ART MUSEUM AT THE UNIVERSITY OF CALIFORNIA, BERKELEY

BUILDING TYPES STUDY: MUSEUMS FOR TODAY
A COLLECTION OF CURRENT BUILDINGS BY MARQUIS & STOLLER
CAMP LOUISE GIRL SCOUT CAMP BY BOHLIN AND POWELL
FULL CONTENTS ON PAGES 6 AND 7

ARCHITECTURAL RECORD

JULY 1972 7 A McGRAW-HILL PUBLICATION THREE DOLLARS PER COPY

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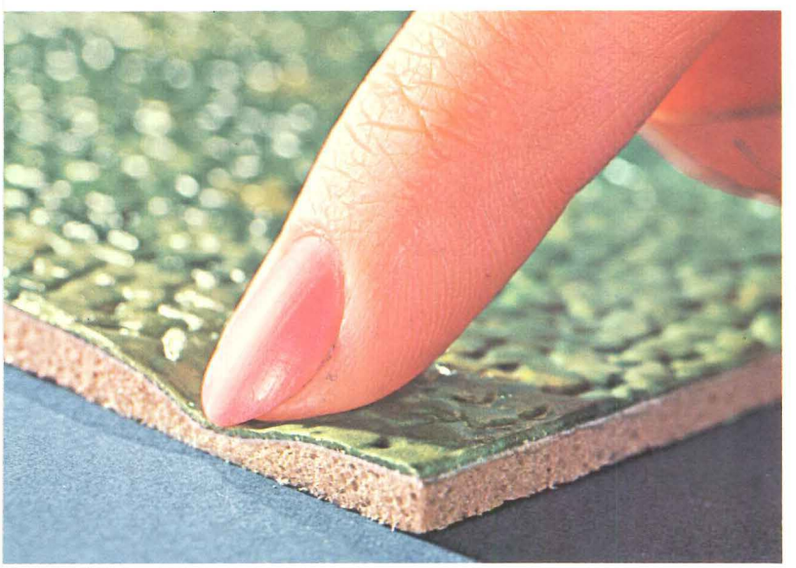
A soft step forward

COMFORT



This is Quiet Zone™ Vinyl Corlon® flooring. Quiet, beauty, durability, and easy maintenance—all in one new floor. But softness and comfort are the first things you notice about it.

A 125-mil-thick layer of Cushioncord® foam vinyl bonded to the back makes walking and standing a pleasure—and makes Quiet Zone truly different from traditional types of commercial vinyl flooring.

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Quiet Zone™

in modern vinyl flooring

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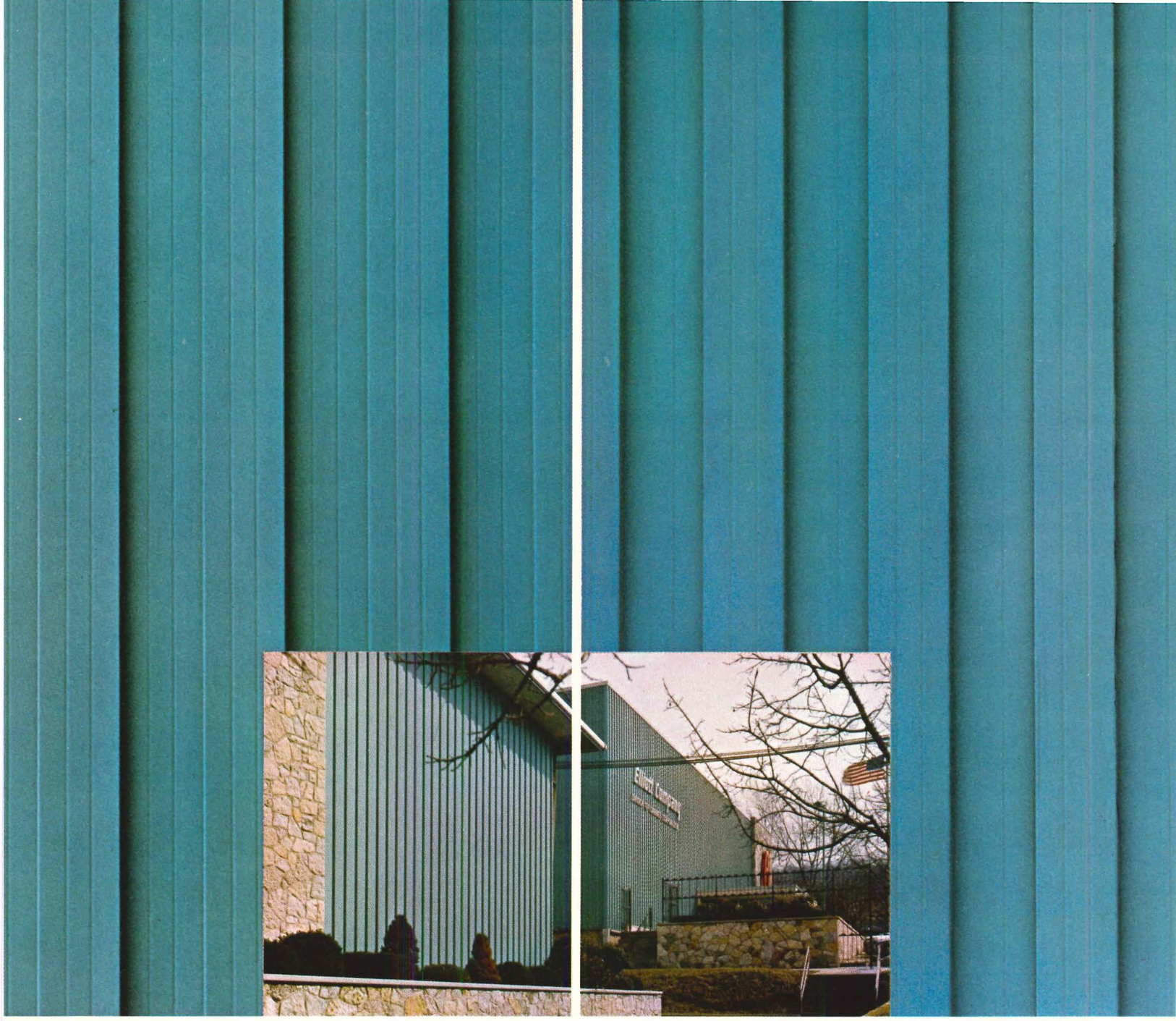
Armstrong



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We'll help your true colors shine through no matter what the weather.

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THE RECORD REPORTS

George Pohl

ARCHITECTURAL BUSINESS

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Three types of elevators were required for this residential complex at the University of Wisconsin-Milwaukee. Characterized as a micro-cosmic city with facilities for relaxation, food service, socializing, and parking, it has living-study accomodations for 2,000 students.

The 28-story tower is the tallest building in Wisconsin as well as the tallest poured-in-place concrete structure in the state. High-speed Dover gearless traction elevators were specified for it and for the adjoining 20-story unit. In the 16-story facility, where medium elevator speed was sufficient, less expensive geared traction equipment was used to provide efficient service.

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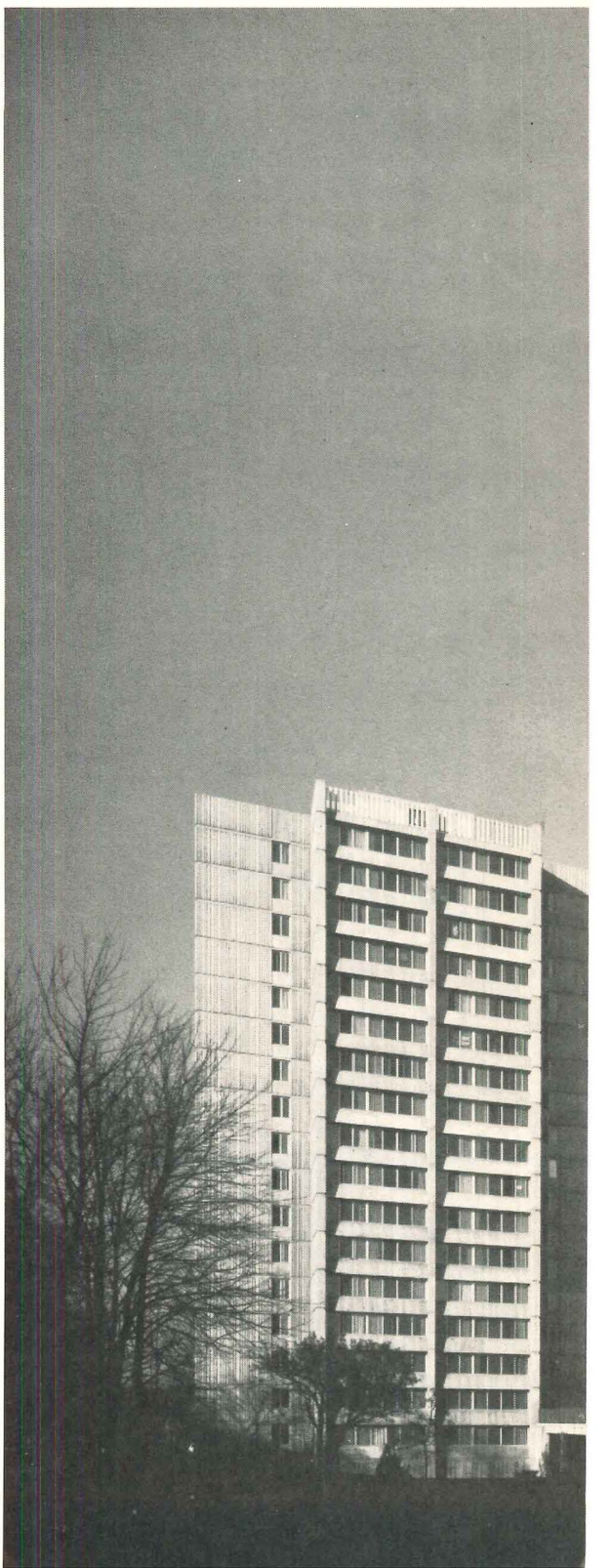

CARL SANDBURG HALLS OF RESIDENCE, UNIVERSITY OF WISCONSIN—MILWAUKEE. *Architects:* Schutte, Mochon, Inc., AIA, Architects • Planners • Engineers • Construction Managers, Wisconsin, Ohio, Florida. *General Contractor:* Orville E. Madsen & Son, Inc., Minneapolis, Minn., Madison, Wis. Dover Elevators installed by Northwestern Elevator Co., Inc., Milwaukee, franchised distributor.

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This smart cocktail lounge demonstrates the design freedom as well as the flexibility and mobility of Tex-Tiles.

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Collins & Aikman has developed a group of bi-component vinyl backing systems, each integrated with a super dense, man-made commercial fiber surface. They're called Tex-Tiles.

These unique 18″ squares are simple to install securely… yet can be arranged and rearranged with ease for maximum good looks, maximum wear. Wherever you want outstanding beauty with minimal care.

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Collins & Aikman makes the Tex-Tiles™ that make things happen.

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Good news from Washington: A new call to excellence in design

"Somehow, somewhere," Daniel Patrick Moynihan wrote in an article in RECORD five years ago, "somehow, somewhere in the course of the development of democratic or demogogic tradition in this nation the idea arose that concern with the physical beauty of the public buildings and spaces of the city and nation was the mark of—what?—crypto-deviationist anti-people monumentalism—and in any event an augury of defeat at the polls. The result has been a steady deterioration in the quality of public buildings and spaces, and with it a decline in the symbols of public unity and common purpose with which the citizen can identify, of which he can be proud, and by which he can know what he shares with his fellow citizens. . . .

"The city beautiful," he argued, "is as valid a concept today as it was when George Washington and Thomas Jefferson established it as an American principle almost two centuries ago. . . . [This concept] is not an efflorescence of elite estheticism, it is the bone and muscle of democracy, and I repeat that we begin insisting on it."

For awhile there during the Kennedy and Johnson administrations we had a happy spate of Federal buildings designed which did indeed "embody the finest contemporary American architectural thought."

This trend in the right direction ground nearly to a halt in the early days of the Nixon administration. Buildings underway were continued, but many important buildings never got beyond the drawing board because of cutbacks, and in some notable instances leading architects were replaced. And lately we've heard more about construction management and industrialization and life cycle costing (all fine experiments in themselves) than we've heard about quality of design.

But last month President Nixon issued a Message on Design which sounds happily like a new call to excellence; in which he acknowledges that "The people of this country are increasingly concerned—and properly so—with the physical appearance of their communities. There should be no doubt that the Federal Government has an appropriate and critical role to play in encouraging better design, and I am hopeful that the actions announced today [see below] will enable the Government to reflect new standards of excellence in all of its design endeavors."

How's that for a step back in the right direction?

The prime mover in the President's action is the National Endowment for the Arts

The process began a year ago, when the President asked the heads of 63 Federal agencies to determine ways by which their agencies could more vigorously assist the arts and, in turn, how the arts might be used to enhance their programs. About the same time, Nancy Hanks—able chairman of the National Endowment—brought to Washington architect (and long-time innovative dean of architecture of the University of Tennessee) Bill N. Lacy with the title of Director of Architecture and Environmental Arts. Lacy has worked with Miss Hanks and her council (landscape architect Larry Halprin, designer Charles Eames, and architect O'Neil Ford) to broaden the scope and influence of the National Endowment in the areas of architecture, landscape architecture, planning, industrial design, and interior design. And, with the President's announcement, elaborated in a speech by Miss Hanks (see below) we see the first attempt to use the prestige and talent of the Endowment to directly influence the quality of Federal and Federally supported design. Specifically, Miss Hanks detailed three actions contained in the President's message, and initiated, of course, by Hanks, Lacy & Co., with an assist by the President's Special Consultant Leonard Garment:

The first action is an Assembly on Federal Design. . . .

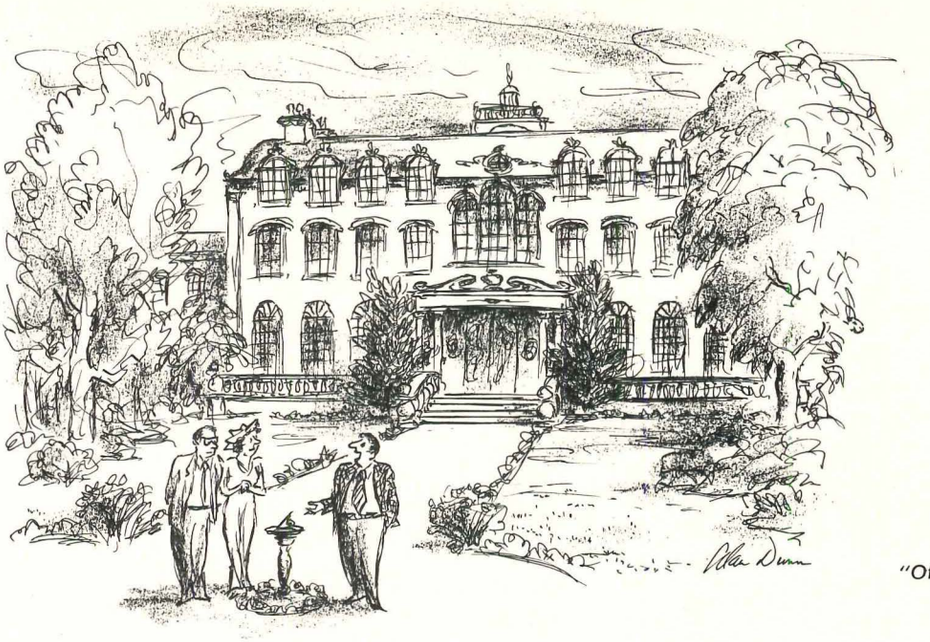
"It was quite clear," says Miss Hanks, "to those responsible for collecting responses to the President's memorandum of last May [on how the arts might be used by the agencies] that the preponderance of concern was about design, and that most agencies urgently needed counsel. Most did not recognize the many facets of design and its effect on both the working environment of employees and the image projected to the public. . . ."

Therefore, Miss Hanks reports, the President has asked that an annual Assembly be held, "directed to bring the counsel of outstanding artists and professionals to benefit all Federal agencies.

"The Assembly will serve the multiple purposes of 1) focusing on the quality of design in Federal agencies; 2) giving agencies the opportunity to hear the views of outstanding artists and professionals; 3) identifying exemplary design programs in the agencies; 4) demonstrating the impact of procurement selections on design within the Federal establishment [what a story that will make! Ed.]; and 5) maintaining the dialogue on the arts which has been initiated among the agencies by the President's memorandum.

"The Assembly, which will be funded by and staffed by the Arts Endowment, will not be just another meeting. Published papers or films will result in maintaining interest and providing leadership. Special ex-

—Drawn for the RECORD by Alan Dunn



"Of course, the sundial is just an affectation—"

hibitions created by Washington's great museums will be encouraged to focus on the theme of the Assembly; exhibitions that will translate the past and point to the future. . . ."

How's that for a step in the right direction?

The second proposal:
Those "Guiding Principles" rise again!

Miss Hanks outlined "The establishment of an ad hoc task force to review principles for Federal architecture and the request that the National Endowment for the Arts also recommend a program for including art works in Federal buildings". Explaining the enthusiasm of the Endowment for sponsoring this task force, she said: "While we have learned the importance of preventing bureaucracy from stifling quality, we have also learned that in order to do anything, you have to know the facts, you have to know the history and traditions that are behind the facts. Just to say that beauty and quality are important—something that all of us involved with the arts over the years have been saying very eloquently—simply is not enough."

She then made clear—and this is very good news—that the starting point for the new task force will be the "Guiding Principles for Federal Architecture," first enunciated by Daniel Patrick Moynihan, which initiated that great turn for the better in Federal architecture. Its major points in case it's been too long: 1) "Major emphasis should be placed on the choice of designs which embody the finest contemporary American architectural thought;" 2) "Where appropriate, fine art should be incorporated in the designs, with emphasis on the work of living American artists;" 3) "Design must flow from the architectural profession to the Government, and not vice versa;" 4) "The advice of distinguished architects ought to, as a rule, be sought prior to the award of important design contracts;" 5) "Special attention should be paid to the general ensemble of streets and public places of which Federal buildings must form a part."

Miss Hanks, in her statement, specifically added a point that is being more and more understood by architects and clients: "Good design is essential in renovation to bring new life to our older buildings." And Bill Lacy is anxious, he reports, to enlarge the "Guiding Principles" in areas of programming, siting, interiors, landscaping, and post-evaluation. The Task Force will be selected and begin work this summer.

How's that for good news No. 2? Especially since, cutbacks or no, more than 20 Federal agencies will be into almost $6 billion worth of construction in Fiscal 73.

Good news No. 3:
Better graphics in government

Miss Hanks also announced a program for improvement of graphics within the government, arguing that while "Federal buildings are relatively permanent records of a nation's image, the more temporary expression of printed matter is an aspect of this image that is most important, and one that is conveyed by every postage stamp or pamphlet or poster the government produces."

Well, there it all is. I, for one, feel encouraged. I feel encouraged that once again we've got an agency in the Federal government with "art" and "architecture" in its name; staffed by people who care and who also have great talent; and who clearly have developed the status or the muscle or the techniques (whatever they may be) to reach the President of the United States.

And that's a step in the right direction, right? —*Walter F. Wagner Jr.*

And while we are praising Nixon let us talk about open space

The Nixon administration has received little public credit for its open space strategies. Since the President created the Property Review Board in February 1970, which is composed of some of his top aides, the Federal government has been coaxing choice open lands as potential recreation areas through the Nixon Legacy of Parks program. Some excellent potential recreational areas already made available to the public through this program include 2,000 acres donated by the Atomic Energy Commission's Argonne National Laboratory to the overused 491-acre Rocky Glen Forest Preserve south of Chicago. In response to high level urging, the Marine Corps and the House Armed Services Committee gave the State of California a 50-year lease to six miles of Pacific beach at Camp Pendleton and 2,385 nearby acres for camping and other outdoor activities. According to *Open Space for People* edited by RECORD senior editor Mildred F. Schmertz (see pages 131-140 in this issue): "Since the program began, 57 Federal tracts comprising approximately 15,400 acres and valued at almost $70 million have been or are about to be conveyed to states and local governments as park land. The General Services Administration, assigned the task of land use analysis and the reform of U.S. land management, has recommended that more than 200 additional Federal properties, comprising approximately 250,000 acres and valued at $500 million be declared in excess of the needs of their owning agencies. Much of this land could become public park land. Under consideration for inclusion in the proposed Golden Gate National Recreation Area is a portion of the grounds of the famed Presidio, a U.S. Army base of 1,588 splendid acres on the San Francisco side of the Golden Gate bridge."

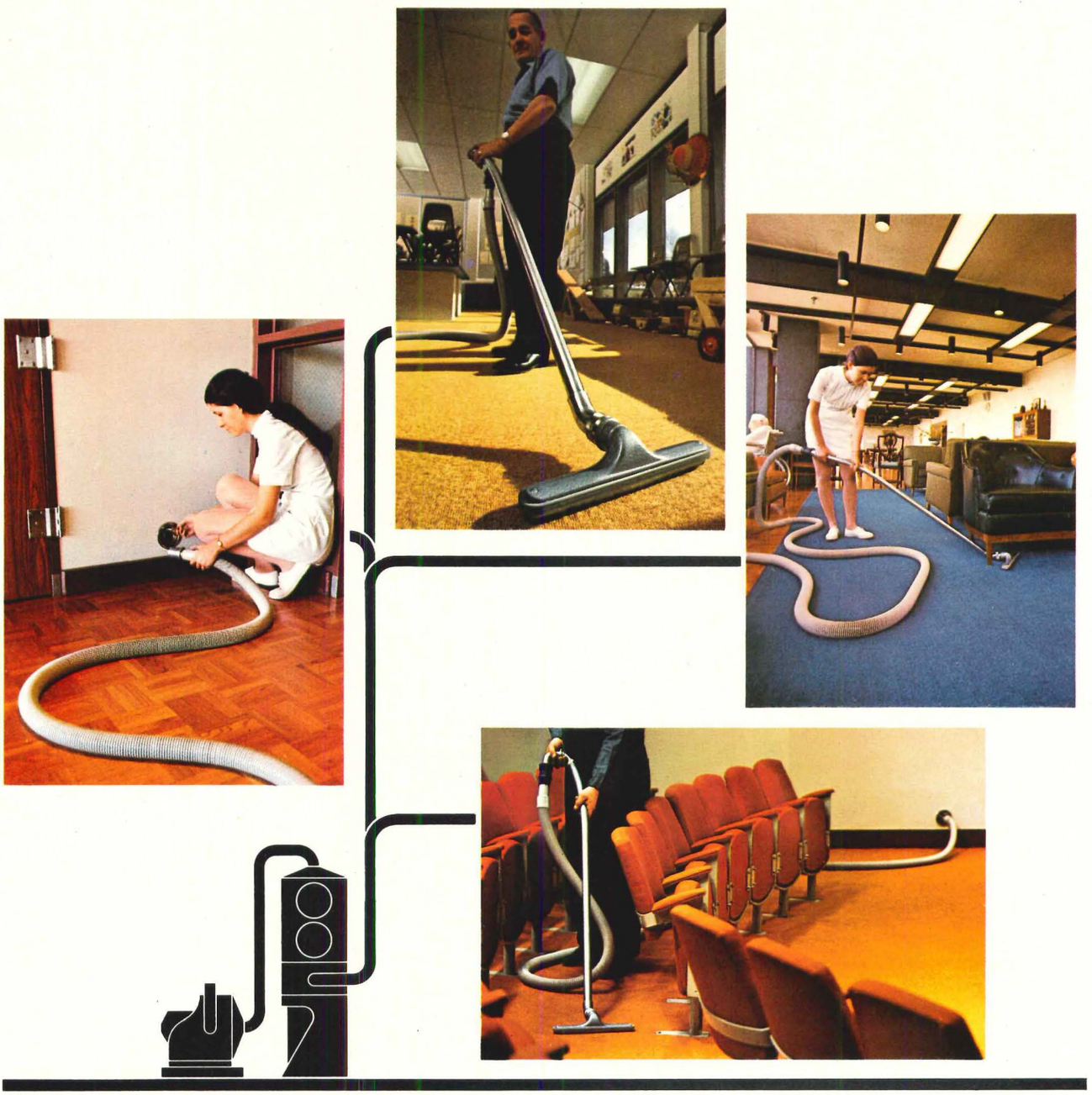
A Spencer central vacuum cleaning system is a one-time investment that keeps paying off.

When a Spencer system goes in, a lot of future maintenance costs go out, and the drawing board stage is the time to put it in. The initial investment is soon forgotten because of reduced maintenance labor costs, and the many, many individual vacuum units that would wear out before a Spencer system even reaches middle age. (We can show you some of our systems that are still going strong after 50 years of hard use.)

But the economy is just a happy plus. The major factor is the sensible principle of the availability of the central vacuum action at wall outlets to pull dirt, dust, grime, liquids and germs to a basement collection center where they belong. The hygenic aspect and whisper noise level are obvious benefits in hospitals and schools. And in any building, who needs the musty, dusty smell of stirred-up dirt that individual units produce? A Spencer system has no exhaust in the area where it's being used, so unpleasant odors just don't happen.

There's no complication for you. Our technical staff will incorporate our system into your plans. Write or phone for our new booklet that shows and tells it all.

The Spencer Turbine Company, Hartford, Connecticut 06106, (203) 233-3631



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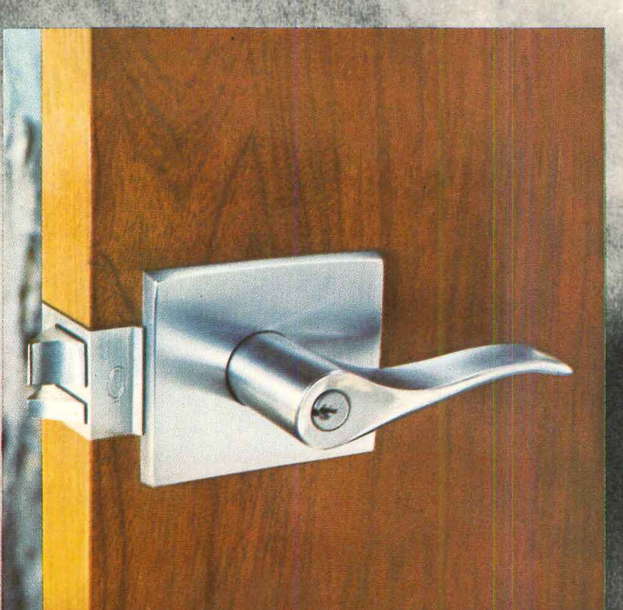
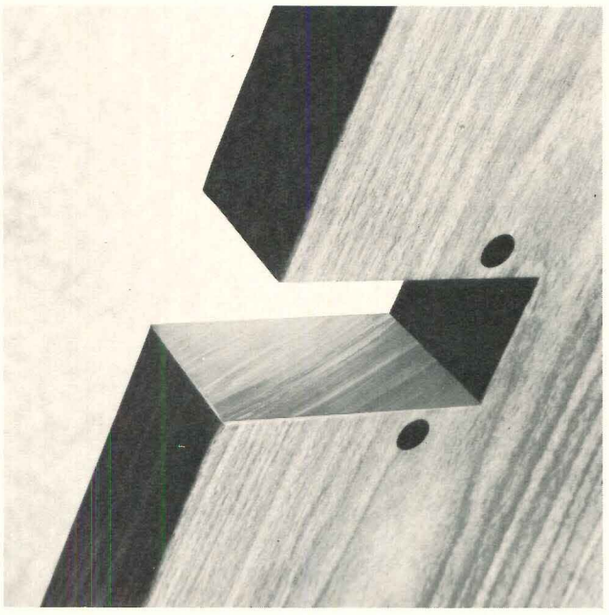
Michelangelo's David, The Bettman Archive



Original Masterpiece.



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"Carpet of Antron® stays a good impression on our

—Holiday Inn, San Francisco Civic Center

fresh-looking. It makes guests."

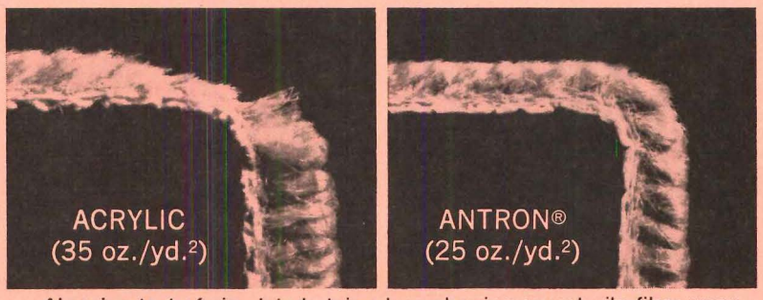
The Holiday Inn, at San Francisco's Civic Center specified carpet with pile of Antron* nylon for the heavy traffic areas: lobby, main hall and dining room.

Richard A. Vanderhoof, Innkeeper, said: "The carpet is easy to keep clean-looking. And it looks that way with less maintenance than any other carpet we have."

The unique fiber configuration of "Antron" refracts and scatters light to minimize the appearance of soil without significant sacrifice of color clarity or luster.

This--together with the fiber's abrasion and matting resistance--means carpet of "Antron" retains its original fresh appearance longer than carpet of other fibers. Concentrations of spots and soil tend to even out and blend into the overall color and texture of the carpet.

Maintenance costs are minimized by the need for fewer wet cleanings than carpet of other fibers. And even after repeated shampooings the carpet returns remarkably close to its original appearance.



Abrasion test of simulated stair edges showing carpet pile fiber wear in level-loop carpets after equal exposure.

What's more, "Antron" is tough because it's nylon: the abrasion-resistant, long-wearing carpet fiber. So the carpet will have a long life. Compare the performance of carpets with this stair-edge test (above).

Specify "Antron" for high-traffic commercial carpet. It has no equivalent in long-term appearance retention.

For more facts and a mill resource list, write to Du Pont, Contract Specialist, Room 5638/104, Eden Park, Wilmington, Del. 19898.

DU PONT
REG. U.S. PAT. OFF

*Du Pont registered trademark. Du Pont makes fibers, not carpets.

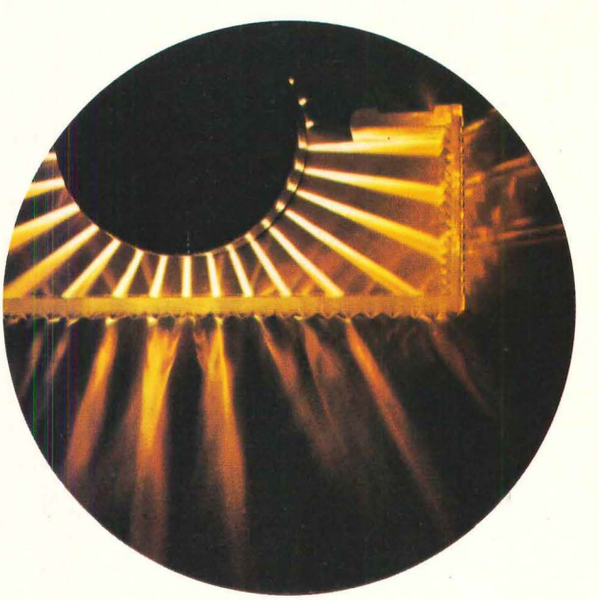
See things in a remarkably different light with Keene Sechrist's new Celebrity fixtures.

There's new excitement overhead! Sechrist's revolutionary Celebrity concept lets you cast light in an entirely different way—softly, uniformly, unobtrusively—creating a whole new environment of light in prestige locations.

The secret is an optically unique lens that took over two years to perfect. A one-piece injection-molded acrylic unit, it has rows of conical prisms that reflect and refract to virtually cancel out lamp image, transmitting light equally from all lens surfaces. The result is a controlled glow over the entire illuminated area—free of distracting bright-and-dark contrasts.

Three distinctively different Sechrist Celebrity fixtures are available to enhance

The straight-sided version, like all Celebrity fixtures, is a trim 3¼ inches deep. It reveals an attractive housing with a fine baked enamel finish, matte black or white.

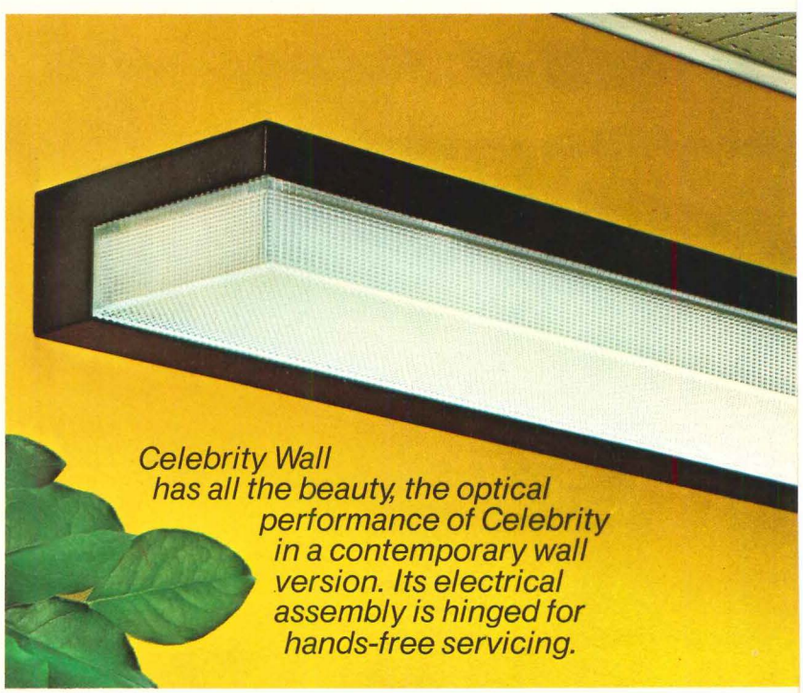


Rows of identical prisms mirror out brightness at critical viewing angles, transmit "controlled" illumination.

Step-back Celebrity version creates an illusion of "floating light." And concealed lens hinges have spring-steel latches for easy cleaning and relamping.

all your fine interiors. In the dramatic step-back model, the housing is recessed behind the edges of the lens, creating an illusion of "floating light"—a luminous rectangle floating in space. The straight-sided Celebrity reveals its fine quality housing, boldly framing the radiant light source. Celebrity Wall is a handsomely cantilevered wall-mounted version designed to illuminate corridors, washrooms, stairwells and reception areas as never before.

But you've got to experience Celebrity to believe it—and realize how it can put your interiors in an entirely new light. Ask your Sechrist agent for a demonstration. And for all the performance details, write Keene Corporation, Sechrist Lighting, 4990 Acoma Street, Denver, Colo. 80216. Phone (303) 534-0141.



Celebrity Wall has all the beauty, the optical performance of Celebrity in a contemporary wall version. Its electrical assembly is hinged for hands-free servicing.

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CORPORATION

SECHRIST LIGHTING

We've just begun to grow.

For more data, circle 9 on inquiry card

How General Electric Zoneline™ heating/cooling units helped the 54 year old Broadmoor keep its 1918 charm.

This is the Broadmoor Hotel in Colorado Springs, Colorado.

As you can see, it's also a picture of some of the 260 Zoneline heating and cooling units in the Broadmoor.

They didn't spoil the Broadmoor's Mediterranean style of architecture.

A lot of other things didn't happen when the Broadmoor's management chose Zoneline units.

The management didn't have to spend the million dollars that had been estimated for a ducted central air conditioning system. Zoneline units don't need ductwork, or a lot of machinery. All they need is an opening through the wall and an adequate power supply.

The hotel didn't have to be bothered with a flood of workmen. A local contractor was able to install seven Zoneline units a day with a minimum of fuss.

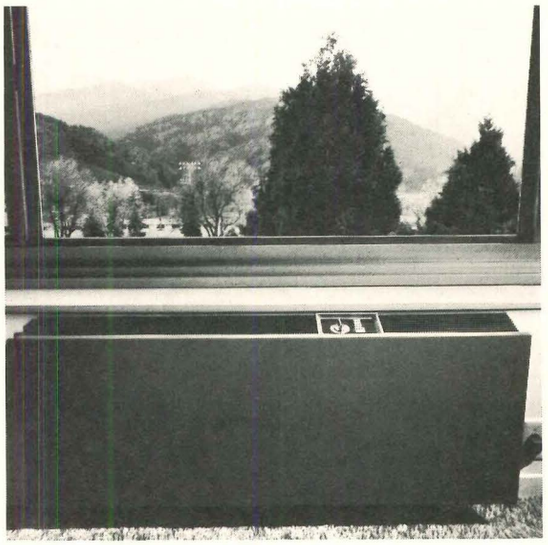
The Broadmoor management didn't have to decide on the one temperature for all of the guest rooms. Each Zoneline unit has its own thermostat, so each guest can make his own choice.

The best thing was the cost: about $300,000, roughly one-third the cost of a new two-pipe system.

All of this happened in 1963. That was when the Zoneline units were installed. Since then, they have delivered quiet, reliable air conditioning.

If you have an old-fashioned pipe system that needs replacing, call your local General Electric Contract Air Conditioning Representative.

He'll show you how easy and economical it is to modernize with General Electric Zoneline units.



GENERAL ELECTRIC

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Pliolite: One-coat

surfacing for concrete

Texture paint made with Pliolite resin from Goodyear protects against water penetration and alkali attack.

Painting masonry surfaces doesn't have to be a costly multi-step process involving priming and finish coats. Today a single application over a bagged wall can do the job when you use texture paint made with PLIOLITE® resin. What's more, you get a completely waterproof coating. One that resists penetration by a wind-driven water spray at 98 mph for 8 hours. Paints made with PLIOLITE are the only coatings that meet this test in Federal Specification # TTP-00555A.

PLIOLITE-based paints cover easily—by spray, brush or roller—and have excellent adhesion on wet or dry surfaces. They come ready-mixed, so there's no time-consuming mixing on site. And there's a wide range of particle sizes to provide the exact dimensional effect you want.

PLIOLITE resin-based texture paints dry rapidly. Form tough, chip-resistant coatings that last and last. They have excellent resistance to chemicals, weathering and ultraviolet light. In fact, they surpass other commercial latex, alkyd and powder-water systems tested. Indoors and out.

For pre-cast and pre-stressed concrete components in manufactured housing as well as poured-in-place concrete panels, PLIOLITE-based texture paints offer easy application and years of functional beauty and protection. Your first step: get complete information about PLIOLITE. Call (216) 794-4867. Or write to Goodyear Chemicals Data Center, Dept. S-84, Box 9115, Akron, Ohio 44305.

