Rural Insurance Companies, the Wisconsin Farm Bureau and several smaller offices, is a beautiful example of how USS COR-TEN Steel blends with other materials and helps the total structure harmonize with its natural surroundings.

The \$4½ million, 143,580 square-foot building has a USS ULTIMET Steel Curtainwall System and utilizes materials that are easy to maintain:

USS COR-TEN steel, brick and solar glass.

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The Farm Bureau Build-

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For more information, contact a USS Construction Marketing Representative through the nearest USS sales office or write: United States Steel, 600 Grant Street, Pittsburgh, Pa. 15230.

Owner: The Rural Insurance Companies, Madison, Wisconsin
Architects: Peters & Martinsons, Madison, Wisconsin
General Contractor: J. H. Findorff & Son, Inc., Madison, Wisconsin
USS COR-TEN Fabricator: Reinke-Schomann, Inc., Milwaukee, Wisconsin.
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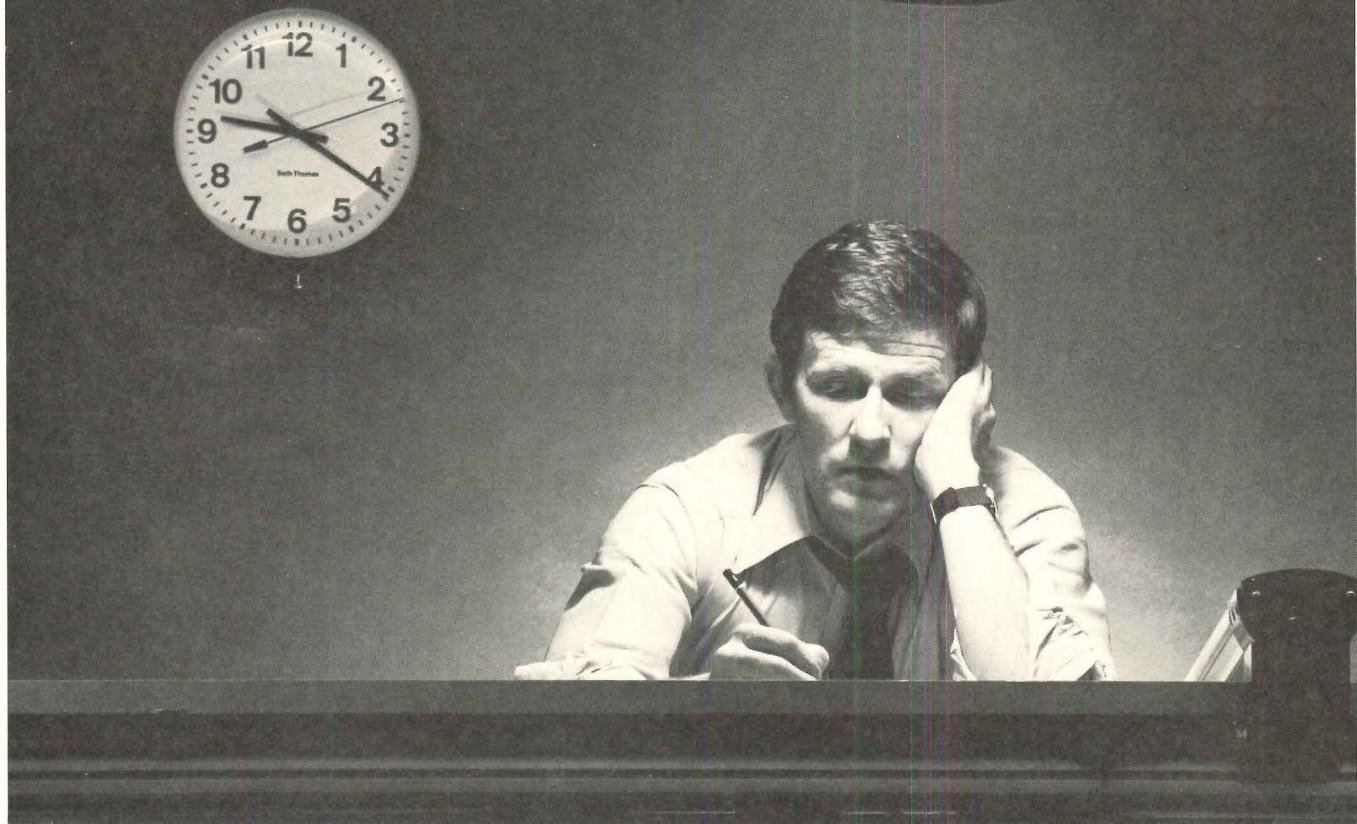


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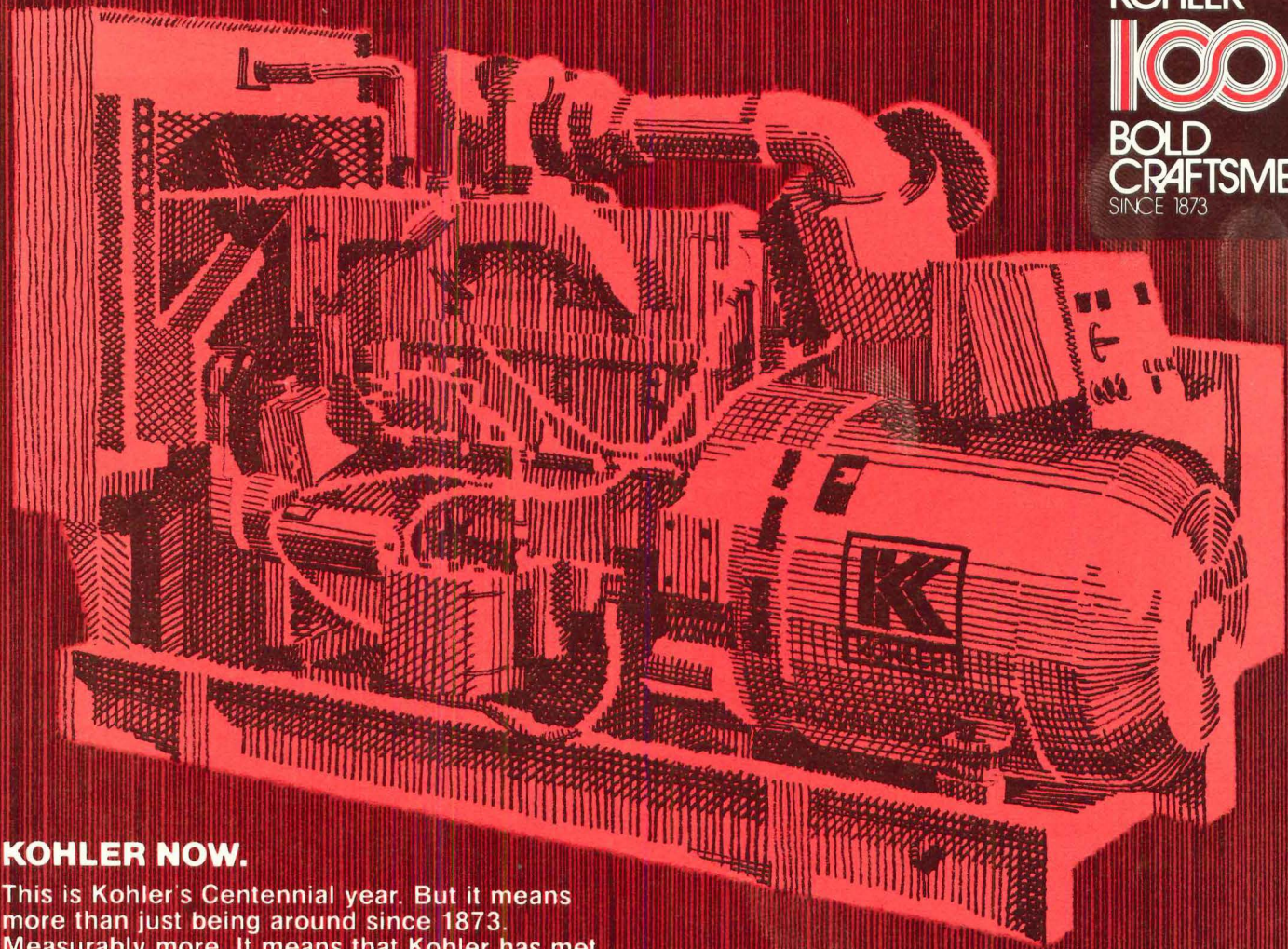
For more information on how to reduce costly redrawing and the Supermatic-Star processor write: Eastman Kodak Company, Business Systems Markets Division, Dept. DP875, Rochester, N.Y. 14650.

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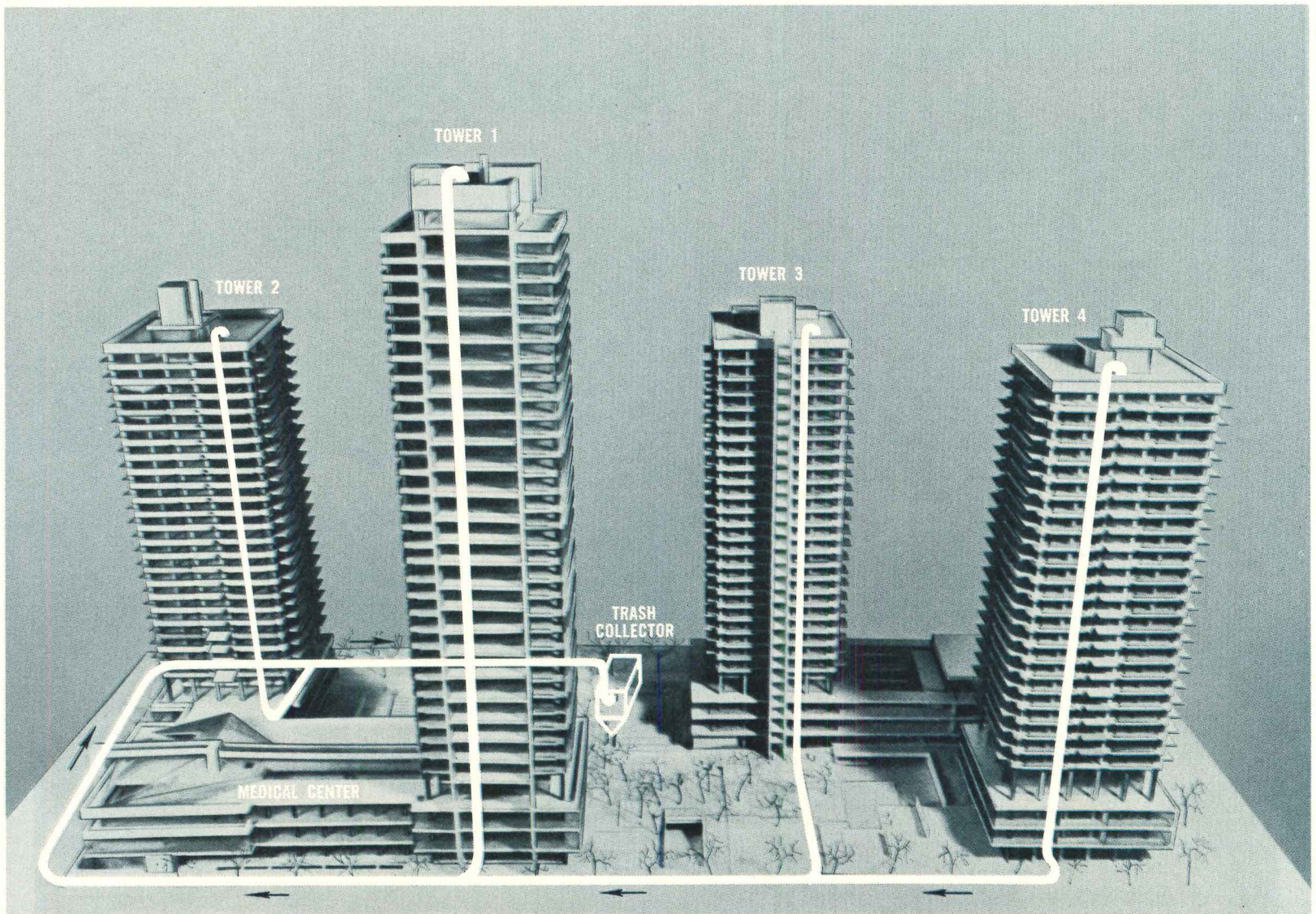
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The pressure we're talking about is the negative pressure exerted by the vacuum principle of ECI's Air-Flyte pneumatic waste disposal conveying system.

It was the kind of pressure the East Harlem Tennant Council and their architects, Silverman & Cika needed to protect the environment of their highrise project.

They wanted to make sure that the garbage cans, the odors and most importantly the vermin and the rodents that can ruin a project of this size, were completely eliminated.

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The initial estimate was 7,500 pounds a day. The planners turned to an ECI Air-Flyte pneumatic conveying system using a negative pressure vacuum system to remove it, cleanly and effectively.

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Waste is placed in the gravity trash chutes, or directly into receiving hoppers in the commercial and service areas.

The system automatically sizes and transports the waste to the central collection system via the Air-Flyte conveying system. The Air-Flyte system uses a negative pressure vacuum principle to

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CCC's New Naturalweave spongebonded carpet has a Class "A" Flamespread rating.

If you're looking at carpet for an office building and it doesn't have a Class "A" flamespread rating—25 or less in the Steiner Tunnel Test—you may be playing with fire. The danger of fire always exists, that's why fire safety standards are becoming more and more stringent. At CCC, we know all about fire safety. We've become experts, because we've installed millions of yards of carpet in offices, hospitals, schools and stores.

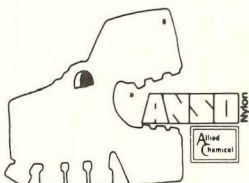
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Hausted manufactures every type of patient handling equipment for the health care field. Transporting traction, emergency and patient room equipment. Including the Tractionaid Unit and the Inval-aid chair. A leader in the development of coronary and intensive care units. **Contact** Art Murphey, Medina, Ohio (216) 722-1515.

Raymor/Richards, Morgenthau presents the largest collection of distinctive contemporary decorative accessories, anywhere. Selection ranges from specialty furniture, lamps, wall decorations, clocks, sculpture, art and craft related products of metal, wood, ceramics and crystal. **Contact** Everett Winters, Ridgefield, N.J. (201) 941-0220.

Living Room Division sofas and chairs have long been recognized as superior products combining excellence of design and superiority of workmanship. In traditional and transitional styling, many with Beautyrest Comfortorc construction. **Contact** Todd Colvin, La Grange, Illinois (312) 352-9110.

Thonet chairs, tables and sofas exhibit a unique sturdiness of construction and integrity of design that recommend them for use in hotels and motels, schools, health care institutions, offices and cafeterias. Styling ranges from traditional bentwood to Bauhaus classics and contemporary metal, wood and upholstered seating as well as case goods and custom built-ins. **Contact** Jim Riddering, York, Pa. (717) 845-6666.

Selig is a leading maker and importer of classic contemporary upholstered furniture. Of current interest are several new lines of chrome and glass chairs, tables and étagères. In addition, the company markets SleepOver convertible sofas. **Contact** Bob Wexler, Leominster, Mass. (617) 537-9111.

Katzenbach and Warren is the only authorized maker of Williamsburg® Wallpaper Reproductions—each, in design and colorway, a faithful reproduction of original antique documents in the Williamsburg collection. In addition, the company offers a wide range of traditional and contemporary roller-printed wallpapers, cork laminate papers and woven textures imported from the Orient. **Contact** Charles Salembier, New York (212) 759-5410.



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Contact Don Beittel, New York (212) 683-8900.

Debu/Flair markets an extensive collection of upholstered sofas, chairs and convertibles, notable among them the outstanding KT Furniture group. Their styling and striking fabric selections make them a handsome addition to home or institution. **Contact** Bob Schnair, Los Angeles (213) 532-8880.



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CAUTION: Flying objects tend to ricochet.

For a list of manufacturers and a sample of unbreakable LEXAN resin, write Section 194, Plastics Dept., General Electric Company, One Plastics Avenue, Pittsfield, Mass. 01201.

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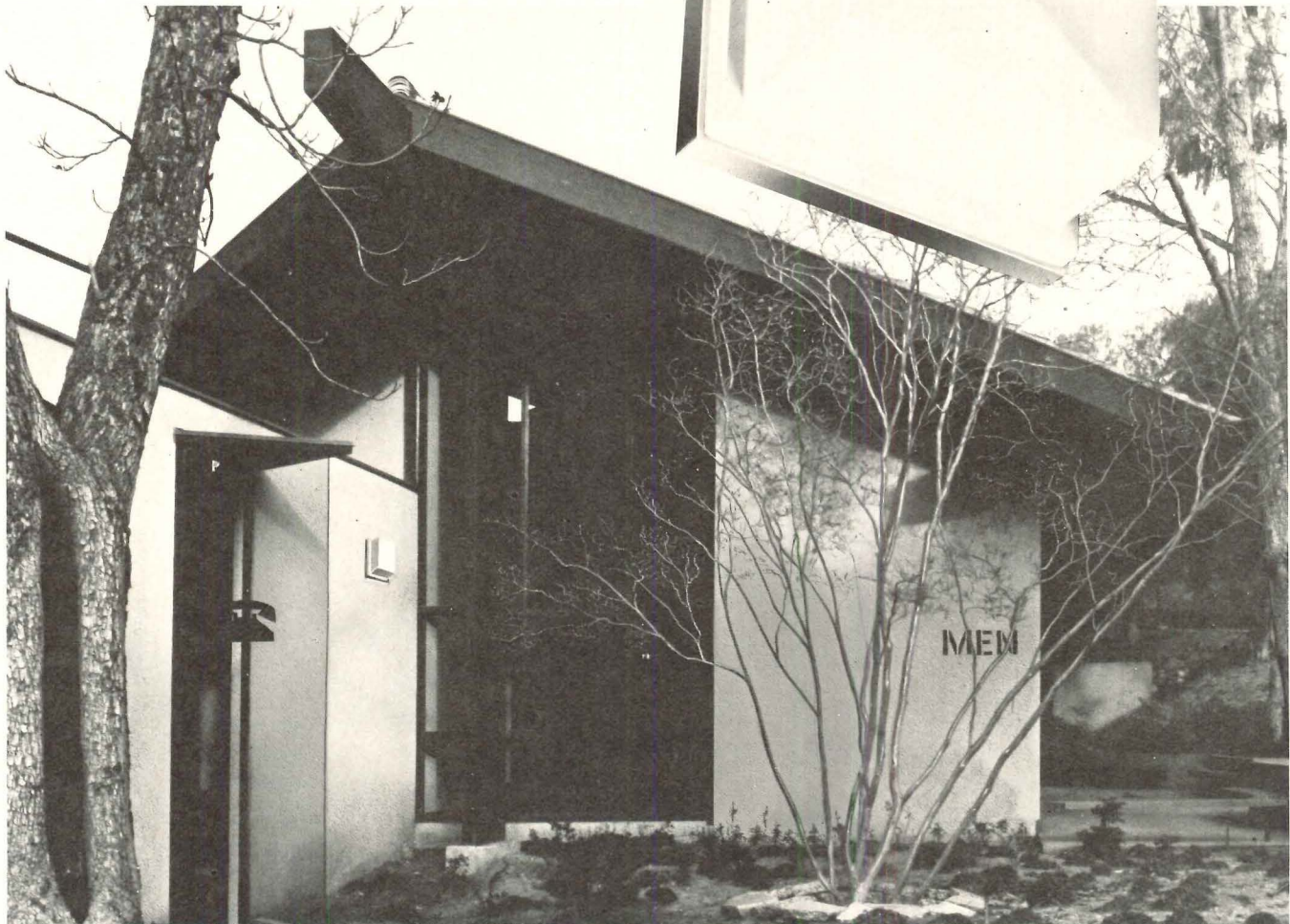
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A bill has been introduced in Congress that seeks to upset procurement gains made under the Brooks bill (RECORD September 1972, page 55). Representative Chet Holifield (D-Cal.) has authored a bill seeking to put into Federal practice many of the recommendations of the Commission on Government Procurement presented to Congress last December. That report recommended contracts for architect and engineer services be made by competitive negotiations. By contrast, the Brooks bill upholds the traditional selection process based on A/E qualifications and competence. No support is expected for the Holifield bill.

President Nixon has created an executive branch energy office headed by John A. Love, Colorado governor. This, and other news on matters of energy use and conservation, on page 34.

The National Society of Professional Engineers accuses AIA of professional encroachment. NSPE also feels its strength increasing in its fight with the Justice Department over competitive bidding. Details on page 34.

Robert E. Vansant has assumed the presidency of the Construction Specifications Institute, effective July 1. He is with the Civil Environmental Division of Black and Veatch. Mr. Vansant's term began shortly after CSI held its silver anniversary convention in Washington, D.C. More than 2700 registered for the event. Next year it will be held in Portland, Oregon.

Welton Becket and Associates, Gray and West, and H. D. Nottingham will design the Eisenhower Center, a memorial civic center to be built in downtown Washington, D.C. The selection committee, headed by Capitol architect George M. White made the selection from 46 firms. The contract for the design of the center is subject to successful negotiations with the joint venture firm.

A seminar on concrete for housing will be held in Dallas, September 6-7, sponsored by the American Concrete Association and the National Association of Home Builders. On the program are Ezra Ehrenkrantz, architect, and Walter Meisen, assistant commissioner of construction management, General Services Administration. For more information, write James M. Shilstone, Architectural Concrete Consultants, Inc., 1545 West Mockingbird Lane, Dallas, Texas 75247.

The AIA is encouraging Congress to establish a comprehensive forest management program. John F. Hartray Jr., Chicago architect and member of AIA's board of directors, argued that effective forest management must include more than programs for increased timber production. What is needed he said, is management of all the resources of the forest, including water, wildlife, recreation and range land.

E. G. Hamilton of Dallas was elected president of the National Council of Architectural Registration Boards, at the organization's fifty-second annual meeting in Atlanta in June. Hamilton is president of Omniplan, Incorporated, an architectural firm headquartered in Dallas. Between 1969-72, he served as chairman of NCARB's Examination Development Committee at which time a machine-graded exam process was developed with strong emphasis on the architectural candidate's knowledge of environmental analysis and programming. Hamilton was elected in 1968 to the College of Fellows of the AIA.

Architects in industry are invited to a seminar at AIA headquarters, Washington, D.C., October 1-3. The seminar will deal with ways in which architects in industry work with consulting architects, engineers and contractors; with their status in the profession and in firms; with how they define and carry out their roles; and with new technologies such as systems building. Write Maurice Payne, AIA, 1735 New York Avenue, N.W. Washington, D.C. 20006.

Illustrations and capsule descriptions of housing types are being sought for a glossary, being prepared for builders and architects. Comments and information from persons in the building industry should be sent no later than August to the architectural firm of Leitch, Kiyotoki, Bell, 1730 West Coast Highway, Newport Beach, California 92660.

Predicting building performance through mathematical models is a seminar theme, September 10-14, 1973, in Cambridge, England, at the Land Use and Built Form Studies group of Cambridge University. The conference will explore descriptive models of form and structure, models of physical environment, modeling space and activities, and theories of building systems. Registration forms can be obtained from Lionel March, University of Cambridge, Department of Architecture, 16 Brooklands Avenue, Cambridge, England.

September 30, 1973 is the deadline for submitting entries for Department of Transportation awards, given by the Federal Highway Administration to outstanding highway and related environment projects. More information on this sixth annual awards program may be obtained from the Office of Environmental Policy, Federal Highway Administration, Department of Transportation, Washington, D.C. 20590. Phone: (202) 426-0385.



Brooklyn Bridge and Chicago's Auditorium Hotel undergoing restoration

Recent restoration work of exacting proportions concerns two of America's greatest architectural landmarks: Brooklyn Bridge and Chicago's Auditorium Hotel.

In May, New Yorkers celebrated the 90th birthday of Brooklyn Bridge (shown in a print from an anniversary show at the Robert Schoelkopf Gallery), and as a birthday present, the City is giving the bridge a fresh coat of paint—in the original colors.

A team of chemists and metallurgists from Polytechnic Institute of Brooklyn took samples of paint from the bridge in areas that had remained intact over the last ninety years. These samples were sliced diagonally, the layers fanned out and mounted.

Microscopic examination showed most of the fragments taken from the main catenary cables were a light cream color, while those from the deck girders were a light coffee color. Coatings experts agreed that the colors could be duplicated.

In Chicago, the process of authentically reproducing origi-



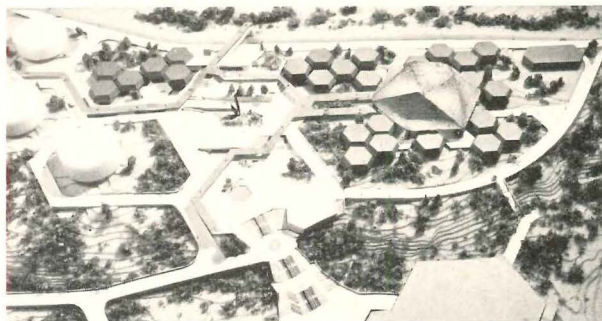
nal lobby wallcovering was undertaken for the 1889 Auditorium Hotel by Adler and Sullivan. The building—occupied by Roosevelt University—is undergoing a long range restoration directed by: Daniel Brenner; Edgar Kaufman, Jr.; James Speyer; and James Fitch.

Jack Denst Designs Incorporated was given the task of reproducing in scale, design and colors the original Louis Sullivan stencils which had been covered with paint.

The wallcovering firm, working from original photographs of the lobby, and scale tracings of the original stencils, reproduced the designs.

With chips of the 1889 stencils, Chicago's Art Institute authenticated the original colors, a rust-brown design on an ecru ground. The design for the ceiling is an entwined vine and leaf motif; star-like shapes decorate the beams. Frank Lloyd Wright worked with Sullivan on the intricate cornice patterns.

Japanese will spend \$765 million to develop Okinawa Ocean Expo for 1975

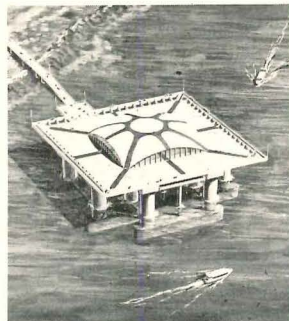


Construction is expected to start this fall on buildings for the Okinawa Ocean Expo, a six-month-long fair that will open in March, 1975. The expo is being sponsored by the Japanese at a physical development cost of \$765 million, including \$458 million for related public works.

Expo's site will cover approximately 247 acres, includ-

ing 61 acres of ocean surface. The master planning for the project was managed by Eika Takayama, professor at Tokyo University.

The compound will feature pavilion clusters for science and technology, fish, and ethnic history, with a 300-ft square floating island to be called Aquapolis. Expo beach will be



artificial and serve as a model in future development of the area for recreational purposes. Most of the expo will be utilized after the fair as the core of development of Motobu Peninsula as a resort area.

Other architects working on the project are: Koichi Sone, Fumihiko Maki, Taketsugu Tsukamoto and Koji Kamiya.

Billion dollar solar energy market hinted by 1985

Arthur D. Little, Incorporated has announced a program to determine and evaluate means of creating a new market for solar climate control. A group of major producer firms is supporting the program proposed by the technical and management consultants based in Cambridge, Massachusetts.

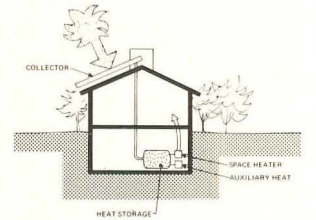
Development of solar climate control equipment could lead to the large-scale use of solar energy to provide space heating and cooling, and water heating to residential and non-residential buildings.

Organizations supporting the first phase of the project include Arkla Industries, Armstrong Cork, Ashland Oil, Certain-Teed, Copper Development Association, Corning Glass Works, Dupont, Honeywell, Itek, Kennecott Copper, New England Electric, PPG Industries, Sun Research and Development, and Spectrolab Division of Textron.

New markets for solar climate control systems may approach \$1 billion worth of equipment over the next 10 years. These systems could be integrated into buildings designed for efficient thermal control through the choice of ap-

propriate insulations, and materials for windows, roofs and floors, while maintaining good architectural design.

An NSF/NASA solar energy panel recently concluded that if solar climate control were developed vigorously in the United States, such systems



would be incorporated in 10 per cent of new building construction by 1985. Since two million homes are built each year in the United States, this could represent approximately 1.4 million homes with solar heating by 1985 without considering commercial buildings. The panel also estimated that the sales of solar heating and cooling equipment should reach an annual gross value of \$750 million by 1985.

Terry Rankine, a senior partner of Cambridge Seven Associates will be the project's architectural consultant.

Princeton University studies new town energy use

Researchers from Princeton University's Center for Environmental Studies are using an entire planned community, which is now about 75 per cent complete, as a laboratory to find out why so much energy is being used in the American home.

The community is located on a 719-acre tract in East Windsor Township, New Jersey, encompassing a mixture of single-family homes, townhouses and apartments.

The use of an actual community, partially completed and partially under construction, gives scientists, engineers and architects a new way of measuring how construction methods contribute to energy usage and how and why energy is used or wasted in the home.

When completed, the project will separate the technology from the human factors. It will supply information on how energy consumption is affected by weather, home and building design, method of construction, the direction in which dwellings face, the use of insulated glass windows, furnace efficiency and duct installation, appliances and even family life-styles.

With the depletion of energy reserves nearing a crisis stage, the Federal government's

National Science Foundation is sponsoring the project. In that this development is New Jersey's first PUD (Planned Unit Development), it is likely to serve as a prototype for others.

Some surprising findings have emerged from the first year's study:

- The use of insulated glass on windows and doors, an option adopted by half of the residents makes for only a small savings in energy. [Hard to believe. *Ed.*]
- The gas consumption for heating in absolutely identical houses, facing in the same direction and set side by side in the middle of a row of houses, can vary by as much as 50 per cent.
- There is a total lack of correlation between gas and electric consumption in the same residential unit.

Directors of the experiment point out that 70 per cent of residential energy is used in heating, 15 per cent for hot water, roughly 5 per cent for cooking, 3 per cent for refrigeration and freezing, 2 per cent for air conditioning, with all other uses accounting for 5 per cent. The experiment will continue for several years, and lead to possible changes in codes, inspection procedures and construction practices.

Engineers meet, claim AIA encroachment

Architects came under heavy fire at the annual meeting of the National Society of Professional Engineers (NSPE) held last month in Chicago.

"The AIA has made an intrusion into engineering," said Robert Nichols, chairman of the Professional Engineers in Private Practice (PEPP) arm of the NSPE, referring to a June 13th ad the AIA placed in *The Wall Street Journal*. "We had thought that our relations were in good order, but in that ad architects proclaimed themselves to be the master builders capable of handling all manner of environmental problems. Architects are not trained to work in the areas of air, noise and water pollution control nor with problems like traffic congestion."

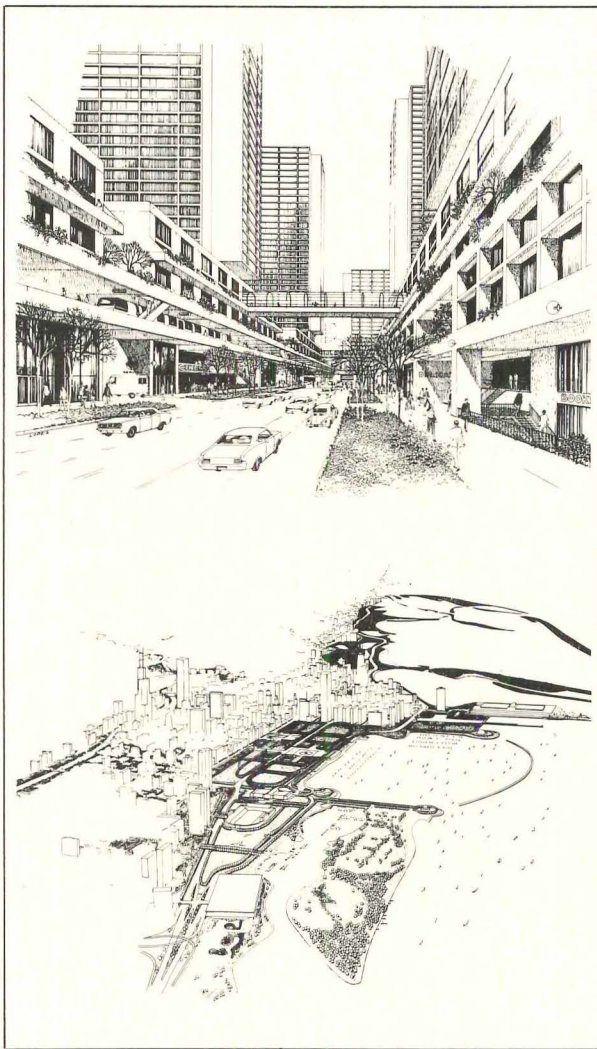
Milton Lunch, NSPE general consul said the NSPE has voted in favor of making a charge of encroachment on engineering against the AIA in a formal letter to that group.

In reference to NSPE's fight against the Federal government to keep the price factor out of competitive bidding, NSPE president James F. Shivler, Jr. said, "We're gaining ground and strength."

Milton Lunch attributed the strengthening of NSPE's position on competitive bidding to reaction from states on the matter. "We have a program to have mini-Brooks Laws enacted in the states," said Lunch. "So far we've had success in Texas, Tennessee, New Jersey and New Hampshire. We're also working at a second state level to have the state regulatory boards adopt a code of conduct that would prohibit including price as a factor in competitive bidding. So far we've had success at this level in Ohio, Illinois, Oregon, North Dakota, New Hampshire. We expect that Texas will soon follow." To date the NSPE suit to keep pricing out is still in its preliminary stages.

The NSPE members also made response to President Nixon's recent announcement of level department for energy.

"The time for simplistic solutions to these energy problems is long past," said the NSPE. "What the U.S. has (in the past) exhibited on the energy scene is indecisive leadership at the national level, minimal supportive funding for energy R&D in relation to what technology is being asked to explore and widely disparate views between the congressional and executive branches of government as to what course to pursue."



Plan for downtown Chicago development unveiled

The Chicago Central Area Committee has unveiled a plan designed to be the basis for a revitalized city in the twenty-first century.

Titled "Chicago 21" the plan focuses on an area of 11 square miles bounded by North Avenue, Ashland Avenue, Stevenson Expressway, and Lake Michigan. Plans call for enhancement of existing residential neighborhoods and the creation of new communities, improvement in transportation systems, the expansion of open space and better utilization of it, including the riverfront and lakefront. Skidmore, Owings & Merrill prepared the plan, with Roger Seitz as project manager.

Major highlights of the plan include:

- Establishment of a distributor subway to the north, west and south edges of the CBD connecting John Hancock Center, Chicago Circle Campus and McCormick Place.
- Construction of a South Loop New Town (top) by 1985 on 650 acres of unused railroad property south of the loop for upwards of 60,000 persons.
- Limited expansion of the central business district to the south edge of the Loop and across the river, north and west.

- Improvement of conditions in public housing with Cabrini-Green serving as a test case in converting apartments to owner-occupied units.

- Continued development of Illinois Center on 83 acres of land northeast of the central business district of which 53 acres will be devoted to parks and plazas.

- Replacement of the Loop and Ravenswood elevated line with a subway and relocating the Jackson Park line.

- Establishment of a ring of parking lots at outlying areas for commuters who use public transportation.

- Creation of a recreational and open space belt along the riverfront in the form of esplanades, parks and open spaces and expansion and enhancement of the lakefront (bottom photo).

Chicago 21 is the first comprehensive study of Chicago's downtown and immediate surrounding area to be completed since 1958. The 1958 plan resulted in the construction of the University of Illinois at Chicago Circle Campus, the Civic Center, two Federal buildings, many major office buildings, 50,000 apartments within a five-mile radius of the Loop and the Grant Park garages. Private and public implementation is planned.

Energy conservation in buildings, workshop topic

A new standard covering energy conservation in buildings may be in the making relatively soon.

The question of need for such a standard was discussed at last month's joint emergency workshop on energy conservation in buildings sponsored by the National Conference of States on Building Codes and Standards and the National Bureau of Standards.

NCSCBS's standards and evaluation committee met immediately following the conference and considered motions on how to present the matter of a request for sponsorship of a new standard to the executive committee which would be expected to ask the American National Standards Institute to sponsor the all-important document. Joseph Stein, vice president of Tishman Research Corp., New York, and former Commissioner of that city's Department of

Buildings, favors such a course and told newsmen that while a purely performance type standard might be preferable, he realizes that for practical reasons the final form may be somewhere midway between performance and prescriptive types. This approach, he explained, would give architects and engineers some, but not total, option for selecting materials, equipment and design techniques.

Among the approximately 80 attending the one-day meeting were persons from 23 states representing about 65 per cent of the population.

One of the principal purposes of the workshop, according to Paul R. Achenbach, chief of the Bureau's Building Environment Division, was to explore various methods or procedures that might be used by the states to limit use of energy in buildings in an equitable way.

Governor Love to head White House energy office

President Nixon moved last month on the energy front, establishing a new Energy Policy Office in the Executive Branch to be headed by Governor John A. Love of Colorado.

This and the proposal for Congress to approve a new Department of Energy and Natural Resources could portend vitally important developments for the construction industry.

Governor Love will be responsible for identifying major energy problems and making recommendations to the President. One of his tasks will be to ensure that Executive Branch agencies develop short and long range plans for dealing with en-

ergy matters, and he will monitor the implementation of approved energy policies with assistance from the office of Management and Budget.

President Nixon announced that major departments and agencies of the government already have designated energy conservation coordinators who will be working with the Department of the Interior in coordinating the Federal efforts to conserve energy.

The Nixon plans also call for initiating a \$10 billion research and development program in energy to spread over the next five years. Natural resource management is included.

Record Interiors awards presented at Neocon 5

Architects, interior designers, manufacturers, speakers and invited guests descended on Chicago's Merchandise Mart June 19-21 for NEOCON 5, the fifth annual convention of the contract furniture industry.

As in previous years, the Mart's showrooms were full of new furniture lines, canapes and conversation. There were many opportunities, provided by Ed Gillies, manager of the Mart, and his hard working staff, for registrants to meet and exchange information. The most structured, perhaps, were 20 seminars.

At one especially interesting seminar "The Community," speakers John Birchfield (University of Tennessee) and Don Phillips (L.S.U.) examined some of the complex prob-



lems facing university administrators in operating new campus housing and other buildings.

At an afternoon sub-session, RECORD editor Walter Wagner (right) presented award certificates to winners of RECORD INTERIORS 1973: 1) Hellmuth, Obata and Kassabaum 2) Booth & Nagle (Jim Nagle shown) 3) Warren Platner & Associates 4) GBR Associates 5) Wendell Lovett 6) DFK Associates 7) Mayers & Schiff 8) Zimmerman-Robbin 9) Arkhora Associates 10) Warner Burns Toan & Lunde.

PROFESSIONALS AT WORK

- * *Mall Designer:* Dan Morganelli, Hewmann & Associates, Los Angeles
- * *Mall Architect:* Loeffler, Johnson and Associates, Pittsburgh
- * *Mall General Contractor:* Magnum Construction Corp., Pittsburgh
- * *Mall Mechanical Contractor:* Limbach Co., Pittsburgh
- * *Mall Developer:* Oxford Development Co., Pittsburgh
- * *Gimbel's Store Architects & Engineers:* Abbott, Merkt & Company, New York
- * *Mechanical Contractor:* Sauer Inc., Pittsburgh
- * *Gimbel Corp. Director of Construction:* Tom DeAngelo
- * *Joseph Horne Co.: Mechanical Contractor:* Sauer Inc., Pittsburgh
- * *General Contractor:* Mellon Stewart Co., Pittsburgh

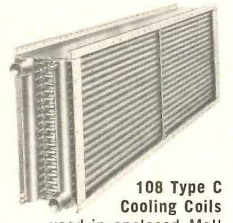


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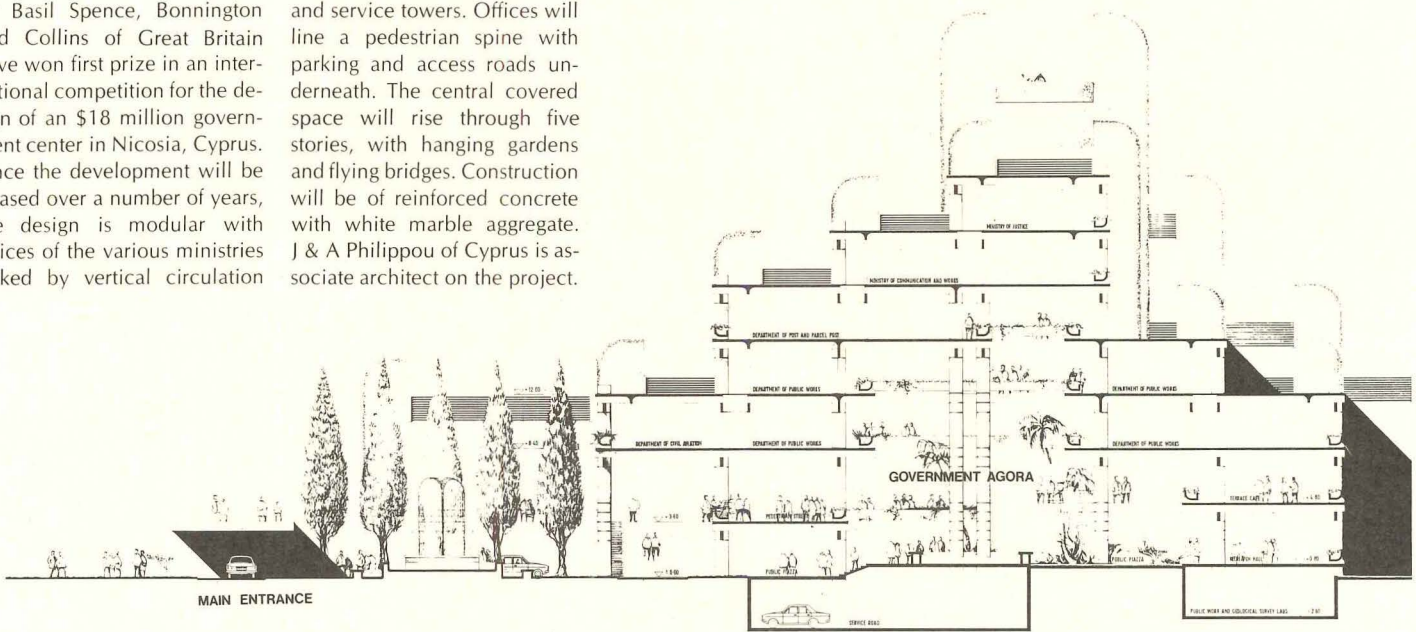


Henk Snoek & Associates

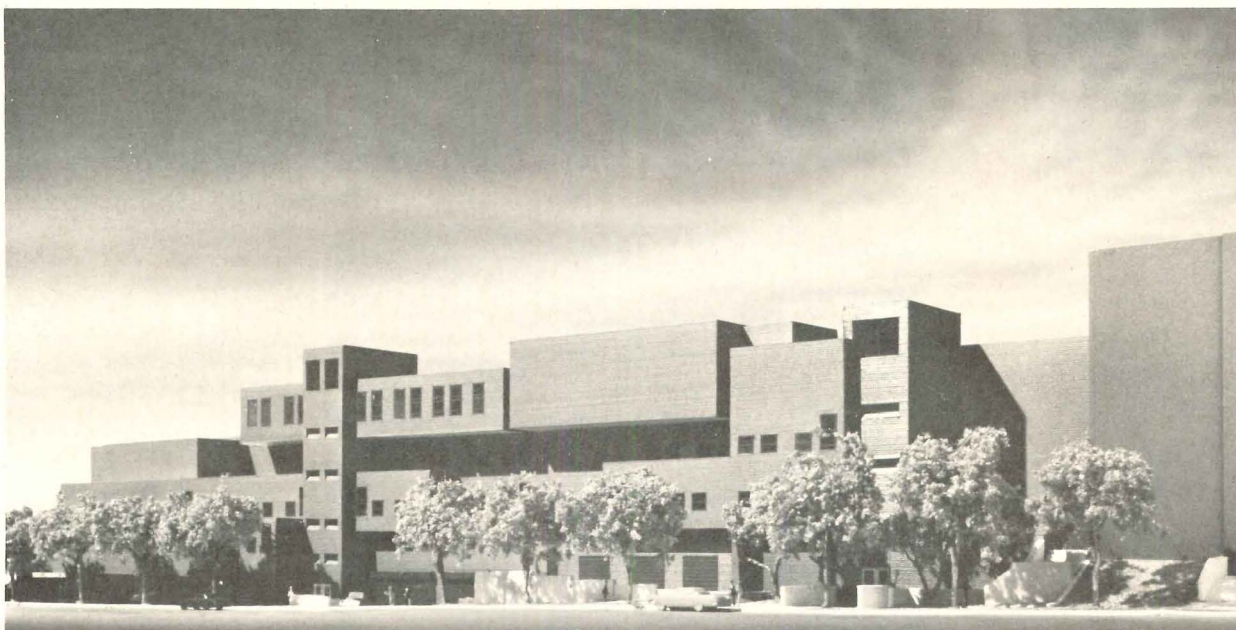
British architects win competition for government buildings in Cyprus

Sir Basil Spence, Bonnington and Collins of Great Britain have won first prize in an international competition for the design of an \$18 million government center in Nicosia, Cyprus. Since the development will be phased over a number of years, the design is modular with offices of the various ministries linked by vertical circulation

and service towers. Offices will line a pedestrian spine with parking and access roads underneath. The central covered space will rise through five stories, with hanging gardens and flying bridges. Construction will be of reinforced concrete with white marble aggregate. J & A Philippou of Cyprus is associate architect on the project.

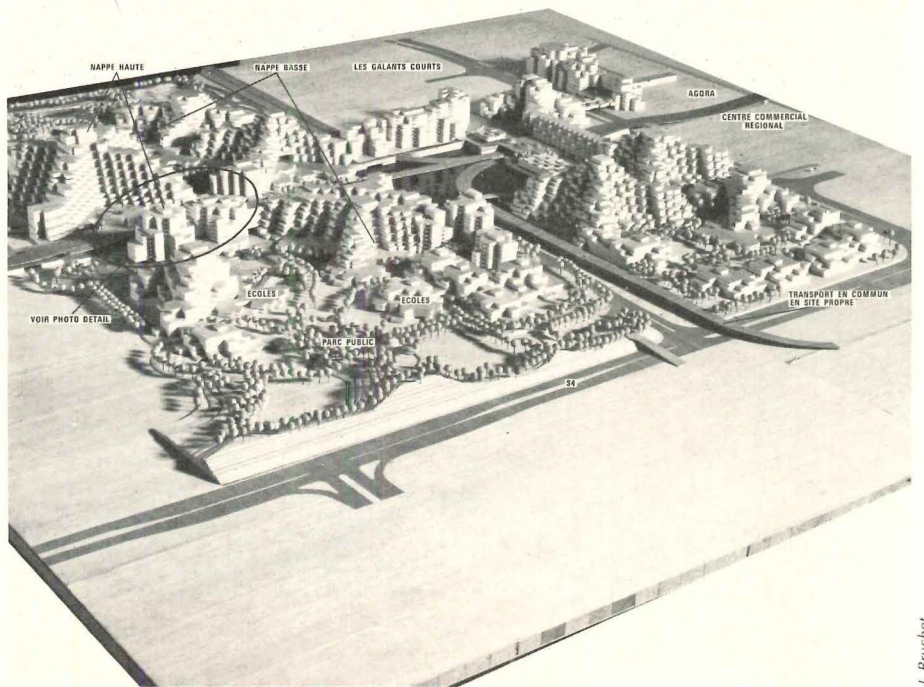
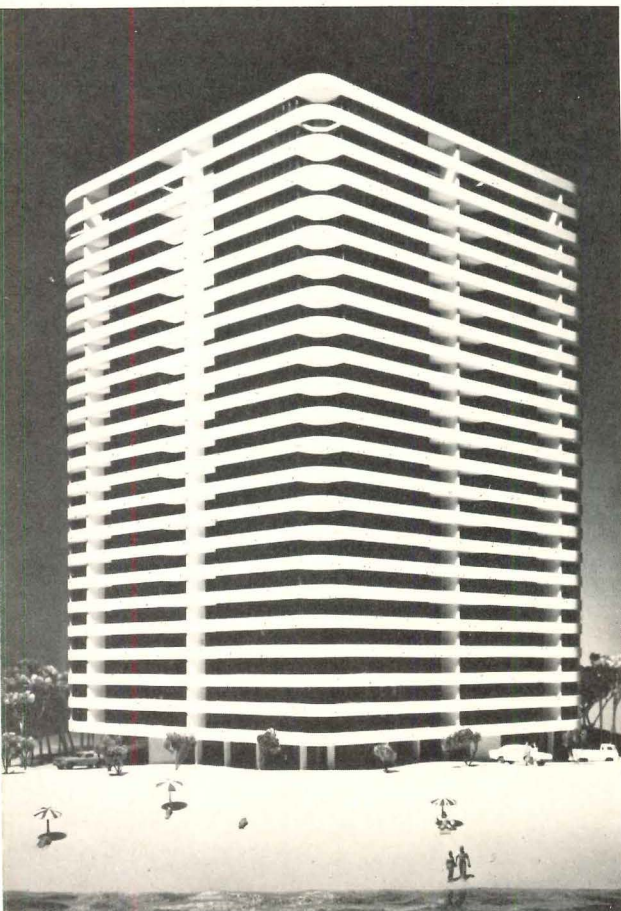


Newark, New Jersey high school addition planned for year-round use by students and community



A series of peripheral teaching and play areas, plus general seating form an inviting entrance to this 190,000-sq-ft community-student oriented addition to a Newark, New Jersey high school. Where it joins the old building, the new one forms a large interior courtyard, around which are the cafeteria, library and administrative offices. The court also preserves the light and air of classrooms in the old wing. The \$12,000,000 new building will house shops, music and art rooms, and labs, clustered and stacked to form an economically serviceable wing for the old building which is to be classrooms only. A new gymnasium will be located at the lowest part of the site to minimize its mass. The architect is Stanley L. Horowitz.

© Louis Checkman



J. Bruchet

Competition held for first stage of housing at Evry, new town near Paris

Nine architects and urban planners working under the name of Groupement des Architectes de la Région Parisienne have won an international competition for 7000 residential units to be built

near Paris. The housing will be interfaced with the new town center of Evry, a community that will have 20,000 inhabitants by 1980. Evry is one of five new towns that will be built to stem

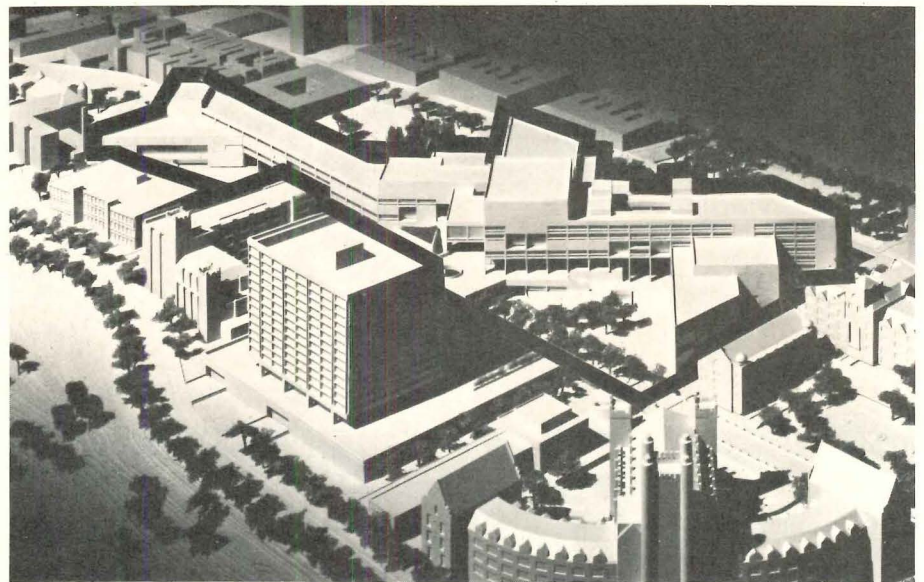
the chaotic growth of suburban Paris. The housing shown features pyramidal buildings offering residents terraces and loggias. Underground parking affords more park lands.



Steve Camp photos

Precast concrete condominium for resort

Designed by Meyers and D'Aleo, this ocean-front condominium under construction in Ocean City, Maryland will be entirely of precast concrete, including stack-wall and floor planks, spandrels, balcony rails and elevator towers. The glass line is held away from the spandrel to achieve strong horizontal expression in the 20-story \$5.6 million building, which is wedge-shaped to maximize ocean frontage and views. An open corridor design allows for ventilation and fire safety.



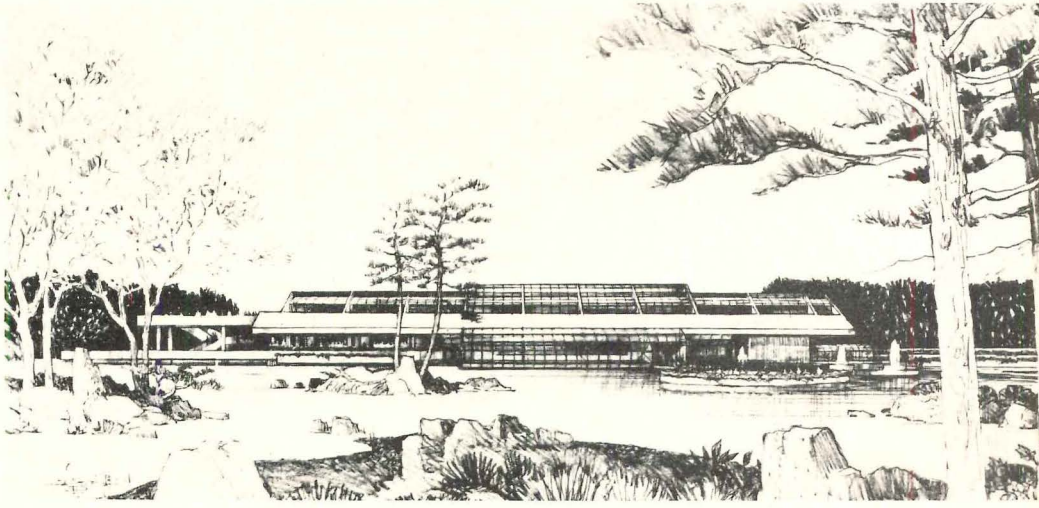
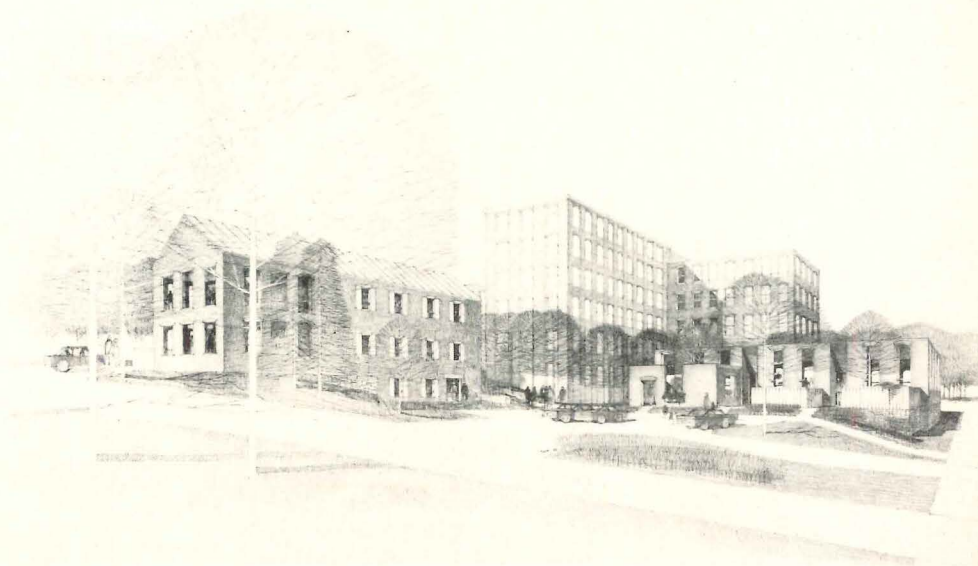
Famous stadium at City College of New York makes way for academic needs



Lewisohn Stadium (left), an amphitheater and athletic field designed in 1915 by Arnold W. Brunner—and the city's summer cultural center for 50 years—is being razed for a \$90 million, 761,000-sq-ft classroom, library and administrative center (outlined). Designed by John Carl Warnecke and Associates with William Pedersen in charge of design, the 8-story Z-shaped center is to be a neutral force between existing neo-Gothic buildings and contemporary ones planned.

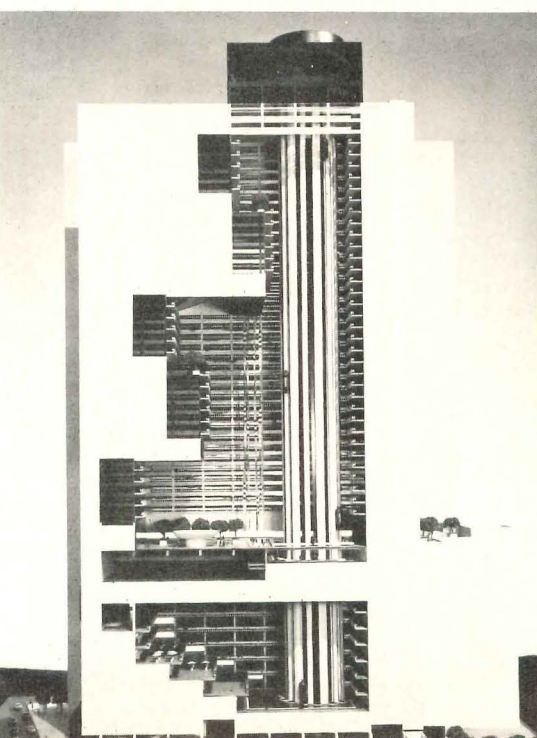
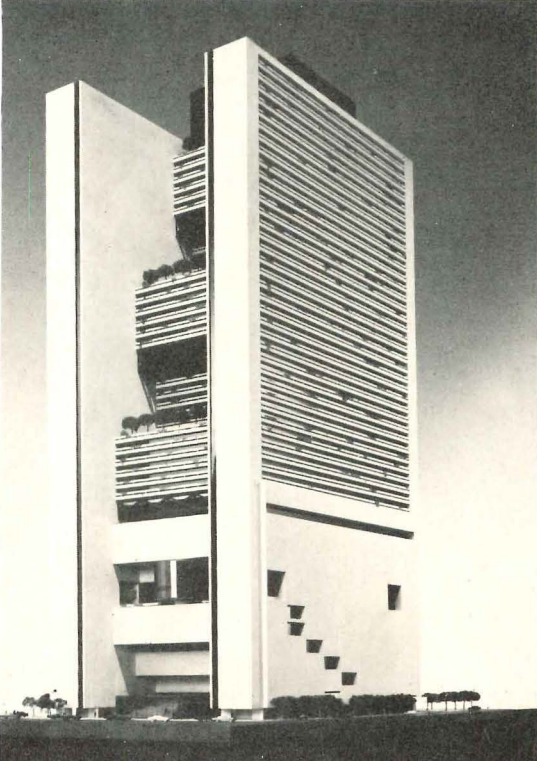
John Portman to build Times Square hotel

Architect-developer John Portman of Atlanta and New York's Mayor John Lindsay have announced plans for a \$150 million 2,020-room convention hotel to be built in the heart of Times Square. Construction is expected to start in early 1974, with completion in 1977. The 54-story hotel includes a new legitimate theater and terraced shopping plaza. Between two parallel wings, a vast atrium will rise the full height of the building from the registration lobby on the 13th floor. The first seven floors will have shops, services and restaurants. Trusses spanning the wings will carry five-floor groups of shops and some guestrooms. Glass elevator cabs on the pillar emerge into each atrium through pools of water.



Society of American Registered Architects gives awards to twelve designs

Among the design award recipients at the last SARA convention were Healy, Healy & Brown for their conversion of a Massachusetts mill to residential use (top photo). Daniel, Mann, Johnson, & Mendenhall received a First Honor Award for the Sepulveda Water Reclamation Plant (lower photo) in Los Angeles. Other award winners include: Welton Becket and Associates; Liebenberg, Kaplan, Glotter and Associates; Frank L. Hope and Associates; Harry W. Moser, Jr.; A. Epstein & Sons, Inc.; and Everett Associates. The jury chairman was Walter F. Wagner, Jr.

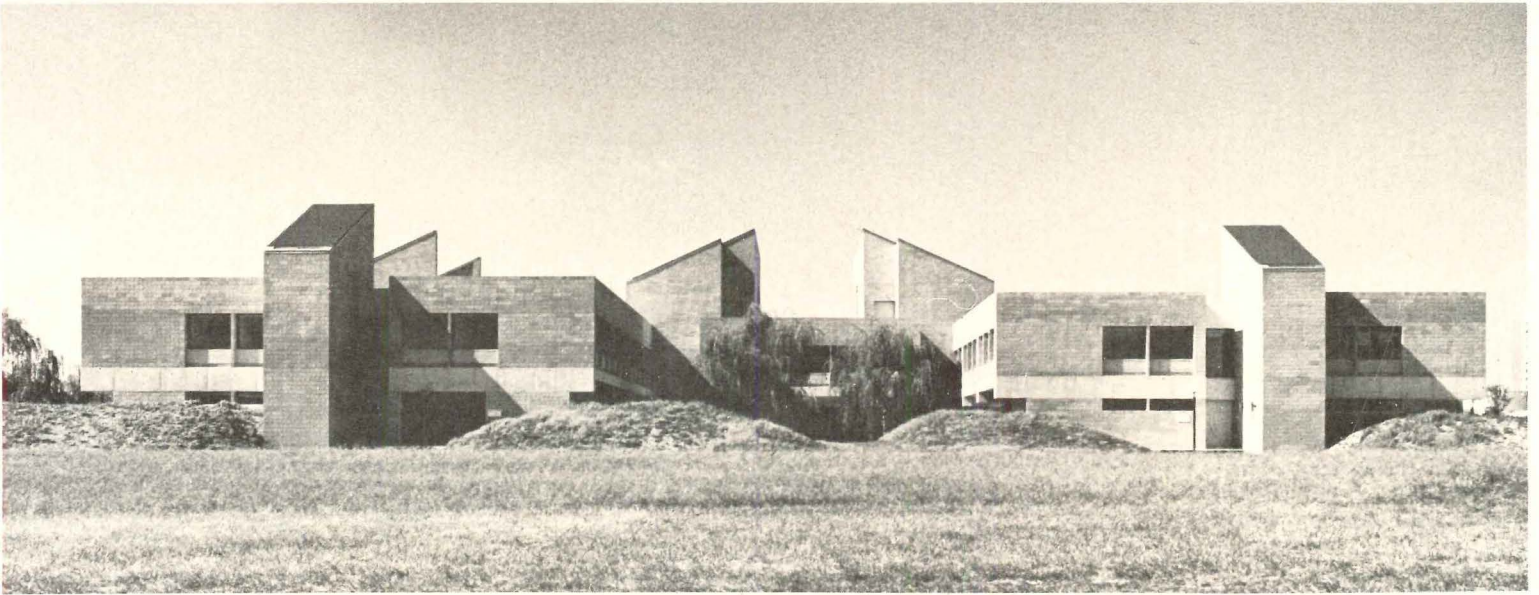


Center for building construction studies designed in competition

The Jos. L. Muscarelle Center for Building Construction Studies, to be built at Fairleigh Dickinson University in New Jersey, is the design of Corbett Thornberg Stechow Jordan who won an AIA-conducted statewide competition. The three-story building will house laboratories and classrooms for a new baccalaureate program of Science and Engineering Technology, Construction Option. The brick and glass structure will be flanked by an open stairway coaxial with the main pedestrian circulation of the campus. Mr. Muscarelle, a builder, donated \$1 million for construction, to begin soon.



Bill Rothschild photos



Robert Gray



Six public projects in New York win awards for urban design excellence

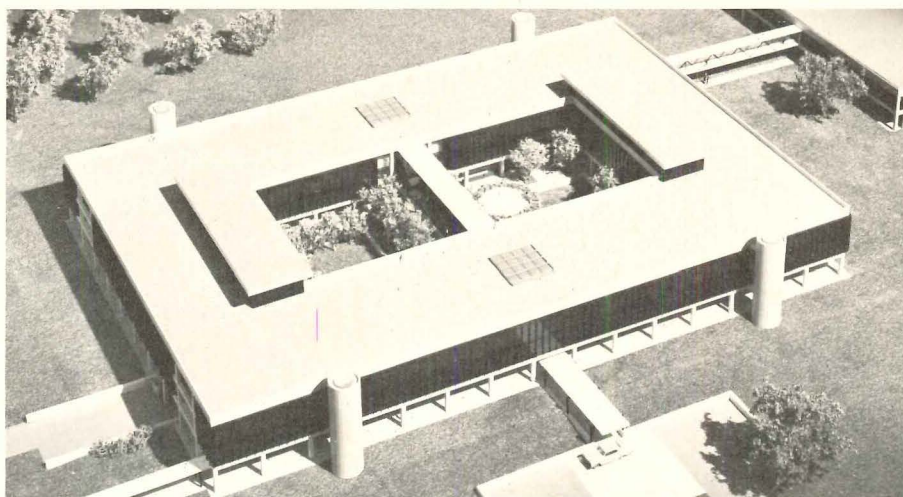
The 1973 Bard Awards of Merit for publicly-sponsored construction in New York City were presented to six projects completed within the last two years. The winners are Bronx State Hospital Rehabilitation Center (top) by Gruzen & Partners;

Bedford-Stuyvesant Community Pool by Morris Lapidus Associates; East Midtown Plaza (housing shown left) by Davis, Brody & Associates; Twin Parks Northeast (housing shown above) by Richard Meier & Associates; and Twin Parks

Northwest Site 5 & 11 (housing) by Prentice & Chan, Ohlausen. Although no First Honor Award was given this year, the jury in presenting the Merit Awards commented on the strong representation of design skill, client awareness and sensitivity.