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GOODYEAR
CHEMICALS

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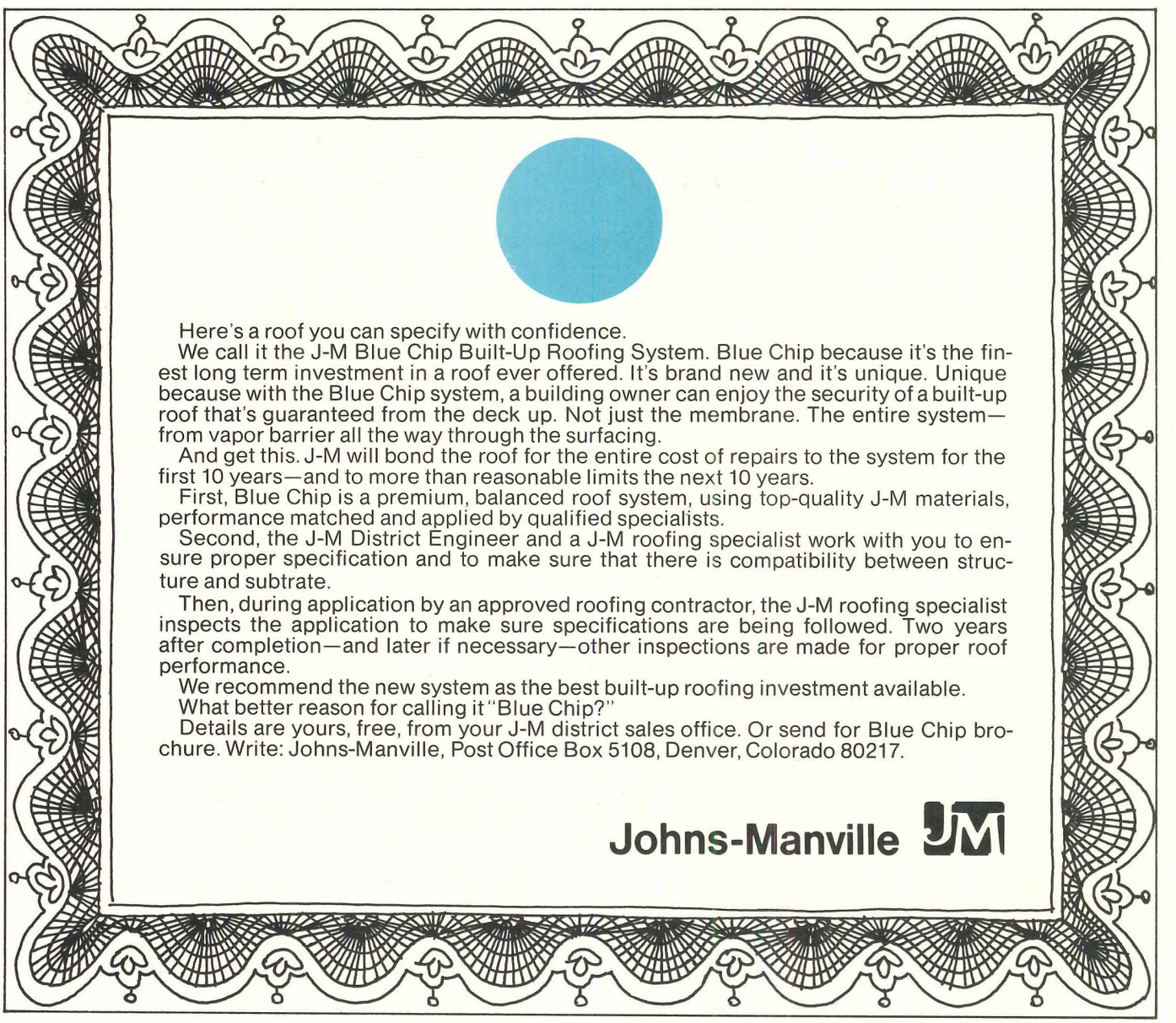
J-M announces a roof that's total-value guaranteed from the deck up ...truly a Blue Chip investment!



Here's a roof you can specify with confidence.

We call it the J-M Blue Chip Built-Up Roofing System. Blue Chip because it's the finest long term investment in a roof ever offered. It's brand new and it's unique. Unique because with the Blue Chip system, a building owner can enjoy the security of a built-up roof that's guaranteed from the deck up. Not just the membrane. The entire system—from vapor barrier all the way through the surfacing.

And get this. J-M will bond the roof for the entire cost of repairs to the system for the first 10 years—and to more than reasonable limits the next 10 years.

First, Blue Chip is a premium, balanced roof system, using top-quality J-M materials, performance matched and applied by qualified specialists.

Second, the J-M District Engineer and a J-M roofing specialist work with you to ensure proper specification and to make sure that there is compatibility between structure and subtrate.

Then, during application by an approved roofing contractor, the J-M roofing specialist inspects the application to make sure specifications are being followed. Two years after completion—and later if necessary—other inspections are made for proper roof performance.

We recommend the new system as the best built-up roofing investment available.

What better reason for calling it "Blue Chip?"

Details are yours, free, from your J-M district sales office. Or send for Blue Chip brochure. Write: Johns-Manville, Post Office Box 5108, Denver, Colorado 80217.

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I'll make you a hero 300 ways.

Send for Ben's Hero Kit right now.

And I'm a man of my word. If you specify carpeting, whether contract or residential, my Hero Kit will make you a winner with your clients. It fills you in on Brunslon® Static-Control Yarn—lists the 72 carpet makers who feature Brunslon in over 300 carpet lines (giving you a bigger choice of colors, patterns, fibers than any other static control system). My Kit includes an illustrated booklet telling what causes static in carpets, how to control it, how not to, and explains specifically why Brunslon is the best choice you can make for your clients. Facts. Figures. Answers. It's all here. My Kit also includes a free, authentic kaboodle. Mail the coupon. I'll send you the whole Kit n' Kaboodle.

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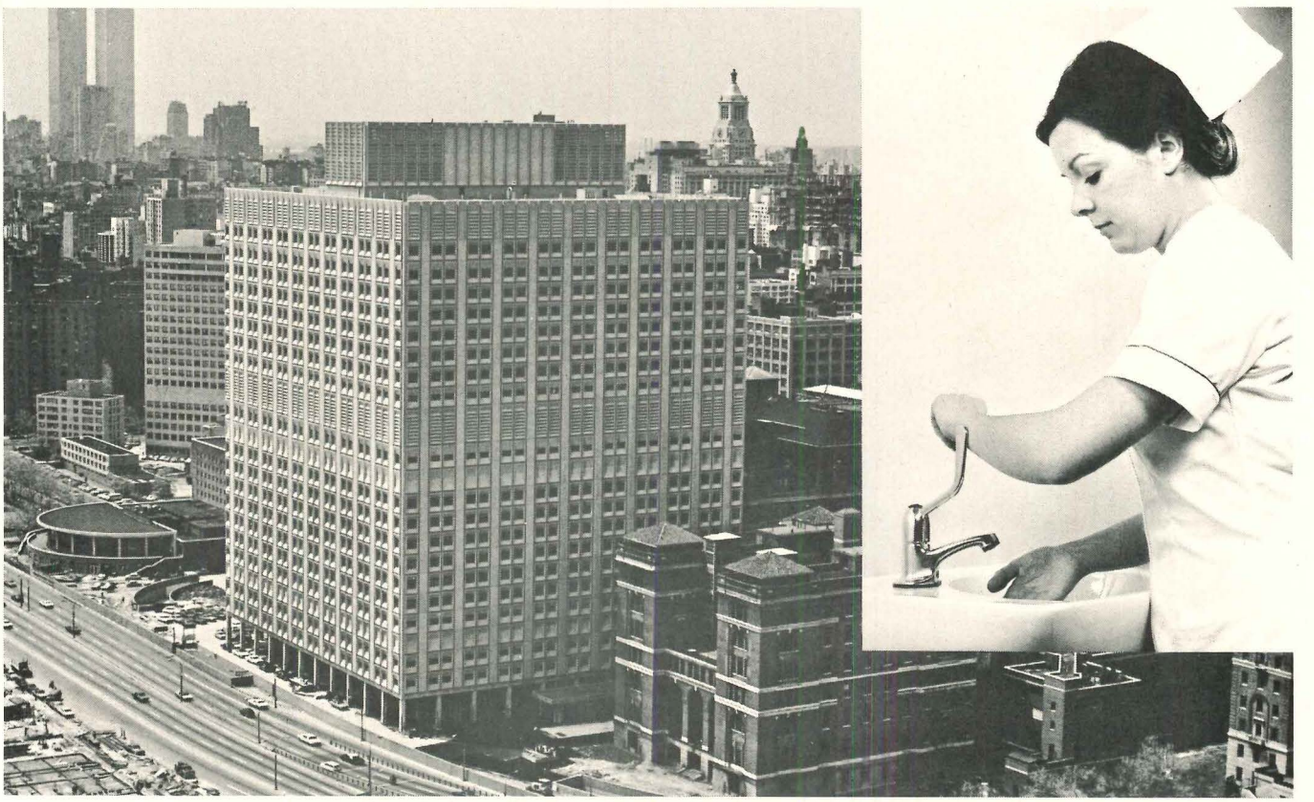
It's Bellevue's answer to water and water heating costs.



Architects-Engineers: Pomerance & Breines; Katz Waisman, Weber, Strauss
Consultants: Joseph Blumenkranz; Frederick Bernhard/Mechanical Engineers: Syska & Hennessy, Inc.

Bellevue Hospital Center's new 21-story tower in New York features the latest in modern hospital facilities. Included in the specifications: Unatap Spray Mixing Faucets. It's Bellevue's way of cutting the high cost of washing.

The Unatap system is simplicity itself. Its design insures an ample spray of water for hygienic purposes. While the user maintains control over the temperature, the flow-governing mechanism that's the heart of every Unatap faucet cuts wasteful water consumption.

In a recent, in-use test Unatap achieved an economy of 90% in comparison with the hot and cold water consumed by ordinary faucets.

Unatap uses up to 5,000 gallons per year less than the conventional faucet and to a large institution like Bellevue this can mean an economy of as much as 5,000,000 gallons of water per year. Much of this will be costly hot water.

Not only does Unatap's simple design save on initial installation costs while making a significant contribution to hygiene, but operating costs are dramatically reduced.

Specify Unatap for your next job. And stop pouring money down the drain!

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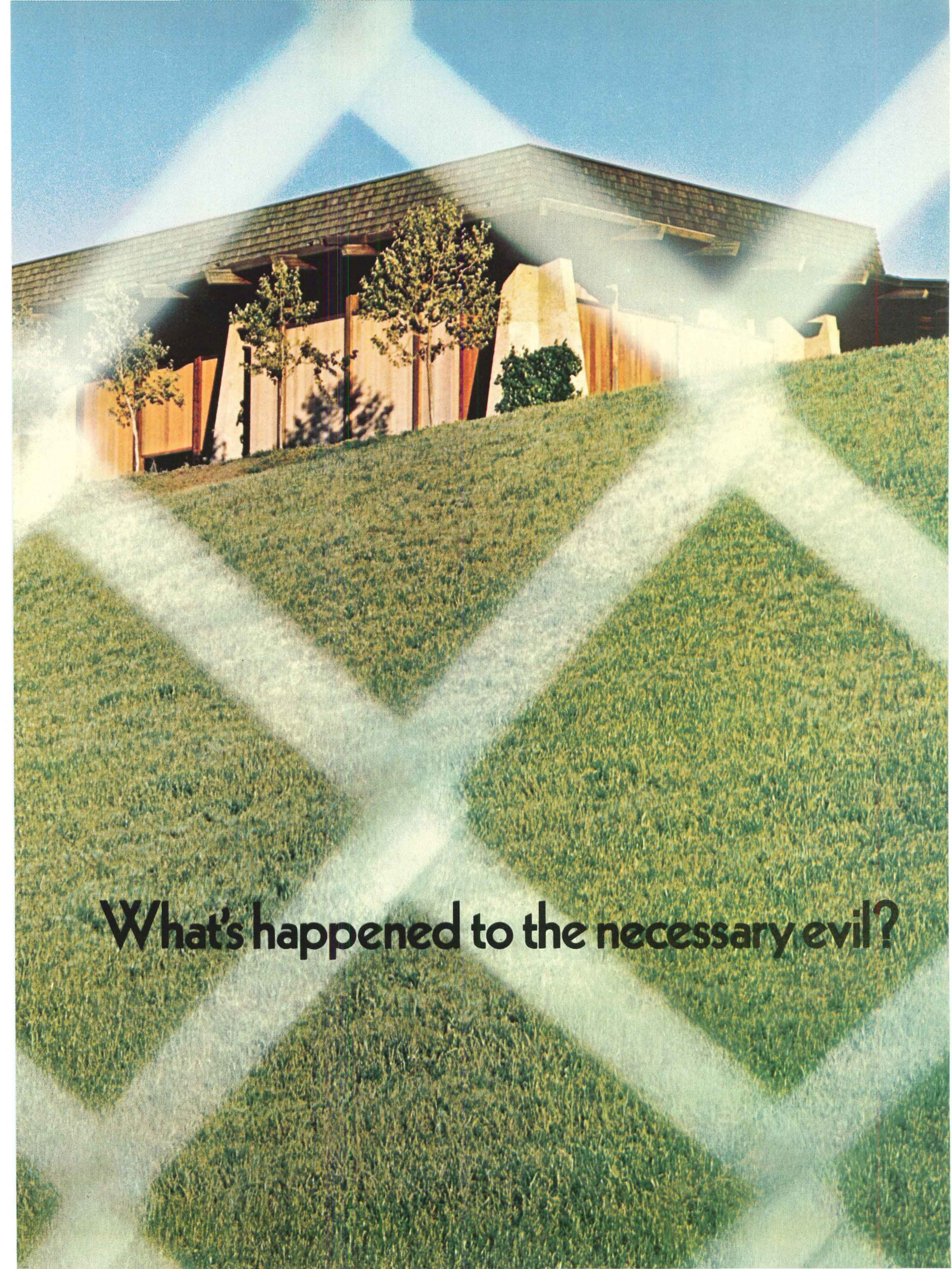
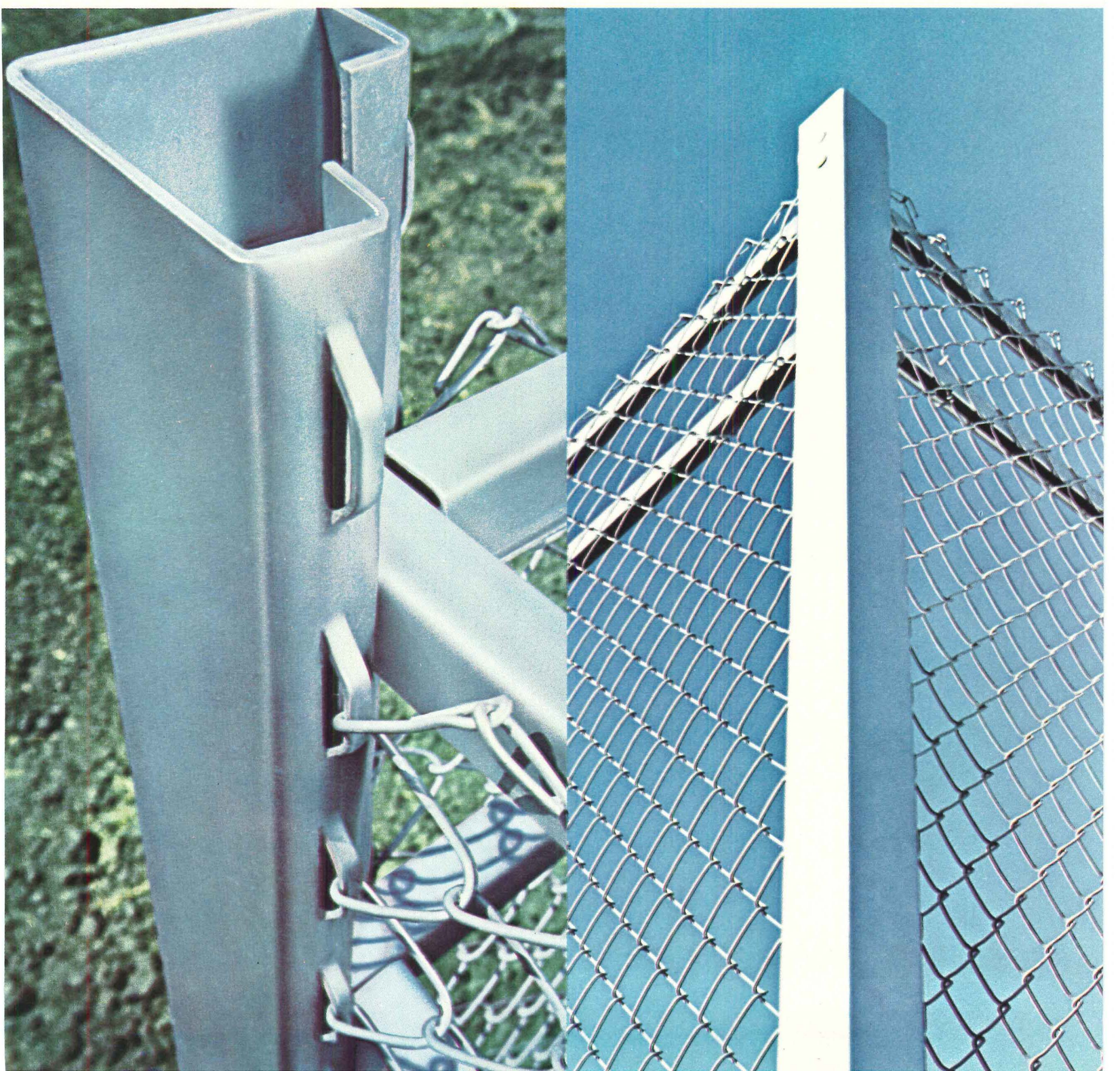

What's happened to the necessary evil?

There's a whole new technology to the necessary evil... the fence. Take 1½ minutes and catch up with it.

The usual chain link fence uses pipe posts. Not USS CYCLONE Type II. Look at this terminal post. It's one-piece, box beam construction. No hidden places where moisture can collect and cause corrosion. And notice the fabric isn't just fastened on . . . it's woven right into lock loops, each with 1200 lbs. holding power.

Result: the new look in chain link fence. A clean, neat, architectural appearance. Posts and top rails have a functional, square configuration. No protruding fittings, nuts, or bolts. Very compatible with modern design. It also means a more vandal-proof fence and lower maintenance costs.

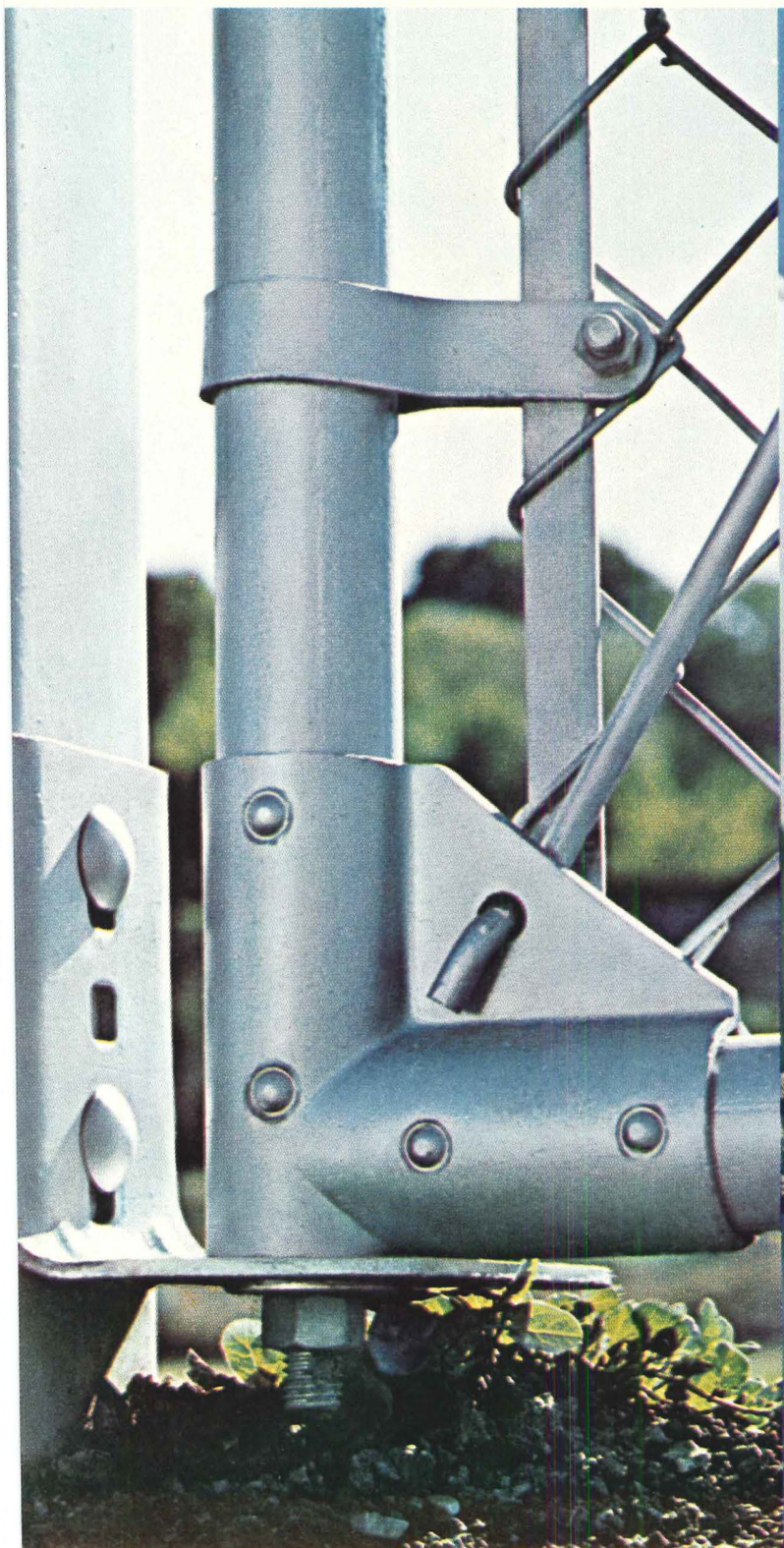


USS Cyclone Fence

USS & Cyclone are registered trademarks

Gates are a key to fence quality. Most industrial gates are welded. This not only invites rust at the weld . . . it makes for expensive repairs. CYCLONE gates are riveted. Remove a few rivets, replace any damaged part, and you have a new gate. And our adjustable truss rods make it easy to correct sag.

Corrosion protection in a fence is directly proportional to the amount of zinc coating. CYCLONE doesn't take shortcuts. CYCLONE terminal posts, line posts, and top rails, for instance, have a 2-oz. coating . . . not the 1.2-oz. coating often used. Gates and fittings are heavily galvanized. Complete specs on the next page.



How to specify the new technology in fence:

Basic Specifications* (Circle one of each):

Height: 6′, 7′, 8′, 9′

Fabric 2″ mesh: 6 ga., 9 ga., or 11 ga.

Barbed Wire: 3 strands, 6 strands, none

Top rail or Top Tension wire, Bottom rail or Bottom Tension Wire

Line Posts: 2.7#H or 4.1#H

Fabric shall be zinc coated class II chain link per ASTM specification A-392-68 or shall be aluminum coated per ASTM specification A-491-68. Fabric shall be connected: to line posts with 6 ga. wire clips every 14″; to top rail with 9 ga. wires every 24″; to terminal, corner, and gate posts by integrally weaving into the post or by using ¼″ x ¾″ tension bars tied to the post every 14″ with 11 ga. 1″ wide steel bands and ⅜″ diameter bolts and nuts; to tension wire with 11 ga. hog rings every 24″.

Barbed Wire shall have a class 2 aluminum coating per ASTM A-585-69 or a class 3 galvanized coating per ASTM A-121-66 and consists of two 12½″ gage stranded line wires with 14 gage barbs and a 4 point pattern on 5″ centers.

Top rail shall be 1¼″ (1.66″ O.D.) standard weight pipe or 1⅝″ x 1¼″ roll formed sections. Top rail shall pass through intermediate post tops and form a continuous brace within each stretch of fence and be securely fastened to terminal posts.

End, corner, and pull posts shall be 2⅞″ O.D. pipe, 5.79 pounds per foot, or 3½″ x 3½″ roll formed sections with integral fabric loops, 5.14 pounds per foot. Posts for swing gates shall be according to the following gate leaf widths:

		Lbs. Per lineal Foot
Up to 6′	3½″ x 3½″ roll formed section or	5.14
	2⅞″ O.D. pipe	5.79
Over 6′ to 13′	4″ O.D.	9.11
Over 13′ to 18′	6⅝″ O.D.	18.97
Over 18′	8⅝″ O.D.	24.70

Gate frames shall be 1.90″ O.D. pipe connected with fittings riveted at each corner. Each frame shall have ⅜″ diameter adjustable truss rods. Gates shall have positive type latching devices with provisions for padlocking; and drive gates shall have a center plunger rod, catch, and semi-automatic outer catches.

All posts, rails, and appurtenances shall be hot-dipped zinc coated steel per ASTM specifications A-120-65, A-123-66 or A-153-65, whichever is applicable. Pipe posts shall have tops which exclude moisture. End, corner, pull, and gate posts shall be braced with the same material as top rail and trussed to line posts with ⅜″ rods and tighteners. Each post shall be set in a concrete foundation of 1-2-4 mix having a minimum diameter of 9″ or three times the diameter of the post and at least 36″ deep. Line posts shall be evenly spaced 10′ or less apart.

Standard tolerances apply. Installation shall be by experienced fence erectors, on lines and grades furnished by owner.

*Non-restrictive specifications

USS Cyclone Fence

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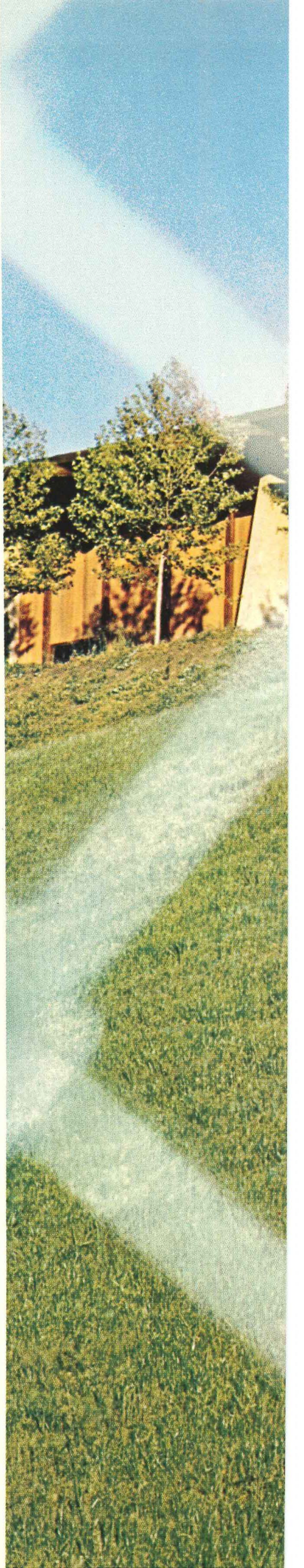

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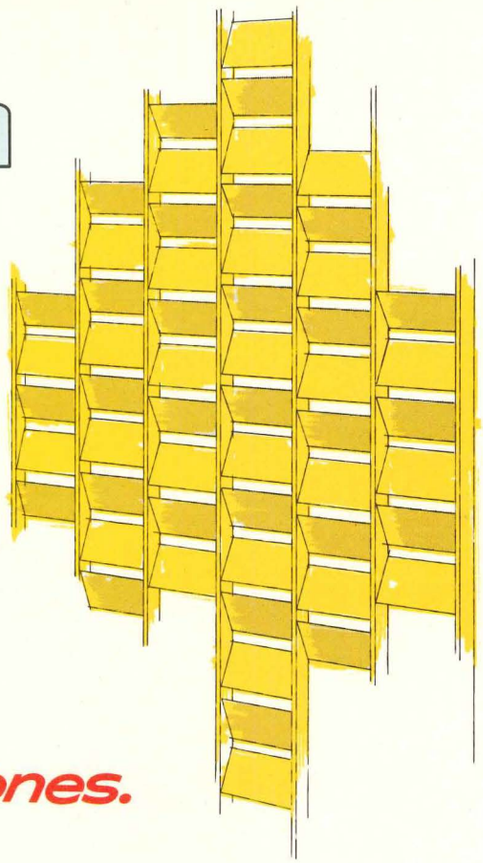
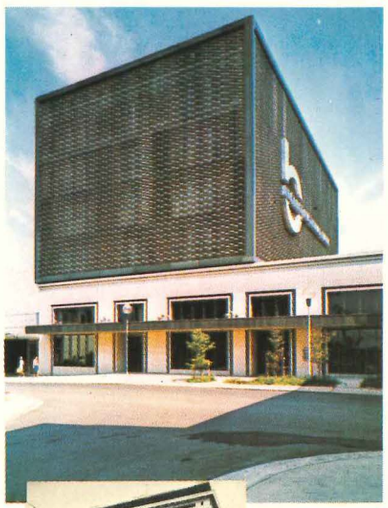
A NEW FACE FOR THE FUTURE



Borden decorative grillework gives new life to old buildings...

bold excitement to new ones.



Left: Before and after photos of the Blount Bank, Marysville, Tenn. Above Right: New facade on E. J. Korvette in New York City

Blount Bank Architect: Lindsey and Maples, Knoxville, Tenn.
Consultant: The Peter Schladermundt Co., Inc., New York City
E. J. Korvette Architect: John S. Campbell, New York City

Borden architectural grillework provides aesthetic satisfaction, amazing versatility and the confidence of proven performance on new and redesigned building exteriors.

Available in a variety of designs and finishes, Borden aluminum grillework is used not only for facades, but also for interior partitions, room dividers, grilles, window guards, railing panels, entryways and many other applications.

Send for descriptive literature or contact our architectural design department with concepts on your specific job. We will be happy to provide you with full details on the grillework that best meets your design requirements.

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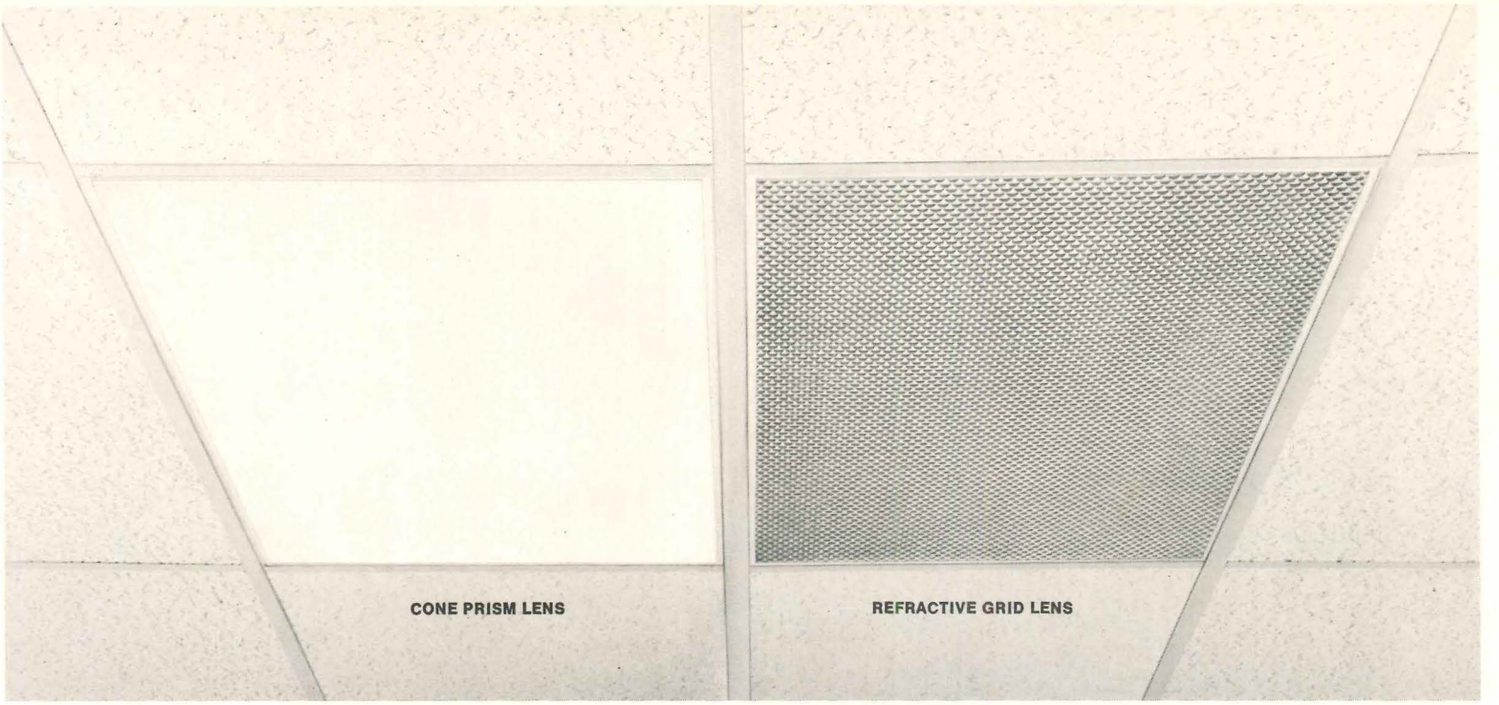
PLANTS AT: Union, N. J.; Leeds, Alabama; Conroe, Texas; Carlisle, Ohio

For more data, circle 16 on inquiry card



The lens on the left looks nice and bright. That's what's wrong with it.

The new lens on the right reduces high-angle brightness up to 70%, yet increases useful light. That's what's right with it.

The REFRACTIVE GRID CONTROLENS® is a major scientific breakthrough in prismatic light control. At the same time, it opens up new vistas for architectural expression in ceiling appearance.

First, let's look at what REFRACTIVE GRID does for viewing comfort.

REFRACTIVE GRID lighting is so easy on the eyes you can use it in rooms of any size and still be sure of a VCP (Visual Comfort Probability) of 70 or above. Often well above.

There's no discomfort with REFRACTIVE GRID because the new lens cuts high-angle brightness 70% as compared with the best existing light controlling medium, the cone prism lens. Yet despite its lack of brightness, the new lens actually increases the amount of available useful light.

How does it do this?

The answer is a totally new hemispherical refractive element that transmits downlight freely, while redirecting potential glare rays into useful zones beneath and between the rows of luminaires.

Holophane invented this new optical concept as an improvement upon the cone prism, itself an original Holophane invention some 20 years ago.

Now, let's consider ceiling design.

The low brightness of the REFRACTIVE GRID lens markedly improves the appearance of your installation. REFRACTIVE GRID blends smoothly into the background, giving the ceiling a look of continuity.

It's easy to see that REFRACTIVE GRID has set new standards for both visual comfort and appearance. It's the lens against which future optical device designs will be measured. And it's an important lighting advance you really ought to know more about.

Write us.

Holophane Company, Inc., Dept. AR-7, 1120 Avenue of the Americas, New York, New York 10036.

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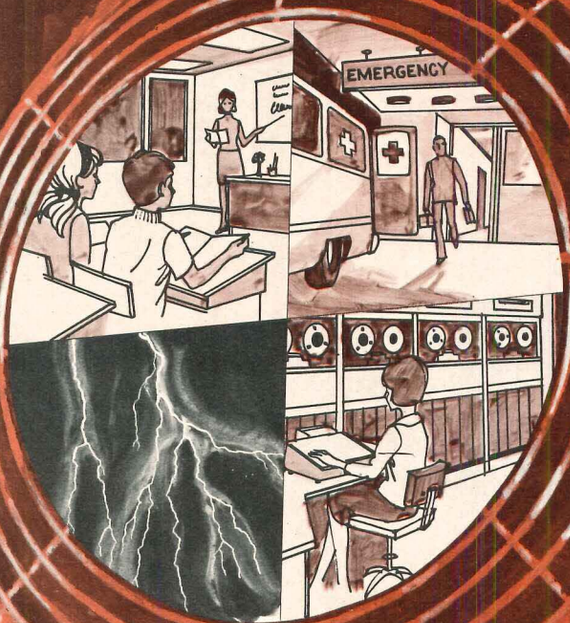


KOHLER
ELECTRIC PLANTS

Introducing The World's First Paging Eliminator

TRAKATRON

The Whereabouts Machine

How do you locate a person in a large building instantly?

You can't do it with a paging system. Paging is only an *attempt* to contact people, which annoys them and others.

Whether it's by voice, lights, buzzes or beeps.

But now, the Trakatron Ultrasonic Locator closes this communications gap.

It tracks people electronically and automatically. Press a button and it tells you instantly the precise location of a person—by room number and nearest phone extension.

Your personnel simply clip the ultrasonic pen in their pocket. And then forget it.

The Trakatron Locator finds the pen. Wherever the pen is, that's where the person is. Their location is displayed instantly on the console.

Imagine the thousands of dollars the Trakatron can save you each year on outside call message units between your plants.

Also in executive time lost hanging on the phone while the search is on for a person.

The paging system ads say, "Locate key people instantly" and "Find the man who isn't there."

But obviously, since the person has to respond (if he's able), paging does not find or locate anyone. And you don't even know if he's in the building.

Today we can track astronauts all the way to the moon, but we can't locate them instantly in a building on earth. Trakatron closes this communications gap.

Trakatron—automated locating systems for medium and large corporations, institutions, terminal facilities, etc.

Trakatron stands for "tracking people electronically." Trakatron is available in three modes—manual (Trakapen), semiautomatic (Trakascan) and fully automatic (Trakafone).

TRAKAPEN, the basic manual system, operation is through a standard Telephone keyboard which indicates on a readout the location of any person at any instant (shown above).

TRAKASCAN, the semiautomatic system, automatically and continuously scans multiple numbers of people and displays their whereabouts on a TV-like (CRT) terminal.

TRAKAFONE is a completely automatic mode in which the room sensors and other interface equipment are incorporated in the telephone system. This system automatically "searches" and rings the phone nearest to where a person being called may be at a particular moment. Trakafone also has a built-in memory which indicates when a person being called is not available, and notifies the caller automatically when the party becomes available.

The versatility of the Trakatron system makes it possible to incorporate other features such as PENLOK access control which permits a doorlock to "recognize" the pen of an individual without any conscious personal human involvement.

Trakatron patents and trademarks worldwide.
For more information on TRAKATRON and PENLOK write:
R. W. Lester, President
Recognition Devices, Inc.
101 Park Avenue, New York, N.Y. 10017

Recognition Devices Inc.

For more data, circle 23 on inquiry card

News in brief

ARCHITECTURAL RECORD has moved to quarters on the forty-first floor of the new McGraw-Hill Building at Rockefeller Center. Readers, please note our new address: 1221 Avenue of the Americas, New York City, N.Y. 10020.

The cost of construction labor and materials across the nation showed the smallest increase in three years, rising an average of 7.4 per cent for the year ending March 31, it was announced recently by the Dodge Building Cost Services department of McGraw-Hill Information Systems Company. The latest figure is in contrast to the 7.9 per cent rise in construction costs for the comparable 12-month period ending March 31, 1971. Construction costs for the year ending March 31, 1969 rose only four per cent, the smallest prior increase. The cost information released by Dodge is based on a semi-annual survey of 182 cities in the continental United States. Construction costs for the latest 12-month period were generally highest in the Northeast. The New York/New Jersey region of 16 cities posted the largest gain, 8.3 per cent, followed by the Northeast/North Central region and the New England region, which each had a 7.7 per cent rise in construction costs. The Pacific Coast and Rocky Mountain region posted the smallest rise, 6.8 per cent.

The first quarter of 1972 produced the strongest rate of homebuilding ever recorded for a three-month period. The F. W. Dodge Division of McGraw-Hill Information Systems Co. announced that 485,080 new dwelling units were started in the first quarter of 1972, 36 per cent more than the comparable period last year. On a seasonally-adjusted basis, housing during the year's first quarter showed a six per cent gain over the previous record set in the last quarter of 1971.

HUD has made a matching grant of $1,088,250 to the University of Virginia at Charlottesville to restore the famous Rotunda designed by Thomas Jefferson. Built in 1822, destroyed by fire in 1895, restored soon after by Stanford White, the current restoration will seek to recreate the Rotunda's original design.

Architect Paul Rudolph was recently awarded the degree of Doctor of Humanities by his alma mater, Auburn University. The citation emphasized Rudolph's "continuing stream of architectural works which have enriched the environment and challenged professionals and laymen alike."

The formation of The Friends of the Mies van der Rohe Archive was announced today in Chicago by Myron Goldsmith, Senior Partner of Skidmore, Owings & Merrill and chairman of the Organization Committee. The purpose of the association is to assist in the preservation, study and publication of Mies van der Rohe's work and ideas. Its immediate goal is to raise funds for the operation of The Mies van der Rohe Archive at The Museum of Modern Art in New York which was established in 1968.

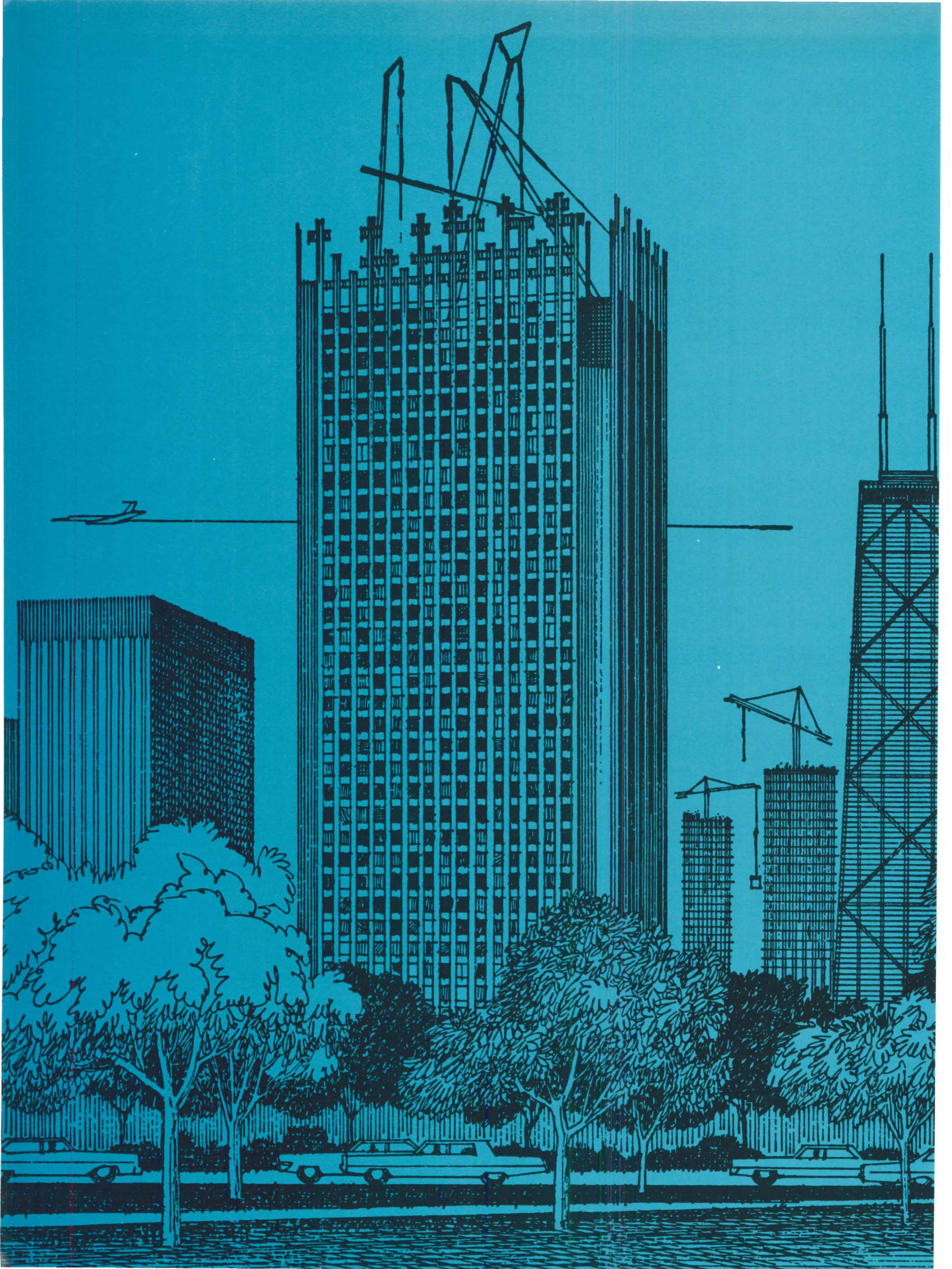
At its 105th Annual Meeting last month, the New York Chapter of the American Institute of Architects presented awards to Donald Elliott and Ulrich Franzen and posthumously to Dr. Anthony G. Adinolfi of the State University Construction Fund. Special citations were also awarded to Hedda Hendrix Edelbaum (Women's Architectural Auxiliary); Nathan Jerry Maltz, AIA (UDC); and Bonnell Irvine, AIA, for his work with the Chapter's Minority Scholarship Program.

The Senate Appropriations Committee recently approved nearly $4.5 billion for HUD operations in fiscal year 1973, which begins July 1. The measure contains $170 million for Sec. 235, $150 million for Sec. 236, $48 million for rent supplements, $90 million for rehabilitation loans, and $170.6 million to run the FHA field offices—$7 million more than the Administration had requested.

Archibald C. Rogers (RTKL) has recently been named to Princeton University's Board of Trustees. He will serve a four-year term in the post of Graduate School Alumni Trustee.

The AIA has issued procedures for approval of Architectural Technicians' Training Program at two-year technical schools and junior colleges. The publication, "An Approval Procedure for Architectural Technicians' Training Programs," is the outgrowth of a 1968 study by AIA which established guidelines for the education and training of technicians. The architectural technology program at Southern Illinois University, Carbondale, has recently become the first to receive AIA approval. That program, directed by Paul Lougeay, was established in 1954. Copies of the document are available from the education and research department, The American Institute of Architects, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036.

Architectural Record invites submissions to its fourth RECORD Interiors Award Program—the winners to be published in the January 1973 issue. Submissions for RECORD HOUSES are also invited. For information, see page 86.



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UNITED STATES GYPSUM
BUILDING AMERICA

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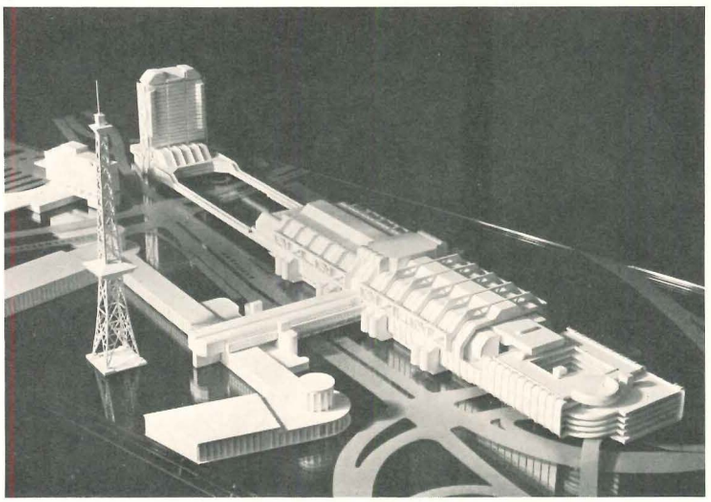

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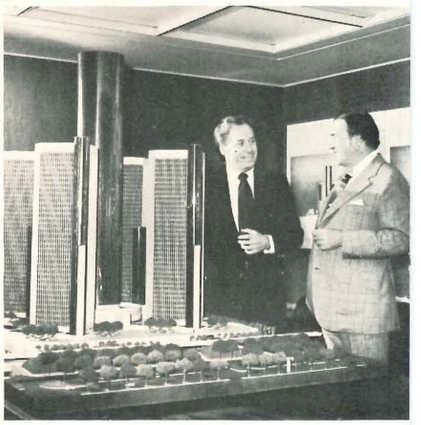


1

KONGRESSZENTRUM

A giant ($95 million) convention center will soon start to rise in West Berlin on a site adjacent to the city's fair grounds. The new structure, designed by West Berlin architect Schüler-Witte, will include a six-level garage, a 5000-seat auditorium, a 3000-seat multi-purpose hall, a number of small lecture halls, a restaurant, a hotel and various support facilities. A 330-ft long, three-level pedestrian bridge will connect the center to the city's fair grounds.

Steel roof trusses, on 50-ft centers, transfer their loads to a deep lateral truss on each side on the building. The whole truss system is anchored by a series of eight concrete stair towers—four on each side. The various internal levels will be framed in concrete and remain structurally independent of the roof system for functional flexibility and acoustical control.

Construction will begin next year with completion scheduled for early 1976.

WELFARE ISLAND UPDATE

UDC's Edward J. Logue, and regional HUD administrator S. William Green announced recently that the UDC subsidiary, the Welfare Island Development Corporation, had received two grants worth a total $467,400 under the Legacy of Parks Program. The two grants include $374,900 for the development of Blackwell Park and $92,500 for the restoration of Blackwell Mansion both of which lie at the center of a new town for 18,000 people being built by UDC and its subsidiary on New York's Welfare Island.

Welfare Island is being developed as a new town in-town with nearly one-third of its 147 acres consisting of parks open to all, including a four-mile promenade for pedestrians and bicyclists which will encircle the Island. Privately owned automobiles will be banned. On-island transportation will be by mini-bus. There will be a Town Center with shops, restaurants, offices and a hotel. One of the proposed co-ops borders on the park.

Construction of the residential portion of this $325 million new community began in December 1971. The first 2,100 units of housing for low-, moderate-, middle- and upper-income families will be occupied in the summer of 1974.

TORTUGA

Historic, if nearly forgotten, Tortuga Island lies off the north coast of Haiti in the Windward Passage. Few tourists have ventured there for the island is almost totally undeveloped. But that may change suddenly.

Last fall DuPont Caribbean Inc. obtained a 99-year lease on the island from the government of Haiti. Plans are now underway to turn Tortuga into a center of trade and tourism—a free port patterned, economically at least, after Hong Kong.

Translinear, of Dallas, is the developer and Hellmuth Obata & Kassabaum are the master planners. HOK's Phase I plan calls for balanced development of 5000 acres on the island's western tip and includes sites for 15 hotels, retail and commercial space, a town center, recreational facilities, 4500 units of low density housing, 300 acres set aside for light industry and a greenbelt of 1900 acres.

In order to disturb the island's natural beauty as little as possible, developers and planners will apply strict environmental safeguards.

2

BALTIMORE ARTS FESTIVAL

The Baltimore Chapter, AIA, had an important role in this year's Baltimore Arts Festival, held in the Charles Center Plaza. A Special Task Force Committee was responsible for the enlargement of the Chapter's usual representation. Under the direction of the Task Force, Richard Donkervoet, AIA chairman, a large exhibit structure, the Architectorium, was designed and executed by Nathan Leblang, AIA. As part of the overall planning and design of the Festival by Meyers & D'Aleo, Inc., AIA, a logo was designed and used on buttons and bumper stickers given to those who visited the Architectorium. Thirty-five Baltimore firms and the Neighborhood Design Center of Baltimore submitted a total of 114 display panels. The panels and other graphic materials designed for this occasion will be used in continuing architectural exhibits around Baltimore.

"It is the intention of the AIA and the Task Force," said chairman Donkervoet summing it up, "to help support the Arts Festival and to promote public awareness of design and of the involvement of the architect in his community."

NEW USE FOR SAN FRANCISCO MINT

San Francisco's U. S. Mint, a handsome building in the Federal Greek Revival style, will become a mint and coin museum, administered by the Treasury Department, as a result of recent action by President Nixon. It was designed by Alfred Bult Mullett in 1869. It had been designated a historic landmark but had not been occupied for a number of years. Its condition has been deteriorating but according to studies by San Francisco architect Walter Sontheimer, repairs are feasible.—*J. N.*

3

DETROIT'S RIVERFRONT REDEVELOPMENT

In a recent speech before the Economic Club of Detroit, Henry Ford II, board chairman of the Ford Motor Company, unveiled ambitious plans to revitalize a large section of downtown Detroit. The first phase of the $450 million development was planned and designed by Atlanta's John Portman for a 32-acre site along the Detroit River. The plan includes four 39-story office towers and a 70-story cylindrical luxury hotel to be sheathed in mirror glass. Demolition for Phase I will begin this fall and construction will commence early next year.

In addition to the hotel and office towers scheduled for the first phase, future plans envision nearly 1000 condominiums and apartment units and various service and support structures.

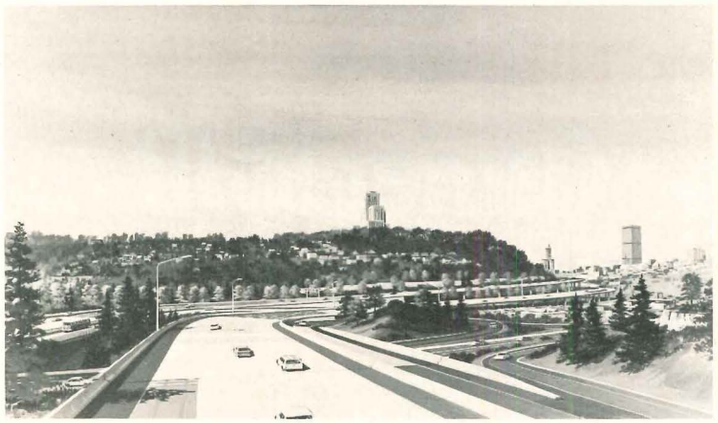
Financial backing for the giant project will come from a number of nationally-known insurance companies and banks which have already made primary commitments. Additional funding will almost certainly come from other sectors of Detroit's business-civic community.

DOWNTOWN TENNIS CLUB

Two abandoned piers in lower Manhattan have been fitted with air structures, the longest ever built, and converted into a year-round tennis club. Four courts are provided in each structure which is covered in a translucent vinyl-coated nylon and designed to resist the fiercely-swirling wind currents from the East River.

The courts are part of a growing effort by city dwellers to turn un-utilized or under-utilized properties into useful recreational space. The club's developers point to the roofs of office buildings, factories and parking garages as other sites suitable for various recreational uses.

4



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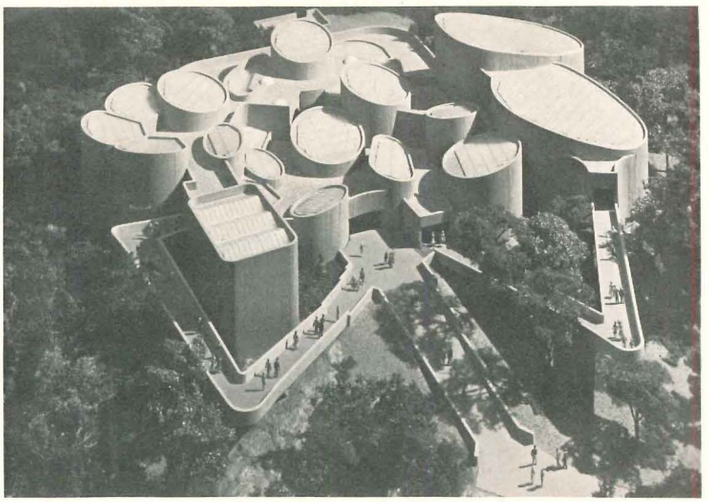

4

AIA CITES FREEWAY DESIGN

The AIA has issued a "Citation for Excellence in Community Architecture" to the Washington State Department of Highways. The award was given for the design of I-90 which links Mercer Island with the city of Seattle. The citation, presented by AIA president Max Urbahn and the first given for highway design, reads: "The American Institute of Architects awards this Citation for Excellence in Community Architecture to the Washington State Department of Highways in recognition of its major contribution to the design of urban freeways. In order that two critical segments of proposed Interstate Route 90 traversing Seattle and Mercer Island would be integrated as fully as possible into the fabric of their urban surroundings, the Department commissioned and gave full support and encouragement to two multidisciplinary design teams composed of architects, engineers, planners, landscape architects, sociologists, economists, acoustical consultants and other environmental experts. The recommendations of the two teams made after exhaustive studies and consultation with residents were adopted substantially by the Department; thus the cities of Seattle and Mercer Island are assured of new freeway segments that not only will serve their transportation needs but also make positive contribution to the environments through which they will pass."

GSA CONSTRUCTION SPEEDUP

President Nixon's approval, on June 16, of the Public Buildings Amendments of 1972 buttressed hopes for the rapid completion of more than 60 Federal buildings across the country. The General Services Administration will carry out the billion dollar construction program. The legislation gives GSA a three-year authority to have Federal buildings financed and erected under a purchase contract system that looks to the private sector for capital.

Secondly, the new law creates a Federal buildings fund into which all agencies will pay rent or a user fee, based on the space they occupy and the local market rate for comparable office space. The fund will be used to pay for new construction, operation, maintenance, repair and protection.

Arthur F. Sampson, GSA Acting Administrator, said the double-thrust administration plan, "will allow us to catch up on a billion dollar backlog of construction stretching back as far as 10 years and will provide a new means of financing Federal construction that hopefully will prevent us ever again from accumulating such a backlog."

Under the new system, to eliminate the backlog, GSA will contract on a competitive bid basis with private parties who will construct and finance the projects over terms up to 30 years. The government will own the building at the end of the contract term, but until that time, the building will remain on local real property tax rolls, helping to ease the burden of Federal presence on the local community.

Congress will retain its prerogatives of approval of Federal construction, but once this approval is given, one shot financing will be available via public buildings fund.

Concurrent with Presidential approval, GSA was ready to go on the market with 32 projects, with an estimated construction cost of approximately half a billion dollars.

5

WORLD OF BIRDS

Just opened to the public, after six years in planning and construction, the Lila Acheson Wallace World of Birds at the Bronx Zoo is a sculpturally complex cluster of truncated concrete cylinders. Designed by Morris Ketchum Jr. and Associates, the structure contains 28 permanent exhibit areas which house an enormous sampling of birds from around the world. Many of the exhibits have no barriers between birds and visitors. In the open-fronted environments, the birds are kept within the exhibit by the use of high lighting levels and rich vegetation.

The largest and most spectacular exhibit is the New World Rain Forest. Here 100 varieties of birds fly freely and shower nozzles, loudspeakers and strobe lights are used to simulate tropical rainstorms.

A gift of Lila Acheson Wallace who, with her husband, publishes *The Reader's Digest*, the World of Birds is a splendid addition to New York's Zoological Park.

STEINBECK'S CANNERY ROW

The country made famous by John Steinbeck is now making its own fame. Cannery Row, in Monterey, is the center of another developer-preservationist controversy. A group of 15 people called The Friends to Save John Steinbeck's Cannery Row are fighting to save the canneries that once flourished as the main business in Monterey; but since the industry was forced to close in the 1940's most of the buildings have stood idle. The main developer, Cannery Row Development Company, who owns more than half of the land, wants to start several projects—the first one, a Mexican restaurant, now under construction, sparked the controversy. The irony of it is that Steinbeck himself suggested, "the whole place should be torn down and turned into something pleasant-looking." It seems the only point of agreement between city officials, the developers and The Friends is that the area's master plan should be updated.—*J. N.*

THE COST OF CLEANING UP

According to figures released by McGraw-Hill, American business must spend a total of $22.8 billion in the years ahead to bring all of its existing facilities up to present pollution control standards, or just over 4.5 times the $4.91 billion it is currently planning to invest in air and water pollution control this year.

There are seven industries which must invest over $1 billion each in pollution control to bring their facilities up to current standards. These are in order:

1) **electric utilities** with a total cost of $6.19 billion, over six times their planned 1972 air and water pollution control expenditures.
2) **petroleum industry,** which could achieve its $2.69 billion pollution control costs in about five years if the 1972 anti-pollution spending pace were maintained.
3) **paper industry** at $1.98 billion, and it would complete its anti-pollution program in just four years, based on its current spending rate.
4) **Iron and steel** with a total pollution control cost of $1.78 billion.
5) **Nonferrous metals** with an anti-pollution bill of $1.67 billion.
6) **Chemicals** $1.25 billion.
7) **Commercial business** approximately $1.2 billion.

Recommend the Carrier 16JB gas absorption machine. Your client will thank you for years.

The Carrier 16JB is so trouble-free that your clients can put it in and just about forget it.

This unique chiller automatically adjusts to fluctuating steam pressure and varying condensing water temperatures.

It needs only a bare minimum of maintenance. Your clients can even get a planned maintenance contract from the factory.

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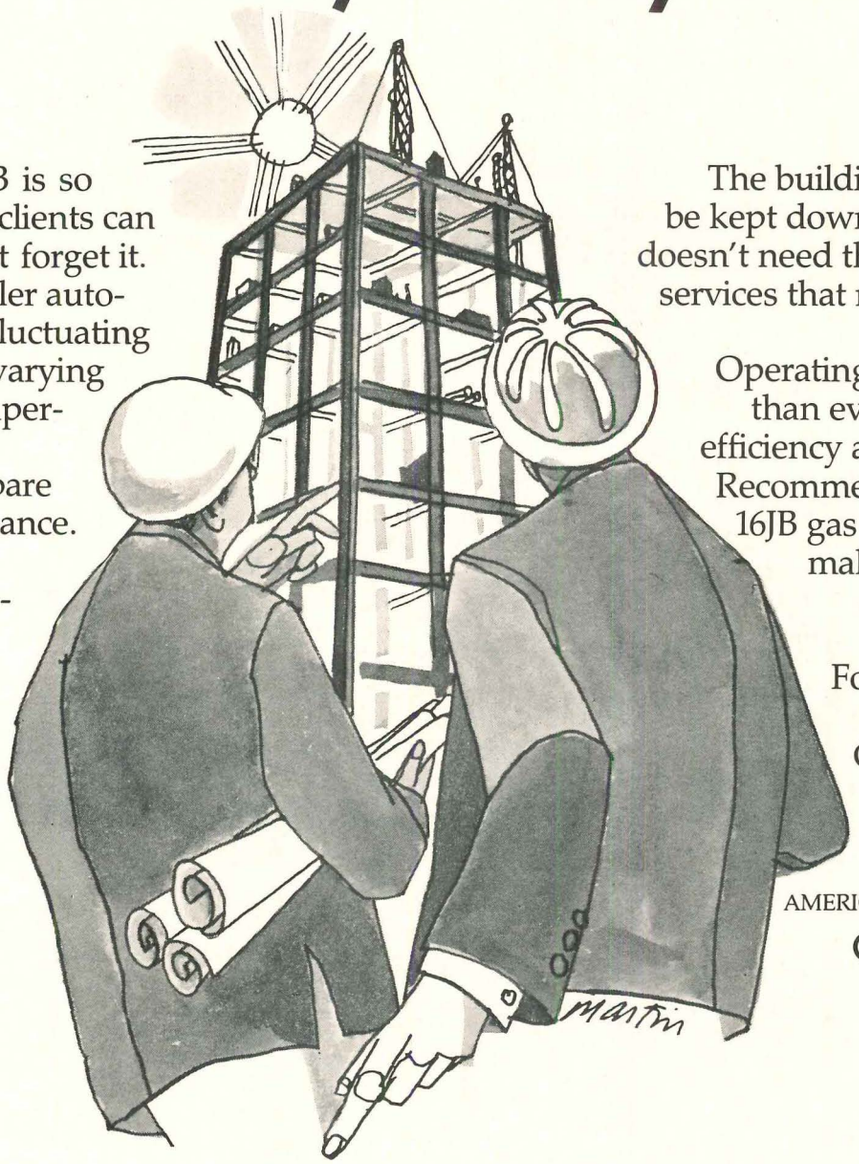

The building's first costs can be kept down because the 16JB doesn't need the heavy electrical services that mechanical equipment needs.

Operating costs are lower than ever, too. The 16JB's efficiency actually saves gas.

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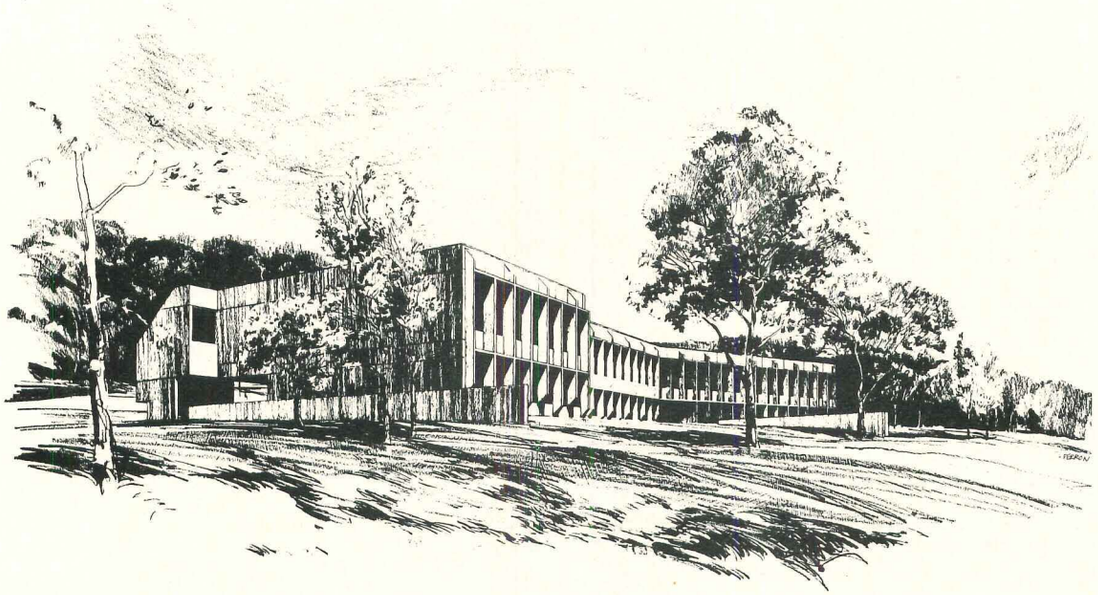
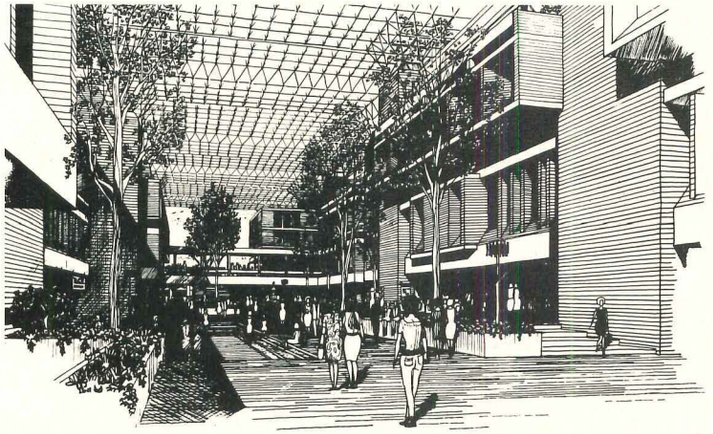


The American Press Institute Conference Center, Reston, Virginia, by Marcel Breuer and Hamilton Smith with Hasram Zainoeddin, Associate, will conform to the natural contours of a sloping site five miles from Dulles Airport and 30 minutes from Washington. Conference functions—including a large conference room with built-in audio-visual equipment and four smaller conference rooms, library, lounge and writing room—will be on the upper floor and administrative functions below. Housing and dining will be a three-minute walk to Reston International Center which will provide for simultaneous seminars until a second conference room is built.

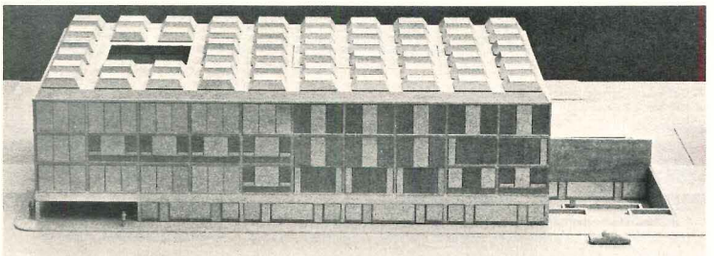
Photo Haphong

The Old Market Place in Rouen, where Joan of Arc, patron saint of France, was burned—the place to be marked by a bush—will have a new church, flower and vegetable market in the small sheds, and underground parking for 200 cars. The doubly curved roofs of chestnut shingles will harmonize with the colors of the surrounding old quarter. The wood structures resemble naval construction that inspired many Norman church designs. Architect Louis Arretche wanted to maintain the ambiance of a village market and parish church while providing for a national monument.

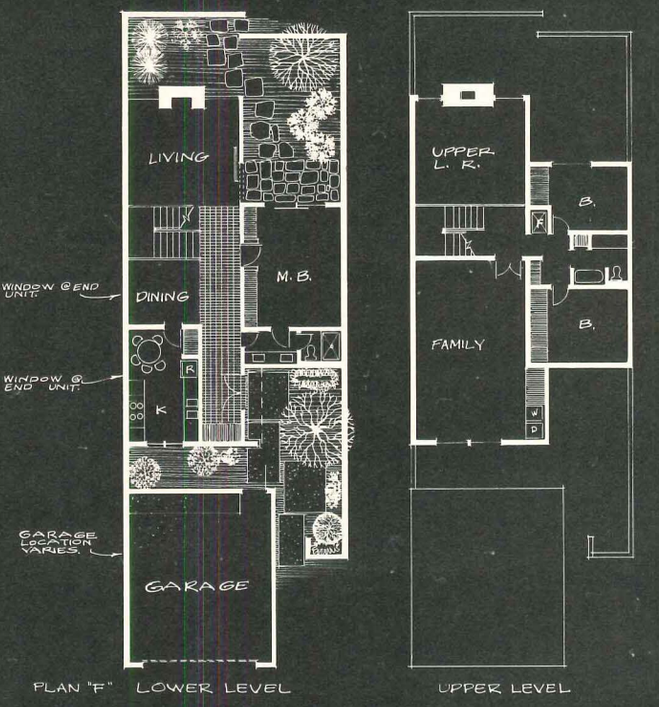
Lesley College, in Cambridge across from Harvard, by Smith/Barker/Hanssen, now being built, has a main street flanked by two-block-long buildings with student services at ground level, classrooms one floor up and three floors of dormitories.



George Pohl



The Paul Mellon Center For British Art at Yale by Louis Kahn, across from his Art Gallery, will be the first Yale building to include taxable commercial space, shops and restaurants. Galleries and libraries above surround two skylit courts. Exhibitions will be day-lit. The galleries are scaled to the delicate qualities of the collection. There will be a study gallery of all paintings not on exhibition.



Red cedar shingles create a life-style that's easy to maintain.

Condominiums, Mountain Park, Oregon. Certigrade Shingles No. 1 Grade: roof, 18" Perfections; walls, 16" Fivex. Architects: Broome, Selig & Oringdulph.

This condominium development in Oregon offers all the advantages of home without any of the disadvantages of a house. One reason is the use of red cedar shingles for roofs, sidewalls, and even some interior walls.

Cedar artfully expresses a design that provides each unit with its own identity.

The inherent appeal, rich texture and natural warmth of the shingles create a strong sense of home.

Equally important, red cedar remains maintenance-free for decades. Which means a long and care-free life for the condominiums. And a carefree life-style for their owners.

For your next condominium project specify the real thing: red cedar Certigrade shingles or Certi-Split handsplit shakes. They're worth it. For details and money-saving application tips, write: 5510 White Bldg., Seattle, Wa. 98101. (In Canada: 1055 W. Hastings St., Vancouver 1, B.C.)

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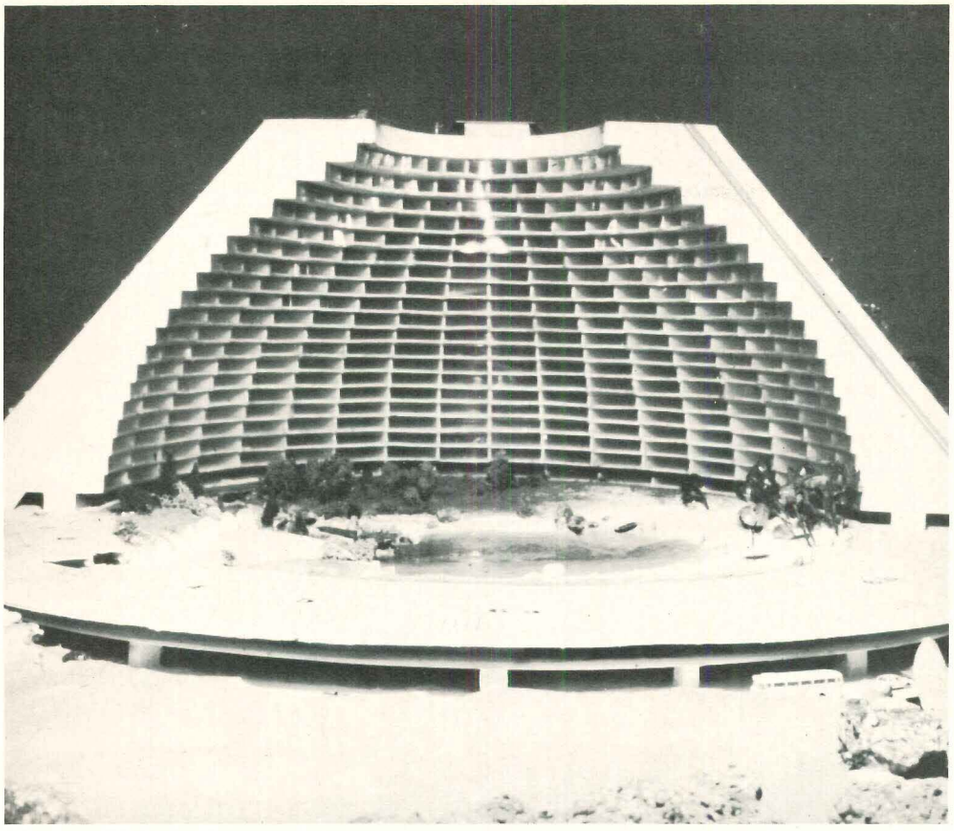
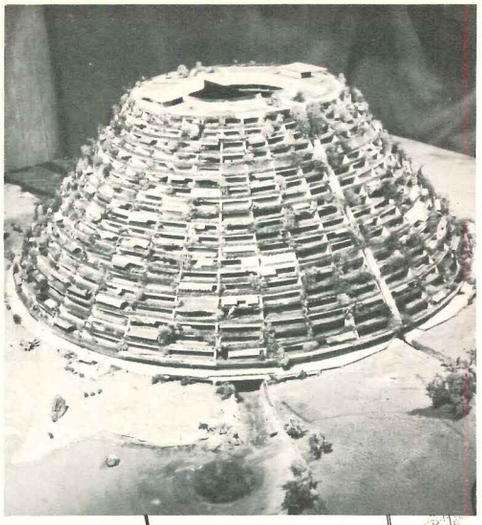
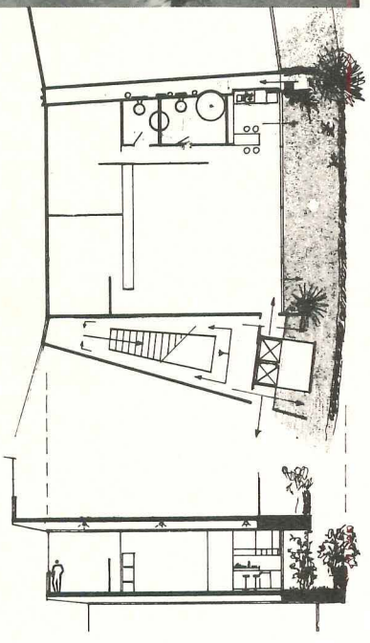
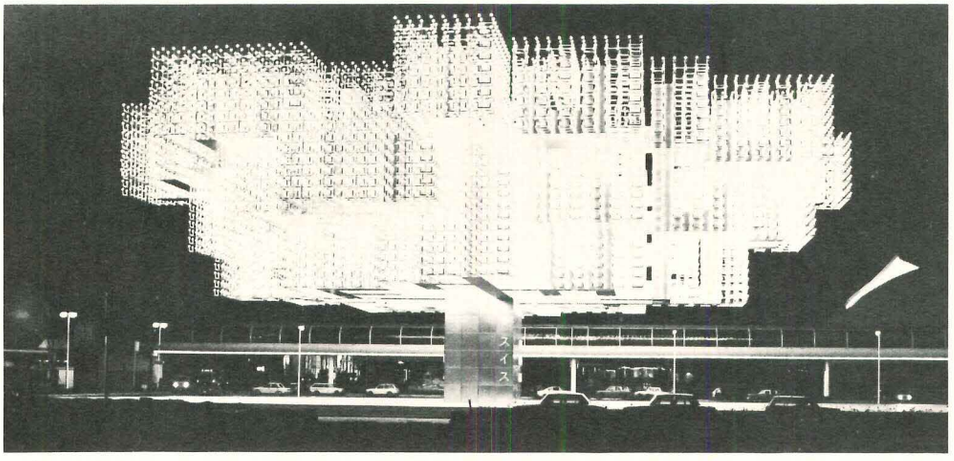




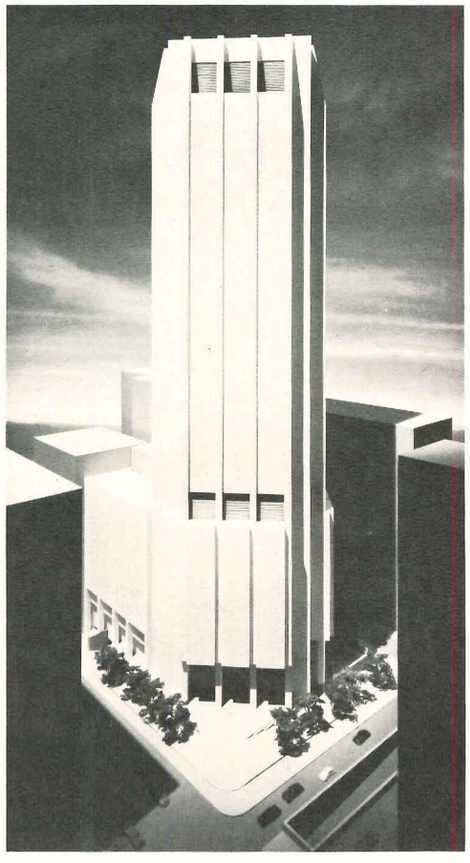


Nucleo 1000 is a projected 21-story, 200 meters in diameter, non-polluting building containing 1000 terrace apartments. It is an inverted cone surrounding an artificial tropical lake and beach 15,000 square meters in area to be lit and heated by sunlight and quartz arc-lamps. The architect, Giorgio Grati of Milan, estimates it would cost $10 million, or $13.4 million including development of the surrounding farm which is to be fertilized by the gravity-feed sewerage system with biologically degradable effluent. Grati has also designed food shopping and storage systems that eliminate throw-away packaging: food is to be sold in re-usable containers which are transported in refrigerated containers that fit into individual kitchens until taken out for the next shopping trip. The ground floor is to have shops, entertainment and all services. Grati is working with a State steel company on the design of a T-shaped crane—with arms to go across the diameter of the building—which would rotate to place the 1.20-meter-square white cement blocks to be manufactured on-site. Grati says financing is already lined up with a consortium of Italian and Swiss banks and all he needs is local authorizations.

Louis Checkman



Radiant Structure, Swiss Pavillion, Expo '70, Osaka, by architect Willi Walter who was awarded the 1972 R. S. Reynolds Memorial Architectural Award "for distinguished architecture using aluminum" by the following jury: Robert F. Hastings, FAIA; Jean Paul Carlhian, AIA; Frederick J. Bentz, FAIA; Walter W. Custer; and Anton Eder. The trunk was prefabricated steel faced with glossy, natural finish, anodized aluminum rolled sheet panels; the branches of bright extruded aluminum tubing.



Central Manhattan High School at 34th Street and Park Avenue will occupy the lower nine floors of a 41-story tower. The major tenant above, United Medical Service Inc., will hire some students on a part-time internship basis and help develop the business curriculum. The school will be paid for at no cost to the city by lease of air rights. The offices are conventionally financed. Shreve, Lamb and Harmon Associates are the architects.

Professional critics have been virtually unanimous in regarding Harry Weese's Arena Stage as a major landmark in American architecture. Wholly original in concept, superbly functional, and elegant in detailing, it has "an ambiance which suggests that magic is made, after all, in a working place," as one commentator remarked. Among other significant developments which were foreshadowed in this exciting structure was the utilization of roof perimeters as an important element in contemporary design, particularly when executed in metal.

Our initial gratification when Mr. Weese and his associates selected Follansbee Terne for these roof areas has thus merely been enhanced with the passage of time. And we were therefore doubly gratified, nearly a decade later, when Terne was again specified on the adjacent Kreeger Theater, a building of comparable distinction.