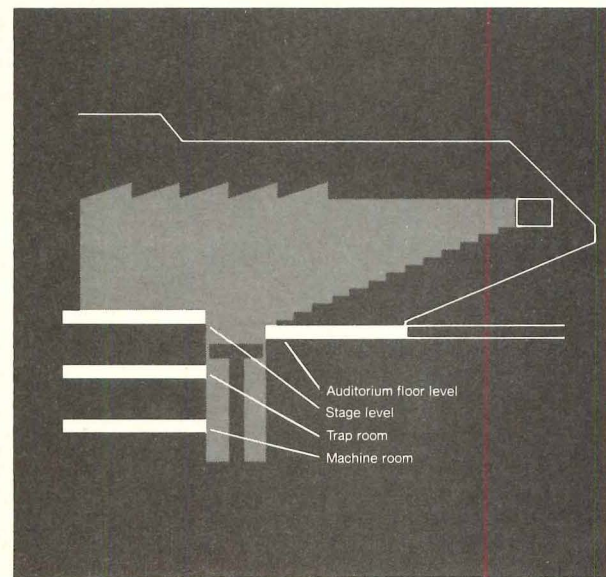
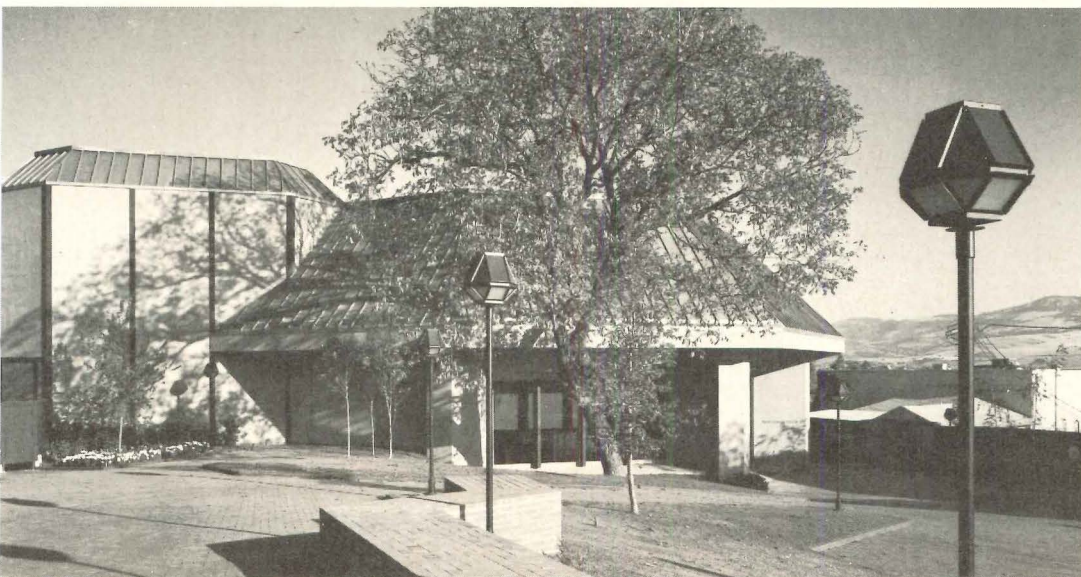
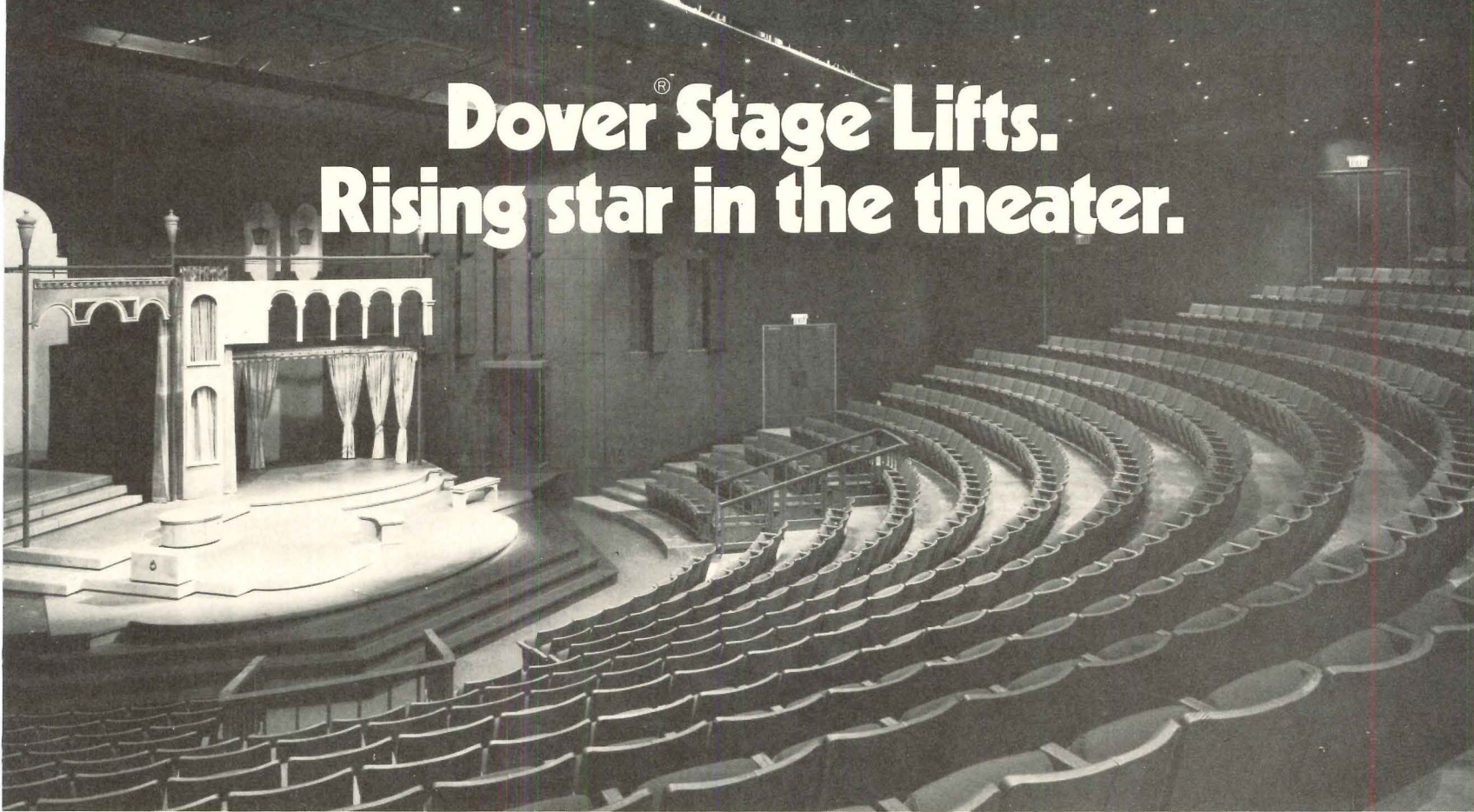
Panasonic corporate headquarters and distribution center under construction in New Jersey

This facility will be built on a 50-acre site, with completion scheduled for late 1974. The complex was designed by Raymond, Rado, Caddy & Bonington. The total building area will comprise approximately 750,000 sq ft, with the office building (shown) containing 250,000 sq ft. It is a three-story structure with two interior landscaped courts. In addition to offices, this building will house a cafeteria-auditorium, lounges, private dining areas, studios, a computer and a small auditorium for presentation of company products. Extensive landscaping is planned.



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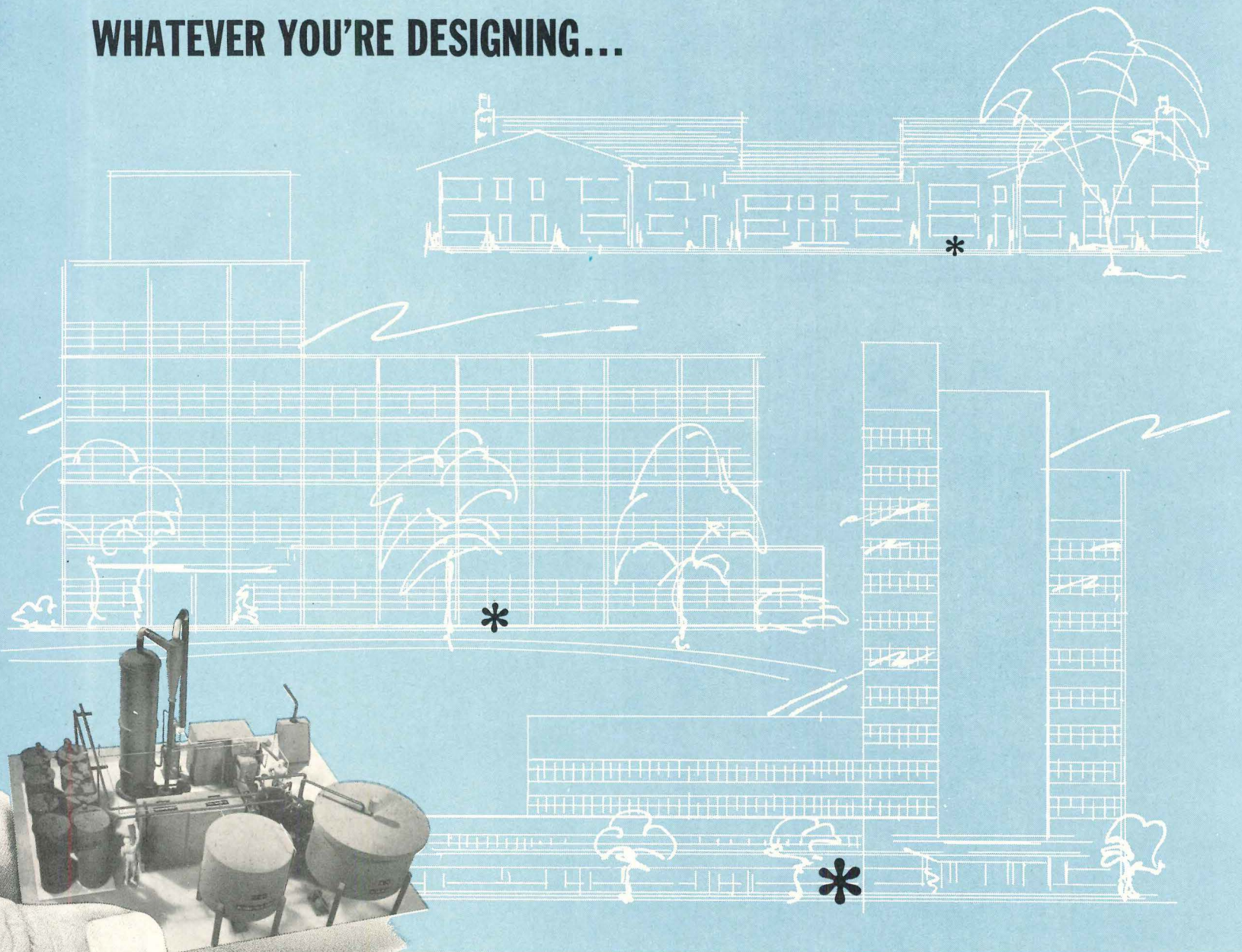
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Learning from Adam's House

LEARNING FROM LAS VEGAS, by Robert Venturi, Denise Scott Brown and Steven Izenour; MIT Press, Cambridge, 1972, 189 pages, illus., \$25.00.

ON ADAM'S HOUSE IN PARADISE: *The Idea of the Primitive Hut in Architectural History*, by Joseph Rykwert; Museum of Modern Art, New York, 1972, 189 pages, illus., clothbound \$8.95, paperback, \$4.95.

When I read Robert Venturi's book *Complexity and Contradiction in Architecture* I found it helpful and interesting to be reading Tom Wolfe's *Kandy-Kolored Tangerine-Flaked Streamline Baby* concurrently. This time I coupled Venturi, Scott Brown and Izenour's *Learning from Las Vegas* and Joseph Rykwert's *On Adam's House in Paradise* with effects symmetrical and equally illuminating to me.

First I should declare myself. I am a contemporary of Robert Venturi, but went after he did to the same graduate school of architecture. While I was there, in the mid-fifties, one of the major revelations was a talk by Venturi describing a house he had designed in terms of the contrast in attitudes between Palladio and Frank Lloyd Wright—Wright, as he viewed it, the designer of forms specific to their use, Palladio the maker of forms unspecific (Venturi's house followed Palladio). I thought his house was exciting, but what excited me even more was the concurrent exposition of two irreconcilable points of view without the condemnation of either. I had never heard an architect do that before, and I have been, for that and an accumulating variety of other reasons, an ardent fan of Robert Venturi (and later of both Venturis) ever since.

I take this ability to tolerate and accept opposing points of view, to include nuances, and to ennoble reconciliation by removing its urgency as a sign of a high level of civilization. For me a statement like "Main Street is almost all right" is downright thrilling for its relaxed and tolerant inclusiveness. My reaction is not shared by everyone, and for reasons I only partly understand such tolerance brings on particularly virulent attack.

Repeated attack brings on war, causing the highly civilized and the broadly fervent to grow embattled. *Learning from Las Vegas*, it seems to me, is an embattled book. Which brings me back to the symmetrical readings of *Complexity and Contradiction* with Tom Wolfe and *Learning from Las Vegas* with Mr. Rykwert. *Complexity and Contradiction* was complex and contradictory, inclusive and tolerant, revelling in ambiguity, but delightedly revealing new sources for enthusiasm. Tom Wolfe's book was a splendid supplement because it made pointed and extraordinarily vivid the new-found Pop enthusiasms.

Now *Learning from Las Vegas* is embattled. I respect the author's enthusiasms still, though I do not share them all, and naturally I have some others of my own. But I grow especially uneasy at the barricades that have been thrown up between Ugly and Ordinary on the one side and Heroic and Original on the other. I do this partly because, to me, much of Las Vegas seems to be on the Heroic and Original side, and, too, because as I read the book, with some paranoid twinges, I find myself there occasionally. I grow most uneasy because the

dialectic seems contrary to that inclusive tolerance of new and old things and of different points of view that illuminates Venturi and Rauch's work, and makes it, in my opinion, so extraordinarily important.

So, at the barricades, we come to the symmetrical piece of collateral reading, *On Adam's House in Paradise*. I thought it was fascinating in its rich and unembattled security. It is secure, of course, because no one that I know of is attacking it—in fact, it is so little advertised that I'm afraid no one will even read it. But it is secure as well in its scholarship, and gently devastating. It is not, let me hasten to say, easy reading; it is far too rich and beautiful. Like *Learning from Las Vegas* it exalts symbols. It takes off backward through history hunting for Adam's house, the original image. En route, with wit and charm, Rykwert sings every generation of architectural theoreticians back to Vitruvius, but he manages to illuminate their efforts at their immolations. Each irrelevant architectural theory shows up as a human enough reaction against the theories of the theoreticians' teachers. Somehow, in the general destruction, they all survive, included in the millennia-long parade. So the tolerance and inclusive catholicity hidden in *Learning from Las Vegas* by scar tissue is glowingly present in *Adam's House*. You should read them both.

—Charles Moore

Mr. Moore practices architecture in Essex, Connecticut, and is also a Professor of Architecture at Yale University.

Tape Recorder Chats

CONVERSATIONS WITH ARCHITECTS, edited by John H. Cook and Heinrich Klotz; Praeger, New York, 1973, 272 pages, illus., \$13.50.

Of its kind, *Conversations with Architects* is a superior book; the editors' wise decision not to try and be comprehensive but, instead, to single out a few architects with strong points of view, has resulted in a book that is focused, often incisive and remarkably free of boring passages. The choice of architects is distinguished by fine critical intelligence (though I would have included a few others, certainly Edward Barnes and Harry Cobb among them).

As an interlocutor, Heinrich Klotz talks too much, and tends to harangue rather than converse. He posits statements in the form of questions and seem to have an awful lot of preconceived notions. Klotz is at his worst in the interview with Philip Johnson during which his continuous innuendo-laden needling about that architect's use of certain materials and his concern for certain classicizing modes of expression really begins to annoy. John W. Cook, on the other hand, seems a rather more shadowy figure with many fewer questions to ask than his partner has, and with even fewer expressed opinions (perhaps he had the good sense to concentrate on running the tape recorder).

The other conversations are each memorable. Bertrand Goldberg offers some insights into the limitations of a technological approach to architecture with particular reference to housing. Also, in discussing his own researches into the technology of high-rise construction, Goldberg postulates what is, in effect, a stunning

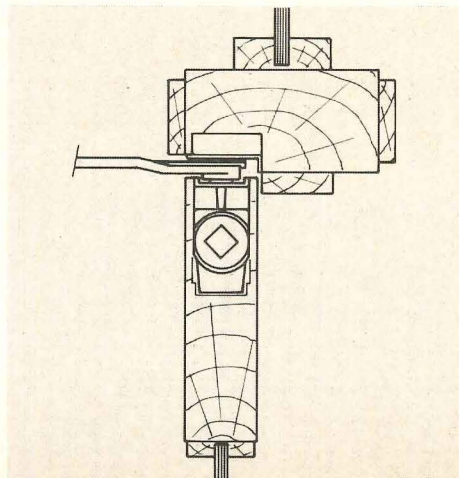


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indictment of the formalistic preferences of the Chicago School. Morris Lapidus reveals himself a modest practitioner whose skillful manipulation of shapes is based not on whim but on a recognition of the foibles of the human condition. I am sure that his role as a designer of shops for Ross-Frankel in the 1930's and his independent work as an architect of large resort hotels in the 1950's, when studied in detail, will present historians and architects alike with a much clearer insight into the limitations of canonical International Style form.

The conversations with Charles Moore, Denise Scott Brown and Robert Venturi are important, not because they cover new ground, but because they seem to sum up the ideas and attitudes of those architects clearly, and in so doing, offer all architects a vantage point from which to perceive the current situation, I find the projection of the Venturis' personalities warmer and more human in their interview than Scully finds them in his "Introduction," while Moore is more direct, and rather less cynical than in some of his writings. His interview packs considerable punch. In reflecting on his efforts to reconcile such diverse attitudes as those of architectural students, planning officials and community groups with his own personal commitment to excellence as an architect, and in his unwillingness to sacrifice individual moral and social commitment to the expediency of getting a commission, Moore delivers what is probably the most important message of the book. As a result, *Conversations with Architects* is not so much about the philosophical split between so-called "inclusive" and "exclusive" architects as it is about the need for architects to affirm their commitment not only to "order" (that is, form or shape) but to "order and reality." And it is this failure to recognize the need to be responsible to one's own talent as well as to the context in which that talent is exercised that has marred so much of our architecture in the last 25 years.

Thus, finally, and most reassuringly, it is clear from these conversations that the commitment to excellent work on the part of the emerging establishment is accompanied by a commitment to responsible decisions with regard to program, and to people, a movement not away from design but rather away from the smug self-satisfaction that is implicit in a willingness to build on a level that is only conceptual. And it is in this struggle that Rudolph and Kahn are critical figures. One senses more acutely in their words than in any of the others, a somewhat Romantic struggle to marry individual insight to contextual demands. Rudolph's continuing search for the judiciously balanced articulation of the determinants of architectural form and Kahn's efforts to sort "design" out from "form" mark the initial turning points in our architecture: they have given all of us the freedom not only to learn from Lapidus and Goldberg but to proceed under the leadership of the Venturis and Moore, among others, to a newer and more comprehensive appreciation of what our architecture might become.

—Robert Stern

Mr. Stern is a practicing architect in New York City and the author of New Directions in American Architecture.

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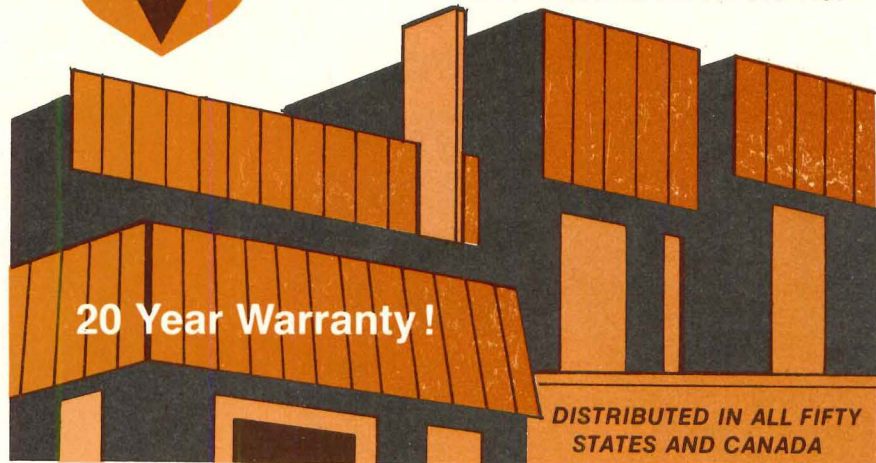
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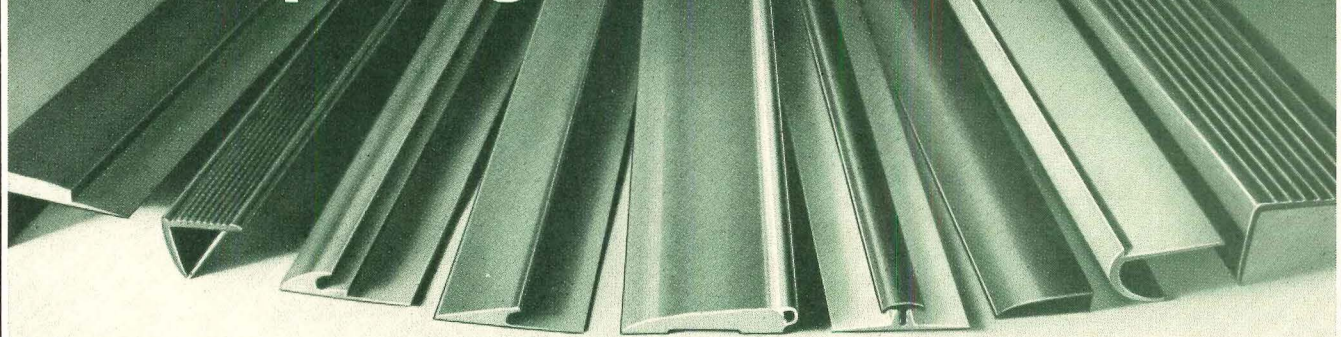
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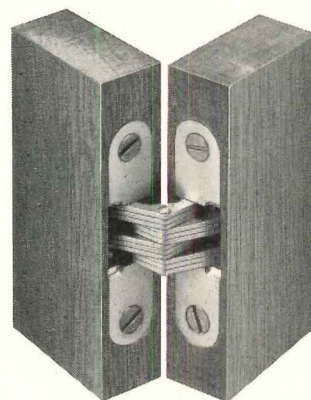
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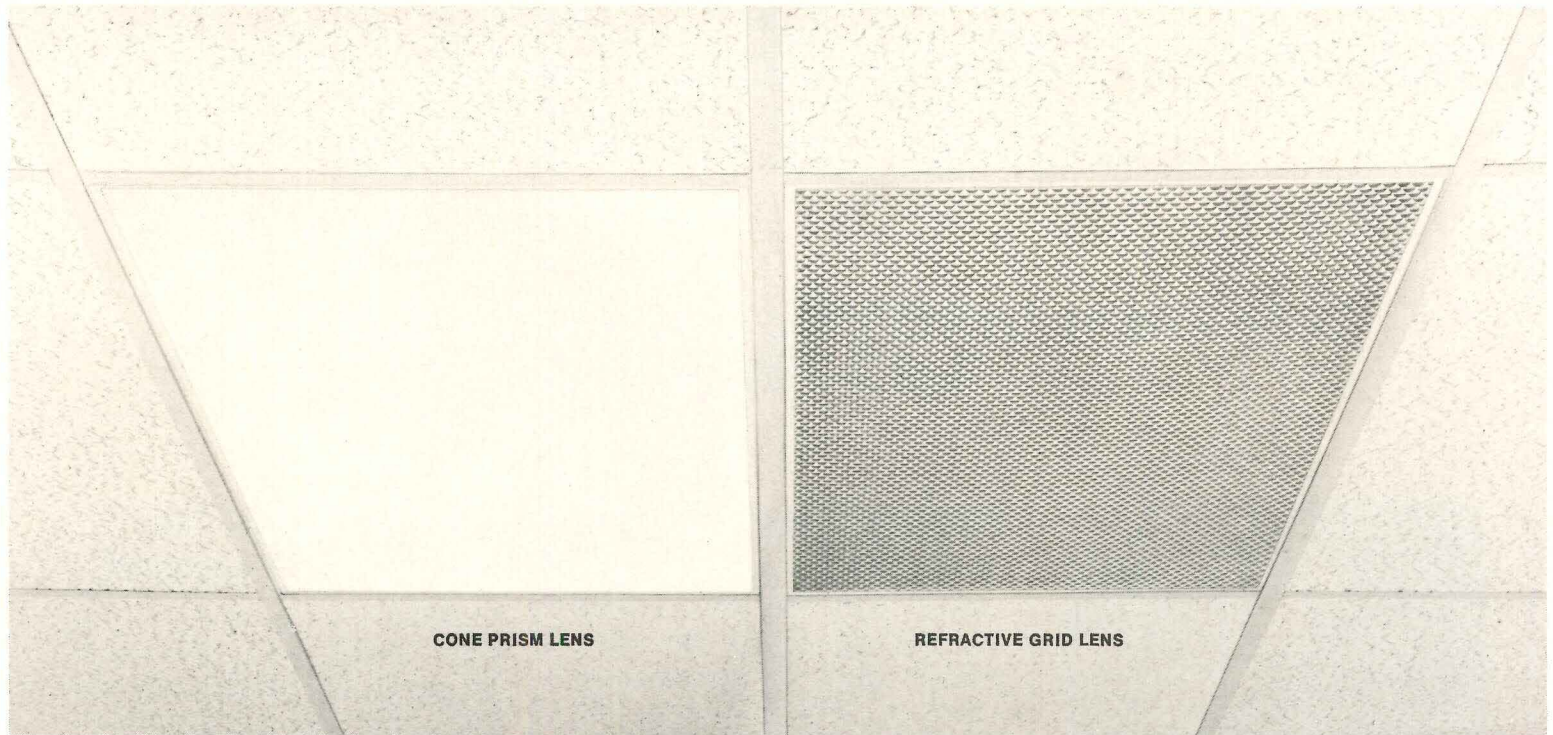
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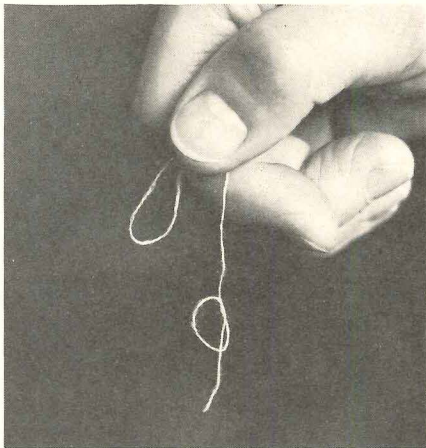
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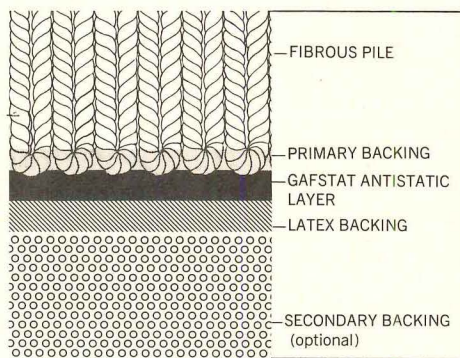
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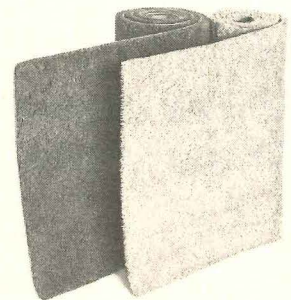
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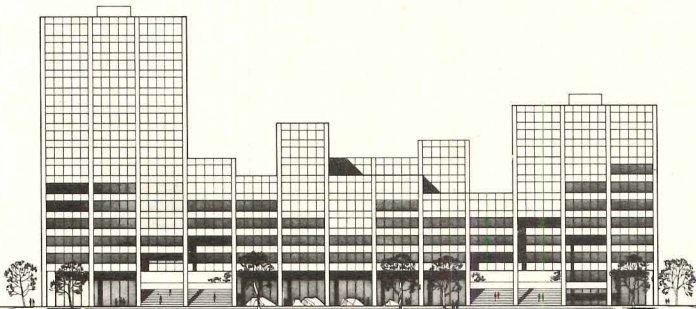
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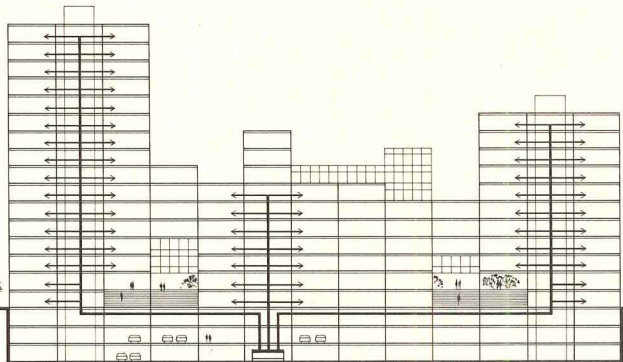
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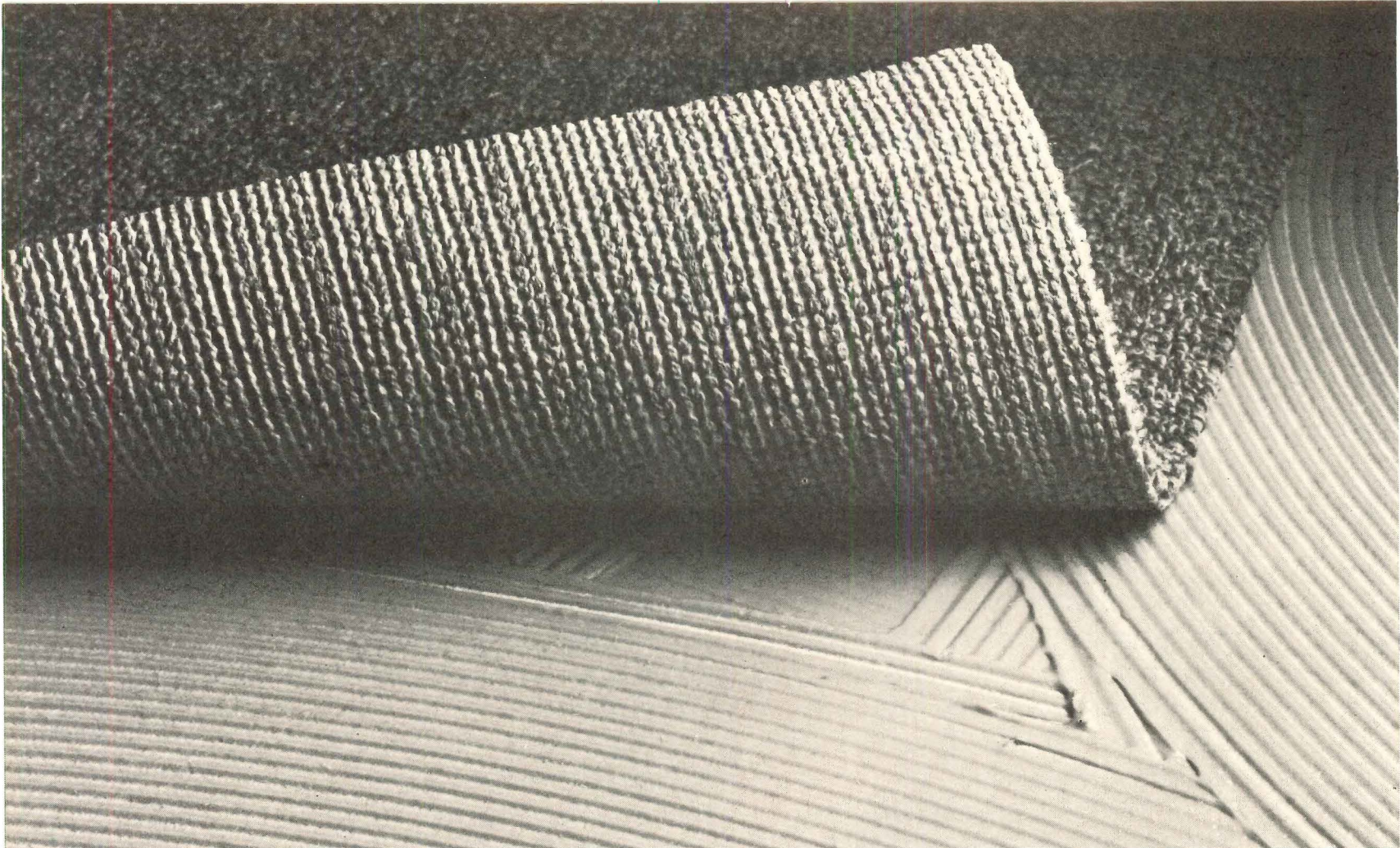
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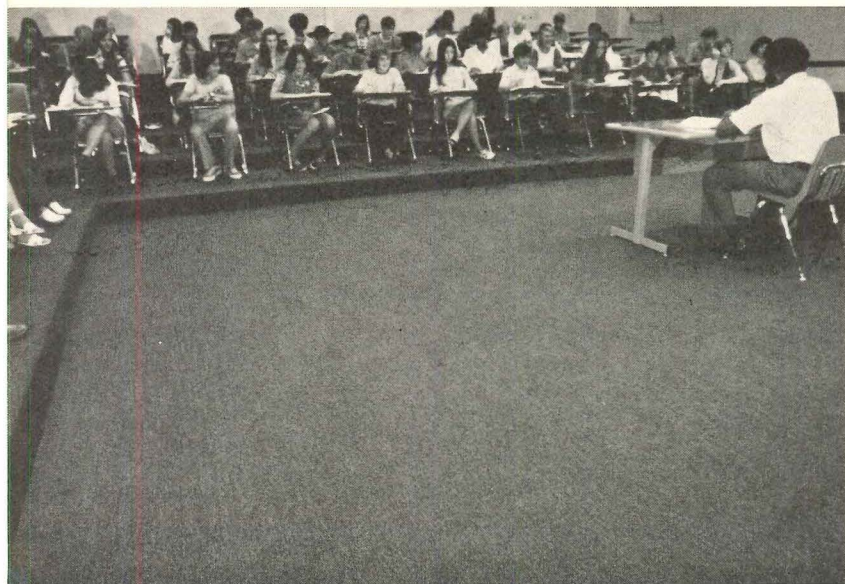
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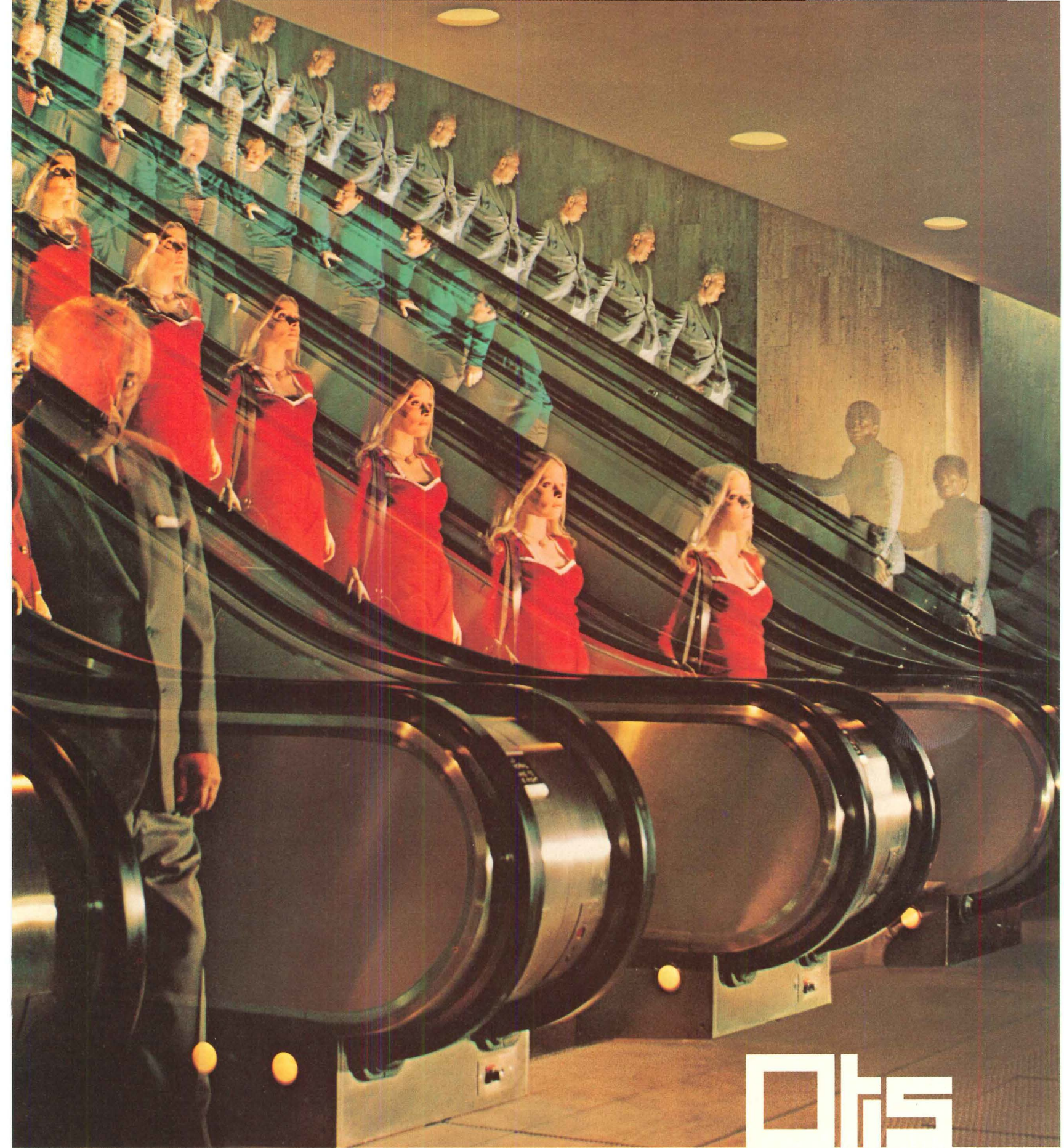


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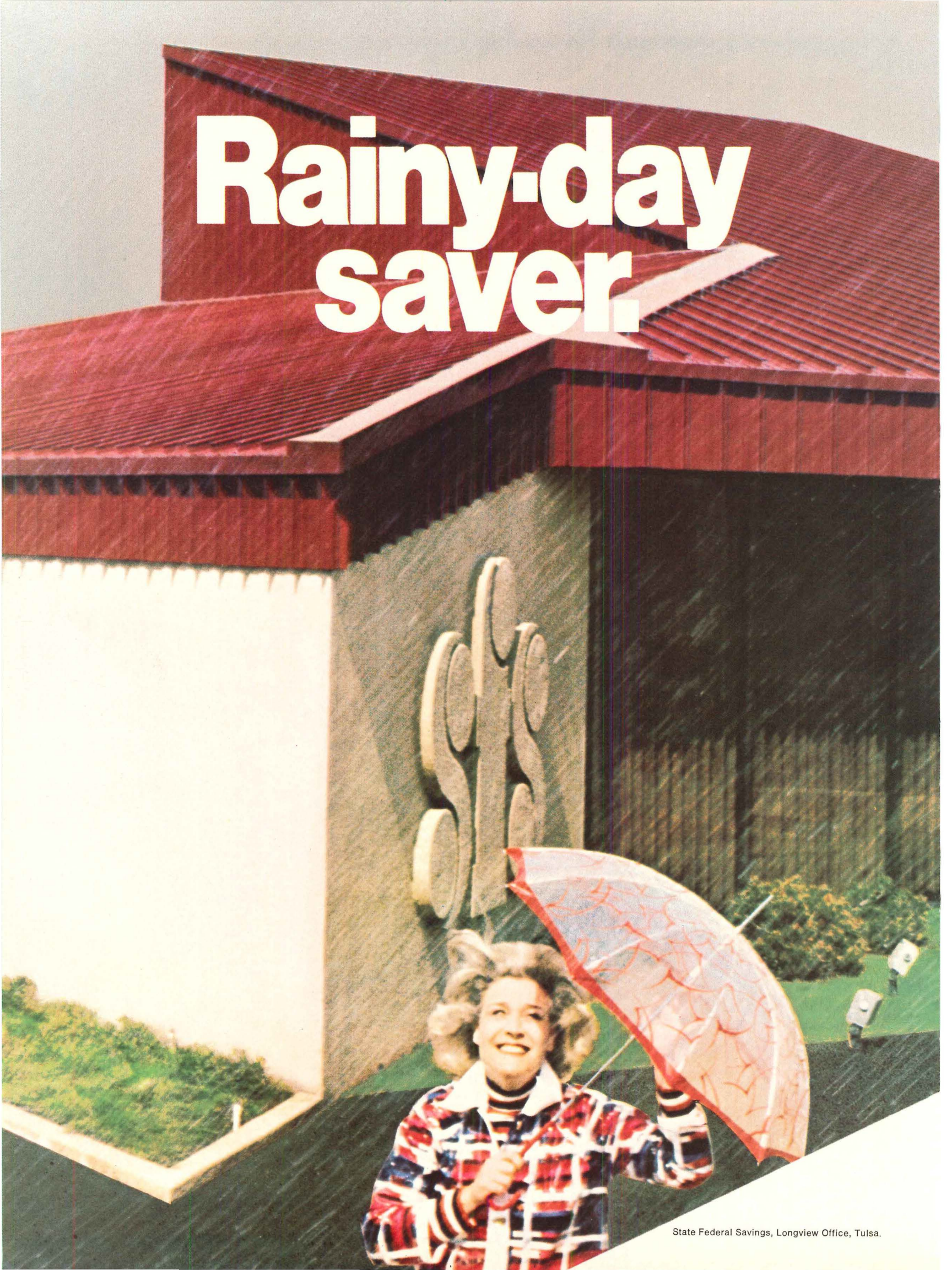


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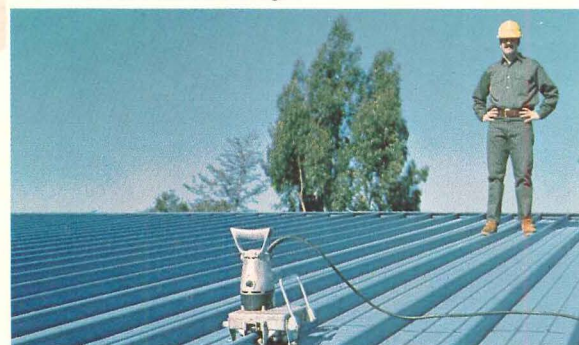


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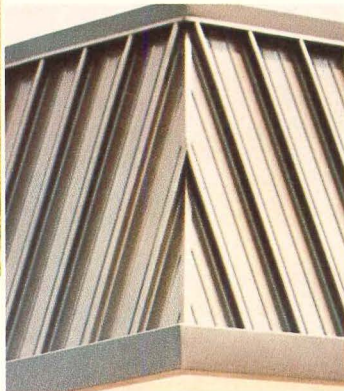
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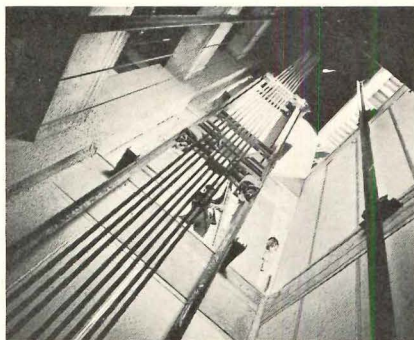


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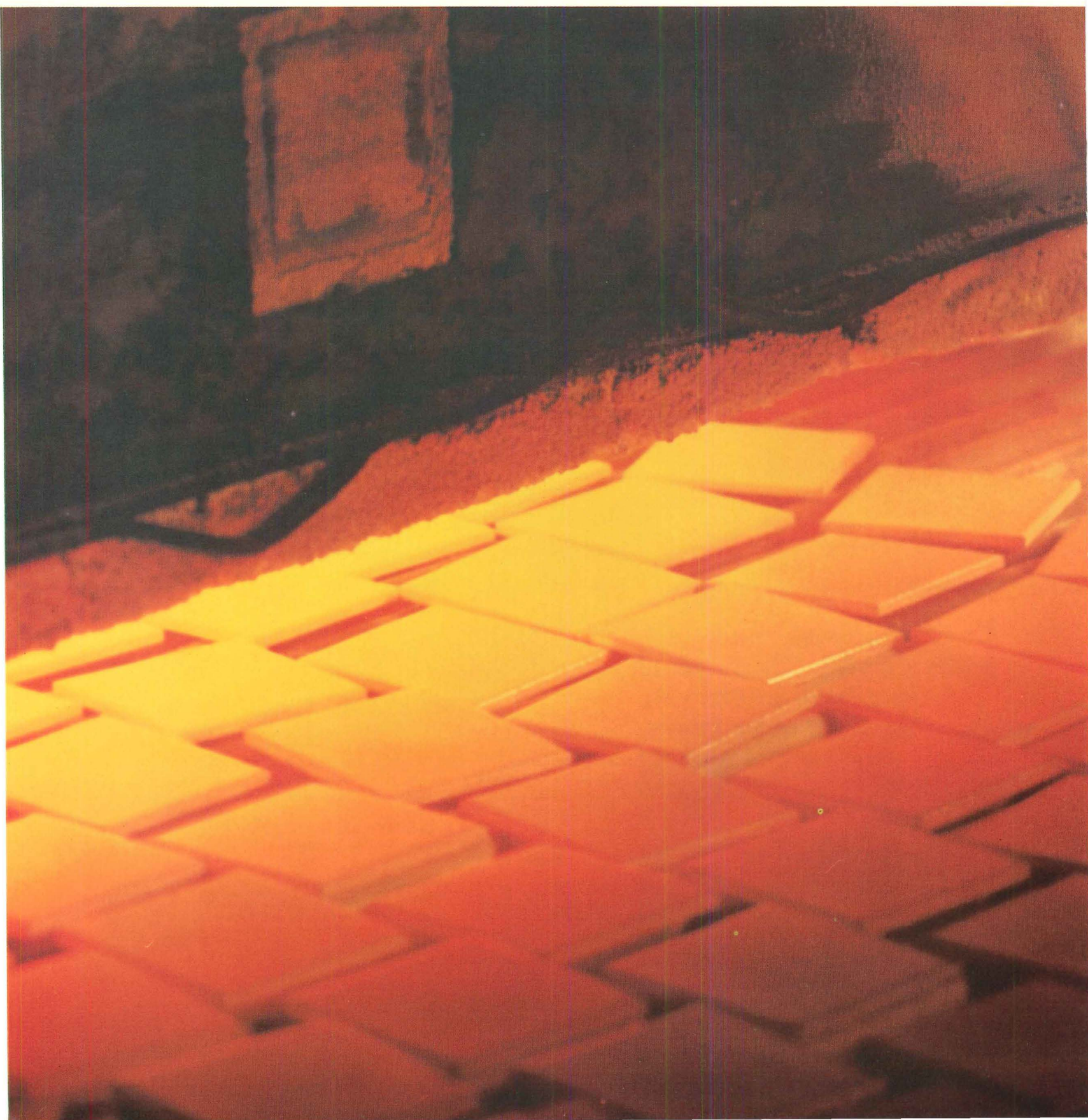
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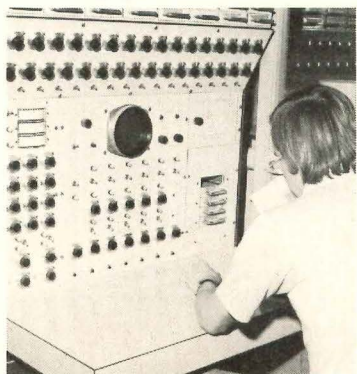


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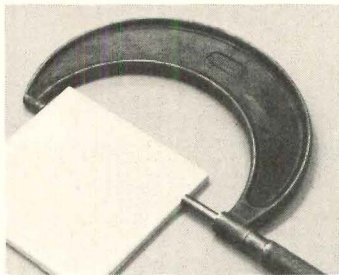
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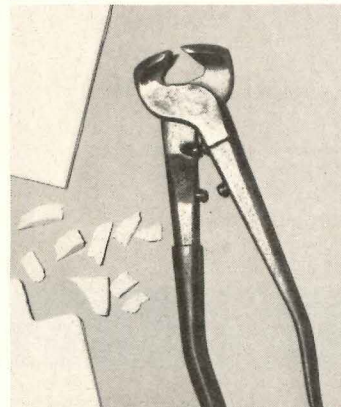
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In 1970, in response to the upsurge of activity and interest in design of interiors by architects around the country, ARCHITECTURAL RECORD established a new editorial awards program—RECORD INTERIORS.

Recently completed architect-designed interiors of all building types will be considered—remodelings and renovations as well as new structures—anywhere in the United States. Selections will be made by the editors on the basis of the excellence of the design solution for the particular client's individual program. Submissions from architects of new, unpublished work will be welcomed through October 15, 1973. No formal presentations are required, though materials submitted should include plan, photographs or snapshots, and brief description of program.

RECORD INTERIORS of 1974 will be published in the January 1974 issue of ARCHITECTURAL RECORD.

Write or telephone:
Barclay Gordon
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York, New York 10020
Telephone (212) 997-2334

RECORD INTERIORS

to be featured in the January 1974 issue



Corporate dining at Squibb & Sons, Inc. Headquarters, Lawrenceville, N.J. Architects: Hellmuth, Obata & Kassabaum, Inc. Alexandre Georges photo.

Every architect registered in the United States may submit material for consideration in RECORD HOUSES and Apartments of 1974 awards program. Single-family houses and multi-family buildings that represent today's wide variety of design approaches will be featured in the nineteenth issue of the magazine. Include the following: 6 to 10 clear informal photographs, black-and-white preferred, fully describing the architectural intent, both on the exterior and the interior (35 mm. slides must be in 8½ x 11 in. clear envelopes); relevant plans and sections and a descriptive sheet including the architect's name and location of building. Do not send originals or other material which must be returned before issue appears. Deadline is October 15, 1973.

Send material to:
Barclay Gordon
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York City 10020
Telephone: (212) 997-2334

RECORD HOUSES AND APARTMENTS

for the 1974 Mid-May issue



Schwaikert House, Salisbury, Connecticut. Architect Hugh Newell Jacobsen. Robert Lautman photo.

V.A. Hospital Training Center clad in porcelain-steel



This two-story, 16,000-square-foot educational and training center was recently erected by the Veterans Administration adjacent to the V.A.'s 489-bed hospital in Durham, North Carolina. Here, medical corpsmen are trained to serve as physicians' assistants.

A feature of the steel-framed structure is the use of porcelain-on-steel panels for exterior and interior walls. The terra-cotta-colored exterior walls blend with the brick in the main hospital building. Interior porcelainized walls provide real economy; are virtually maintenance-free, never require painting, are highly fire-resistant and smoke-proof.



All walls of the building are mounted in an extruded metal framing system, on four-foot centers. Bethlehem furnished the sheet steel to AllianceWall Corporation, of Wyncote, Pa., and Alliance, Ohio, who porcelainized and fabricated the panels. The structure was designed by Titan Environmental Construction Systems, Baltimore, closely following V.A. specifications.


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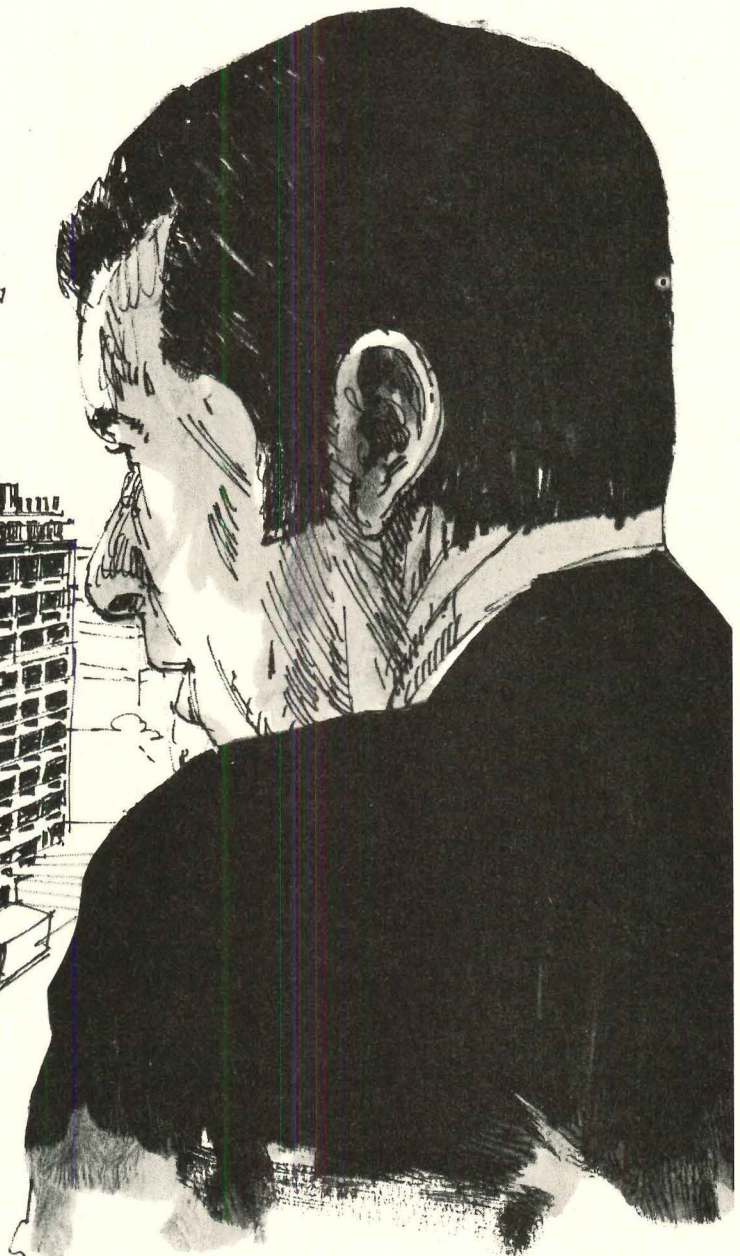
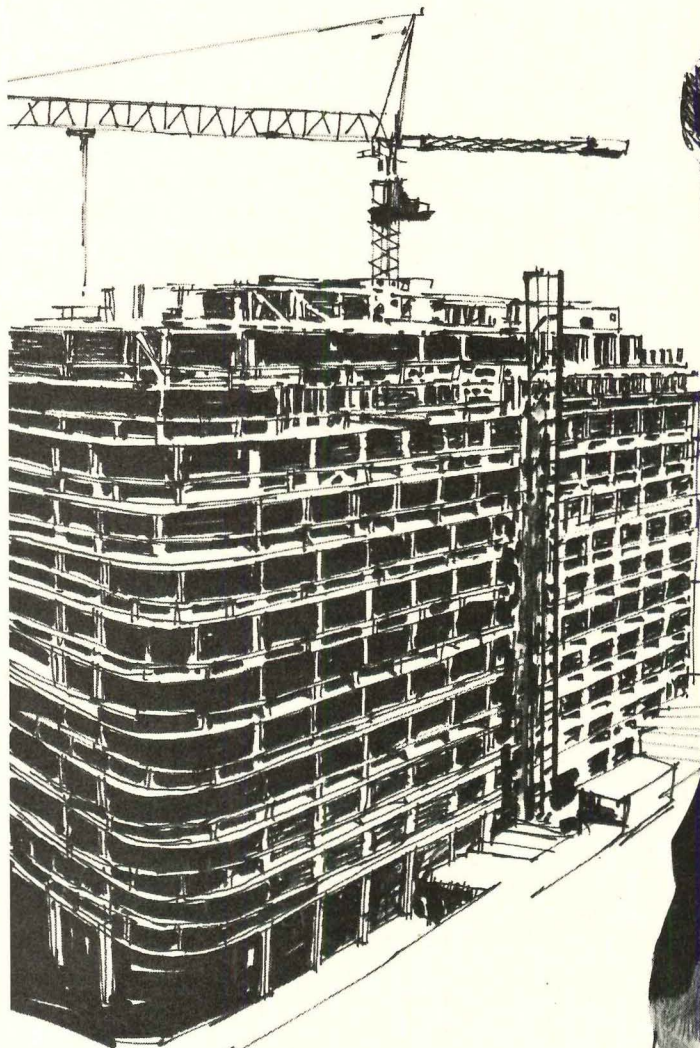
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How do you select an electrical contractor?

NECA study reveals opinions of design professionals.

NECA, the National Electrical Contractors Association, recently completed a study among key decision makers on the building team to determine what characteristics they look for in selecting or recommending electrical contractors for new construction and modernization projects.

Most participants agreed: Competence is the single most important characteristic looked for in professional electrical contractors. Closely related qualifications include integrity, reliability, efficiency, quality of work, financial

position, caliber of work force and equipment, and ability to coordinate with other construction craft groups. All these qualities are found in professional electrical contractors. Advantages?

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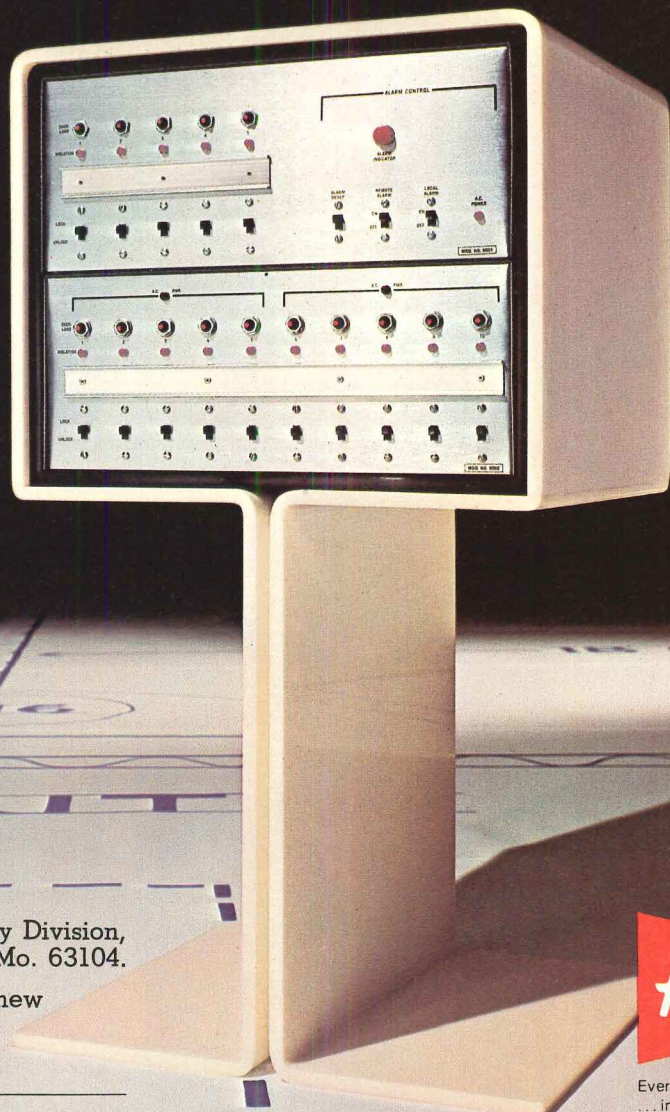
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Sweet's refines logic of the product search

The struggle for systematic retrieval and application of information about building products has gone through many phases of complexity and frustration since the good old days when architects could leaf through Sweet's Catalog and come up with a straightforward specification. Manifestations of the struggle have been various international efforts to devise uniform classification indexes and variously mechanized approaches to microfilm and computerized master specifications. These efforts have reflected a continuing search for unity and improved communication throughout the whole process of design and delivery of the built environment.

The name Sweet's has been an institution in the product-search and specification field since founding of the "Catalog" more than a generation ago. The Sweet's Division of McGraw-Hill Information Systems Company has responded to the shifts in process and the growth of complexity by participation at various levels in the classification and retrieval enterprise. A fresh look at the compounding complexity inherent in product categorization has resulted in a probe in depth into the logic of the construction process as it now operates.

The very term product itself now means any set of component parts that can be identified as an assembly, system or module put together in the design and manufacture of a whole facility, which in turn can be regarded as a product responding to human needs by performing in planned and specified ways.

The construction matrix approach to product identity in context

In simplest terms, the approach merely observes a hierarchy of complexity that proceeds from basic materials through their assembly in increasingly complex categories to the production of a whole facility. Since 1971 Sweet's has engaged in a program called *GuideLines*. This was part of an effort to help manufacturers describe their products in a manner responsive to the designers' and specifiers' needs for information. This program resulted in the production of more than 230 individual *GuideLine* documents for separate products. These documents encountered barriers to logical assembly similar to those that have inhibited the uniform classification program. It simply turns out that many products are either multiple in their usage and therefore difficult to categorize or they are increasingly attached in varieties of assemblies and systems that defy any simple listing device.

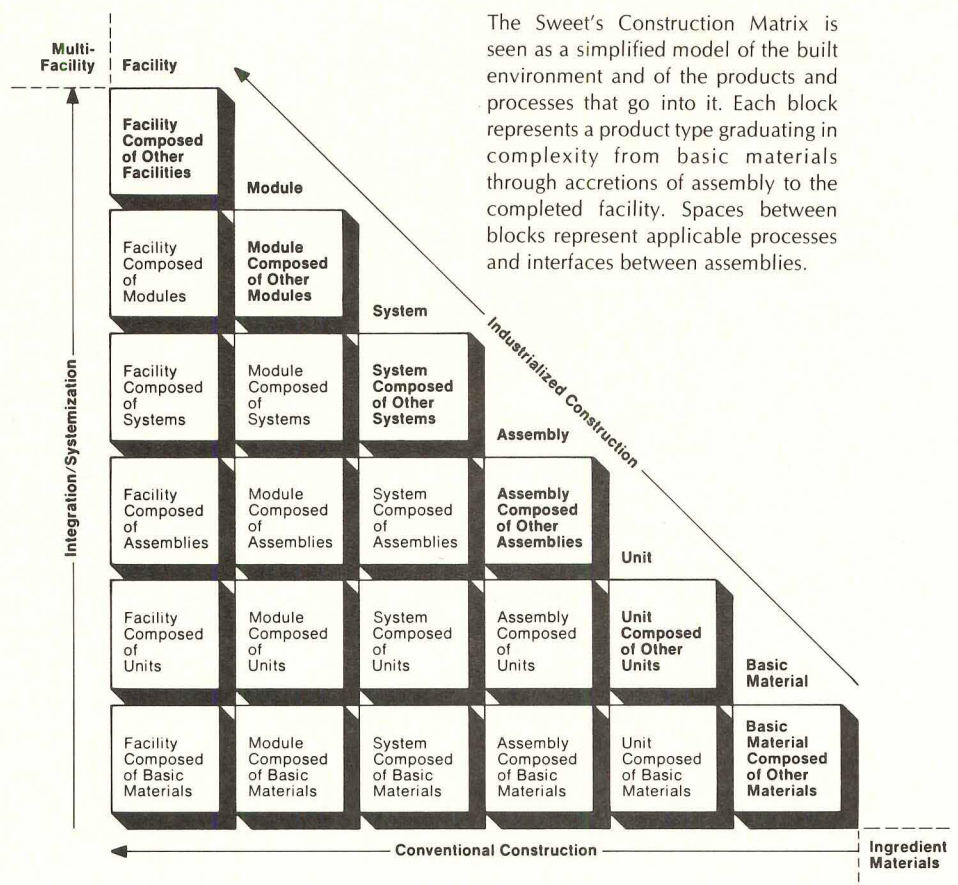
The chart shown on this page is a construction matrix representing the pyramid of complexity from basic materials to completed facility. It is admittedly a simplistic model of things and processes. The frame of six hierarchies in each direction is not a sacred or final statement of precisely all construction. It represents, nevertheless, a studied extract of the present state of the art and may be subject to change or modification by events or people who may find a greater (or lesser) number of blocks more useful.

Mrs. Miriam S. Eldar, Sweet's *GuideLines* Manager (and a registered architect in both New York and Israel) describes the construction matrix diagram as a representation of the built environment in which the blocks represent things, and the spaces between represent processes by which the things proceed through successions of operation to increasing orders of complexity. If you start from a simple basic material at the lower right hand block in the chart, say an acoustic material, and perform a

simple forming operation converting it into acoustic tile, then you are essentially moving one block to the left. The tile is a unit composed of basic materials. If you then combine the formed material with a framing assembly in which several units are combined you have a unit composed of other units. If you then add to these units by a suspension device and a lighting luminaire, you proceed into another hierarchy called an assembly. If you add to the ceiling assembly an integrated electrical and ventilating performance, you are creating a category called a system.

Proceeding through the processes normal to increasing complexity of the growing structure, systems may be combined to integrated modules which may in turn be combined in larger modules and again assembled into what must eventually be a completed facility. The construction matrix provides for carrying the concept one step further into a megastructure composed of other facilities.

Central to the concept is a pervasive idea



The Sweet's Construction Matrix is seen as a simplified model of the built environment and of the products and processes that go into it. Each block represents a product type graduating in complexity from basic materials through accretions of assembly to the completed facility. Spaces between blocks represent applicable processes and interfaces between assemblies.

of performance at each station in the matrix. This is of increasing importance as off-site industrialized construction of very high orders of system complexity spreads through the conventional construction process.

For example, if you buy a pre-assembled greenhouse, you are purchasing a facility. If, on the other hand, your greenhouse is to be delivered in sub-assemblies to be put together on the site, you may be buying packages of systems or modules or units. The relevance of what seems an academic difference is the fact that the purchaser, that is the specifier of the items to be delivered, is in the role of a designer in search of performance characteristics at each level of the hierarchy of complexity. The position on the chart tells you what the interface problems may be and what work will be necessary to proceed through hierarchies to the completed facility.

All of these hierarchies are essentially products. That is, not only basic materials but also units, assemblies, systems, modules, and indeed the facility itself in its final state are products to be purchased on the basis of their performance. Performance of the whole facility, of course, is its capability to fulfill program and respond to human needs in a broad sense. That is the objective thrust beginning at the very lowest order of basic materials, where performance is more particularly defined as to physical and functional characteristics (finish, strength, color, capacity or whatever).

The performance concept in support of design goals

The contemplation of the built facility as a product that performs in specified ways, while not at all a new idea, is increasingly useful in sorting out the complexities that are characteristic of today's construction process. These complexities are not only technical matters of, say, mechanical or framing systems, but they are also aggravated by complexities in the economic and sociological milieu in which the process takes place. Therefore, as one contemplates the construction matrix one sees that the performance of the facility is composed of the performance of every hierarchy of assembly. The performance of an assembly or a system, however, is not a simple addition of the performance characteristics of the units of which it is composed. In other words, each assembly, system or module must respond to a performance demand as a whole and in anticipation of its interface with other components of the facility as a whole.

All of this relates to the process by which products (in every category) are specified and manufactured in today's construction universe. For example, the designer who wishes to create a partition system can conventionally study the performance characteristics of each layer and stud and surface and arrive at an over-all performance statement. If, on the other hand, he is able simply to stipulate the performance goals of an entire partition system, the designer may be able to select a partition system that has already the performance ratings he is seeking. Then he does not have to study and integrate the performance characteristics of each component. He simply submits the performance

objective to the market place and opens up the capability of any supplier to offer a performance response by whatever means the supplier finds compatible with both his competitive position and his assumption of warranty of the end product.

No individual designer is so vastly informed on the performance of the multitude of materials and assemblies now available that he can start in every case at the basic materials level of component performance. If there is no partition available with precisely the performance characteristic he wishes to specify, he has the option of either inviting suppliers to respond to his unique requirements or he can modify his requirements to bring them within resources of the market place. The motivation for out-of-market exception, that is the urgency for study of the resultant performance of endless combinations of components, must be an extremely strong one; because the consequences in cost and time are disproportionate to most of the values achieved by such probing in depth.

Objective of the Sweet's GuideLine program is the clarification of product selection and assembly processes in terms of performance at every level of hierarchy in the matrix.

Finding your place in the construction matrix

Usefulness of the matrix diagram is in part related to the capability of the designer to find the category or block in which the product he is considering belongs. The block then illustrates where this product fits, among its surrounding blocks, for integration into the facility. This in turn conveys the implications of work and interface that must be considered in uses of the product.

Products (that is everything from basic material to completed facility) are complex in two ways. First is in the number of parts. Second is in the number of functions. It is the functional complexity that besets attempts to unify classification methods. A ceiling, for example, not only defines the upper limits of the space, but it performs acoustical, lighting, heating, cooling, and esthetic functions. These degrees of complexity and their position in the hierarchies of matrix provide a logical base for viewing the search for products in an orderly way and arriving at a facility performance with fuller confidence than has been conventionally available. Mrs. Eldar points out that, just as the number of six blocks per side of the matrix is neither magic nor sacred, the performance of the matrix itself will be subject to change with any shift in the design and construction process itself. It is not offered as an endpoint in the search for method but only as a starting point capable of response to evolution of the construction process as an increasingly unified one.

For example, the matrix can have a third dimension in which each of the blocks now shown becomes an end-panel of a square cylinder composed of segments in varying depths at prescribed intervals. Assemblies and systems then fit not only in a two-dimensional hierarchy but also in a horizontal position within their own hierarchy. These then could be viewed as positions on a broad, pyramidal stair proceed-

ing upward to the apex of facility performance. This has not been done yet. But, Mrs. Eldar points out, a substantial start has been made in development of the idea.

Application of the matrix to the market place

Once the logic of the construction process as it relates to products is perceived and given a vehicle for statement, the problem remains to devise effective ways of putting it to work. The channels of trade in the construction industry are not only historically fragmented and entrenched, but the fashions in communication between designers and suppliers have not been well disciplined toward consistency or completeness.

The GuideLines program began on the premise that information about a product must start with the content and context of its application rather than description based simply on hardware. The information required by designers differs on a sliding scale of depth with the degree of complexity of the product offered.

The drive toward consistency and adequacy of manufacturers' literature must really spring from insistence on the part of designers; and the recent history of efforts on the part of the design professions indicates that the back pressure of such insistence may indeed have long range results.

Conferences on construction literature have taken place among various groups including CSI, AIA, CEC and others. The specification data program of CSI is one example of the kind of back pressure that can exist. AIA document E101 "Technical Literature for the Construction Industry" dated July 1972 is another example of professional concern. It deals with information organization and content, and Sweet's GuideLines agrees in basic format with presentation of the several hundred products so far defined in Sweet's program. In fact, Sweet's helped develop the AIA document.

While the GuideLines program is essentially directed toward manufacturers, it is obviously derived from the requirements of those in search of products responding to a design need.

Therefore, the basis of communication is essentially common to both the manufacturing and specifying universe.

So, the Sweet's approach was to view the categorization of information as an umbrella under which designers and suppliers could arrange both their questions and their answers in a mode that would provide a sound basis for comparative evaluation of products at every level of complexity.

Computerization of such a body of knowledge is, of course, feasible but confronts the limits of the computer as an easily updated repository and as a means of responding to searches which are in many cases intuitive. The premise, then, is that the logic of the designer is predominant in the process and establishes a need for a system by which a designer's mind can enter the construction matrix before the computer can do useful work.

One aspect of the implementation of this search and response is offered on page 69.

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Product communication as a management tool

As the role of the construction manager gains definition and acceptance in the process of design and delivery of buildings, the communication between the manager and the market place becomes more direct and more immediate. Prepurchase of long-lead systems, for example, can involve the construction manager in negotiations. While the actual specification of the systems (performance or otherwise) remains the responsibility of the design professional, the construction manager may be concerned with purchasing procedures. It is important, therefore, that his familiarity with the language and structure of the market place be consistent with that prevailing among both designers and manufacturers.

Application of the logic described on pages 65 and 66 in reference to the Sweet's GuideLines construction matrix is implemented by the master grid shown on this page. The master grid locates the products at any degree of complexity. It facilitates the search and comparison process. In this case, the hierarchies of attention are at four graduating levels, as shown in the following outline condensed from Sweet's literature.

Section I—information on information

DT—document: the document in hand, other documents available and their correlation.

MR—manufacturer: source of document, its credibility, authority, resources.

Section II—Comparative evaluation and preliminary selection information

PP—product presentation: basic data on range of products, and product variations available, extracted from subsequent sections of document and arranged for quick, easy comparison.

UA—uses, applications: range of uses for which products are recommended as a result of their characteristics. (This heading is a part of comparative evaluation only and may be also a part of Section III, as follows.)

Section III—comprehensive information

UA—uses, applications: in documents presenting products for specific end-use, these data describe variations in the basic use of the product caused by differences in product characteristics as they apply to a range of typical project conditions. (Since these data include possible product surround, overlap with data presented under the next two headings increases as end-use becomes better defined and more specialized.)

OP—over-all product in place: compre-

hensive visual and verbal data on the end-result, on the product as used in its surround, presented as a whole, in itself and in its relationship to the over-all project and its parts. The product's appearance, performance, cost-in-place, and the associated and accessory products used with it, should be given here.

AI—construction, assembly, installation: describes the ways and means by which the end-result (OP) was achieved—steps, methods, and procedures; conditions required; skills, manpower, and tools needed, etc.

CP—components, parts: describes each part to the extent that its appearance, performance, cost, etc. differs from and affects the characteristics of the total product.

MF—materials, finishes: full information on the materials of which the product and its

components and parts are made, and of the integral finishes suitable for and available with those materials.

CS—coatings, surfacings: full information on the basic types, composition, application methods, appearance, performance, etc. of the coatings and surfacings suitable for and available with the product, its components, and materials.

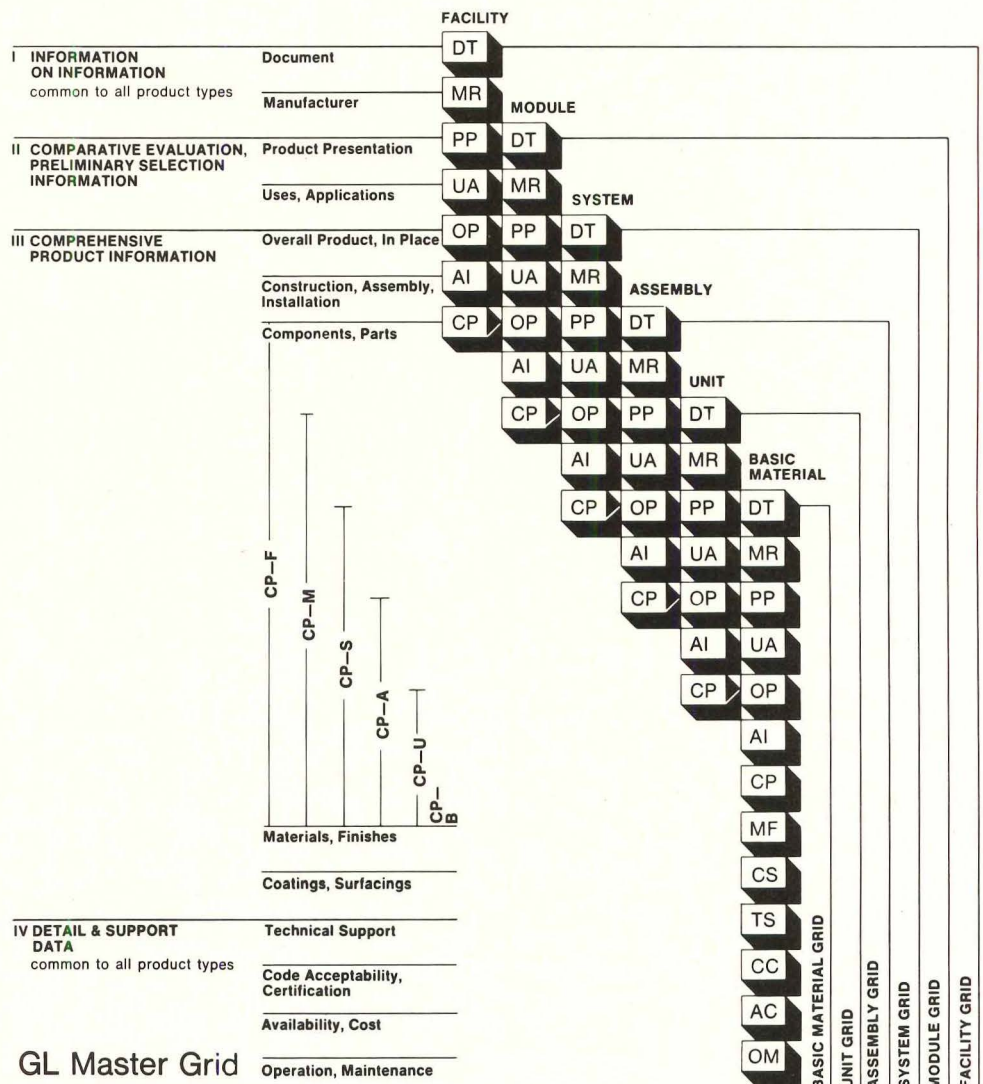
Section IV—Detail and support data

TS—technical support: including detail tables, graphs, design criteria, supporting handbook data, related literature.

CC—code acceptability, certification: includes compliance with major building codes, guaranty, warranty, and certification.

AC—availability, cost.

OM—operation, maintenance.



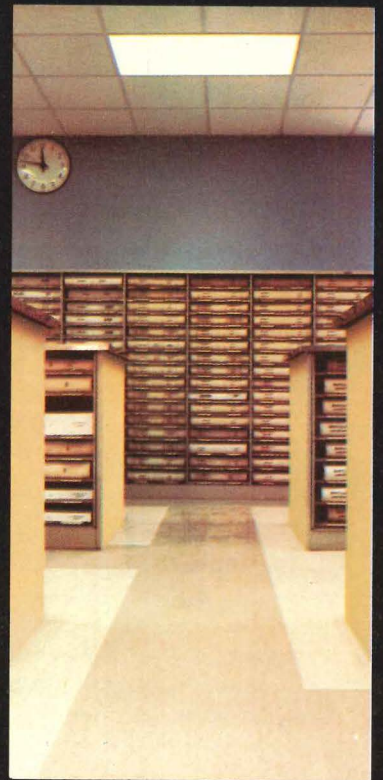
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A New Construction Information Service: Dodge Product Potentials

To meet the need for building product marketing forecasts, the F.W. Dodge Division of McGraw-Hill Information Systems Company has combined construction data and recent advances in economic theory into a business information service that provides forecasts up to a year on the quarterly demand for building products created by new construction.

Called "Dodge Product Potentials" the new service is based on current uses of the input-output theory of economic analysis. By providing forecast information, the new service enables manufacturers, distributors and specifiers of building materials and equipment to evaluate the market place and the price implications of demand on a local, regional and national basis.

"The construction industry has never previously taken advantage of what it already knows in the form of construction statistics to measure the future market available to a building product manufacturer," said John H. Morawetz, product planning manager for statistical services in the F.W. Dodge Division, who led development of the new service.

"The staged steps that take place in every construction project make forecasts possible," he said. "By breaking down each new project into its parts, we can determine the size of the parts and at what stage of construction they are needed. The result is a capability of providing forecasts of product requirements up to a year."

INDEXES: August 1973 1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes				% change last 12 months
		non-res.	residential	masonry	steel	
U.S. Average	8.2	413.2	388.0	404.3	394.3	+ 9.27
Atlanta	7.6	525.2	495.3	510.6	499.0	+ 9.34
Baltimore	8.0	451.9	424.9	441.0	427.5	+13.93
Birmingham	7.2	379.0	352.6	366.4	362.0	+ 9.24
Boston	8.9	421.9	398.7	417.2	405.4	+ 9.79
Buffalo	9.0	461.6	433.5	454.4	440.5	+ 9.62
Chicago	8.2	474.4	451.1	458.4	451.3	+10.11
Cincinnati	8.4	438.5	412.7	427.9	416.9	+ 7.69
Cleveland	8.8	445.4	419.1	435.5	424.8	+ 5.25
Columbus, Ohio	8.0	432.6	406.3	419.7	411.9	+ 7.46
Dallas	7.5	413.5	400.4	412.0	396.2	+11.67
Denver	7.8	436.8	411.0	430.5	416.5	+ 7.90
Detroit	9.4	471.1	448.8	473.3	454.7	+11.20
Houston	7.2	382.4	360.1	373.5	365.9	+ 6.36
Indianapolis	7.6	376.6	353.8	367.6	359.5	+ 5.73
Kansas City	8.1	395.2	373.5	385.9	376.1	+11.24
Los Angeles	8.1	465.8	425.9	450.3	442.1	+11.21
Louisville	7.4	408.8	384.0	398.2	389.0	+ 8.75
Memphis	7.3	384.5	361.1	371.2	365.5	+ 6.76
Miami	7.7	426.5	406.4	413.9	405.6	+ 7.10
Milwaukee	8.1	457.6	429.8	449.4	435.4	+ 6.24
Minneapolis	8.6	437.9	412.0	430.9	420.1	+ 7.26
Newark	8.6	405.9	381.2	399.3	390.9	+ 7.88
New Orleans	7.1	389.5	367.8	382.4	373.9	+ 8.96
New York	10.0	466.5	433.7	454.7	443.0	+11.61
Philadelphia	9.1	466.9	444.9	462.5	449.6	+16.54
Phoenix (1947 = 100)	7.8	238.8	224.3	230.5	226.8	+10.57
Pittsburgh	8.8	413.3	388.9	407.7	395.6	+11.52
St. Louis	8.6	434.9	411.5	428.3	418.2	+11.03
San Antonio (1960 = 100)	7.0	152.0	142.9	146.5	144.2	+ 3.88
San Diego (1960 = 100)	8.0	166.7	156.7	163.0	159.4	+10.27
San Francisco	9.4	622.4	569.1	615.7	598.2	+13.31
Seattle	8.2	401.0	359.0	396.5	381.1	+ 6.99
Washington, D.C.	7.7	390.4	366.7	378.8	369.9	+ 9.48

Cost differentials compare current local costs, not indexes.

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

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

Metropolitan area	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Quarterly)				1973 (Quarterly)			
										1st	2nd	3rd	4th	1st	2nd	3rd	4th
Atlanta	306.7	313.7	321.5	329.8	335.7	353.1	384.0	422.4	459.2	472.5	473.7	496.1	497.7	516.4	518.0		
Baltimore	275.5	280.6	285.7	280.9	295.8	308.7	322.8	348.8	381.7	388.1	389.3	418.8	420.4	441.8	443.6		
Birmingham	256.3	260.9	265.9	270.7	274.7	284.3	303.4	309.3	331.6	340.4	341.6	356.7	358.3	371.7	373.2		
Boston	244.1	252.1	257.8	262.0	265.7	277.1	295.0	328.6	362.0	377.3	378.5	392.8	394.4	414.0	415.6		
Chicago	301.0	306.6	311.7	320.4	328.4	339.5	356.1	386.1	418.8	422.8	424.0	442.7	444.3	465.3	466.9		
Cincinnati	263.9	269.5	274.0	278.3	288.2	302.6	325.8	348.5	386.1	399.9	401.1	400.1	410.7	430.4	432.0		
Cleveland	275.8	283.0	292.3	300.7	303.7	331.5	358.3	380.1	415.6	415.2	416.4	427.7	429.3	436.7	438.3		
Dallas	253.0	256.4	260.8	266.9	270.4	281.7	308.6	327.1	357.9	364.9	366.1	385.0	386.6	407.3	408.9		
Denver	282.5	287.3	294.0	297.5	305.1	312.5	339.0	368.1	392.9	398.3	399.5	413.8	415.4	429.5	431.1		
Detroit	272.2	277.7	284.7	296.9	301.2	316.4	352.9	377.4	409.7	416.9	418.1	431.5	433.1	463.4	465.0		
Kansas City	247.8	250.5	256.4	261.0	264.3	278.0	295.5	315.3	344.7	348.7	349.9	365.4	367.0	387.7	389.3		
Los Angeles	282.5	288.2	297.1	302.7	310.1	320.1	344.1	361.9	400.9	407.8	409.0	422.9	424.5	453.3	454.9		
Miami	269.3	274.4	277.5	284.0	286.1	305.3	329.3	353.2	384.7	391.5	392.7	404.8	406.4	419.0	420.6		
Minneapolis	275.3	282.4	285.0	289.4	300.2	309.4	331.2	361.1	417.1	401.7	402.9	411.3	412.9	430.6	432.2		
New Orleans	284.3	240.9	256.3	259.8	267.6	274.2	297.5	318.9	341.8	350.9	352.1	368.1	369.7	382.1	383.7		
New York	282.3	289.4	297.1	304.0	313.6	321.4	344.5	366.0	395.6	406.5	407.7	421.5	423.1	453.5	455.1		
Philadelphia	271.2	275.2	280.8	286.6	293.7	301.7	321.0	346.5	374.9	394.2	395.4	417.9	419.5	459.3	460.9		
Pittsburgh	258.2	263.8	267.0	271.1	275.0	293.8	311.0	327.2	362.1	364.5	365.7	378.7	380.3	406.3	407.9		
St. Louis	263.4	272.1	280.9	288.3	293.2	304.4	324.7	344.4	375.5	385.5	386.7	400.9	402.5	427.8	429.4		
San Francisco	352.4	365.4	368.6	386.0	390.8	402.9	441.1	465.1	512.3	535.3	536.5	559.4	561.0	606.4	608.0		
Seattle	260.6	266.6	268.9	275.0	283.5	292.2	317.8	341.8	358.4	363.0	364.5	369.9	371.5	388.4	390.0		

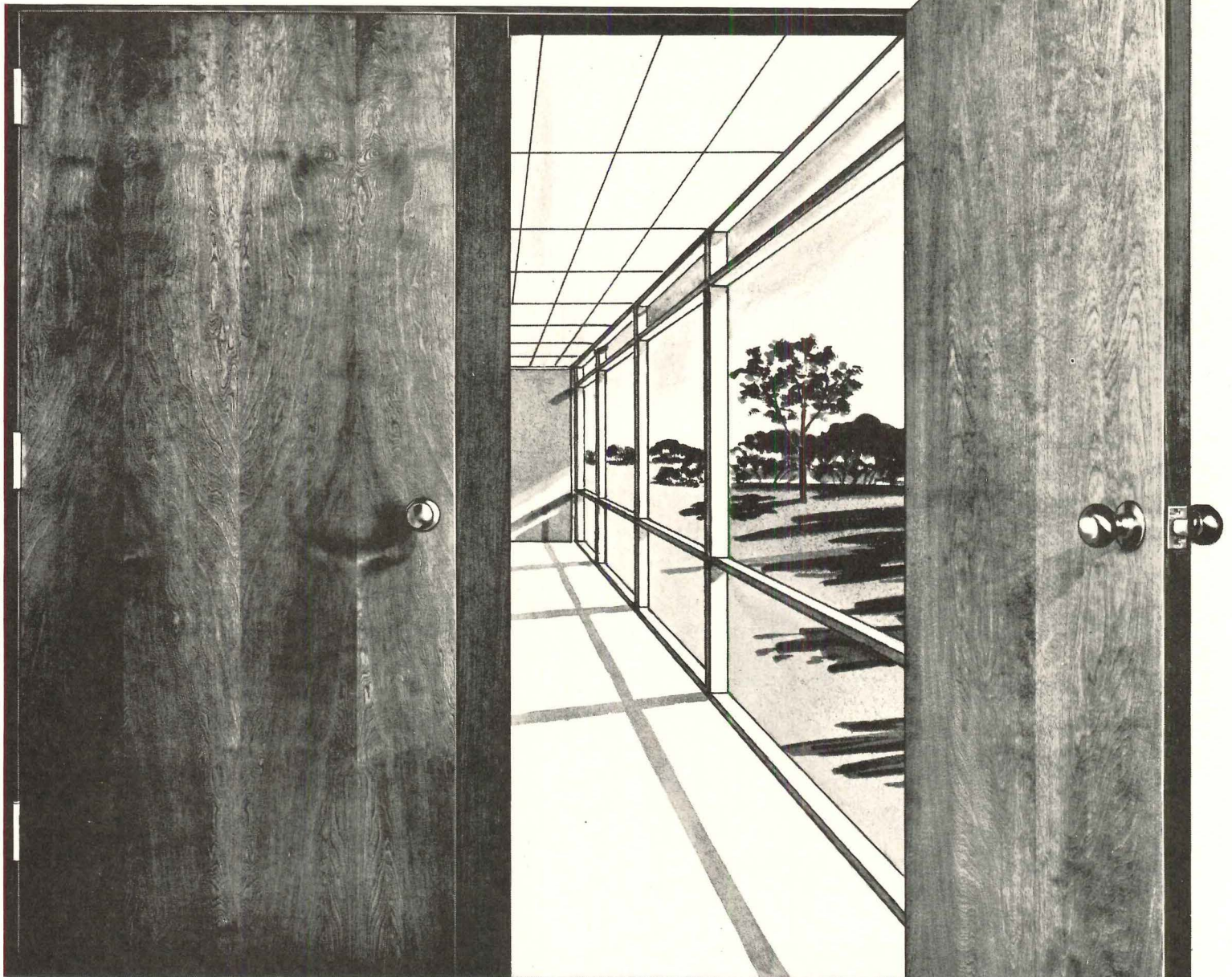
Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other.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

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thanks to substantial material inventories. And count on every one of our fine furniture finished doors to be individually wrapped for maximum delivery protection. Plus, being from Curtis, they're all backed by outstanding guarantees. Find out all the good reasons for using Curtis. Call or write.



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Construction outlook 1973: second update

The case for a break in the two-and-a-half-year construction boom is still every bit as strong as ever—perhaps even stronger in the light of this year's early surge. More than anything else, it was recession economics (easy money and big deficits) that put the construction industry where it is today—which is at the crest of a boom, but vulnerable, because the expansionary economics of 1971 and 1972 have given way to the austerity of 1973.

The reason for wanting to slow the recovery is simple enough. If expansion kept going at the pace set during the first half of 1973, it would almost inevitably burn out before mid-1974. "Too much too soon" would lead directly to an inflation-recession sequence. The inflation is already with us; hence the need for "Phase 3½"—June freeze on prices. And even before that, the monetary and fiscal brakes were being applied in the hope of stretching out the boom in a way that would push part of this year's explosive demand into 1974 when it will be needed to plug some gaps that are bound to develop in next year's spending.

If you're happy now, watch out, you may be in trouble later

The potential danger spots are the ones that are doing best right now: housing, autos, and business investment—both for plant and equipment and for inventories. All are approaching or have reached a level that can hardly be sustained for very long, and if declines in these volatile areas should all develop at about the same time: trouble. They'd leave a gap too big to be filled by expected gains in other parts of the economy next year, and that's just another way of describing a recession.

But it doesn't have to happen that way, and some of the indicators around mid-1973 seem to be saying that the stretchout may be succeeding. Despite the May spurt of housing starts, the residential building market is on the decline and may even accomplish most of its overdue contraction by the opening quarter of next year. Autos, after three blistering sales months, began to sag in June and now face the handicap of a gasoline shortage. And the industry is generally showing signs that it may want to proceed a bit slower on the very ambitious capital spending plans revealed in McGraw-Hill's investment intentions survey early this year.

This leaves one important area of doubt: the way businessmen manage their inventories during the next few quarters. And here a lot will depend on how Phase 4 controls will cope with

inflation once the price freeze is lifted. If businessmen could look ahead to a period of reasonable price stability, they'd have less incentive to stock up now and sell off later.

Credit will tighten and rates go up

For the balance of 1973 (or until such time as recession threatens) we must expect credit conditions to become moderately tighter. Short-term interest rates are already up sharply, and long-term rates—now just beginning to edge upward—will advance in the second half, possibly causing some marginal institutional building to be deferred. And while housing will be declining for reasons other than financing (overbuilding in some areas, the freeze on subsidy program, badly inflated costs), a tightening mortgage market during the second half of this year will hasten the downward drift of residential building to its expected level of around 1.8 million units by early next year. Recovery from that rate will depend largely on decisions soon to be made at HUD about the fate of suspended low income housing subsidies.

A lot of the uncertainty about the short-

term economic outlook that we've been considering will have a greater impact on construction in 1974 than in the second half of the current year. So with that preview of the issues we'll have to deal with in our fall Outlook, we can turn to our final look at 1973—where things are a good deal more predictable.

In the second Update we're raising our 1973 Construction Outlook by more than three billion dollars, bringing the full year's estimate of construction contract value to \$95.5 billion and the Dodge Index to 173.

Two circumstances account for most of the upward adjustment needed at this time. One is the amazing strength of the business recovery during the first half of 1973. Even though we had originally forecast a large gain in business-related construction this year, experience to date shows that contracting for stores, warehouses, offices and factories is outpacing our most optimistic expectation. In making this midyear adjustment, which adds nearly a billion dollars to the combined total of business construction, we are nevertheless anticipating a somewhat slower pace of industrial and commercial contracting during the second half.

The other source of the midyear upward revision is a familiar one by now—inflation. Building costs rose sharply in the first half of 1973, and that high level of cost is now frozen into the second half as well. One conspicuous consequence: lumber and plywood prices have ballooned the cost of housing to the extent that even though we're still sticking with our earlier estimates of 2.1 million dwelling units for 1973 (1.2 million one- and two-family homes, and 900,000 apartments) they'll wind up costing well over a billion dollars more than we estimated back in January.

There is no compelling reason to raise the previous estimate of nonbuilding construction at this time. Federal budget austerity and the ecology issue have the heavy construction market in a straightjacket, and the only changes for now are some offsetting adjustments among the individual categories.

These revisions bring our 1973 Dodge Construction Outlook up to the minute. Basically, it's still the same situation we've been looking for all along—a cyclical trade-off between housing (coming down) and industrial/commercial construction (going up). The main difference since the beginning of the year: it's all happening at a higher level—due more to inflation than anything else.

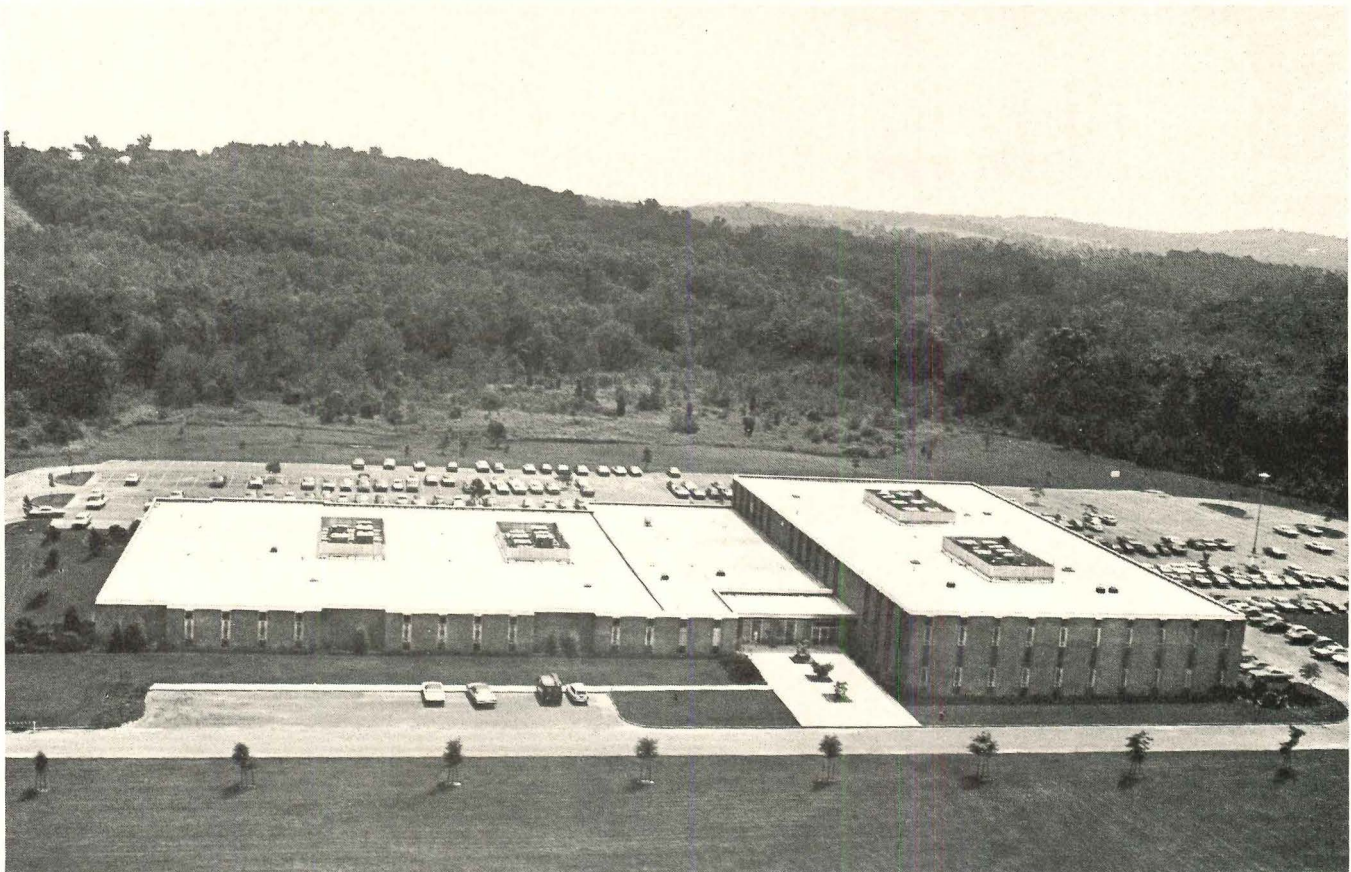
George A. Christie, Vice President and Chief Economist
McGraw-Hill Information Systems Company

National estimates 1973

construction contract value (millions of dollars)	1972	1973 forecast	per cent change
nonresidential buildings			
office buildings	\$ 5,314	\$ 5,500	+ 4
stores and other commercial	6,143	7,100	+16
manufacturing	3,012	4,200	+39
educational	4,782	4,800	—
hospital & health	3,528	3,700	+ 5
other nonresidential buildings	4,339	5,400	+24
TOTAL	\$27,118	\$30,700	+13
residential buildings			
one- and two-family homes	\$28,109	\$28,500	+ 1
apartments	15,131	14,200	- 6
nonhousekeeping	2,126	2,200	+ 3
TOTAL	\$45,366	\$44,900	- 1
TOTAL BUILDINGS	\$72,484	\$75,600	+ 4
nonbuilding construction			
highways & bridges	\$ 7,799	\$ 8,100	+ 4
utilities	3,543	3,700	+ 4
sewer and water supply	4,263	4,800	+13
other nonbuilding construction	3,124	3,300	+ 6
TOTAL	\$18,729	\$19,900	+ 6
TOTAL CONSTRUCTION	\$91,213	\$95,500	+ 5
Dodge Index (1967=100)	165	173	

380 tons of cooling for the humans, 20 tons for the computer.

All of it supplied by General Electric.



When a computer gets overheated, it has a nervous breakdown.

So when we found out that 35 GE rooftop units were cooling one computer and 325 humans in a Morristown, New Jersey building, we had to ask some questions.

We found that despite high temperatures and low line voltages, there had been only one compressor burn-out in the last three years.

We found that maintenance is a matter of cleaning the filters and checking the operating pressures.

The men responsible for the equipment are pleased.

We weren't surprised. We expected it. It's the result of designing the equipment the way we do, building it the way we do and testing it the way we do.

We start by building our equipment from the base pan up. That way every part can be designed to match (and work) with every other part.

We use our exclusive Spine Fin™ condenser coil design, because it eliminates 90% of the brazed joints (which are potential leaks) of a conventional plate fin design.

We test to make sure that every 230 volt compressor

can start at 170 volts (about 75% of normal).

This voltage test is only one of more than 500 quality checks we make on every central air conditioner we ship.

These reliable air conditioners come in 3, 4, 5, 7½, 10, 15 and 20 ton capacities. With them you can design zone-by-zone cooling into areas as small as a reception room or as large as an auditorium.

And since we're a major integrated manufacturer of air conditioning, we can deliver. For people, or computers.

GENERAL  ELECTRIC

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Waterproof coatings based on Pliolite get people across new bridges faster.

Unlike most waterproofing paints, high-build coatings based on Goodyear Pliolite® resin don't delay bridge construction because they can be applied to damp or dry masonry surfaces in almost any kind of weather.

In fact, when applied to green concrete, they act as curing agents—allowing the concrete to cure to its full structural strength.

And coatings based on Pliolite seal concrete so effectively that water can't penetrate. So it can't freeze and expand, causing cracking and spalling.

In addition, high-build surfacing materials based on Pliolite cover minor surface imperfections, eliminating costly hand finishing. And they meet the specifications of Mississippi State Special Provision No. 9078046.

So if your job is to waterproof and protect masonry surfaces, either interior or exterior, high-build coatings based on Pliolite resin can help you do it better. For more information, and a list of manufacturers, write Bill Smith at Goodyear Chemicals, Dept. 7142, Box 9115, Akron, Ohio 44305.

GOODYEAR
CHEMICALS

The Wilson Art Look in laminated plastics.

Your ideas and our ideas look great, together!

In a retail sales environment, the emphasis is on smart, appealing good looks, long-lasting durability that needs little or no maintenance, and a tasteful blending of pattern, color and function to set the mood for sales.

When these are the performance requirements, the Wilson Art Look in laminated plastics helps you control design integrity.

Because the Wilson Art Look is the look of coordinated design — from walls to doors, from furniture to fixtures!

WILSONWALL PANELING SYSTEMS

Four distinctive systems to choose from, including a hidden aluminum molding V-Groove system (#310, featured here), a standard V-Groove system, a reveal system and a Class 1A fire hazard classification system utilizing acrylic-coated aluminum moldings. All panels are surfaced with Wilson Art laminated plastics — over 150 wood-grains and solids to choose from.

DOR-SURF[®] DOOR FACING

Doors surfaced with 1/8" thick Dor-Surf (Wilson Art laminated plastic door facing) are exceptionally im-

pact and abrasion resistant, and totally coordinated with other Wilson Art surfaces.

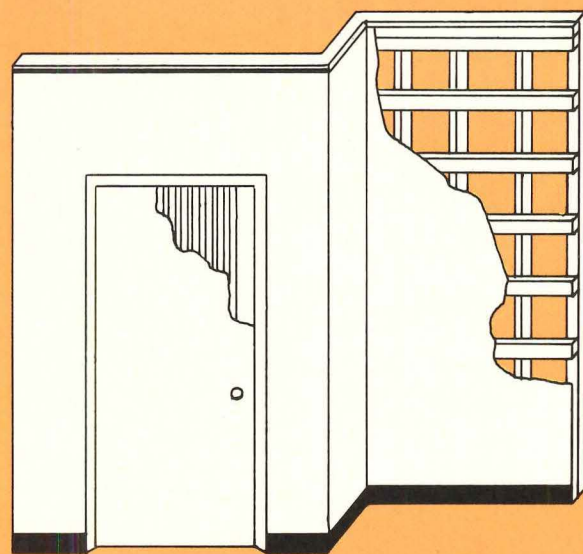
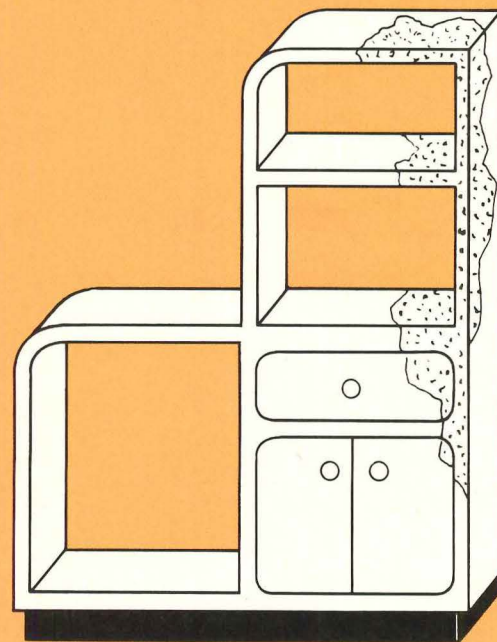
WILSON ART LAMINATED PLASTIC

Furniture and fixtures surfaced with Wilson Art laminated plastic complete the coordinate look. Choose from a wide variety of wood-grains, solids and patterns and an outstanding selection of finishes, including true dimensionals that look as great as they feel!

Simplify. Specify the Wilson Art Look — where your ideas and our ideas do look great, together!

For additional information, contact the Wilson Art Architectural Design Representative nearest you today:

- Atlanta 404-377-0731
- Chicago 312-437-1500
- Denver 303-388-3686
- Los Angeles 213-723-8961
- Miami 305-822-5140
- New Jersey 609-662-4747
- New York 212-933-1035
- San Francisco 415-782-6055
- Seattle 206-228-1300
- Temple, Texas 817-778-2711



Design aids are available.

Call or write for Wilson Art, Wilsonwall and DOR-SURF brochures and specification data sheets.

For more data, circle 48 on inquiry card

When the chips are down, you can depend on Wilson Art!



RALPH WILSON PLASTICS COMPANY TEMPLE, TEXAS
DART INDUSTRIES INC.

Boutique

DOR-SURF
DOOR
FACING
MATERIAL

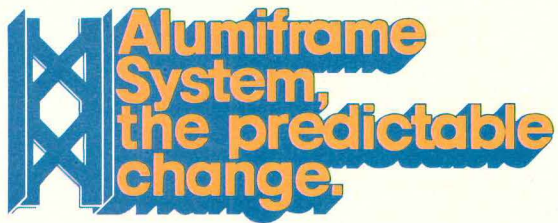
WILSONWALL PANELING SYSTEM 310

WILSON ART
LAMINATED PLASTIC

When the chips are down, you can depend on Wilson Art!



RALPH WILSON PLASTICS COMPANY TEMPLE, TEXAS
DART INDUSTRIES INC



Here's why the Alcoa Alumiframe system is replacing wood.



If you'd like to build more profit margin into every house you build, consider the Alumiframe* building system from Alcoa.

This system combines all the labor-saving benefits of pre-engineered construction with the uniform quality and traditional price stability of aluminum. Here is why the Alumiframe system is gaining national acceptance by builders and consumers alike:

Price is the same 365 days a year

This is no short-term sales incentive. Alcoa guarantees that the price of Alumiframe members will remain the same for a full calendar year. This means you can plan your construction schedule months in advance. You can pinpoint your framing costs. You can count on supply—and delivery. And at no risk to your profits.

No warps, cracks, knots or cure problems with the Alumiframe system

Unlike other materials, aluminum offers consistent quality, piece after piece. So you won't waste money on material imperfections or weaknesses.



Alumiframe members are strong. They're made of the same architectural alloy used to make bridge railings and overhead highway sign trusses. And because they're extruded, each member has the metal distributed exactly where it's needed for maximum strength and function.

Less weight to every piece, fewer pieces to every component

With Alumiframe construction, you save time two ways. First, each component weighs much less than similar sized components made with any other material. They're easier to handle. They go together easily. Go into place faster. In fact, five men

can place a floor frame that you'd ordinarily need a crane to handle. The result: You build better homes, faster, more economically.

Conventional construction, conventional methods

With the Alumiframe system, the only change you make is in the material itself. Even your most inexperienced worker can quickly learn the framing system with little or no trouble. Here are some of the reasons why: *No special tools are needed.*

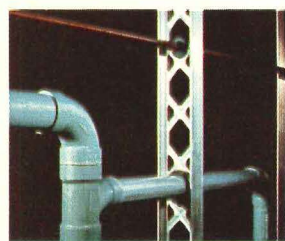


You or your men can handle the job with the tools you're using now. Here are all you'll need:

- Conventional carpentry tools
- Pneumatic nailer
- Hand circular saw with combination blade for cutting aluminum
- Powder-actuated tool and cartridges
- Electric screw driver with No. 2 Phillips head bits

You can nail aluminum members. Alumiframe members can be fastened with spiral-shank nails. For joists and plates, use hand-driven nails. For exterior sheathing and floor decking, power-driven or hand-driven nails work best. For dry-wall, self-drilling, self-tapping screws hold tight. So there are no nails to pop out and mar the finish.

Electrical, plumbing and heating work goes easier, too. The reason for that is the pre-punched webs of the Alumiframe studs. Pipe and wiring are easily passed through insulating grommets fitted into the open webbing. These grommets prevent frayed wiring, eliminate the possibility of noise produced by vibrating pipes, and prevent copper pipes from coming in contact with aluminum members.



*Registered Trademark of Aluminum Co. of America.

The Alcoa Alumiframe building system is a residential framing concept that includes columns, beams, integral doors and windows and all the parts and members needed for framing floors, exterior walls and interior partitions.

Panelization: factory-built or on-site fabrication

Besides its advantages in replacing wood in conventional construction, the Alumiframe system is especially suited to industrialized housing.



Because Alumiframe members nest together, they require a minimum of storage space. Aluminum's light weight simplifies materials handling. Jigs can be quickly rigged to produce multiple panels. Radial arm saws trim Alumiframe plates

and studs to size. Pneumatic nailing helps speed production. When complete, panels are loaded and unloaded by work crews or light equipment. Although it's a system, you don't have to buy the whole package. Order just floors, walls or interior partitions. Buy what you want. Have it when you need it. When your Alumiframe shipment arrives, there's no worry about outdoor storage. Even in weeks of sun, wind and rain, Alumiframe members won't warp, crack or shrink.

Buyers can appreciate the added value of aluminum framing

Buyers will appreciate the built-in advantages of the Alumiframe system's



durability (won't rot or crack), its termite resistance, incombustibility (won't feed a fire), strength and dimensional stability (won't warp or dry out; no nails to "pop" from drywall because walls are straight and true). In fact, the Alumiframe system has received the approval of builders and their customers in homes of all different sizes, designs and price ranges from coast to coast.

Major building codes approve the Alumiframe system, too.



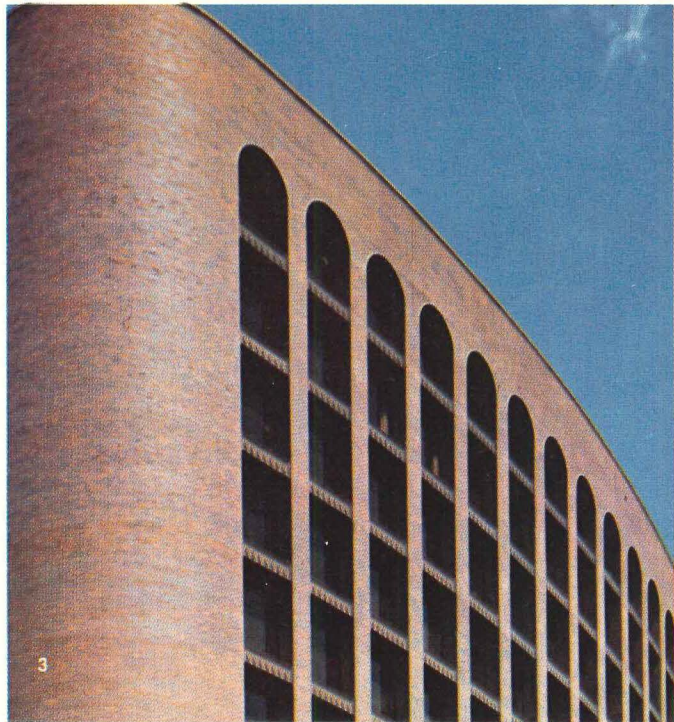
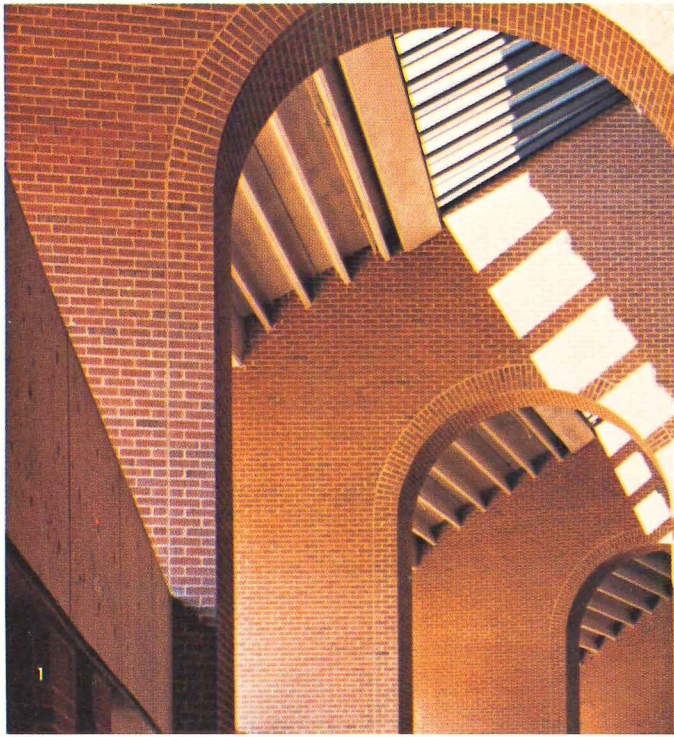
In just three short years, the Alumiframe system has moved from the position of being a new construction concept, to today, becoming accepted as a new building standard. The Alumiframe system meets

Federal Housing Administration standards and has the approval of the Building Officials and Code Administrators International, Inc., the International Conference of Building Officials, and the Southern Building Code Congress.

Here are the report numbers to check in your area: BOCA Report 449; ICBO Report 2574; SBCC Report 7203; FHA Bulletin 717.

For more information on the Alumiframe building system, write or call Ken Lally, national sales manager, (412) 553-2853, Aluminum Company of America, 1089-H Alcoa Building, Pittsburgh, Pa. 15219.

ALCOA BUILDING INDUSTRIES
DIVISION OF
ALCOA



1. Richmond Coliseum, Richmond, Virginia. Architects: Vincent G. Kling & Partners. Photo courtesy Brick Institute of America. 2. Southeastern Massachusetts University, Arts and Humanities Building, North Dartmouth. Associated Architects: Desmond & Lord, Inc., and Paul Rudolph, FAIA. Interior Consultant: Bill Bagnall Associates, Inc. 3. Public Service Alliance of Canada Building, Ottawa. Architects: Schoeler Heaton Harvor Menendez Associated Architects. Photo courtesy Brick Institute of America. 4. Executive Headquarters and Nassau Center Office. Hempstead Bank, Garden City, Long Island. Architects: Bentel & Bentel, AIA.

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The Architect specified galvanized rebar to prevent "bleeding"

To protect the new \$40,000,000 Levi Strauss building in San Francisco against rust "bleeding" through to the surface, John Portman and Associates, architects, specified galvanized rebar.

The building is constructed with precast concrete panels which means that the reinforcing steel is relatively close to the surface. Experience has shown that subsurface rusting of ungalvanized reinforcement can "bleed" through and disfigure the facade with ugly stains. In extreme cases, rebar corrosion can also build up pressures which crack and even spall the concrete.

Galvanizing metallurgically bonds a tough zinc coat to the steel reinforcement, developing an impermeable, corrosion resistant coating. Even if this coat is gouged through during shipping, storage or installation, the zinc continues to prevent rust by its second line of defense, galvanic sacrificial action. This dual protection has been proven over the years in many buildings.

When you design for lasting beauty, specify galvanized rebar.

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Over 1,800 tons of galvanized steel reinforce the precast concrete in the new \$40,000,000 Levi Strauss building in San Francisco.



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That's a pretty strong promise. But we know we can keep it. That's why we give it to you in writing.



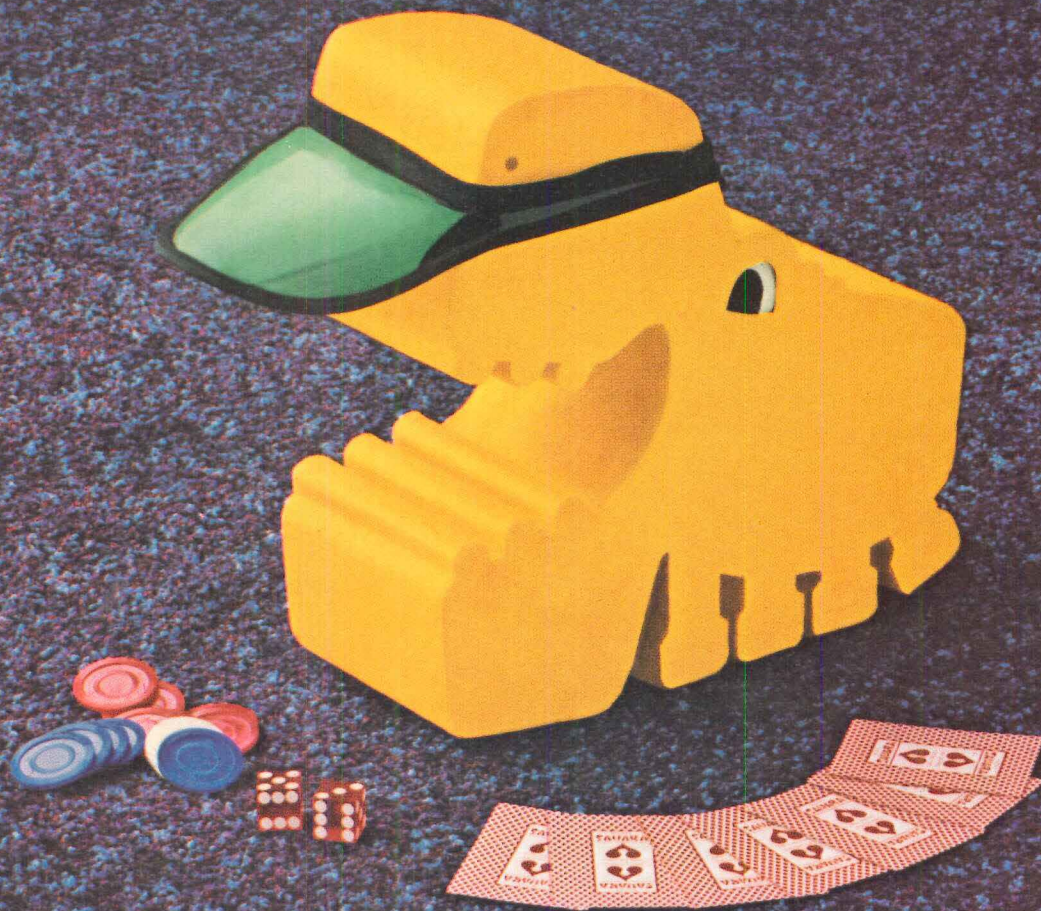
BUILDING PRODUCTS

Celotex understands the man who builds.

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For an actual copy of the Celotex Inspection & Service Contract and all the details of the program, see your Celotex BUR Approved Roofer, or Celotex field representative, write us direct, or consult Sweet's Architectural Files.

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Anso® nylon's five year carpet guarantee. It puts the odds on your side.

When it comes to carpet, the Sahara Hotel in Las Vegas doesn't believe in gambling.

So they put their money on "Years Ahead," by Berven of California. And got Guarantesth—the guarantee with teeth. Allied Chemical's assurance that any carpet made of either ANSO nylon, or ANSO-X anti-static nylon, will not wear more than 10% in 5 years, or we'll replace it, installation included.

Now when you specify "Years Ahead," you will get the benefits of ANSO-X, the most advanced anti-static system on the market. The anti-static protection is built right

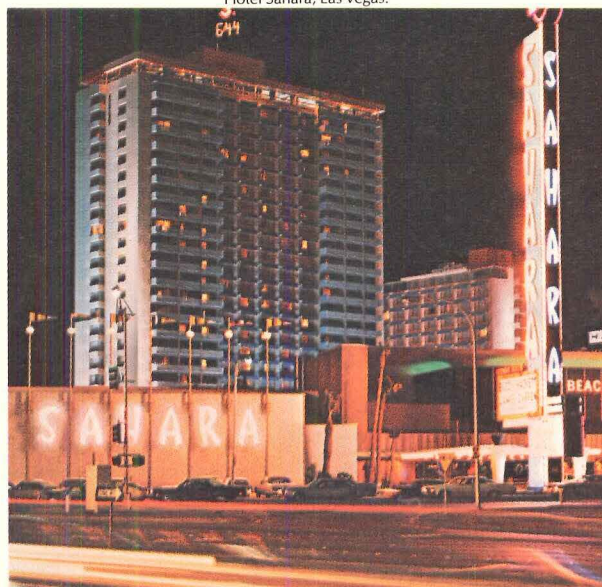
into the fiber. That means uniform protection over the entire carpet and it means permanent anti-static protection that's guaranteed for the life of the carpet.

So when you're looking for carpet, look for the label with the little animal who symbolizes Allied Chemical's Guarantesth—the strongest carpet fiber guarantee that you can get. For your free copy of our contract carpet manual, write to: Allied Chemical, Home Furnishings Merchandising, Dept. AR, 1 Times Sq., N.Y. 10036. (212) 736-7000, ext. 7766.



Guarantesth. The guarantee with teeth.

Hotel Sahara, Las Vegas.



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PPG's *Solarban*® 480 Bronze

The performance glass that lessens air conditioning requirements. Even in Houston.

The developer of Houston's Ranger Insurance Building went to his architects with two requirements. First, design a marketable building with a distinctly beautiful identity. And then minimize the air conditioning system without sacrificing comfort.

Now, one would think, that in the Houston climate, you need all the air conditioning you can get.

But the architects selected PPG's *Solarban 480 Bronze Twindow* insulating glass. The reflective glass that would not only satisfy the tough mechanical requirement, but would also be esthetically pleasing.

In this case, the architects chose a muted bronze coverplate, which was heat strengthened to resist

thermal stress, to complement the bronze aluminum curtainwall.

On the inside, the pleasing transmitted light of the *Solarban 480 Bronze* units offers substantial visual comfort and largely eliminates the need for blinds or draperies, despite the bright Texas sun.

And all the while, less air conditioning equipment is working less.

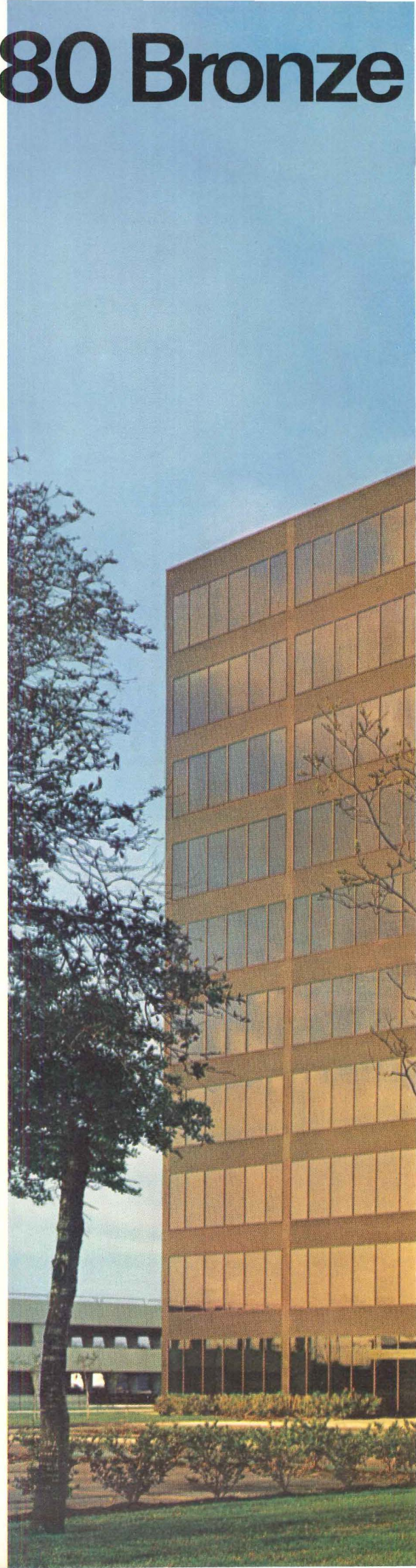
Look into the advantages of *Solarban 480 Bronze Twindow* insulating glass—or the others in our family of Environmental Glass—for your next building. Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

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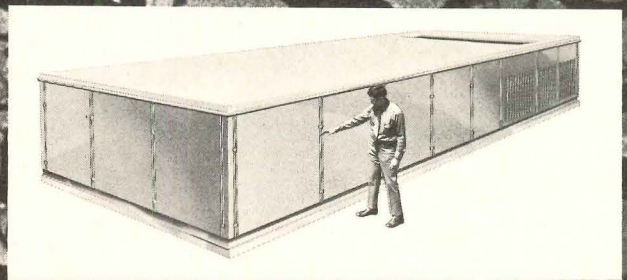
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ARCHITECTURAL RECORD August 1973 87

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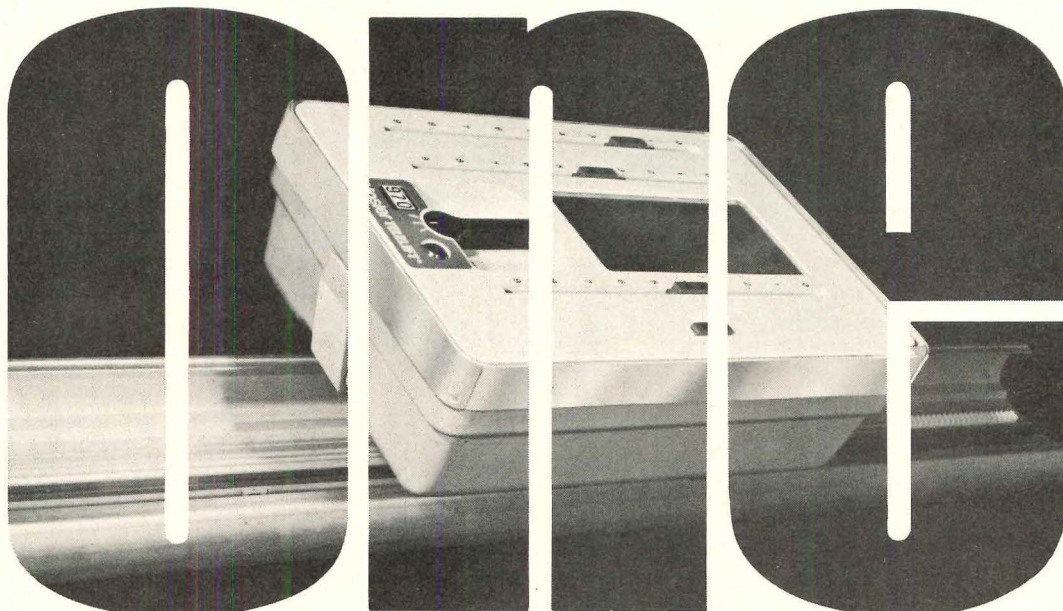


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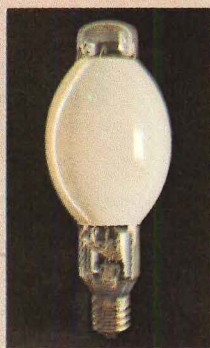
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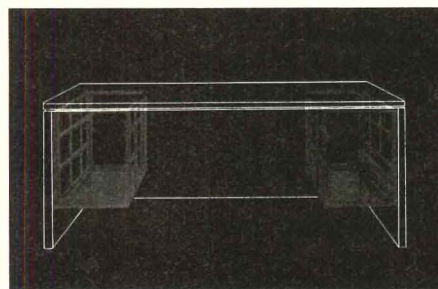
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THE FEATHER FACTORY

Knorr and Elliott's new offices in San Francisco are in a 50-year-old industrial building opportunely located in the increasingly desirable waterfront area of the city. The building was originally used as a feather factory, where chicken feathers were washed, cleaned and fluffed before being stuffed into pillows. (Hence graphics designer and artist Anne Knorr's delightful symbol for the building.) The requirements for the feather-cleaning operation were a lofty, large space in which the huge vats for feather washing could be located, and stairs, catwalks and decks for overseeing the vats. Knorr-Elliott have made the most of both the great volume of space at the center of the top floor and of the unusual system of stairs and decks left from the feather opera-

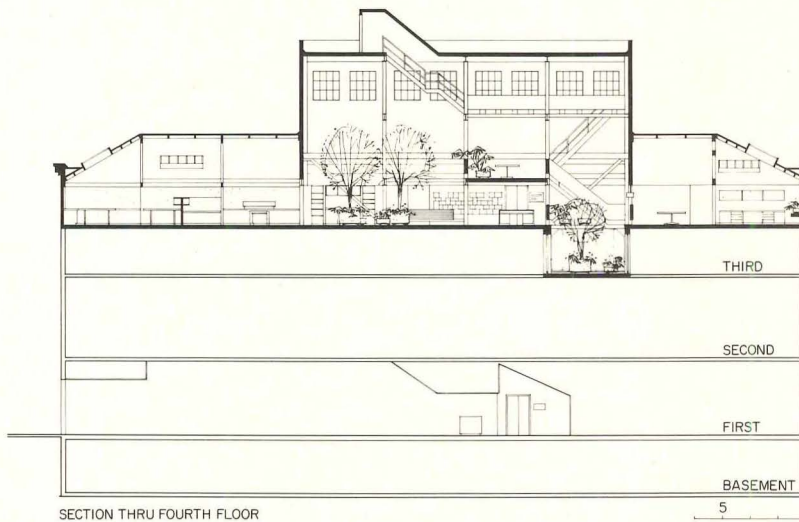
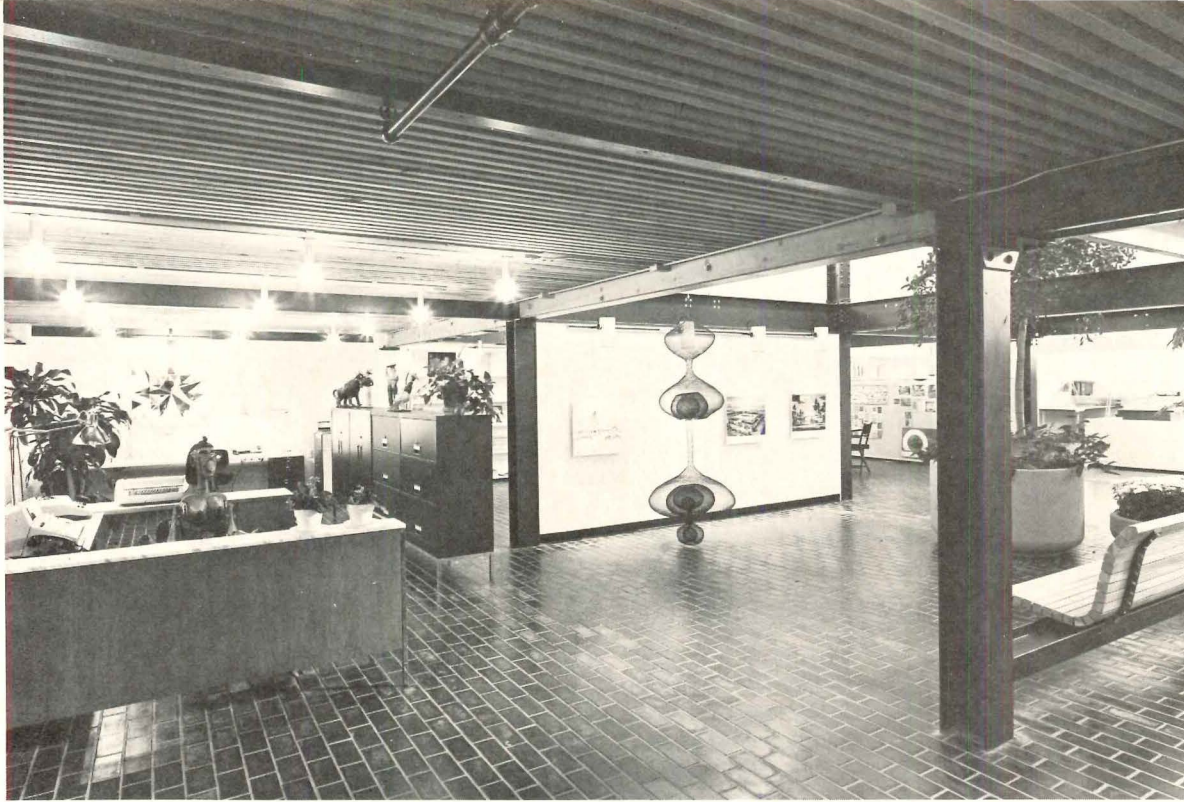
tion, changing little and using in unusual ways what they found in the building. It was necessary to strengthen the structure for earthquake resistance and to make a new fire wall on the north side; to build a stairway to serve the whole building; and to install an elevator. Some non-structural steel was removed. Otherwise, remodeling was a matter of decisions, cleaning and paint. The entire interior is white, color and pattern added by furnishings, art work (paintings by Anne Knorr, hanging sculpture by Ruth Asawa) and crafts (tapestry, banners).

THE FEATHER FACTORY, San Francisco, California. Architects: *Knorr-Elliott and Associates—Don Knorr, partner-in-charge*. Engineers: *Sexton, Fitzgerald & Kaplan* (structural). Contractor: *Greystone Builders*.