FOLLANSBEE
FOLLANSBEE STEEL CORPORATION
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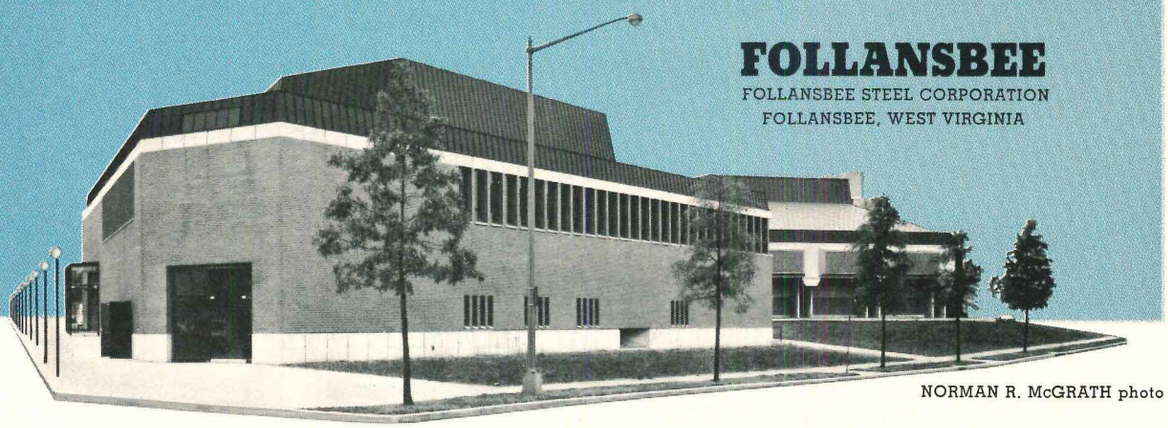
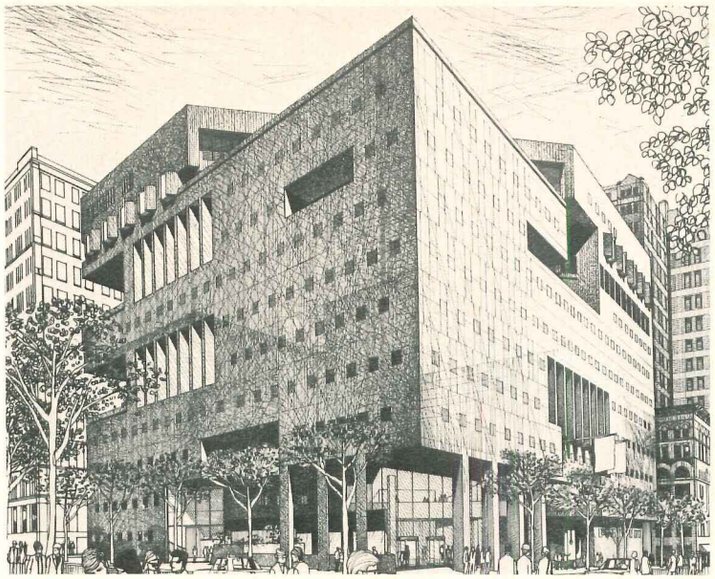


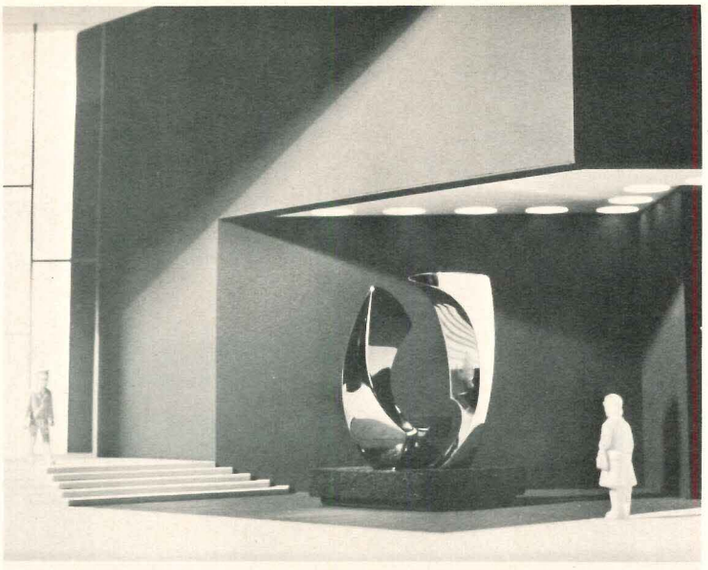
NORMAN R. McGRATH photo

KREEGER THEATER, WASHINGTON, D.C. WITH ARENA STAGE IN BACKGROUND.
ARCHITECT: HARRY WEESE AND ASSOCIATES, CHICAGO, ILLINOIS, WASHINGTON, D.C.
ROOFER: MATHY COMPANY, FAIRFAX, VIRGINIA.

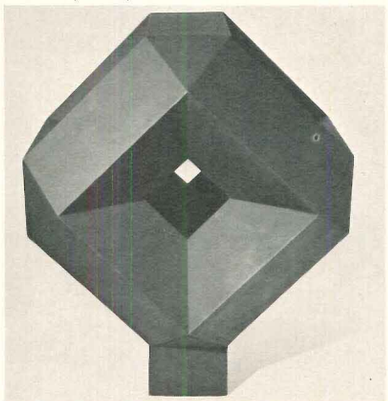
For more data, circle 27 on inquiry card

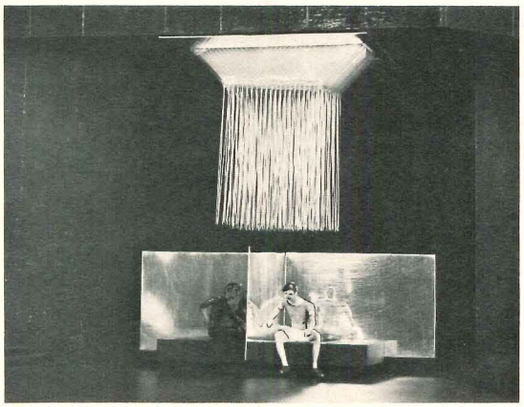


Fourcade, Droll, Inc.



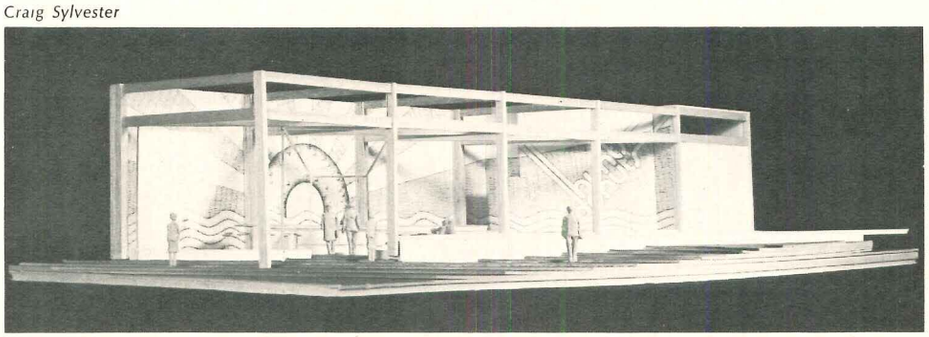
The New York Family Court Building Sculpture Competition was held at the suggestion of the City's Art Commission, which approves artists and art for public buildings, in hopes of fostering wider interest in and better public art. The competition was funded by the requirement of spending one-half to one per cent of the capital budget expenditure for a city building on art. The eleven invited sculptors—Roy Gussow (the winner), Rhys Caparn, Richard Hunt, Richard Lippold, Albino Manca, Algernon Miller, Louise Nevelson, Charles Perry, Martin Rubio, Federick Shrady and Tony Smith—were selected by the Board of The Fine Arts Federation (which managed the competition) from names given them by their constituent organizations. The losers were paid $1000. The winner will be paid in phases by the Director of the Budget, in contrast to previous practice—discouraging artists from accepting public building commissions—whereby artists were paid by the contractor during and after execution of the work, perhaps years after being commissioned. The sculpture was to be free standing in the black granite entry alcove, seen under the banners in rendering above and surrounding the winner in model photo at right, of the building by Haines, Lundberg & Waehler. Even though his current work is columnar, in this gleaming stainless steel piece Mr. Gussow returned to forms he'd used earlier, believing that the building needed some fluidity. And he flattened the top of his piece to relate to the ceiling. The most architectural submissions were those of Tony Smith, architect and sculptor (above), and Richard Lippold (right). Not seen in the photo is the impressive enclosed space one would see looking into the Smith. The jurors felt that this painted black sculpture would get lost against the black walls. The Lippold, entitled "A Place For Reflection," would have been of mirror-polished stainless steel sheets on a polished granite base forming four seating alcoves with stainless steel rods suspended over them by fine steel cables from another stainless steel plate. The motion of multiple reflections on the polished planes would be complemented by the motion of the suspended rods which would create a play of light, and possibly a chime-like music as well. The placement and proportions of this piece were related to the architectural modules; the steel was similar to the building's trim; and the base was of the same granite as the entry walls. Fear of crime and vandalism discouraged jurors from choosing this one. Jurors: sculptors Robert Cronbach, Donald DeLue, Anthony Padovano; architects Lewis Davis, Charles Haines; curator Barry Gaither; Commissioner Alfred Maevis, Department of Public Works; The Honorable Millard Mildonick; muralist Buell Mullen; and landscape architect Robert Zion.



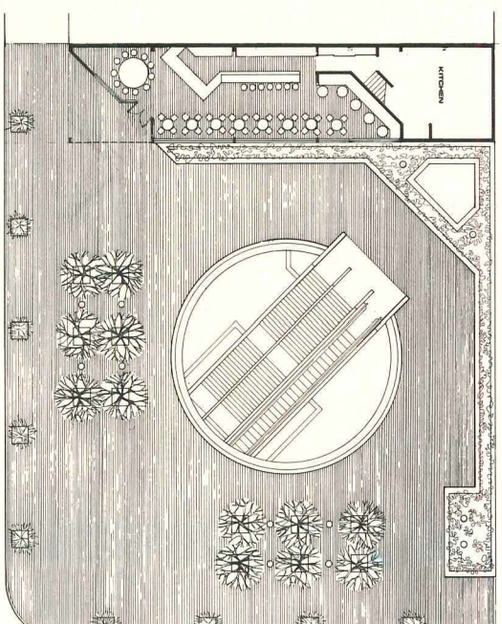


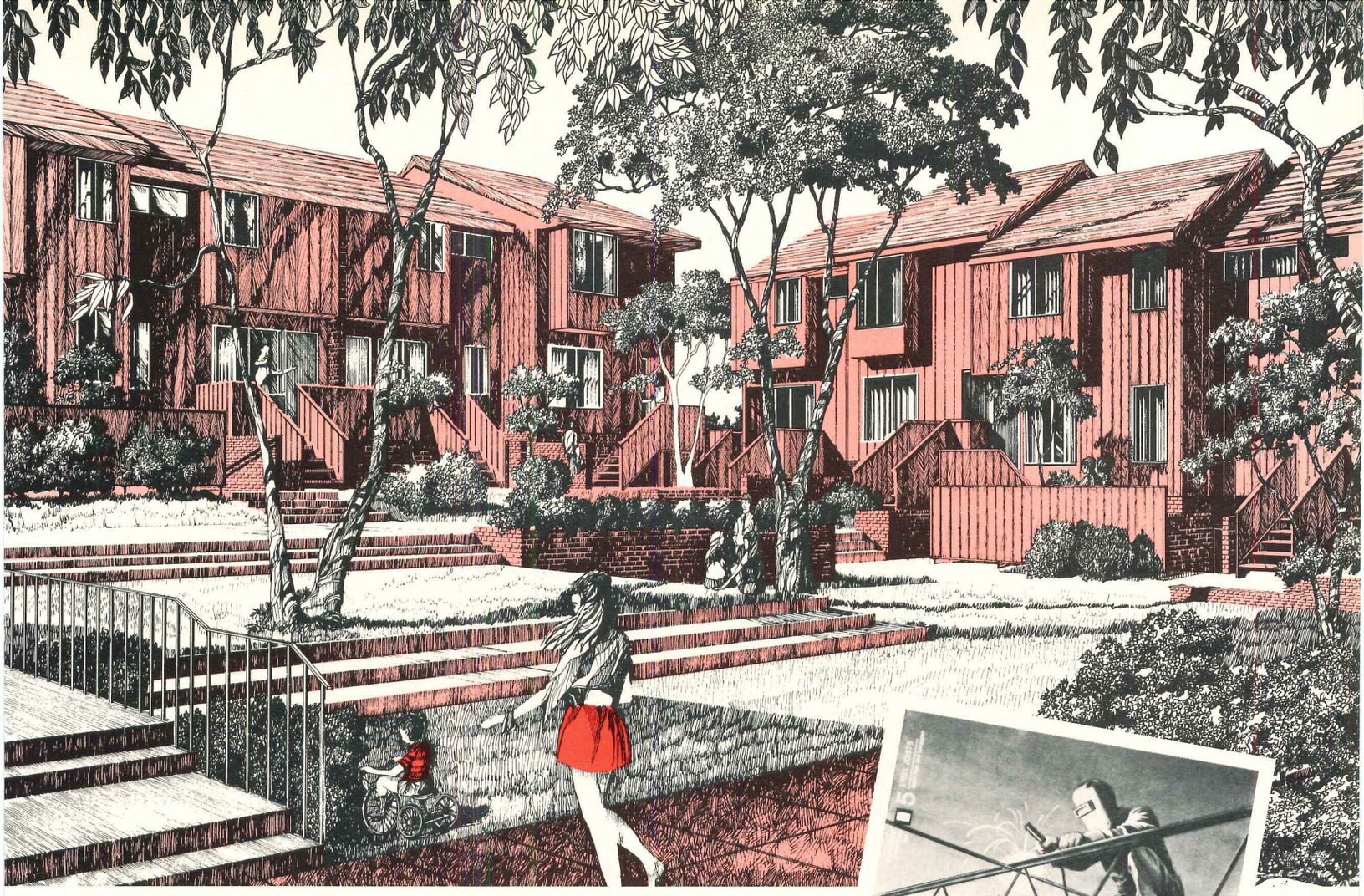
Roy Gussow

Craig Sylvester



Hunt's Donut Shop in San Francisco by Kaplan and McLaughlin is adjacent to a BART station which would normally be surrounded by an iron grill fence. The owner's attempts to get approval from the Design Committee for a shop that would be both visible from and accessible to the plaza were unsuccessful until he hired architects. Their design as they describe it is "a simple wood and glass box featuring a mural of a donut rising out of a sea of coffee." It is sympathetic in scale to the plaza and extends its brick paving into the building.





Why steel joists were the right answer to this building need

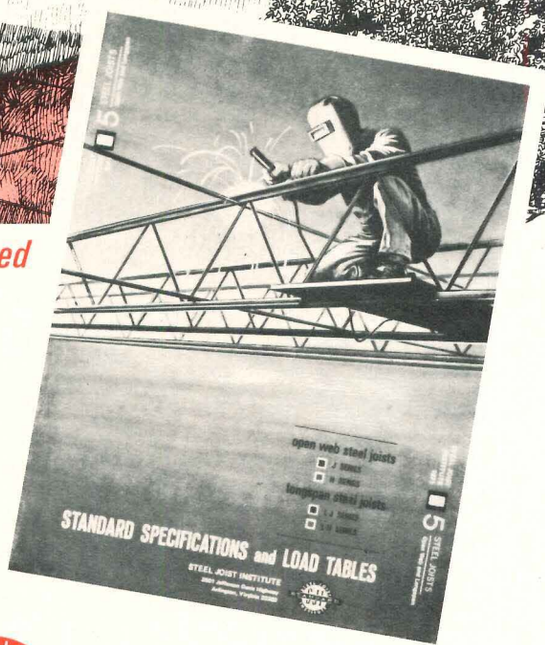
"THE WESTERLIES": STEEL JOISTS HELPED KEEP THE PRICE DOWN BUT THE LUXURY UP

Located in the highly affluent McLean, Va. area outside Washington, D.C., this 67-unit condominium complex with three condominiums per unit, offers residents the utmost in gracious living at moderate cost. The key to economy was total planning and judicious use of design, construction and material selection . . . including versatile, cost-cutting steel joists.

First floor construction includes open web steel joists, J-series, 12″ deep, space at 24″ centers with horizontal bridging. Drywall ceiling is attached to the bottom chords, and 3″ batts of fiber glass insulation are installed over the ceiling and between the joists.

"We chose this type of floor construction," stated Richard Collins of architects-engineers Collins and Kronstadt, "to provide 2-hour fire resistance rating and reduce sound transmission. We also used the open webs for easy passage and concealment of pipes, wiring, ducts and conduits within the floor depth, for installation economy."

Want to learn more about open web steel joists and their value to modern construction? Write for new edition of Specifications and Load Tables for Open Web Steel Joists and Longspan Steel Joists. Mail coupon for your free copy.



STEEL JOIST INSTITUTE
2001 Jefferson Davis Highway
Arlington, Virginia 22202

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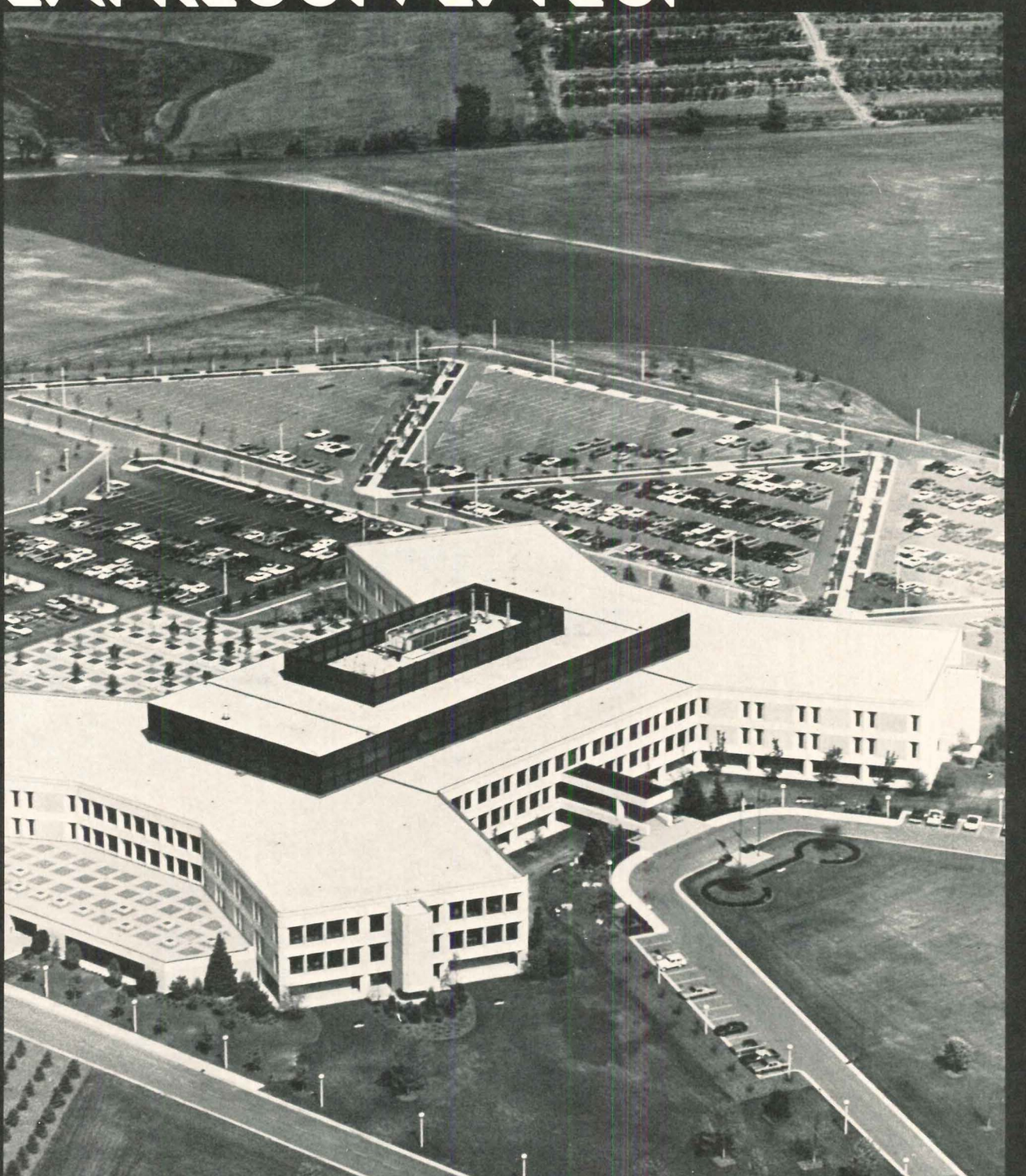


Kemper Insurance Group Corporate Offices, Long Grove, Illinois.
Architects: Welton Becket and Associates, continuing the practice of Childs & Smith, Inc., Chicago.
Structural Engineers: Alfred Benesch & Co., Chicago.
Contractor: W. E. O'Neil Construction Co., Chicago.

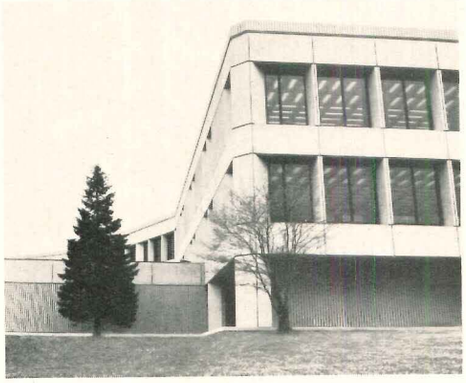
EXPENSIVE. NO.

More than a building—a planned environment.

Visualize a building site surrounded by 600 rolling acres of beautiful countryside. Suppose you had to design the corporate headquarters for the Kemper Insurance Group near Long Grove, Illinois. Your client wants a total planned environment—manmade lakes, wildlife refuge, parking areas shielded from view, with the building in harmony with its natural surroundings. Of course, he is concerned with costs, earliest possible occupancy, and due to the nature of his business, vitally concerned with fire safety. What's your solution? Compare it with the architect's choice: an expressive design, strikingly realized in reinforced concrete.

Cast in place to keep costs in line.

One of the design goals was to keep the massive structure low in proportion to the natural site, and give it a human scale. Four wings are angled obliquely from the rectangular main portion of the building. Earth-tone concrete using buff cement, with exposed aggregate panels between reinforced concrete structural members, provides visual harmony with the surroundings. Columns, mullions, and spandrels form a frame for recessed windows. In some instances, precast fluted concrete panels replace the windows. This design freedom was made possible by cast-in-place reinforced concrete columns (4,000 psi strength) and waffle-slab joist floors (complete waffle-slab designs can be selected from CRSI Design Handbooks to conform to latest codes.)



Detail of interesting exterior with exposed reinforced concrete sandblasted for texture.

The 500,000 square feet of interior space consists of free-flowing, large-bay areas. Here again, reinforced concrete construction, using Grade 60 rebars, delivers more usable, more flexible floor space. Proof that expressiveness can go hand-in-hand with economy is shown by the final cost of $6.51 per square foot for the reinforced concrete structural frame. More than 2000 tons of rebar were used.

How to insure a maximum fire rating.

Naturally enough, the Kemper Group specified that its own corporate headquarters must have the highest fire rating attainable in light of current technology. The high fire rating required was provided by use of a 4-inch lightweight concrete topping on all structural slabs. And all other materials were carefully chosen for fire resistance or given special flame-retardant treatment.

Finishing up with months to spare.

The speed and ease of construction with cast-in-place reinforced concrete, plus the immediate availability of rebars, are once again demonstrated in the Kemper complex. All phases of construction proceeded smoothly and the structure was completed a full five months ahead of schedule. Figure that in rent and depreciation savings! Contributing to this time-saving, money-saving performance was the use of Grade 60 rebars in straight lengths with simple lap splices.

Grade 60 and the benefits of Strength Design.

Grade 60 reinforcing steel permits complete utilization of Strength Design. Its 50% greater yield strength enables the designer to plan for slimmer columns, more usable floor space, and lower construction costs.

Reinforced concrete: expression without the expense.

Get away from the stereotypes and into the building system that has it all: design freedom, fast construction and early starts, less maintenance, proven economy. Cast-in-place reinforced concrete lets the imagination soar, while budgets stay down-to-earth.

Send reader service card for further technical data.

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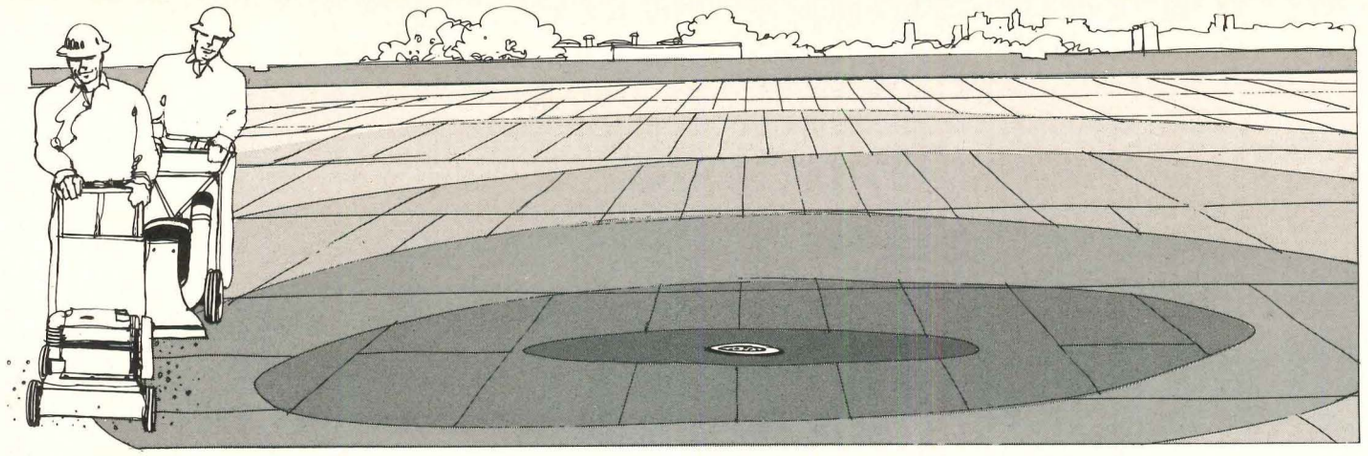

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*Trademark of Johns-Manville Corporation.

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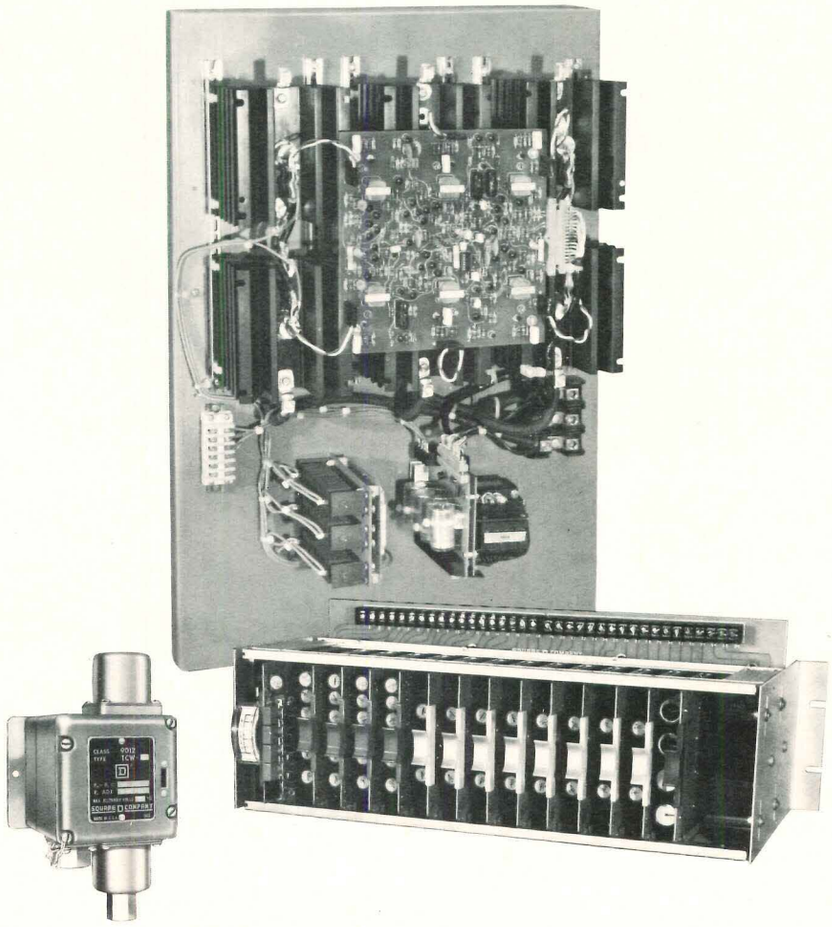

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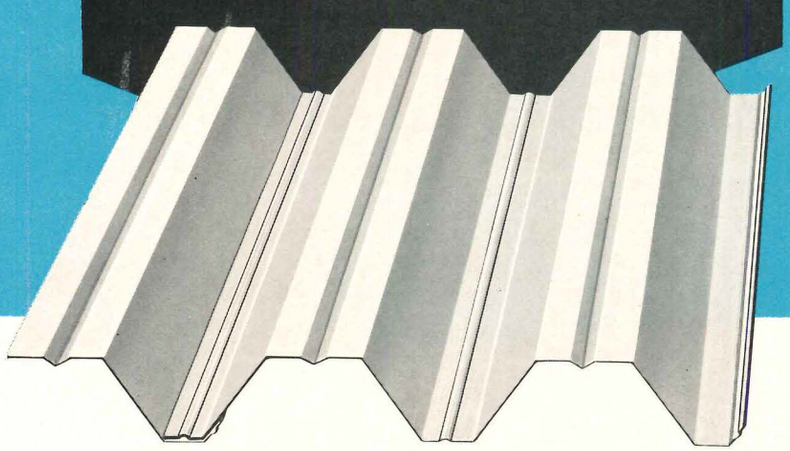

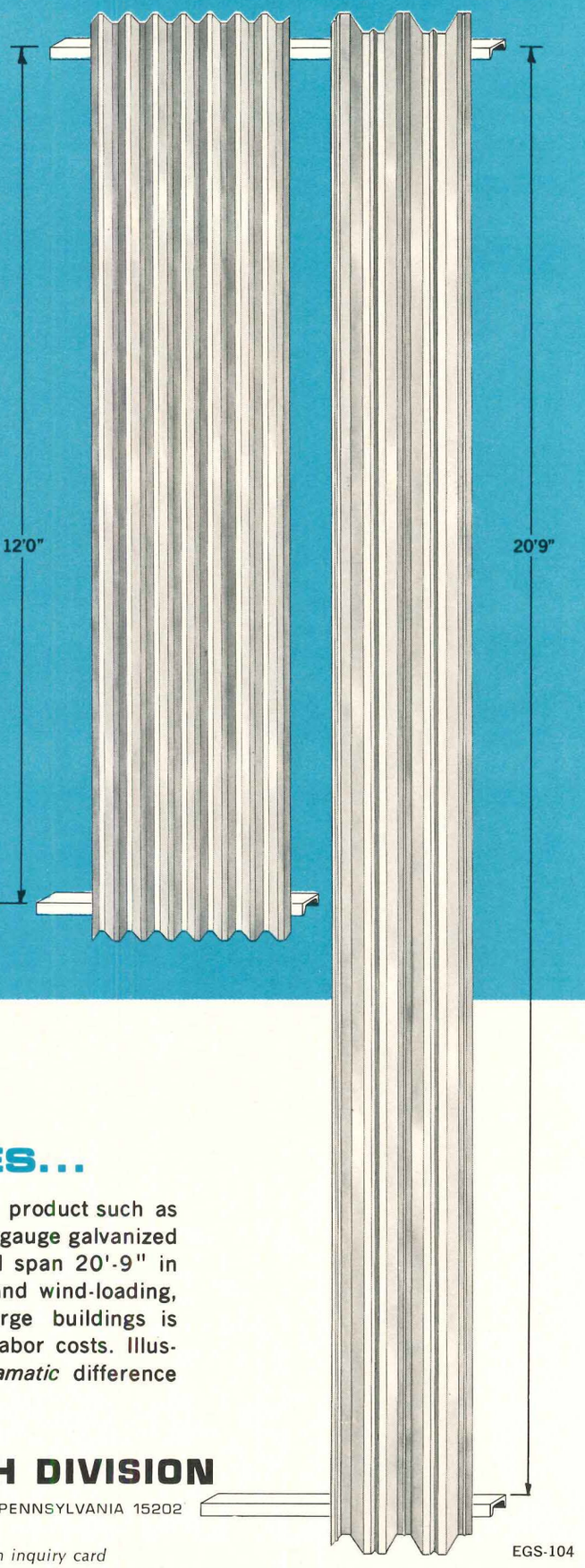

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EGS-104

New approaches to liability and legal service costs

Following are two essays by Justin Sweet, professor of law, University of California, Berkeley. Each suggests a different mode of group action on the part of professionals and others in the building design and construction fields. Both are timely against a background of increasing group activity, not only among professionals in their attempts to solve liability insurance problems, but also among labor unions which are gaining wider experience with both local and national legal cost insurance programs.

Professor Sweet's first essay proposes just such new methods for securing legal services for architects and engineers, not only against the crisis situations of "third party suits" so hazardous today, but also for firm organizational matters, contractual agreements, tax advice and other items for which small firms, especially, may have had misgivings as to the cost of legal service.

The second essay offers another approach to reduced liability, also by the concerted action of professionals, but in this case as organized citizens seeking amendments to Workmen's Compensation laws to preclude third party action by workmen against multiple participants in construction projects, including architects and engineers.

Professor Sweet is author of the book, "Legal Aspects of Architecture, Engineering and the Construction Process," published by West Publishing Co. ($13.50) and reviewed by George Simons, RECORD, October, 1971.

Reduce nuisance claims by amending compensation laws

Some recent case decisions have held the architect liable for construction-connected injuries resulting from unsafe construction methods. Liability is rested principally upon the architect's power to condemn defective work and stop performance. To meet this expanded liability, the architectural profession has included in its contract forms, language which attempts to make it clear that the contractor has the responsibility for construction methods.

Whether such contractual attempts will succeed is uncertain. Another process to reduce liability has been ignored by the architectural profession.

Most victims of construction accidents are workers on the project. An injured worker usually recovers workmen's compensation benefits from his employer's compensation insurance company. Often he sues any persons *other than his employer* whose action or inaction in some way caused the injury. For example, an injured employee of a subcontractor often sues the prime contractor, other subcontractors, the architect, the engineer and the owner. In addition, if his injury appears to have been caused by defective material or equipment, he often sues the manufacturer or supplier of the material or equipment.

The multitude of defendants causes a complicated lawsuit. The legal action becomes even more complicated because of indemnification. Typically, an owner who is sued will seek indemnification from the architect and the prime contractor. The architect often seeks indemnification from the prime contractor and sometimes the owner. The prime contractor often seeks indemnification from the subcontractor. The result is a hopelessly complicated lawsuit.

Note that the injured employee *does not* sue his own employer. To understand the reason for this, it is necessary to review briefly the history of Workmen's Compensation laws.

Prior to the enactment of these laws, injured industrial workers had great difficulty in recovering for their injuries. The worker had to establish negligence on the part of his employer, often a difficult thing to do. Even where the worker could establish negligence, he would lose if it could be established that he had knowingly assumed the risk of the injury, or was guilty of contributory negligence, or if the injury occurred because of the negligence of a co-employee. As a result, many injured workers were uncompensated.

Workmen's Compensation laws were designed to give the injured industrial worker a quick and certain compensation for work-connected injuries. He only had to show that he was injured in the course of his employment.

Workmen's Compensation laws often involved legislative compromise. For example, to compensate the employee for taking away defenses employers had prior to the enactment of Workmen's Compensation, these laws typically limited the employee to his Workmen's Compensation remedy against his own employer. The injured employee could not bring a tort action based upon negligence against his own employer. In addition, those who developed the Workmen's Compensation system wanted a closed system which would keep such matters out of the courts.

But despite the desires for a comprehensive or closed system, workers were permitted to sue *third parties* whose negligence or defective products caused his injury. The industrial worker has difficulty finding third parties he can sue. Perhaps he can sue the manufacturer or supplier of any defective material or equipment involved in his injury, but third party claims have been uncommon in industrial accidents.

On the other hand, the injured construction worker finds a more fertile field for third party actions because of the number of different parties involved in a construction project. While laws affecting the results vary somewhat from state to state, the injured construction worker usually has the option of suing other contractors on the project, the architect, the engineer, the owner and suppliers or manufacturers of defective material or equipment. The only person he cannot sue is his own employer.

In some states, injured employees of subcontractors cannot sue the prime contractor. This is because of "subcontractor under" statutes. Such statutes make the prime contractor "the statutory employer" of subcontractor employees. The injured subcontractor employee often can bring a Workmen's Compensation claim against the prime contractor under these statutes. The corollary is that in some states the statutory employer cannot be a defendant in a third party action.

Indemnification further complicates

workmen's compensation claims. Typically, there is a chain of indemnification clauses starting from the owner and ending with the smallest subcontractors. Through such indemnification the employer of the injured employee may have to ultimately bear the loss in the tort claim despite Workmen's Compensation laws precluding the injured employee from suing his employer.

A few states preclude third party actions against those in a common employment. For example, in Massachusetts, ordinarily an injured employee of a subcontractor cannot bring a third party action against another subcontractor or the prime contractor on the project.

Employee claims can be substantially reduced by amending Workmen's Compensation laws to preclude third party action against participants in the construction project, including architects and engineers.

Proposals of this type would encounter opposition. Lawyers who make their living from third party injury claims would oppose curtailing such actions. Also, some believe that Workmen's Compensation laws do not provide an adequate remedy and that third party claims can supplement deficient awards in order to adequately compensate the injured worker. For this reason any proposal for limitation of third party rights must be accompanied by legislative change which would make Workmen's Compensation awards adequate.

Architects and contractors, the main defendants of third party actions should join forces to make an adequate and fair Workmen's Compensation program the exclusive remedy for construction injuries to workers.

New methods of securing legal services

Law and legal institutions play an increasing role in the professional lives of architects and engineers. Professional liability is expanding. A troubled economy means a greater likelihood that an architect will have to use the legal system to collect his fee. Mechanics' lien laws, public land use controls and licensing laws often require contact with the legal system. It is important that architects and engineers obtain quality legal services at a cost they can afford.

Traditionally, professional people seek legal advice only when they are in trouble and feel they cannot handle the matter themselves. While lawyers do play a significant role in planning, i.e., drafting and reviewing *important* contracts, partnership agreements and incorporation papers, generally architects and engineers seek legal advice when they must go to court.

This reluctance to consult lawyers except in a crisis often is due to the fear of high fees. Young architects whom I have taught often tell me that I taught them when they *should* seek legal advice, but they simply cannot afford it. Fear of high fees is not always justified. Architects may not realize that some lawyers base their fee on ability to pay, with the expectation that when the architect is more prosperous he will continue to use them. Yet it is clear that many architects do not seek needed legal advice.

There is another reason why architects often hesitate to use a lawyer for organizational services. When an architect is sued for a specific sum or sues for his fees, he knows what is at stake and he knows not only that he must have legal service but that the stakes are high enough to justify the fee. However, in organizational matters, such as drafting partnership agreements or professional service contracts, it is difficult to know how to place a dollar value on the legal services.

Finally, architects are fearful that the unscientific way a client often selects his lawyer (by reputation or through the yellow pages) will bring them an attorney who does not understand their problems or is not skilled in the matters vital to them.

We need more efficient methods of furnishing legal services to architects and engineers. Modern methods of obtaining medical services are a useful analogy.

The medical clinic, with a high degree of specialization and efficiency, provides the patient with almost complete service. Also, there is an increased use of large scale group health plans under which the subscriber pays a fixed monthly amount plus a small amount for each visit.

Finally, the medical profession is at last recognizing that far more general benefit can be accomplished by a comprehensive program of preventive medicine through public health controls than by occasional spectacular operations. We admire the skill by which highly specialized doctors perform operations that have never been performed before. Yet such operations affect a small number of people and come at an extraordinarily high cost. Some of that cost might be better spent by comprehensive use of public health to reduce or eliminate disease and accidents.

There have been modest changes in the way the legal profession has performed its work. For example, many large institutions are finding it more efficient to have salaried lawyers on their staff who are close at hand, are familiar with their problems and can perform fast and efficient service at a calculable cost.

Legal service to the poor is another illustration of a shift in legal services. One interesting aspect of this type of practice is the increasing tendency to periodically use communications to inform the poor of their legal rights in terms they can understand.

Groups of clients with similar needs and resources can be the instrumentality by which better legal services can be obtained. For example, suppose a group of architects or engineers banded together to secure legal services. Such a group could enter negotiations with a law firm with the present or potential expertise in legal matters most relevant to architects and engineers. Such negotiations would culminate in a "master" or "group" contract for furnishing legal services. This contract would encompass the types of services to be performed and methods of financing these services.

The law firm would provide group members with well trained personnel who would assist them in drafting or reviewing partnership agreements, incorporation papers, standardized and specialized contracts and give them advice in tax matters.

A vital aspect of group practice would be the periodic audit. The analogy to the medical profession is again useful. There is an increasing tendency for group health plans to provide a low cost, yearly physical examination for all its members.

An audit could be done once or twice a year. It could consist of the auditing team reviewing agreements used by the client. The team could check selected files to see if matters were and are being handled properly. The team would check for compliance with the multitude of laws applicable to architects who have employees. For example, architects and engineers often get into difficulty because they do not pay their employees time and a half for overtime under the Fair Labor Standards Act.

The auditors would also look to see whether the group member has adequate public liability insurance, professional liability insurance, property damage insurance and workmen's compensation insurance.

The group members could pay specified monthly amounts for these services. The amount could be determined by the gross billings of the firm or by the number of the employees. Such a monthly payment would enable the firm handling legal matters for the group to develop an adequate library, to build and train an adequate staff of lawyers, and to provide for the overhead which such service would entail.

In addition to the monthly fee, group members would pay a designated amount for specified legal services such as reviewing contracts, handling litigation, providing periodic audits, etc. The monthly amount, if large enough, could mean that certain types of services will be provided without additional charge. If the amount specified for the monthly fee is small, then this would mean a higher charge for designated services. Much depends upon the size of the group and range of services furnished to it.

We must broaden the service and planning aspects of legal services and provide a financing mechanism which will enable group members to receive these services at a cost they can afford. (Some labor unions are starting to use a prepaid legal fee insurance with payments deducted from their wages.) Interested architects and their professional associations should take the lead in developing such a group legal services program.

LIABILITY ?

ADVANTAGES OVER ROOFING BOND ?

EXCLUSIONS ?

COVERAGE ?

COST ?

OWNER BENEFITS ?

Answers to your Questions about the new Barrett roof inspection & service program.

Recently, we conducted a series of interviews with architects all across the country to determine their awareness of the advantages and benefits the new Barrett Roof Inspection and Service Program offers to building owners. The questions and answers on the following pages represent a composite of these interviews. We hope they will be helpful to you.

THE CELOTEX CORPORATION

Answers to your Questions about the new Barrett roof inspection & service program.

NO MONETARY LIMIT

Q *How does the new Barrett Roof Inspection and Service Program differ from the 20-year bond plan which has been so widely specified for so many years?*

A The most important difference is the amount of liability which Celotex assumes. The old standard 20-year bond limits the manufacturer's liability to a total of $10 per square during the entire 20-year period. Under the new program, there is no limit to the amount Celotex will pay, during the entire period of the contract, to correct leaks due to causes covered in the contract.

Let's use a practical example to illustrate the difference. You have a 20,000 square foot roof. A series of leaks develops and it is determined that the roofing manufacturer is to pay the cost of repair. Under the old bond plan, our maximum liability is $2,000. When that $2,000 has been expended, there is no further monetary liability, regardless of the bond issue date. Under the new contract, Celotex would pay for repair of all leaks covered, during the full period of the contract.

The new program also differs from the old bond plan in period of coverage, in cost, and offers additional inspection service.

Q *What is the period of coverage under the new program?*

A The contract covers a period of 10 years. It also gives the owner option to renew for an additional 10 years, if he makes recommended corrections and preventive repairs to the structure and to the roof, which our inspector determines are necessary to put the roof in satisfactory condition for continued good performance. This feature provides a valuable service which the bond did not offer: at no cost, at the end of 10 years, the building owner receives a roof inspection and recommendations which conceivably could help him avoid costly trouble. He can then elect to renew or not renew the contract.

$3 PER SQUARE FOR FIRST 10 YEARS

Q *What does the building owner pay for coverage under your new program?*

A Cost for the initial 10 years is $3 per square. Cost to renew the contract for a second 10-year period will be two-thirds of the charge for the initial 10-year period in effect at that time.

Cost of the new program, for the initial period, is the same as the current cost of the old 20-year bond—yet the new plan provides additional inspection service and has no monetary limit on leak-repair costs. When compared to the cost of the bond and to the cost of independent inspection services—which do not provide monetary guarantee in case of leaks, or continuing inspection service—our new program is obviously the best investment of all.

Q *How does the owner benefit by renewing the contract for a 10-year period? Why not just make recommended repairs, if any, and save the cost of renewing?*

A If no problems are indicated, he may be saving money by not renewing. If he renews, however, he gets all the original benefits for another 10 years: unlimited manufacturer liability in case of leaks due to covered causes; free inspections should leaks occur; and free inspection and recommendations, on request, when alterations or additions are contemplated.

Q *What other services and inspections are included in the new program?*

A To begin with, on request, a qualified Celotex representative will review plans and specifications, attend pre-job meetings, and make recommendations. During application and after completion, inspections will be made and notice of inspection will be sent to the architect or owner. When the roof is two years old, another inspection will be made. And we'll make the 10-year inspection and recommendations, if requested, at no charge, even if the contract is not renewed.

COVERS MATERIALS AND APPLICATION

Q *Does the Celotex liability apply to repair of leaks caused by faulty application, as well as to leaks due to defective roofing materials?*

A Yes. The new contract clearly states that Celotex will pay all costs of repairs necessary to correct roof leaks resulting from errors in workmanship of roofing contractors in applying Barrett roofing membrane and flashing materials. It also covers leaks due to failure of those materials resulting from usual and ordinary wear and weather. This liability does not apply to errors in building design or construction.

Q *Does your guarantee include expansion joint covers?*

A Yes, it includes the Barrett Expansion Joint Shield when installed in conjunction with a roof that is covered by our contract. It does not cover any other expansion joint cover even though that cover is installed by a Barrett Approved Roofing Contractor on a roof where Barrett roofing membrane and flashing are covered. To our knowledge, Celotex is the only manufacturer offering a guarantee-type plan that includes an expansion joint cover.

Q *If I specify a reputable brand of roofing materials, and the general contractor retains a reputable roofer, isn't that sufficient assurance of good roof performance? Why should my clients spend the additional $3 per square?*

A It is true that under those conditions you minimize the risk of leaks due to faulty materials or application. Our roofing materials are produced totally by machine under quality control methods, and there is very little risk of their failing. On the other hand, application of these materials is largely manual and the chance for leaks due to human error is far greater.

No matter how good the roofing contractor's reputation is, or how dedicated he is to doing a first-class job, one of his workmen can make an error, or fail to follow an instruction, or neglect to follow some requirement of the specification, and a leak can result. The Barrett contract protects the owner against cost of repairing leaks resulting from this situation.

As with most types of insurance, the buyer hopes he will not have to collect, but the nominal cost makes it a wise investment in protection.

OFFERS MOST RELIABLE PROTECTION

Q *Does your on-the-job inspection insure proper application and adherence to specifications?*

A Certainly the purpose of our inspections is to assist the contractor in making sure the roof is being applied as specified. No inspection, of course, can include every minute of time for every workman and every square foot of the roof during application. An error can occur on any roof, no matter how diligent the inspector. Under our program, chances for these errors are minimized in two ways: (1) the two-party inspections, ours and the contractor's, (2) the fact that only Barrett Approved Roofing Contractors are authorized to apply our guaranteed roofs. Contractors must meet the highest industry standards to qualify for approval.

Q *Why should the building owner buy an inspection and service contract to protect against the possibility of leaks due to faulty application? Doesn't the roofing contractor bear a responsibility for good workmanship?*

A In some localities the roofer has a written obligation to repair leaks due to faulty application during the first two years after completion, but no liability of any kind after the first two years. Some roofers accept responsibility for their work for two years or even longer, but do not enter into a written agreement. In short, there is no standard industry practice. During a 10-year period, a roofing firm may change management and policies.

Experience has proved that the most reliable protection for the building owner is a long-term guarantee by an established roofing manufacturer. Barrett introduced the roofing bond in 1916, and all major manufacturers adopted the same type of plan. We have paid out many millions of dollars to owners of Barrett-bonded roofs for repair of leaks. This new Barrett Roof Inspection and Service Program is an updated version of the bond plan, with additional owner benefits.

Q *One of our large clients has thousands of squares of built-up roofs installed annually. Wouldn't it be to his advantage to set up a $3 per square reserve fund for possible repairs, rather than buy your inspection and service contract?*

A It could work out that way. He may never have to spend any money for repairs due to faulty application or materials, and he would have saved the contract fee. On the other hand, one serious leak problem could wipe out his entire fund. What you are suggesting amounts to an underwriting plan with very little leverage. There would be no opportunity to spread repair costs against fees from a large number of owners as is normally done under insurance-type programs. Being his own underwriter could end up being a very uneconomical choice.

TYPE OF LEAKS NOT COVERED

Q *What types of leak problems are* not *covered by your contract?*

A The contract plainly states that Celotex is not liable for leaks or damage caused by: natural disasters such as hurricanes, hail or windstorms; or by structural failures; or by changes in building uses unless approved in advance by Celotex;

(CONTINUED)

(SEE PRECEDING PAGES)

Answers to your Questions about the new Barrett roof inspection & service program.

or by additional installations on or through the membrane, or repairs to roofing or flashing membrane, after completion, unless accepted by Celotex. Nor is Celotex responsible for damage to interior, building contents, roof insulation or deck over which roofing membrane is applied.

Q. *How will it be determined whether a leak is due to errors in application, faulty materials, structural movement or other causes?*

A When we are notified that a leak has occurred, a Celotex representative will inspect the roof. The architect and owner may be present or represented. In most cases, the cause of leaks will be readily apparent. For example, leaks through openings in the plies in an area where there is no evidence of structural movement, or leaks through blisters which may have ruptured due to drying out, would be ascribed to improper application and cost of repairs would be paid by Celotex. If the trouble is due to structural movement, evidence is usually equally apparent. If a flashing has broken away from a wall in which there are severe cracks, the cause is obviously building movement and is not covered.

Q. *Do other roofing manufacturers offer this new-type contract?*

A A number of other major manufacturers offer inspection and service contracts that are close enough to the Barrett contract to qualify for acceptance in your "or equal" specification. The cost, periods of coverage, and renewal options are essentially the same. There is, however, one notable exception: the Celotex guarantee is the only one, to our knowledge, that includes an expansion joint cover—the Barrett Expansion Joint Shield.

OLD-TYPE BOND STILL AVAILABLE

Q. *Does Celotex still offer the old-type roofing bond?*

A Yes. Even though we strongly feel that our new Barrett Roof Inspection and Service Program is a far better program for building owners, we will continue to offer the bond as long as necessary from a competitive standpoint. Also, many existing specifications calling for "bonded roofs" were written before the new program was developed, and Barrett Approved Roofing Contractors must be kept in position to bid these jobs.

IF ROOF INSPECTION AND SERVICE PROGRAMS WERE FREE . . .

chances are that architects and building owners would insist they be included in *every* specification. Therefore, the added cost would seem to be the determining factor in deciding whether or not guarantee-type coverage should be specified. *What is the added cost* of the Barrett Roof Inspection and Service Program in relation to total building cost?

	SCHOOL 2 floors 100 MSF	HOSPITAL 6 floors 180 MSF	FACTORY 1 story 100 MSF	OFFICE BUILDING 10 floors 200 MSF
Sq. Ft. Cost of Building	$24.	$45.	$14.	$18.
Total Cost of Building	$2.4 million	$8.1 million	$1.4 million	$3.6 million
ADDED COST FOR 10-YEAR BARRETT PROGRAM*				
Total at $3 per 100 Sq. Ft.	$1,500	$900	$3,000	$600
Per Sq. Ft. of Building	1½¢	½¢	3¢	3/10¢

*10-YEAR BARRETT ROOF INSPECTION AND SERVICE CONTRACT PROGRAM

The actual added cost for the Barrett Roof Inspection and Service Program is small. It is relatively insignificant in the total sq. ft. cost of the building. When consideration is given to the period covered (10 years) and the no-monetary-limit feature, the program is indeed extremely low cost protection.

We'll welcome your request to have a Celotex representative tell you more about the Barrett Roof Inspection and Service Program and supply you with data on Barrett roofing products and systems . . . "everything from the deck up."

CELOTEX®
BUILDING PRODUCTS

THE CELOTEX CORPORATION
Tampa, Florida 33607
Subsidiary of Jim Walter Corporation

For more data, circle 34 on inquiry card

THE CELOTEX CORPORATION

BARRETT
ROOF INSPECTION AND SERVICE CONTRACT

NO. C000

THE CELOTEX CORPORATION, UNDER THE PROVISIONS STATED HEREIN, WILL PROVIDE INSPECTION AND REPAIR SERVICE TO THE BARRETT ROOF DESCRIBED BELOW FOR A PERIOD OF TEN (10) YEARS FROM DATE OF COMPLETION.

Owner: _____

Building Description: _____

Location: _____

Roof Specification No.: _____ **Flashing Specification No.:** _____

Area of Roof Under Contract: _____

Lineal Ft. of Flashing Under Contract: _____

Date of Completion: _____

Roofing Contractor: _____

COVERAGE

The Celotex Corporation will pay all costs of repairs necessary to correct roof leaks resulting from the following causes:

1. Deterioration of Barrett roofing membrane or Barrett base flashing resulting from usual and ordinary effects of wear and weather.
2. Errors or mistakes in workmanship of roofing contractor in applying the Barrett roofing membrane and Barrett base flashing.
3. Blisters, bare spots, buckles, wrinkles and ridges, in the roofing membrane.
4. Splits in roofing membrane or base flashing except as excluded below.
5. Damage to roofing membrane or base flashing resulting from extreme fluctuations in temperature.
6. Breaks in flashing strips over gravel stop or other metal flanges.
7. Slippage of roofing membrane or base flashing.

EXCLUSIONS

The Celotex Corporation will not be responsible for leaks or consequential damage caused by any one or combination of:

A. Natural disasters including but not limited to floods, lightning, hurricanes, hail, windstorms, earthquakes, tornadoes.

B. Structural failures such as settling, shifting, distorting, splitting or cracking of roof decks, walls, girders, partitions, foundations, etc.

C. Improper application or failure of any component underlying the roofing membrane or base flashing such as deck, roof insulation, vapor barrier, etc.

D. Changes in the original principal usage to which building is put unless approved in advance in writing by Celotex.

E. Erection or construction of any additional installation on or through the roofing membrane or base flashing after date of completion unless installed in a manner prescribed and accepted by Celotex.

F. Application of or repairs to roofing membrane or base flashing after date of completion unless done in a manner prescribed and accepted by Celotex.

G. Under no circumstances whatsoever shall Celotex be liable for damage to interior, contents of building, roof insulation, roof deck or other base over which roofing membrane or base flashing is applied.

ACTION

In the event leaks from any cause should occur, owner shall notify Celotex promptly, confirming such notice in writing. Celotex will inspect the roof, and if cause of leak is within the coverage as stated above, Celotex will arrange for repairs to be made at no cost to owner. If cause of leak is not covered, Celotex will not be responsible for cost of any repairs.

RENEWAL OPTION

At the end of the initial ten (10) year period, the owner shall have the option to renew this contract for an additional (10) ten years under the following conditions:

During the tenth year of this contract, if the owner of the building so requests, Celotex will make an inspection of the roof and issue to the owner a report on the condition of the roof outlining any and all maintenance work that should be done. This inspection by Celotex is free of charge and without obligation.

If the owner elects to exercise his option to renew this contract, he shall have the maintenance work described in the report performed at his cost by a roofing contractor acceptable to Celotex and will notify Celotex upon the completion of this work. Maintenance work required must be completed no later than 90 days after expiration date of this contract.

Upon payment of a charge which shall not exceed 2/3 of the then current initial service fee being charged by Celotex, the roof will be reinspected by Celotex and, if found to be acceptable, this contract will be extended for an additional ten (10) year period.

Celotex makes no guarantees of any kind, express or implied, except as herein stated.

By E A Franklin
Attorney-in-fact

The Celotex Corporation • 1500 North Dale Mabry • Tampa, Florida 33607
Subsidiary of Jim Walter Corporation

CURRENT TRENDS IN CONSTRUCTION

James E. Carlson
Manager, Economic Research
McGraw-Hill Information Systems Company

What's next for office building?

Office building was the great "gee whiz" category of the late 1960's. We built more of them than ever before, taller than ever before, with more space than ever before, and at a faster rate than ever before. 1967's *20* per cent contracting gain was bettered by 1968's *30 per* cent contracting gain, which, in turn, was topped by 1969's *45* per cent contracting gain.

The rationale for a strong office building market is not hard to find:

▪ First, there has existed a *backlog of demand* for "decent" office space ever since the highly depressed office building era of the thirties and early forties. This pool has shrunk or expanded during the post World War II period, depending on the rate of new office construction, but has always been with us to one degree or another.

▪ In addition, there has developed a strong *relocation demand.* Firms have shifted their home base of operations in response to shifting job or product markets. And these shifts have been made easier by improved transportation facilities. The Interstate highway building program turned a number of previously inaccessable areas into desirable commercial locations.

The search for better working conditions was also a factor in relocation demand. Many firms have opted for the quiet of pastoral suburban or exurban settings, pushing office construction out into the cornfields and feedlots.

Accessability to recreational facilities has been another factor in this regard. It was assumed by some boards of directors that the executive with easy access to leisure-time activities *off* the job is the more productive executive *on* the job.

While these factors point out why the office construction has been generally strong over the long pull, they do not explain why there was such a massive burst of activity in 1967, '68, and '69. For a better understanding of this particular period, we must examine still another source of office construction, the growth of *net new demand.* The burgeoning economy of the 1960's created new jobs at an average rate of close to two million a year. But, more specifically, demand for white collar workers grew at a faster rate than labor demand generally. The compound growth rate of this group during the 1965-1970 period was over four per cent. And contrary to past trends, the clerical component of the office labor force outpaced the total during this period, indicating that the routine, "easy to automate" clerical processes have been largely exhausted by the massive application of business machines since the early 1950's.

A modern business still needs space for complex electronic machinery and ancillary facilities like business libraries too, though.

Also, the allocation of space for prestige facilities like corporate dining rooms and lounges has been a more frequent phenomenon recently. These are particularly important adjuncts to the new suburban and exurban office structures.

It's important to note too, that the sharp upward spiral of construction costs in the late sixties convinced many corporate executives that an office structure begun immediately, even if some space had to lay vacant for a while, was a better bargain than sitting on plans that grew more costly with each successive labor contract.

Growth in new office contracting stopped short once the decade of the seventies began, however, due, both, to the 1970 recession, and the fact that a significant regional market, the Northeast, was severely overextended. The Northeast was already tracking lower when the recession hit (see chart), and has yet to turn around.

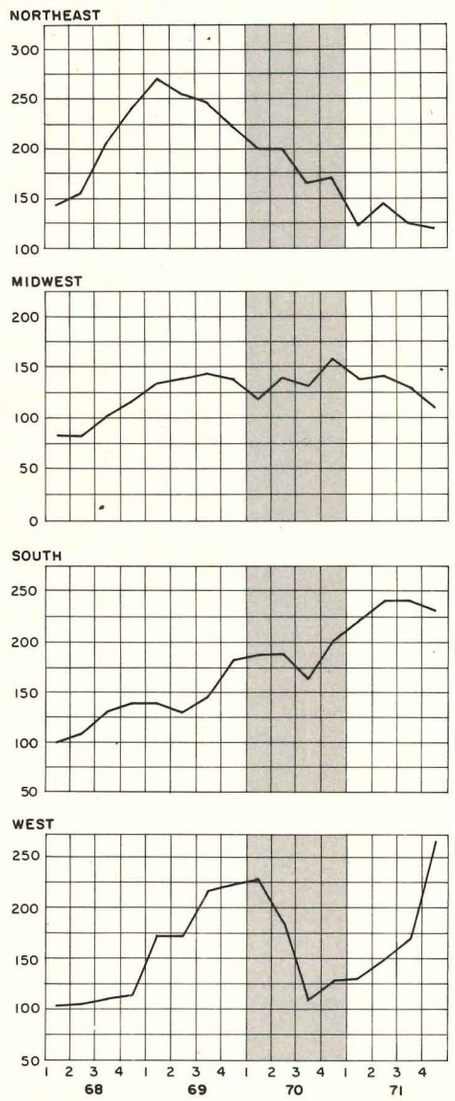
The Midwest weathered the 1970 recession with only a slight pause in activity, but joined the Northeast in tracing a downward pattern through 1971. The West and the South on the other hand, rebounded sharply last year. The net effect of these diverse regional trends was that the U. S. office contracting total for 1971 ended in pretty much of a standoff with the 1970 amount. And, so far, 1972 seems to be shaping up the same way with respect to 1971.

What's next?

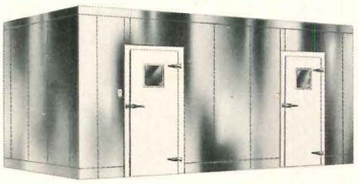
In general, the trends outlined above in the area of relocation demand are still with us in the 1970's. Also, it's clear from the trends in clerical employment, that, from here on out, any thinning of the ranks via the computer route is apt to be a slower process than it was a decade ago. And this is sure to bolster the demand for office space.

The key question for the near term, though, is, how long will it take for the Northeast to work off the current overhang of surplus space? The region, after all, accounted for one-third of the total value of office building contracts during the 1960's. A prolonged weakness in an area this large can put a severe crimp in the overall growth pattern.

The prospect of the region returning to peak 1969 levels in the near future is remote. There are indications that the downward spiral has stopped, however, with a possible turnaround in the works next year. The South and West, on the other hand, are unlikely to sustain last year's sharp gains over the short term. On balance, then, strong gains in the office category do not appear likely this side of 1975. Look for growth over the near term, but growth of the small-to-moderate variety.

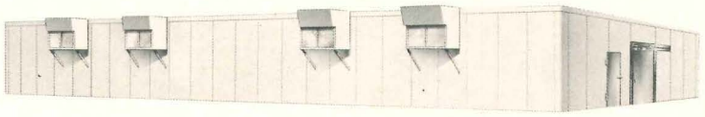


They love us in...



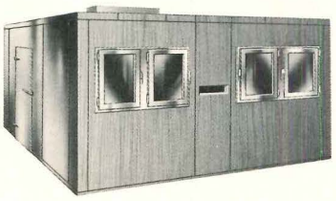
Notre Dame, Ind.

University of Notre Dame Athletic and Convocation Center
20′x10′ Combination Cooler/Freezer
Architect: Ellerbe Architects, St. Paul, Minn.
Dealer: Aslesen, Minneapolis, Minn.



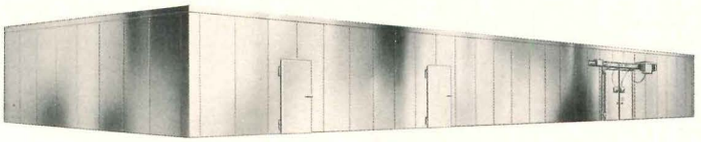
Washington, D.C.

Andrews Air Force Base
96′x36′x10′ Refrigerated Warehouse
Architect: Vollrath Refrigeration Inc., River Falls, Wis.
Dealer: Alto Inc., Alexandria, Va.



Los Angeles, Calif.

Straw Hat Pizza Palaces
12′x14′x8′4″ Reach-In Cooler
Architect: Design Services Inc., Menlo Park, Calif.
Dealer: Design Services Inc., Menlo Park, Calif.



Clearwater, Fla.

Pinellas County School Board
24′x98′x10′7″ Commodity Storage Cooler
Architect: R. D. Bateman Co., Tampa, Fla.
Dealer: R. D. Bateman Co., Tampa, Fla.

VOLLRATH WALK-IN COOLER/FREEZERS

Nationwide, Vollrath modular walk-ins have proven their quality and versatility. Pre-engineered, factory-built panels assemble to specified size on site, and may be easily disassembled to enlarge, relocate or to convert cooler to freezer. Panels are *full* 2 and 4 foot increments — not nominal measurements — to simplify layout and maximize cubic storage capacity. Fire retardant, 4″ thick foamed-in-place urethane provides superior insulating properties. With a choice of 5 interior and exterior finishes, plus the most complete selection of options and accessories, there's a Vollrath walk-in adaptable to your varied requirements. Specify Vollrath!

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INDEXES AND INDICATORS

Percival Pereira
Dodge Building Cost Services
McGraw-Hill Information Systems Company

SQUARE FOOT COSTS, 1971 BUILDINGS

The following tables of square-foot costs for various building types show total and systems (mechanical, electrical and built-in) costs. General construction costs per square foot can be calculated by subtracting systems costs from total.

Bank building costs

	SF Area	Total Cost/SF	Mech.	Elec.	Built-in
Genesee Co., Mi.	1344	31.62	5.60	3.31	
Reinholds, Pa.	2424	35.00	7.05	3.09	4.95
Knoxville, Te.	3100	32.65	4.58	2.77	0.80
DeKalb Co., Ga.	3910	36.63	5.37	5.93	1.50
(S&L) Rochester, Mn.	4548	49.00	7.22	5.07	4.63
Garnerville, N.Y.	5383	36.35	4.72	3.15	4.51
(S&L) Middletown, N.Y.	5868	38.81	9.18	4.06	6.98
Enfield, Ct.	6600	33.20	4.27	3.84	0.90
(S&L) Sun City, Az.	7700	41.15	3.30	3.47	2.34
Passaic, N. J.	12000	32.00	4.16	3.75	
Marion, Va.	14314	27.59	4.94	2.71	

Miscellaneous building types

Car wash, Ky.	4602	42.88	7.87	2.59	15.16
Restauraunt, Oh.	4200	45.24	7.14	4.28	9.52
Detention ctr., Va.	9280	36.03	7.99	3.69	1.78
Firehouse, Pa.	6006	21.62	3.57	2.49	
Juvnl home, Va.	9408	28.86	5.36	2.01	0.46
Co. adm. bldg., N.J.	65850	30.71	6.54	4.18	
Food mkt., Pa.	30000	18.43	3.40	2.66	0.50
Fast food str., Pa.	2730	19.95	3.16	1.95	
Laundry bldg., De.	22680	56.74	9.78	2.31	20.18
Freeze & stor., Ms.	40000	18.20	0.55	1.70	4.75
Whse. & showrm., N.Y.	70000	13.70	1.44	1.17	
Police sta., Ms.	2560	53.35	7.58	5.81	5.46

Office building costs

Phoenix, Az.	3400	27.19	5.22	4.26
Montgomery, Al.	4628	20.31	3.42	2.42
Montecito, Ca.	17017	27.18	4.90	2.68
Toledo, Oh.	18100	26.50	4.90	2.68
Muncie, In.	72733	33.12	9.39	4.92
Raleigh, N.C.	124,357	31.60	6.09	2.85

1941 average for each city = 100.00 (except as noted)

July 1972

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.3	377.2	354.2	369.4	360.1	+ 7.65
Atlanta	7.8	479.8	452.4	466.9	456.7	+ 6.31
Baltimore	7.9	396.3	372.6	385.3	375.1	+ 7.84
Birmingham	7.3	346.4	322.2	334.2	329.5	+ 8.41
Boston	9.0	383.8	362.6	380.2	369.1	+ 11.49
Buffalo	9.1	420.6	395.0	415.5	401.7	+ 9.72
Chicago	8.4	430.3	409.2	416.1	409.0	+ 8.27
Cincinnati	8.7	406.7	382.7	395.7	385.9	+ 7.59
Cleveland	9.3	422.6	397.7	412.9	403.1	+ 6.31
Columbus, Oh.	8.3	401.9	377.4	390.0	382.7	+ 6.42
Dallas	7.6	369.7	358.1	362.6	355.7	+ 7.08
Denver	8.1	404.3	380.4	399.6	385.8	+ 5.80
Detroit	9.5	423.1	403.1	422.6	406.8	+ 8.54
Houston	7.6	360.0	338.1	351.6	344.8	+ 5.38
Indianapolis	8.0	355.6	334.0	346.8	339.1	+ 7.45
Kansas City	8.1	354.7	335.3	345.1	337.9	+ 6.03
Los Angeles	8.2	418.4	382.5	406.7	398.5	+ 9.12
Louisville	7.7	375.4	352.6	367.7	359.3	+ 8.60
Memphis	7.7	359.6	337.7	347.7	341.8	+ 7.17
Miami	8.0	397.8	379.0	388.2	379.7	+ 6.92
Milwaukee	8.5	430.2	404.0	424.9	411.3	+ 6.29
Minneapolis	8.9	407.7	383.6	401.5	389.6	+ 9.93
Newark	8.9	375.7	352.9	370.4	361.3	+ 7.15
New Orleans	7.3	357.0	337.0	351.4	343.6	+ 7.25
New York	10.0	417.5	388.2	404.6	394.5	+ 7.46
Philadelphia	8.7	400.1	381.2	393.1	383.8	+ 10.79
Phoenix (1947=100)	7.9	215.4	202.3	207.9	204.5	+ 10.11
Pittsburgh	8.8	370.1	348.2	363.3	352.8	+ 8.00
St. Louis	8.7	392.1	370.1	387.1	375.1	+ 7.27
San Antonio (1960=100)	7.6	145.9	137.1	142.5	139.1	+ 1.99
San Diego (1960=100)	8.0	150.7	141.6	147.7	144.3	+ 7.53
San Francisco	9.3	548.8	501.7	545.2	527.1	+ 11.47
Seattle	8.6	374.0	334.8	370.5	356.4	+ 4.86
Washington, D.C.	7.8	356.1	334.5	345.5	338.0	+ 7.97

Cost differentials compare current local costs, not indexes.

HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES

1941 average for each city = 100.00

Metropolitan area	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971 (Quarterly) 1st	2nd	3rd	4th	1972 (Quarterly) 1st	2nd	3rd	4th
Atlanta	298.2	305.7	313.7	321.5	329.8	335.7	353.1	384.0	422.4	424.0	445.1	447.2	459.2	472.5	473.7		
Baltimore	271.8	275.5	280.6	285.7	280.9	295.8	308.7	322.8	348.8	350.3	360.5	362.5	381.7	388.1	389.3		
Birmingham	250.0	256.3	260.9	265.6	270.7	274.7	284.3	303.4	309.3	310.6	314.6	316.4	331.6	340.4	341.6		
Boston	239.8	244.1	252.1	257.8	262.0	265.7	277.1	295.0	328.6	330.0	338.9	341.0	362.0	377.3	378.5		
Chicago	292.0	301.0	306.6	311.7	320.4	328.4	339.5	356.1	386.1	387.7	391.0	393.2	418.8	422.8	424.0		
Cincinnati	258.8	263.9	269.5	274.0	278.3	288.2	302.6	325.8	348.5	350.0	372.3	374.3	386.1	399.9	401.1		
Cleveland	268.5	275.8	283.0	292.3	300.7	303.7	331.5	358.3	380.1	381.6	391.1	393.5	415.6	415.2	416.4		
Dallas	246.9	253.0	256.4	260.8	266.9	270.4	281.7	308.6	327.1	328.6	341.4	343.4	357.9	364.9	366.1		
Denver	274.9	282.5	287.3	294.0	297.5	305.1	312.5	339.0	368.1	369.7	377.1	379.1	392.9	398.3	399.5		
Detroit	265.9	272.2	277.7	284.7	296.9	301.2	316.4	352.9	377.4	379.0	384.6	386.8	409.7	416.9	418.1		
Kansas City	240.1	247.8	250.5	256.4	261.0	264.3	278.0	295.5	315.3	316.6	329.5	331.5	344.7	348.7	349.9		
Los Angeles	276.3	282.5	288.2	297.1	302.7	310.1	320.1	344.1	361.9	363.4	374.2	376.4	400.9	407.8	409.0		
Miami	260.3	269.3	274.4	277.5	284.0	286.1	305.3	392.3	353.2	354.7	366.8	368.9	384.7	391.5	392.7		
Minneapolis	269.0	275.3	282.4	285.0	289.4	300.2	309.4	331.2	361.1	362.7	366.0	368.0	417.1	401.7	402.9		
New Orleans	245.1	284.3	240.9	256.3	259.8	267.6	274.2	297.5	318.9	320.4	327.9	329.8	341.8	350.9	352.1		
New York	276.0	282.3	289.4	297.1	304.0	313.6	321.4	344.5	366.0	367.7	378.9	381.0	395.6	406.5	407.7		
Philadelphia	265.2	271.2	275.2	280.8	286.6	293.7	301.7	321.0	346.5	348.0	356.4	358.4	374.9	394.2	395.4		
Pittsburgh	251.8	258.2	263.8	267.0	271.1	275.0	293.8	311.0	327.2	328.7	338.1	340.1	362.1	364.5	365.7		
St. Louis	255.4	263.4	272.1	280.9	288.3	293.2	304.4	324.7	344.4	345.9	360.0	361.9	375.5	385.5	386.7		
San Francisco	343.3	352.4	365.4	368.6	386.0	390.8	402.9	441.1	465.1	466.8	480.7	482.6	512.3	535.3	536.5		
Seattle	252.5	260.6	266.6	268.9	275.0	283.5	292.2	317.8	341.8	343.3	347.1	349.0	358.4	363.0	364.5		

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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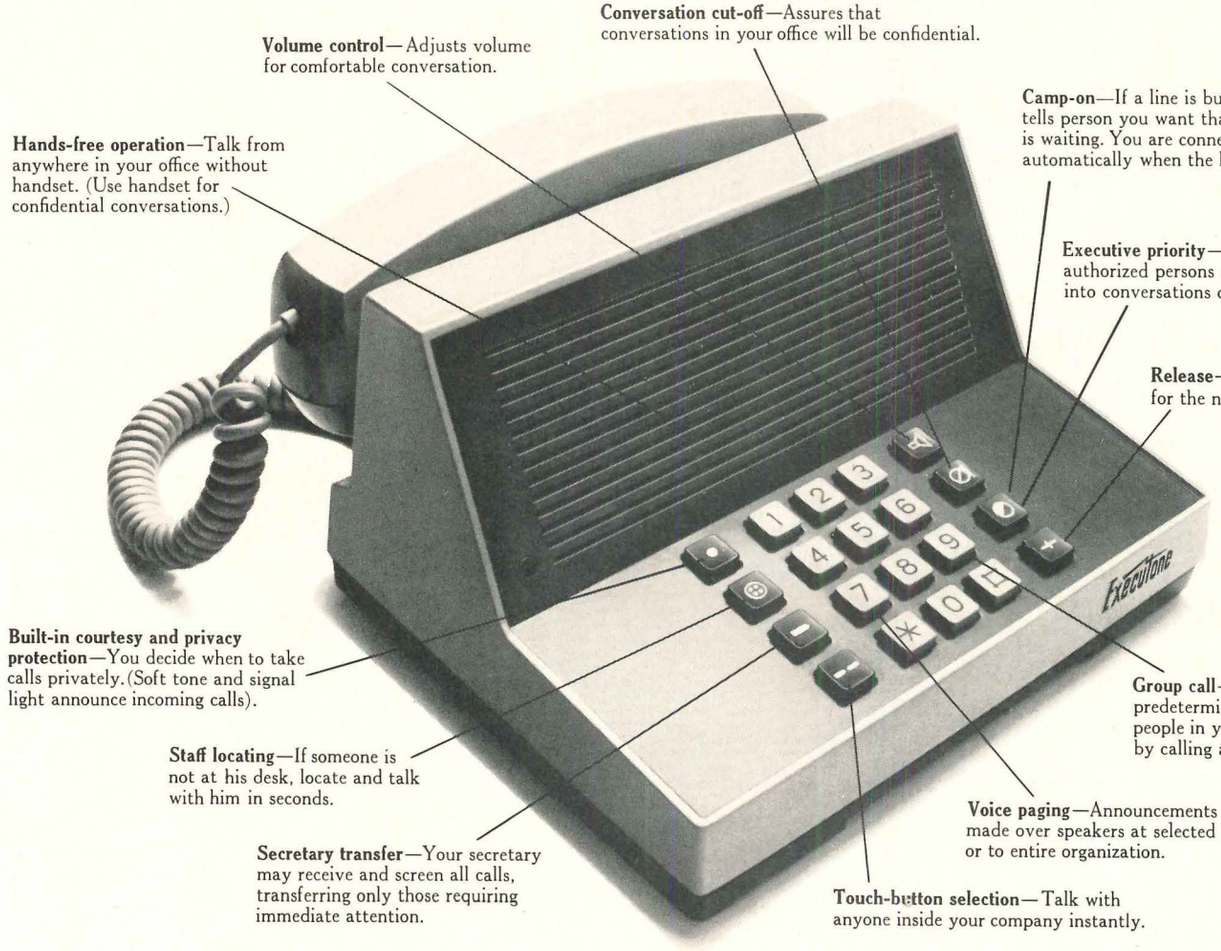

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BOOKS RECEIVED

ENVIRONMENTAL MANAGEMENT, Planning for Traffic, by Jim Antoniou. Focusing on the organizational problems of vehicular traffic within existing towns and cities, rather than new constructions, this book makes its points with clear graphics and diagrams. It should be understandable to laymen, but it is primarily intended for town planners, municipal engineers, architects and traffic engineers.

McGraw-Hill, 1221 Avenue of the Americas, New York, N.Y. 171 pp., illus., $19.50.

HISTORY OF MODERN ARCHITECTURE, Vol. 1 and Vol. 2, by Leonardo Benevolo. First published in Italian in 1960, this history consequently fails to accommodate the unsettling re-evaluations of modern architecture that have occured over the last twelve years. Nevertheless, these are necessary volumes to have in English. They do not have the American and English emphasis that our more familiar histories do have, tending rather to reclaim the decisive role of Continental architects and thinkers.

The MIT Press, Cambridge, Mass., 02142. 865 pp., illus., $35.00 both volumes.

THE VICTORIAN HOUSE, by Mark Girouard. This book is concerned with English country mansions in the 19th century. As the jacket says, "... the combination of a prosperous upper-class with huge numbers of industrial-revolution new rich setting up as country land owners made the Victorian age a boom period for country house building. The results are fascinating because of the houses social context, their often enormous size, their heavy-weight technological equipment, their incredibly complex and stratified planning, and the variety of their architecture."