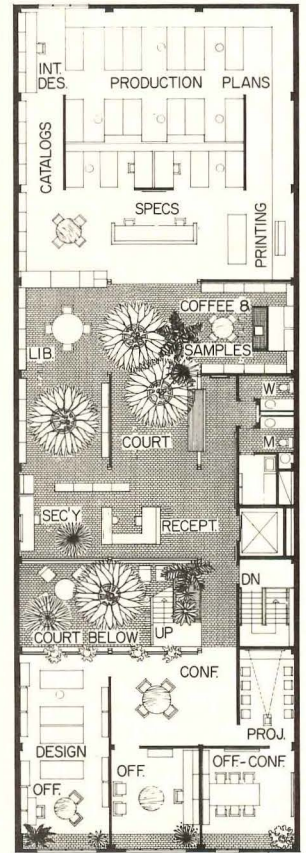


Robert Brandeis photos





SECTION THRU FOURTH FLOOR

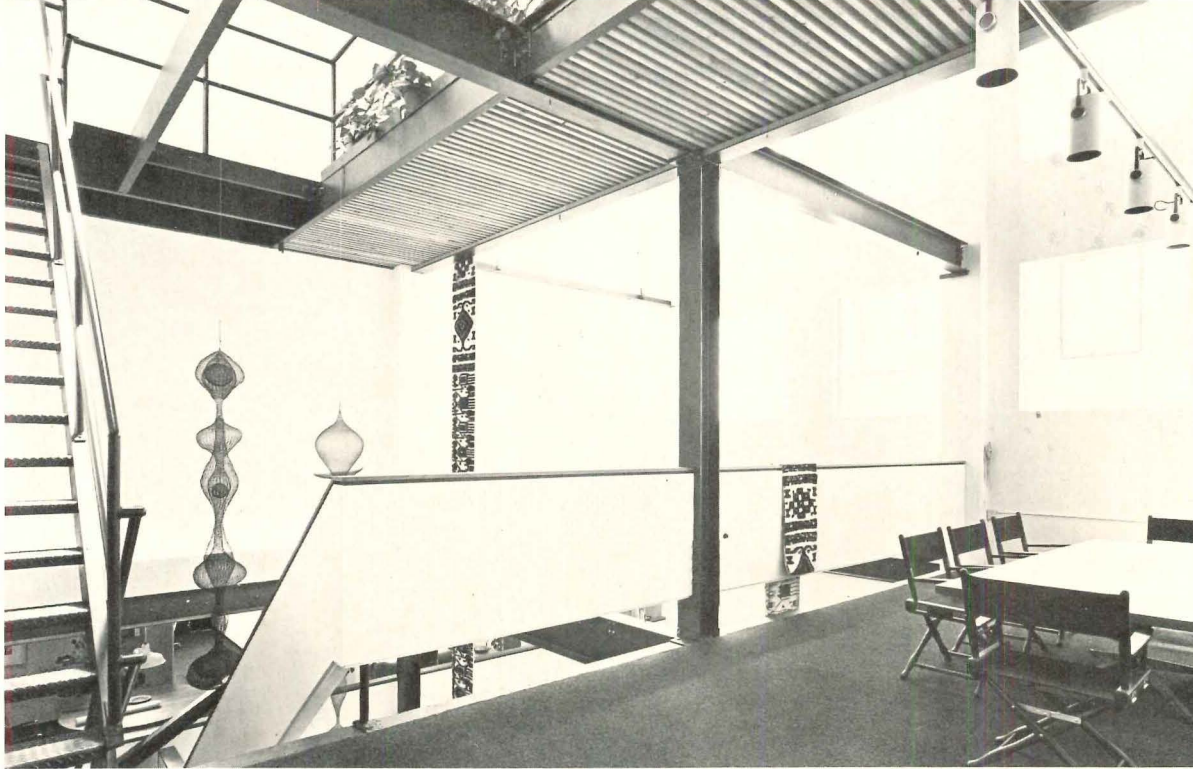


FOURTH FLOOR

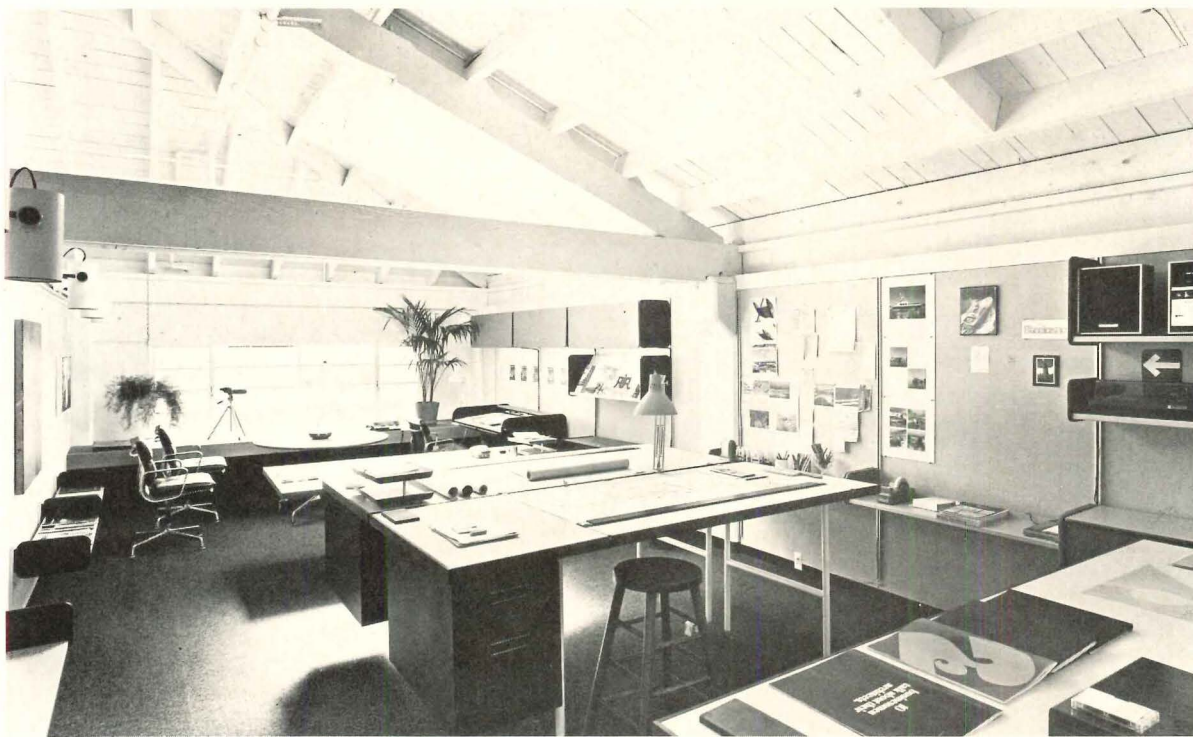


For all its essential openness, the plan produces places of clear definition: the reception area, just off the elevator "lobby" (above), the specification writers' desk, catalog and sample reference shelves (left) and the general library (right) evidence this. From the library the 35-foot height of the central section of the building's top floor is sheer space, interlaced by the dark charcoal lines of the steel structure and the catwalks and steel stairs that lead to the roof. Light pours into this space from high up on both north and south sides through large factory-type windows, increasing the apparent height and volume of the space. The ceiling of the main space and of the reception area, and the soffit of the catwalks, is of rough-finish Douglas fir laminated 2 by 6's, a warm texture and color in the over-all scheme.





The conference room (top)—actually an existing catwalk widened to room size—is a spectacular location for discussions, suspended as it is in the 35-foot-high space. It overlooks on one side the library (page 97) and on the other a court which reaches through to the building's third floor, where it provides daylight for rental offices on either side and acts as an open lounge for tenants on that floor. Low ceilinged areas at each end of the fourth floor are used as private and semi-private places: Don Knorr's office (including the design office) is at one end (center), and the drafting room (bottom) is at the other. The original beams and trusses, windows and skylights, were retained.



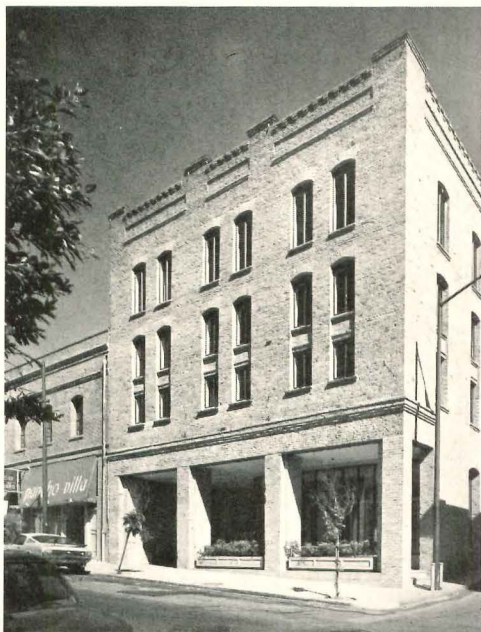
THE SATURDAY REVIEW BUILDING

In remodeling this 60-year-old brick building in the Jackson Square district of San Francisco, all interior partitions were removed, and a new steel frame (to make the building earthquake-resistant) was introduced into the old structure. But the old brick walls and the posts, beams and joists of the original building were retained and incorporated into the remodeling. In its past the building had been used as a Chinese cigar factory, a restaurant and a souvenirs warehouse. The redesign of its interior was done to meet the needs of a publishing company, with many small offices around what is essentially one central open space but is actually a series of spaces which are open either up to the roof or down to the level below, providing an intricate and always

changing spatial experience. No one opening, however, is the full height of the building, although from the reception area there is a view up through the building to the skylighted roof. Color, planes, space, light and line are the elements of the design; freestanding partitions, bridges, transparent walls, brightly painted exposed ducts and the varying openings are the means of implementing it.

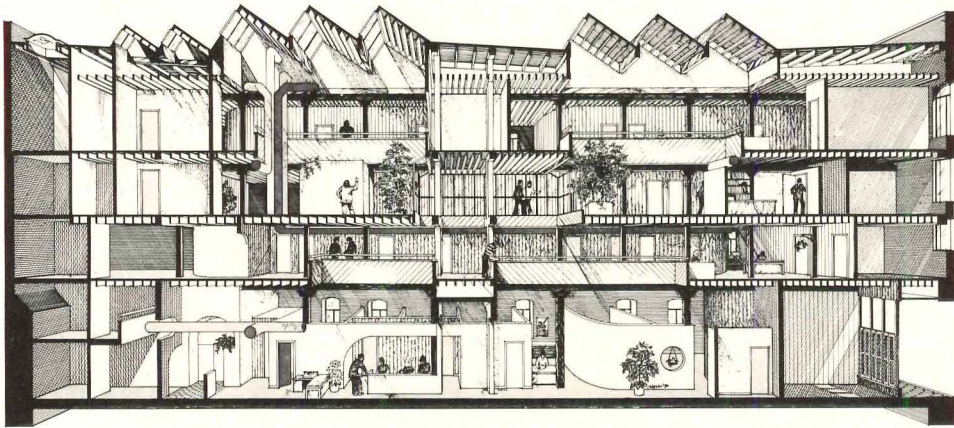
SATURDAY REVIEW INDUSTRIES, INC., San Francisco, California. Architects: *Bull Field Volkmann Stockwell*—Design Team: *Daniel G. Volkmann, architect-in-charge; Herand M. Sarkissian, associate-in-charge; and Joseph D. Chance and James K. M. Cheng.* Engineers: *Anderson/Culley Associates, Peter A. Culley, principal-in-charge (structural).* Interiors: *Bull Field Volkmann Stockwell.* Contractor: *Lambert and Wells.*

Morley Baer photos except as noted



James K. M. Cheng





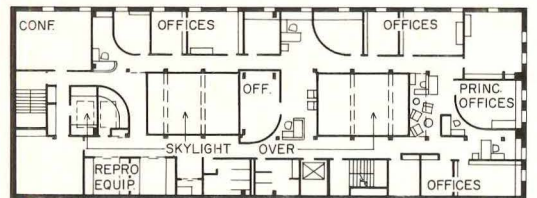
Drawing by James K. M. Cheng



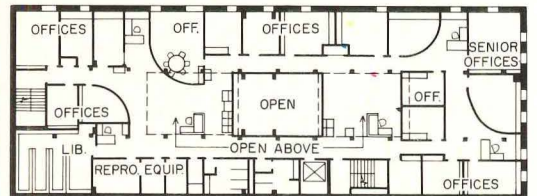
James K. M. Cheng



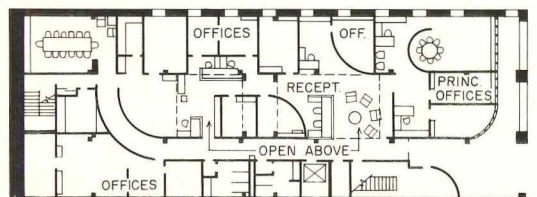
While retaining the old posts and beams, the remodeling cut through portions of the floors to open up the interior in a series of open areas around which the small offices required by the client are ranged. All the free-standing partitions are painted white, as is the plywood encased steel truss behind the reception desk (left). From this point it is possible to look up through the entire height of the building thanks to the use of glass walls on the third level. The curved forms of partitions and of openings contrast strongly with the marked linearity of the other elements of the building.



FOURTH FLOOR



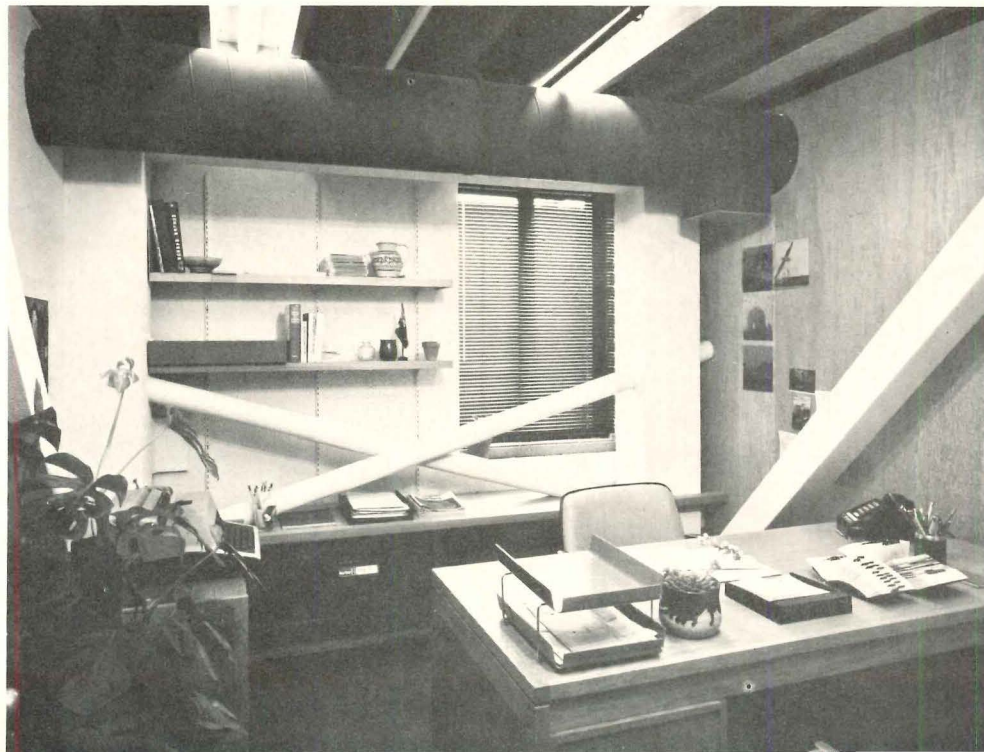
THIRD FLOOR



FIRST FLOOR

10





Although the remodeling was redone to the specific requirements of the publishing company, the solution has easily and successfully adapted to the needs of a firm of lawyers, which became the tenants upon cessation of publication of the *Saturday Review*. The tall windows in the principals' offices on the ground floor (above left) were one of the few changes made in the building exterior. The sandblasted old brick wall was allowed to show through in the conference room (center) and in most of the exterior perimeter offices. Bracing, needed for lateral resistance, is handled as an element of design wherever it was an unavoidable part of the remodeling (bottom).

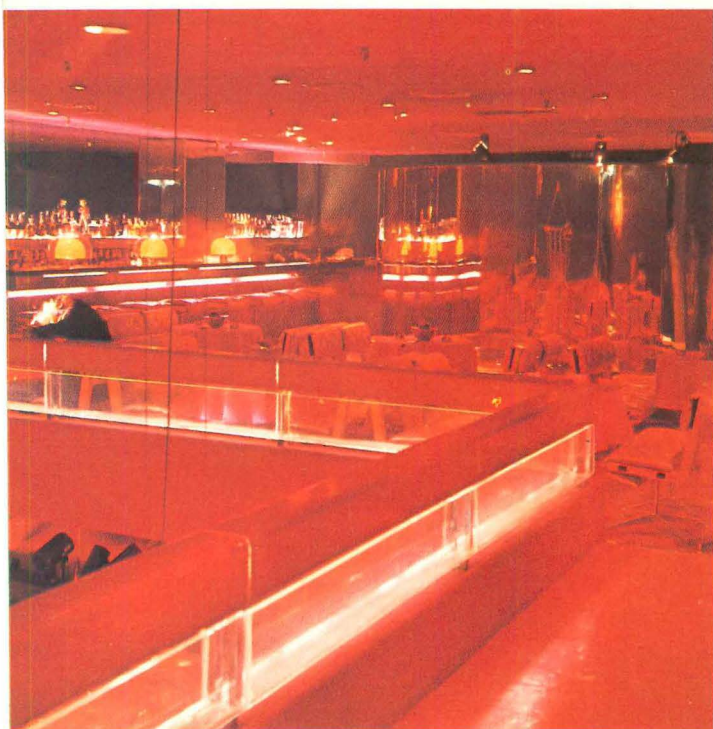
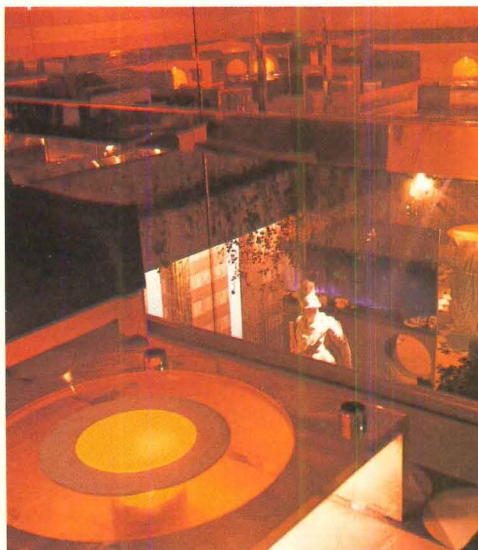
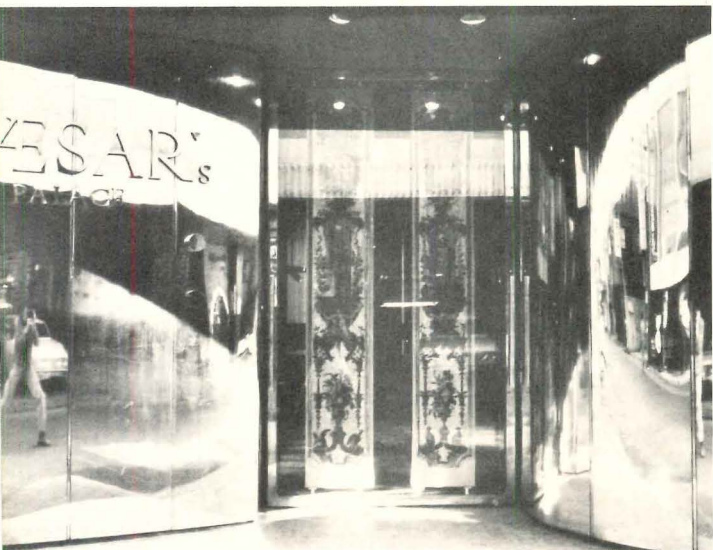


Eizaburo Hara

CÆSAR'S PALACE

In the midst of Tokyo's ebullient Akasaka district, young Italian architect Paolo Riani has designed a paradoxical contemporary counterpart of a tea house. To gain attention in the brilliantly lit jumble of architecture dominating this night-life center, Riani has created a stark cube of rough concrete (the forms were reversed to enhance the texture), punctuated by a recessed entrance wall of undulating, shiny brass. Reflections of surrounding lights, people and cars form its "decoration." As in his MEC showroom (see page 132), Riani makes these idioms, combined with peek-a-boo levels on the interior, a lively trademark of his designs. Caesar's Palace combines coffee shops, restaurants, music bars and a dancing place, with a *mélange* of the owner's Italian antiques.

Apart from the discrete graphics, the first hint of the club's "Roman" overtones is at the entrance, where a pair of eighteenth century baroque door panels have been enclosed in a double glass box, pivoted in the middle, to form the front door (left photo). The rest of owner Makoto Matsuyama's collection of busts, carvings, statues, columns and furniture is displayed throughout the premises with equal discretion and ingenuity. The over-all effect of the interiors is one of warm and festive color, glitter, and somewhat astonishing vistas up, down and through the relatively limited spaces. Floor levels were designed as a series of four open platforms,



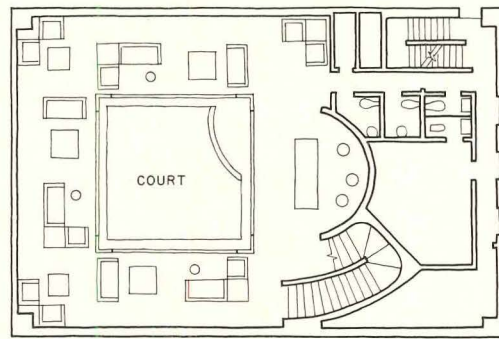
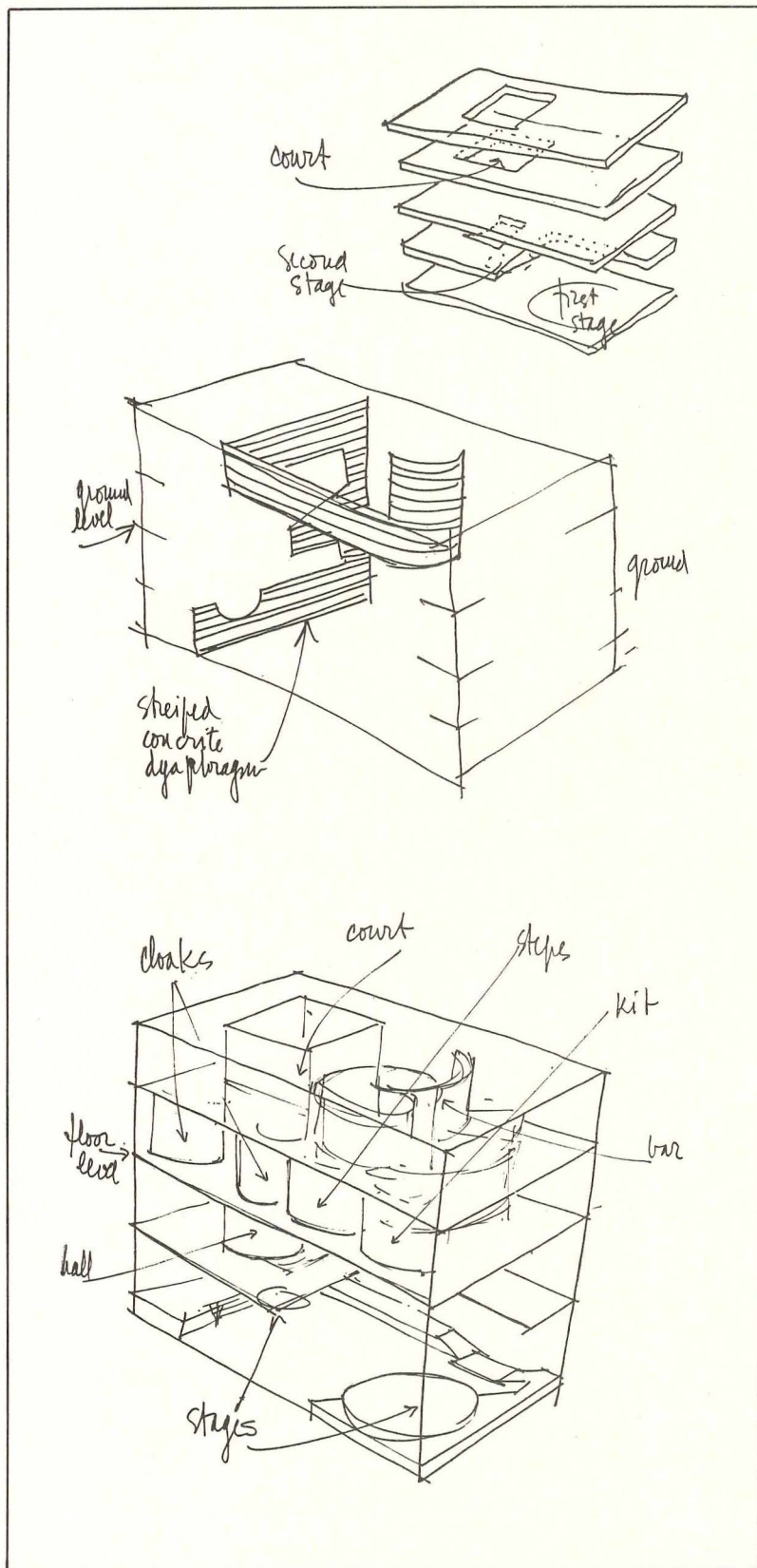
two below ground and two above; where specific operational functions (kitchen, performers' dressing rooms, toilets, stairs, etc.) required separation from the public spaces, they were enclosed by gilded curvilinear walls juxtaposed as free form elements on the open floor plans. All other partitions are temporary and may be changed at will. Fittings and furnishings were designed with a limited palette of materials: concrete, metal, leather, carpeting, and tiles on the first and second floor. All use elementary geometric forms as a design theme, many of which have been "transmuted" into Roman motifs—curves are "apses," cylinder tables are "column fragments," circles, squares and stripes are "echoes of the murals and mosaics of Pompeii." However much this may be simple intellectualizing, it is certainly a current of freshness for a club with an identity built on a "motif." Junko Enomoto, who designed the interiors with Paolo Riani, comments that it is "my belief that modern design is based on strength, simplicity, and clarity—as it was during the Roman period."

Riani adds, "... despite my sincere efforts, the final solution may only elicit the visitor's comment that 'It's just a place like all the others.' But perhaps for some people, the spatial and environmental experience will evoke a happy occasion which deepens and broadens their dimensions of life. If such is the case, my architecture will have fulfilled its function." For the people of Tokyo, who are prone to meet outside their family-oriented homes, Caesar's Palace does, indeed, provide a well designed "happy place."

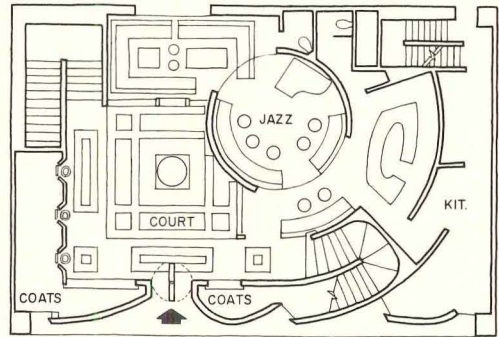




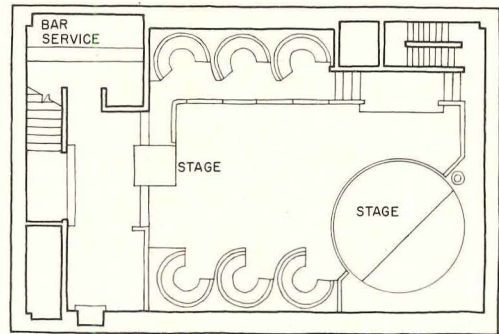
The various levels of Caesar's Palace are stylistically unified, but are arranged to provide a variety of spaces and services: intimate to open, coffee or a drink to full meals, musical soloists to a full stage performance. Reflections, vistas and softly dramatic lighting vastly increase the visual spaciousness of what is really a very small building (see plans overleaf). The incorporation of a variety of Italian antiques, Roman to eighteenth century, was handled with verve, sophistication, and in some cases a dollop of wit—as with a large gilded "Portantina," with its mass of baroque scrolls, set into a lighted glass box as a perch for a guitar player.



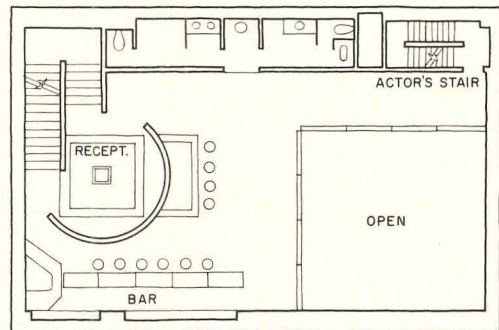
SECOND FLOOR



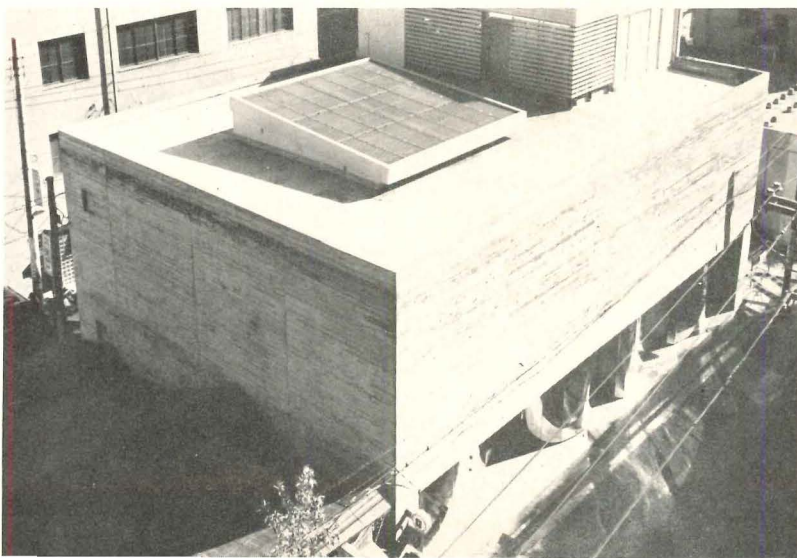
FIRST FLOOR



SECOND BASEMENT

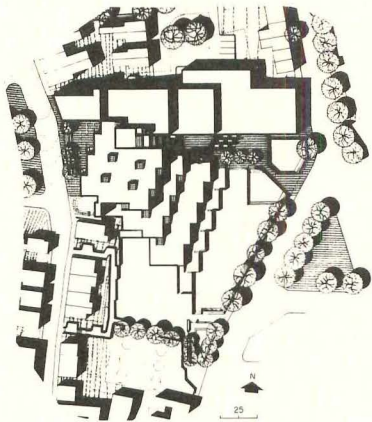


FIRST BASEMENT



Riani's spatial organization of four levels within an almost windowless concrete box (left) is clearly seen in his original conceptual sketches (above left). Each level is pierced with a "court" to vastly expand the vistas—but as can be seen in the photos on the preceding pages, glass partitions help with acoustical isolation if several performers are entertaining on different levels. Two of the floors are below ground which, Riani says, "makes the best earthquake design."

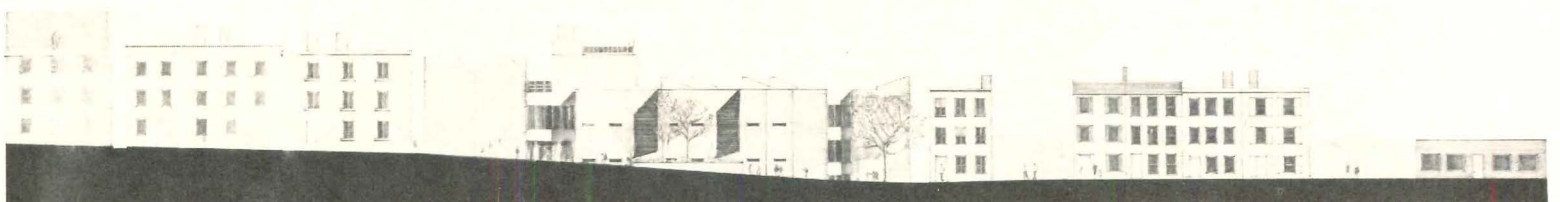
CAESAR'S PALACE, Tokyo. Owner: Makoto Matsuyama. Architect: Paolo Riani. Interiors: Junko Enomoto. Contractor: Kyoritsu Kenchiku.

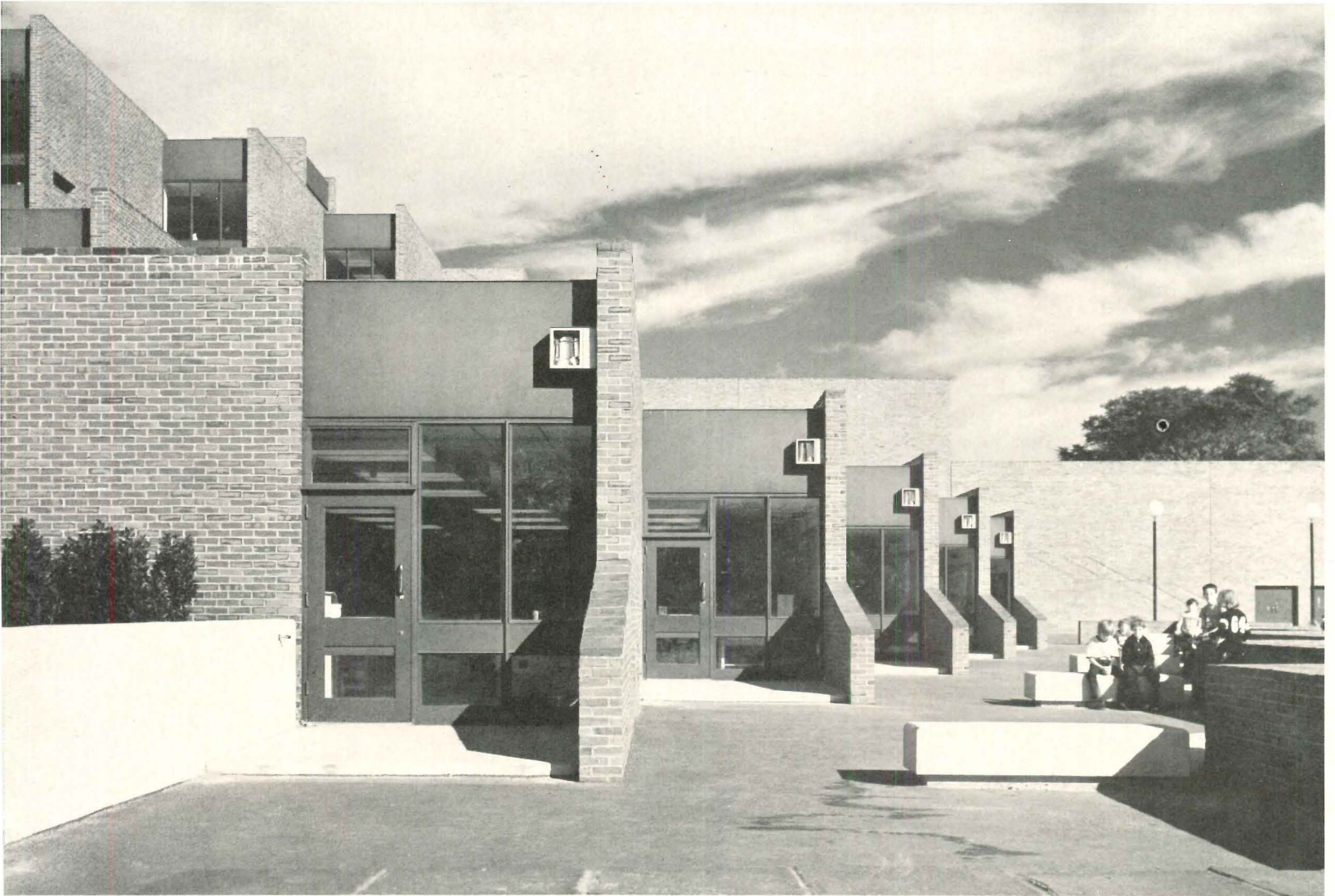


First published as a project (RECORD, May 1971) and now as a completed building, this exceptionally handsome elementary school by Earl R. Flansburgh & Associates stands on the flank of Bunker Hill—about a 3-iron from the monument itself—in the center of the historic Charlestown district of Boston. It covers 2.2 acres of its sloping 2.7 acre site. It is surrounded by well-preserved, frame row-houses and is highly visible from the approaches and span of the Mystic River Bridge. Because of its conspicuous location and the historic associations of its site, the school had to relate visually to its 19th century neighbors in matters of cornice height, setback and scale, but the school has very different genes. It is a contemporary steel frame structure, shaped by noticeably different principles of planning and design and embodying decidedly 20th century notions of how the young should be educated.

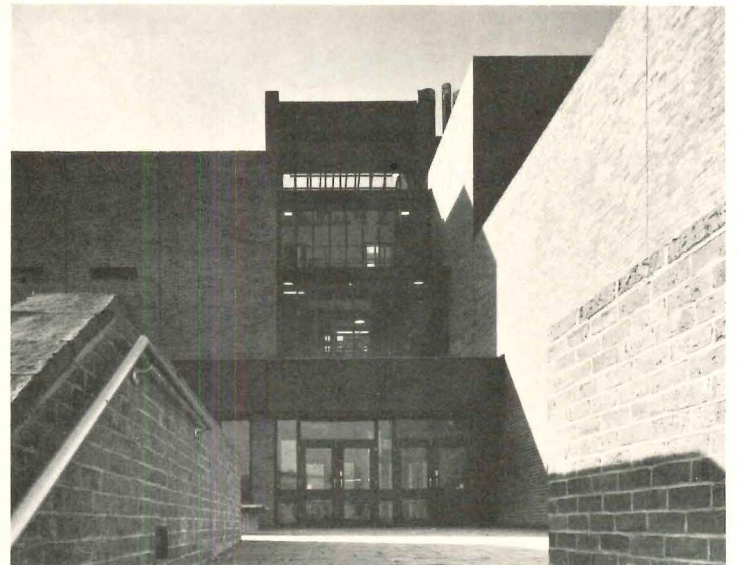
The school is also simply but beautifully detailed. (Note that no flashing is visible in any of the photographs.) Its component parts are forcefully articulated, but the use of repetitive structure kept costs down. Completed last year at a cost of \$39.18 per square foot, this 95,000 square foot facility was the second least expensive of Boston's recently constructed public schools.

WILLIAM KENT ELEMENTARY SCHOOL

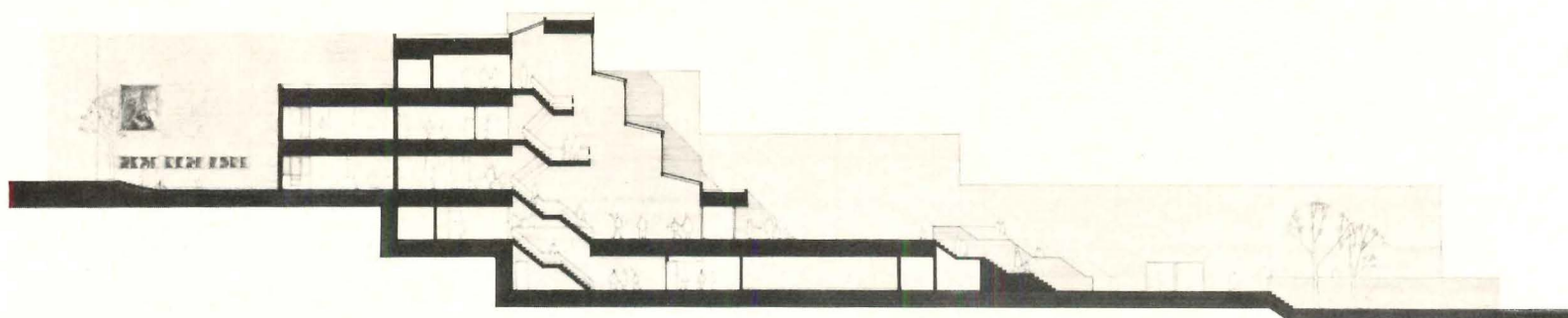




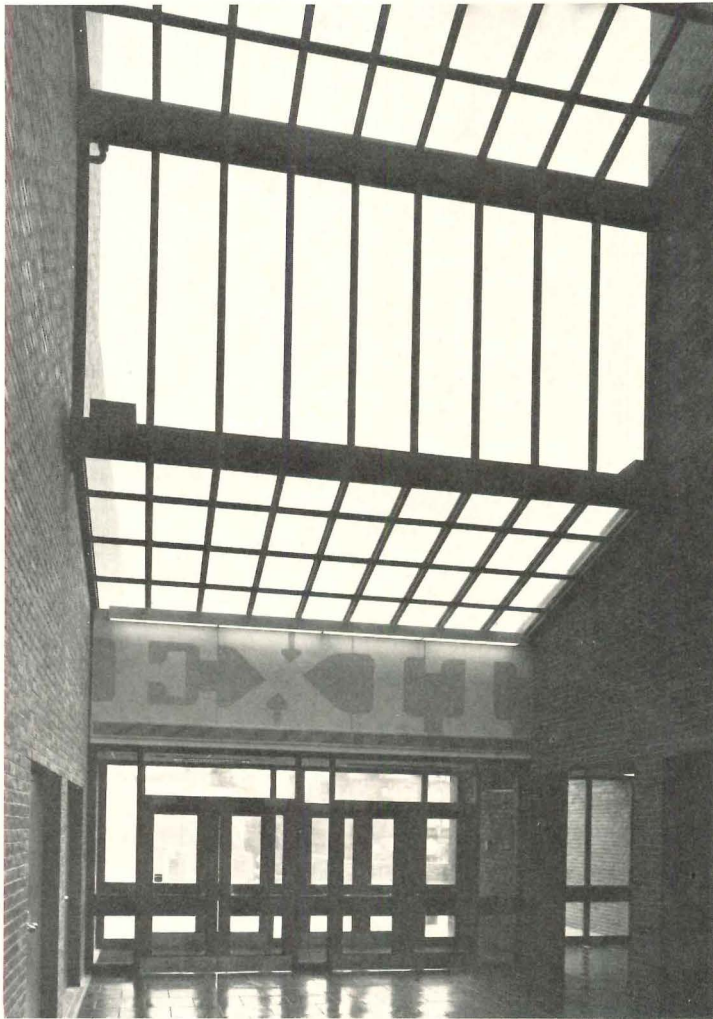
When planning the school, Flansburgh decided to group the large, long-span, and relatively scaleless elements (gymnasium, cafeteria and kitchen) in an almost windowless, stepped block on the western side of the site. Against this static mass, the architect manipulated the classroom spaces into a lively pattern of setbacks that generates considerable design interest (photo above) as well as responding to the scale of the street and the surrounding row houses. The main entrance, at the juncture between the two major groups of elements, is a dramatic multi-height space (section below and photos pages 110-111) reached by stairs from the playground level (photo opposite). A community meeting room, located between the gymnasium and the kindergarten spaces, opens directly to outside. Careful proportioning and concern for scale are evident in the shaping of the component spaces and the building's over-all massing. From the downhill side (photo opposite), the school could easily have become massive and inhospitable. Instead, because the designers were sensitive, it is a carefully composed series of ascending levels that culminate in a gently dominant, central stair tower.



Edward Jacoby photos

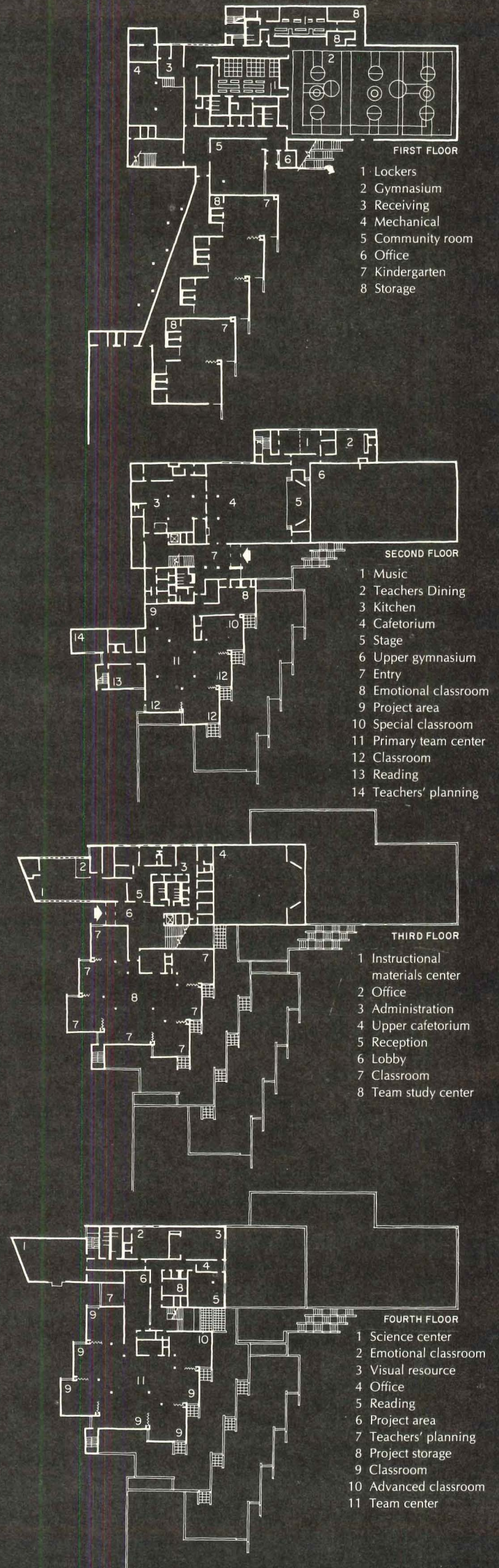






Entry and vertical circulation are contained in a dramatically skylighted, four-story volume. The exterior brick is carried inside for continuity and the stair landings, framed out using exposed steel, are fitted with double height pipe-railings for the protection of youngsters. The same pipe-railing is used for handrail, but augmented by a lower wood rail for the use of smaller children.

Flansburgh originally conceived the space as part of a public circulation route through the community. These plans were later dropped at the request of the school board, but the tall space with its vigorous expression of level retains much of the strength of its first conception. In spite of its apparent height, the viewer is not "shrunk." The eye is drawn rhythmically upward, pausing a moment at each level, and easily finding release through a canted skylight over the entrance to the teachers' fifth floor lounge. For a school, it is a surprisingly powerful spatial composition. But for so steeply contoured a site, it seems especially appropriate to express the elements of vertical circulation with force and conviction.

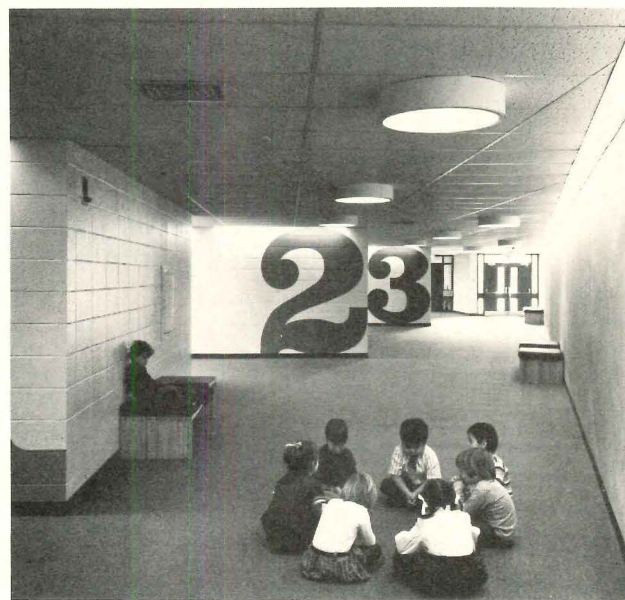






Classrooms, according to local code, require a full sprinkler system if they extend upward beyond four floors. For this reason, the fifth floor at the William Kent School is reserved for teachers' lounges and services. Each regular classroom space—most are for unstructured classes—has two fixed walls and either one or two operable, three-quarter height partitions that provide visual enclosure but not acoustical privacy. All the classroom spaces are carpeted and hung ceilings are finished in acoustical tile. Lighting fixtures have been boxed out to effectively lower the ceiling height and modulate the larger spaces (photo above). A supergraphic series of numerals identify the teaching spaces and add color enrichment (photo right). The same concern for simple and appealing detail exists throughout the classroom and kindergarten areas to give the Kent Elementary School a welcome design unity.

WILLIAM KENT ELEMENTARY SCHOOL, Boston, Massachusetts. Owner: *City of Boston*. Architects: *Earl R. Flansburgh and Associates, Inc.*—design team: *Earl R. Flansburgh, Russell F. Tremaine associate*; interior furnishings: *Linda Stuart associate*. Engineers: *Alonzo B. Reed Co., Inc.* Landscape architects: *Mason & Frey*. General contractor: *E. C. Blanchard, Inc.*



The photos below and on the pages that follow are not RECORD's ordinary bill of fare. They depict "The Courts" as a visually disordered crazy-quilt of "inmate-owned" patios at Clinton Correctional Facility in Dannemora, New York. Little is known of the Courts outside the walls. A team of architects and sociologists (see page 118), commissioned by the state, undertook a study of the prison—a study that took particular note of the courts and their design implications. Excerpted and summarized on the following pages and illustrated by Joshua Freiwald's eloquent photographs, the team's report analyzes the courts to determine how they work and why. The report will be of special interest to designers of future correctional facilities, but buried just beneath the surface, waiting to be verified, are more universal social principles that architects doing public housing and other building types may find it useful to understand.

—Barclay Gordon

THE COURTS AT CLINTON



Joshua Freiwald photos

"There are about 350 courts on this gentle hillside, varying in size from 9- by 9-feet to 25- by 50-feet. Many have gardens which, in the summer season, come into color. The varied greens of vegetables and oranges and reds of marigolds dominate. Boundaries between the courts are most often low 'fences' constructed of earth-filled, number-ten cans stacked on top of each other. There are also low wood fences, and courts in which the boundary definition is provided by intercourt pathways alone. The terraces of the courts area are buttressed by stacked rock; these, too, provide boundaries. Court entrances are sometimes gated, sometimes merely a gap in the fence. Sprinkled among the courts are light-frame guard stands, roughly the height of lifeguard chairs. These are covered by peaked sunshades. No other roofs or covers are allowed on the courts, so that observation from the wall towers and the guard posts is not obstructed.

"A typical court contains a variety of furniture and appliances. The decor is ersatz: one or two chairs—often wooden fan-back garden chairs; a table; a stove; several hutches or cabinets; some have 'refrigerators.' The floor is most often left earthen although in some courts it has been paved. . . .

"Freestanding kitchen sinks are distributed in the courts area. They are the water supply and clean-up spots and are shared, as in campgrounds. Cooking, eating, talking, game-playing, garden watering, and so forth make up the major activities of the summertime yard. Food may be bought at the commissary and prepared here, although this is limited to canned goods or imperishables. . . .

"The courts are open between 3:10 p.m. and 4:30 p.m. on weekdays; on weekends and holidays, they are open from 8:00 a.m. to 4:30 p.m. Bad weather or prison-wide disciplinary action may also close the courts temporarily. On weekends, these activities may be preempted by movies or religious services. . . .

Stability and continuity: the basis for an ordered social organization

"Every court has a manager and an assistant manager. Officially, the manager is the 'owner' of the court, and he is responsible for infractions that may occur on it. In practice, it seems that this dominance is mellowed by the informal group processes of the members. Nevertheless, the manager has disproportionate power with regard to accepting new members, evicting current members, and shaping the activities of the court. Seniority is a major factor in becoming a manager. Courts are 'inherited' in that they pass from one manager to the next on the basis of the pecking order of the court.

"There are several ways for an inmate or a group of inmates to get a court if one is desired. Perhaps the most common one is through friendship with an inmate who is already on a court. . . . A potential member may be scrutinized by the manager and other members of the court. . . . Preference goes to individuals who either fit in with the dominant activities of a particular court or whose connections on the



Warden Lavalle has been around corrections a long time . . . forty years. For twenty-five of those years he has been at Clinton. His rules are clear. This simplifies life at the institution for everybody—staff and inmates alike. . . .





The town of Dannemora and the prison are closely linked. The main street faces the wall. There are guards at Clinton who represent the fourth generation of their families working at the prison. . . .

Individual courts take many shapes. This is important. Some years ago, the administration tried to regularize the layouts of the courts by imposing a rectilinear grid and setting up picnic tables. . . . Neither the grid nor the tables lasted very long. . . .



inside or on the outside enhance the welfare of the fellow court members. Thus men who have access to valued information, goods, or services are desirable members. . . . New memberships (and ejections from a court) must be approved by the yard sergeant. In most cases, this is routine although, in some cases, the new member is disallowed by the sergeant.

"A second avenue to court membership is somewhat more formal. Rather than approaching a particular court, an inmate or several inmates put their names on a waiting list. If a court becomes available by dint of the departure of all of its members, or disciplinary action against them or some other reason, the new list of names is given the court. . . . Managers whose courts have not maintained a membership size that is up to capacity may often be warned by the sergeant that they should expand their membership or risk having the court handed over to a new group. . . .

To different groups, the courts have different meanings

"To some members of the staff, the courts were seen as valuable insofar as they helped to relieve the pent-up frustrations and anxieties of prison life. The staff saw the courts as limited free zones in which inmates were allowed the maximum of autonomy within the routine of the prison. Others saw the courts as a valuable control device that offered leverage in staff-inmate dealings. Nearly all felt that the courts were an objective statement of humanitarian instincts. To some inmate-users, the courts were seen to provide a release from the humdrum and drabness of daily life. They afforded a degree of privacy, creature comforts and protection from unwanted encounters. . . . Likewise the courts serve to break up the nameless mass of fellow inmates into groups that reflect similar interests, background, or tastes. The hierarchy of the courts afford a ready-made structure for establishing power relations among inmates, thus reducing conflict.

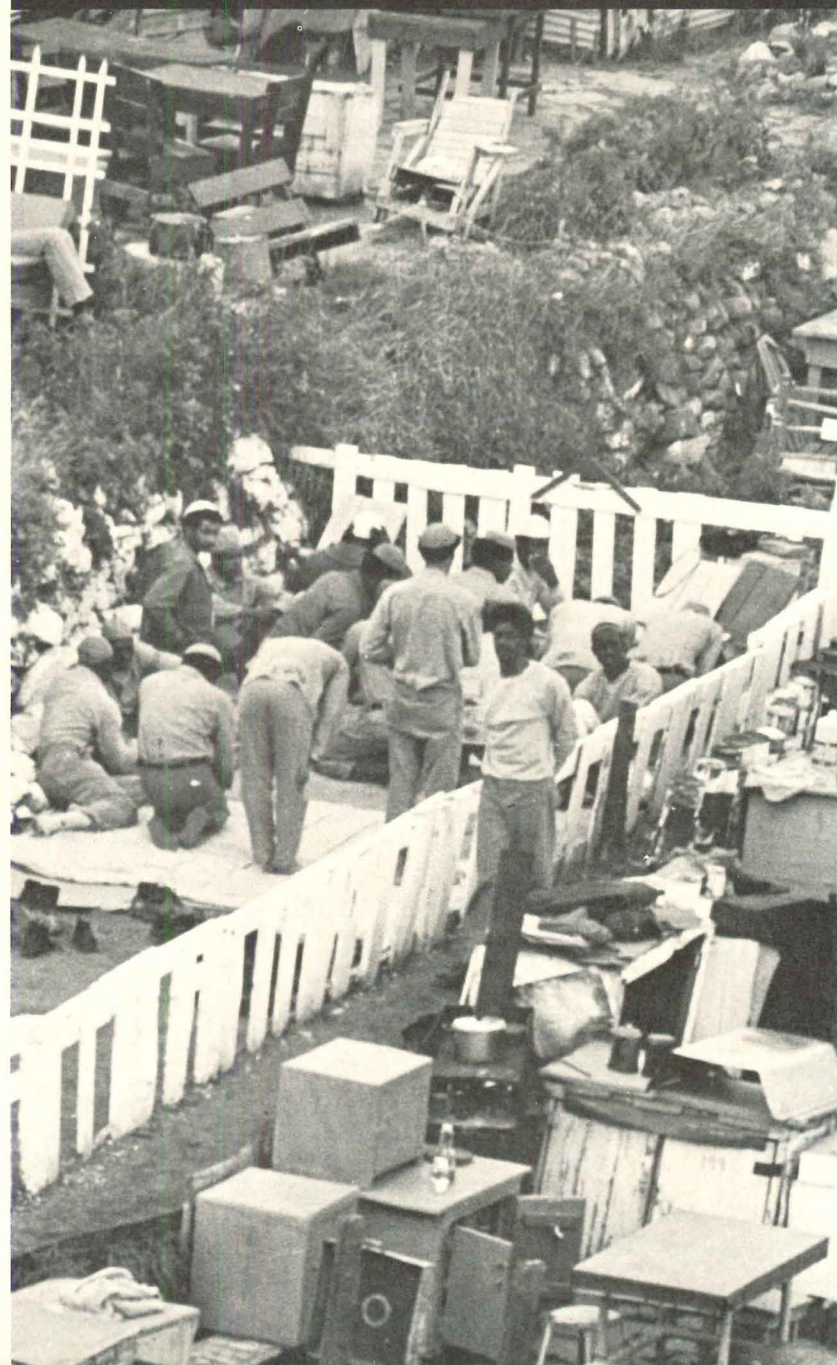
"Other inmates saw the courts as 'irrelevant.' To these, the pains of prison life are so great that the courts make little difference. And what, they ask, is cooking in a hobo jungle going to teach you about getting along outside?

"A third inmate group is hostile to the courts. To these, the courts serve to fractionalize and distract the inmate population—to divert them from courses of cooperative action which may better their common circumstances.

"In the broader view, the role of the courts in Clinton prison appears to be pluralist in character. Formal sanction for small inmate groups, the legitimizing of inmate territories, and the structuring of indigenous authority through the manager system has over the years created an institution which serves to diffuse inmate leadership, minimize formal control, and bring socialization to prison life. . . . The most important feature of the courts is that they constitute an experiment in the shift from control through the suppression of inmate social organization to control through the manipu-



(Above) The area of the courts is crisscrossed with dirt paths leading to and around individual courts. Circulation is lazy but be sure of this; you cannot go into a court without permission of its members. . . . (Below) Many different groups have their own courts. Membership in most is based on the vagaries of individual friendships but other factors enter too. The Young Lords have their own court and so do the Muslims. . . .



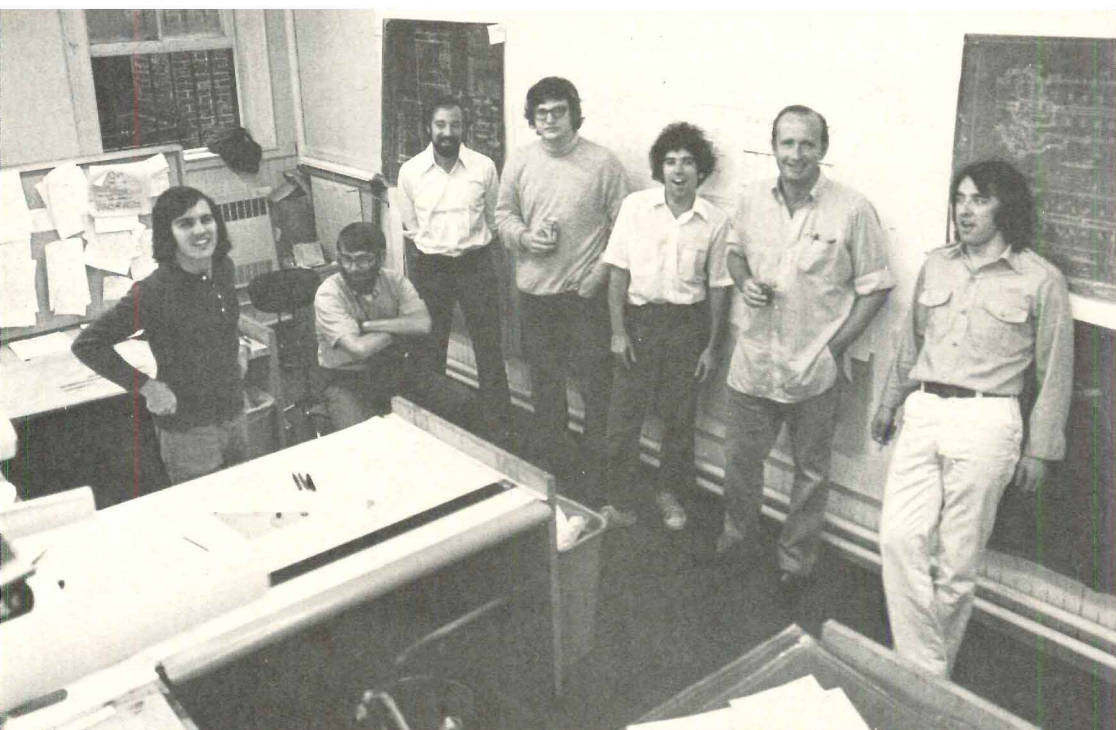


Considerable ingenuity goes into furnishing and equipping a court. Furniture comes from the carpentry shop. Stoves and refrigerators are made of carefully insulated 50 gallon drums. . . . Some materials come from outside. . . .



Paving patterns are varied and often carefully executed. . . . Some contraband—mostly from the prison commissary—finds its way into the courts. If it causes no problems, and usually it doesn't, it is tolerated. . . .





Project staff from *Kaplan and McLaughlin* (left to right): Roy Latka, John Kibre, Lee Brechner, Ron Roizen, Bill Berg, Herbert McLaughlin, Ken Rupard. Not shown: Herbert Reimer and Ian Brown of *Morris Ketchum, Jr. and Associates*.

lation and legitimization of inmate groups. Insofar as the courts achieve valuable ends for both parties with a minimum of friction, the experiment is interesting and full of possibilities.

The court system is fragile and its future unclear

"Several groups of staff and prisoners reported that the courts were 'not as nice as they used to be.' The reason given for this decline was the influx of 'city men' or prisoners boarded at Clinton for New York City's jails. These men may have sentences as short as 90 days, and to them, the benefits of the courts are less salient. In fact, the decline in sentence lengths generally, it was argued, is hurting the courts system. As one inmate remarked: 'If they get cold, they burn one of the chairs because they aren't here long enough to care about not having that chair around.' . . . And new strains are being felt in the courts—the pressure for alliance among the court members of different courts and the push for larger collectives. Whether or not the diminished reward value and the new strains will in time reduce the courts to nothing more than an area with many fences and oil drums remains to be seen. This is a time of crisis for state penal institutions, and the courts system has doubtless been strained although it continues, for the present at least, to be a stabilizing influence."

Design implications of the courts for an altered correctional setting

Corrections is turning away from facilities like Clinton and declaring a preference for smaller, community-based institutions where the goal of inmate rehabilitation may have a better chance for success. What features of the Clinton courts can be transplanted to these new institutions is a matter for prudent conjecture. Several design principles seem clearly indicated:

- **Irregularity:** Attempts at symmetry, rectilinearity, and obvious order—such as architects are accustomed to—have been met with resistance in the Clinton courts. A court environment must be casual, irregular, adaptable and malleable in the hands of the inmates.

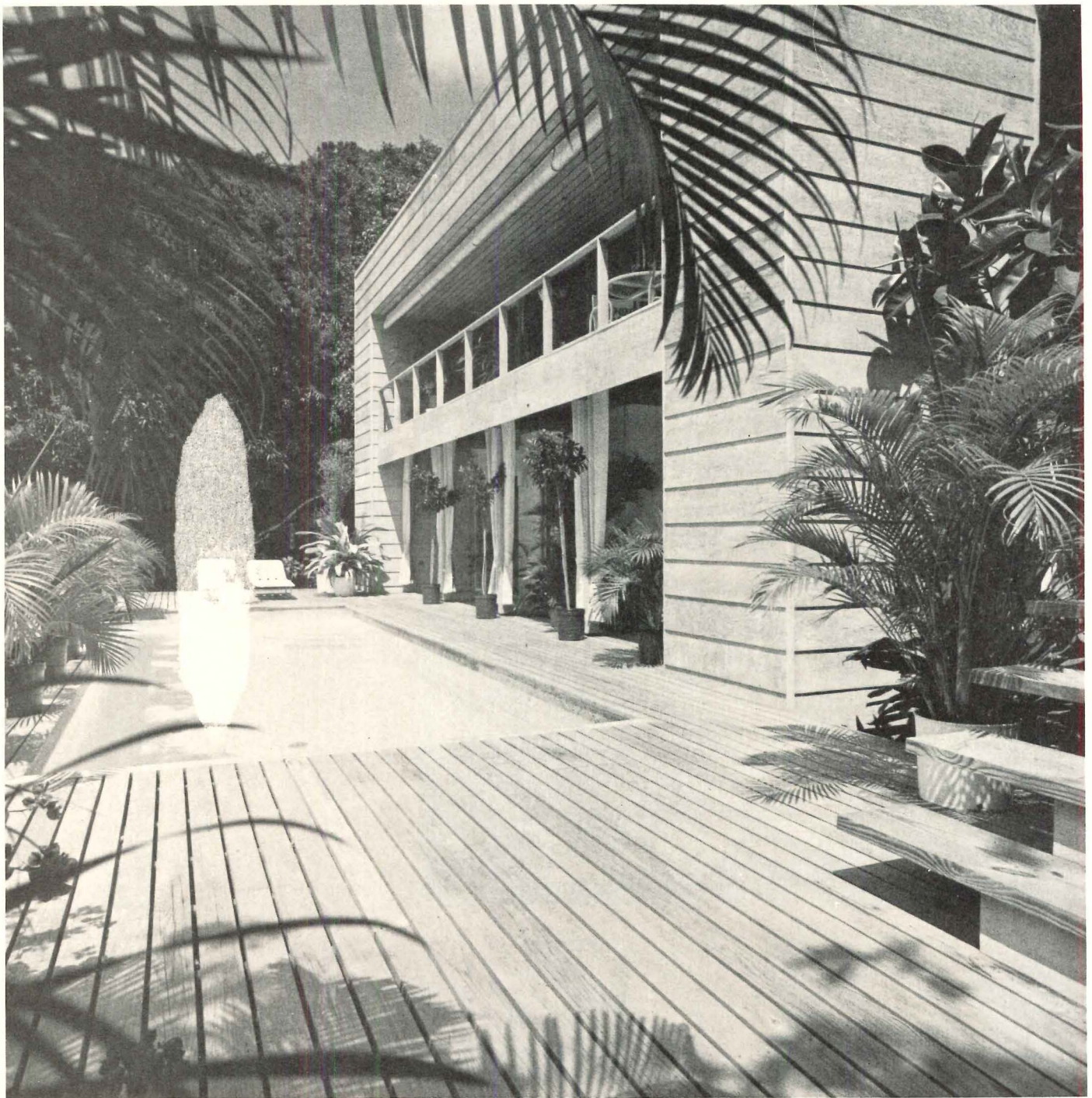
- **Flexibility:** Flexibility within individual spaces may be difficult to achieve but every effort should be made to encourage it. Standard architectural devices such as cabinets, space dividers, etc. will probably not be useful. The inmates will have to evolve their own systems and designs.

- **Terrain:** This is a general concept which can cover much of what is hoped to be achieved in design, including a sense of irregularity, of openness to the exterior, of the changeability of the land which is occupied by the courts. It implies a slope which has been found to be vital at Clinton in terms of promoting a sense of irregularity and allowing visibility. It also implies in all probability that indoor courts might have earth as their basic material. Nothing else is so easily modified or adapted by the inmate.

- **Size:** The over-all size of an indoor court should probably be limited to 100-150 men for reason of noise and security. Smaller total sizes might create problems of choice of court-mates.

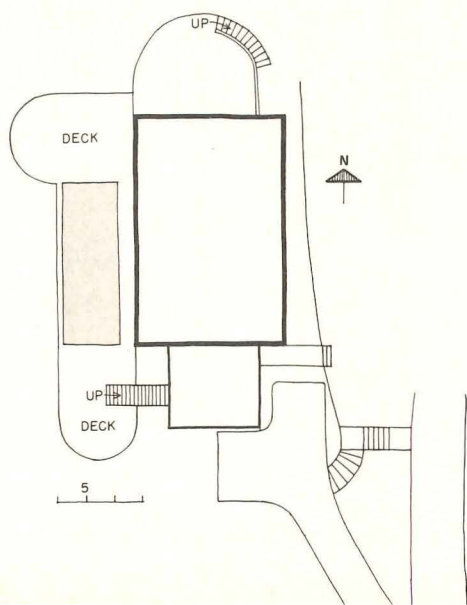
- **Movement:** Design should encourage free and varied movement. Naturally there will be constraints due to security. The plan should be so arranged that the jailor will be able to observe movement and control it while at the same time not interrupting. The spaces through which the prisoner walks should be as varied as possible. He should have his choice of routes from one place to another.

The first explorations of design systems similar to the courts and yet applicable to community corrections are now being pursued by Kaplan and McLaughlin and others. As these experiments progress, as new forms emerge, they will be examined in future issues.



Tom Yee photos

Year-round house for a Caribbean mountainside

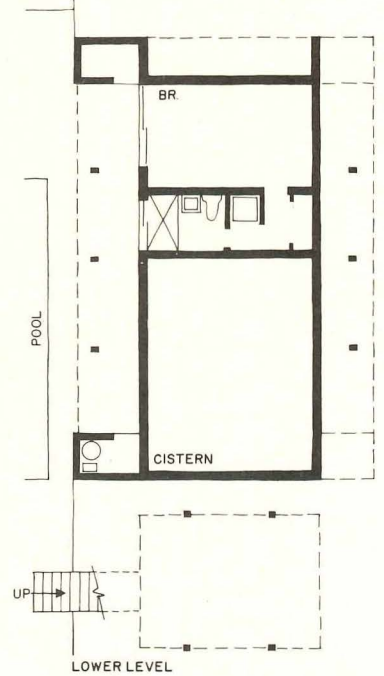
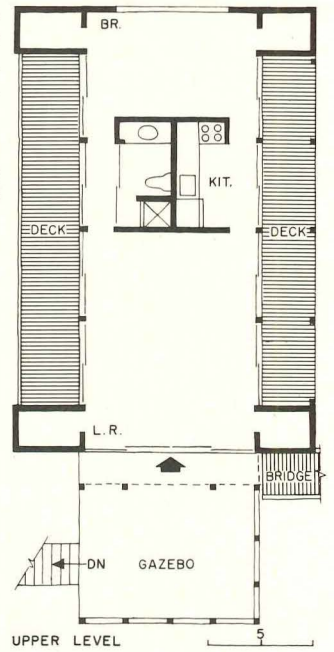


"The nicest 3 million dollar,* 3-room house I've ever lived in" is the way architect Harry Bates jokingly describes the house he designed for himself on the island of St. Thomas in the U.S. Virgin Islands. Sited on a mountainside at an elevation of about 1000 feet, the house is oriented toward the west, toward the ocean and distant views of Puerto Rico on the horizon. Whether it is a "tropical house" in the generally understood sense of that term is a moot question. It was Bates' intention to reinterpret the oldest and most enduring West Indian houses which were traditionally built of wood. But rather than the shutters and blinds of these earlier houses, he protected the large expanses of glass with deep overhangs, wood lattices and screens. The house, therefore, has an inner, glazed lining that can be thrown open to catch the breezes whenever comfort dictates. In the fashion of houses throughout the

*Not quite, of course, but Bates describes building costs in the islands as "shocking" —approximately twice those in many similar U.S. areas.



The entry (photo above) is across a short bridge and into the gazebo. Potted plants, inside and out, soften the demarcation between house and site. Dining space, shown left, occurs in the long gallery that forms the eastern perimeter of the house.





islands, rainwater is collected on the roof and conveyed by leaders to a cistern under the house where it is filtered for purity and stored for later use.

The simple rectangular massing was a compromise with the difficulty of the terrain and the cost of building in this somewhat remote region. The house rests on foundations of reinforced block surfaced with stucco. The pool deck, entry and gazebo are constructed using cypress decking. Exterior siding and interior partitions, ceilings and soffits are finished in fir plywood. The roof structure is 2-by 6-in. T&C fir decking. Surfaces subjected to the weather are treated for protection against termites and stained off-white.

The interiors are treated pleasantly in simple spatial volumes. The house is not large—1100 square feet enclosed—but space expanding

devices, like a mirrored living room wall, are used to advantage. Living, dining, kitchen, master bedroom and bath occupy the upper level. Cistern, guest bedroom and bath share the lower level. The levels are connected by an outside stair from the gazebo down to the pool deck on the western side of the house. Inside and out, the detailing is simple but elegant.

From all appearances, it is an exceptionally comfortable low-maintenance house that employs a limited vocabulary of forms and materials to create a gracious but unpretentious setting for life in the sub-tropics.

BATES HOUSE, St. Thomas, U.S. Virgin Islands. Architect and owner: *Harry Bates*. Engineer: *F. R. McCloskey* (structural). Consultant: *Martin Kopp* (structural). Contractors: *Crouse-Hampton, Inc.*

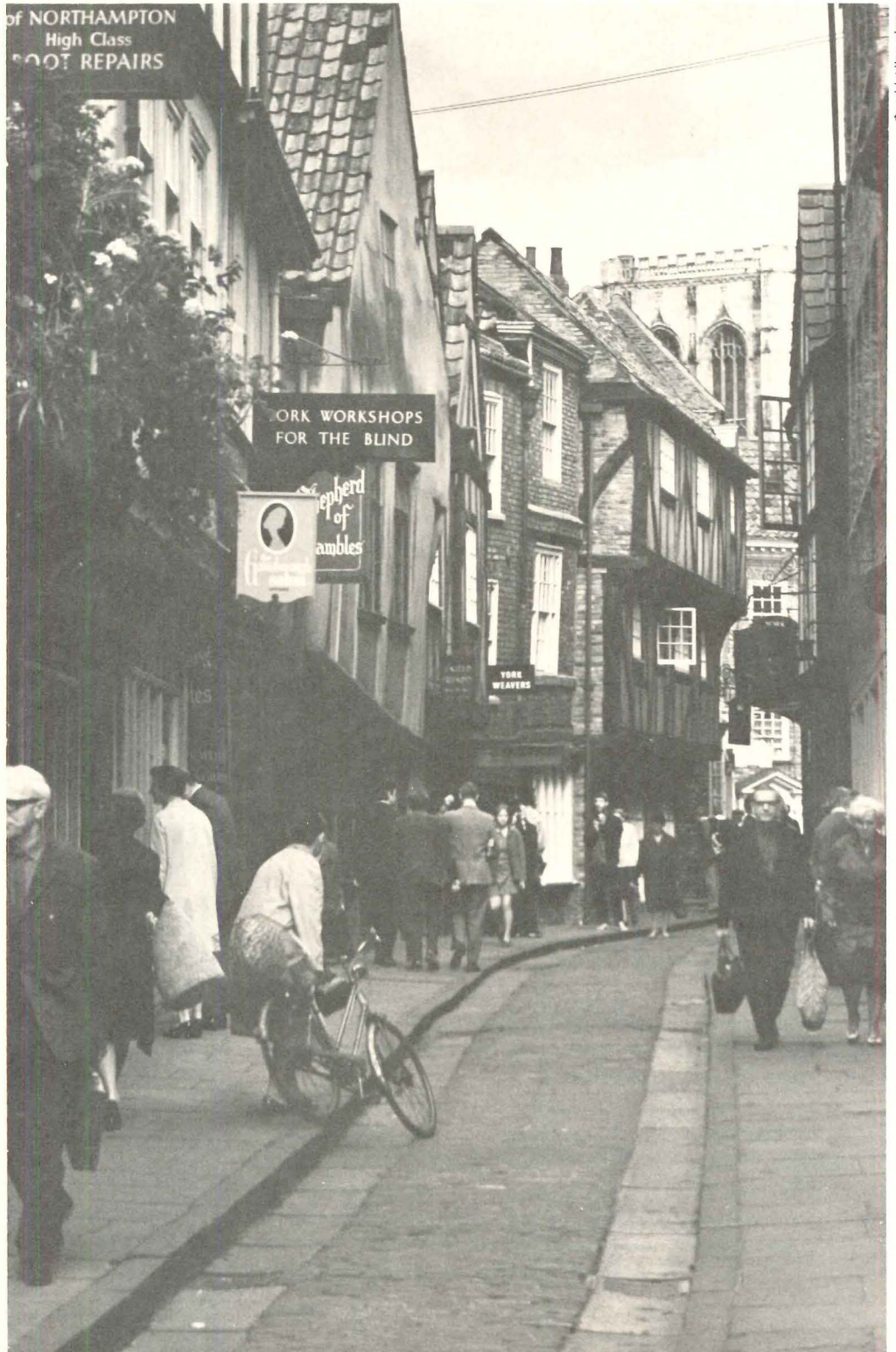


On the north side of the house, at right angles to the direction of the slope, Bates has developed a small terrace protected from the sun. The master bedroom (photo right) with a strip window over the headboard, overlooks the terrace and opens, at the side, into a covered gallery.



The Building Types Study which asks the question: can the merchants' battle to attract customers find happiness with architecture? (Answer: Yes)

STORES AND SHOPS



Gerald Allen photos

BUILDING TYPES STUDY 451



The Shambles, York, England



East Independence Boulevard,
Charlotte, North Carolina

Western culture has for centuries taken a somewhat ambivalent attitude towards the skills of buying and selling. On the one hand there is a whole mythology that extends from the story of the money changers in the temple at Jerusalem to that of Shylock, the merchant of Venice, to our own pejorative use of the word "commercialism." On the other hand there is what is regarded as the commonsensical realization that the life-blood of our society depends on each person's ability to sell his product at higher and higher profit in order to buy more and more of everyone else's products; this realization leads some Americans, for instance, to include the national currency as well as Almighty God when rendering verbal thanks for their well-being. In spite of this ambivalence—or indeed very possibly *because* of it—the architectural images that attach themselves to the design of individual commercial facilities are not particularly sweeping in their implications. There are no eschatological overtones, as in religious buildings; there are no metaphors of hearth and home, as in houses; and there are usually few manifestations of civic trust and aspiration, as in public buildings. Instead the emphasis is merely on selling the product, and, to refer again to the ambivalence with which we sometimes regard this act, selling the product can be thought of, at its worst, as sometimes dubious (because it caters to false pretenses) or, at its best, as necessary (because it satisfies people's material and even emotional needs).

However we choose to regard it, the emphasis is nevertheless clear and simple. The design problem is therefore equally simple: a well-designed store is one which attracts people's attention, answers for them the question "Where can I buy so-and-so?" and sometimes, to their surprise, persuades them that they need to buy something else as well.

One of the host of mini-markets (next page) that have sprung up in recent years provides a clear, if perhaps unambitious, solution to the problem of store design. Located in a suburban area with no real supermarket nearby, it reveals through its glass front the kind of merchandise it is selling, and it makes obvious how you get there and park your car, and with its name emblazoned on the pseudo-colonial gable it even tells you the hours it is open. It is unlikely that this mini-market will add much to the literature of architecture as an art, but, to put that matter aside for the moment, this store—as a piece of functional commercial design—is nearly perfect, and this fact undoubtedly accounts for its remarkable proliferation. It calls attention to itself and its product: a convenient supply of last-minute groceries.

Stores attract attention in many ways, most obviously with signs and display windows, and also by means of the particular location and special configuration of the buildings themselves. It is important to note, though, that not all the ways for gaining notice are visual. A famous jeweler (photo right), or an upholsterer who knows how to repair cane-bottom chairs, or a mechanic who has all the spare parts for foreign cars, or a dealer in first-class fittings for sail boats may need only a small sign on his door,



Concourse, RCA Building, New York City



Cartier, New York City

assuming rightly that the people who care about his product will know about him, and that those who don't know about him wouldn't care anyway.

Usually, though, the design of stores includes some significant amount of visual display, and this display can be at many scales, matching itself to the requirements of the setting. In a small pedestrian passageway in Santa Barbara (below right) there seems to have been a general agreement that was on the whole in favor of small signs and white stucco walls, in allegiance to the elegantly fake Spanish architecture. Along the medieval street in England shown on the preceding page the merchants apparently decided that simple signs and ordinary store fronts would suffice. Often, of course, such gentle agreement does not take place along a street, and an all-out, garish war is declared, with each store owner escalating the conflict by trying to make his sign bigger than everyone else's.

Enclosed pedestrian malls provide another kind of scale at which the store designer can attract the eyes of customers. The *gallerias* and arcades of Europe are familiar examples, and, more familiar every day as land becomes more expensive, are the multi-level suburban shopping centers with stores arranged around an enclosed passageway. An early modern example of a pedestrian mall is shown opposite; here, and not unlike the street in England, the shops have small signs and, in a modern idiom, ordinary display windows. Their commercial success probably depends not so much on any unique effort to draw attention to themselves as on the mere fact that they are there—and so is a heavy volume of pedestrian traffic to and from the office buildings above and around them.

At the other end of the spectrum are stores along highways and commercial strips, like the ones shown on the preceding page. Here again the war to gain attention is often evident, and in many cases it has a Southeast Asian quality to it, with no end and no clear victor in sight. But the effort is still the same: to attract customers by indicating what is there to be sold and perhaps convincing them to buy something else too.

The qualities of the setting and the amount of prominence which a commercial facility seems to require provide a two-dimensional context to the basic problem of store design. In the following pages is a collection of stores in a number of different settings—one near a highway, two on city streets, a group around an enclosed mall, two showrooms on the upper floors of an office building, and two shops in historic buildings. They attract attention in several ways—some by bold architectural effect, some by surprising signs and graphics, some by elegant understatement. The shops in the two historic buildings are mavericks: they try *not* to attract too much attention. The collection, then, is a varied one, and we think it is distinguished as well.

—Gerald Allen



Seven-Eleven Store, Charlotte, North Carolina



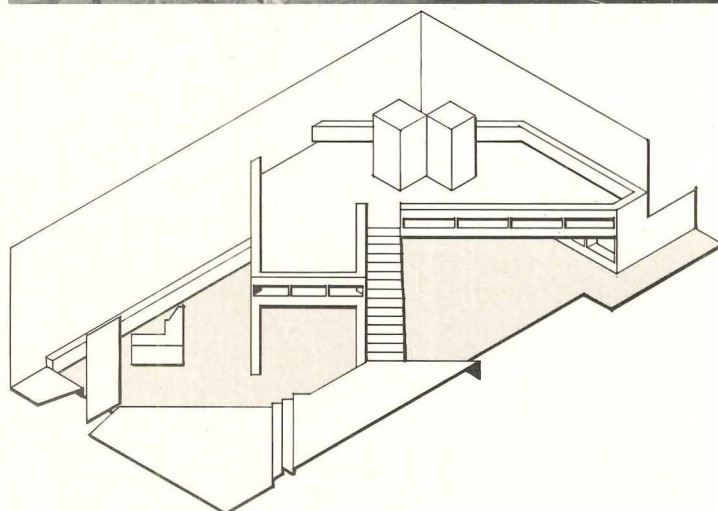
El Paseo, Santa Barbara, California

Orthogonality is a store which purveys a range of contemporary designs from toys and clothes to housewares and furnishings, and it is located in a remodeled commercial space 30- by 50- by 17-ft large. The architects reasoned that on an ordinary commercial street shoppers look more at the store itself than at the sign above it. Accordingly, Orthogonality's sign is understated, and what attracts the eyes of passers-by is the inside of the store and its merchandise, always brightly lit and highly visible. There is, in fact, no display window in the usual sense; instead the entire store is a display.

The only sign at ground level turns out to be the front door. It is a 5- by 9-ft piece of sculpted yellow fiberglass, with a big piece of rubber in it for a handle. This, according to the architects, is regarded by customers as very intriguing as well as a little freaky—so much so, indeed, that the yellow door has become Orthogonality's trade mark and, in passing, has provided a less exotic nickname for the store. In warm weather, the yellow door stands open (above) and literally acts as a sign.

In addition to being a successfully straightforward piece of commercial design, Orthogonality is also an instance of a rather unusual mode of professional practice, since it was built by the architects themselves, with a crew of eight carpenters and the usual subcontractors.

ORTHOGONALITY, Birmingham, Michigan. Architects: *Brown/Steele/Bos, Inc.*
 Technical consultant for door: *McCoy-McCoy.*



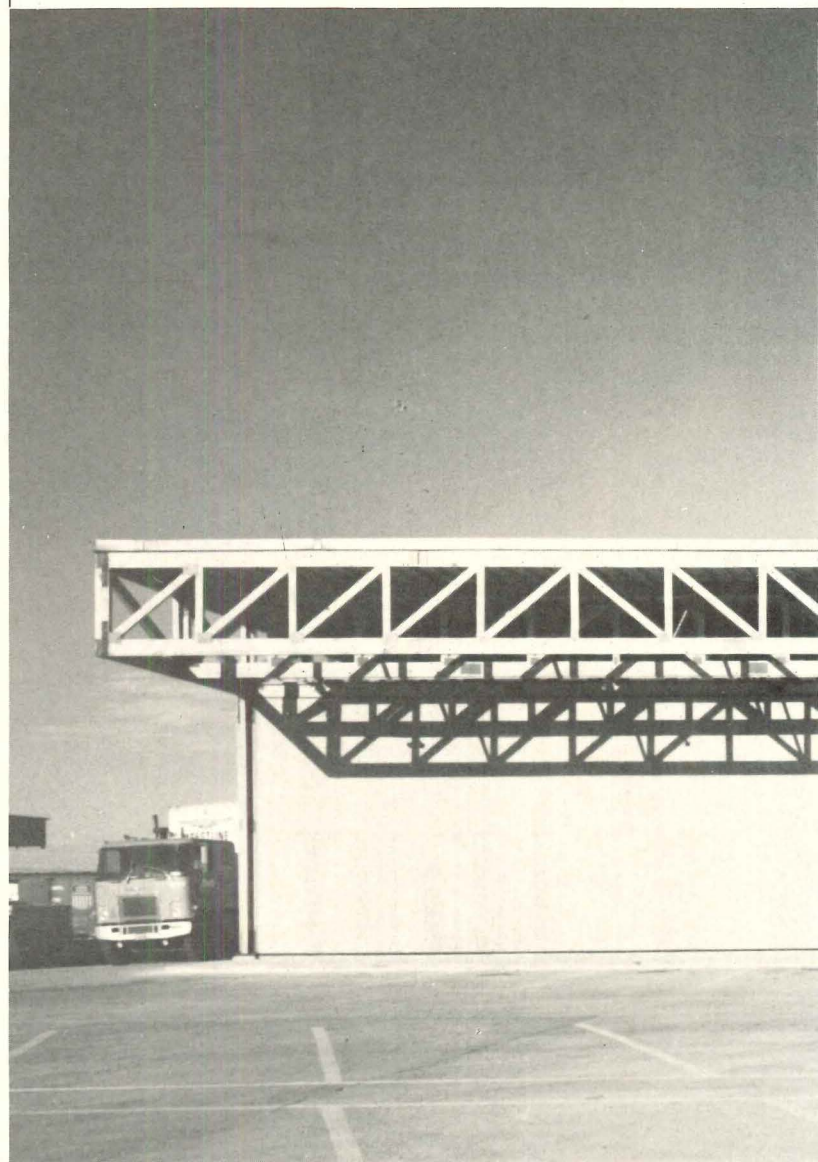
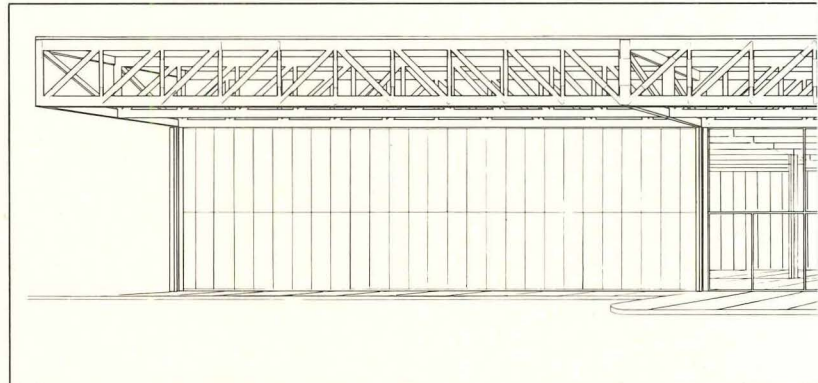


Greg Hursley photos

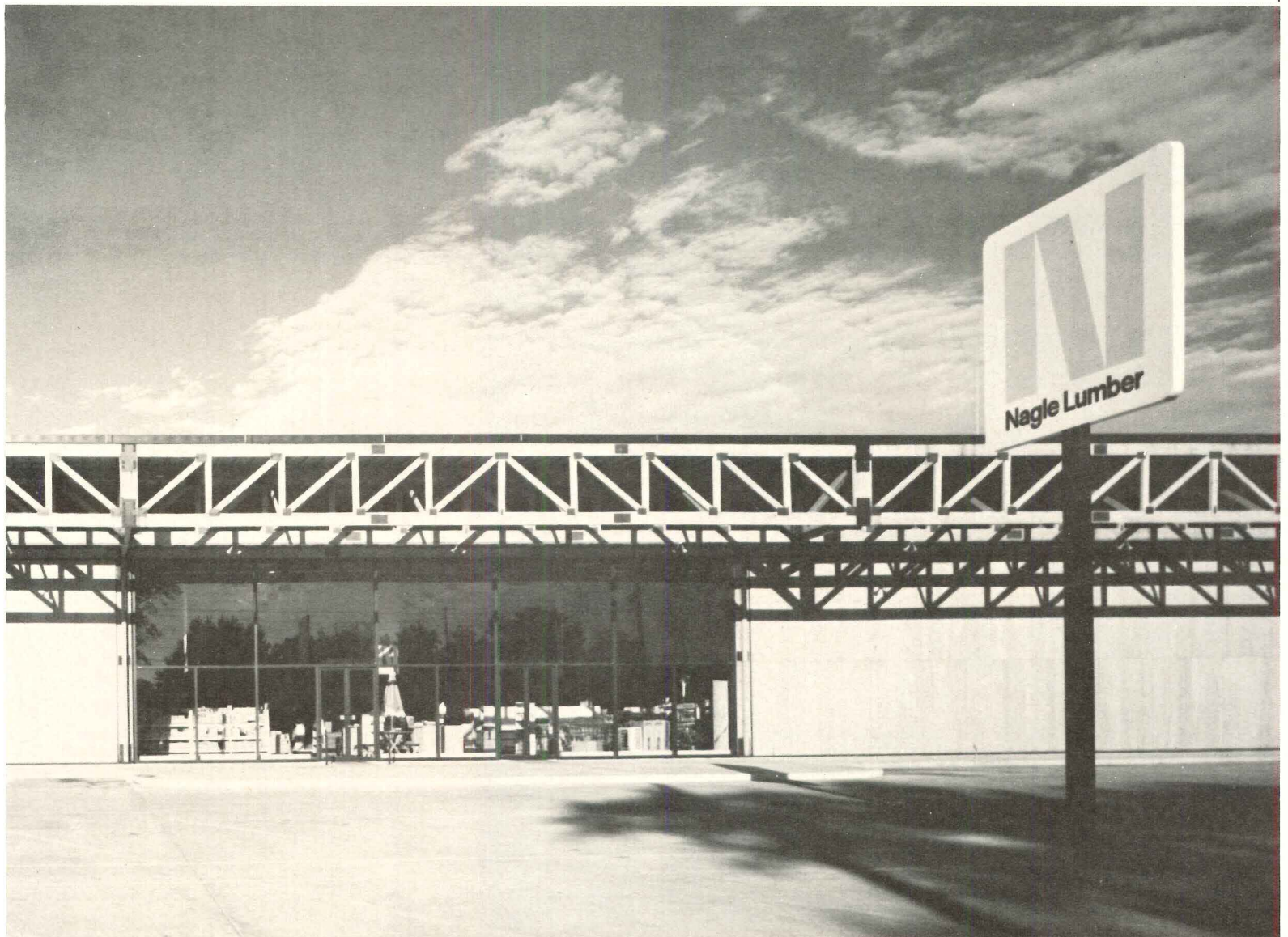
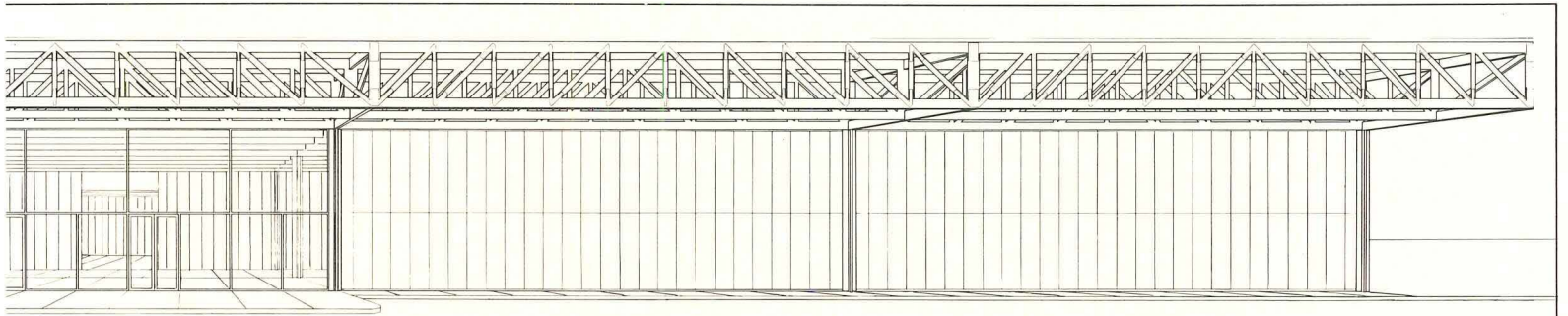
As a matter of taste, the architects were anxious to avoid using the faddish diagonal; they turned to it only when it became apparent that it was to their way of thinking the most effective way of inducing movement through the store. Customers are lured up onto the mezzanine by a series of gradually higher platforms that eventually bring the floor of the mezzanine to eye level (isometric drawing opposite page and photo above).

Built on a four-acre site near an expressway, this lumber company is designed to serve do-it-yourself customers as well as contractors. For the individual customers there is a large parking lot in front of the building, and at the side are separate entrances for contractors and employees. The area roofed in by a series of dramatic wood trusses is nearly an acre, and of this about 12,000 square feet are devoted to retail sales. Bays of 54- by 32-feet were used to provide maximum flexibility and for future expansion. The ceiling height of 17 feet to the underside of the trusses is dictated by the stacking requirements of the warehouse area and by certain two-story areas in the retail sales part of the building. All of the trusses, columns, wall and roof panels were prefabricated from structural lumber, finished naturally, with exposed metal connectors. The architects' idea was to design a straightforward commercial facility that they hoped might recall the ordinary warehouse buildings that lumber companies usually are. In doing this, though, they have also made a structure whose presence turns out to be extraordinary and acts as a powerful magnet to attract shoppers. It is also a highly sophisticated variant from the usual highway magnets for motorists.

NAGLE LUMBER COMPANY, Iowa City, Iowa. Architects: *Booth and Nagle—associate-in-charge, Robert Lubotsky*. Engineers: *Weisenger-Holland, Ltd.* (structural); *Wallace and Migdal, Inc.* (mechanical/electrical). Consultants: *John Geiner Designs* (graphics); *Robert Douglass* (store layouts). General contractor: *McCreary Construction Company*.

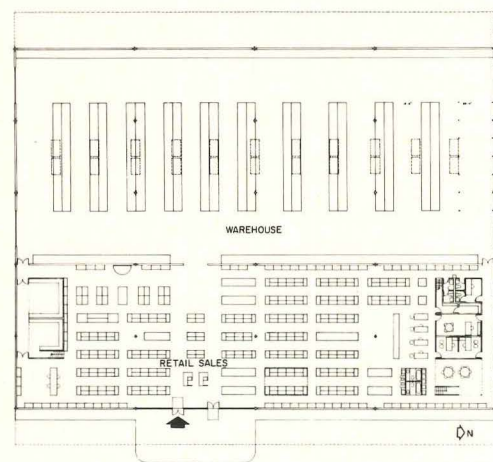


Philip Turner photos





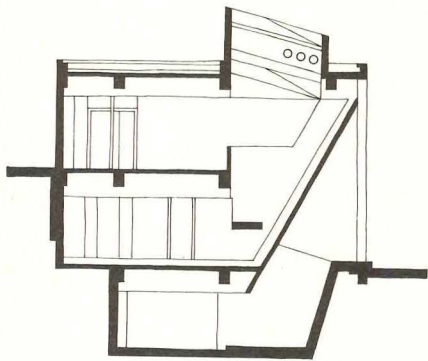
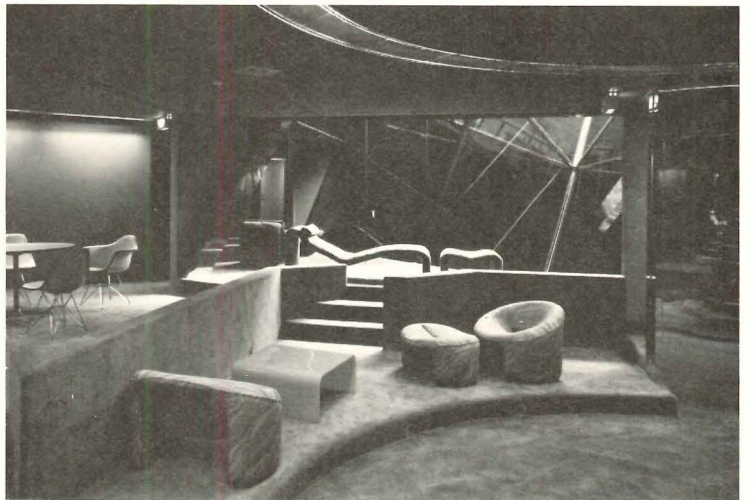
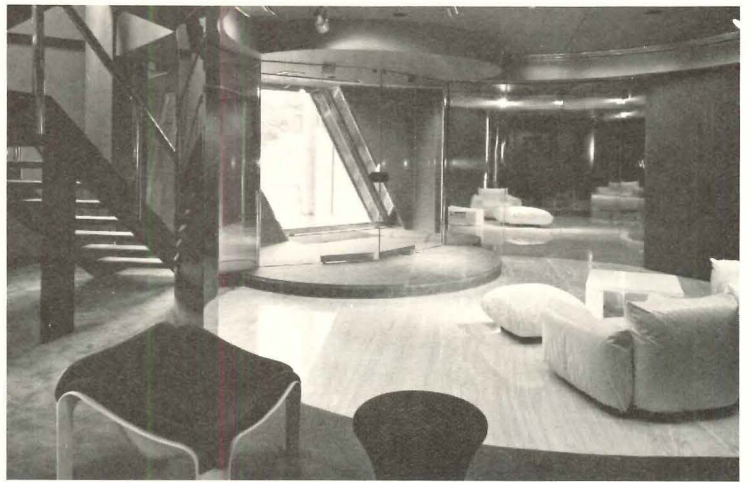
The ducts, sprinklers and lights are all left exposed throughout the building (left and above); natural light enters through a band of windows placed high so that they allow a maximum amount of usable wall space, and also so that they are shielded from direct sunlight by the overhanging trusses. Large cloth banners in different colors (right) are hung in both the retail and warehouse sections, signalling where various items can be found.



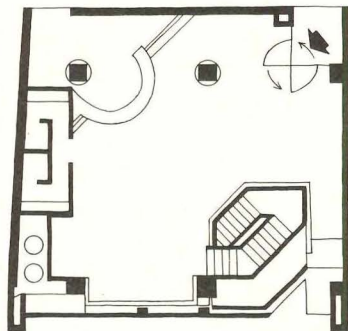


The MEC furniture showrooms in Tokyo specialize in modern international designs, and the building faces the Aoyama Dori, one of the busiest streets in the city. The showrooms are arranged on three floors, one at ground level (top right), one above, and one below (center right). The interiors are elegantly inorganic and cool, finished in stainless steel and marble and dark grey colors. Sculpted stairways (bottom right) and openings from one floor to the next make a fluid and continuous space through all three levels (plans and sections below), and movable metal partitions can open up or close off certain areas for changing functions. These functions, in fact, are many, for the showrooms, with a bar and coffee lounge, are designed for sitting and relaxing as well as for buying and selling. Outside, the sloping chromium mullions of the facade seem to be striving to express the kinetic qualities of the street, just as the glass reflects them. The architect, Paolo Riani, attaches almost metaphysical significance to this reflectivity. He points out that the front of the building is a "non-facade, made completely of mirror—a gigantic mirror. Here, therefore, the building does not exist. What exists is only the reflected image—like the conscience—of the reality that passes in front." What exists too is a stylishly complex storefront that is, if nothing else, an eye-stopper to lure passers-by to visit the elegant displays of the company's line of furniture within.

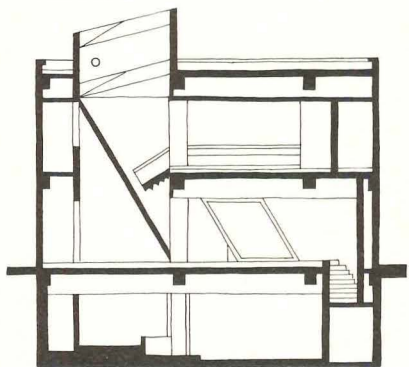
SHOWROOM OF MEC DESIGN INTERNATIONAL, Tokyo. Architect: *Paolo Riani*. Interior designer: *Junko Enomoto*. General contractor: *Hazama-gumi Ltd.*



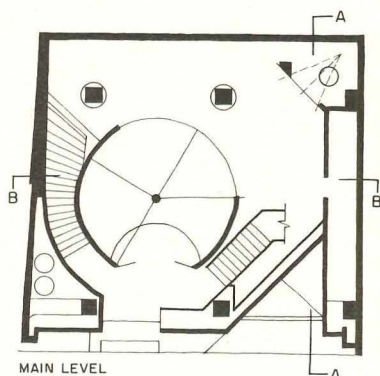
SECTION A-A



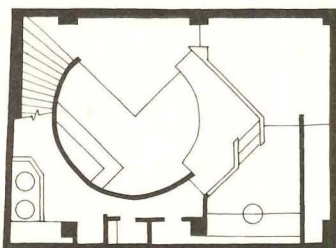
SECOND LEVEL



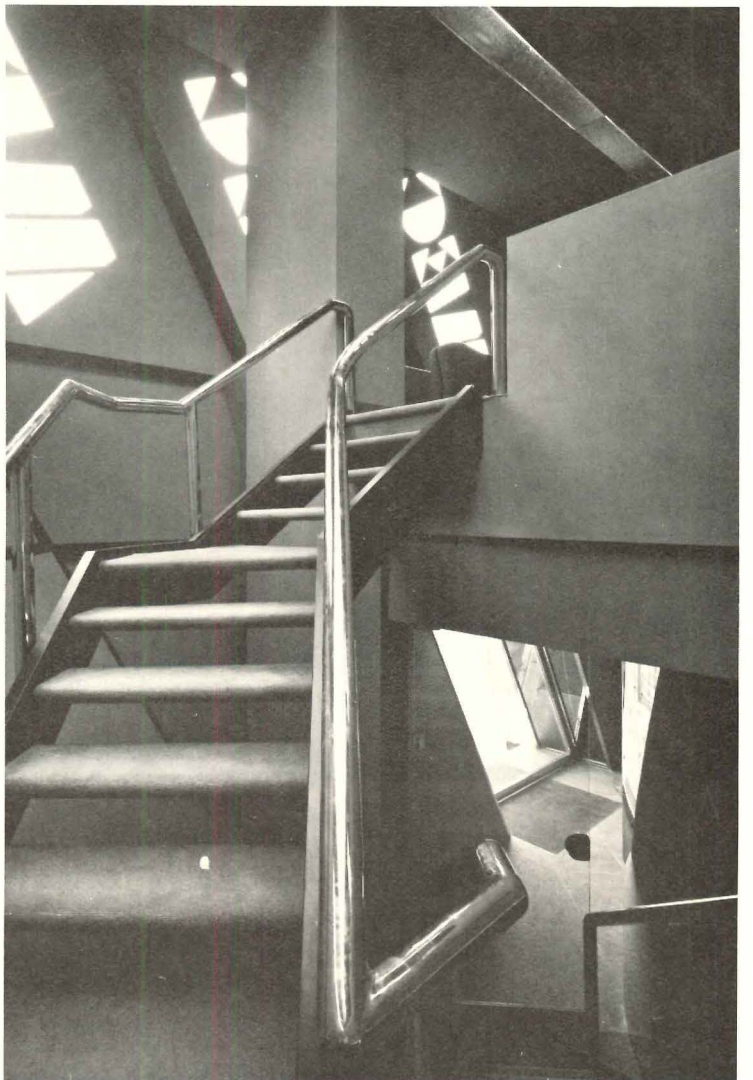
SECTION B-B

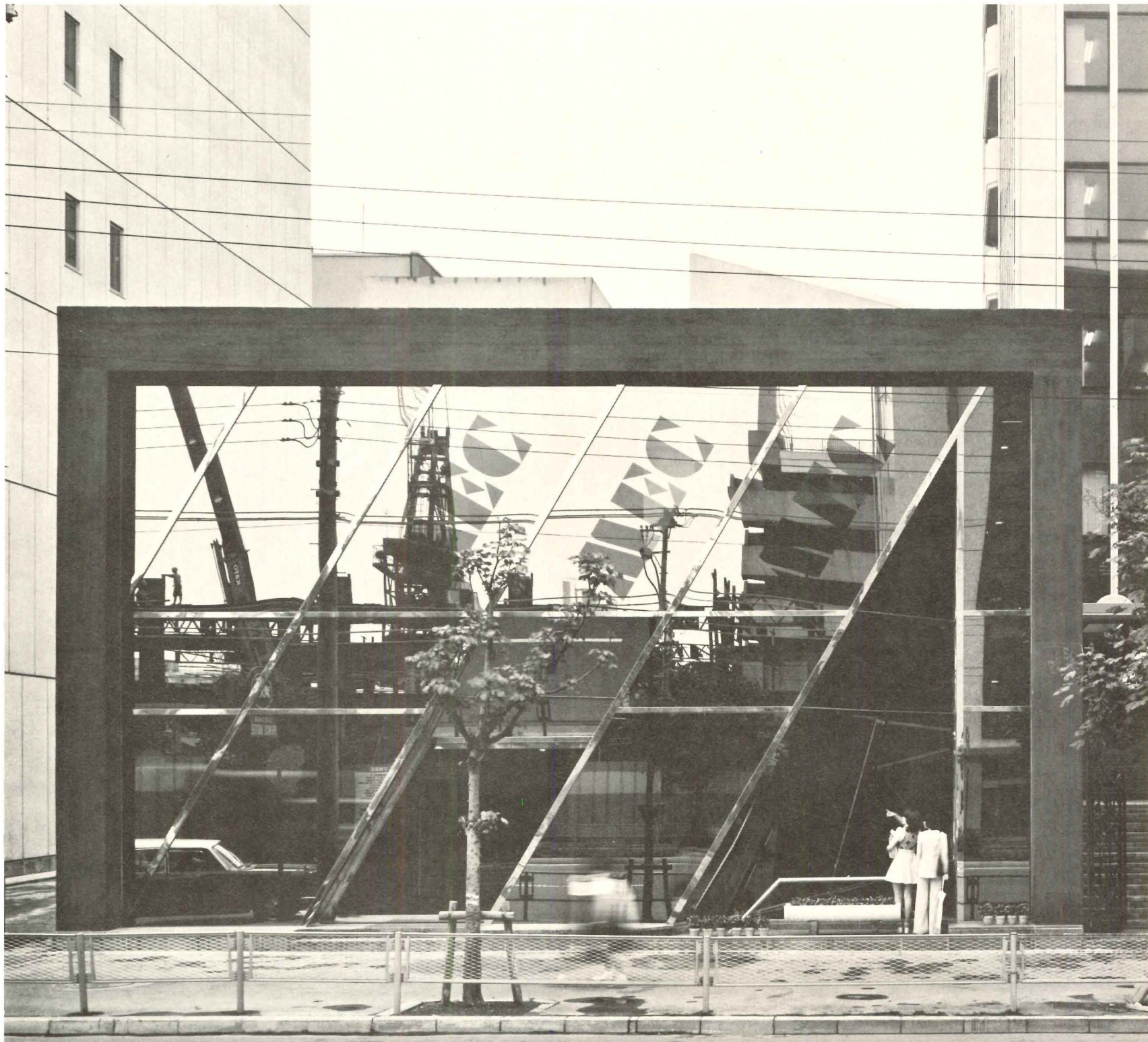


MAIN LEVEL



UNDERGROUND LEVEL





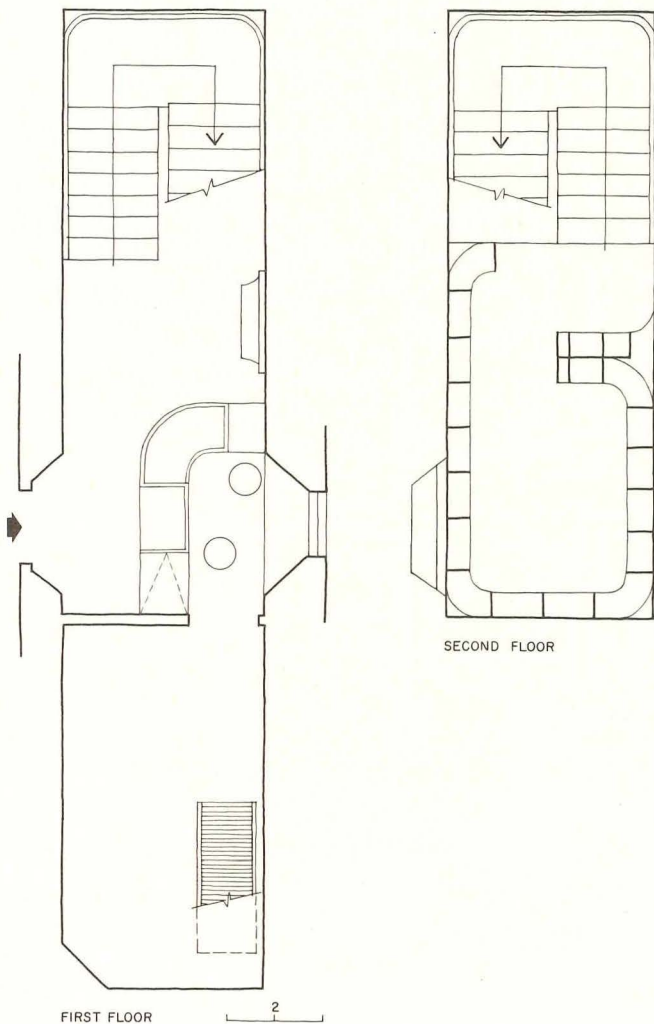
Kawasumi photos

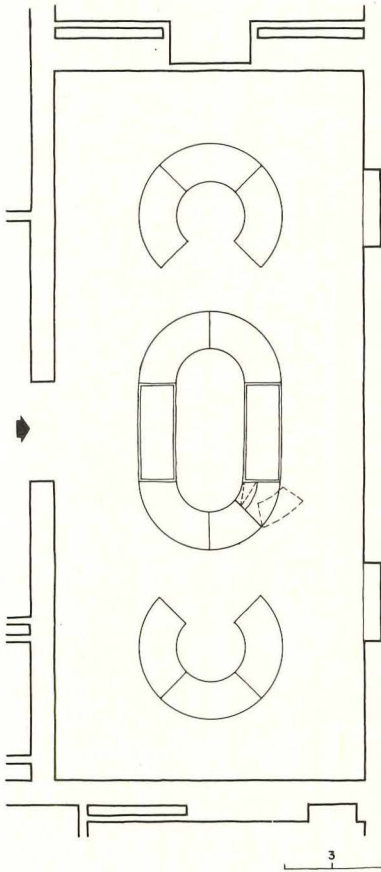
Framed by a band of black concrete, a facade of mirror glass broken by slanting and horizontal mullions reflects the cars and people on a heavily trafficked street in Tokyo. The parallelogrammatic doorway is set back from the plane of the facade, which is broken again on the right to create a tetrahedral void which drops down to the lower level of the building (a complexity explained in the plans at far left).

DISCREET STORES IN ODD PLACES SELL BY DEMAND

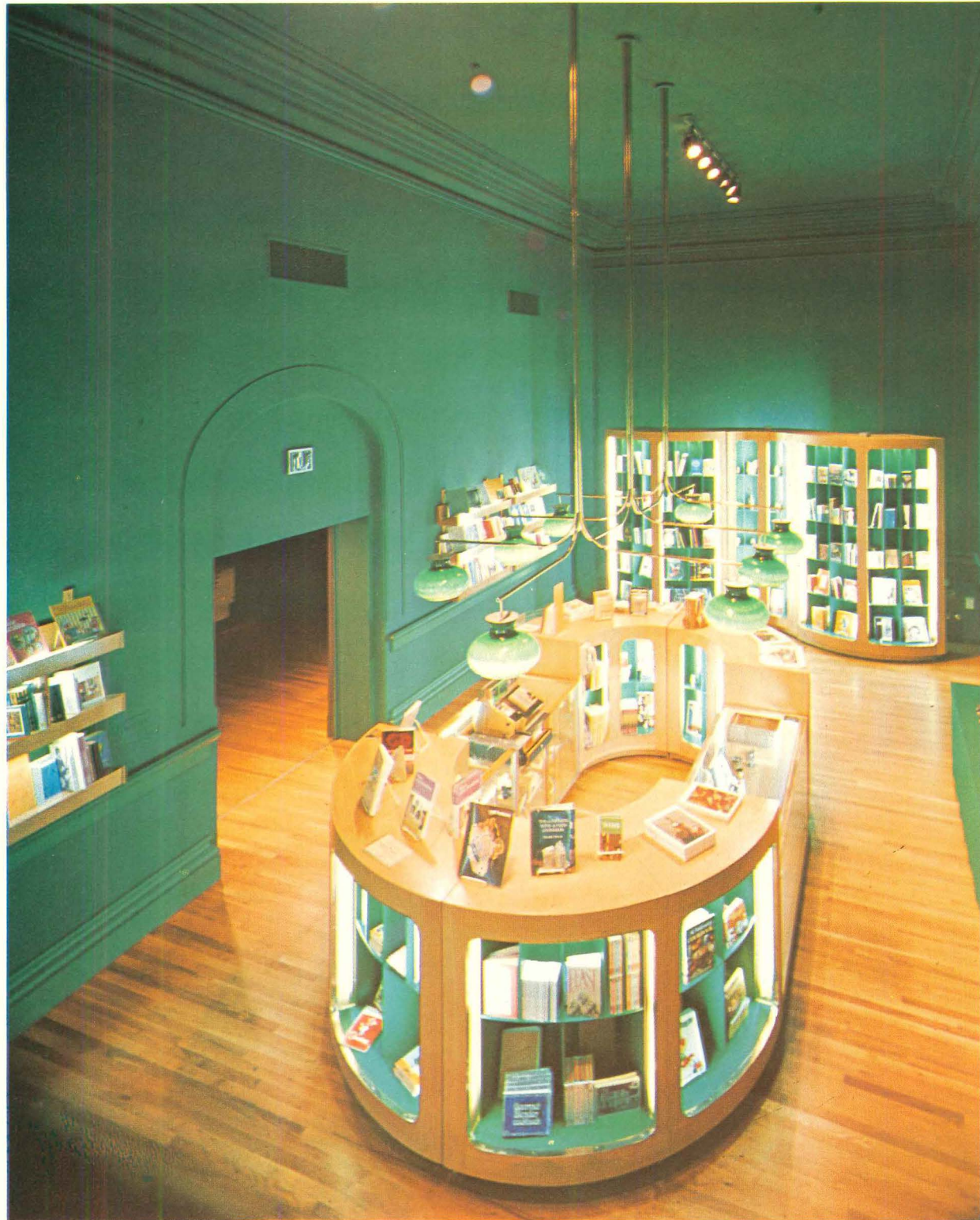
Antipathetic to yelling highway assertion, two Washington, D.C. stores by Hugh Newell Jacobsen fit quietly into their contexts of public benefit institutions by occupying found spaces. The blue all-carpeted surfaces of the Lincoln Memorial Bookshop occupy a previously seldom used 8-foot-wide V.I.P. "warming room" and now provide comfort for hundreds daily, while satisfying pressures of tourists for something to carry away. Originally quoting: "drive the money lenders from the temple," the architect wound up tackling the problem with gusto, even prescribing books vs. plastic souvenirs to be sold in the bright-on-dark sparkle and careful detail of jewelry hidden in its case. The museum shop of the Renwick Gallery maintains the character of its original exhibition room function, changed by sealing windows to provide security to the adjacent Blair House. Carefully lighted to avoid commercial glare, it asserts itself little beyond its strong green wall color and bright display cases. The latter are constructed of oak flooring and brass and would have well pleased the building's original 19th century designer in their materials and scale. Harmony is the watchword and it shows. In both stores the selling approach is probably most analogous to those more prestigious established firms who feel no need to tout their wares; the public will find them out no matter how discreetly presented.

LINCOLN MEMORIAL BOOKSHOP AND RENWICK GALLERY MUSEUM SHOP, Washington, D.C., Architect: *Hugh Newell Jacobsen*. Bookstore mechanical engineer: *Gaza Illis*. Museum shop lighting consultant: *Douglas Baker*.





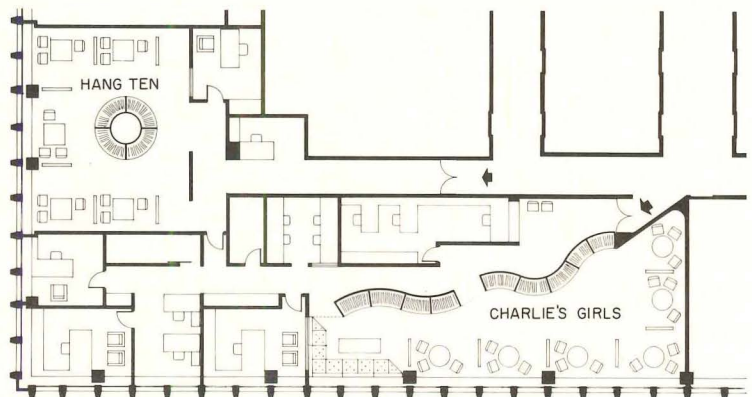
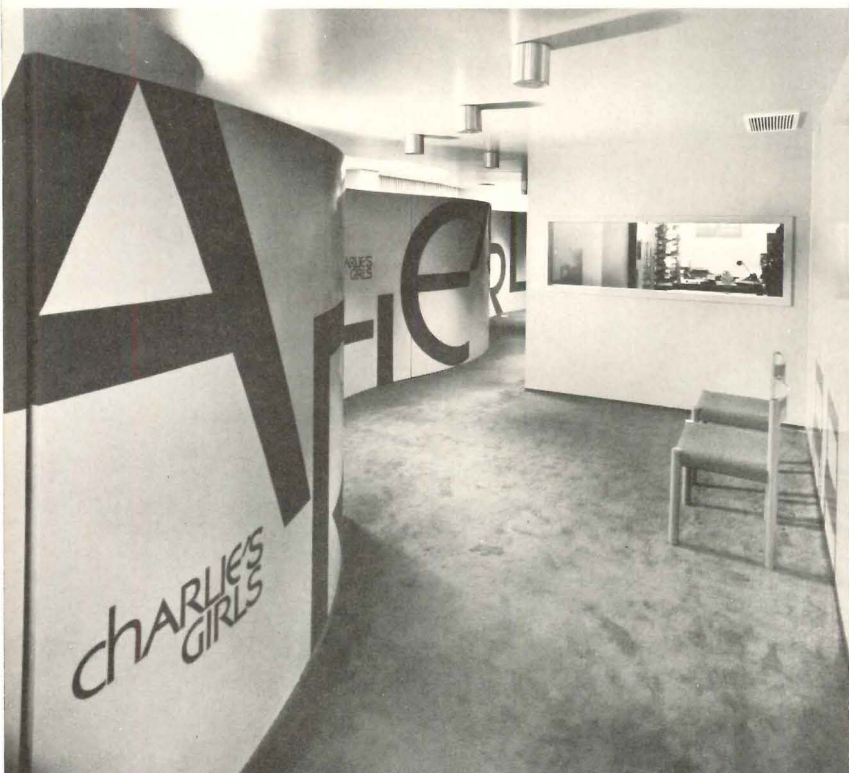
The Lincoln Memorial Bookshop (left) was created in an 8-foot-wide existing space and made double level (avoiding crowded clutter) by insertion of a new steel platform and stair. Dark blue carpeted surfaces and intimate lighting are an appropriate contrast to the light monumental space outside. The museum shop of the Renwick Gallery is treated as other exhibition spaces but specifically defined by strong green color (right). The brass and oak flooring cases would have well pleased the 19th century Renwick in their materials and scale. Flexible use can be seen by comparing the photograph and plan.



Robert C. Lautman photos

When stores or shops or, in this case, wholesale showrooms are buried deep within a building—and therefore usually accessible only to people who know they are there—it becomes more important than ever to make them distinctive and therefore worth a visit. These showrooms are for Charlie's Girls and Hang Ten, two apparel manufacturers which are both divisions of a single larger company and are both serviced by the same office personnel. Here bold graphics have been introduced to attract the eyes of prospective buyers and to compete effectively with the other companies located in adjacent spaces on the same floor of the office building. In Charlie's Girls, an undulating wall—with the name of the company written both large and small on it—separates the waiting and office spaces (right and immediately below) from the actual selling areas (below right). For the greater part of its length the wall is formed by cabinetwork which houses the showroom's line of ladies' sports clothes, and these cabinets are lit from within by concealed lights. Along the window wall there are individual selling booths defined by freestanding panels with bars for hanging clothes (right). These panels can, when necessary, be moved aside for seasonal fashion shows to allow room for spectators and the processions of the models.

SHOWROOMS FOR CHARLIE'S GIRLS AND HANG TEN, New York City. Architects: Robert A. M. Stern and John S. Haggmann. Consultant: Don Wise Advertising & Company (graphics). Custom cabinetwork: William Somerville & Company. General contractor: Chanin Construction Corporation.



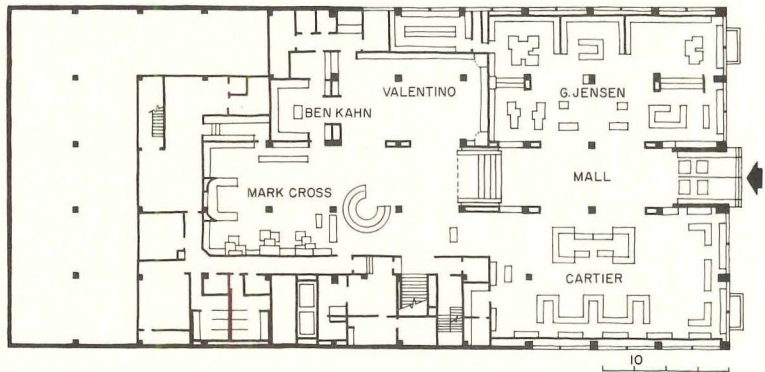


John Hill photos

In designing the showroom for Hang Ten, a line of surfing and water-sports clothes, the problem of visibility was exacerbated by the long distance between the elevator hall and the showroom itself. The design solution (above) relies on the impact of a wall of abstract blue waves rushing towards two giant footprints—the company's logo—painted large on the far wall beyond the receptionist's desk.

Housing the luxury merchandise of such national names as Cartier, Mark Cross, Georg Jensen and others, Kenton Center in Washington, D.C. accomplishes a twofold design goal. First, it establishes a contemporary vocabulary of elegance in background. Second, it provides opportunities for the individuality of each shop as a visible enclave in harmony with the background elegance. The simple expedient of costly materials for the background—white marble floor for the central court, cut velvet carpeting, polished stainless steel and bronze, wood paneling and fabrics for wall coverings—was supplementary to the design search for sophisticated contemporary ambience. Shops are arranged along a white marble avenue approached through an arched tunnel entrance of molded stainless steel. Individual expression is provided by accents of change in color and materials within a disciplined palette. This permits the difference in identity between, say, Cartier and Jensen to be expressed without strident violation of the symphony. The emphasis at Cartier, for example, was on glass as a dominant material used for display cases on pedestals consistent with the dimensions of the jeweler's merchandise. Similarly, natural finished oak was the dominant material as background for the furniture of the Jensen shop, while a background of fabric materials provided backdrop for Mark Cross merchandise.

KENTON CENTER, Washington, D.C. Architects: *Copeland Novak and Israel—associate-in-charge, Edward C. Hambrecht.* Engineers: *S. W. Barbanel and Associates* (mechanical/electrical). Consultant: *Jules G. Horton Lighting Design, Inc.* Cabinetwork: *Anton Waldman Associates.* Contractor: *Edward M. Crough, Inc.*





Louis Reens photos

Arched entrances and stepped approaches to the marble avenue of stores at the Kenton Center are shown. The change of level at the center is shown at left flanked by Cartier and Jensen store entrances. The floating island motif repeated with a change in vocabulary from store to store is exemplified in the Mark Cross interior above.



Translation of the island motif into the vocabularies of fabric for Mark Cross (above) and glass for Cartier (below) permits the variations further displayed by the requirements of diverse merchandise as in the Valentino gown store (left) and the oaken perimeter wall fins creating display niches for the Jensen merchandise (below left).

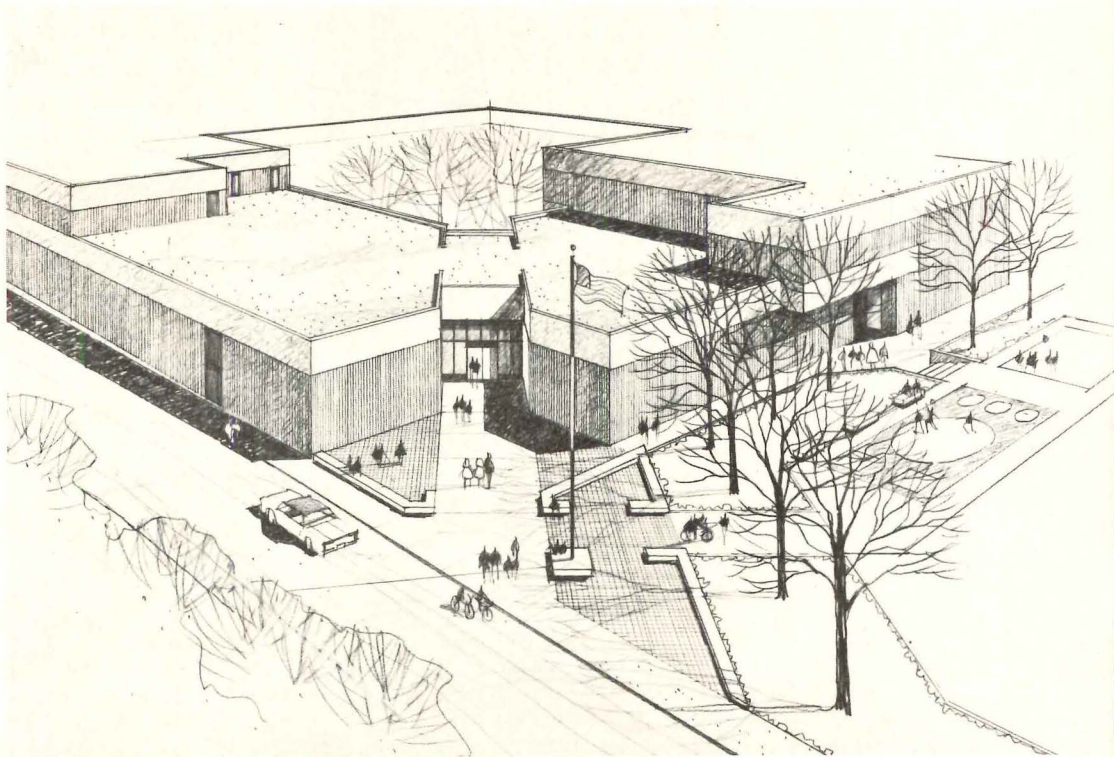


A customized school using standard engineered components

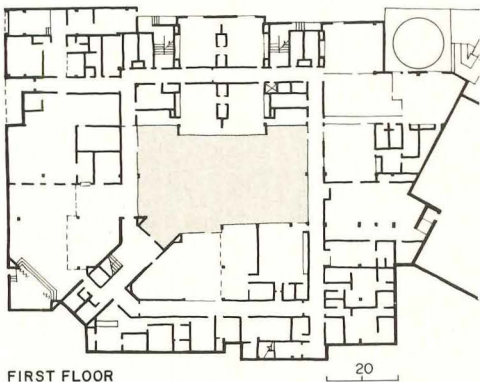
Not very long ago, many architects showed reluctance in the use of comprehensive, off-the-shelf, packaged components for many building types, including schools, sometimes because they were concerned about standardization of design, but also because the cost incentives were not the factor they are now. Ward 7 elementary school in Somerville, Massachusetts by The Architects Collaborative adds to the mounting evidence that individuality of design is still possible with the standardized-component approach. The requisite ingredients, however, are design talent, concern and effort.

While none of the components used in Ward 7 School is fundamentally new, some new products were designed for use in this school—for example, the classroom control panels that contain clocks, speakers, switch plates, and also the communications, TV and convenience power outlets.

Furthermore, a flexible electrical distribution system, similar in many ways to that developed for Toronto's SEF systems school project, was used for the first time in the Eastern states (first installation was in California's Orange Coast College).



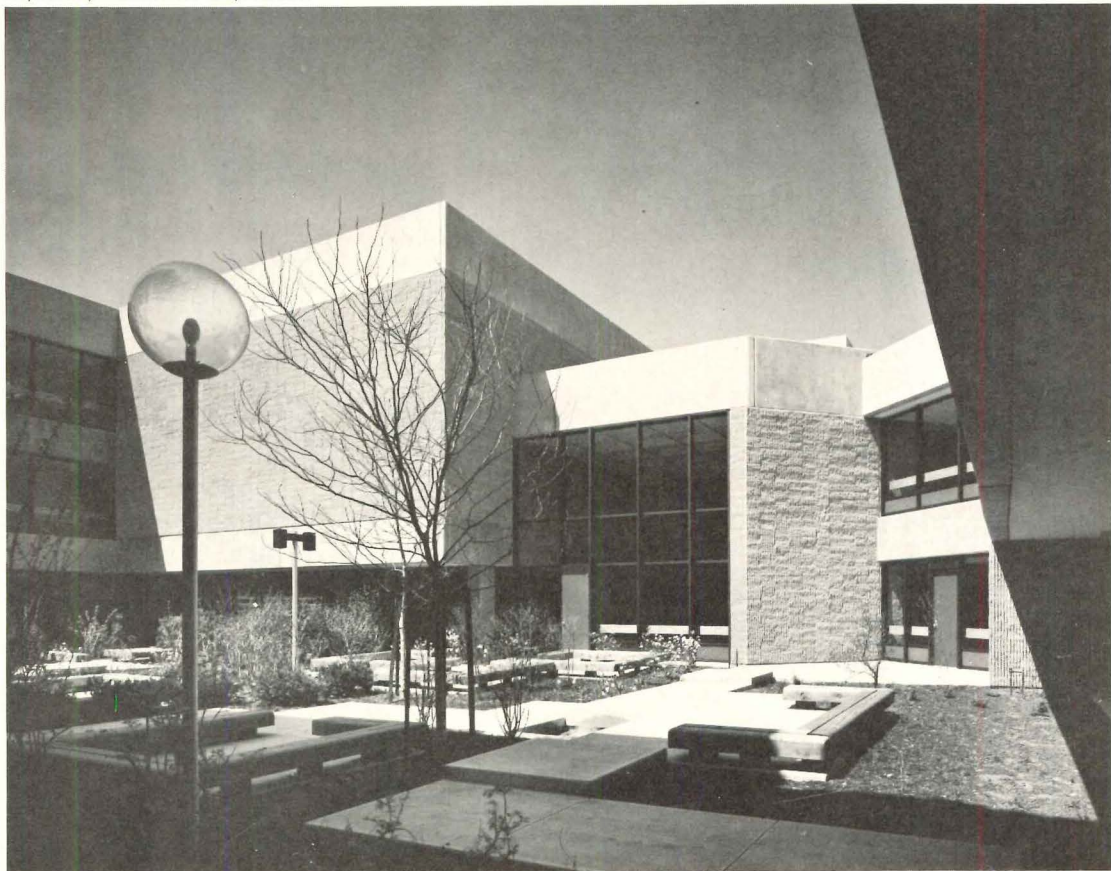
All photos by Phokion Karas except as noted



The structure is post-and-beam precast concrete with prestressed floor planks. Prices are very competitive because of the large number of precasters in the Boston area.

The hvac system uses single-zone package air conditioners with air distribution via ductwork to fiberglass boots serving linear track diffusers. The aluminum track also supports metal sandwich acoustical panels in pyramidal coffers and 3-by-3-ft fluorescent luminaires with prismatic lenses for light control.

Electrical distribution for power and communication signals is via flexible cable sets in the ceiling space that plug into ceiling-hung distribution boxes on one end and to lighting



fixtures, power poles, classroom control panels, and pre-wired partitions on the other end. Though the school classrooms have been partitioned to satisfy the current traditional educational program, the provision of demountable partitions would allow spaces to be opened up, and the flexible wiring system would allow power and communications sources to be located wherever they might be needed to implement an open-plan educational system.

An urban neighborhood posed special problems for this component-built school

The design challenge was to locate, design, and build an 850-student elementary school in an urban neighborhood without, as directed by Somerville's mayor, destroying a single house. This was answered by locating the new school abutted against an existing junior high school. The former elementary school, one block away, was later demolished and its site reclaimed as playing fields for the junior high school.

Because one edge of the school, the main-entrance side, faces a busy street, the architects had to find a way of giving a sense of place to the entrance and of deterring vandalism. They did this by notching a corner of the plan. And the entrance—set askew—looks directly into an interior court. The halls of the school are located adjacent to the courtyard on two sides, reflecting the architects' belief that the organization of the building should be readily apparent to its users. The courtyard, then, both establishes a strong sense of orientation and offers a dramatic visual impact. Outdoor teaching stations with benches are located in the courtyard.