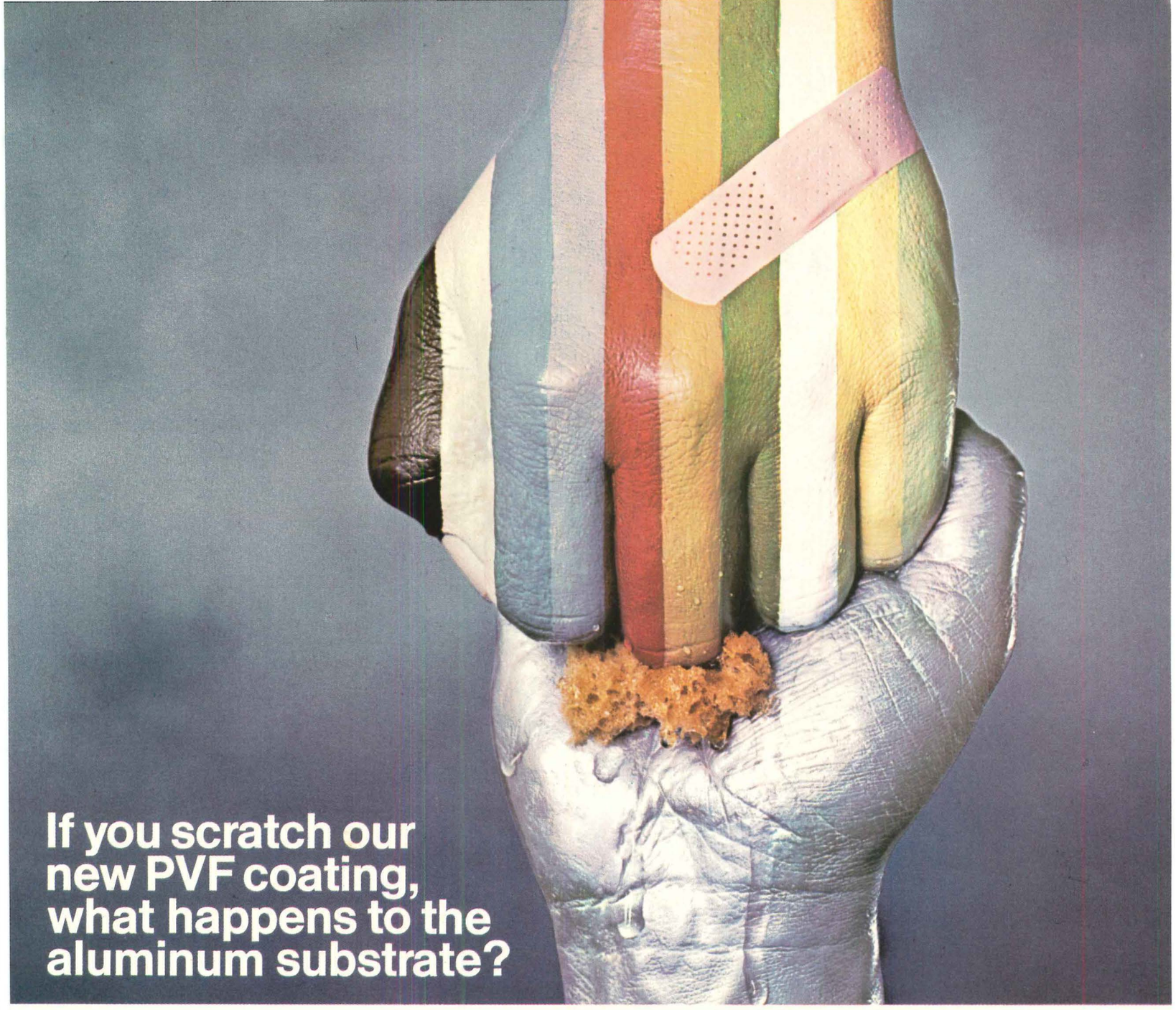
Oxford Univ. Press, Ely House, London W1. 213 pp, illus., 12 Pounds.

TOWARDS A NON-OPPRESSIVE ENVIRONMENT, by Alexander Tzonis. A small book without illustration, this is the first independent work of a young Harvard instructor in the Graduate School of Design who has been making waves for several years now with a wide range of students in several schools. His thesis here is that our environment is oppressive not because of any inherent conflict between man and nature, but because of specific contradictions within society itself.

i press incorporated, Boston. Distributed by George Braziller, Inc., One Park Ave., New York, N.Y. 123 pp, $6.95.

URBAN STRUCTURES FOR THE FUTURE, by Justus Dahinden. Mostly illustrations, this book documents and classifies some of the best visionary projects of architects within the last ten years.

Praeger Publishers, 111 Fourth Ave., New York, N.Y. 220 pp, illus., $25.00.



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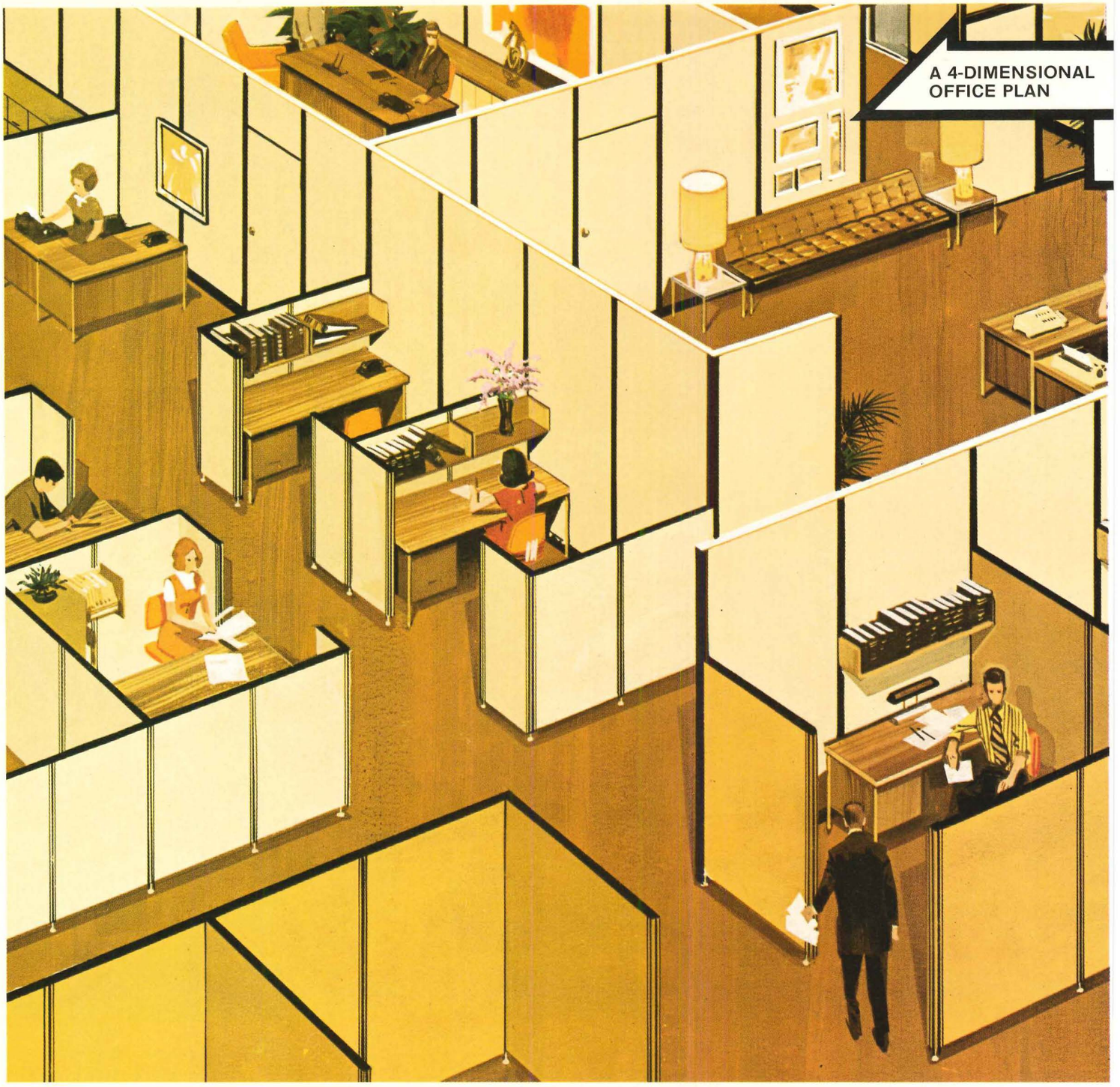

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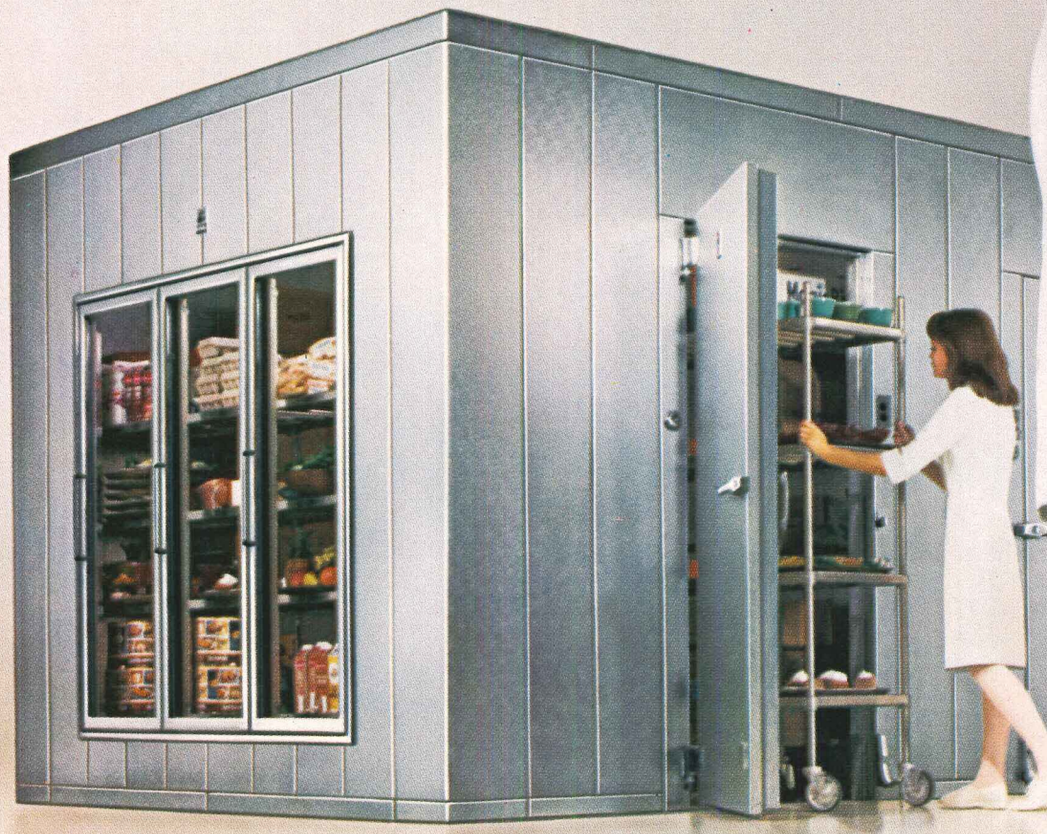

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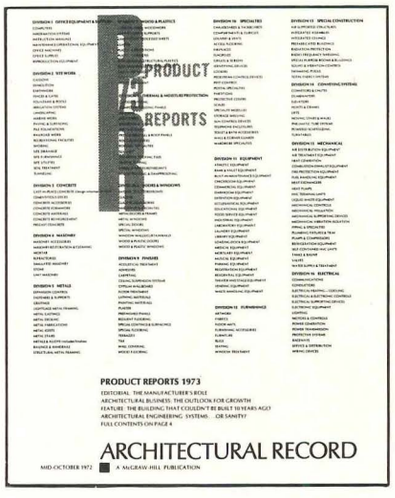

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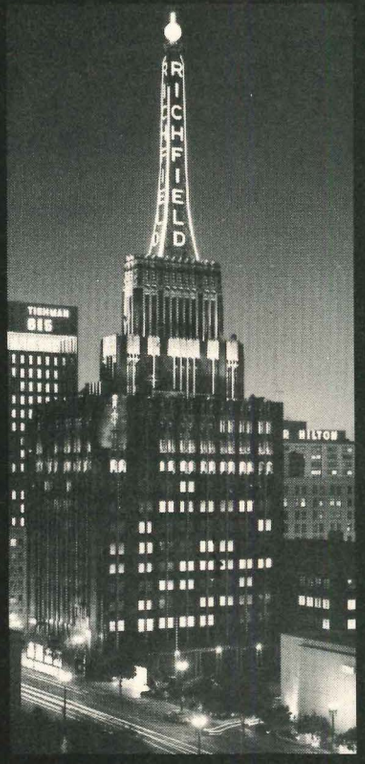
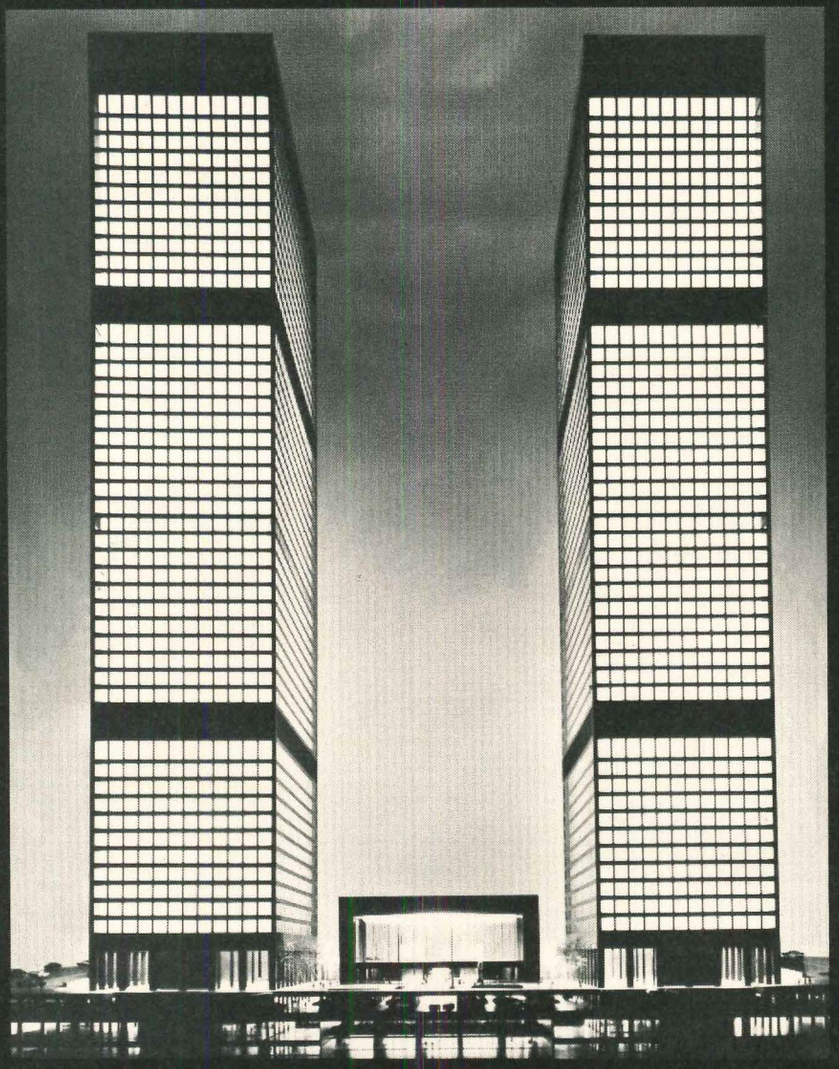


In 1971 they demanded that the new Atlantic Richfield headquarters be sealed with LP® polysulfide polymer.



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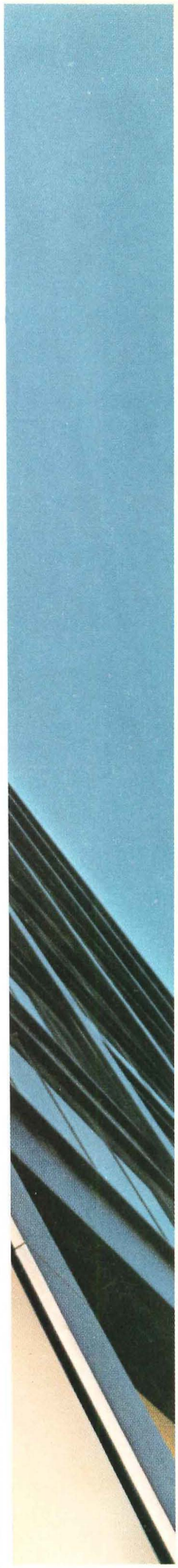

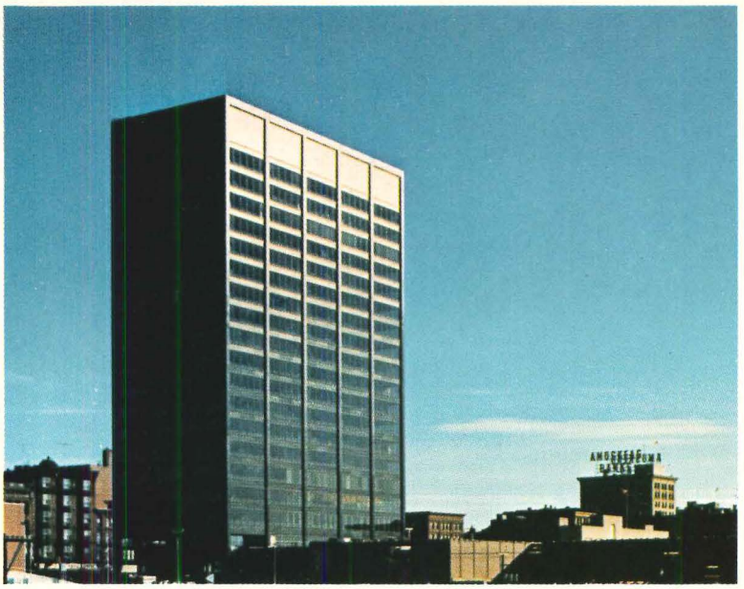

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Engineers: Wayman C. Wing, New York
Architectural panels by
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National Steel Corporation

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Until you know all about ASG'S REFLECTOVUE,® you don't really know how good reflective glass can be.

Reflectovue does everything reflective glass is supposed to do—but with one dramatic difference: Reflectovue does it better.

Here's how.

Used with Tru-Therm® insulating units, Reflectovue has been proven a superior heat reflector. It has the best thermal performance, the lowest thermal "U" value, and the lowest shading coefficient when compared, color to color, to any other reflective glass in the industry.

On the practical side, it can cut costs by controlling heat loss and heat gain. So less equipment is needed for heating and air conditioning. Less fuel. Creating less pollution.

Take a look at the chart. See for yourself how good Reflectovue really is. And how it compares with your specification requirements. You'll get an introduction to the benefits of Reflectovue. And for the rest of the story, just call or write your nearest ASG office.

Then specify ASG's Reflectovue. It can make your building more than a building. More like a landmark to mirror your world. Sparkling. Dramatic. Changing with the day. Open. But still private. America's looking glass.

FOOTNOTES TO CHART:

(1) All given value of 1.1 for calculations. Different thicknesses of glass interlayers and metallic coatings will have insignificant effect on "U" value.

(2) No indoor/outdoor shading—Summer Value.

(3) 216 total solar BTU's—(Based on 1967 ASHRAE Handbook of Fundamentals—July 21—4 p.m.—west exposure —32° North Latitude)—Times shading coefficient. Average temperature for July 21—4 p.m.— is 93.6 degrees, with 72 degrees inside air temperature, there are 21.6 conductance BTU's to be added—Times the thermal "U" value of 1.1 = 23.76. Maximum BTU gain per square foot of vision lites—west exposure.

(4) ASG performance values taken from published data and authenticated by test reports from recognized testing laboratories. Names of specific data and laboratories provided on request.

ASG REFLECTOVUE®/TRU-THERM® HIGH EFFICIENCY INSULATING GLASS

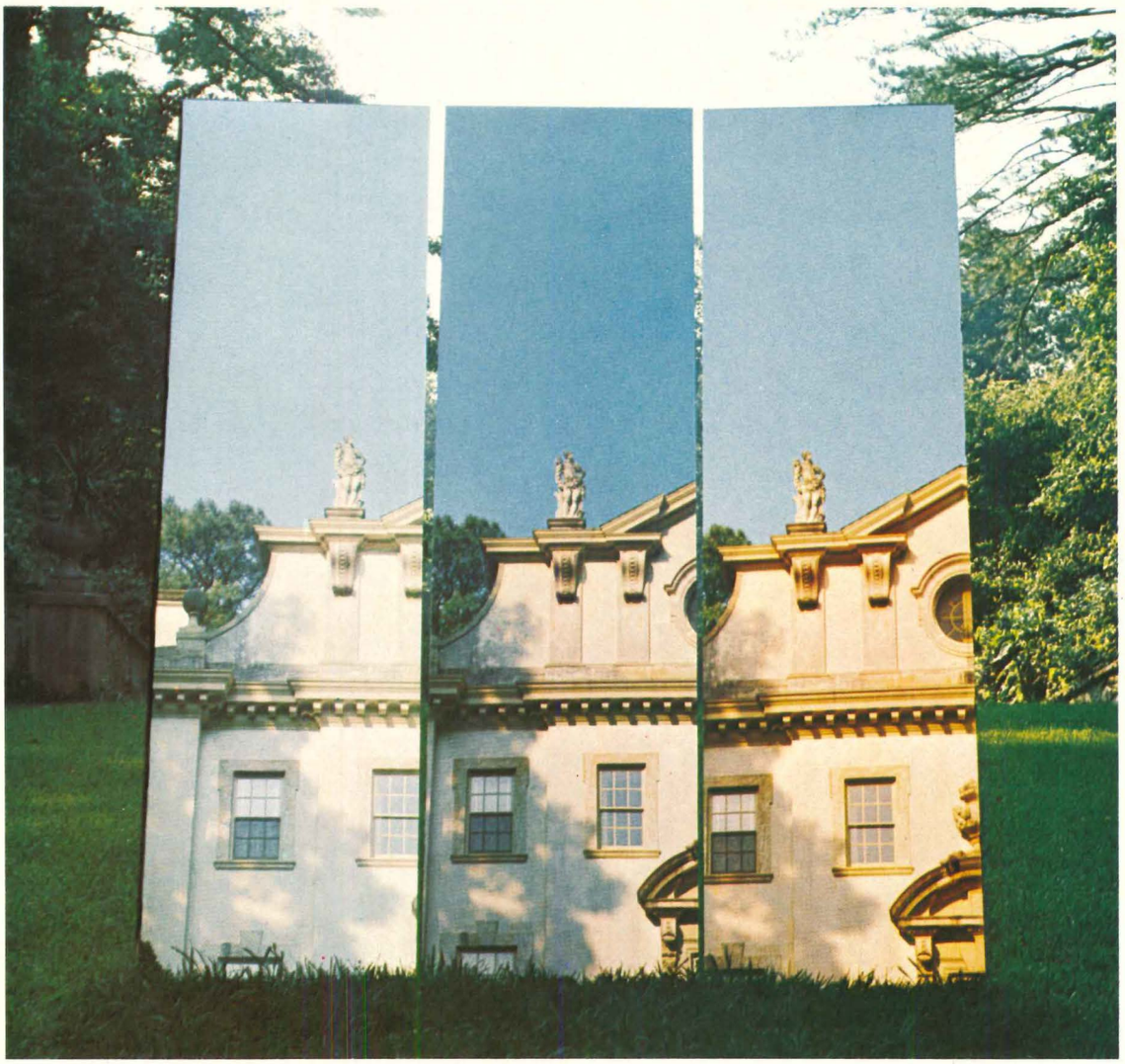
	Visible Light Trans. %	Thermal "U" Value (Summer)	Shading Coefficient (2)	Total Solar Heat Gain in BTU's (3)
10GI—Gold	8	.28	.07	21
20GI—Gold	17	.30	.13	34
35GI—Gold	32	.32	.26	63
10AI—Silver	8	.30	.12	32
20AI—Silver	17	.31	.24	59
10CI—Chrome	8	.46	.19	51
20CI—Chrome	17	.48	.34	83

ASG REFLECTOVUE®/LAMINATED HIGH EFFICIENCY LAMINATED GLASS

	Visible Light Trans.%	Thermal "U" Value (Summer)(1)	Shading Coefficient (2)	Total Solar Heat Gain in BTU's (3)
10GL—Gold	10	1.1	.15	56
20GL—Gold	20	1.1	.24	76
35GL—Gold	35	1.1	.47	126
10CL—Chrome	10	1.1	.31	91
20CL—Chrome	20	1.1	.46	123

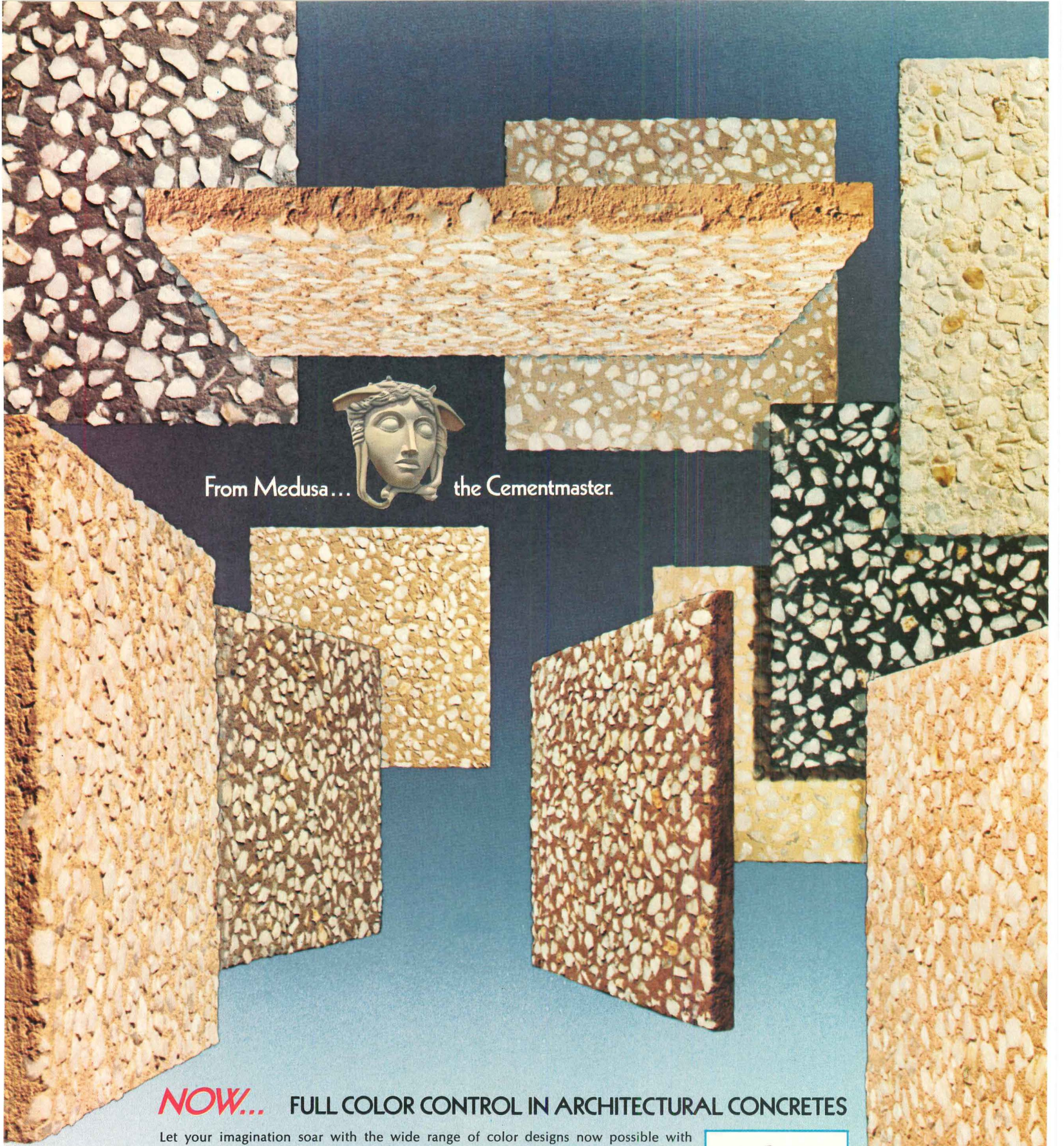
ASG CREATIVE IDEAS IN GLASS

ASG Industries Inc.
P.O. Box 929, Kingsport, Tennessee 37662



Ambient light was eliminated in the rear of the glass to show actual appearance as glazed in a building facade. Left to right: Silver, Chrome and Gold.

For more data, circle 48 on inquiry card



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Medusa, the only manufacturer of colored portland cements, invites you to take advantage of the greater design flexibility offered by these ten new colors, plus white. All are pigmented, intermilled white cement base products manufactured under a strict scientific process for maximum color control. Eliminate job site mixing. Select the color you want and know that it will be uniform from start to finish.

Medusa Colored Portland Cements are readily available on order from a mid-west and east coast production facility.

Write for our new Colored Portland Cements brochure. Medusa Cement Company, P. O. Box 5668, Cleveland, Ohio 44101.

MEDUSA

MEDUSA CEMENT COMPANY Division of Medusa Corporation

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The Unspoiler:

T.M.

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Hidden up there behind a ceiling-flush cover plate . . . THE UNSPOILER is ready to pop out—then spray away when fire threatens. It's Factory Mutual Approved; approved by New York City Board of Standards and Appeals; U.L. listed for bright and satin chrome finish.

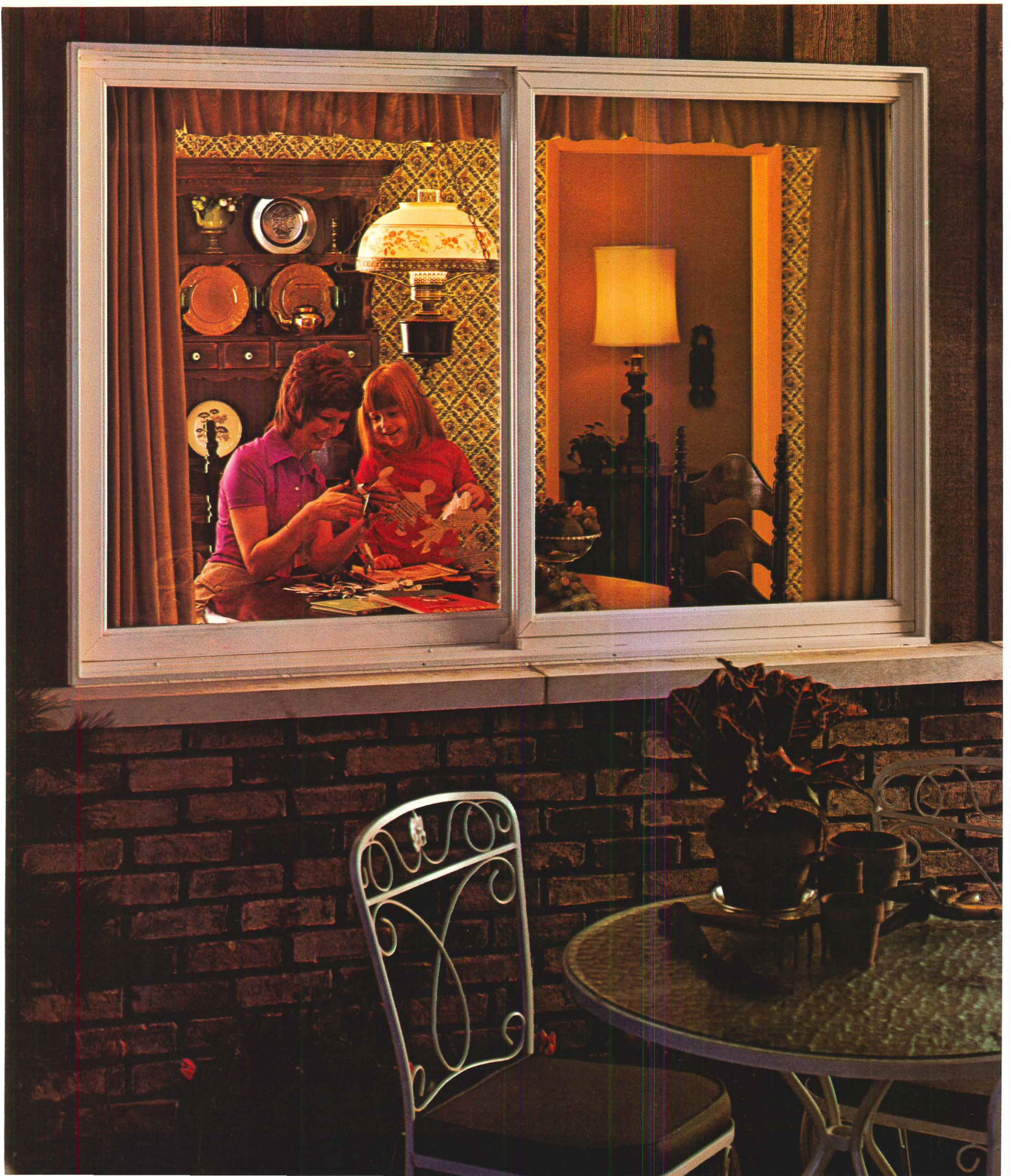
So fit out your best looking interiors to snuff out fires—beautifully. Write for our complete, fact-packed, full color brochure on THE UNSPOILER.

Star Sprinkler Corporation, 4545 Tacony Street, Philadelphia, Pa. 19124

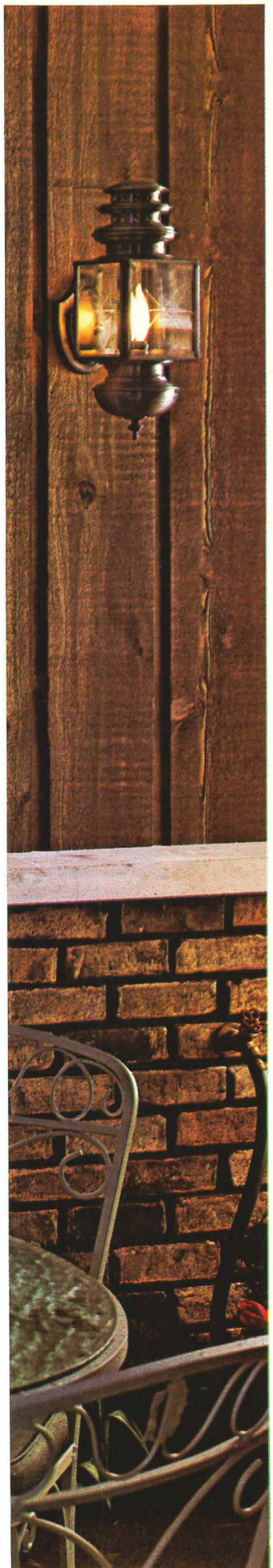
PAT. PENDING

For more data, circle 50 on inquiry card

Introducing the new Andersen Perma-Shield® Gliding Window.



Is this the window that has everything?



It's a fair question. After all, this new line of Andersen Perma-Shield Gliding Windows incorporates all our accumulated experience in window design and construction. We gave it a lot of thought, improved and refined it through many stages, and gave it thorough field tests before we were satisfied.

So we think that architects, builders and users will all be more than pleased with this, our latest window.

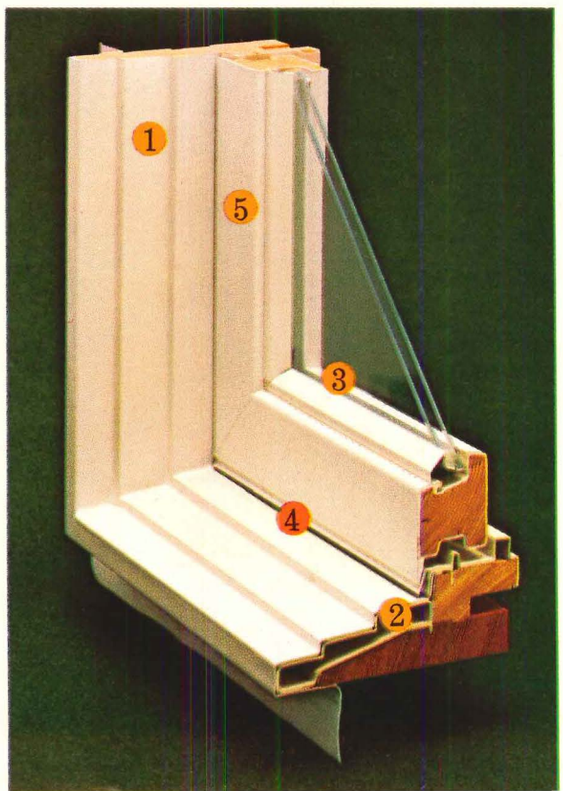
But does it have everything? Before you answer, glance down the summary of features below; send for more detailed information—ask for a demonstration, if you like. We think we've come close. See if you agree.

1 Perma-Shield! No painting inside or out. Both frame and sash are stable wood completely covered with a rigid vinyl sheath. No corner joints in frame. Sash corners are welded to form leak-proof joints.

2 Sill tank. For added weathertightness under severe conditions of exposure, an integral vinyl dual sill has been built in to drain any moisture to the exterior.

3 Welded insulating glass eliminates need for storm windows. Snap-in rigid vinyl glazing bead eliminates glazing compound on exterior.

4 Weatherstripping is rigid vinyl for maximum weathertightness . . . factory applied.



5 Weathertight, vinyl-sheathed sash. Wood core factory treated with preservative for stability and insulation. Adjustable, chrome-plated steel glides in bottom rail for smooth, easy operation.

Neat, trim frame is compatible with traditional, colonial or contemporary design. And it matches other Andersen Perma-Shield Windows and Gliding Doors.

Screen is easy to install and remove from inside. White Perma-Clean® aluminum frame needs no painting. Screen strikes are part of exterior frame—no hardware to apply or lose.

Weatherstripping of wedge-shaped rigid vinyl and neoprene on meeting stile reduces dust, air, noise, heat and cold leakage to minimum.

Removable sash. Both stationary and operating sash can be removed for cleaning from inside by releasing securing screws. This safety feature prevents accidental release of either sash.

Attractive handle operates spring-loaded rods for positive locking of windows at top and bottom. All factory installed.

Perma-Shield Gliding Windows are available in eleven basic sizes suitable for commercial and residential applications.

Like more information on Andersen's new Perma-Shield Gliding Windows? There are five ways to get it: from your Sweet's File (Section 8.16 An), from your Andersen dealer or distributor, by using the Reader Service Card in this publication, or by mailing the coupon.

AR-72

Please send me details on your new Andersen Perma-Shield Gliding Windows.

Name_____

Firm_____

Address_____

City_____ State_____ Zip_____

Send to Andersen Corporation
Bayport, Minnesota 55003

Andersen Windowalls®
ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003

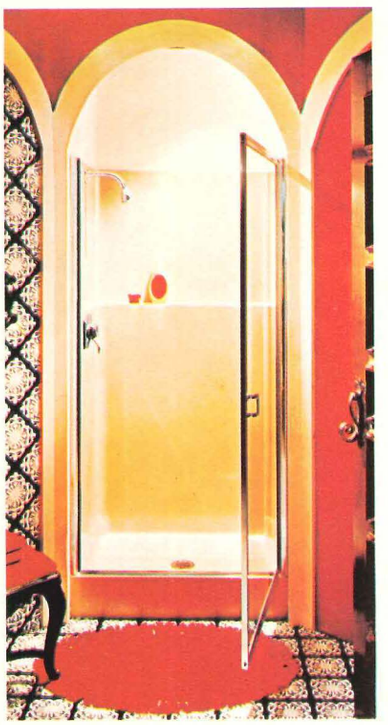
AW®

For more data, circle 51 on inquiry card

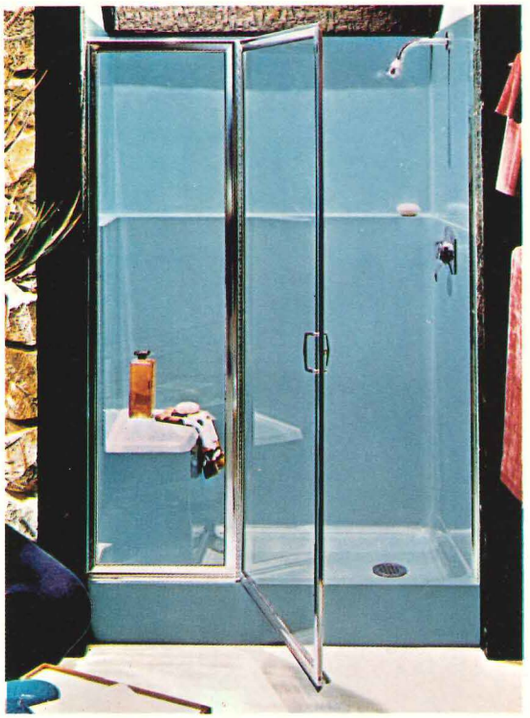
Offer something different – the Designer Line.™

Stretch-Out Tub & Wall Surround. Lower back support and extra-long bathing area. Ledge and wide apron hold accessories. (Also available in two above-the-floor models.)

One-Piece Recessed Shower. Fits 36″ x 36″ space. Long ledge for accessories. (32″ x 32″ unit has corner ledges.)



One-Piece Deluxe Recessed Shower. Choice of 36″ x 48″ or 36″ x 60″. Built-in ledge and seat.



The eight Designer Line components are for luxurious bathing and showering. Line includes unique stretch-out tub and exotic soaking tub, complete with wall surround. Choice of four showers—each with walls, floor, drain and built-in accessory shelf. (Deluxe also has built-in seat.)

No seams. Deep, glowing color. *Feels warm.*

Heavy-duty fiberglass-reinforced polyester is strong and light. Easily installed. Arrives ready to slip into place.