The building is designed to meet needs beyond the educational requirements for its own students. For example, the kitchen can provide 3000 meals a day, serving all schools in that part of the city. Also, special teacher preparation-work rooms, which contain various kinds of audio-visual equipment and software, are provided for teachers from other schools.

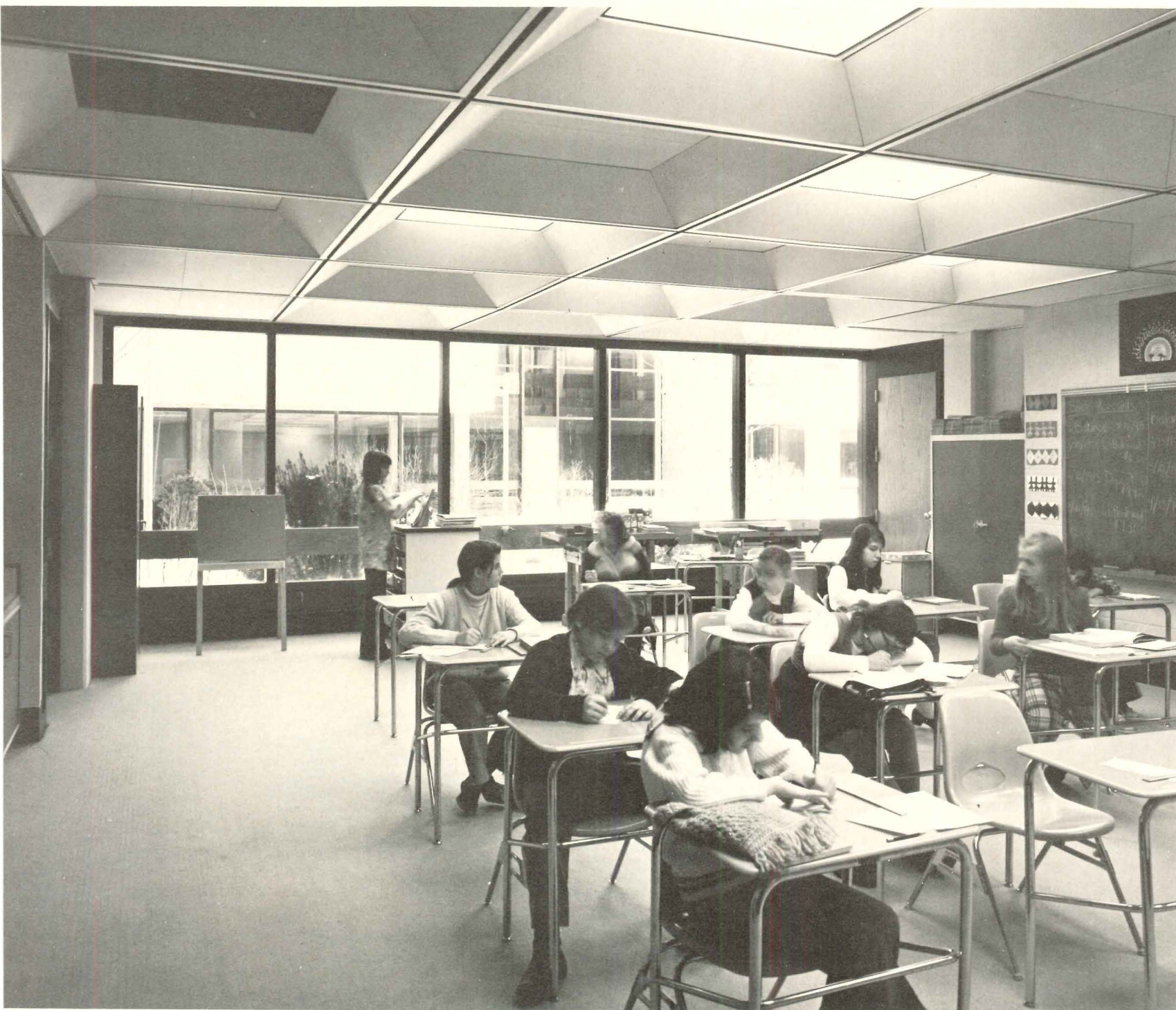
A community room is provided as a service to the neighborhood for group meetings. Further, the gymnasium is organized so that it can be used by junior high school students on a scheduled basis, and by the community after school hours. The gymnasium, library, cafeteria, community room, nurses' station and dental suite, the administrative area with its conference rooms, and the guidance center, all can be used separately after school hours.

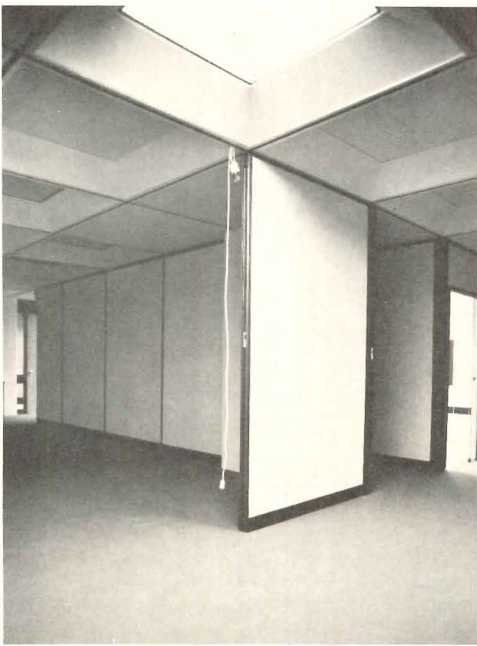
The school is designed without windows on either the street or the playing area elevations. The 28 carpeted classrooms and four special-education rooms overlook the quieter backyards of nearby houses or the courtyard.

The exterior is of split, ribbed-profile block and architectural precast concrete.

The hvac system is inconspicuous both inside and outside the building

The single-zone package rooftop air conditioners will not be noticed by passers-by because





Robert E. Fischer

the building is three-stories high, and because the location of machine rooms (which enclose the units except for the condensing sections) is such that the equipment is generally out of sight. The rooftop units and shafts for supply and return ducts are strategically located to serve the various areas.

The temperature of each room is thermostatically controlled, with electric reheat elements being used to temper the supply air. Single-zone units were chosen rather than multi-zone units because of the large number of spaces to be controlled, and because shaft sizes could be kept small.

In most areas of the building air supply is via the ceiling track diffusers. Return air generally is pulled through ceiling grilles that, wherever they are used, take the place of lighting fixtures in the coffers.

Electric baseboard heating was provided in front of exterior glass to mitigate the effect of cold glass in winter.

The electrical system features a plug-in method for connecting the equipment

The heart of the electrical distribution system is a series of distribution units that take power from electric panelboards, or signals from communications equipment, and feed the power or signals to receptacles on the side of the units. Flexible cables with plug heads (having interlocking connectors) connect utilization devices (lights, receptacles, alarms, etc.) to the distribution units. The system was developed by Boston consulting engineer, Nils G. Jonsson. And he heads the manufacturing organization, American Modular Systems Designs, Inc.

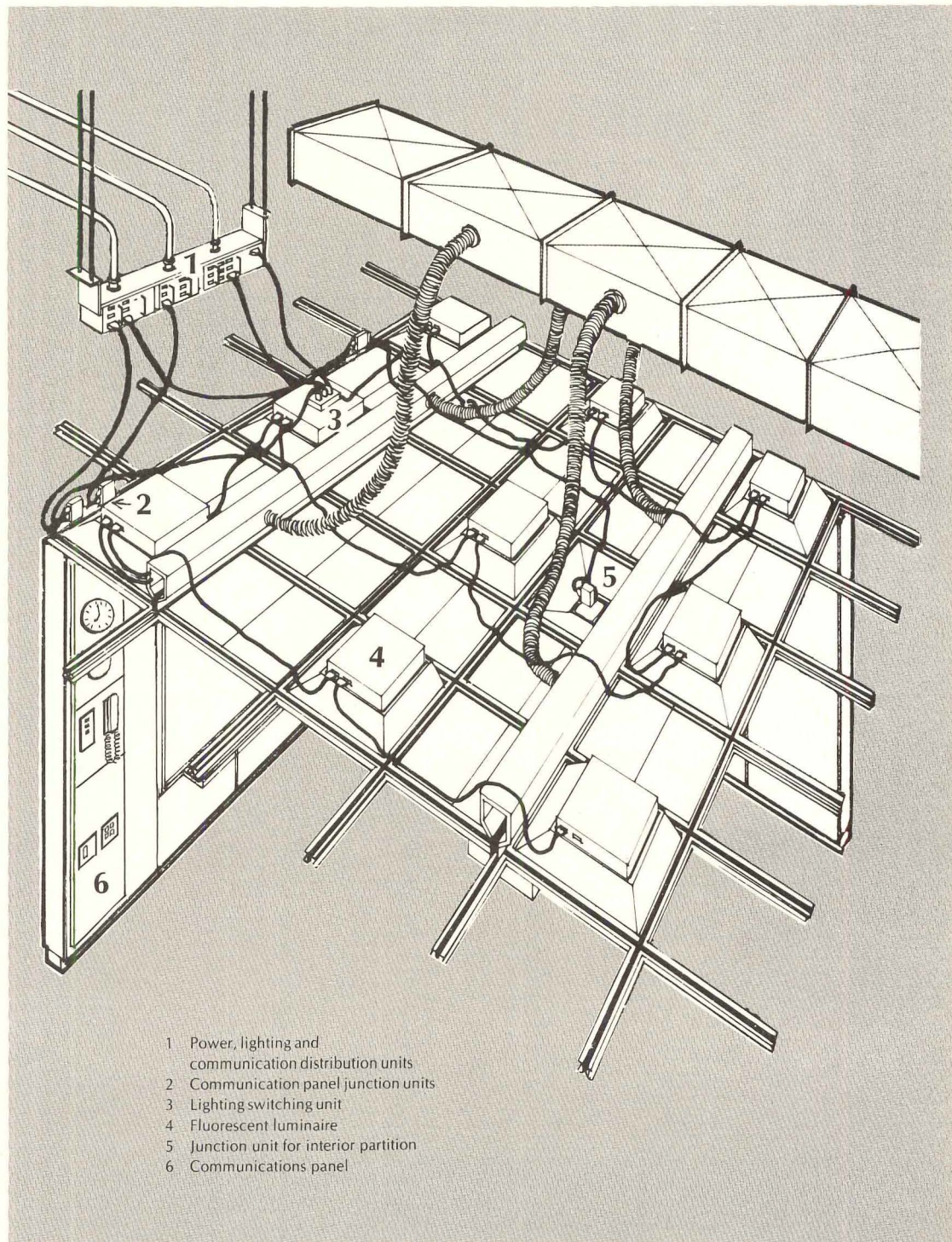
The main difference between this system and the one used by SEF in the Toronto schools is that the distribution functions have been put into separate boxes instead of into one single box. Further, the low-voltage switching units for the lighting fixtures are separate, also, and are attached magnetically to the top surface of the lighting fixtures.



The lighting, power and communications are based on a plug-in concept

The integrated ceiling system is comprised of an aluminum, double-track grid on 5-ft centers supporting preformed acoustical coffers and then luminaires or dummy panels. The coffers also provide some shielding of the luminaires, and add to the visual interest of the ceiling. Fiberglass boots supply air to linear diffusers formed by the aluminum track. Power and communications signals are fed to outlets and luminaires via flexible cord sets that plug into distributions boxes hung from the ceiling.

Communications panels can be inserted in a demountable-panel wall (above) or set permanently in a masonry wall. The flexible cord sets are long enough (top) to permit a certain amount of latitude in the location of the communication panels. The demountable panels may be prewired for low-voltage switching of the luminaires.



At the present time, Underwriters' Laboratories, Inc. has approved all of the components for listing except the flexible cables. UL is expected to approve these shortly upon the submission of production samples made using flexible, metal-covered cable rather than neoprene-jacketed cable, so as to be in conformance with the 1971 National Electrical Code. Furthermore, the concept has been cleared for listing as a "system" in the prefabricated assemblies section of UL's Electrical Appliance and Utilization Equipment List. The system has been approved by state authorities for use in California and Massachusetts.

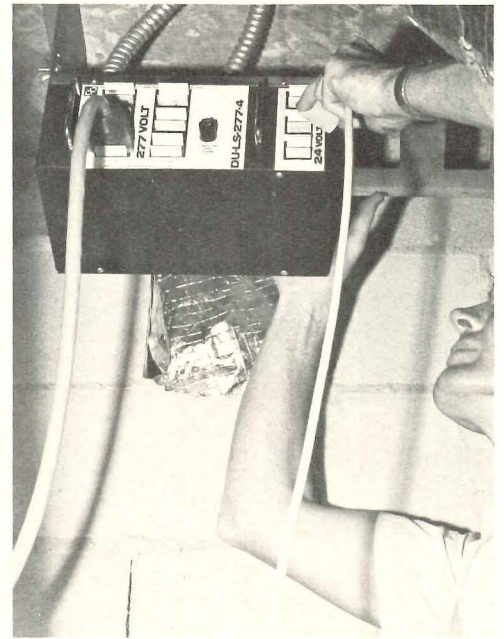
Components comprising the system include: 1) distribution units (lighting, lighting with switching, audio/intercom, video, clock/program, fire alarm, intrusion alarm; 2) low-voltage switching units for lighting fixtures; 3) cable sets; 4) power poles; 5) communications panels; 6) carrel columns (to provide power and signals to study carrels); 7) ancillary products

including a junction unit, a wiring adaptor, and a distribution-unit mounting bracket. Also demountable partitions prewired for low-voltage switching can be provided.

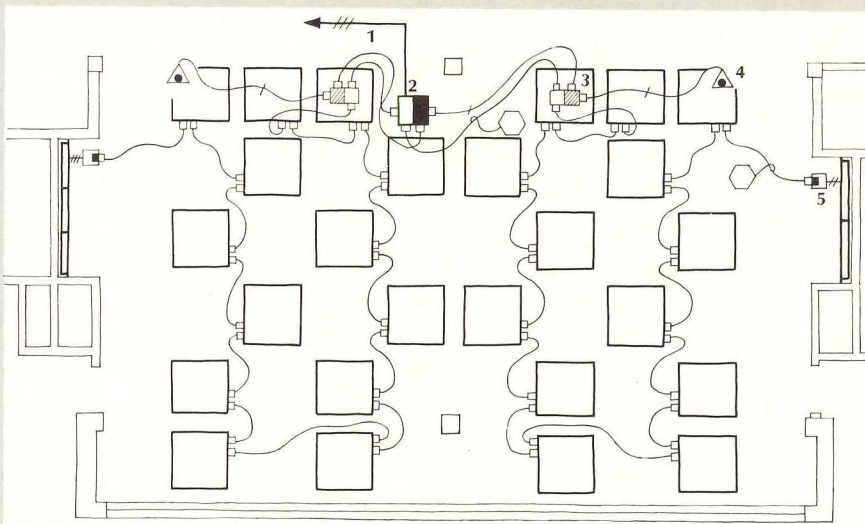
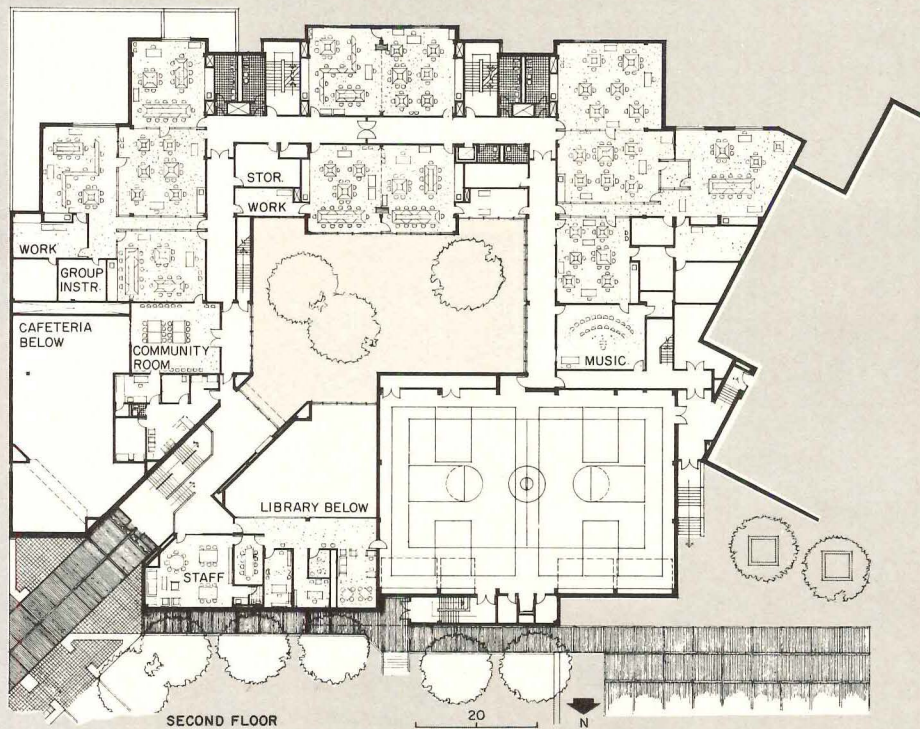
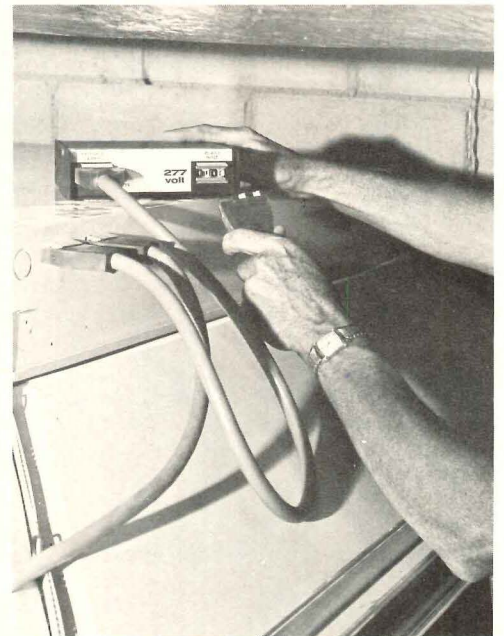
The lighting and power distribution units have capacities of 4, 6 or 8 circuits with maximum wattage of 1800 watts at 120 volts and 4300 watts at 277 volts.

Lighting in the Ward 7 school is 3- by 3-ft, prismatic-lens luminaires using six 30-watt lamps. The luminaires, arranged in a modified checkerboard pattern, provide an average maintained footcandle level of 85.

WARD 7 SCHOOL, Somerville, Massachusetts. Owner: City of Somerville. Architects: The Architects Collaborative, Inc.—principal-in-charge: H. Morse Payne; associate-in-charge: David G. Sheffield; job captain: Robert W. Adams; landscape: Robert Thompson; furnishings: Ann Elwell. Engineers: Souza & True (structural); Fitzmeyer & Tocci (mechanical); Ronald P. Hirtle (electrical). General contractor: Peabody Construction Company.



Barry Marc Real photos ©



- 1 277-volt feed
- 2 Lighting distribution unit
- 3 Lighting switching unit
- 4 Wall switch
- 5 Over-counter luminaires

The electrical system is tied together with flexible cables

While the plan of Ward 7 is in the more traditional mode presently, the electrical system is easily adaptable if there is a move toward a more open plan, or if changes are required with the existing plan, purely for the sake of convenience of usage. Built around an open court, the school is three-stories high and adjoins a junior high school. The circulation is around the court to give occupants a sense of orientation.

The photos show a lighting distribution unit (top) which has outputs of 277 volts for the luminaires and 24 volts to operate the low-voltage switching relays (bottom). The electrical plan (left) shows the circuiting for the classroom area directly above the court in the second-floor plan. The distribution units are suspended from the structure and the switching units are attached magnetically to the luminaires.

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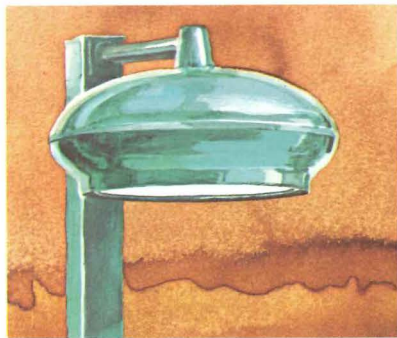
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Elliptra I. The area light.



The first fixture in the series is Elliptra I. An area light whose unique housing is designed to contain four HID lamps. Each with an integral ballast, and a reflector that can be adjusted to let you aim patterns of light into divided malls, long narrow spaces, or areas of unusual shape.

Elliptra II. The post top luminaire.

Similar in appearance to Elliptra I, this fixture is available with an encapsulated integral ballast (housed in the stylish mounting arm) or in models designed for remote ballast operation.

Pole mounted, Elliptra II provides well defined symmetrical

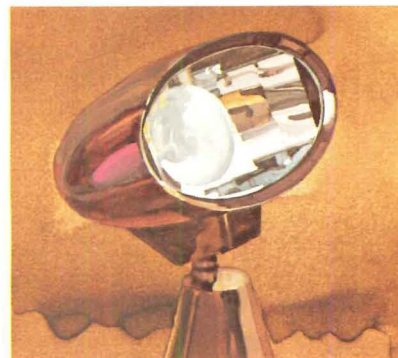


patterns of light for parking lots, walkways and drives, parks, and campuses. Wall mounted it can be effectively used along building fronts and over entryways.

Elliptra III. The floodlight.

Elliptra III's patented, segmented reflector makes it equal in efficiency to our famous "F" model; long the standard in superior floodlighting.

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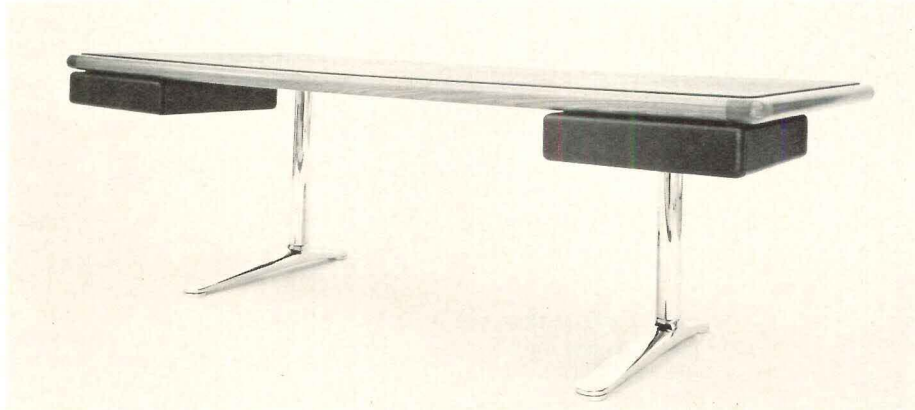
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For more information, circle item numbers on Readers Service Inquiry Card, pages 221-222.

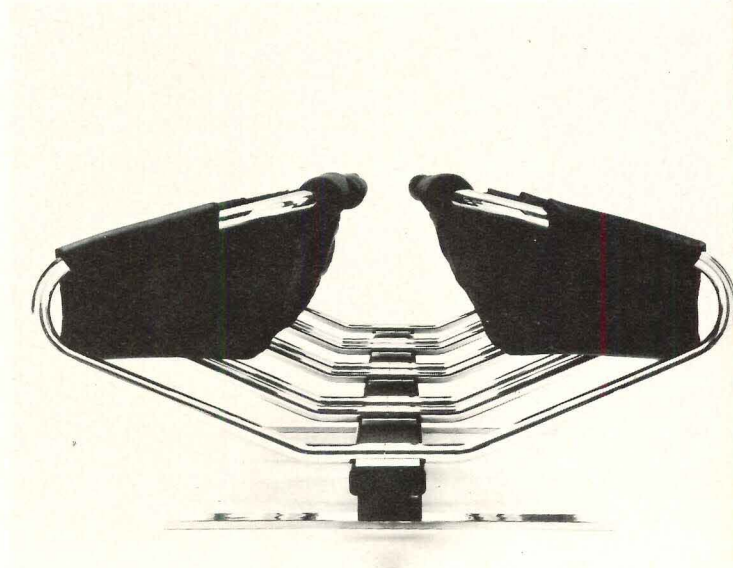


Architect-designed executive collection uses generously scaled components

Designed specifically for the executive office, this system includes a complete line of interchangeable units—desks, conference tables, credenzas, storage units, lighting and a telephone console. Shown in oak with natural leather and polished chrome, the system is offered in a choice of materials.

The design was conceived by Warren Platner Associates. ■ Knoll International, New York City.

Circle 300 on inquiry card

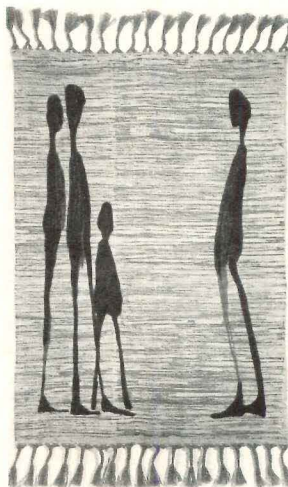
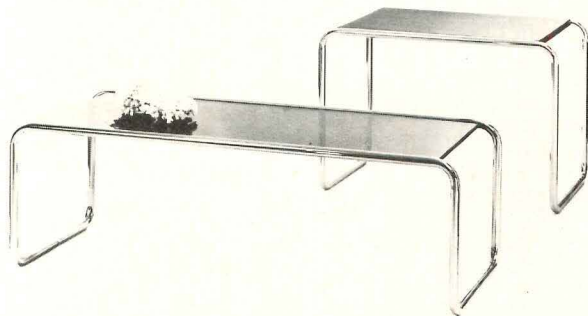


Cantilevered back-to-back seats bow in airport

Either in back-to-back or single row configurations, this Swiss-designed mass seating is being introduced in the world's largest airport, the Dallas-Ft. Worth facility. The seating visually floats on mirror chrome tubing rising

from a single structural beam. Ash tray tables with laminate tops may be inserted between seats without changing seat positions. ■ Vecta Contract Co., Dallas, Tex.

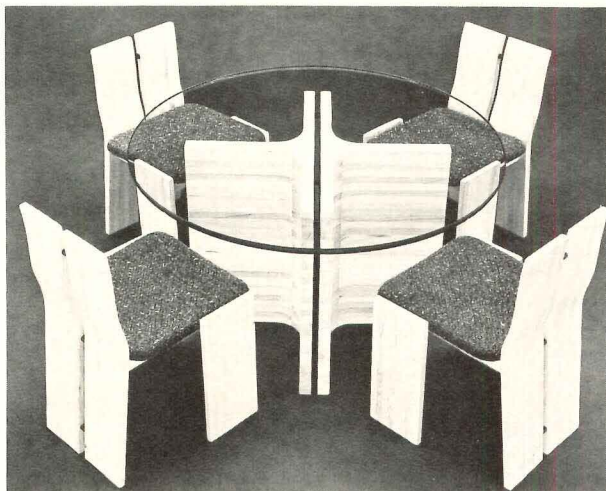
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Danish wall hanging/rug designs offered in wool

Giacometti-like silhouettes are shown in this wall hanging/rug, part of a collection hand-screen-printed and woven in Denmark from American designs. Each is a blend of 80 per cent wool. The design shown is available in natural with brown, with sizes 2 by 3 ft and 3 by 4 ft. Other designs feature primitive geometric motifs in bright hues and earth tones. ■ Concepts International, New York City.

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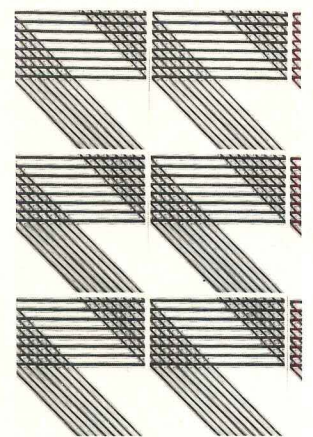


Classic steel tables and pine group introduced

The company has revived the circa-1930 occasional tables (top) designed by Marcel Breuer in chrome plated tubular steel. The top is 1/2 in. smoked glass, or can be supplied in plastic lami-

nate. Below is a natural pine group recommended for contract use. The table base can take a 55-in. top. ■ Thonet Industries, Inc., New York City.

Circle 301 on inquiry card



Wall tile from Italy

Glazed wall tiles from Italy are offered in a wide selection of geometric patterns. Shown is a design of black lines on white, in tiles 6-in. square. ■ Country Floors, Inc., New York City.

Circle 305 on inquiry card

More products on page 175



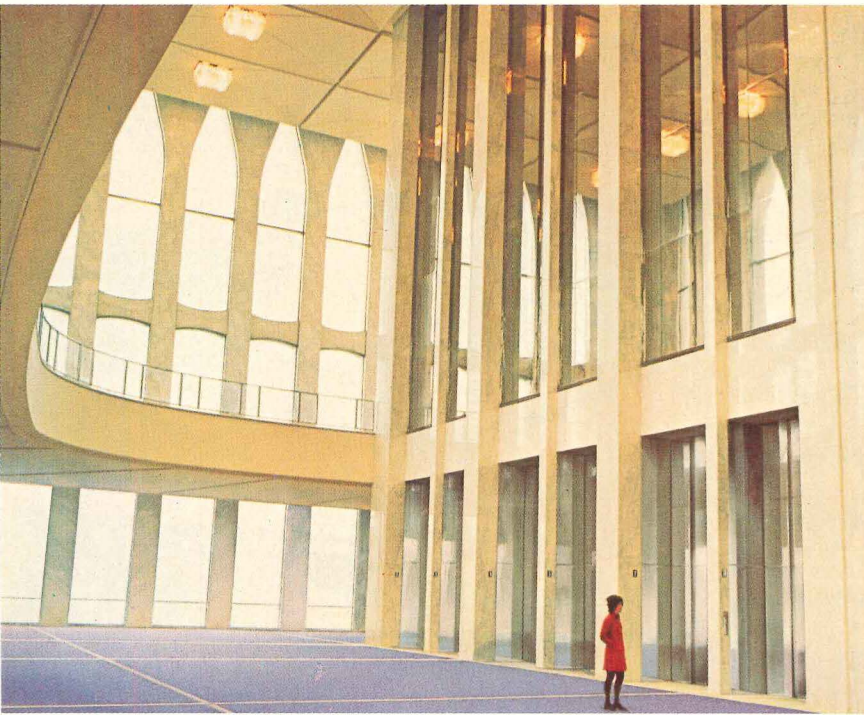
Nature on full view

Seamless clear plastic planters in indoor/outdoor models, come in sizes from 12 to 22 in. in diameter. ■ Architectural Supplements, Inc., New York City.

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More than 35,000 feet of matched stainless panels without a ripple or a fastener show-through . . . created by architect Minoru Yamasaki for the new twin-tower World Trade Center in New York City. With the help of the fabricator-erector, the local Steel Service Center, the polishing source, and Republic's mill, the desired result was achieved. A total of 1,000-plus stainless panels in bright #8 mirror finish, soaring seven gleaming stories from the lobby floor. A technical knockout made possible by the cooperation of these suppliers with the architects and builders.

For moving 2,400 people per hour, per door . . .

196 of perhaps the most advanced revolving doors ever designed. Manufactured by Crane Fulview Glass Door Company, these 9-foot doors feature manual speed control which prevents rapid acceleration of the door, factory set to engage at 12 rpm, and a special panic proof mechanism that causes the wings to fold flat whenever pressure is exerted from two different directions. To meet the aesthetic and durability demands of the job: Republic ENDURO® Type 304 stainless steel with a prebuffed finish. This finish permits better inspection at the mill and at Crane's plant because any surface flaw is immediately apparent.

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Other elements of the building interior using stainless steel include curved floor gratings, flashing, curved railings, escalators, and elevators.

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For more data, circle 64 on inquiry card

For more information, circle item numbers on
Readers Service Inquiry Card, pages 221-222.

Now Para-flyte
deck equipment
comes

4,608

different ways to
meet any (and
we mean any)
pool budget.



**Paragon's Exclusive New
Interchangeable Option
Plan of Materials, Lengths,
Superstructure, Accessories, Etc.
Permits Complete Design
Freedom—Within Budget!**

Think of what this means for today's creative swimming pool Architect or Engineer. No more settling for "second best" because of budget limitations. Complete design flexibility. Beauty. Quality. And most important—proven performance.

For nearly two decades, Para-flyte equipment has been the choice of leading coaches and experienced competitors. Its rugged construction and functional design means added safety—an important reason why it is consistently specified when building a new or re-equipping an old school, club, municipal or residential pool.



SEE OUR CATALOG IN SWEET'S. OR WRITE

KDI Paragon Inc. the architect's friend.
Mfrs. Of Quality Deck/Underwater Equipment
12 Paulding St., Pleasantville, N.Y. 10570 • 914-769-6221

For more data, circle 65 on inquiry card

PORCELAIN-ON-METAL COLOR GUIDE / The company is offering an architectural guide showing colors available in exterior porcelain enamel, in matte and semi-matte finishes. Bronze-tone colors, nature colors and others are shown for use with porcelain-on-steel, porcelain-on-aluminum, laminated, veneer and insulated panels. The company claims the colors remain bright and resist weathering, corrosion and staining. ■ Alliance Wall Corp., Alliance, Ohio.

Circle 400 on inquiry card

ELECTRIC STRIKE SELECTOR / A slide rule type selector to aid in specifying the proper electric latch strike is available free. The selector allows the specifier to have all relevant strike data such as type of mating latch, voltage, jamb material, finish, faceplate size/shape, etc. ■ Adams Rite Mfg. Co., Glendale, Cal.

Circle 401 on inquiry card

ATOMIZING HUMIDIFIERS / A 12-page brochure featuring a complete line of industrial and commercial atomizing humidifiers describes centrifugal atomizing units for small duct application, small-in-space applications, units that could be used in multiples and units for large space applications. ■ Walton Laboratories, Moonachie, N.J.

Circle 402 on inquiry card

NOISE POLLUTION CONTROL / Research on noise control with laminated glass is described in a 24-page technical bulletin that examines the basic theories of its transmission and measurement. It discusses the effectiveness of laminated glass in reducing sound transmission and compares it to other commonly used window glazings. ■ Monsanto Polymers & Petrochemicals Co., St. Louis, Mo.

Circle 403 on inquiry card

COOLING TOWERS / A new line of factory-assembled forced draft cooling towers range in capacity from 225 to 3200 nominal tons, and in multiple unit installations can exceed 12,000 tons. These compact cooling towers feature an efficient counterflow design with a centrifugal fan arrangement allowing air supply from one direction only according to the company. ■ Baltimore Aircoil Co., Inc., Baltimore, Md.

Circle 404 on inquiry card

VEHICLE TURNTABLES / A brochure describing operation, design and applications of vehicle turntables, points out company-stated advantages including more efficient use of building space, improved traffic flow, reduced parking and loading problems, and economical operation. Includes a typical plan and elevation of vehicle turntable, and photos of a few installations. ■ The Macton Corp., Danbury, Conn.

Circle 405 on inquiry card

POND AERATION / Brochure outlines applications, details motor features and lists standard motor dimensions of frame size. Application photos illustrate the churning action indicative of the aerator motors that are designed specifically for high shock and thrust loading. ■ Marathon Electric, Wausau, Wis.

Circle 406 on inquiry card

WASHERS FOR MEAT PROCESSING / Literature outlining the capabilities of four washing machines specifically designed for application in the meat processing field contains illustrations of each machine accompanied by descriptive information on their specialized uses. ■ Metalwash Machinery Corp., Elizabeth, N.J.

Circle 407 on inquiry card

SILICONE SEALANTS / New literature available from the company describes the service of silicones which possess an inherent resistance to heat, cold, ozone, sunlight, radiation and moisture, according to the company. The company states non-staining silicone sealants offer low-cost application, high extensibility for maximum joint movement, excellent tear resistance when damaged, and all-weather primerless application. A new color, dark bronze, has also been developed in silicone sealants by the company. ■ General Electric Co., Waterford, N.Y.

Circle 408 on inquiry card

FIRE TEST PANELING / Fire test paneling meeting building codes and safety requirements for interior construction are impregnated under pressure with fire-retardant chemicals that do not affect the appearance of the hardboard or cause odor or residue, according to the company. The ¼-in. fire-test panels offer flame spread rating of 25 or under and 30 or under and have smoke rating to 15. Fuel contribution rates are 5 or less. Each 4- by 8-ft panel carries a label detailing these rates. Three wood-grain reproductions and three of smooth-surface color design, with harmonizing moldings are offered. ■ Marlite Div., Masonite Corp., Dover, Ohio.

Circle 409 on inquiry card

FOAM ROOFING SYSTEMS / New guidelines for selection and use of foamed-in-place polyurethane roofing systems have been published by the U.S. Department of Commerce's National Bureau of Standards. Almost a hundred roofs in actual use were inspected in many areas of the United States. The inspected roofs ranged from horizontal to vertical and varied in size from a few squares to more than 3 acres (130,680 square feet) in area. Several varieties of substrates used in the urethane systems, including weathered built-up roofing, were examined. Available from W. C. Cullen, Center for Building Technology, Chemistry Building, Room B348, National Bureau of Standards, Washington, D.C. 20234.

Circle 410 on inquiry card

FRESH AIR HEATERS / Direct-fired gas fresh air heaters are described in a bulletin on packaged models for heating, ventilating and air make-up. Each model is available for both indoor and outdoor installations; capacities range from 3,000 to 12,000 cfm; 298,000 to 1,788,500 Btu/hr. Standard features include airflow burner, air foil centrifugal fan and solid state temperature control. Performance is guaranteed to be in accordance with AMCA Test Code 210. ■ Aerovent Inc., Piqua, Ohio.

Circle 411 on inquiry card

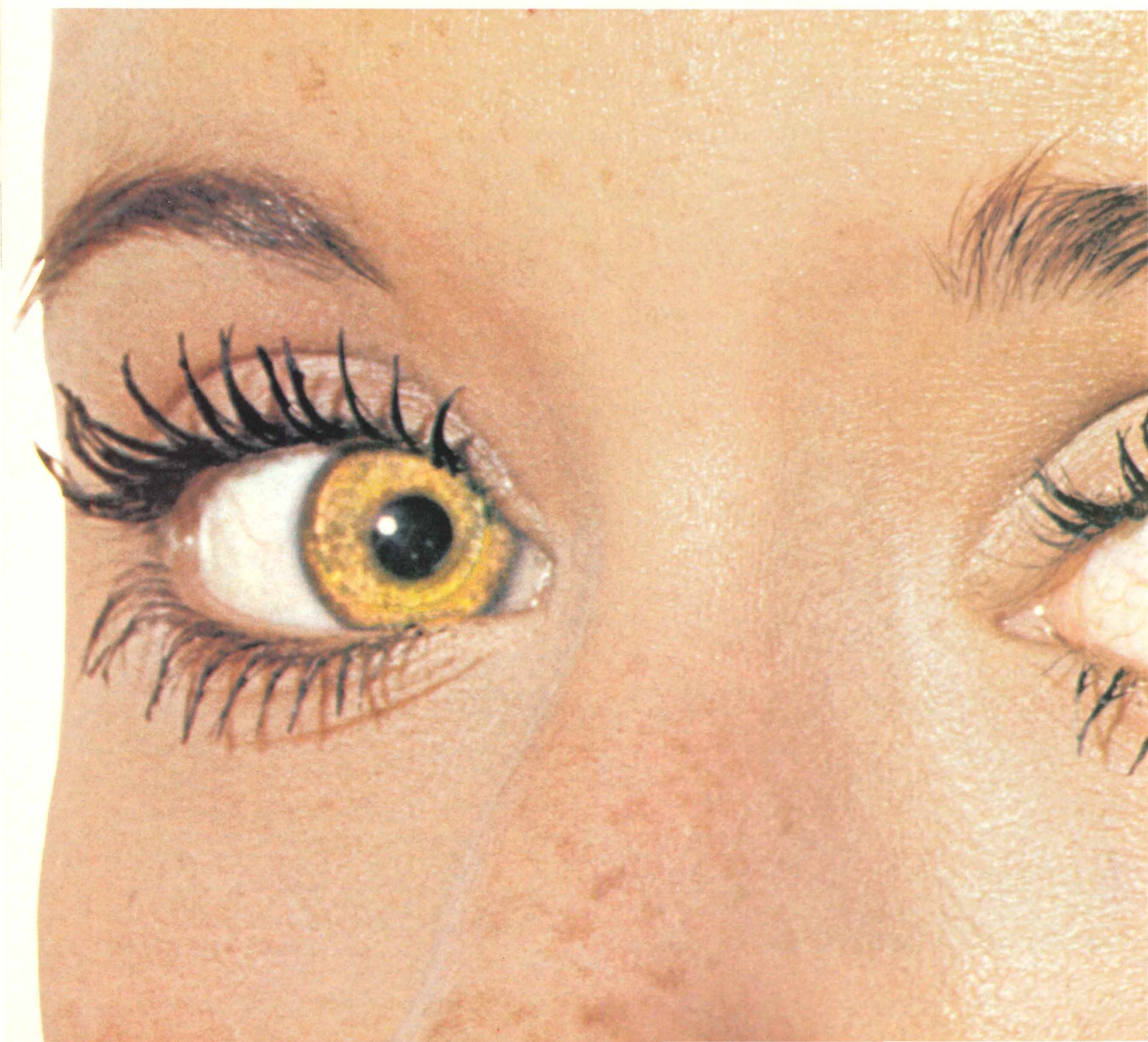
GRAB BARS / A four-page brochure features illustrations and specifications for a complete standard line of 200 models of grab bars for institutional use, along with various mounting bases. Bars are constructed of 16-gauge brass, triple-plated with copper, hard nickel and chromium. A vandal-proof series features stainless steel construction. All grab bars are made to withstand three times FHA 300-lb test loading. ■ Melcliff Mfg. Co., Inc., Burlingame, Cal.

Circle 412 on inquiry card

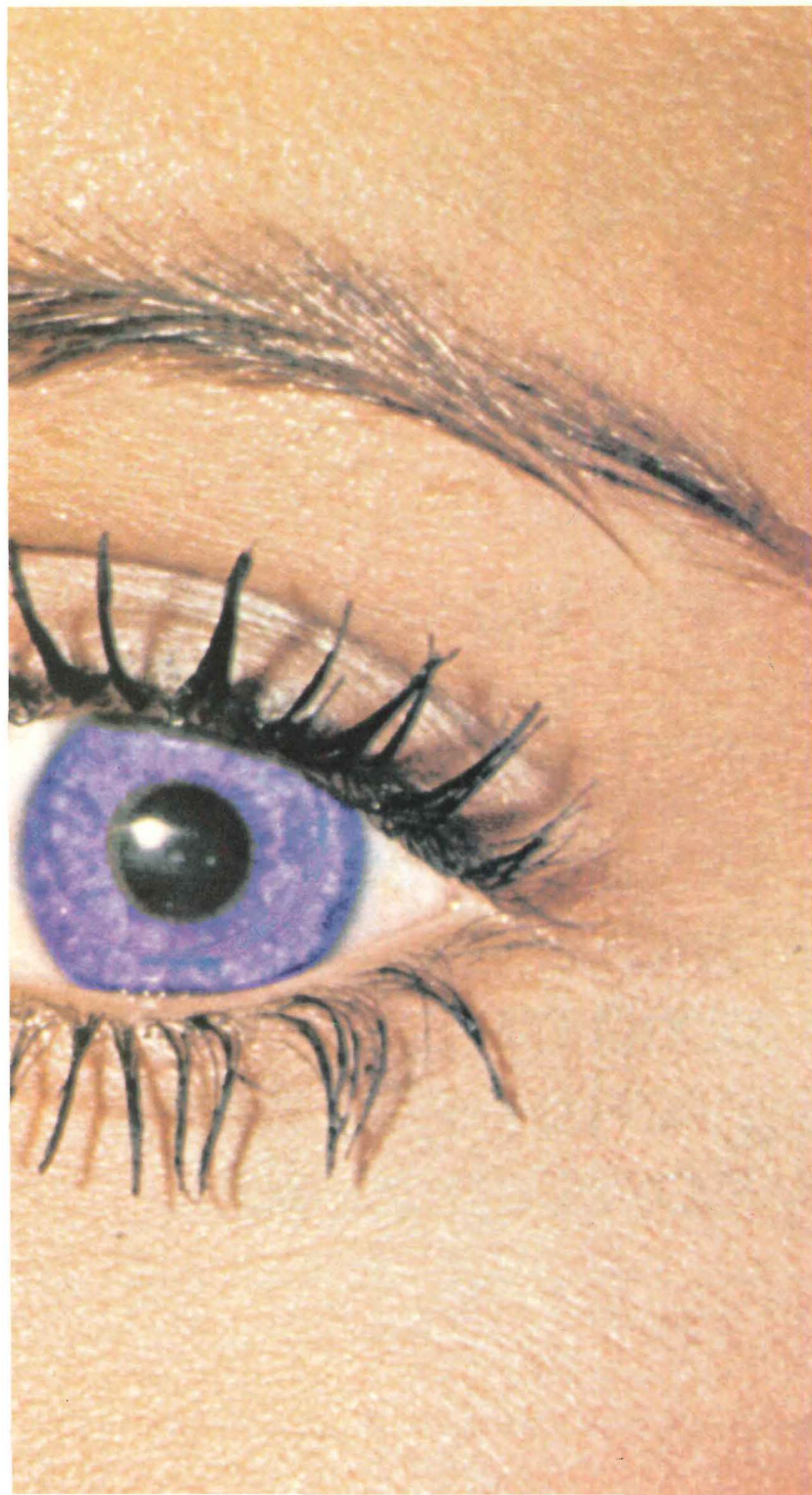
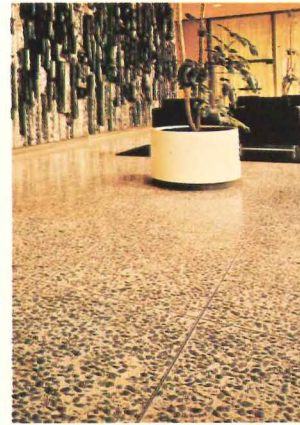
CARPET SPECIFICATION GUIDE / The company has released a set of specification guides to aid in the selection of carpet for: lodging and food service; business and commercial; education; health care; and a general guide to carpeting. All carpet shown features the company's Antron nylon fiber. ■ E. I. duPont de Nemours & Co., Wilmington, Del.

Circle 413 on inquiry card

More literature on page 197



terr a z z o



dream.

Anything you can dream up on your drawing board, you can do in terrazzo. Anything. Intricate geometrics. Abstracts. All-over patterns. Colors. Textures. □ Floors, to be sure. Also walls, stairs, decorative structures or centerpieces. In marble, quartz, granite or a myriad of unusual aggregates. Even in textured mosaics. And new blends of marble chips. □ The ancient art of terrazzo has been changing. It's really a new technology with new versatility. New methods. New materials. Many of its applications today are truly innovative. If you've had the opportunity to talk with a terrazzo contractor recently, you have an idea of what we mean. □ You'll also get an idea from "A Walk on the Wild Side." That's the appropriate title of our colorful new brochure describing the infinite possibilities terrazzo offers. Circle the number for your copy. For technical assistance, or a copy of new Terrazzo Design Data, containing 125 true-color terrazzo reproductions, contact Derrick Hardy, Executive Secretary, Terrazzo, 716 Church Street, Alexandria, Virginia 22314. (703) 836-6765.

Sorry, we were wrong.

Mammoth looks ahead with a tight fist.

Mammoth Solid State Temperature Controls get a jump on the energy crisis by saving up to 40% of energy costs now.



When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.

When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.

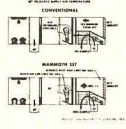
LEARN MORE NOW!

See the entire story about Mammoth SST and HVAC systems. Ask for your free information card now.

Name: _____
 Title: _____
 Street: _____
 City: _____ State: _____ Zip: _____

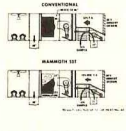
How Mammoth SST controls use outside air for free energy cooling.

When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.



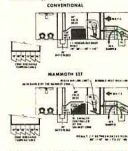
How Mammoth SST controls use return air for free energy heating.

When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.



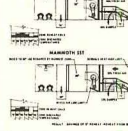
How Mammoth SST controls conserve energy in multi-zone systems.

When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.



How Mammoth SST controls make economical use of zone heat.

When you pay the top of an energy crisis, you know you're in the same boat as the country's other energy consumers. In the worst of times, you're not alone. The energy crisis is here to stay. That's why you need a tight fist. Mammoth Solid State Temperature Controls help you and yours get ahead of the energy crisis. Mammoth SST controls will help you and yours get ahead of the energy crisis by saving up to 40% of energy costs now.



Recent Mammoth Ad

We've been telling you Mammoth rooftop equipment with SST controls gets a jump on the energy crisis by cutting energy costs up to 40%.

We hired an independent research company to conduct a computer study of the energy utilization of Mammoth Solid State Temperature Controls vs conventional electro-mechanical controls on Mammoth rooftop equipment.

The researchers analyzed the equipment on two different kinds of buildings, in two different climates, using both Mammoth draw-thru reheat and blow-thru multi-zone design concepts.

In Chicago, the researchers used a single-level office building with 33,000 square feet and 40% glass area.

In Atlanta, they applied the units on a two-level Sears retail store with 172,000 square feet and 4% glass area.

The study considered everything from daily people traffic flow patterns to heat stored in walls (thermo kinetics). It even took into account the effect of shadows from rooftop units.

Using U.S. Weather Bureau tapes for Atlanta and Chicago, the researchers programmed

both electro-mechanical and SST control sequences on each building in both locations.

The result? Some pretty astounding cost comparisons.

For example, in the Sears Atlanta building, SST Controls, using the blow-thru concept, saved 54.6% over electro-mechanical controls using the draw-thru reheat concept.

That was a total annual savings of 2,937,000 precious kilowatt hours.

Then, simulating the same Sears building in Chicago, by computer, the cost saving was 49.9%. Or 2,236,000 KWH.

High energy savings were also found on the Chicago office building, in both Chicago and Atlanta.

Think about it. Mammoth SST Controls always outperform electro-mechanical controls. Blow-thru always beats draw-thru reheat. What if every building in the country had Mammoth blow-thru rooftop equipment with Solid State Temperature Controls?

For complete details mail the coupon to Mammoth, today.

Energy Utilization Comparison/Summary

Sears Bldg. - Atlanta

Controls	Design Concept	Annual kilowatt hours (thousands) and energy cost.
Electro-Mechanical	Draw-thru	4999 KWH/\$88,196
	Blow-thru	4774 KWH/\$87,442
SST	Draw-thru	3252 KWH/\$64,089
	Blow-thru	2062 KWH/\$40,072

Sears Bldg. - "Chicago"

Controls	Design Concept	Annual kilowatt hours (thousands) and energy cost.
Electro-Mechanical	Draw-thru	4485 KWH/\$64,863
	Blow-thru	4367 KWH/\$63,156
SST	Draw-thru	3062 KWH/\$44,283
	Blow-thru	2249 KWH/\$32,511

Office Bldg. - Chicago

Controls	Design Concept	Annual kilowatt hours (thousands) and energy cost.
Electro-Mechanical	Draw-thru	729 KWH/\$10,543
	Blow-thru	687 KWH/\$9,935
SST	Draw-thru	615 KWH/\$8,894
	Blow-thru	537 KWH/\$7,766


Office Bldg. - "Atlanta"

Controls	Design Concept	Annual kilowatt hours (thousands) and energy cost.
Electro-Mechanical	Draw-thru	540 KWH/\$15,812
	Blow-thru	488 KWH/\$13,489
SST	Draw-thru	420 KWH/\$13,465
	Blow-thru	322 KWH/\$11,689

*Design concept determined by evaporator coil placement.

Note: Costs shown are based on current Chicago and Atlanta electric rates. Chicago rates include fuel adjustment and city and state taxes. (All-electric units are not subject to demand charges in Chicago.) Atlanta rates include demand charges, correction factor, fuel adjustment and sales tax.

Make that 54%.

LEAR SIEGLER, INC.  MAMMOTH DIVISION

Lear Siegler, Inc./Mammoth Division
13120-B County Road 6
Minneapolis, Minnesota 55441

Send more information on the study, Mammoth SST Controls
 Blow-thru vs. draw-thru reheat.
 Have a Mammoth field representative contact me.


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

AR-83

For more data, circle 67 on inquiry card



HARRIS AND COMPANY
HARRIS FIELD ELEMENT CORPORATION
HARRIS HARRINGTON CORPORATION



Fits Glazing Functions Eight Ways



Names to remember for specific performance . . . whatever the light, heat, glare, sound or safety control you want to build into structural walls:

POLARPANE® Insulating glass units with 20-year warranted moisture-free construction.

POLARPANE® Reflective insulating units with pure gold mirror-like coating. Choice of insulating and visible light values.

ARM-R-BRITE® Insulated spandrel panels fully tempered and tailored to your color specifications. Also available heat strengthened as Ceramalite®

ARM-R-CLAD® Tempered safety glass. Clear, tinted and textured. All standard thicknesses from 1/8".

SOUND CONTROL POLARPANE® Hermetically sealed units designed for maximum sound transmission loss.

SUN CONTROL POLARPANE® Hermetically sealed units with rotating venetian blind between glasses.

MISCO® Wired glass listed fire retardant by Underwriters' Laboratories, Inc. In seven popular patterns.

MISSISSIPPI® PATTERNED GLASS In wide variety of general purpose and decorative patterns.

See our Catalog in Sweet's 8.26/Ce when you want to refresh your memory and consider patterns, colors or specifications.

For additional catalogs or information contact your local C-E Glass representative or write C-E Glass, 825 Hylton Road, Pennsauken, N. J. 08110.



A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.

For more data, circle 68 on inquiry card

Owner: Phipps Land Co.
Architect: Toombs, Amisano & Wells
Stopray #2016 glazed by PPG, Atlanta



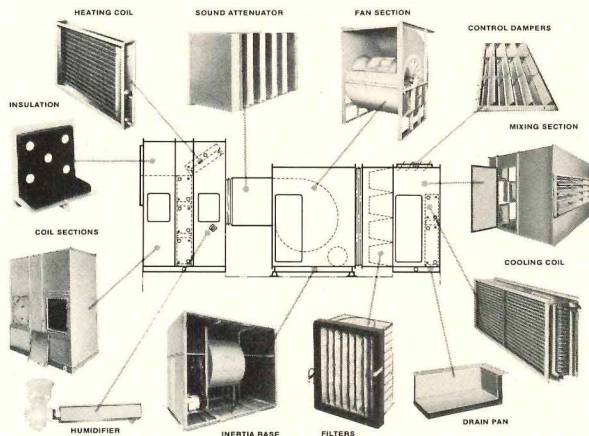
'Buffalo's' new

model

air handling systems...

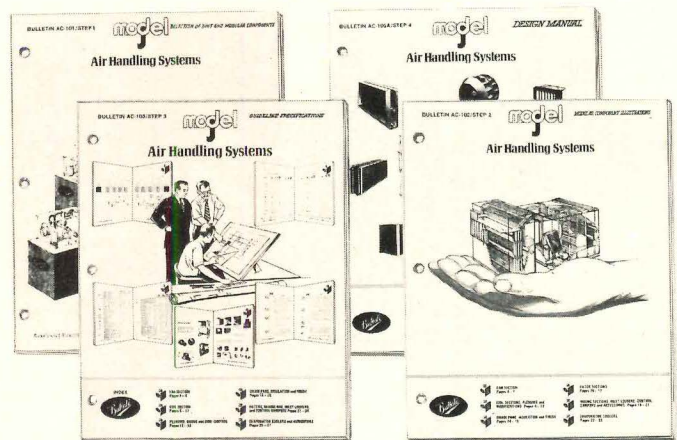
The advantages of a built-up system with the economies of factory fabrication.

If you are in the vanguard of Engineers and Contractors who are aware of the changes now taking place, and those to come in the construction industry, you realize a new approach to air handling system design and manufacture is needed to provide better control over system design costs and energy consumption. Model "J" is the practical answer for today's sophisticated air handling systems at a reasonable price. Model "J" was conceived with your requirement as guidelines. To find out the advantages of a built-up system with the economies of factory-fabrication please call your Buffalo Sales Engineering Representative. He's in the Yellow Pages of major business centers. Or, if you prefer, request Bulletin AC-100. Buffalo Forge Company, Buffalo, New York 14240.



The Hardware

Model "J" makes available the most complete selection of air handling system components ever offered in a factory fabricated unit. They are the same components you would specify for a quality built-up system. For example: the performance proven, AMCA rated, backward-curved, Buffalo BLD fan; variable inlet vanes for variable volume systems; Aerofin coils; Thermal 90 insulation and adhesive to meet requirements of NFPA 90A. Model "J" also offers these exclusive design and construction features; internal isolation; built-in inertia base; double wall insulated construction; sound attenuators; split pillow block bearings; modern filters in factory assembled frames; access doors, service plenums and much more.



The Software

Model "J" software is a whole new world of control over air handling system design, construction and installation. Every contingency is covered, including sound power data, fan heat of compression, sound and vibration isolation, comprehensive filter selection and more. Four interrelated cross-referenced manuals enable you to maximize your specifying effort. You proceed in a logical, step-by-step sequence through system design, unit selection, component selection, and specification writing. The systems you design will deliver the performance . . . conserve energy . . . be easy to install . . . and provide an extended low-maintenance service life . . . all at reasonable cost. The Buffalo Sales Engineer in your area has a set of Model "J" software for you. Ask him for it.



BuffaloForgeCompany

For more data, circle 69 on inquiry card

When a job calls for beautiful, textured doors with better durability than wood . . .

Next to the three prefinished embossed hardboard door facings in the Legacy Series from Masonite Corporation, any other door facing is out of its depth.

No flat surface door with a mere grain finish has the deep-textured feeling of Legacy or its deep-rooted durability.

Legacy comes closer to nature than competitively priced doors. The texture is embossed into the substrate before the durable finish is applied. It won't scratch off. The total effect mirrors that of an actual wooden planked surface, each plank with

its own personality.

Legacy is exceptionally resistant to splintering, splintering, cracking and checking. It can be repaired on site if damaged. Legacy's high dimensional stability and great structural strength make it suitable for use with both solid and hollow core doors.

And the price is right.

Want the names of some quality door manufacturers currently using Legacy? Write Masonite Corporation, 29 North Wacker Drive, Chicago, Illinois 60606.

Masonite is a registered trademark of Masonite Corporation.



Legacy series of embossed hardboard door facings: Walnut tone, New White (available in October), and Oak tone.

*Lock sets by Kwickset®.

**...Legacy™
stands alone.**

Today you can build a better shopping center

Westinghouse central air conditioning turns the worst hot weather days into the best shopping days. Our complete line of rooftop units includes the right size and type for your building. We also make a broad line of central-station air conditioners featuring unique Westinghouse centrifugal chillers. Outstandingly simple, small and quiet.



Westinghouse vapor lamp lighting makes everything look great. Mercury vapor lamps have come indoors in stores across the country. Why? In addition to long life, high efficiency, and compact size, Beauty-Lite™ lamps provide pleasing color characteristics for products, displays and people.



Westinghouse

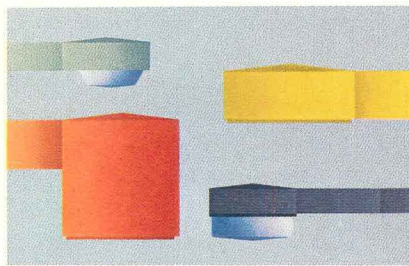
Computer-designed transformer keeps the power coming. Reliable electric power is a necessity in any public place. Westinghouse pad-mounted transformers are computer designed and short-circuit tested to ensure high reliability.



Westinghouse electric walks move people—and the carts that go with them. Quick, smooth Westinghouse electric walks take people and their shopping carts between floors in self-service stores—using specially designed treads and cart wheels.

Westinghouse Electric Corporation
Pittsburgh, Pa. 15222

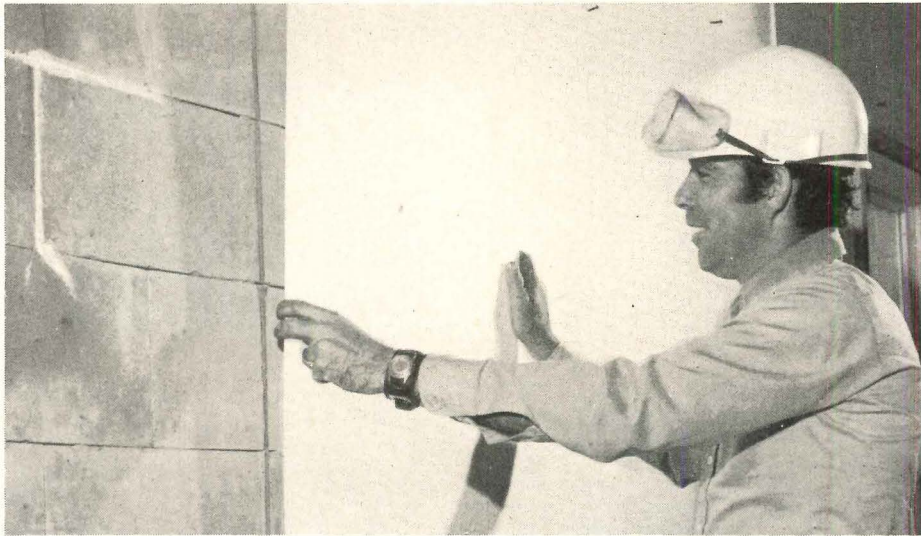
Westinghouse parking lot lighting looks good, even in the daytime. Westinghouse lighting units in four crisp, clean architectural designs, sixteen different colors, make shopping center parking areas and malls more attractive in daylight, provide effective night lighting.



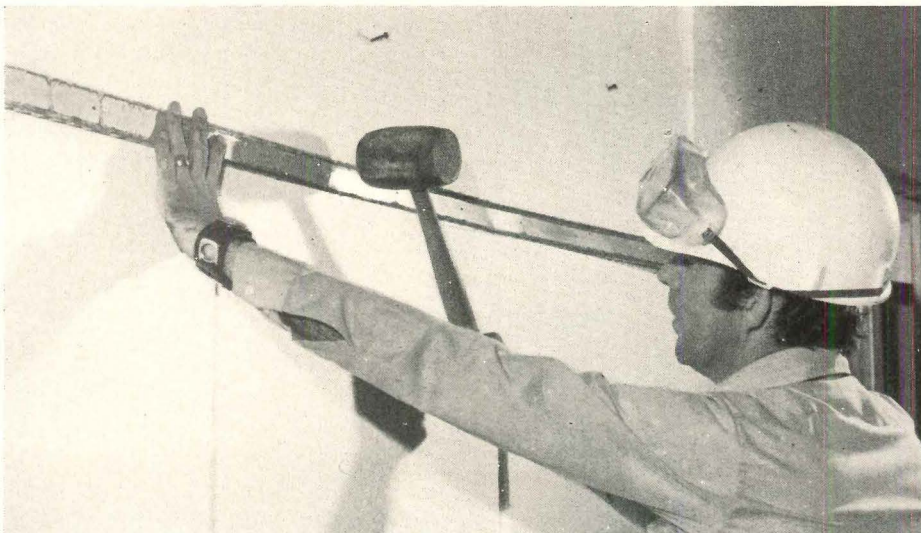
helps make it happen

For more data, circle 71 on inquiry card

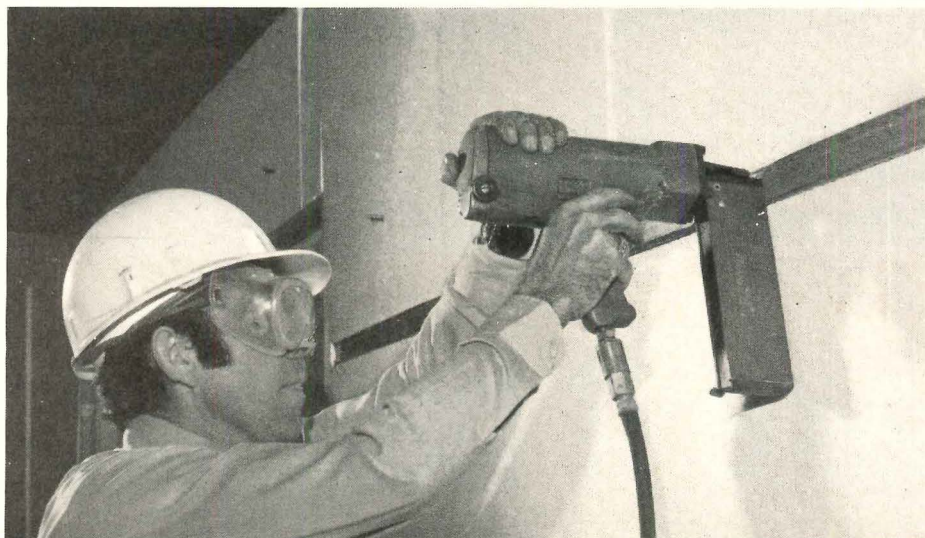
Zonolite Thermo-Stud...an entirely new, simpler, continuous wall insulation system.



Position ZONOLITE Styrene Foam.



Imbed THERMO-STUD channel in Foam.



Nail through Foam to masonry.

Here's a completely new, mechanical insulation system for masonry walls that are to be finished with gypsum wallboard or other interior treatments.

ZONOLITE® THERMO-STUD® It eliminates insulation shorts, providing a permanent moisture-resistant barrier.

Yet, installed costs are competitive with other, less trouble-free insulation methods.

Lightweight ZONOLITE Styrene Foam Boards are butted together against masonry walls. They're held in place with serrated THERMO-STUD channels, which are mechanically fastened to the wall.

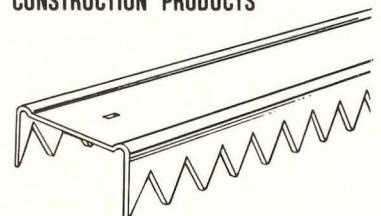
Troublesome adhesives are eliminated. Drywall can be applied immediately using self-tapping screws through the serrated channels.

Installation is so simple, yet trouble-free.

ZONOLITE THERMO-STUD meets or exceeds power company "U" value requirements of 0.10 or better for wall insulation. "R" values increase accordingly. Result: heating and cooling economies.

Get booklet SF-1 that tells everything you need to know about the ZONOLITE THERMO-STUD system. Contact the ZONOLITE sales office in your area, or write: W. R. Grace & Co., Construction Products Division, 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada: 66 Hymus Road, Scarborough, Ontario.

GRACE
CONSTRUCTION PRODUCTS



For more data, circle 72 on inquiry card



ASG... The Glass Company

When it comes to flat glass, the only name you have to remember is ASG. Because from product to packaging to delivery, ASG does it all. It's your one-source glass company. And that includes everything from float glass to plate glass, tinted and clear, to patterned and insulating glass, lighting glass, reflective glass and safety glass. In short, any kind of flat glass you'll ever need.