Minimizes accidents because FRP is resilient and slip-resistant. Simple to maintain with liquid cleaner. Available in Bone, Gold, Bayberry-Avocado, Regency Blue, Fawn Beige and White. Soaking tub also in Tangerine Red.

The Designer Line. Another example of how the best keeps getting better. American-Standard, P.O. Box 2003, New Brunswick, N.J. 08903.

AMERICAN STANDARD
PLUMBING / HEATING

Soaking Tub. Low seat allows almost total immersion. Fits 40″ x 40″ space. (See facing page.)

In the mode of the exotic soaking tub.

THE EDITORS OF ARCHITECTURAL RECORD INVITE SUBMISSIONS FOR...

1 RECORD INTERIORS

to be featured in the January 1973 issue

. . . a program to recognize outstanding interiors designed by architects

Museum Bookstore, San Francisco, Calif., Architects: Robinson & Mills, Morley Baer photo

In 1970, in response to the upsurge of activity and interest in design of interiors by architects, ARCHITECTURAL RECORD established a new editorial 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, 1972. No formal presentations are required, though materials submitted should include plan, photographs or snapshots, and brief description and program. RECORD INTERIORS of 1973 will be published in the January 1973 issue of ARCHITECTURAL RECORD.

Write or telephone:
Barclay Gordon, Editor-in-Charge
Interior Design Awards Program
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York, New York 10020
tel: (212) 997-3450

2 RECORD HOUSES AND APARTMENTS

for the 1973 Mid-May issue

Every architect registered in the United States may submit material for consideration in RECORD HOUSES and Apartments of 1973. Single-family houses and multi-family buildings that represent today's wide variety of design approaches will be featured in the eighteenth 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 (not working drawings); 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 the issue appears. The deadline is October 15, 1972.

Send material to:
James D. Morgan
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York City 10020

Tollefson house, Wausa, Nebraska; Architects: Neil Astle and Associates, Hedrich-Blessing photo

Milliken's new MILSTAR® carpet rejuvenates run-down schools.

Recommended by a renovation expert after carpet comparison studies.

A low-cost renovation project, featuring MILSTAR carpeting in halls and classrooms, has resulted in "a rebirth" of three schools, says William M. Payne, Superintendent of Schools, Wakulla County, Fla.

"This is a miracle."

"I believe we've increased the life of these buildings at least ten or fifteen years. This is the best thing we've ever done for the boys and girls. This renovation will raise achievement levels. With a noise coefficient of .45, we just don't have a noise problem with this carpet."

Milliken's MILSTAR Solar Nova carpet was recommended by a noted renovation consultant on the faculty of a large university after extensive comparison studies.

Why MILSTAR?

A totally new concept in commercial carpeting, MILSTAR is specifically engineered to the needs of public areas:

Longer Wear. Fuse-bonded into vinyl plastisol, providing resilience and wear equal to or better than the finest tufted and woven constructions.

Less Maintenance. Impermeable soil-barrier back traps dirt on surface, contains liquid spills in pile, makes cleaning easier.

Permanent Tuft Lock. Superior to any other cut pile construction.

Florida sand and sun create carpet proving ground.

Ronald E. Hinson, principal of the largest school, says that the carpet, installed in the summer rainy season before they had a vacuum cleaner, "was allowed to get very dirty, filled with sand before we started. But it looks brand new now." The custodian reports that cleaning time of MILSTAR carpeted floors is one-fourth that of old wood floors.

With pile of 70% solution-dyed Acrilan® acrylic fiber and 30% super light-fast nylon, MILSTAR Solar Nova colors are fade-resistant, thrive in sunlight. With MILSTAR's insulating qualities, air conditioning is more efficient, heating costs are cut, and—as seen above—pupils sat comfortably on the floor until new chairs arrived.

A+ PLUS ACRILAN® THE NEW EXCELLENCE IN CARPET FIBER BY Monsanto

MILSTAR and the bond issue.

With so many school bond issues being vetoed by taxpayers, renovation with carpet becomes essential. MILSTAR is the *only* carpet that assures *all* the vital performance qualities. As Superintendent Payne sums it up: "After our experience here, I feel that this is the best money we can invest." For complete information on MILSTAR for school projects, call or write Deering Milliken, Inc., Contract Carpet Manager, LaGrange, Ga. 30240. (404) 883-5511.

MILLIKEN
Floor Covering Business, LaGrange, Ga.

For more data, circle 53 on inquiry card

INNOVATION IN DESIGN. One of a series created for DAP Architectural Sealants. Design and rendering by Richard P. Howard Associates, Architectural Illustrators, Sylvania, Ohio. Harold R. Roe, A.I.A.

DAP Flexiseal®: superior sealant performance to better serve design

Every solution to a building program must provide for waterproof, weatherproof joints that won't quit. DAP Flexiseal® polysulfide polymer sealants deliver that performance plus the flexibility and adhesion capabilities that free the architect of restrictive joint design limitations. Yet they deliver 20-year service without loss of sealant integrity. Two Flexiseal formulations are available: a two-part system and a one-part system. Each has its place. Each carries the Thiokol* Seal of Security. For catalog on the complete line of DAP architectural sealants, please write: DAP Inc., General Offices: Dayton, Ohio 45401/Subsidiary of Plough, Inc.

DESIGN CONCEPT. This high rise resort hotel contains apartments for permanent residents, all house services and facilities and necessary parking space. The upper towers are devoted specifically to resort living and each unit provides a separate dramatic view for its residents.

For more data, circle 54 on inquiry card

DAP® ARCHITECTURAL SEALANTS

Also available in Canada

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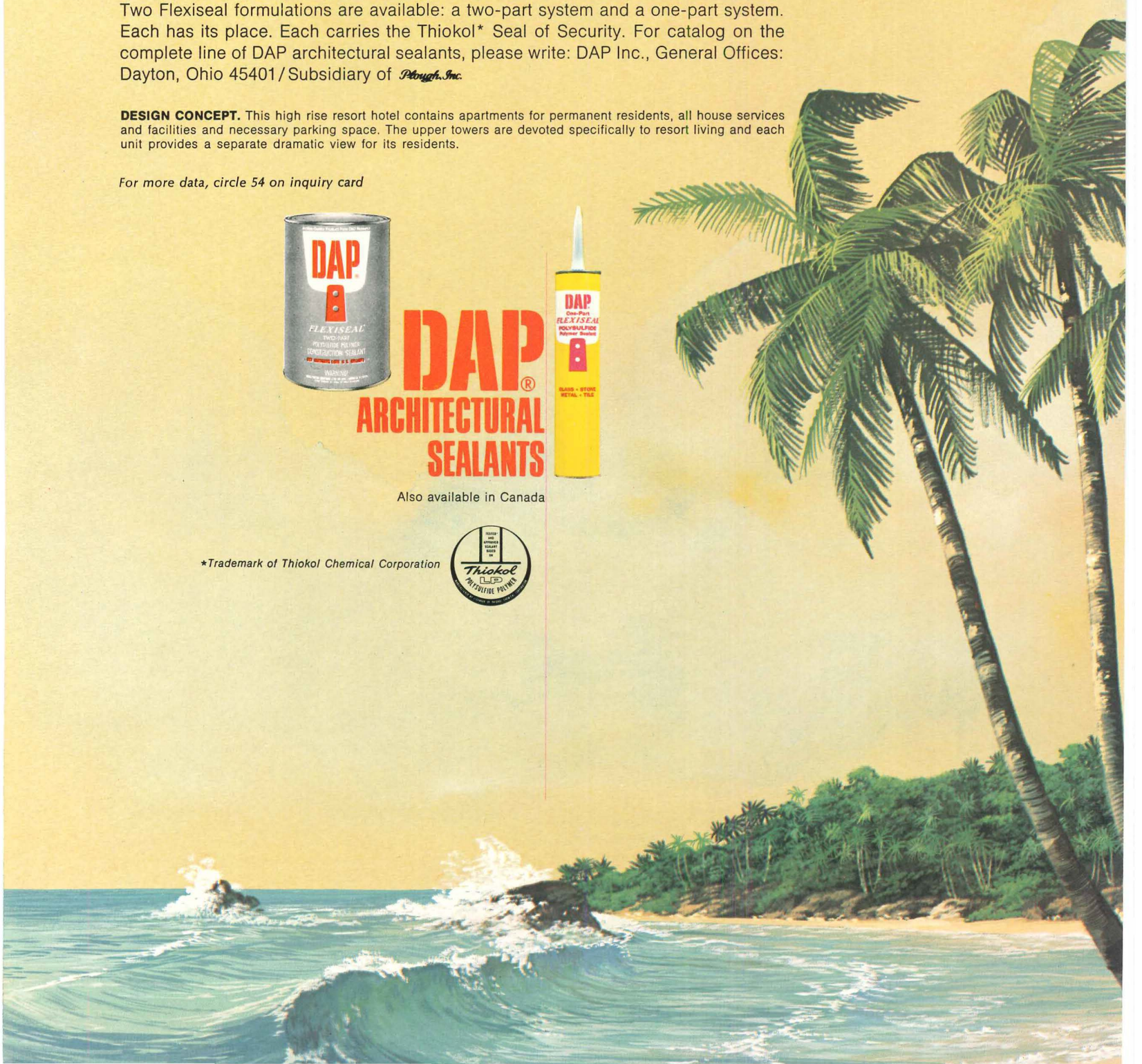
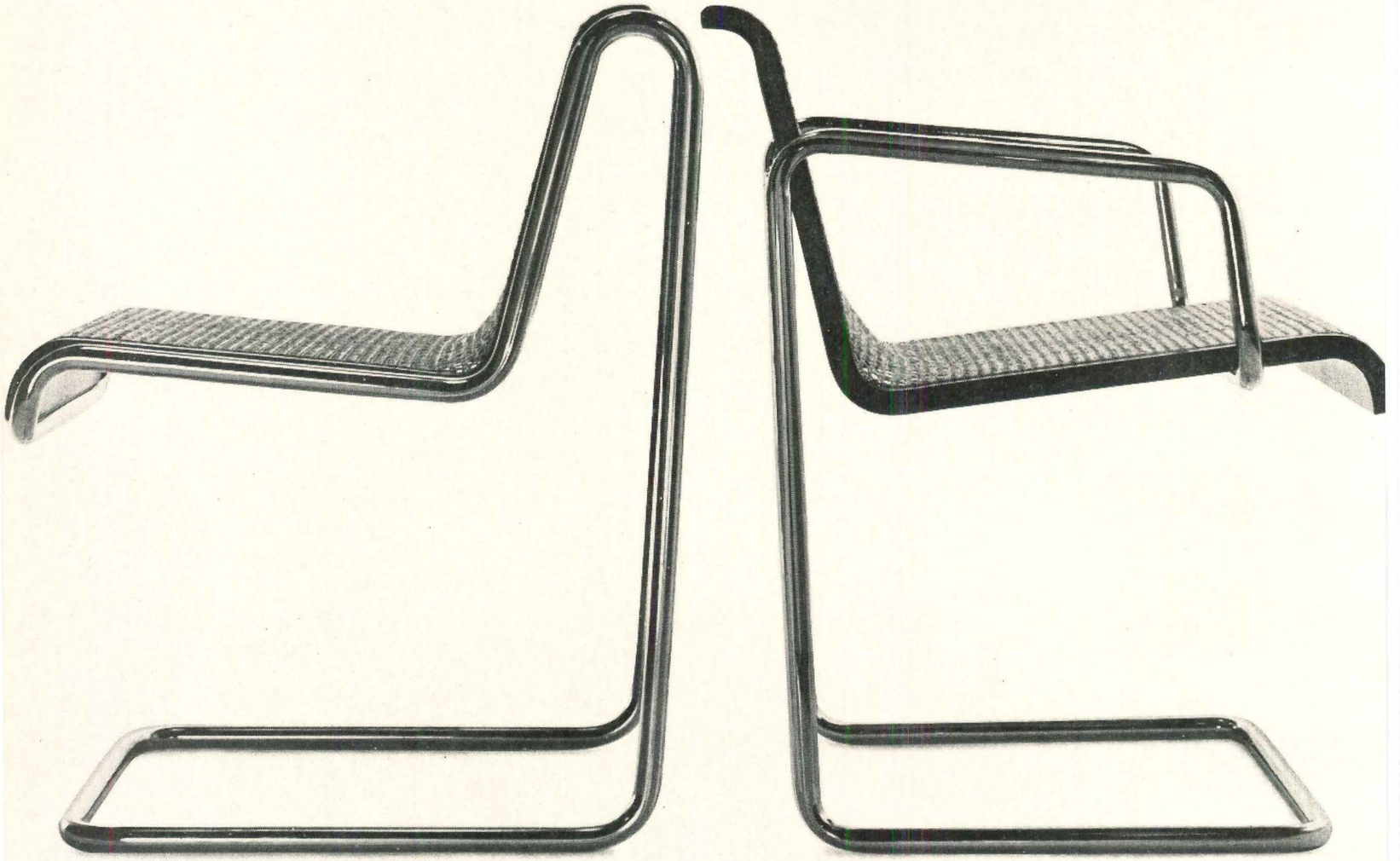
Thiokol LP POLYSULFIDE POLYMER




Howard Post



Thonet Cantilevers. The Great Profile chairs. Great from every viewpoint. And comfortable, too. Polished chrome with black wood framed cane or upholstered seat and back. Arm chair, side chair and two bar stools. Coordinating tables available. The Cantilevers, designed by Arthur Umanoff. And, like all Thonet furniture, built to endure. See them at the Thonet Center of Design. New York. Chicago. Los Angeles. San Francisco. Dallas. Miami. Or write Thonet Industries, Inc., One Park Avenue, New York, New York 10016.

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All plenums are interconnectable. All controls are built-in. So your walls are free of thermostats and wiring.

And once the system is in, you can make interior changes usually just by changing the plug-in controls. Fact is, the modular flexibility of these ceiling-blenders can cut your clients' moving-in costs as much as 50 cents a square foot.

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air conditioning

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there's more than meets the eye!

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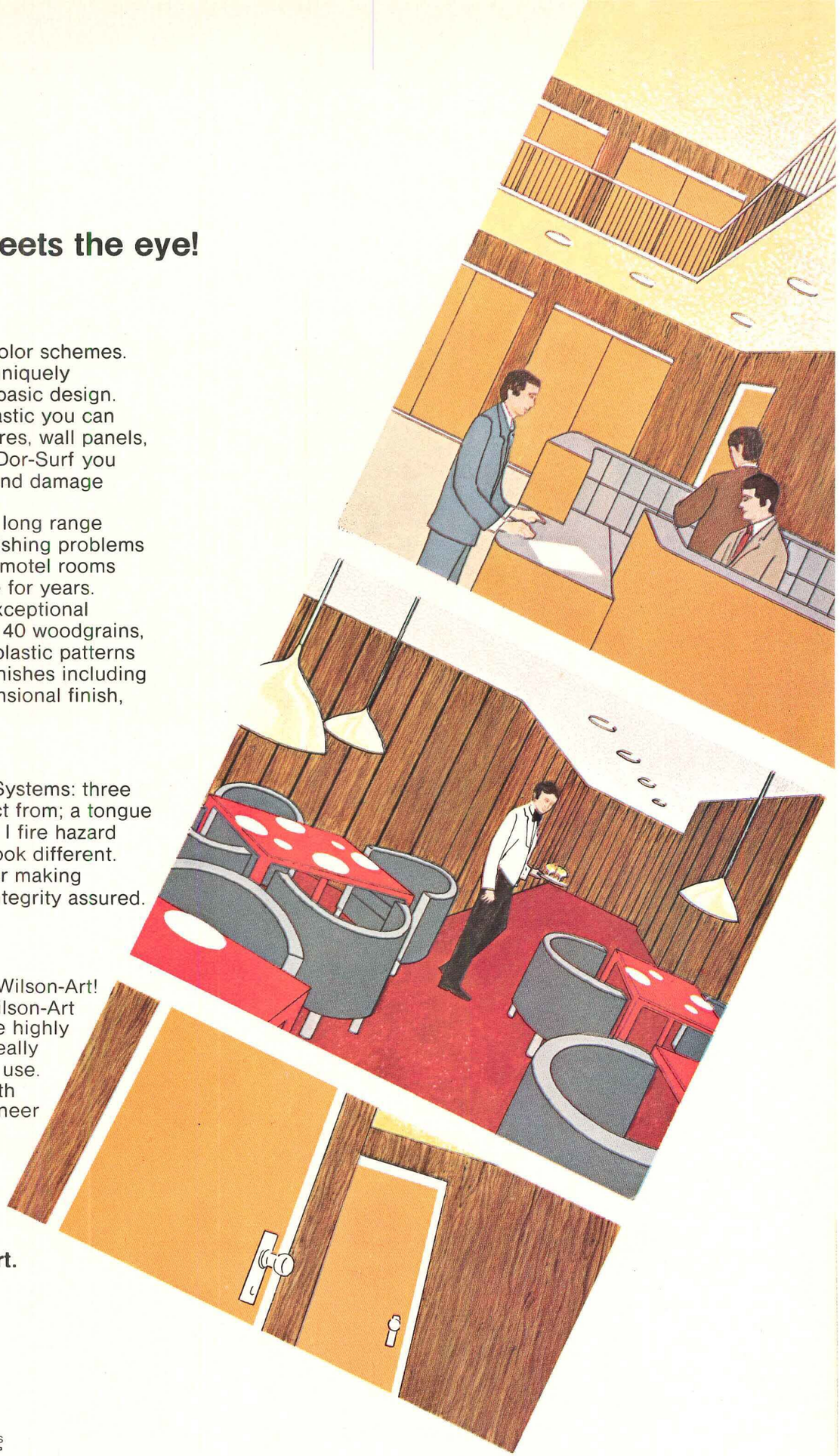
With Wilson-Art laminated plastic you can coordinate the furniture and fixtures, wall panels, vanity tops. And with Wilson-Art Dor-Surf you can achieve exceptional impact and damage resistant doors.

Client benefits are initial and long range economy. Maintenance and refinishing problems are almost eliminated. Hotel and motel rooms retain a neat, inviting appearance for years.

You, as the specifier, have exceptional esthetic latitude with more than 140 woodgrains, solids, and Wilson-Art laminated plastic patterns to select from. And a variety of finishes including a new, subtle, eye catching dimensional finish, Cuero.

Wilson Wall Panel Systems: three laminated plastic systems to select from; a tongue and groove, a reveal, and a Class I fire hazard rated system. All look good. All look different. And all are from one manufacturer making specifying easier . . . and color integrity assured.

DOR-SURF—a tough new face, from Wilson-Art! Doors surfaced with 1/8" thick Wilson-Art laminated plastic DOR-SURF are highly impact and abrasion-resistant—really take abuse in high traffic, heavy use. And cost compares favorably with conventionally finished birch veneer doors.



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For more data, circle 56 on inquiry card

An invitation from the editors of ARCHITECTURAL RECORD to submit work for a special issue in December on...

The Best Work of The Young Architects

The entire December 1972 issue of RECORD will be devoted to presentations and descriptions of the work and professional capabilities of today's young architects. The major emphasis—as always in RECORD—will be on design. But the editors are aware that—while most young architects are as interested and involved as ever in establishing their own firms or working as principals in large firms—a considerable group is taking new paths into new kinds of work such as urban redesign, advocacy work, or development; or, in large firms, is developing a new kind of expertise in computer use, project management, feasibility work, or industrialization.

So we are inviting submissions from young architects in two categories:

1. All young architects, whether they have their own firm or work as a recognized member of a large firm, are invited to submit completed but unpublished buildings, or projects that are at least in the working drawing stage, for consideration for the issue. As always, all work—whether it is a tiny building or a major building complex—will be evaluated against the highest quality work of the profession, to continue RECORD's 81-year-old policy of recognizing the best talent of younger practitioners.

2. We also invite young architects who have taken alternate routes—who are involved in important non-design work—to write us describing their accomplishments and capabilities in their firm.

On age limit, our general intention is to publish work of those 35 years of age or younger; but we recognize that, with the time lag involved in many projects, a rigid age requirement may not be fair or meaningful.

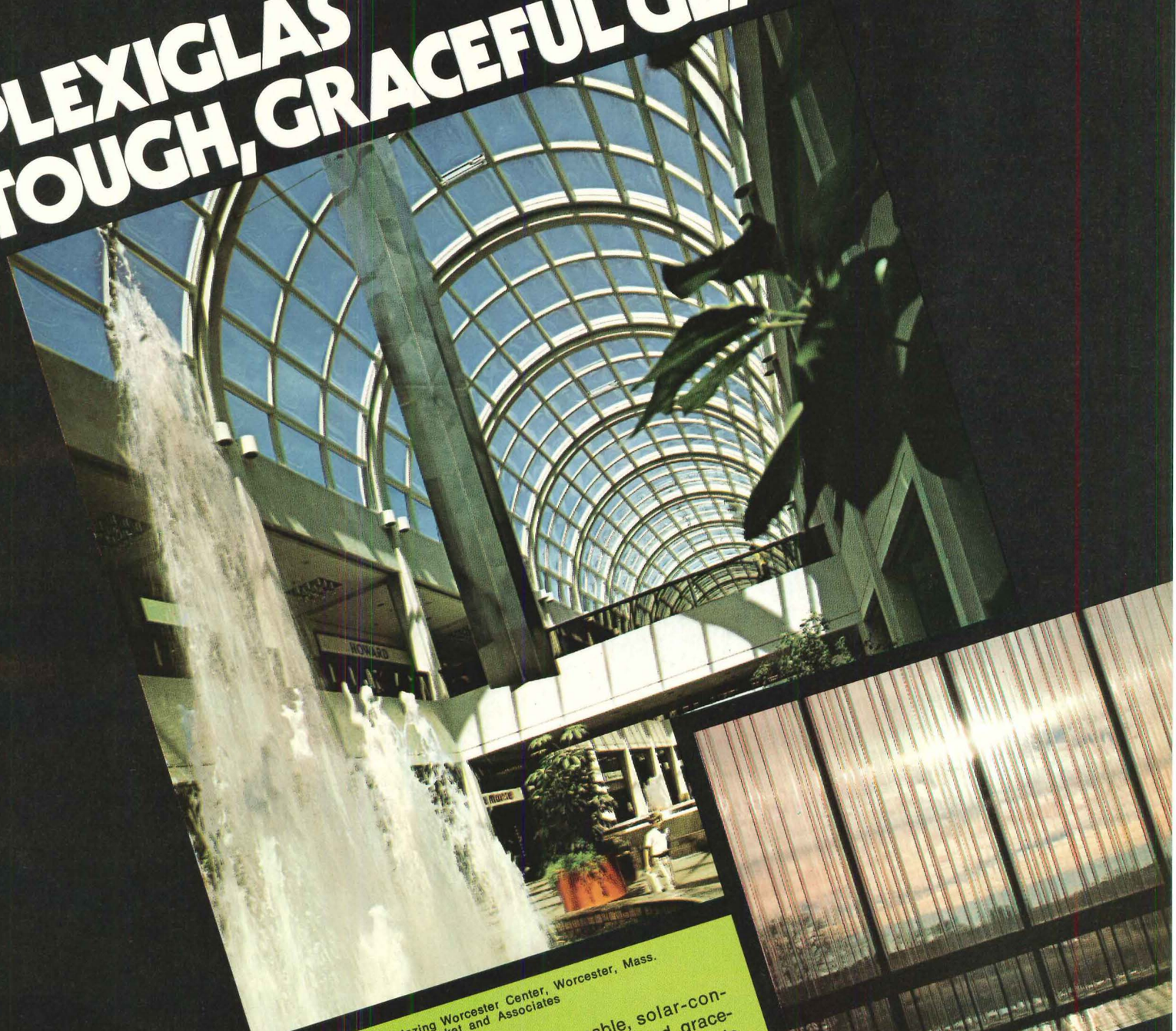
The deadline for submissions is September 1st, 1972—but the sooner the better; the issue is now in the planning stage, and in many cases will need time for detailed follow-up.

Any building type will be considered. As noted above, we will consider any complete but unpublished building, or any project where working drawings are in process or where construction is underway.

The only data needed are photos (which need not be of publishable quality) or renderings, plus a floor plan (or other drawings which are available and help explain the project) and a brief description of the building.

Mail your submissions to Herbert L. Smith, Jr., Managing Editor, ARCHITECTURAL RECORD, McGraw-Hill Building, 1221 Avenue of the Americas, New York, New York 10020. His phone number, if you have any questions, is 212/997-2594.

PLEXIGLAS® TOUGH, GRACEFUL GLAZING



Domed galleria glazing Worcester Center, Worcester, Mass.
Architects: Welton Becket and Associates

Corrugated solar control glazing Southwestern Indian Polytechnic Institute, Albuquerque, N.M.
Architects: W. F. Krueger and Associates

Breakage-resistant, thermoformable, solar-controlling Plexiglas acrylic sheet will blend gracefully with your most demanding designs. Available in a broad selection of sizes and thicknesses, Plexiglas is light in weight and installs with a minimum of supporting members. The Solar Control Series of Plexiglas sheet gives you a choice of six bronze and six grey transparent tints permitting aesthetic flexibility with a range of light and solar heat control. Write for our latest brochure.

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For more data, circle 57 on inquiry card

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Think about the beautiful economy of post and beam construction. Big or small.

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Weyerhaeuser

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MUSEUMS FOR TODAY

Each of the four museums in this study differs from the others as an architectural problem in its balance of form and content. The Museum of Westward Expansion, to be constructed underneath the famous Gateway Arch in St. Louis is a brilliant architectural solution to the three dimensional visual problem of telling the tale of the 19th century U.S. expansion across the western lands to the Pacific. The architects' primary concern was to develop the content of the museum and find an appropriate form for it. The museum, since it is underground, will have no external form, nor will the visitor be aware of any single volumetric interior form. Its form will be its content. The Renwick Gallery, which is the old Corcoran museum newly restored, is in itself the object of art and historic interest both inside and out. It has been renovated by skillful architects to tell, by its splendid presence, a matchless story of the culture of the 19th century U.S. gilded age. Like the Gateway Arch museum, its form is its content. In contrast to these two, the University Art Museum at Berkeley and the Huntington Gallery Addition are similar to each other because for each the architectural problem was to build a building to house painting and sculpture, but there the similarity ends. At Berkeley the architects created a structure which is of itself a strong work of sculpture which enhances the art it exhibits. The Huntington Gallery Addition, on the other hand, is self effacing. There the architects achieved an unobtrusive, serene ambiance for the contemplation of art.—*Mildred F. Schmertz.*

Custer's last stand: Indian's version by Oglala Sioux Amos Bad Heart Bull, to be exhibited in the Museum of Westward Expansion.

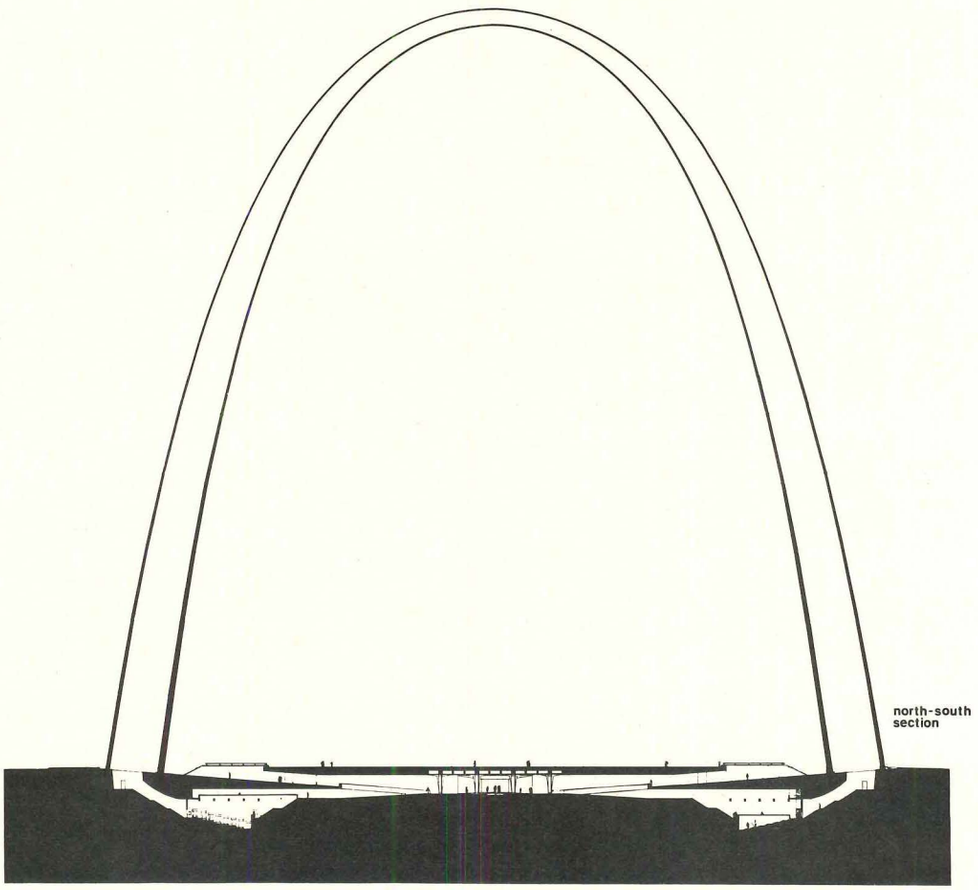
A museum designed to tell the story of the expansion of the West

Most people know that Eero Saarinen's great arch overlooking the Mississippi in downtown St. Louis celebrates the fact that this onetime frontier town, at the confluence of the Mississippi and Missouri Rivers, was the gateway to the West. It is also widely known that the Gateway Arch is part of the Jefferson National Expansion Memorial, conceived as a tribute to the vision of Thomas Jefferson as realized by the Louisiana Purchase, and to all other Americans who participated in the territorial expansion to the Pacific. Few people, however, outside of St. Louis, the National Park Service and the former Saarinen office know that the design as constructed includes space for a 42.9 thousand square foot underground museum to chronicle the growth of the West.

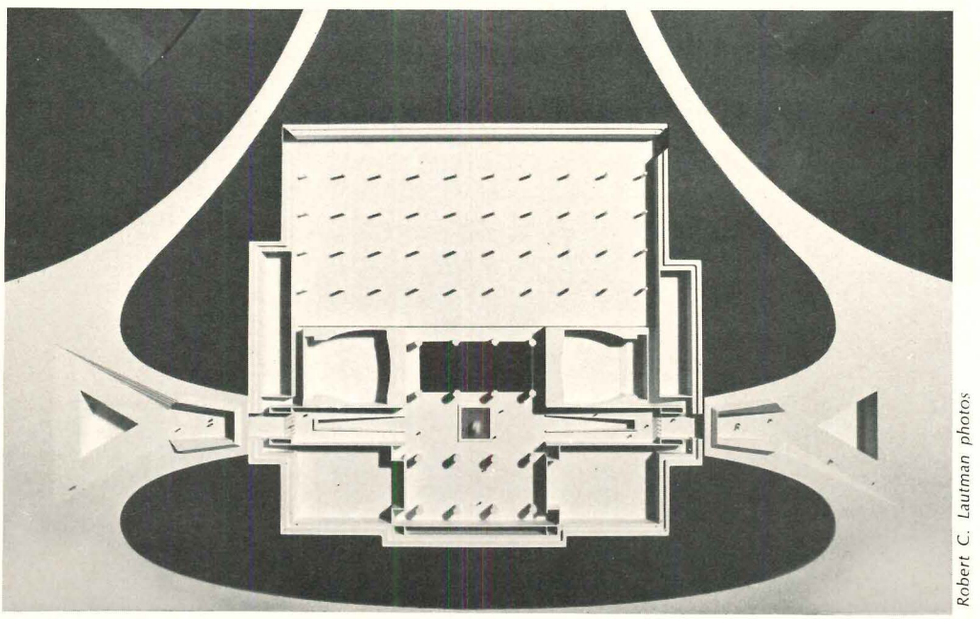
The design of the museum is virtually complete. In the opinion of key officials in the United States Department of the Interior, it will be the best exhibition the National Park Service has ever done.

Responsible for the design of the museum and its exhibits is the Potomac Group lead by architect Aram Mardirosian and staffed by two architects—David Colby and Harry Siler, and one researcher—Johanna Franchetti.

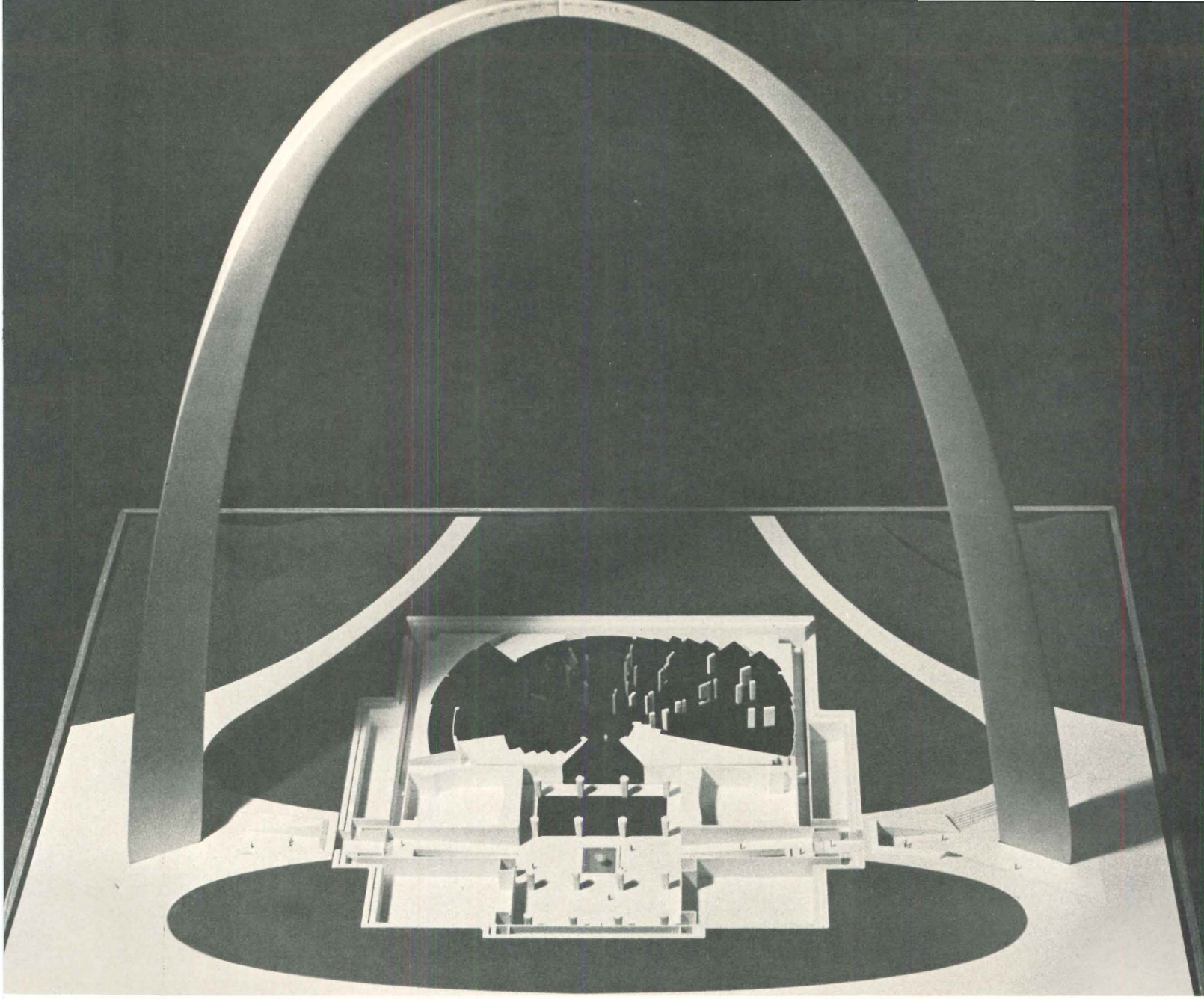
The museum will present a chronicle of the westward movement of Americans beyond the Mississippi River from the time of the Louisiana Purchase in 1803 to 1890 when the U.S. Census Bureau declared that a frontier no longer existed. The design solution combines history, natural history, science, technology, art and music in an integrated design which serves a number of interesting objectives set forth by the Park Service. These include: to communicate a sense of history as well as the randomness of events; to provide an understanding of the size, scope and organization of the museum enabling the visitor to set his own course and pace; and to tell the story from the various points of view of the groups involved. This latter objective encouraged the architects to organize the museum spatially by the categories of people who went west—soldiers, sodbusters, explorers, mountain men, traders, miners, railroad builders—and the categories of people already there—the various Indian tribes. In this way the exhibits can present the expansion of the West as experienced by each group. The tragic fate of the Indians, for example, will emerge in their artifacts and drawings, their faces and such of their own words as these of Black Elk when he spoke of his defeat at Wounded Knee: "I did not know then how much was ended . . . and I can see that something else died there . . . a people's dream died there. It was a beautiful dream . . . the nation's hoop is broken and scattered. There is no center any longer, and the sacred tree is dead."

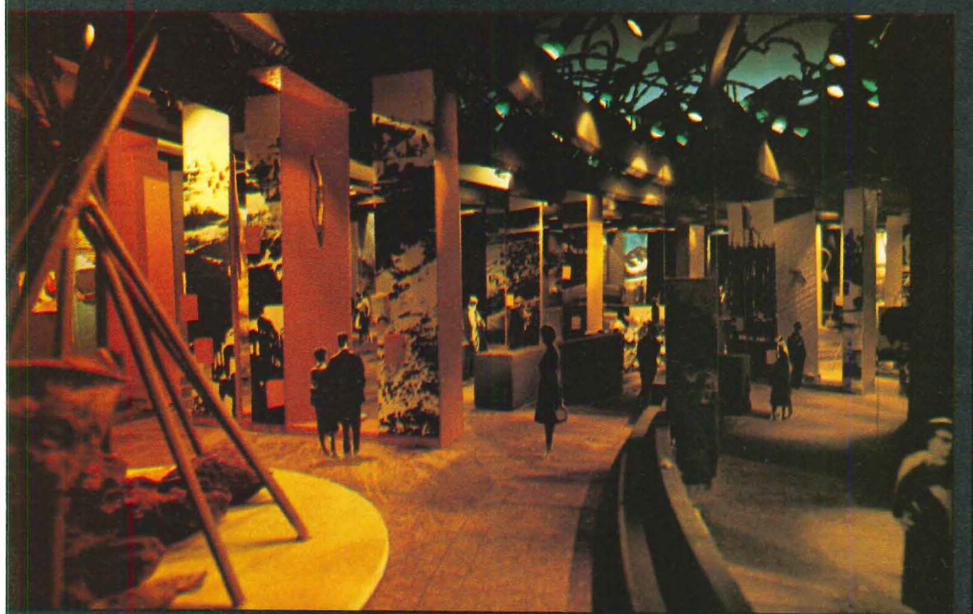


Imposed upon an underground space 150 feet wide, 290 feet long and approximately 20 feet high, the circular expanding form of the museum conceals the existing concrete columns on 30 foot centers which were part of the Saarinen design to support the roof and the earth above it. The relationship of the museum space with the entire complex is shown as Saarinen designed it in the section (above) and the roofless model (below). The proposed museum interior (opposite page), curvilinear yet assymetrical, is in strong and effective contrast to Saarinen's classic concept, which includes the foyer, ramps and two auditoriums installed with the arch.