And, ASG delivers the goods. Where you want it and when you

want it. In some of the most advanced package designs in the industry. Packaging systems that reduce handling to a bare minimum. And make breakage a rare occurrence, indeed.

So, when it comes to glass, come to The Glass Company... ASG.



ASG Industries Inc.

The Glass Company P.O. Box 929, Kingsport, Tennessee 37662

For more data, circle 73 on inquiry card



Pampering Picky Patients

Let's face it. When we don't feel well, we soon become irritable and picky. Even the best of food soon becomes tasteless, the most comfortable bed becomes a couch of nails, and plumbing fixtures and fittings that aren't really suited to the needs of the convalescent seem like medieval torture instruments.

That's why Eljer designed a complete new line of health-care plumbingware, including the Sanus closet with bedpan washer, the Wheelchair lavatory, the special Cornelia corner lavatory for patients, and the Clinic specimen closet.

Each one was designed for maximum ease of use, comfort and convenience, to pamper the picky patient. You'll find these fixtures, plus over 290 other plumbingware items, each carefully designed to serve its particular function, fully

detailed and illustrated in Eljer's new "Hospital/Institutional Plumbing Fixtures and Fittings" catalog.

Hospital-styled plumbingware . . . one example of Eljer's ability to meet any commercial building need with a complete line of well-designed, quality plumbing products.

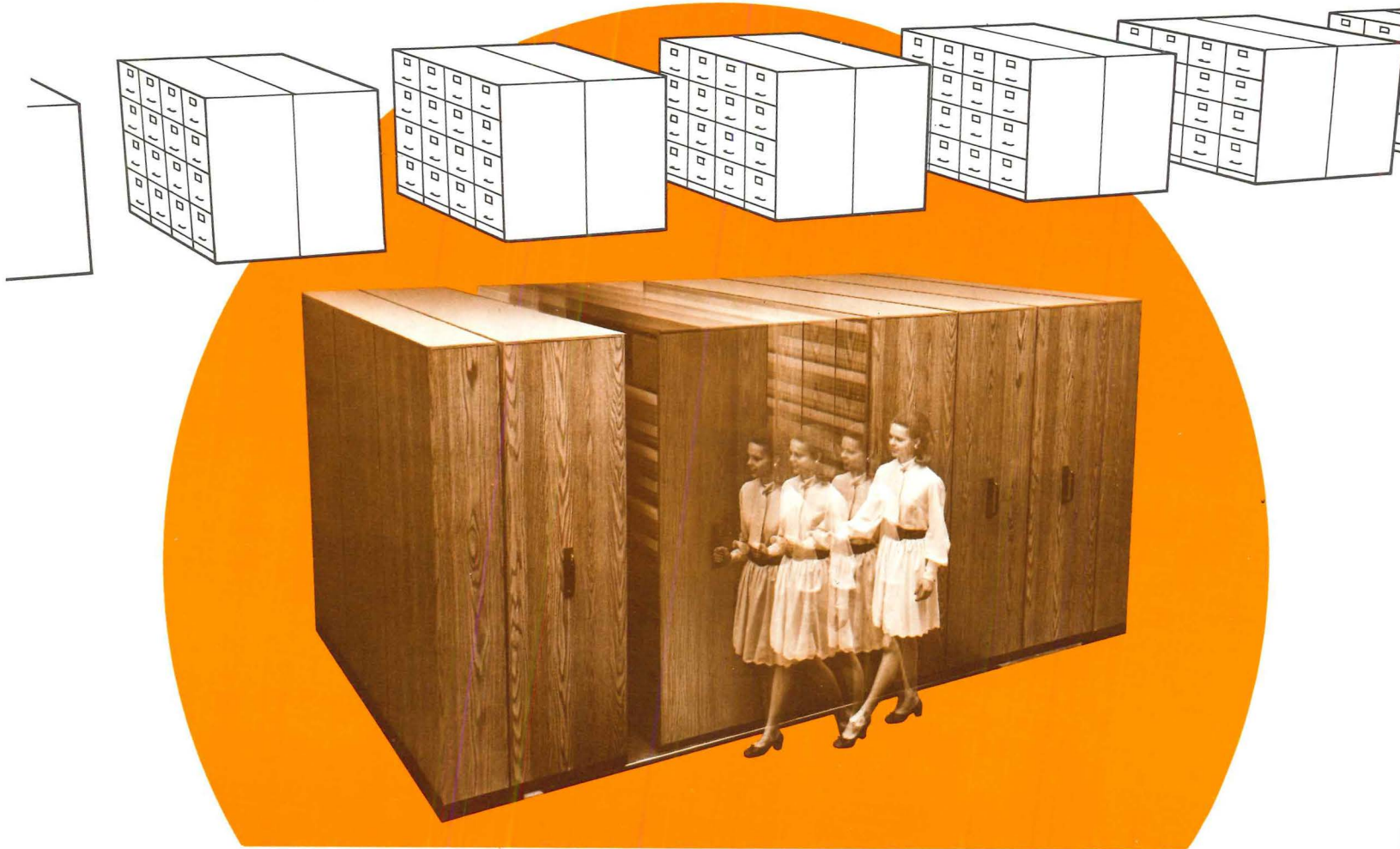
Most buildings are designed for people — pamper them all by specifying Eljer's plumbingware. Send for Eljer's 62-page "Hospital/Institutional" catalog: Eljer, Dept. AR, 3 Gateway Center, Pittsburgh, Pa. 15222.

ELJER[®]

Eljer Plumbingware Division
Wallace-Murray Corporation

For more data, circle 74 on inquiry card

"FreeSpace" for Your Clients



Put all their files in one fourth the area

With Lundia FULLSPACE[®] Mobile Filing and Storage Systems

Now you can "free" valuable floor space. It's a matter of record. In business firms nationwide, Lundia FULLSPACE systems are saving space, retrieval time and money.

FULLSPACE occupies about one quarter the floor space of drawer files of equal capacity. Suppose your drawer files and aisles occupy 400 sq. ft. FULLSPACE of equal capacity saves space for other purposes by requiring only 100 sq. ft., or you can put four times the filing and storage in existing space.

Swedish-designed Lundia FULLSPACE mobile wood shelving has no equal . . . for efficient management of general files, records, computer tapes, printout forms, ledgers, books, stationery, supplies of all kinds, and even parts inventory.

When you select FULLSPACE for centralizing records-keeping and storage, you really have something working for you. Ask how FULLSPACE can pay for itself. Have a Lundia representative survey your requirements, present a free layout, and provide a cost estimate.

Your installation date will be met. That's in the record, too. **CALL FRANK BROWN COLLECT**

217-423-3451

OR WRITE TODAY FOR COMPLETE DETAILS

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The World's Record Holders

LUNDIA, MYERS INDUSTRIES, INC. DECATUR, ILLINOIS 62525

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i line

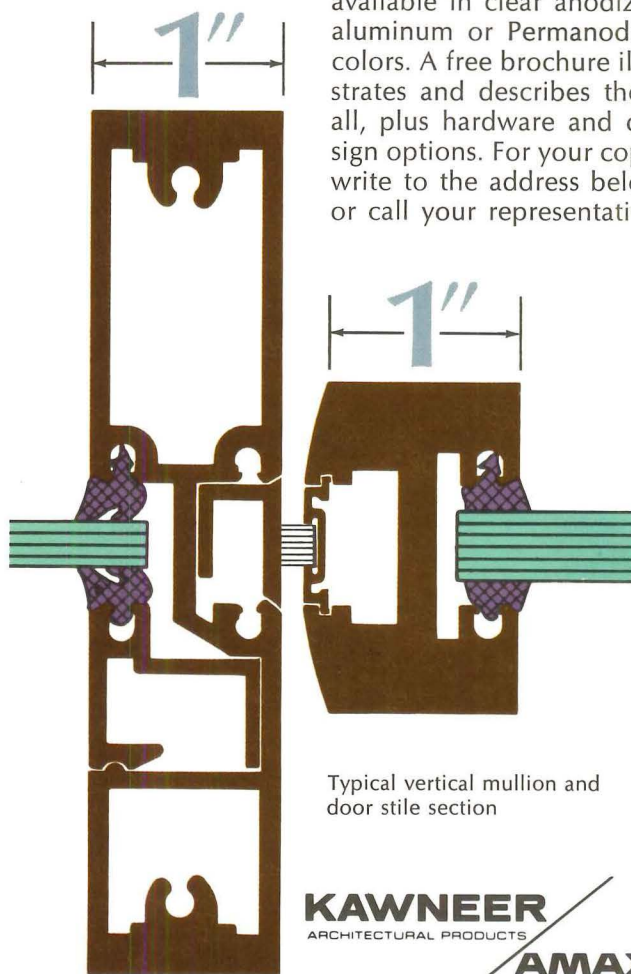
an elegant new dimension
in framing and entrances

Kawneer's I-Line narrow profile aluminum framing and entrances have added an aesthetic new refinement to design.

For the first time, the beauty of clean, ultra-trim vertical lines on the drawing board have been transferred directly into construction. Without sacrificing functional considerations.

I-Line framing's 1" sight line reduces the profile of traditional 1 3/4" framing by nearly one-half. Yet its ingenious design provides the same structural strength and glass bite . . . with easy "in-line" flush glazing to accommodate thicknesses up to 3/8".

Framing and complimentary thin stile doors are available in clear anodized aluminum or Permanodic® colors. A free brochure illustrates and describes them all, plus hardware and design options. For your copy, write to the address below or call your representative.



Typical vertical mullion and door stile section

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AMAX
ALUMINUM

For full information, see your Kawneer representative or contact Kawneer Product Information, 1105 N. Front Street, Dept. C, Niles, Michigan 49120.



Ask a roofer about slope. He'll tell you about Tapered Foamglas[®] insulation.

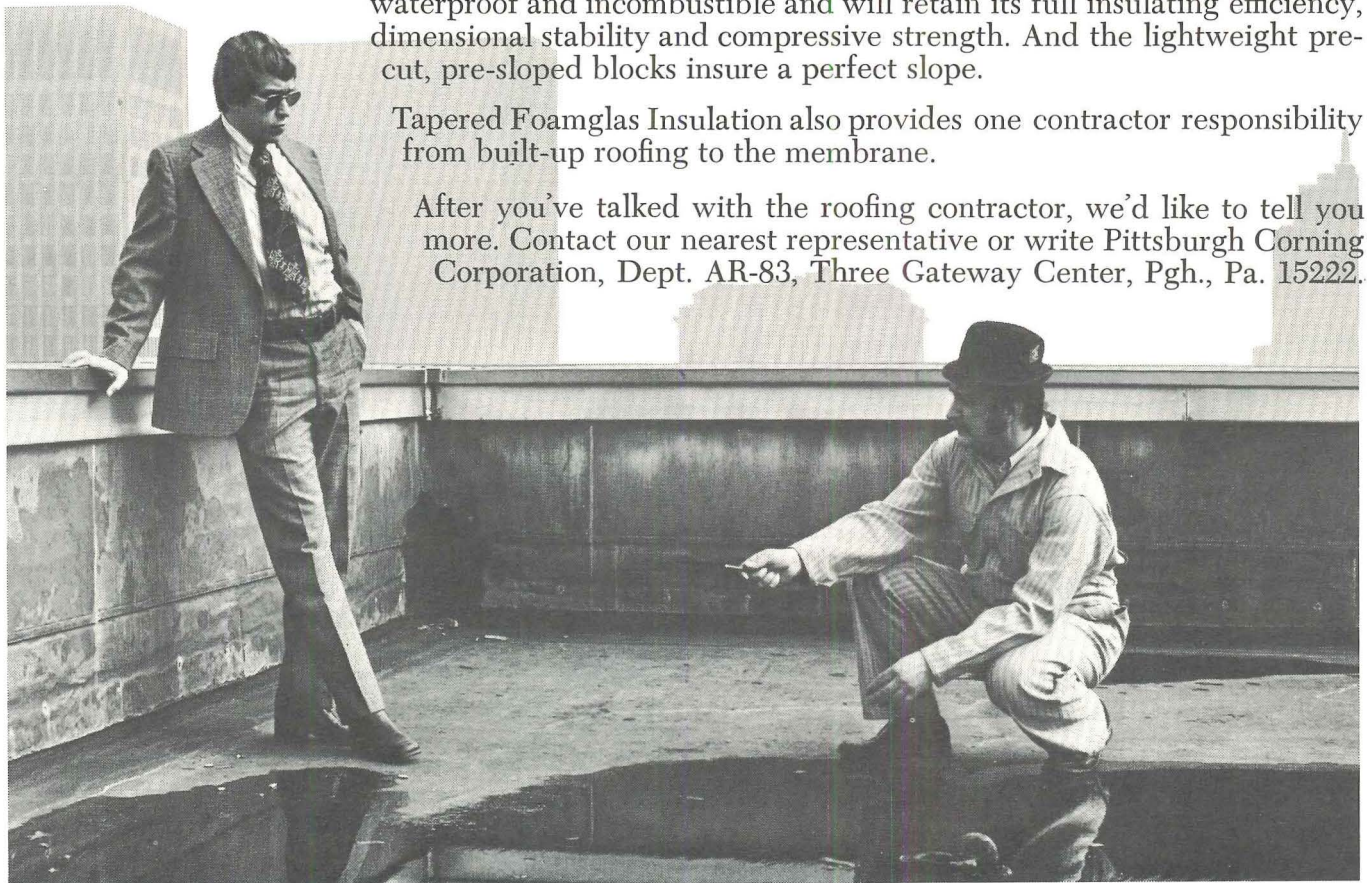
PITTSBURGH
pc[®]
CORNING

The next time you seek a roofing contractor's experience, ask him about Tapered Foamglas Insulation as a base for the built-up roofing membrane.

He'll tell you Tapered Foamglas Insulation isn't the cheapest product on the roofing market. But the cheaper products don't have 20 year guarantees, either — a guarantee that Tapered Foamglas Insulation will remain waterproof and incombustible and will retain its full insulating efficiency, dimensional stability and compressive strength. And the lightweight pre-cut, pre-sloped blocks insure a perfect slope.

Tapered Foamglas Insulation also provides one contractor responsibility from built-up roofing to the membrane.

After you've talked with the roofing contractor, we'd like to tell you more. Contact our nearest representative or write Pittsburgh Corning Corporation, Dept. AR-83, Three Gateway Center, Pgh., Pa. 15222.



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◆ For more data, circle 76 on inquiry card

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When we put it together, we leave out the trouble.

Because we leave out the washer.

Sooner or later any compression washer wears out. The faucet drips. And it's a headache.

That's why we took the washers out of Delta faucets. We replaced them with a patented rotating valve that, tests show, lasts about 7 times longer.

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They're styled to look good and to work even better. Turned on or turned off.

*For illustrated literature, write
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Greensburg, Indiana 47240, and Rexdale, Ontario.*

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Washerless. To work as good as they look.



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A floor covering should be chosen not only to withstand the number of feet that will go over it, but for the particular type of feet as well.

That's why, when it comes to resilient floorings, GAF makes over 300 types, patterns, and colors—to try to have exactly the one you'll need.

For instance, for a medium traffic area you might choose new Fashioncraft™ floor tile. This 3/32" grade comes in a striking assortment of high-fashion designs, making it a worthy candidate for residential areas, too. Or ask us about the GAF Thru-Chip® lines which offer no-wax maintenance in heavy traffic areas.

But perhaps you'll decide sheet goods can do the job better.

In that case, GAF offers sheet vinyl that comes up to 12' wide, is cushioned for softness and quiet, and needs no waxing or scrubbing.

Whether you're catering to high heels, office furniture legs, or shopping cart wheels, consider GAF. After all, we've got over 300 different ways to help.

All are fire resistant and meet Federal specifications where applicable.

For more information, contact Mr. Roy Gilb, GAF Architectural Flooring Division, Dept. L-83
P.O. Box 1121, Radio City Station, N.Y., N.Y. 10019.



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LANDSCAPE SYSTEM



All of the company's landscape shelves, cabinets and work surfaces can be used as wall-hung furnishings in teak or walnut woodgrain, or off-white plastic finishes available in 30 and 36 in. widths. Work surfaces, desks and tables in teak, walnut, and putty finishes feature a variety of surface dimensions and telescopic legs adjustable for machine, sitting, and standing height. Freestanding, movable landscape panels may be used as screening. They are available in heights of 62 and 80 in., in widths of 18, 30 and 36 in. ■ Reflector Hardware Corp., Melrose Park, Ill.

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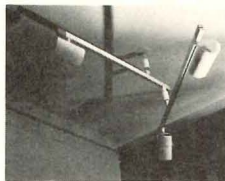
PROJECTION SCREEN

Designed for the use of either front or rear projection slides and motion pictures and named the *Porta-Frame* screen, this product is recommended for schools, conference rooms, television studios, etc. The screen is made of 1-in. square hard alloy structural aluminum tubing. It is available in three screen sizes: 72- by 72-in., 84- by 84-in. and 96- by 96-in. ■ Da-Lite Screen Co., Inc., Warsaw, Ind.



Circle 307 on inquiry card

ROTATIONAL LIGHTING

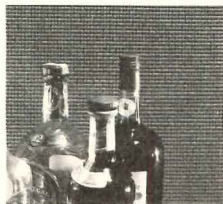


The product is flexible and can be assembled into a myriad of configurations, in a matter of minutes from a series of basic component parts: horizontal beams, rotary connectors, lighting fixtures, and ancillary thruster and/or fin plates. ■ R. L. Systems Co., Forest Hills, N.Y.

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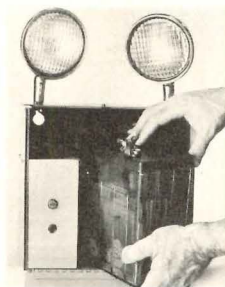
PLASTIC LAMINATES

The deep, three-dimensional surface and natural coloring of the design gives the laminate both the look and feel of real cane. It meets or exceeds all NEMA standards. Applications for *Mini-Weave* include residential and contract furniture, casegoods, cabinets, fixtures, doors and wall panels. ■ Exxon Chemical Co., Odenton, Md.



Circle 309 on inquiry card

EMERGENCY LIGHTING



The *Model 175LL* is a budget-priced unit equipped with a high capacity long-life maintenance-free battery system, according to the company. It is rated to deliver 75 watts for up to 1½ hours. Two sealed-beam heads mounted on the housing are easily adjusted to any required position; remote heads may be added where required. ■ Tork Time Controls, Inc., Mt. Vernon, N.Y.

Circle 310 on inquiry card

more products on page 183

show 'em a better way: raywall fih unit heaters

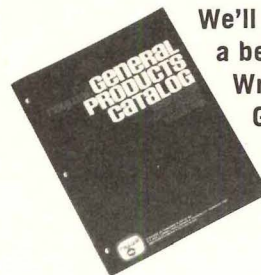
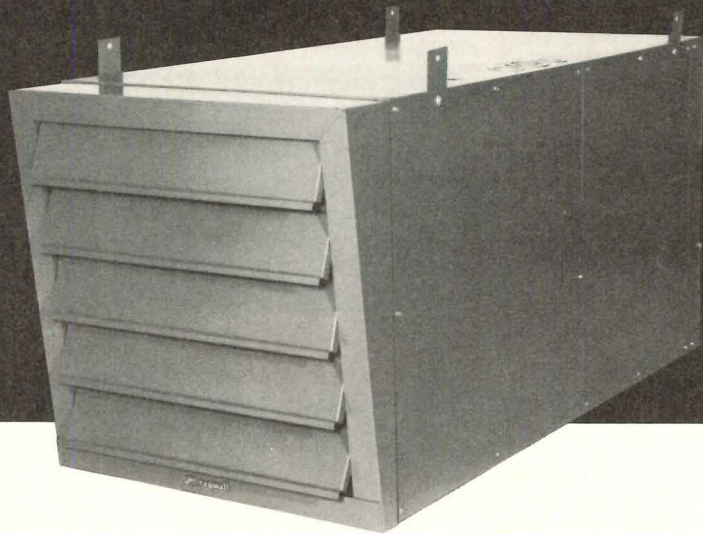
Raywall has a better way to provide clean, efficient heat for industrial applications. Designed for suspension above valuable working space, the FIH Series heater responds rapidly to heat demands or may be kept on low stand-by until needed.

The FIH Series heater has a permanently lubricated 240 volt single phase motor with multispeed direct drive.

Additional features are the adjustable discharge louvers and squirrel-cage blower for efficient circulation.

Requiring only electrical connections and suspension cable, the FIH Series heater is easy to install, safe, and virtually maintenance-free.

Think of a better way to solve difficult industrial heating problems—think of Raywall FIH Series unit heaters.



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Lenses of Plexiglas® DR protect you from UFO's.

Only one thermoplastic lens material gives you vandal-resisting toughness... plus acrylic's superb clarity and resistance to yellowing or embrittling with age and exposure: Plexiglas DR molding pellets, from Rohm and Haas.

For outdoor fluorescent lighting Plexiglas DR makes the toughest acrylic lenses you can buy. It's

optically better than polycarbonate, with greater clarity and higher light transmittance, and you can depend on it to do a better job longer. On cost, too, Plexiglas DR lenses generally have an edge on polycarbonate.

So any place fixtures are exposed to attack by unidentified flying objects, make certain you have

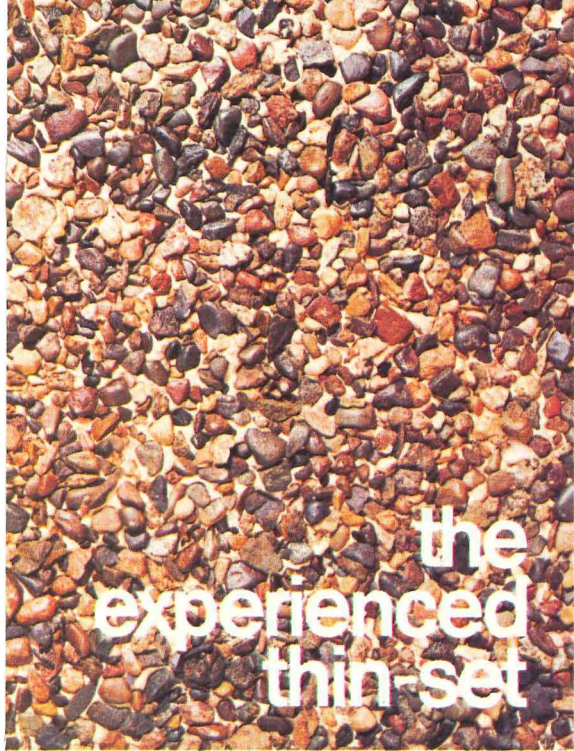
lenses that last. Lenses of vandal-resistant Plexiglas DR acrylic.

Write for specification and design assistance, or for the names of extruders and molders using Plexiglas DR.

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Plexiglas acrylic plastic is a combustible thermoplastic. Observe fire precautions appropriate for comparable forms of wood. For building uses, check code approvals. Impact resistance a factor of thickness. Avoid exposure to heat or aromatic solvents. Clean with soap and water. Avoid abrasives.

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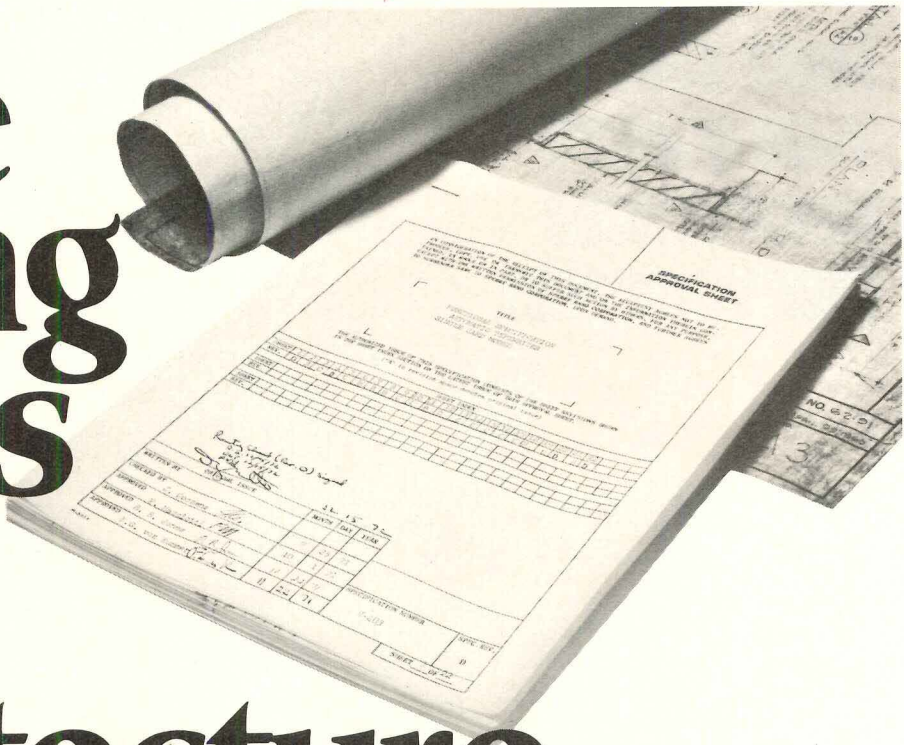
Won't shrink, warp or crack. And they complement today's design treatments, with clean, contemporary lines in five decorator colors. Serve up to eight with one set of

connections. See your Bradley representative and write for literature. Or Call (414) 251-6000. Telex 2-6751. Bradley Corporation, 9107 Fountain Blvd., Menomonee Falls, WI 53051.

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The typing crisis in architecture.



You're due to deliver 24 pages of neatly-typed recommendations for a preliminary bid on a major project, and you're nervously pacing the floor as your secretary frantically retypes the last page. For the third time.

Sound familiar? Then you know the typing crisis: the problem of keeping words flowing smoothly on paper under the pressures of time, work volume and mounting costs.

You can hire more typing help, but that's going to increase your costs. Costs are part of the crisis. A business letter already runs from \$3.00 to \$6.00. Next year you'll pay more.

What can you do about it?

Increase typing productivity. Do it with a word processor — an electric typewriter powered by a small computer.

Many architects are finding word processing saves so much typing time it can free secretaries for administrative duties, and boost office efficiency 50% or more.

Here's how the SPERRY REMINGTON™ word processor works for you. Your secretary types out original text, only once. At rough draft speed. Without worrying about errors. Everything is recorded as she types, either on magnetic tape or cards, both of which are reusable.

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Because a whole page can be automatically duplicated in seconds, you can feel free to make as many changes as you want. Finished copy is played back as fast as 180 words a minute. Automatically and letter perfect. No need for re-proofing.

Save long hours in the typing of reports, specifications, presentations and documents using standard paragraphs. With our word processor up to 99 such paragraphs can be stored on one tape cassette and recalled automatically in any order. You can personalize standard letters, typing only the paragraph numbers to recall the copy.

The Sperry Remington word processor has more features that can best be appreciated by your secretary. Automatic underlining, electronic tab set and clear, and many others. All standard. Features we offer as standard are either costly options or nonexistent in other word processors. Maybe that's why so many users of word processing equipment are switching over to ours.

Let us put a Sperry Remington word processor in your office. We'll set it up without disturbing your scheme of things, and we can train your staff in your office, on your work.

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Painting: Pablo Picasso, *La Cruche Fleurie*. San Francisco Museum of Art; gift of W. W. Crocker.

Sculpture: Henri Matisse, *Le Serf*. San Francisco Museum of Art; bequest of Harriet Lane Levy.



SPACE AGE
ELEGANCE

Landmark Saturn Luminaires brighten and beautify any setting

The clean, uncluttered lines of the new Landmark Saturn luminaire embody a design spirit that is classically simple, and bring understated beauty to any setting. The Landmark Saturn is a horizontal burning luminaire with photometrics equal or superior to conventional open bottom, post top fixtures. It's the ideal light for a wide variety of applications, from roadways and parking areas to pedestrian walkways.

The lamp is completely concealed by a ruggedly constructed circular housing of cast aluminum and a specially designed round,

closed refractor. Housing is available in a selection of 12 decorator colors. Reflector is highly polished aluminum. Shading effect of the housing and positioning of the lamp result in a remarkably low glare factor.

Maintenance is easy. Loosen three captive screws and raise top to replace lamp. Refractor is held by wing nuts and clips. Electrical component compartment has ample working room. Entire fixture is sealed to keep out contaminants and allow cool operation. Landmark Saturn luminaires are available in 100, 175, and 250 watt mercury

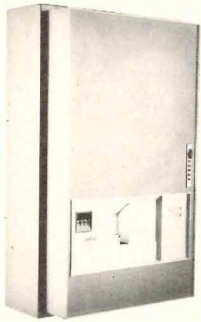
vapor; 250 watt high pressure sodium; I.E.S. type V. Mount on 2 $\frac{3}{8}$ " to 3" tenons. Available options: glass, acrylic or polycarbonate refractors, NEMA twist-lock, photoelectric control receptacle. Shipped pre-wired with pressure connector type terminal board for #14 to #6 wire sizes.

Write for catalog, photometric data and prices. ITT Landmark Lighting, a unit of International Telephone and Telegraph Corporation, Southaven, Miss. 38671

**ITT LANDMARK
LIGHTING**

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ACCESS CONTROL / The company is offering an identification and access control system that rapidly and unerringly identifies people solely on the basis of fingerprint comparison. The system utilizes modern holographic techniques, optics, and electronics to provide instant fingerprint comparison and identification. ■ KMS Security Systems, Stilson Corp., Roseville, Mich.



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CONCRETE/SOIL TESTING / A full line of testing services is offered, following ASTM and ACI procedures. Soil testing includes washed sieve analysis, preparation of grain size curves and field inspection of compaction operations. All methods of non-destructive testing in-lab, in-plant and in-field are also provided. A complete listing of laboratory locations and services is available. ■ Magnaflux Corp., Chicago.



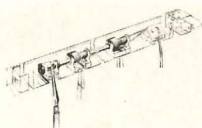
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BONDING MATERIAL / *BlocBond*, a glass-fiber reinforced bonding material that eliminates the need for mortar in concrete block construction, is troweled on the interior and exterior surfaces of dry-stacked concrete block walls. It dries to a hard and durable coating that structurally binds the blocks together both vertically and horizontally. According to the company, as much as 50 per cent of the usual construction time is required. ■ Owens-Corning Fiberglas Corp., Toledo, Ohio.



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ONE-INCH HEADRAIL / The *Venette Mark II* carries the beauty and practicality of its 1-in. louvers into a slim, unobtrusive 1-in. headrail which has been engineered for full-scale ruggedness and reliability. The product can be mounted between the narrowest mullions and presents a smooth, flush appearance. ■ Alcan Aluminium Corp., Warren, Ohio.



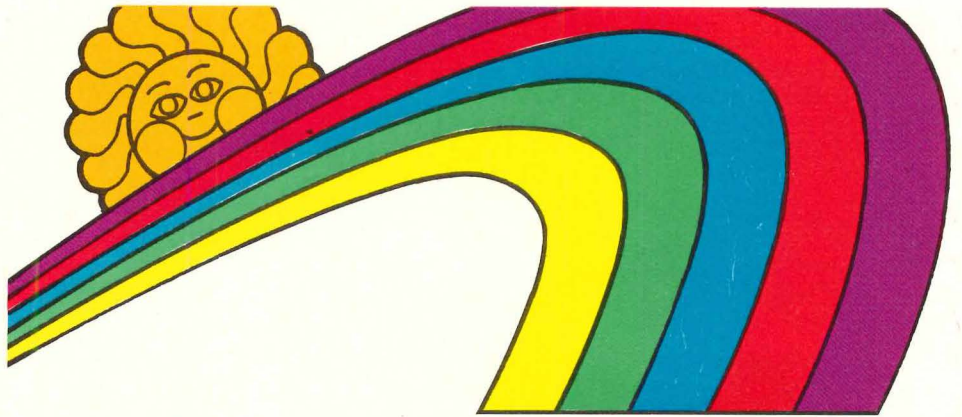
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MAIL LOCKERS / *Lockbox/Parcel Locker System* provides a complete and easily installed mail delivery system. Approved by the U. S. Postal Service, the system meets the requirements of a variety of building types such as high rise commercial and apartment buildings, and garden apartment complexes. ■ American Locker Co. Inc., Jamestown, N. Y.

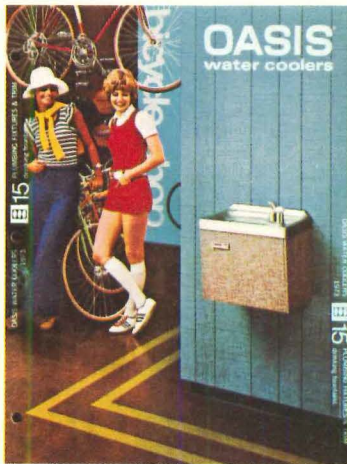


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more products on page 188

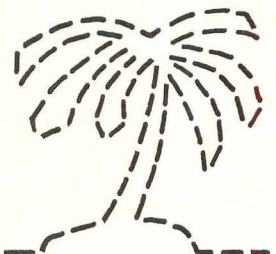


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An LP polysulfide base sealant was used to seal aluminum window frames, pre-cast masonry joints, and outside step risers. To assure lasting protection against sun, wind and rain. To maintain unbroken adhesion and flexibility despite temperature extremes

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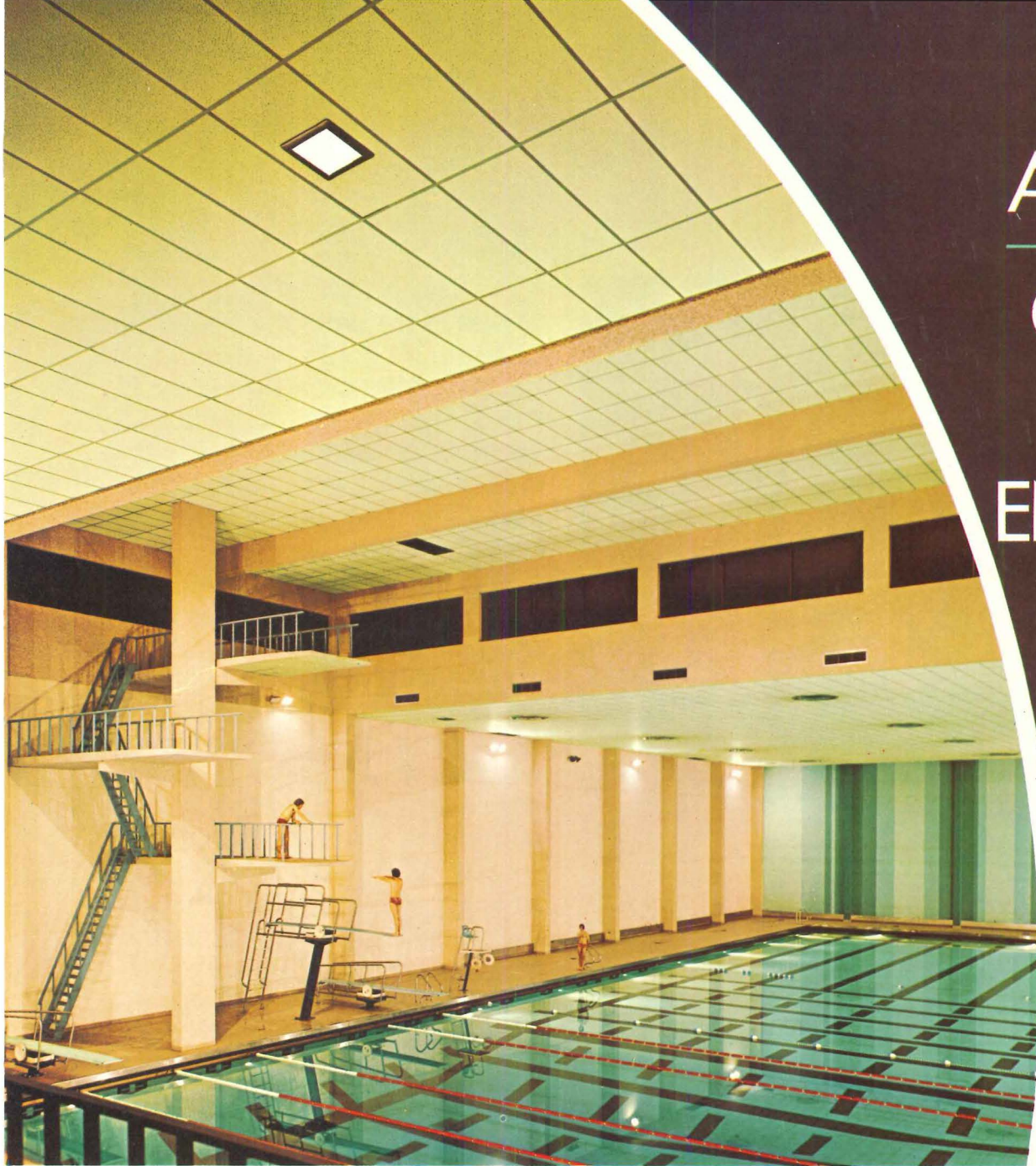


Designed By The Architects Collaborative,
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Beeghly Center, Youngstown State University, Youngstown, Ohio.
ARCHITECTS: George Tanner Smith & Associate, C. Robert Buchanan & Associates
ACOUSTICAL CONTRACTOR: John J. Coffey Company

Heritage Ceramic Ceilings resist humidity ...beautifully.

When you're planning an Olympic-size swimming pool like the one shown here, you want good-looking, acoustically effective ceiling panels that won't warp or sag when constantly exposed to high humidity.

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In this case, it's the "Heritage" Ceramic Acoustical Ceiling, engineered specifically for high-humidity applications: swimming pools, industrial plants or under exterior canopies or soffits. It combines attractive appearance with excellent sound-reducing properties, it can be washed or painted, and it carries a 2 hour U.L. fire rating.

For more details on Ceramic Panels and the rest of our line, check the Conwed pages in Sweet's.

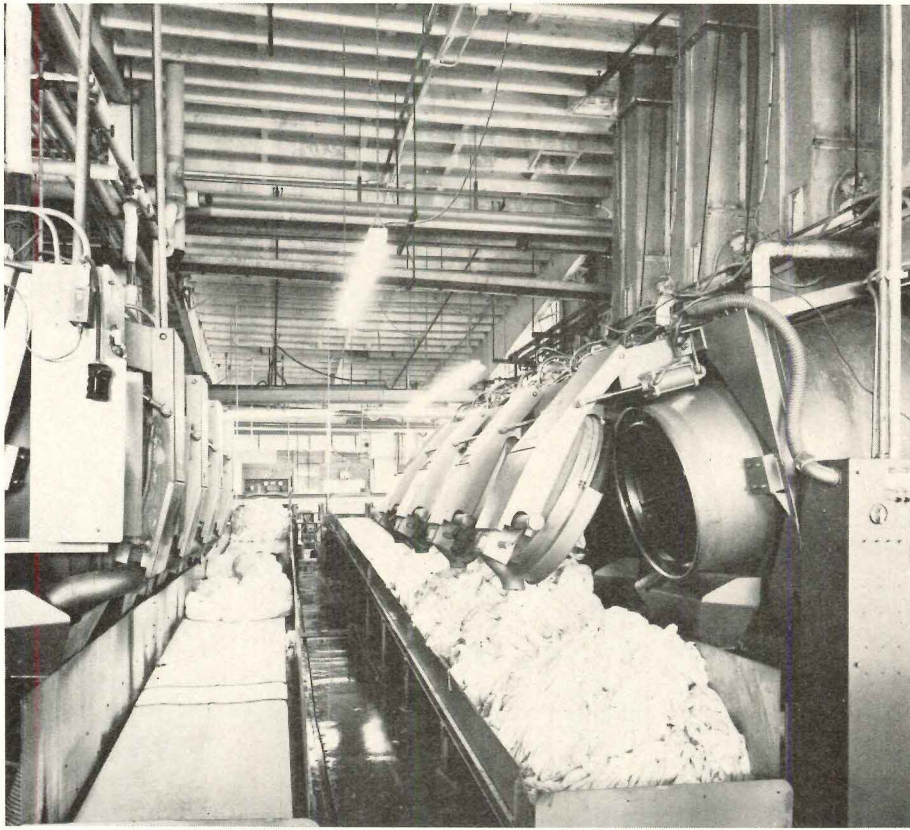
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Let us help you with complete floor plans, equipment recommendations, flow diagrams, capacity and personnel data — anything you need to provide the most efficient facility for this purpose.

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a McGraw-Edison Company Division

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PPG EXTRUSION COATINGS ADD ROUND-THE-CLOCK PROTECTION TO CHICAGO APARTMENT BUILDING.

Architects for Pine Point Plaza, new 29-story apartment building in Chicago, wanted prime windows that would stand up to the Windy City's worst weather.

So, they specified aluminum extrusions coated with DURACRON® Super 600 acrylic enamel for extra long life. DURACRON color coatings are baked on at the factory. Won't chip, peel or flake—even

after years of service. Colors (even the new metallics) keep their fresh appearance in spite of smog, snow and rain.

And DURACRON offers a wide choice of colors to harmonize or contrast with building exteriors. At Pine Point Plaza, for example, designers chose a low-gloss dark brown metallic shade.

Color your building's future—

with durability that lasts for many seasons. See the complete line of DURACRON coatings from PPG in Sweet's Architectural or Industrial Construction Files 9.10/PPG.

Or contact the Market Manager, Extrusion Coatings, PPG INDUSTRIES, Inc., Dept. 13S, One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

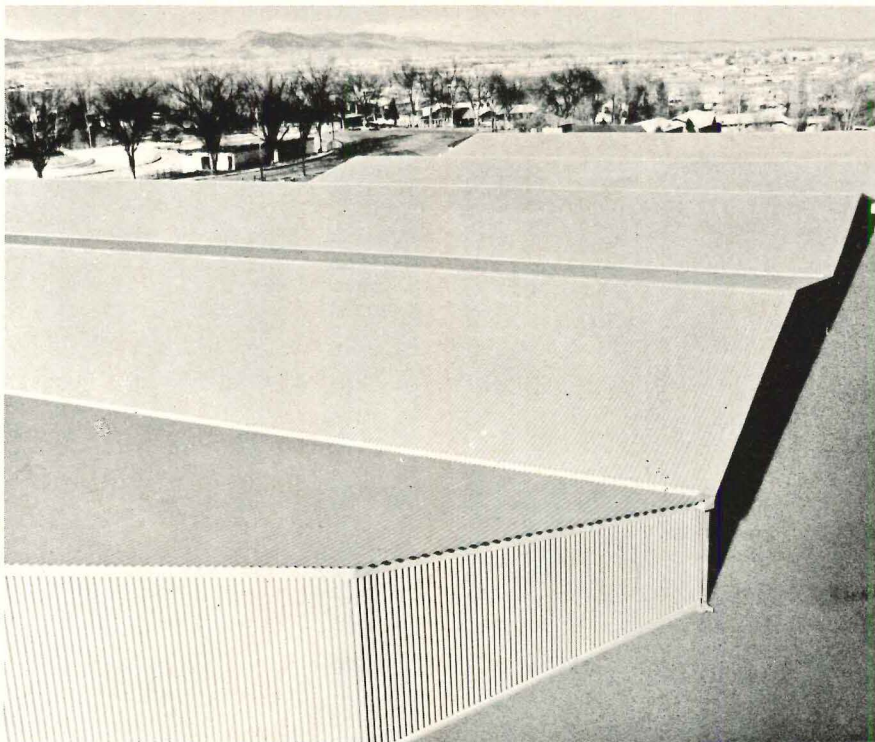


PINE POINT PLAZA, Chicago, Illinois
Architect: Martin Reinheimer AIA, and Architects, Chicago, Illinois.
Builder: Robin Construction Company, Chicago, Illinois.
Extrusion Fabricator and Erector: Starline, Inc., Carencro, Louisiana.
Extrusion Coater: William L. Bonnell Company, Inc., Newnan, Georgia.

3A3

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When you build a reservoir cover, build it clean with Reynolds Aluminum Building Products



Longmont, Colorado, did.

A rotting wood canopy was threatening the purity of the city's water supply. The remedy? A giant new canopy of strong Reynolds Aluminum V-Beam roofing and siding—nearly 3 acres of it. To eliminate rotting—and the chance of red rust.

Longmont's taxpayers appreciated the wide, lightweight panels that kept construction costs down. And maintenance costs are also minimal: the corrosion-fighting Colorweld® finish will resist chipping, peeling and splintering for years.

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Reynolds Metals Company, Architectural and Building Products Division, 325 W. Touhy Avenue, Park Ridge, Illinois 60068, (312) 825-8811.

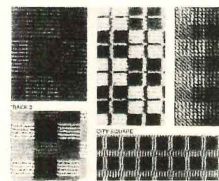
Catalogs in Sweets 1973 Architectural, Industrial Construction and Plant Engineering Files.



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CONTRACT CARPET / *Collector's Choice* carpeting

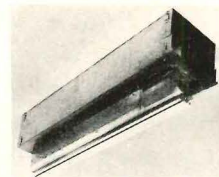


includes seven block and plaid geometric patterns which are available in minimum weaving of 500 square yards in any combination of 42 yarn colors. This carpeting is especially recommended for lobby, corridor, airport and office installations because of its resistance to heavy traffic and wide range of color options. ■ Gulistan Carpet, J. P. Stevens & Co., New York City.

Circle 316 on inquiry card

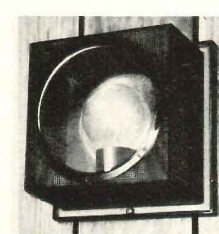
CEILING-MOUNTED AIR TERMINALS / Three

modular units for variable volume systems, including the industry's first variable volume terminal designed to provide cooling and heating simultaneously and reduce installed system cost, according to the company. The 37AD *Moduline* cooling and heating terminal is designed primarily for ceiling installation near the building's periphery. ■ Carrier Corp., Syracuse, N.Y.



Circle 317 on inquiry card

VANDAL-RESISTANT LUMINAIRE / A durable and

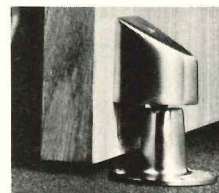


decorative dark bronze tinted polycarbonate luminaire is designed to maintain continuous lamp operation under extreme physical abuse. It accommodates G-lamps, flicker, chimney and other decorative lamps of any wattage, as well as 100 watt incandescents. This esthetically enhancing luminaire also has a highly polished aluminum reflector and socket. ■ Art Metal Lighting, Vermilion, Ohio.

Circle 318 on inquiry card

AUTOMATIC DOOR STOP / Designed for use in

public buildings, institutions and schools, the 495-499 door stops and holders offer fully adjustable engagement and holding forces. Ratios as high as 1 to 10 are possible. A wall-mount holder or strike is available with a 3¾ in. clearance between door and wall when engaged, as are three floor-mount strikes for maximum door-to-floor clearance of ¾, 1 or 2 in. ■ Leigh Products Inc., Coopersville, Mich.



Circle 319 on inquiry card

ENERGIZED EXIT LIGHT / The company reports



that these exit lights are the industry's only 100 per cent positively continuous light-emitting, maintenance-free exit lights. There is no wiring, no bulb, and no external power source. Visibility in total darkness is up to 225 ft. The light source is tritium gas. ■ Bajer Industries, Inc., Fairfield, N.J.

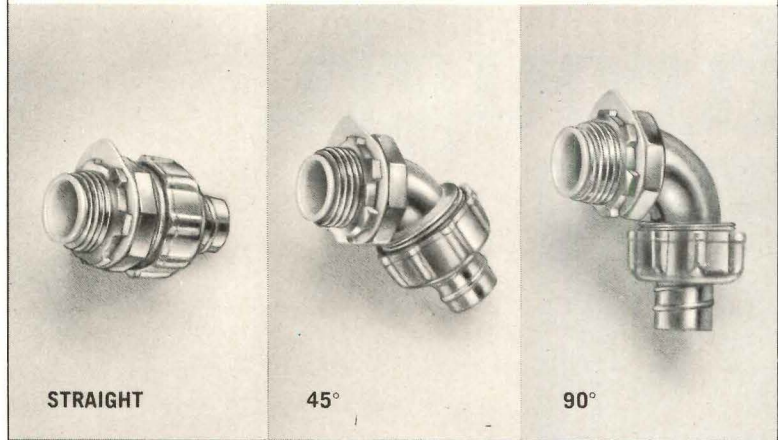
Circle 320 on inquiry card



New, re-designed Liquid Tight Connectors

Designed to increase pull-out resistance. That's Ideal's new line of all-steel Liquid Tight Connectors. Extra long ferrule holds conduit tight under extreme vibration and flexing. Gives better grounding. Easy to install. Seals out water, oils, coolants, vapors, etc. Compact. Straights, 90's and 45's in sizes $\frac{3}{8}$ " through $1\frac{1}{4}$ ". Other models from $1\frac{1}{2}$ " through 4". Write for FREE literature.

IDEAL INDUSTRIES, INC. 1328 - H Becker Place, Sycamore, Illinois 61078
In Canada: IDI ELECTRIC (Canada) LTD., Ontario

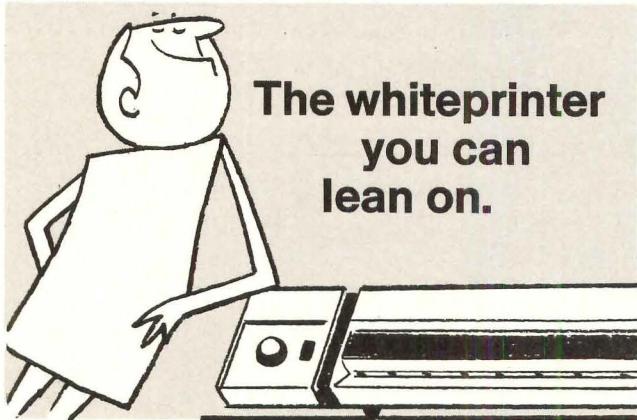


STRAIGHT

45°

90°

For more data, circle 93 on inquiry card



**The whiteprinter
you can
lean on.**

Set up our tabletop whiteprinter where you need it . . . it'll make your check prints hour after hour, all day long. Made to take it, service is minimal, performance is proven. A meaningful full year warranty makes this the whiteprinter you can depend on.

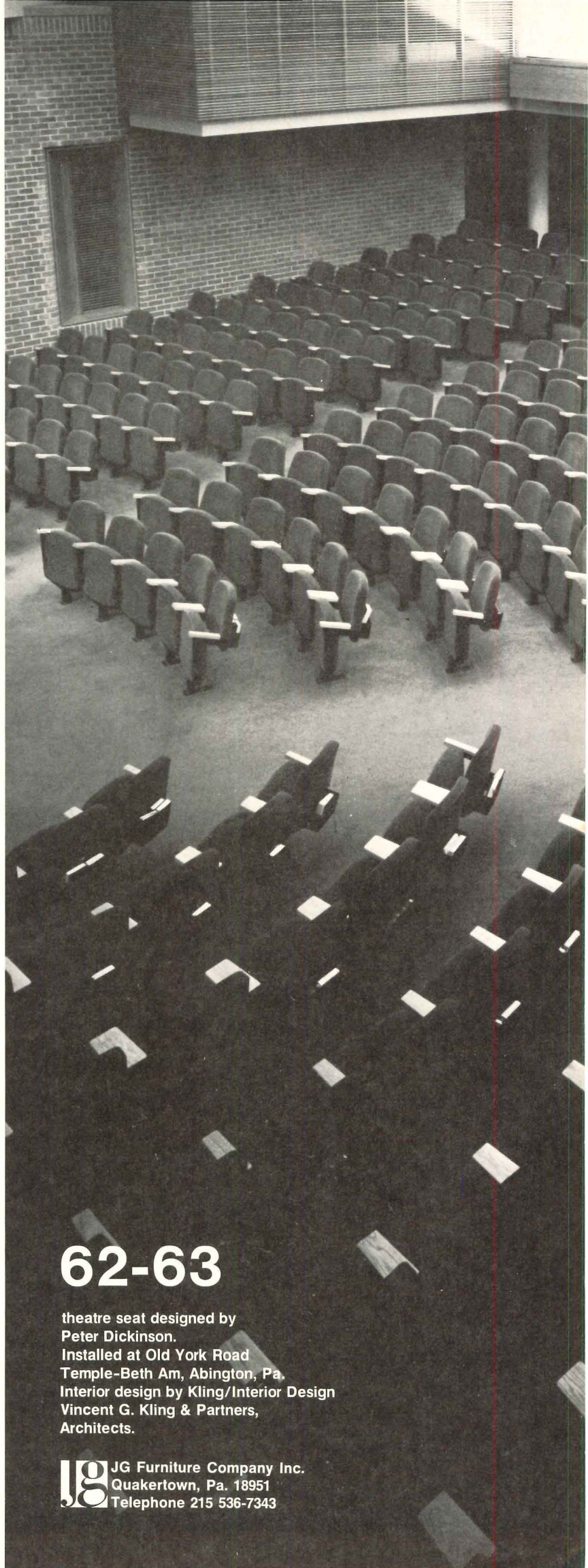
Your initial cost for a Blu-Ray is modest. Or you can lease it. Your copy cost can be as low as $1\frac{1}{2}$ cents per square foot. Speeds are variable. Throats to 47 inches wide. Send for brochure describing all 3 models. Blu-Ray, Incorporated, 134 Westbrook Road, Essex, Connecticut 06426. Telephone (203) 767-0141.

BLU-RAY



For more data, circle 94 on inquiry card

For more data, circle 95 on inquiry card



62-63

theatre seat designed by
Peter Dickinson.

Installed at Old York Road
Temple-Beth Am, Abington, Pa.
Interior design by Kling/Interior Design
Vincent G. Kling & Partners,
Architects.

JG JG Furniture Company Inc.
Quakertown, Pa. 18951
Telephone 215 536-7343

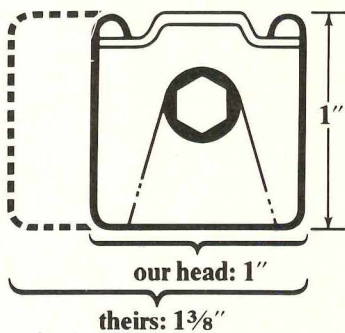
When we started to design the Mark II Blind we were just this far from a breakthrough.



We set out to design the slimmest, smoothest working narrow-slat blind possible. And now we've done it. We attacked the cumbersome headrail

problem, and designed out $\frac{3}{8}$ ", giving us a trim 1"x1". No other blind has a slimmer head than that!

Why go to all this trouble for a headrail?



Because we know the architect or designer would like to see us disappear. So our 1" head and bottom rails aesthetically blend into the blind. Open or fully closed, the Mark II rails are virtually unseen. And a full range of decorator colors

provides total flexibility of design coordination. The reason you can't do without us is function, of course. The Mark II has been engineered for

maximum glare reduction and heat gain control. We made internal improvements too, like the crash-proof lock that snubs the cords without tearing them. And the smooth tilt-action that's responsive to the lightest touch. And the spring-tempered slats that won't bow or sag.

Now that we've completed the Mark II, we know we were right! We were on top of a breakthrough!

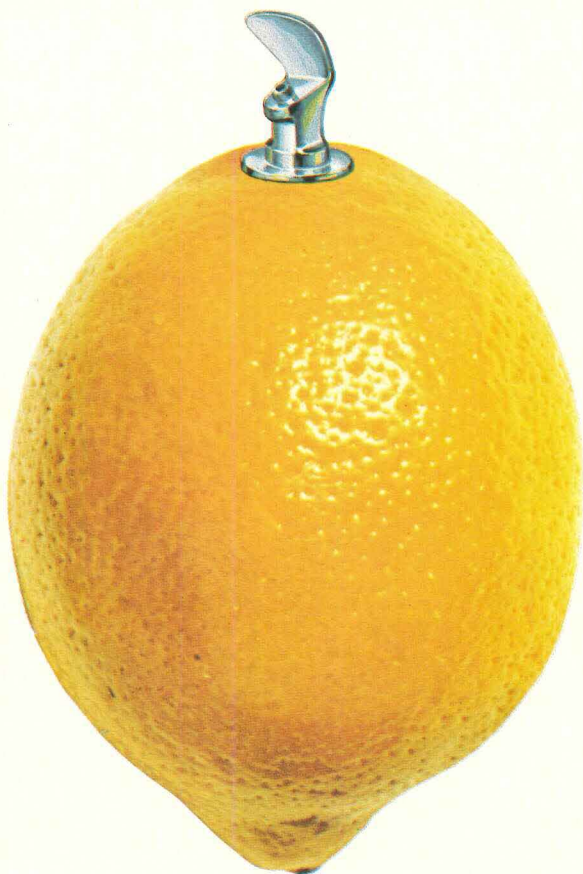
Venette Mark II Blind

For complete details, specifications and color selection, write Alcan Building Products, 4519 Mahoning Avenue, N.W., Warren, Ohio 44483

Alcan Aluminum Corporation



For more data, circle 96 on inquiry card



One color we don't make.

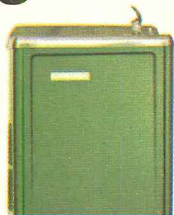
Eight colors we do.

We don't make lemon. Or lemons. But we can deliver our water coolers in any of eight Polychrome colors. Or stainless steel. Or PATINA bronze-tone stainless. Or vinyl-laminated steel in a choice of colors.

If you like, we'll even match the paint to your decorator color samples. Or prime coat the cabinets so you can finish them yourself.

About our paint. It's a very special enamel, custom formulated to resist heat, wear, sunlight—even the natural oils from human hands. And it's baked on, not air dried.

Like our paint, everything about a Halsey Taylor water



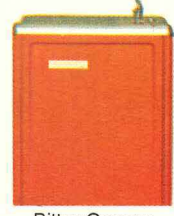
Cyprus Green



Charcoal Black



Montego Blue



Bitter Orange



Pagoda Red



Cameo White



Inca Gold



Kenya Tan

cooler is special: our exclusive automatic regulating valve, our welded, unitized cabinet construction, our balanced cooling system that insures longer life. Even our buffed stainless steel receptors. And the squirt-proof two-stream bubbler that provides a truly comfortable drink of water.

One more thing. We test every Halsey Taylor cooler as it comes off the line. Not one out of ten. Or twenty. Every one—thoroughly. That's why we don't make lemons.

Write for our 1973 catalog. Halsey Taylor Division, 1554 Thomas Road, Warren, Ohio 44481.

Halsey Taylor
KING-SEELEY *KST* THERMOS CO.®

For more data, circle 97 on inquiry card



Norton® Series 1600 Door Closers...

Almost a Legend of Reliability

We have no way of knowing the many different types of doors where the Norton Series 1600 closer has been installed. We do know the number, though, and it runs into the hundreds of thousands.

Even with all those closers in service, the problem installations have been so few that we can say the reliability of the Norton 1600 is almost legendary.

But that's only part of the Series 1600 story. It's probably the

most versatile closer available. It's non-handed; and it installs top-jamb, parallel arm or regular arm just as it comes from its box. There's a choice of regular mounting, back mounting or invisible mounting. It's attractive in a slim, functional way. And, it's unobtrusive.

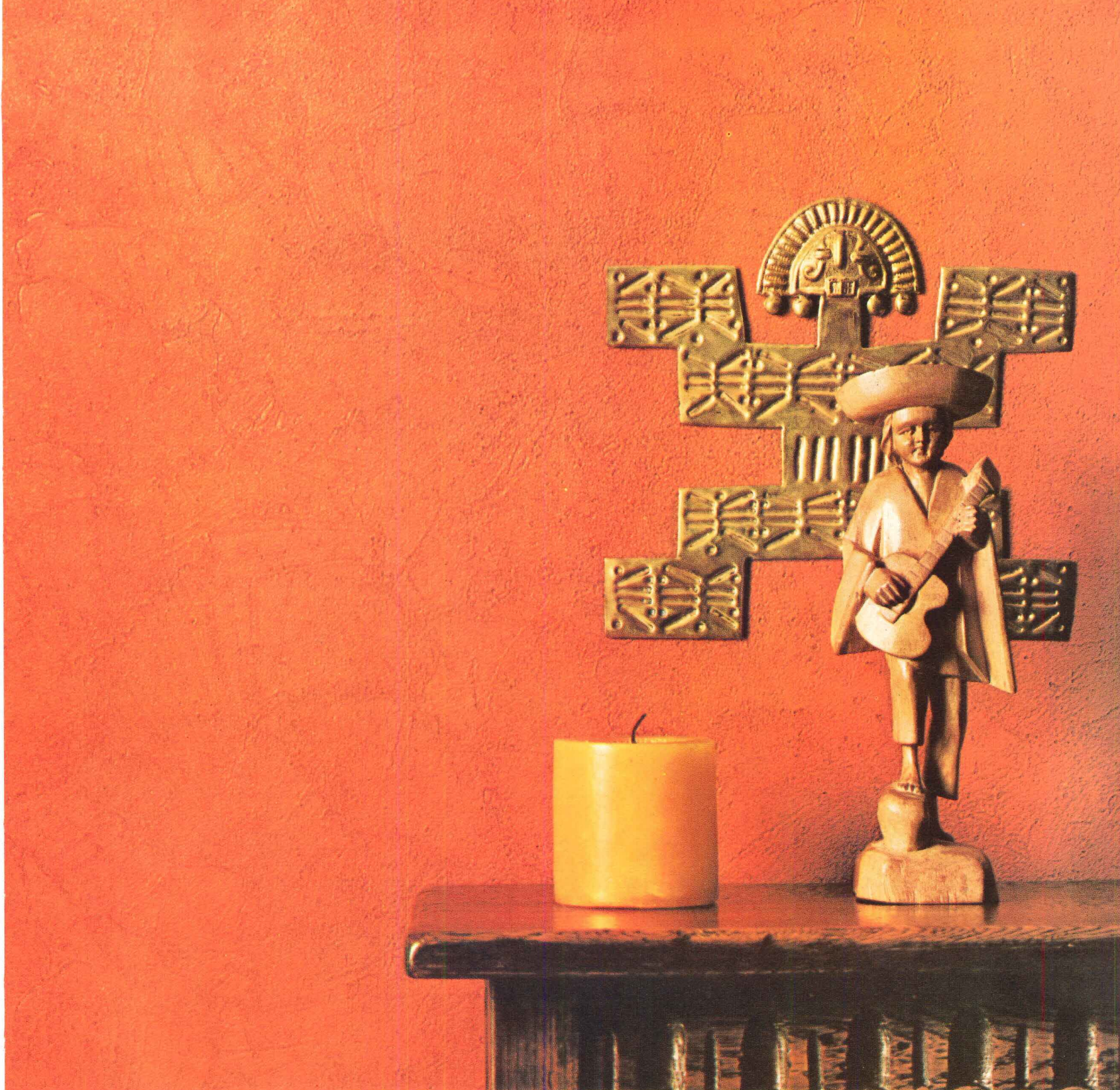
If you're familiar with the Norton Series 1600, include it in your next job where you need a reliable, attractive, versatile closer. If you're not familiar with it, ask your

Norton Representative or contact Eaton Corporation, Lock and Hardware Division, Norton Marketing Department, Box 25288, Charlotte, North Carolina 28212.

**Norton Door Closers . . .
25 years of Aluminum Reliability**

EAT•N Security Products
& Systems

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The Mexican deception.

Decorate in the warm, natural tones of Mexico or the Mediterranean and add extra feeling with Adobe. A unique sculptured stucco design that says "natural" in very practical Koroseal® vinyl.

Adobe is shown here in Cinnamon, but it's also available in 24 other colors, such as Red Clay, Hemp, Aztec Gold, Bisque and Slate.

Koroseal is versatile.

Complement other room settings, from Louis XV to eclectic, with the natural look of weathered wood, split cork, burlap, bamboo, stone, straw,

leather, marble. 40 patterns and over 500 colors to give you the option to go straight or wild. While still keeping with nature's textures.

Specify Tedlar® for those commercial or hard-duty requirements where stain resistance is a must. With Tedlar, even lipstick and ballpoint ink just wipe away.

And all Koroseal wall coverings are fire rated.

Think about Koroseal for your next decorating job.

Whether you're planning to go Mexican, Spanish, Italian or whatever,

Koroseal looks real in any setting.

See our insert in Sweet's Architectural and Interior Design catalogs for the name of your nearest Koroseal distributor. He has a Koroseal Color Coordinator waiting for you.

B.F. Goodrich General Products Co., Akron, Ohio 44318.

For more data, circle 99 on inquiry card



Our built-up roofing experience is priceless.

How can we put a price on the wealth of knowledge about built-up roofing we've assembled in well over 100 years in the business?

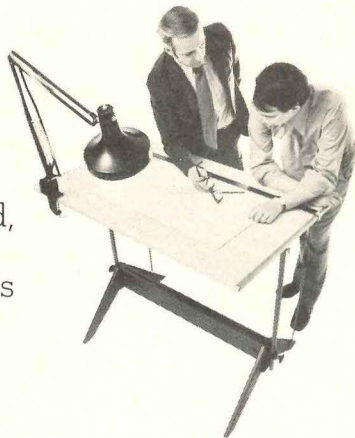
The answer is: We don't.

Therefore, we're offering it to you free. No charge. No obligation. No strings attached.

Which means that when you need help designing a roof, you can ask for and get—without cost—the knowledge and resources of one of the world's largest producers of built-up roofing materials. A company that has solved roofing problems for over a century.

All you do is contact J-M. One phone call or one letter will do. We'll send a qualified J-M roofing specialist to look at your plans—or inspect an existing roof if it's giving you problems. He's trained in all aspects of built-up roofing. He knows his job.

Should he be baffled, as sometimes happens, he'll consult one of J-M's



11 district engineers, who together have over 250 years of intensely practical roofing experience to draw upon.

So when you get their detailed recommendations for a built-up roof, you can count on their advice being exactly right for the job. Candidly, honestly given.

One other point. We hope you'll accept our recommendations. If you do, we can put you in touch with approved J-M contractors who will use quality J-M roofing materials to install, or repair, your roof. If you use someone else—well, we can't win them all.

But do keep this in mind. We at J-M stand behind our materials and our contractors 100%. Back them with roof bonds, if you choose, for as long as 20 years. And, if something should go wrong with your bonded roof, J-M will be around to make good.

When you have a new roof to design, call your J-M district sales office. Or write Johns-Manville, Post Office Box 5108, Denver, Colorado 80217.

We think you'll agree our advice is really priceless.

Johns-Manville 

So is our advice.

For more data, circle 100 on inquiry card

the new washroom:



Who hid the hardware in these laminated plastic toilet compartments? Bobrick did.

Bobrick's "flush-front" design conceals lifetime stainless steel hardware inside the compartments and uses uniform 1" thick pilasters, doors and wall posts.

There are hidden strength features too . . . pilasters with a steel core and pre-drilled holes with threaded steel inserts to assure maximum holding power for hardware.

And compartment panels can be pre-cut for Bobrick accessories. Shown is one example: a recessed unit that combines six accessories and serves two compartments. Saves space, installation cost and maintenance.

To help you plan today's new washroom, send for our Planning Guides and Catalogs. Bobrick, Architectural Service Dept., 101 Park Ave., New York 10017. Bobrick products are available internationally.



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Seattle, Washington
Architects: Mandeville & Berge



Washington Mutual Bank/White Center Branch
Seattle, Washington
Architects: Naramore, Bain, Brady, & Johanson
General Contractor: James I. Barnes Construction Company



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In their search for an architectural material that would create the stable bank image and yet not be obtrusive in suburban or even residential areas, many architects have found the answer in Mo-Sai. Colors and textures are derived from casting select aggregates in concrete and then exposing them on the surface. The resulting finish is hard, durable and requires little or no maintenance. Custom precast under Mo-Sai factory controlled processes, the units are of superior quality and may be quickly and easily erected any season of the year. In most cases, Mo-Sai is the entire structural wall unit with the aggregate surface on all sides, carrying the design theme to the interior as well as the exterior.

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Northgate Branch
Seattle, Washington
Architect: Richard Bouillon & Company
General Contractor: Howard S. Wright Construction Company

Top right:
National Bank Of Washington
Parkland, Washington
Architects: Lea, Pearson & Richards
General Contractor: Absher Construction Company

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AQUARIUMS BULLETIN / A color publication illustrates and details the many features of aquariums and includes ordering information for both regular and extra high sizes. ■ All-Glass Aquarium Co., Inc., Franklin, Wis.

Circle 414 on inquiry card

STEEL LANDSCAPE EDGING / A 4-page bulletin gives types, costs, specification and availability data on rust-resistant steel edging. ■ Joseph T. Ryerson & Son, Inc., Chicago, Ill.

Circle 415 on inquiry card

FLEXIBLE DUCT / A 4-page foldout describes the new *Thermaflox* UL-listed line of flexible Class I duct for air conditioning and ventilation. The brochure describes features, specifications, applications and construction of one type of non-insulated and two types of insulated ducts. ■ Flexible Tubing, Branford, Conn.

Circle 416 on inquiry card

CONTROL DAMPERS / Designed as a reference for architects, the new brochure details individual model specifications, performance curve test data, torque requirements and optional attachments that are available on a complete line of control dampers. ■ Vent Products Co., Chicago, Ill.

Circle 417 on inquiry card

VERTICAL CONVEYOR / A 12-page brochure describes vertical selective conveyors stated by the manufacturer to be quieter than previous models. The new model features vibration dampening pads between the conveyors and the building structure, and solid state controls that have no clicking relays, no contacts to maintain and snap-out snap-in circuit cards. Silent proximity switches and photoelectric eyes replace clicking limit switches. ■ Standard Conveyor Co., North St. Paul, Minn.

Circle 418 on inquiry card

GROOVED PIPING / A grooved piping data folder for the power plant designer contains basic product specifications for power piping systems, along with listings of services, applications and current major users. Basic water, air, vacuum and drainage systems are explained. ■ Victaulic Co., South Plainfield, N.J.

Circle 419 on inquiry card

COLOR COATING PAVEMENT / Application specifications, covering employment of color coating systems for blacktop pavements, game areas and tennis courts, are offered. These include use of acrylic copolymer and the company's application for color restoration; in-depth surfacing and heavy color in-depth surfacing. Each specification contains recommendations relative to surface preparation, material selection and application. ■ Maintenance, Inc., Wooster, Ohio

Circle 420 on inquiry card

ELECTRIC AIR CLEANERS / Designed to match with central-plant-type heating and air-conditioning systems, these compact cleaning units come in 11 sizes to meet the high-efficiency air cleaning needs in office buildings, stores, shopping centers, hospitals, schools, computer rooms and other applications, states the company. The illustrated, six-page catalog provides complete data on specifications and advantages, charts on available capacities and dimensions, diagrams of typical assembly arrangements, and graphs of efficiencies. ■ Sturtevant Div., Westinghouse Electric Corp., Pittsburgh, Pa.

Circle 421 on inquiry card

Thinking about a waste collection system?

Thinking about a pneumatic waste collection system?

Think about:

TRANS-VAC SYSTEMS

↓ designers of

Pneumatic Transport & Waste Collection Systems for handling soiled linen or trash (or both).

fast • efficient • sanitary



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Ideal for new hospital construction, major additions or renovations . . . or can also modify existing gravity chute systems for lateral transfer of material.

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Ideal for high-rise structures such as hotels, motels, large office buildings, apartment complexes, dormitories and institutions.

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Ideal for large recreational projects, amusement parks, sports complexes and stadiums.

Space saving TRANS-VAC Systems utilize idle wall and ceiling space for placement of chutes and conveyor pipes. Piping may also go above or below ground, over roof tops, along outside walls and into basement area. Separate collector hoppers located in laundry room and trash collection area automatically deposit loads of transported material on signal from central control panel.

TRANS-VAC Systems offer completely integrated systems for Pneumatic Transport, Shredding, and Waste Disposal — all fully automatic. Each system individually engineered and backed by 47 years experience in pneumatic conveying and waste disposal technology.

Write or phone Dept. AR for further information and/or design assistance. See our Catalog 11.25/TR in SWEET'S 1973 Architectural Reference File.



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What more can we say? Except that we can set it up and

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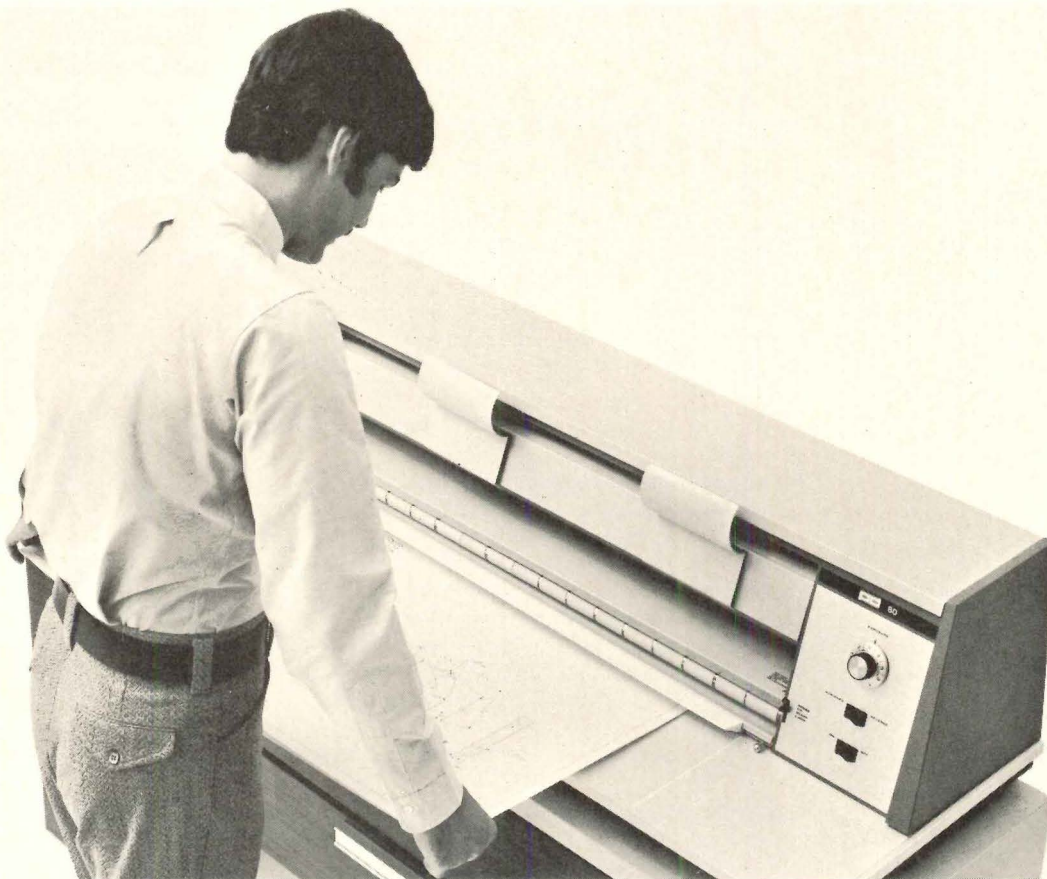
So, call your local Bruning man. He's ready to show you how you can make quick check prints right where you make your drawings, with the PD-80. And this cost-cutting machine can go to work for you on an attractive rental plan. No capital investment, no long-term commitment. Like all Bruning products, the PD-80 is backed by the famous Bruning tradition of

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Renaissance comes in 4' x 8' x 1/4" panels. And it's available with a Class III flame spread rating. For more information, just contact your G-P representative.

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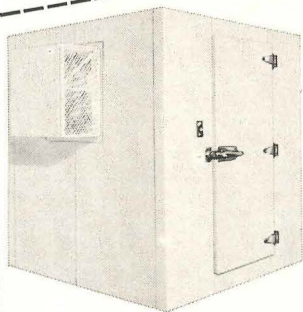


See us in Sweet's 13.1/1b-7.8/1b

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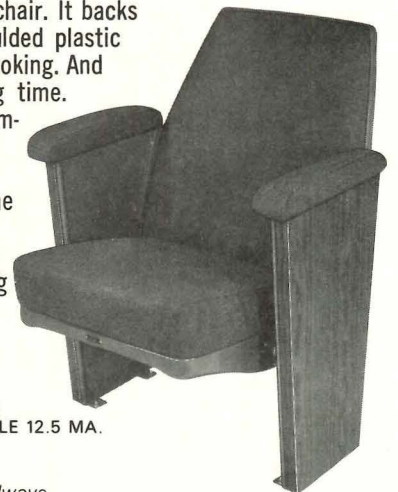
Second and Elm, Hudson, Wisconsin 54016
DEPT. 3174

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S FOR REFERENCE SEE SWEET'S ARCHITECTURAL CATALOG FILE 12.5 MA.

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NASHVILLE, TENNESSEE 37208

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The copper "life safety" fire sprinkler system makes this landmark hotel one of the nation's safest.

Tucson's Pioneer International Hotel was recently remodeled to become the nation's first with copper "life safety" sprinkler protection in every room.

The system's emphasis is on prompt detection and suppression of fires in compartmented structures using small quantities of water. Because of the system's superiority, costly structural alternates were not necessary.

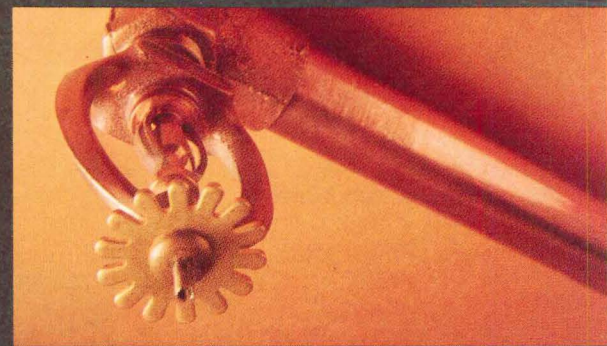
Copper tube ends the need for over-sizing to compensate for pipe corrosion buildup. Copper tubes stay clean inside and also handle the pressures reliably.

Easy joining by soldering and small size make copper tube perfect for snaking tube around obstructions when remodeling existing buildings.

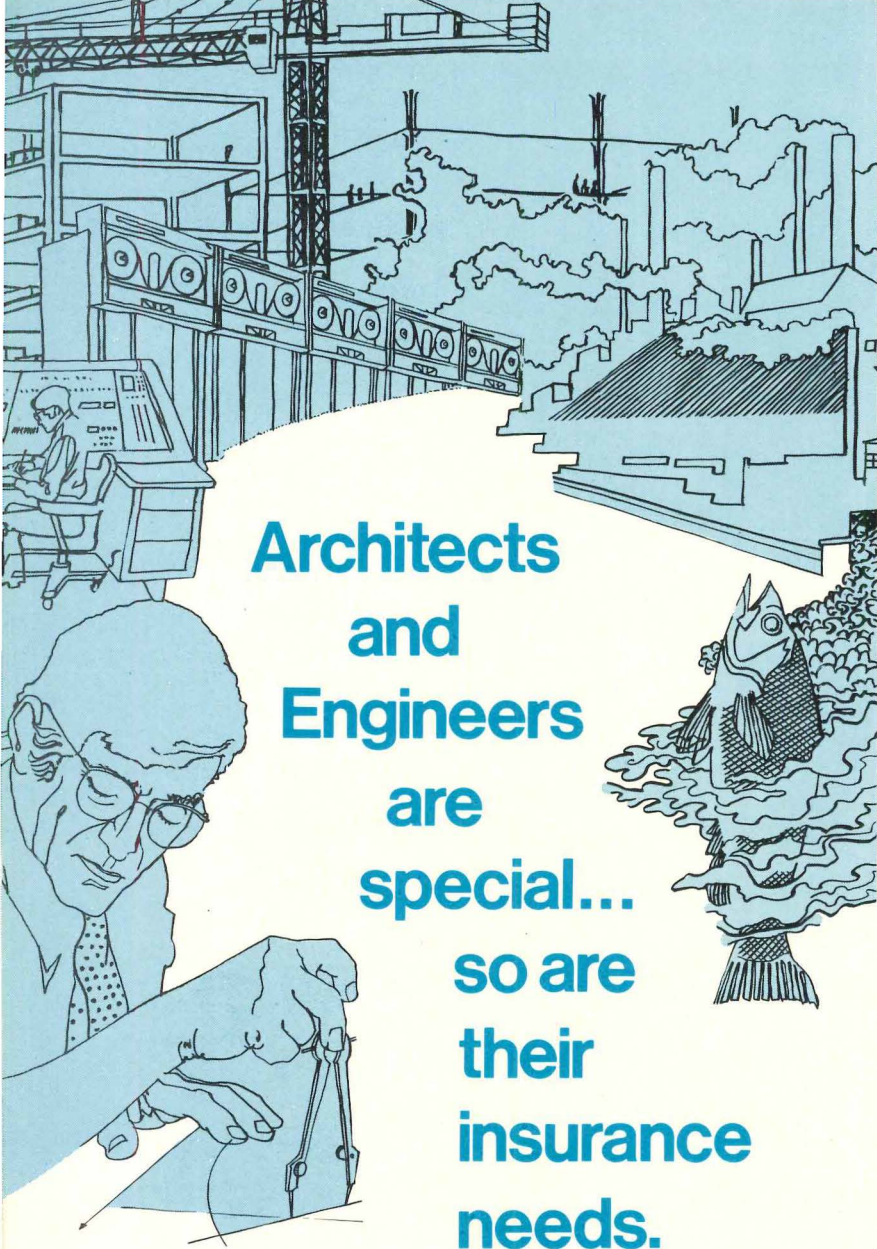
Payoff: installed cost low enough to extend sprinkler protection to all rooms in hotels, high-rise office buildings, nursing homes, hospitals and motels.

Count on copper for ideas to make any existing compartmented building safer. New ones, too.

Copper Development Association Inc.
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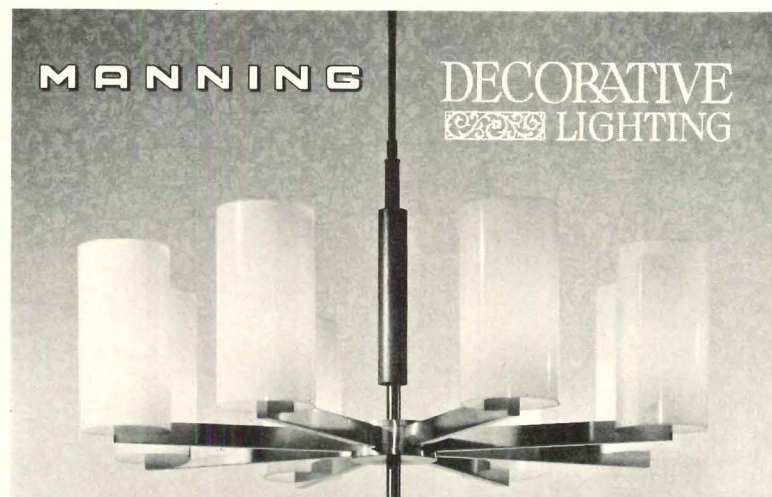
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There's one "years ahead" roof deck insulation that's available *now*...in big supply. It can be applied to any thickness. Even sloped to drains. K factor .40. Conserve energy—yours and nature's—specify All-weather Crete roof deck insulation by Silbrico Corporation, Hodgkins, Illinois 60525.



For more data, circle 112 on inquiry card



NEW

Complete line of decorative lighting equipment—specifically designed for commercial interiors.

REQUEST FULL COLOR CATALOG "M"

R. A. MANNING COMPANY INC.
P.O. BOX 643 SHEBOYGAN, WIS. 53081

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No reason office doors can't be attractive and still mean business.

These Republic Steel doors can. Their beauty is obvious. Colorful, stylish, distinctive. A warm welcome into any office.

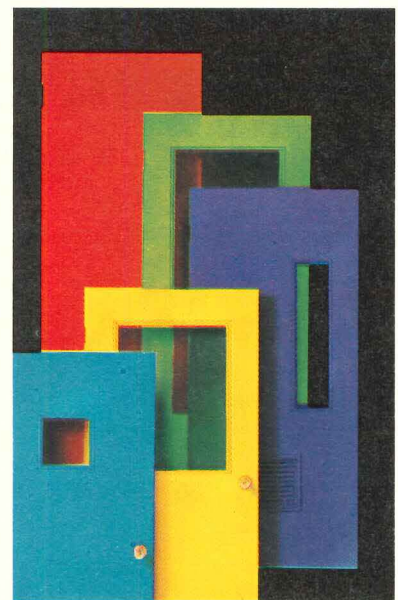
Yet underneath, these doors are "all business." Steel-strong. To take the in-out punishment of customers, clients, personnel. Quietly. And without ever sagging, shrinking, or rotting, or warping due to moisture. They meet fire-protection ratings, too. And ensure non-business hours security.

And they're "stylable." Which means you can get a custom look at a fraction of custom-made costs. First, you can choose from a range of 36 sizes and 8 standard styles, prime-

coated or prepainted in your choice of 19 popular colors. Then get exactly the light and louver treatment you want. Installed by your local Republic distributor right in his warehouse. At no extra cost. With no delay in delivery.

And everything—doors, frames and Frame-A-Lite stick system—comes ready to install, easy to hang. No planing, mortising or notching needed.

Get the whole story behind these doors from your nearest Republic distributor. He's listed in the Yellow Pages under Doors-Metal. Or write Republic Steel Corporation, Builders Products Division, 465 Walnut St., Niles OH 44446.



Republicsteel
Builders Products



For more data, circle 114 on inquiry card

Take a look at your four walls. Now take a look at ours.

U.S. Plywood presents interiors unlimited:

1. Real wood paneling, from Weldwood® Lustrous hardwood veneers smoothed, rubbed and polished in up to 30 separate steps. For long-lasting finishes that need just an occasional dusting. This DeLuxe Walnut panel is one of over 70 varieties of Weldwood Prefinished Paneling. Lovely to look at, simple to install.

2. Sanspray®, the Great Stone Facing. Beautiful, durable stone aggregate bonded to plywood. Can

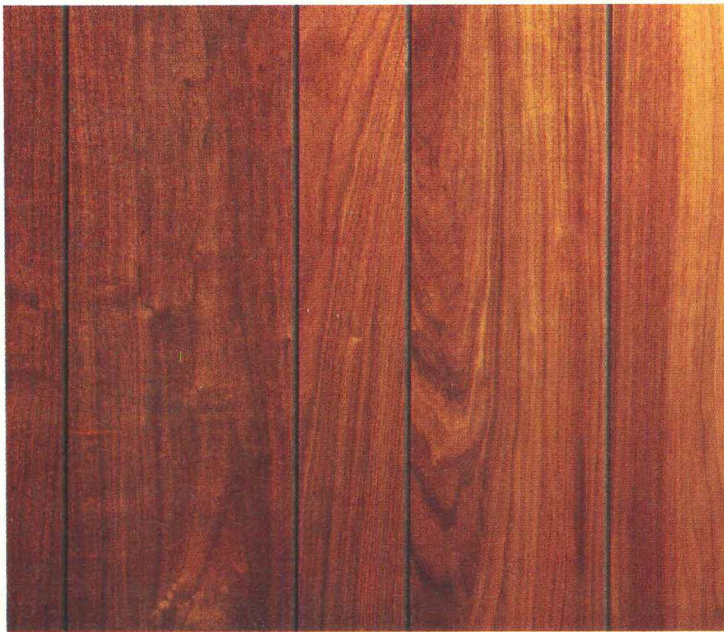
be sawed, drilled, glued or nailed, and is virtually maintenance-free. In both regular and large aggregates. And a raft of natural stone colors, like Tangerine shown here.

3. Pure sculpture. That's our Facad®. Each panel has a depth of relief you'd expect in heavier, precast units, and each weighs just two pounds per square foot. Facad is completely incombustible. You're looking at Composition 1, one of a variety of surfaces to choose from.

4. Bring the outdoors indoors

with U.S. Plywood Textured Sidings. Natural or rough-sawn. Flat panels or lap that play up (or down) any decor. 15 different styles to choose from. Shown here is Oldbridge® V-groove, available unfinished or pre-stained in a choice of six earthtone colors.

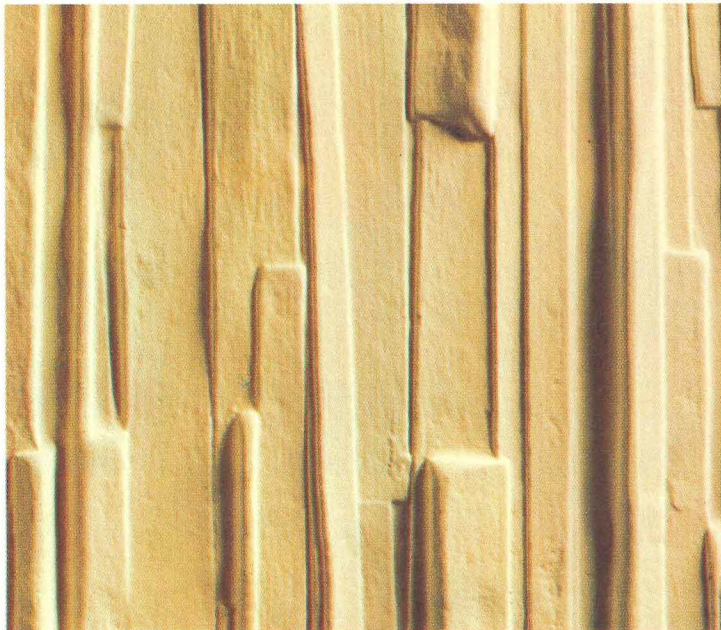
For more information, call your local U.S. Plywood Branch Office.



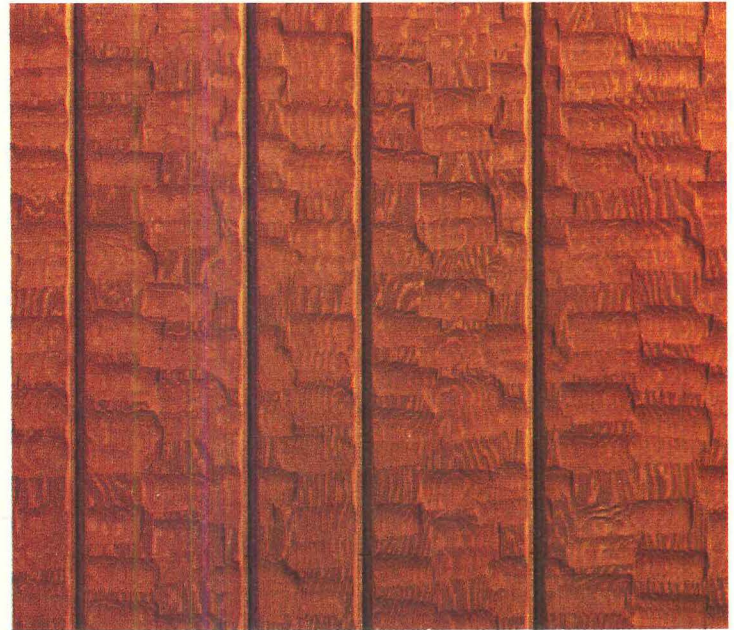
1. The paneled wall.



2. The stone wall.



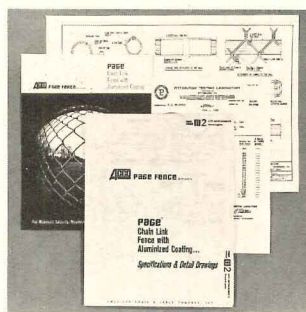
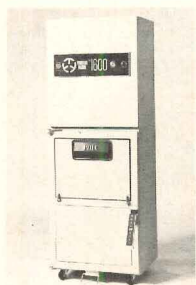
3. The sculptured wall.



4. The textured wall.

PORTABLE SOLID WASTE AND REFUSE COMPACTORS and systems from The Tony Team, Inc. includes four sizes and great versatility. Pollution Packer™ compactors bale, bag and box all types of wastes and refuse, wet or dry. Machine capacities range from .8 C. Y. to 4½ C. Y. of loose wastes at 10 to 1 compaction ratio . . . operate on low amperage, 110-V60 cycle service. For hospitals, hotels, schools, colleges, restaurants, office and apartment bldgs. Simple adaptation to chute-type disposal systems. Spec sheets and literature available from: The Tony Team, Inc., 7399 Bush Lake Road, Mpls., Minn. 55435.

For more data, circle 116 on inquiry card



FREE FENCE SPEC KIT saves time, trouble. Invaluable for planning chain link fencing. Kit includes drawings on styles, wire gauges, gates, fittings, framework. Also includes lab reports, work sheets and specifications. Page® aluminized fabric lasts 3-5 times longer than the best of galvanized. Send for your kit today. Page Fence Division of Acco. P.O. Box 430, Bridgeport, Conn. 06602.

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Hear Less.

Sound absorption of carpets with separate padding is greater than carpets without a separate padding. Don't specify carpeting without separate padding.



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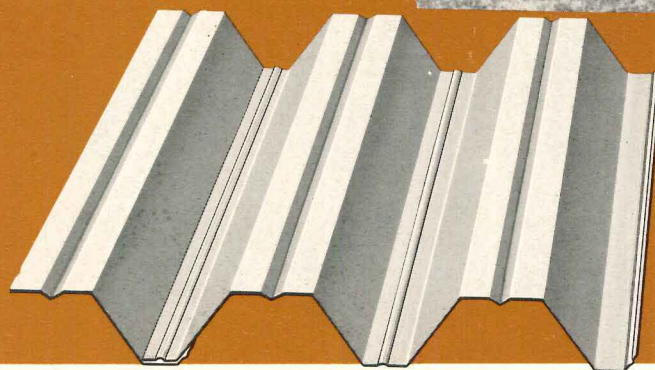
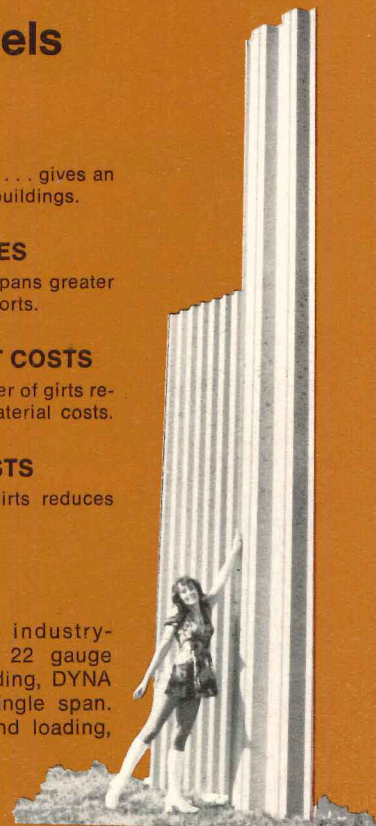
Something New from Smith

DYNA SPAN ... a New Dimension in Metal Wall Panels

- **MASSIVE PROFILE**
Bold profile casts strong shadows . . . gives an aesthetic appearance to massive buildings.
- **SPANS LONGER DISTANCES**
DYNA SPAN is super strong . . . spans greater distances between structural supports.
- **SAVES STRUCTURAL GIRT COSTS**
Long span strength reduces number of girts required . . . saves on structural material costs.
- **SAVES ON ERECTION COSTS**
Reducing number of structural girts reduces erection costs.

HOW IT COMPARES . . .

Compare DYNA SPAN with industry-standard V-Beam. Based on 22 gauge galvanized steel at 20 psf loading, DYNA SPAN will span 20'9" in a single span. V-BEAM, same gauge and wind loading, will only span 12'0".



SMITH'S Single Responsibility concept is the Systems Approach to solving your metal wall problems. It's a complete system . . . from the earliest Architectural/Engineering contact to placement of the final product fastener on the job site. SMITH Sales Engineers are specially trained to estimate and submit quotations, provide assistance in specification writing and detail suggestions. SMITH engineers design the products to suit your specific project. The material is color-coated and fabricated by SMITH personnel . . . erected on the job site by experienced SMITH erection crews.

Specify SMITH Single Responsibility for your next building project. For full details and specifications, consult Sweets Architectural File or write.

EGS 107



ELWIN G. SMITH DIVISION

100 WALLS STREET, PITTSBURGH, PENNSYLVANIA 15202

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the full-time Logan barrier

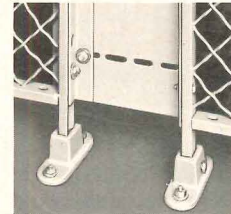
because theft, vandalism and injuries can happen at any hour!

These days, round-the-clock protection will soon pay for itself in reduced losses. What's more, our large-scale production keeps the price of these units low. Logan stock size wire partitions can be installed at a fraction of the cost of custom built units of wood, steel or masonry.

We offer five stock widths and four stock heights up to 10 feet. All complete with packaged hardware, and a

choice of hinged and sliding doors and service window panels. Stock size accessories include our exclusive Flex-O-Panel, which permits partial installations in any length down to a fraction of an inch. Makes it quick and easy to install partitions at walls and corners, as well as between panels. Call your distributor for details. He carries a complete stock, ready for immediate shipment.

Exclusive Logan Flex-O-Panel adjusts to any dimension. Fits between wire panel and masonry wall; between wire



panels in a straight run, between wire panel and corner post.



LOGAN CO. SUBSIDIARY **ATO** INC.

P. O. Box 6107
Louisville, KY 40206
2421-25 Hunter St.
Los Angeles, CA 90021

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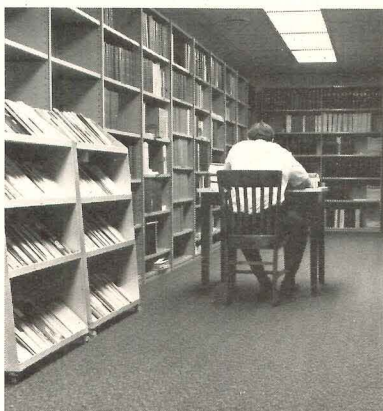
Hospital after hospital prescribed proven carpet by Bigelow.

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

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

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

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



Bigelow-Sanford, Inc., Dept. A
140 Madison Avenue, New York, N.Y. 10016

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

NAME _____ Print Clearly

TITLE _____

ADDRESS _____

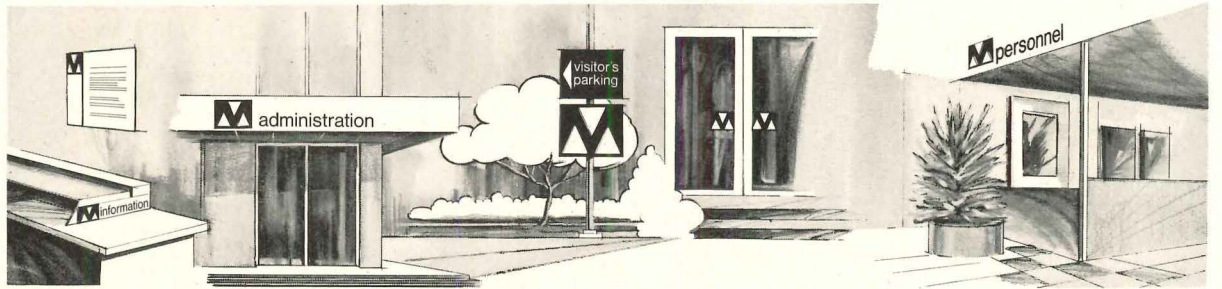
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RUGS & CARPETS SINCE 1825

AMERICA'S MOST EXPERIENCED CARPET MAKER

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more than just identification.....



... IDENTIFICATION SYSTEMS

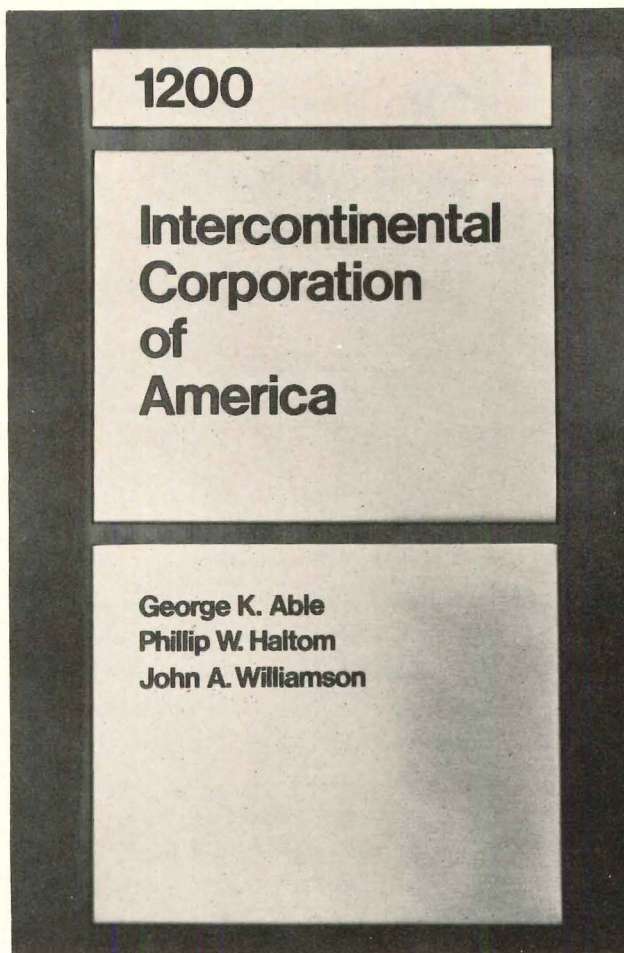
for total graphics

Create custom-planned identification for clients. Throughout an office. A building. Or an entire company.

Your single source for identification is Matthews. With systems responsibility for design, manufacture and coordination. To help you carry out an integrated, innovative decorating plan that combines the aesthetic with the functional.

Start with metal lettering. Matthews offers 25 different styles. Cast in solid bronze or aluminum. In sizes, finishes and baked-enamel colors to meet every need perfectly. Tie in corporate symbols and logos, custom-cast in metal. Use commemorative tablets and plaques . . . wall and door signs, desk name plates . . . even superb, limited-edition bronze sculpture for foyers, display areas, board rooms.

All from Matthews . . . specialists in Identification Systems. Contact Matthews now. And request our catalog on Identification Systems.



JAS. H. MATTHEWS & CO.
Identification Systems

1315 W. Liberty Ave., Pittsburgh, Pennsylvania 15226

Plants in PITTSBURGH, PENNSYLVANIA; SEARCY, ARKANSAS; MILTON, ONTARIO;
SUN CITY, CALIFORNIA; SENECA FALLS, NEW YORK; EL MONTE, CALIFORNIA.

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1,000

new
products
for
architects
and
engineers

... in *Product Reports 1974*.

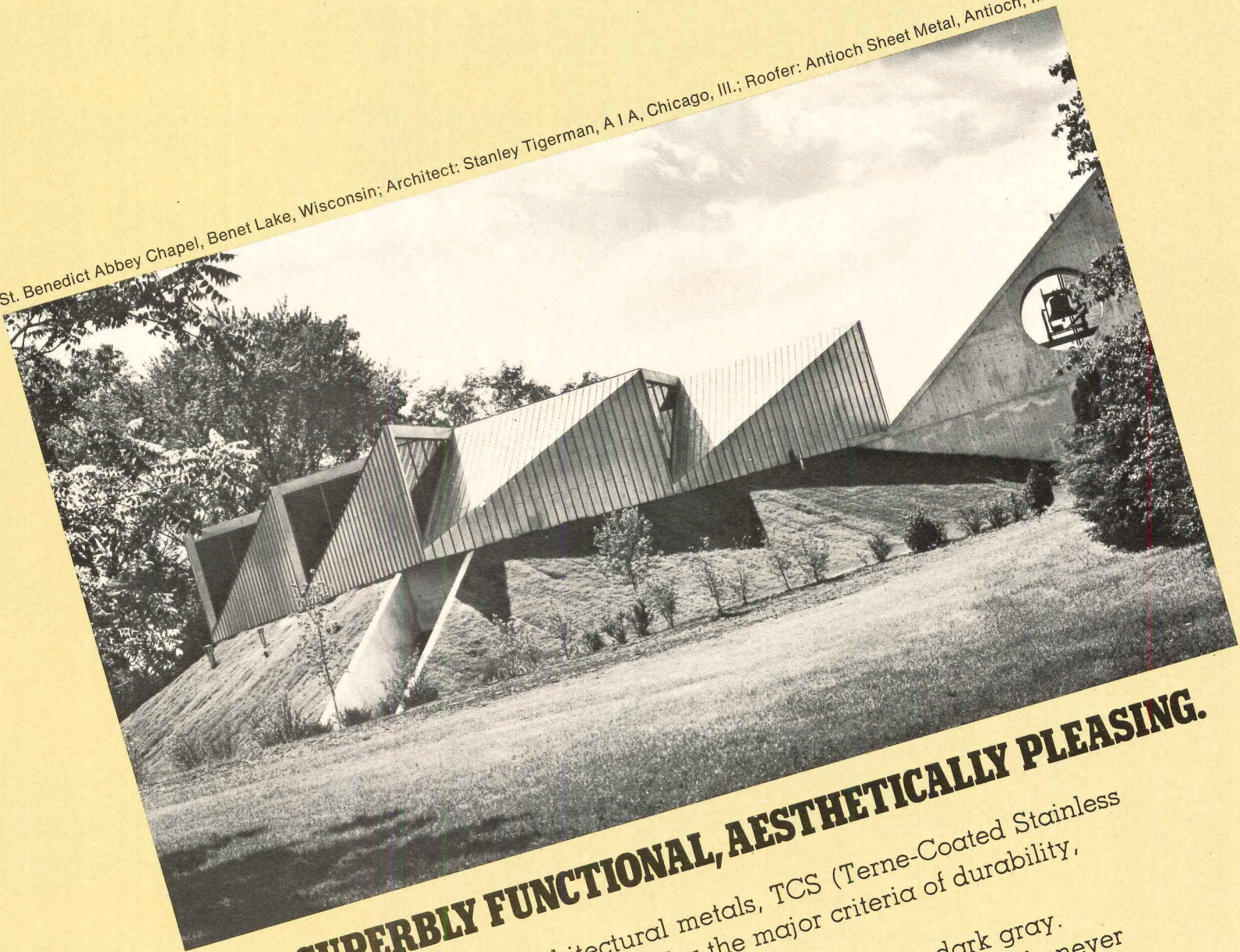
Following the universally used 16 Division Uniform Construction Index, *Product Reports 1974* will provide information (much of it in full color) on some 1,000 new and improved building products available in early 1974. *Product Reports 1974* will be published in mid-October. For details on this unique, comprehensive new product guide, contact Architectural Record, 1221 Avenue of the Americas, New York 10020 or your local Record representative.

A McGraw-Hill Market-Directed Publication

ARCHITECTURAL RECORD

1221 Avenue of the Americas, New York 10020

St. Benedict Abbey Chapel, Benet Lake, Wisconsin; Architect: Stanley Tigerman, A I A, Chicago, Ill.; Roofer: Antioch Sheet Metal, Antioch, Ill.



TCS...SUPERBLY FUNCTIONAL, AESTHETICALLY PLEASING.

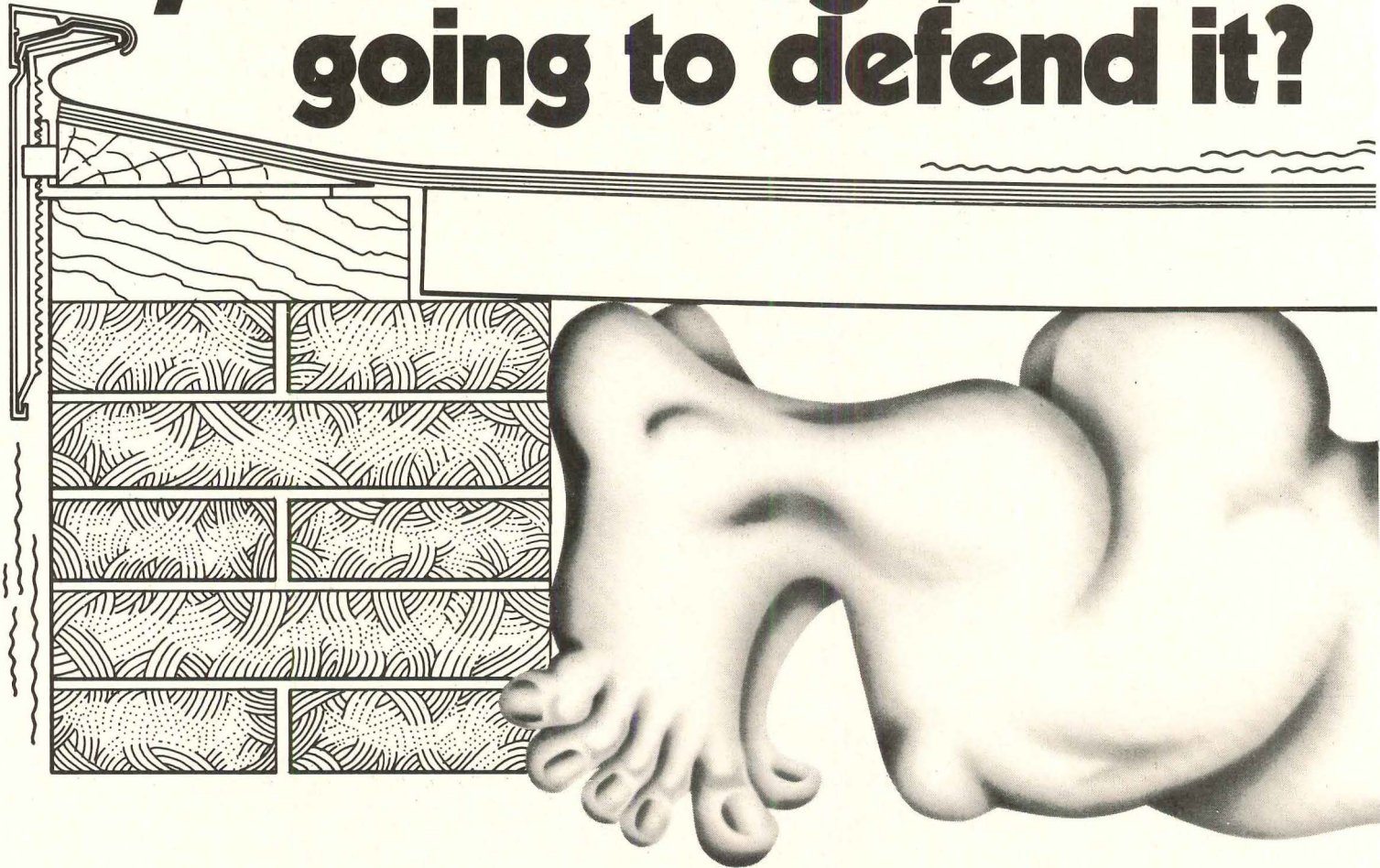
Among the standard architectural metals, TCS (Terne-Coated Stainless Steel) has no equal when measured by the major criteria of durability, corrosion resistance and ease of soldering. It also weathers naturally to a uniform and attractive dark gray. On both counts, we believe it deserves your consideration whenever metal roofing or weathersealing is specified.

FOLLANSBEE

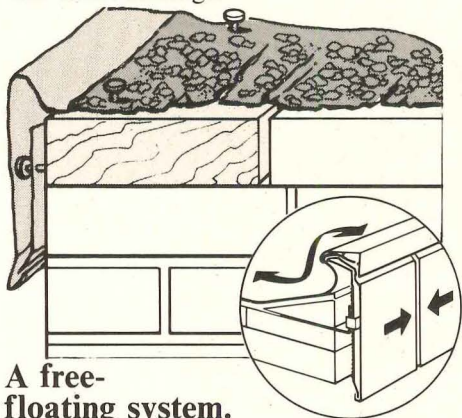
FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA

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When movement attacks your roof edge, what's going to defend it?



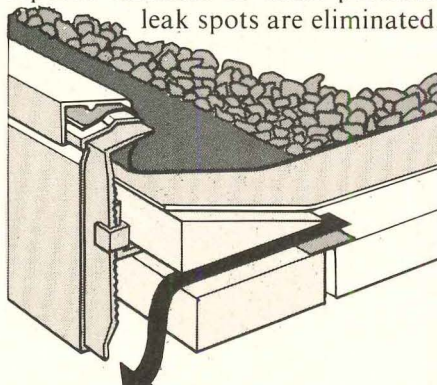
Everybody knows you can't stop the attack. For wherever you find two adjoining structural planes, you'll also find movement. Movement in different directions, at different rates, that makes nails pop, nail holes enlarge, joints open, etc. Any of which can cause leakage.



A free-floating system.

But now there's a beautiful defense against movement: Tremline, a unique free-floating fascia system that takes movement in stride like no other roof edging system can.

For other systems are static and have very little give. But the components in Tremline are free to move independently, without exerting strain on each other. So Tremline can absorb movement between the roof and wall. And keep absorbing it for years and years. There are no exposed fasteners so these potential leak spots are eliminated.



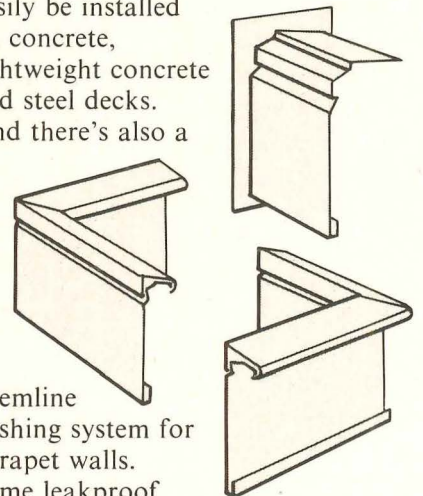
Built-in venting, too.

Tremline also allows perimeter venting of the roof insulation. Other edgings provide only partial venting, if any. And with the neoprene mem-

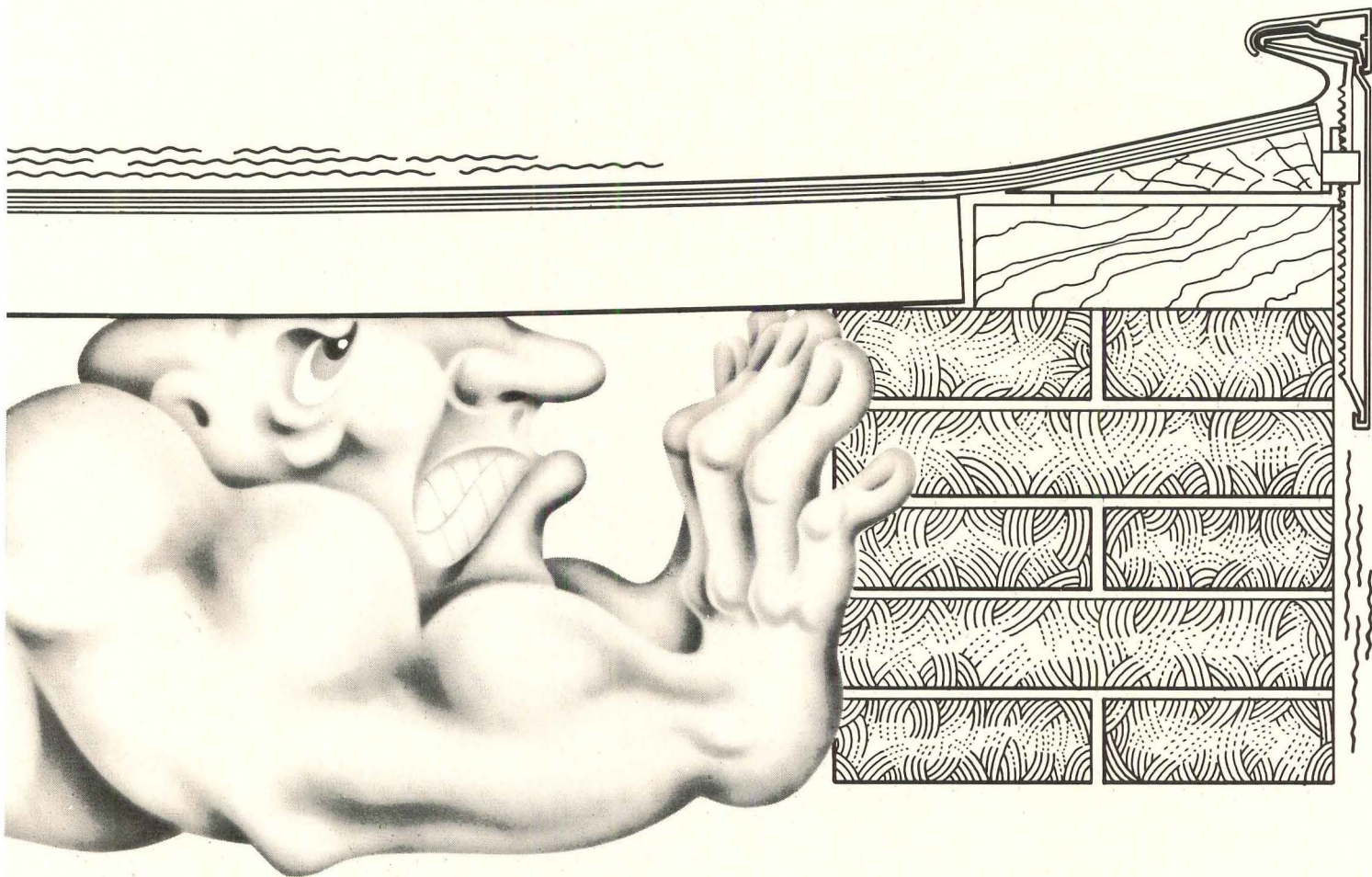
brane in position, you have an unbroken weatherproof seal around the entire building edge. The membrane also acts as an expansion joint which absorbs roof movement.

A complete modular system.

Tremline is also versatile and adaptable. With its modular design, it can easily be installed on concrete, lightweight concrete and steel decks. And there's also a



Tremline flashing system for parapet walls. Same leakproof security, same easy installation.



And with Tremline, you get the complete system, from one responsible supplier. All necessary components are preassembled to meet conditions at corners, ends and transition points. So there's little to be detailed on drawings or fabricated on the job. Fascia is packaged in 15' lengths, 6" or 8" facings.

Architecturally beautiful.

Tremline is uniquely beautiful, too.

Gives a clean-line appearance to the roof edge. The extruded aluminum fascia comes in mill, anodized or custom-painted finishes, with slip joints every 15 feet. No ugly exposed fasteners. No oil canning.

Your contractor will appreciate another beautiful feature: its easy installation. It snaps together and self-locks, adjusts up or down in 1/16" increments. Which also makes for easy alignment and compensates

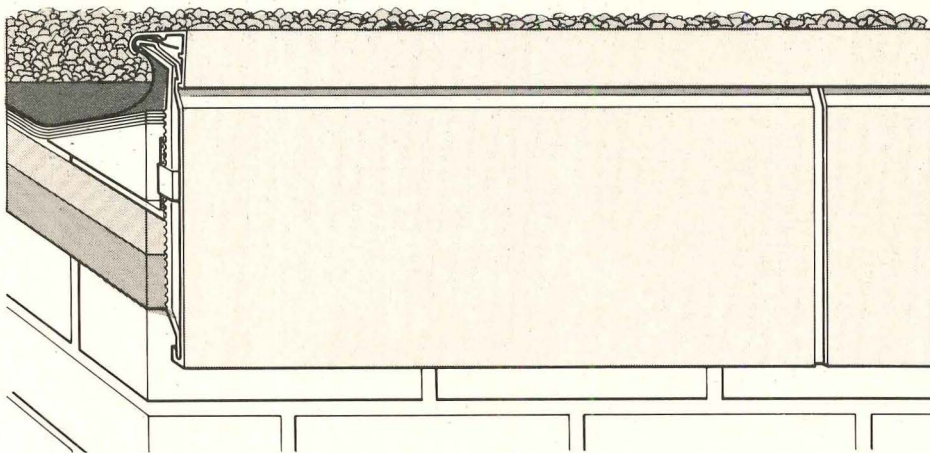
for most roof irregularities.

The Tremline/Alwitra Edging System is a patented product that has been proven in performance for more than seven years. It meets insurance wind requirements and is approved by Factory Mutual System. For more details, see your Tremco man.

And if you have any caulking, glazing or waterproofing problems, he can help too. For over 40 years, our business has been solving these problems and providing top-quality leak proof systems and products, such as our job-proven sealants MONO, DYmeric and Lasto-Meric, and liquid polymer Tremproof waterproofing. The Tremco Manufacturing Company, Cleveland, O. 44104, Toronto 17, Ont.

TREMLINE/ALWITRA EDGING SYSTEMS FROM:

TREMCO
The water stoppers



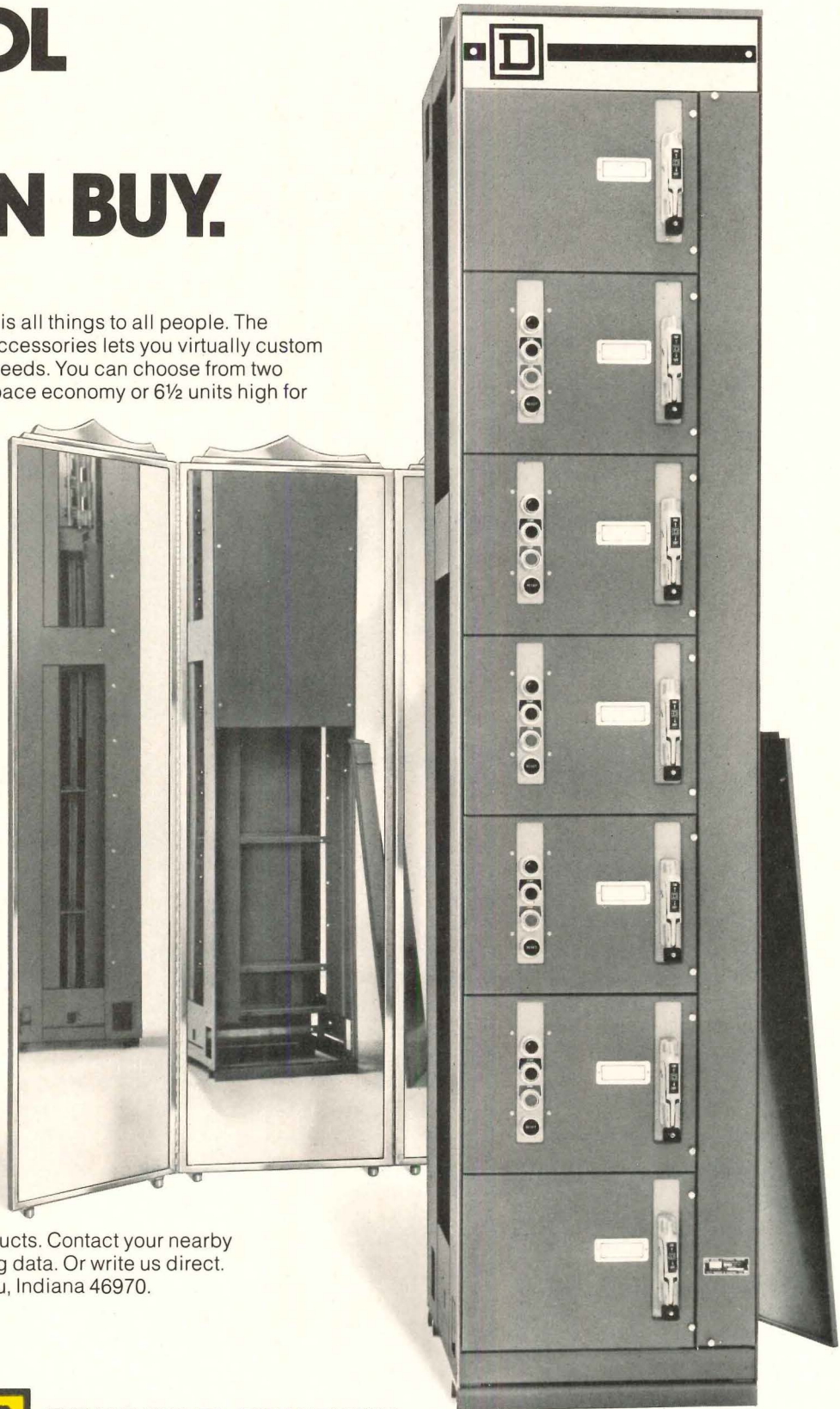
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FROM ANY ANGLE— THE BEST CONTROL CENTER YOU CAN BUY.

The Model 4 Motor Control Center is all things to all people. The comprehensive line of available accessories lets you virtually custom design the Model 4 to your exact needs. You can choose from two configurations — 7 units high for space economy or 6½ units high for additional bottom wiring room. Pick circuit breaker or fusible switches to team up with the superlative Type S starter. Main lugs can be located at the top or the bottom — whichever you want. Specify tin-plated aluminum or plated copper bus bars. The Model 4 is available in two depths — 14" for front-of-board installations and 20" for either back-to-back unit mounting or extra roomy front-of-board.

To make the Model 4 even better, we made a few minor changes in the 20" deep front-of-board unit. By placing openings at the rear of the wire troughs, we've made it easy to pass wire from the front section to the rear and, in effect, turned the whole rear section into a wire trough. Also, we've made access to the back extremely easy by putting only two panels where there used to be five.

The Model 4 Control Center gives you everything you ever wanted in a motor control center. Aside from the almost endless list of options, it offers the reliability and dependability you expect from all Square D products. Contact your nearby field office for specific engineering data. Or write us direct. Square D Company, Dept. SA, Peru, Indiana 46970.



SQUARE D COMPANY

Wherever Electricity is Distributed and Controlled

For more data, circle 125 on inquiry card

You can't buy, beg, borrow or steal a TRUS JOIST franchise!

That's because they don't exist. Only TRUS JOIST Corporation makes TRUS JOISTS and we build them in twelve modern plants throughout the United States and Western Canada where we can maintain strict standards of quality control. And when we say strict, that means we build TRUS JOISTS to closer tolerances than any other roof or floor structural system whether it be wood, steel or concrete.

For example, when we put camber into our open web joists the chords are drilled with an accuracy measured in thousandths of an inch. As a result TRUS JOISTS are uniform to a degree which is unparalleled in the industry.

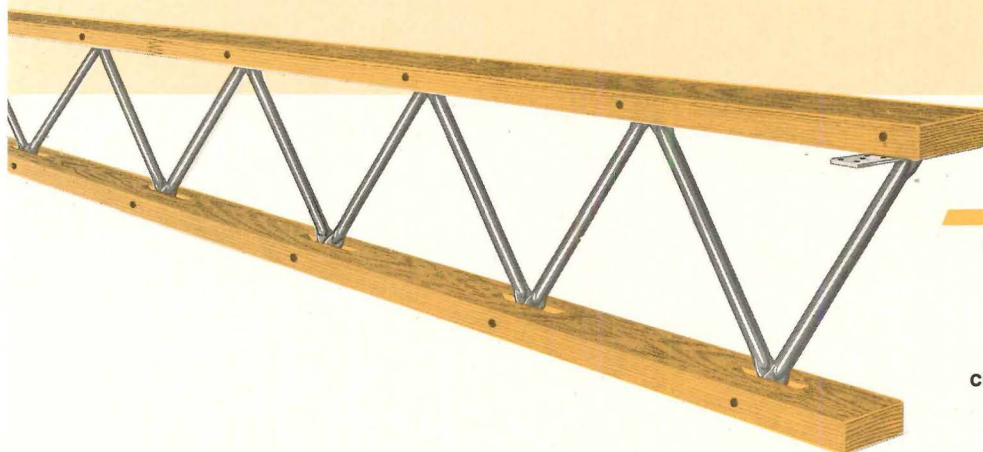
TRUS JOISTS are also absolutely guaranteed to carry the load

for which they are designed and behind that guarantee stands the nation's largest single manufacturer of light weight structural components.

Have you ever asked a local franchised truss fabricator how he controls camber or what degree of uniformity he consistently achieves? Have you ever asked him to prove that your project's ceilings won't be wavy and that floors will be level? Have you ever really compared the consistent quality you get in TRUS JOIST with the trusses made by a typical franchised fabricator?

Try asking those questions and make that comparison. Then you'll discover the real reason why we never franchise the manufacture of TRUS JOISTS.

We sleep better at night.



trus Joist
®

CREATIVE ENGINEERING IN STRUCTURAL WOOD.

Announcing Trane Air Conditioning Economics.

First comprehensive system/energy/economics analysis program.

TRANE Air Conditioning Economics (TRACE) is a unique, comprehensive computer program which compares the economic effect of alternative air conditioning systems, as well as architectural, energy and building use alternatives, on the first cost and operating cost of a proposed building. TRACE allows the professional engineer to present an economic study of these alternatives to the building owner in specific comparative economic terms.

The need for such a program is recognized.

First cost studies alone are no longer adequate. Many building owners are now asking for economic studies on all factors which affect their investment. They realize that both first cost and operating costs must be evaluated to find that unique combination of energy, air conditioning systems and equipment which has initial and operating cost that will give the building owner the best response toward the financial objectives he has set for his building project.

The cost of operating an air conditioning and heating system can represent 20 percent of the total operating cost of a building. By optimizing the heating and air conditioning system, energy cost can be reduced by as much as 25 percent. On buildings that generate a profit, this can mean an increase in cash flow as much as 10 percent.

Furthermore, it is accepted that energy resources must be used more wisely, and predicted that energy costs will soon rise substantially. Over 8 percent of the energy used in the U.S.A. is for heating and air conditioning.

But the need was difficult to meet.

Optimizing first and operating costs over the life of a building (life cycle cost) is a daunting task. All the architectural and construction alternatives that affect the total economic performance of the heating and air conditioning system should be considered at the building's conceptual stage.

Consider the variables:

- architectural design alternatives
- energy alternatives
- air conditioning system alternatives
- mechanical equipment alternatives
- building use alternatives
- economic alternatives

Evaluating alternatives is arduous, complex, and time-consuming. Therefore, many buildings do not have optimized life cycle costs, and many owners are paying too much for their air conditioning.

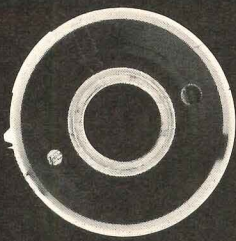
TRACE meets the need.

TRANE Air Conditioning Economics utilizes the computer to allow the design engineer to make an economic study that compares all viable alternatives, with results stated in terms meaningful to the owner.

In a few days, TRACE enables the designer to evaluate practically any alternative that will affect the economics of the air conditioning system, and establish an optimum relationship between its first and operating costs. Using the data obtained, the engineer can then go on to make specific recommendations.

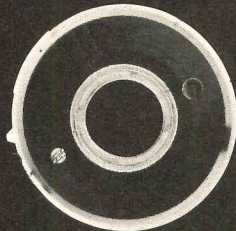
TRACE is a very flexible program, designed to accept performance data on virtually any type or brand of air conditioning equipment.

TRACE is therefore a tool that enables a designer to make an affordable, accurate, comprehensive



WEATHER TAPE

U.S. weather tape from the station nearest the proposed building. Hourly weather data such as dry bulb, wet bulb, dew point, barometric pressure, wind velocity, and cloud cover for an entire year are condensed to 12 days of weather, each representing a day for each month of year.



EQUIPMENT PERFORMANCE TAPE

Performance data on cooling, heating, air moving and accessory equipment. If equipment is not listed, user provides performance data.

INPUT

BUILDING DESCRIPTION

- LOCATION
- ZONES
- DESIGN DATA

SYSTEMS DESCRIPTION

- SYSTEM TYPES
- ECONOMIZER

EQUIPMENT DESCRIPTION

- EQUIPMENT TYPES
- PUMP HEADS

ECONOMIC DATA

- MORTGAGE LIFE
- ECONOMIC FACTORS
- FIRST COST
- MAINTENANCE COST

OPERATIONS

LOAD PHASE

PEAK & HOURLY LOADS BY ZONE

DESIGN PHASE

CFM & SUPPLY AIR DRY BULB BY ZONE

SYSTEM SIMULATION PHASE

EQUIPMENT LOADS BY SYSTEM BY HOUR

EQUIPMENT SIMULATION PHASE

ENERGY CONSUMPTION BY UTILITY

ECONOMIC ANALYSIS PHASE

OUTPUT

ECONOMIC COMPARISONS OF ALTERNATIVES

THE PROGRAM

The TRANE Air Conditioning Economics Program uses ASHRAE and industry standard techniques to simulate the performances of alternative building air conditioning systems to arrive at the operating costs of each. The total economics of the alternatives are then analyzed and compared. Against any one building description, the program can compare the effect of up to four system/equipment/economic alternatives, providing the user with criteria for economic decision.

Whenever available, ASHRAE Guide techniques and accepted industry practices were used as the basis for calculations. As phases of the program were completed, procedures were verified with leading consultants in the fields involved. TRANE will make available to users of TRACE, a highly comprehensive documentation manual.

The program is broken down into the 5 major phases shown at the left. Each requires certain input to describe the building and develop engineering alternatives. Each phase performs its respective function and passes generated data on to succeeding phases.

and meaningful economic study—an economic study not confined purely to TRANE air conditioning systems, but one which reaches out into the general economic parameters of a building which affect the air conditioning economics.

TRACE is easy to use.

Once the engineer has the conceptual design criteria and general economic factors affecting air conditioning system selection, actual computer input can be completed in less than an hour.

The TRACE program is run at the TRANE Computer Center, with about a one-week turnaround. It's available to professional engineers on a fee basis.

We invite consulting engineers to make an appraisal in depth of TRANE Air Conditioning Economics. Please call your local TRANE Commercial Air Conditioning Division Sales Office or write us.

The TRANE Company, Commercial Air Conditioning Division, La Crosse, Wisconsin 54601.



ADVERTISING INDEX

Prefiled catalogs of the manufacturers listed below are available in the 1973 Sweet's Catalog File as follows.

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- I Industrial Construction File (blue)
- L Light Construction File (yellow)
- D Interior Design File (black)

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A Alliance Wall Corporation	200
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