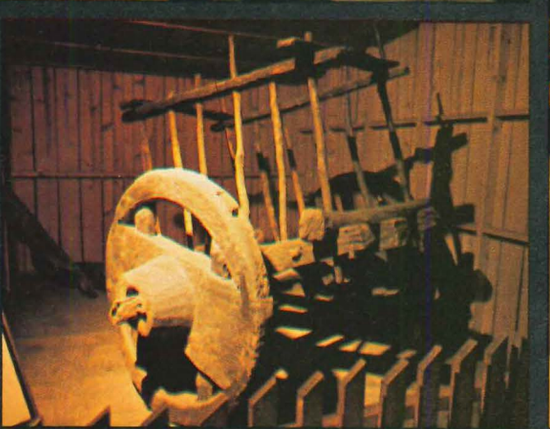


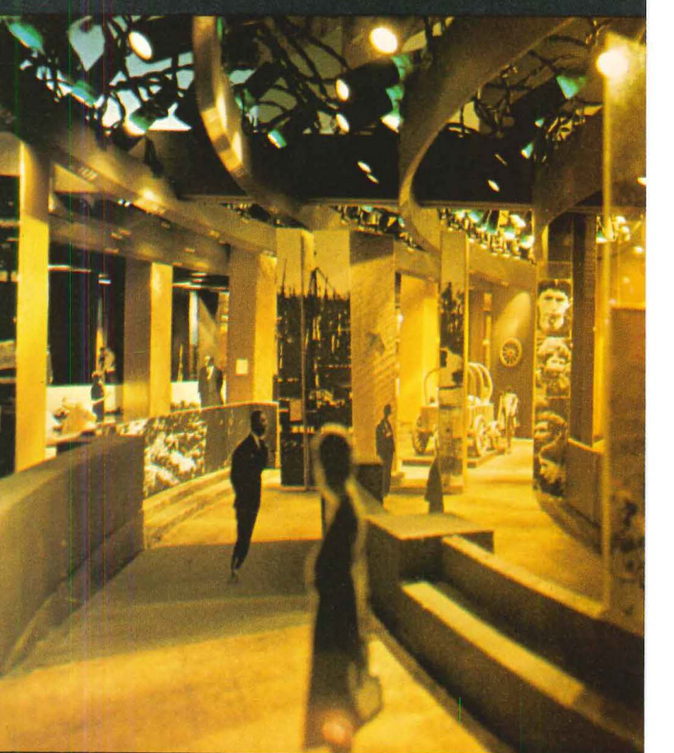
Robert C. Lautman photos

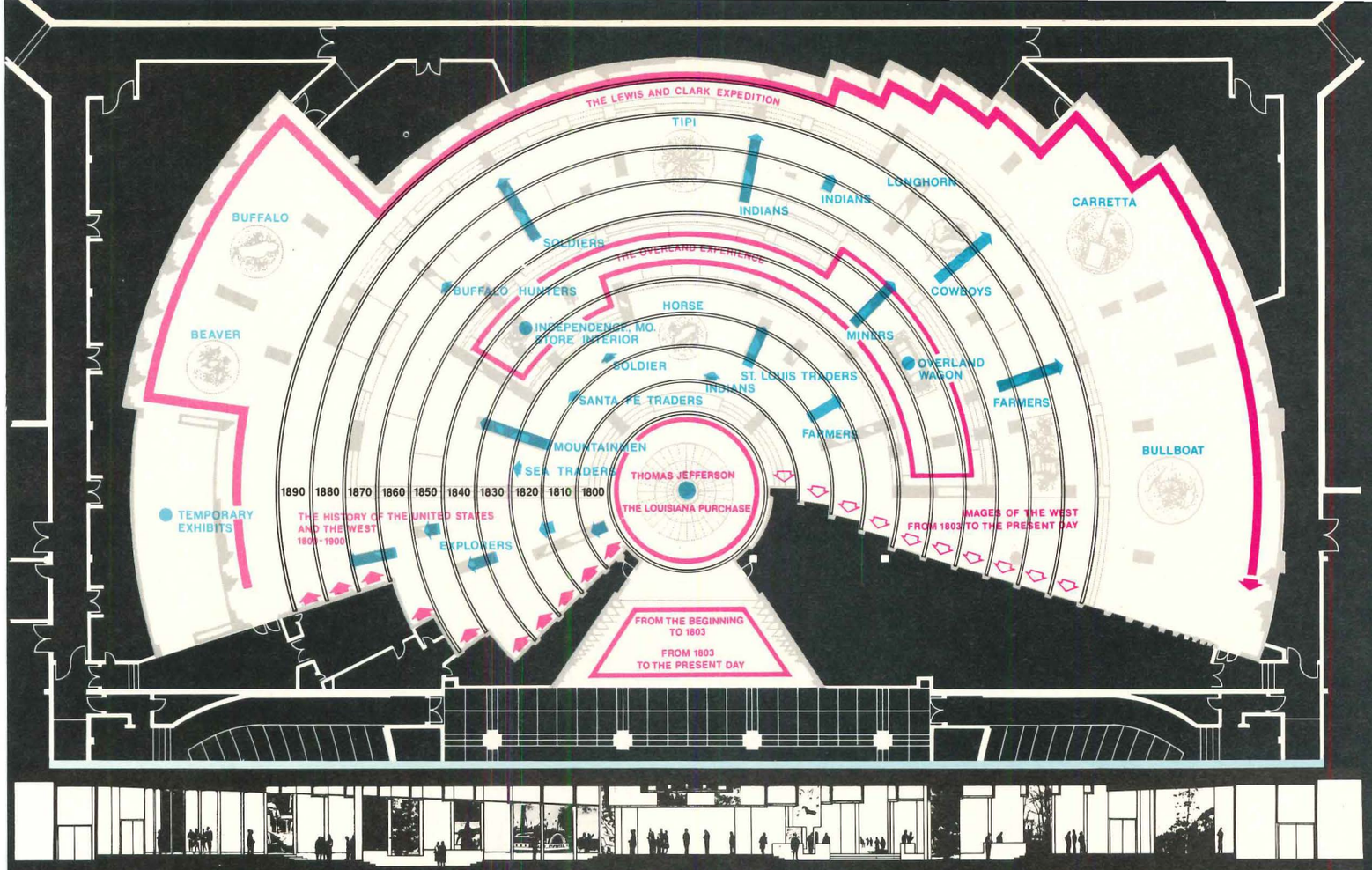




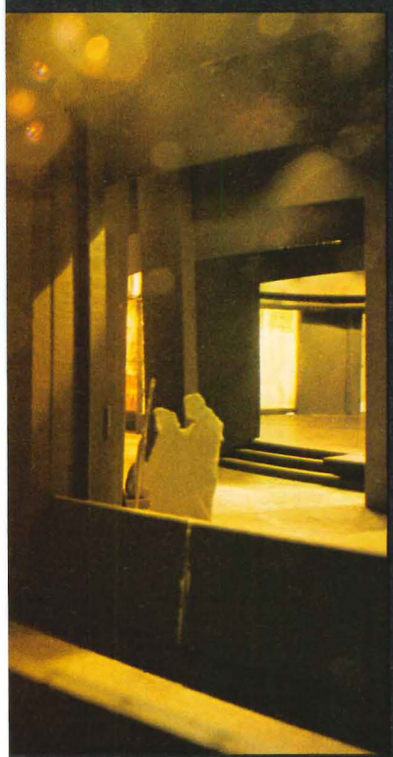
The following description of the museum concept is based upon a design report by the Potomac Group. From the circular point of origin, visitors can move into the seemingly random, assymetrical environment of the museum. The ceiling rings identifying each decade year of the 19th century and the chronological referencing and cross referencing within the exhibits themselves, will provide a context within which visitors may choose their own route into the past. Successive degrees of inclusion, magnification and focus, from the environmental and broadly

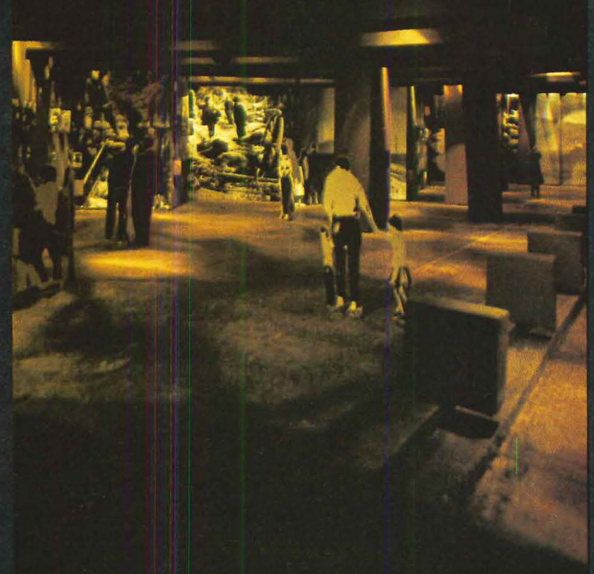


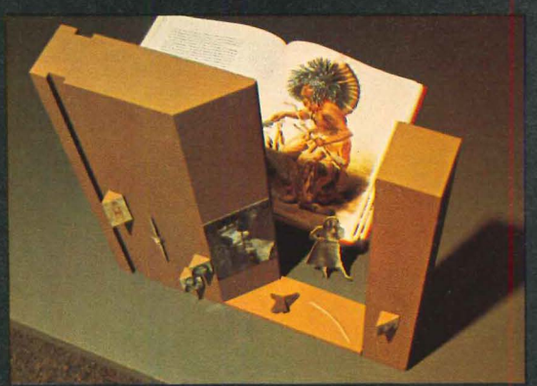




historic context of the full story, to the exhibit walls representing one group of people, to particular images and objects representing one individual, will permit communication at many levels and intensities. At all times and to varying degrees, the visitor will be engaged with the objects, words, images, sounds and songs of the people who shared in the westward movement. In the center of the circular entrance there will be a life-size statue of Thomas Jefferson. The 600-foot-long circular perimeter wall of the museum will provide an environmental context for the various exhibits. The unique landscape of the West, visible on these walls from a distance, will reveal a hierarchy of natural detail as the visitor moves closer to these surfaces. The 130-foot-long wall behind and to the right of the entrance will be used for slide projections of chronological summaries. Fanning out from the entry area from left to right in a clockwise sequence is the explorers section featuring the Lewis and Clark expedition, followed by trappers and traders, soldiers, Indians, miners, cattlemen, farmers and settlers. The exhibit walls will be painted in a spectrum of earth colors to identify the different sections. Within each gallery or section, attention will be further focused upon individuals and their personal possessions as well as the other resources available to them. Three steps below and cutting across these galleries will be the exhibit material concerning the overland experience of the people who traveled west—an experience which best represents the westward epic.







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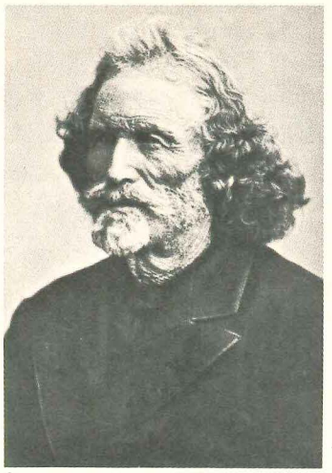

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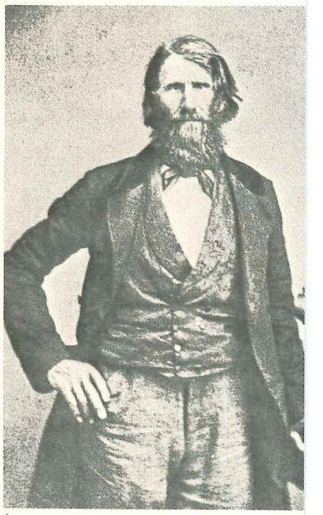

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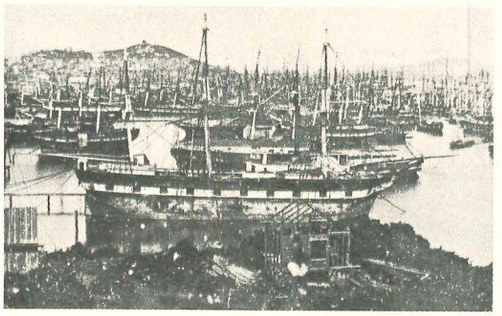

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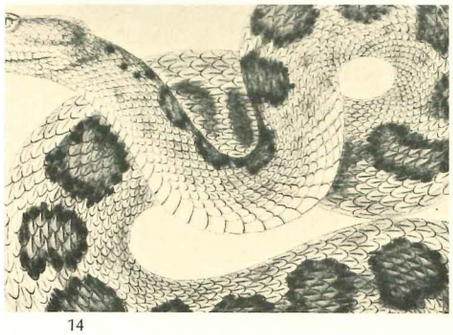

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The content of the museum consists of artifacts, drawings and photographs which are contemporary with the people and events depicted. The art of photography had been developed before 1850 and therefore more than half of the period of westward expansion has been documented by this medium. Fine painters such as George Catlin made a magnificent record of the Indians of the West and many other artists joined the early explorers to record in drawings and watercolors the land, people, plants and animals.

Much of the background music will be authentic. In the early thirties John and Alan Lomax recorded music of blacks, Indians and early settlers as sung and played by survivors of the lost cultures or by descendants among whom the musical traditions remained intact. This music, as well as the natural sounds of the West, will combine with the graphic exhibits and the artifacts to provide a multimedia experience.

1) Jim Bridges (circa 1838) the greatest of the mountain men; 2) Jim Baker, trapper, scout and guide who went west with Bridges; 3) sodbuster family in Nebraska (1886); 4) another sodbuster of the same period; 5) Navaho warrior and sheepkeeper (1870) 6) sawmill builder (1849); 7) ships in San Francisco Harbor (circa 1850) abandoned by crews who deserted to hunt gold; 8) settlers on the overland trail (1870); 9) mining on the American River (1852); 10) refugees from the Minnesota Sioux (1862); 11) blizzard (1886-87); 12) *Chief Four Bears* by Catlin (1832); 13) *Waiting for a Chinook* by Russell (1887); 14) snake drawn by a member of the Pacific Railway Survey team (circa 1854); 15) Mandan Indian smallpox survivors (1872); 16) *Dance Leader of the Hidatsa Dog's Society* by Bodmer (1834); 17) Fort Laramie (circa 1834); 18) Sutters Fort (1847); 19) Fort Walla Walla (1818); 20) *Evil Spirit* by Catlin (1830); 21) drawing by William Clark from his journals (circa 1805); 22) detail of a Mandan Indian painting on a buffalo robe collected by Lewis and Clark (1804); 23) Arapahoes greet President Chester A. Arthur in Wyoming (1883).

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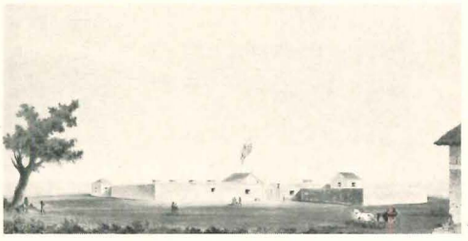

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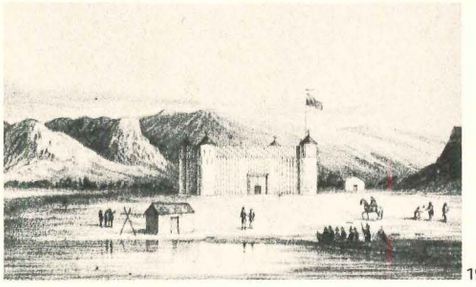

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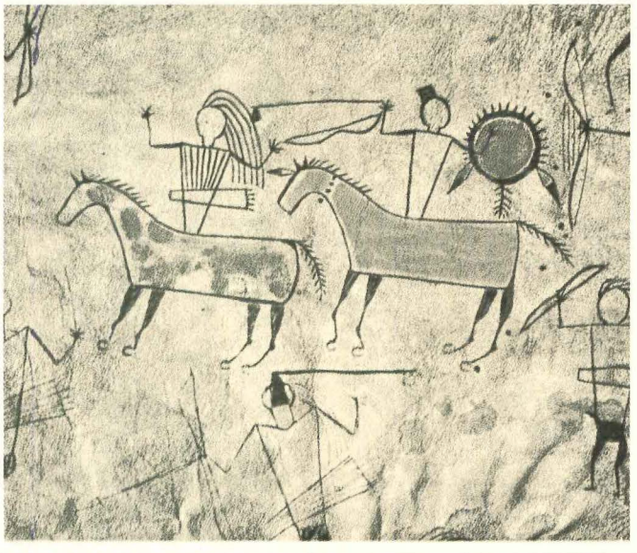

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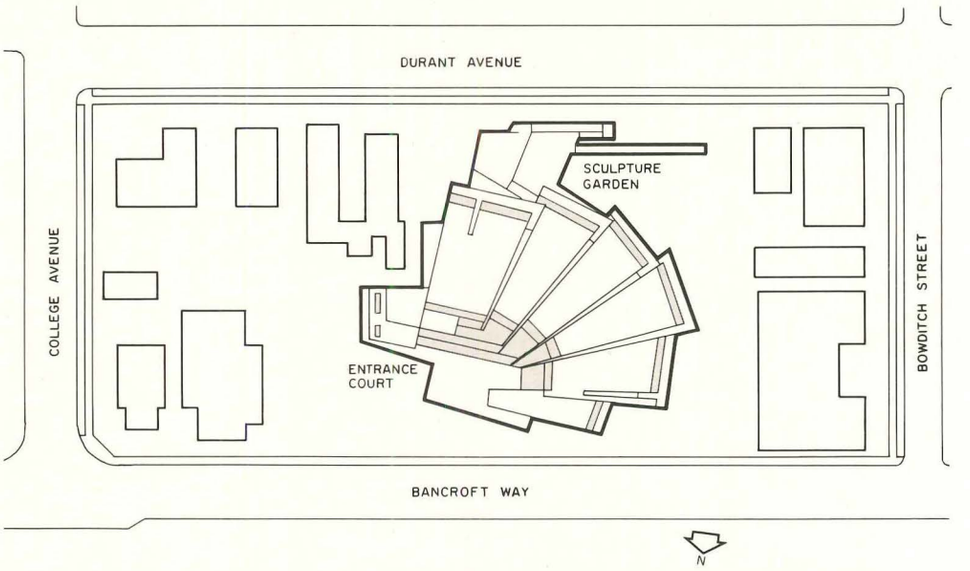
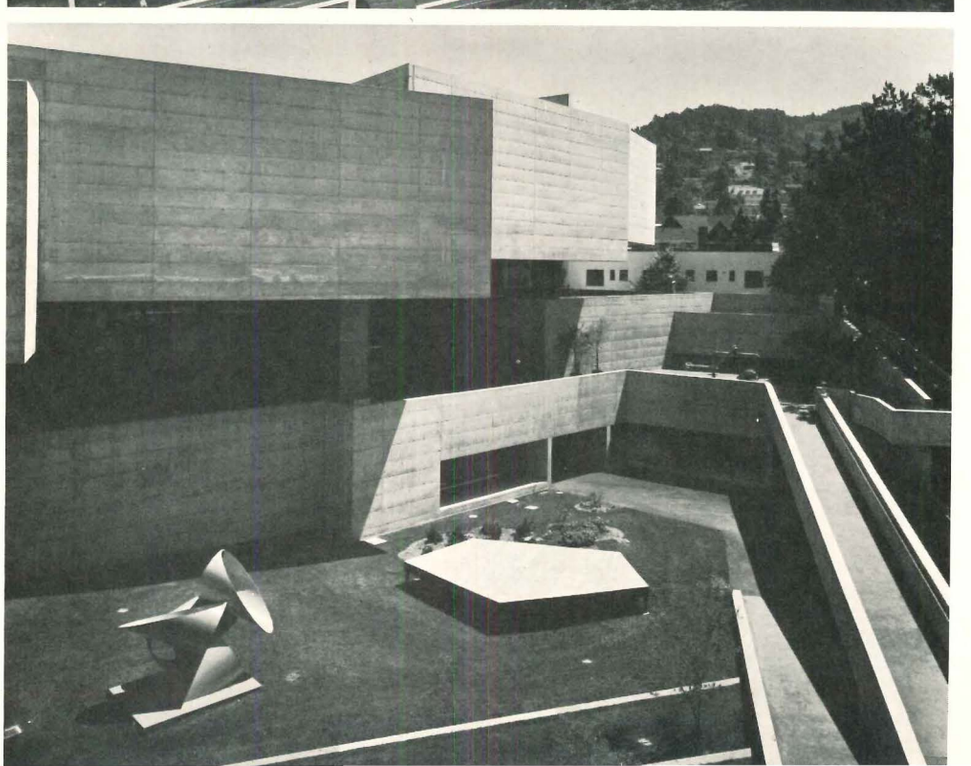
A university art gallery which is a lively work of architecture

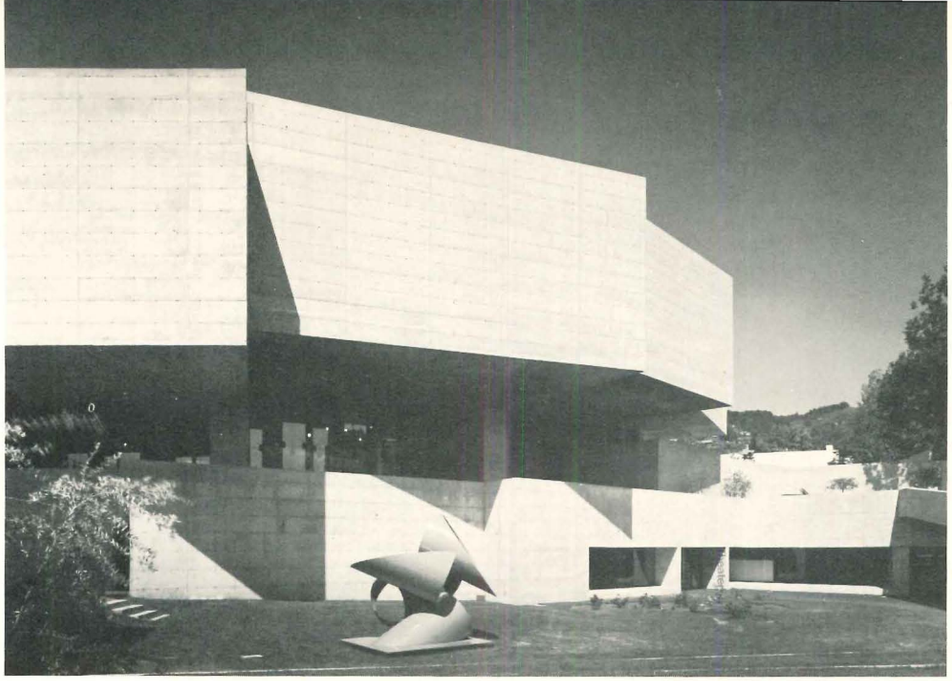
The University of California's new art museum in Berkeley is the largest university art museum in this country. This alone would make it important and interesting. But its design is of great significance in the museum field as well. Its concept is bold and innovative, although it will inevitably be compared to the Guggenheim because of its great court and its major use of ramps. Unlike the Guggenheim, however, it clearly recognizes the function of a museum building and the challenge of the works of art it must be designed to shelter. Its very special virtue is that in meeting the rigorous demands of that function it does not lose sight of its own role as an expression of the art of architecture. This unusual and exciting design for the building was selected in 1964 from 366 entries in a national competition by a jury chaired by Lawrence Anderson, then head of MIT's department of architecture. The building was financed by accumulated student fees and gifts (notably $250,000 from renowned painter Hans Hoffman). A design partnership of Mario J. Ciampi, Paul Reiter, Richard Jorasch and Ronald Wagner was the winner.

Dynamic and exciting as the building itself is, it neither detracts nor distracts from the viewing of objects on display. One of the reasons for this is that the ramps—the obvious but not the only way of reaching the galleries—lead the visitor directly into the galleries: he is within an exhibit area before he can proceed further. Another reason is that the galleries, radiating from the court like parts of a giant fan, are each 60 feet deep and, therefore, are fully adequate places for display and contemplation of paintings, sculpture and other art objects. A third and more subtle reason is the great flexibility which the building affords not only as a place in which a variety of objects in a variety of sizes and types can be displayed, but also as a place through which people move, contributing a particular dynamism to which even skeptical professionals and laymen succumb. The museum's director, Dr. Peter Selz, is especially happy with this exceptional flexibility, and with provisions for delivery storage, and conservation, and special facilities like the theater, library and film archive. Of the building's gross area of 95,000 square feet—built at a total cost of $4,850,000—some 30,000 square feet are used for exhibition.

THE UNIVERSITY ART MUSEUM, University of California. Architects: *Mario J. Ciampi & Associates, in design partnership of Mario Ciampi, Richard L. Jorasch, and Ronald E. Wagner, design associates, John Voulkos, project architect.* Engineers: *Isadore Thompson,* structural; *K. T. Belotelkin and Associates,* mechanical; *Harold Wright,* electrical; *Dariel Fitzroy,* acoustical. Landscape architects: *Mario J. Ciampi & Associates.* For the University: *Louis A. De Monte,* campus architect; *Norma P. Willer,* associate architect; *Frederick F. Warnke,* landscape. General contractor: *Rothschild and Rafin, Inc.*

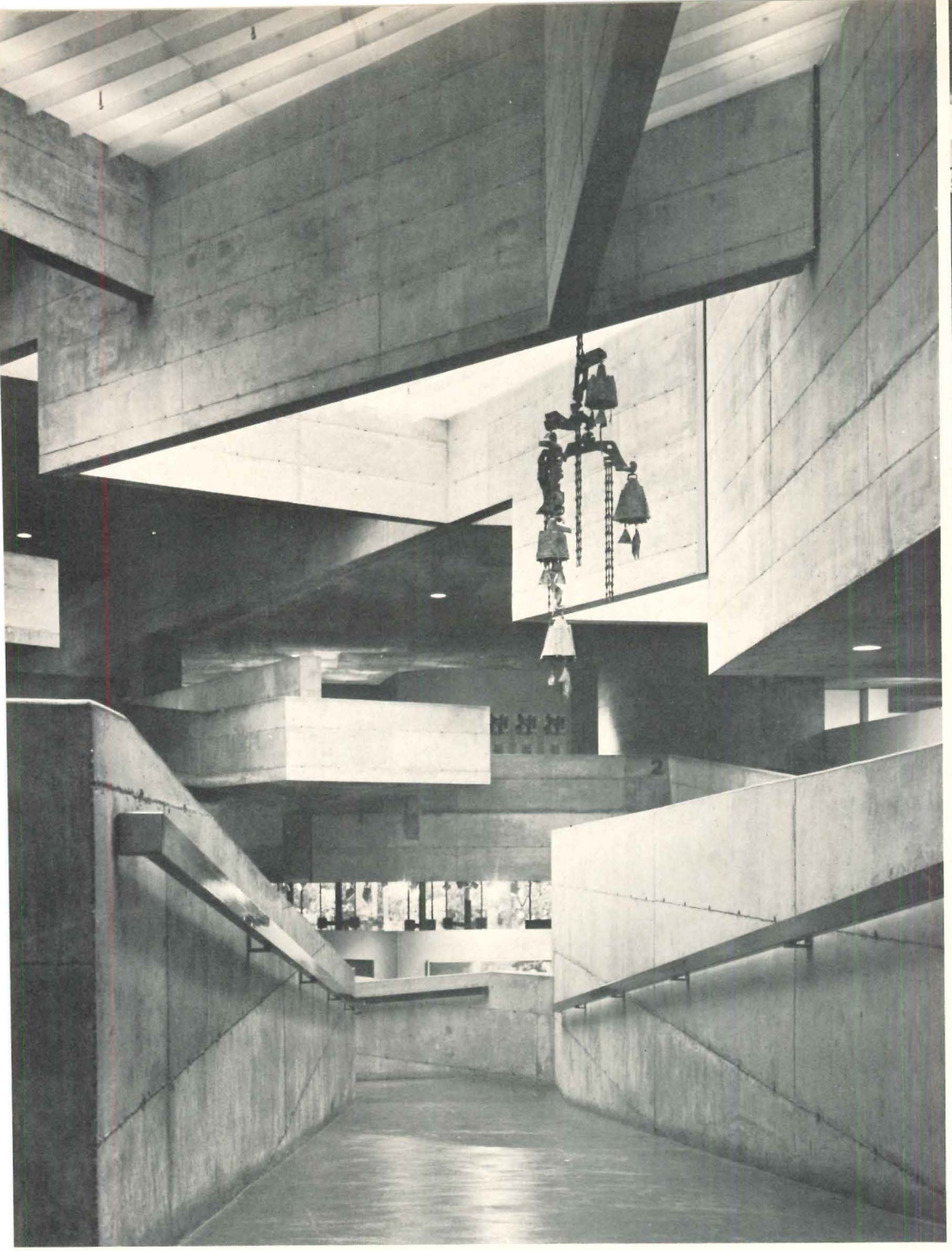


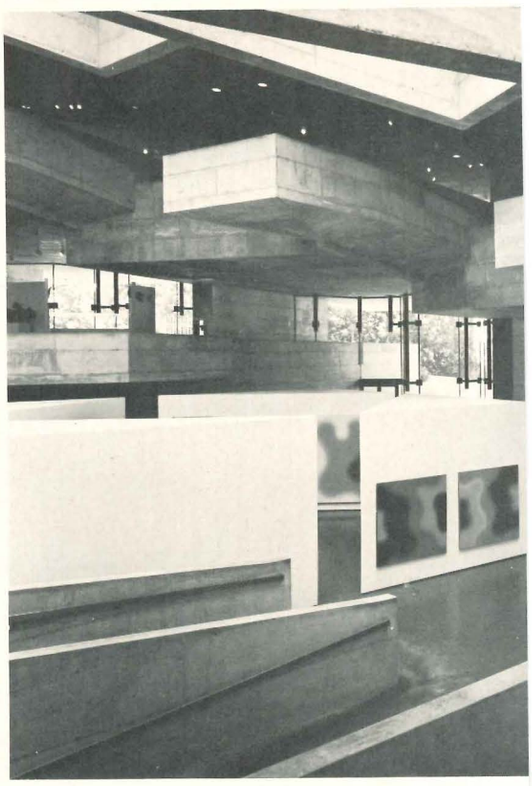


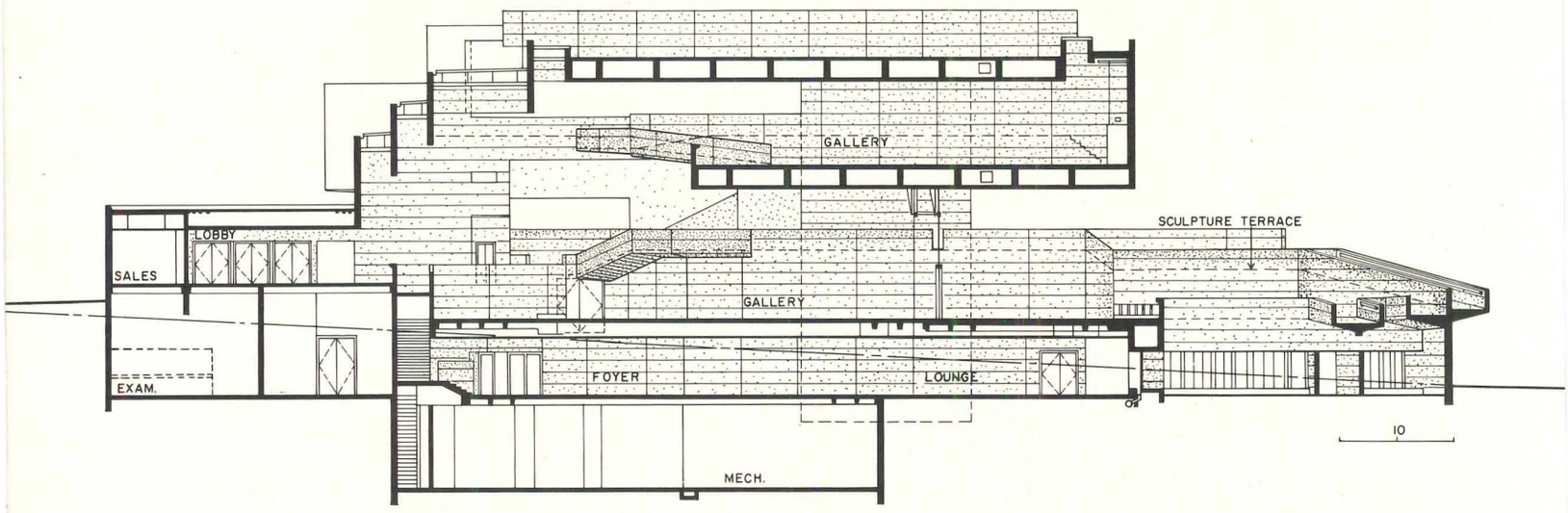


The rugged concrete exterior of the museum building is offset at the entrance by grassy mounds and a large black Calder stabile. Although the building is not on the university campus — it is across the street—it is oriented to the campus, especially to the nearby art and environmental design buildings. Even so, as the only large art gallery in Berkeley, it also has an important community role. Along the west side is a sunny sculpture garden (with a fine red Max Lieberman piece), much used by students, and overlooked by the terraces outside the main level galleries.

Morley Baer photos






GALLERY
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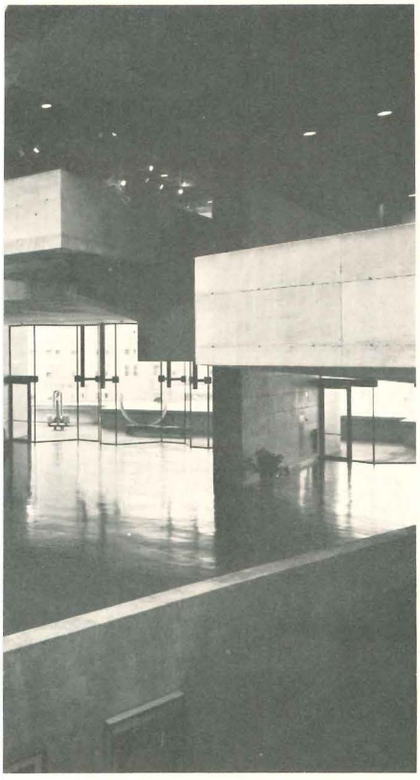
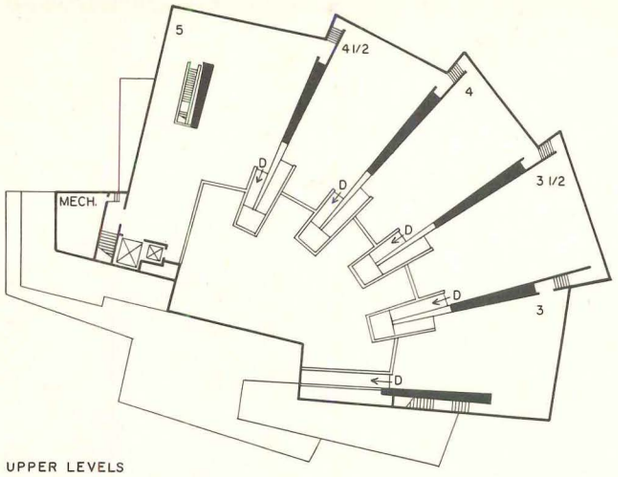
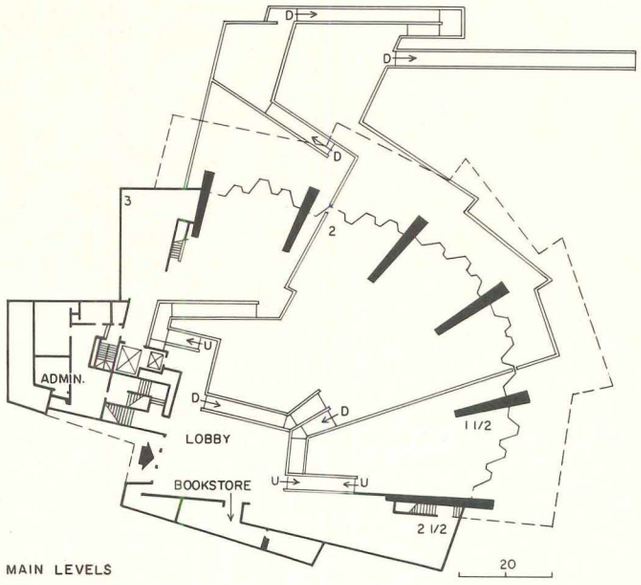


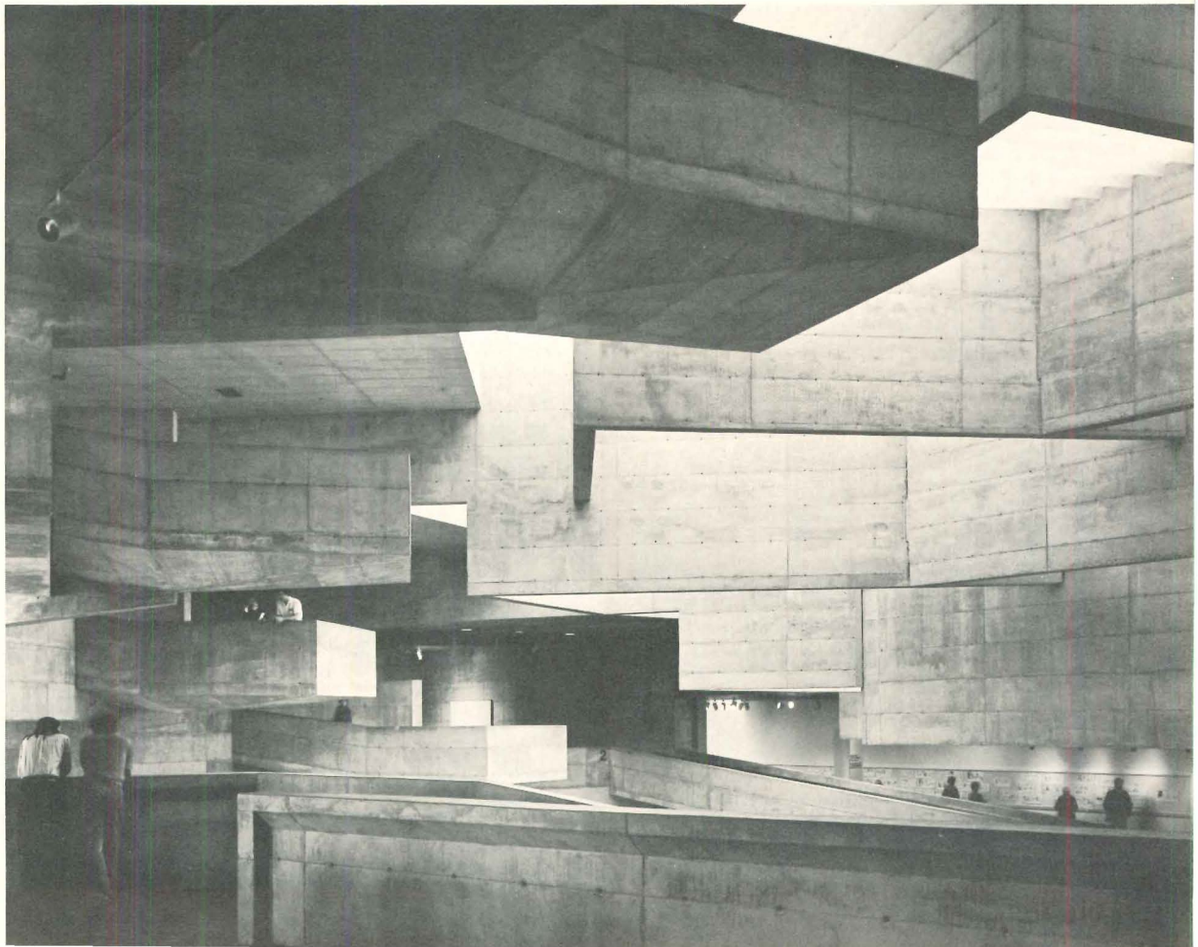


UPPER LEVELS



MAIN LEVELS

The building's plan and section are complex but the actual experience of the building is simplified by the fact that all exhibit areas are simultaneously discernible from the great court. There are 12 spaces on nine levels where exhibits can be shown (see plans at left), including the great court under whose skylight unusually tall and large sculptures can be shown. Working areas are served by separate stairs and entrance.



In contrast to the stark and bold exterior, the interior is dynamic, vital and exciting. The great volume of skylit space—the most striking feature of the interior—is only one contribution to this character. Ramps take off on either side of the court and lead up or down to different levels of the exhibit areas and galleries which radiate from the court. Landings cantilever over the court like tiered boxes in a theater, inviting a pause in ascent or descent to look over the court with its stationary exhibits and its human movement. Skylights over the court are set at various levels and in various planes and sizes between deep concrete beams. At the far end of each gallery is a skylight.

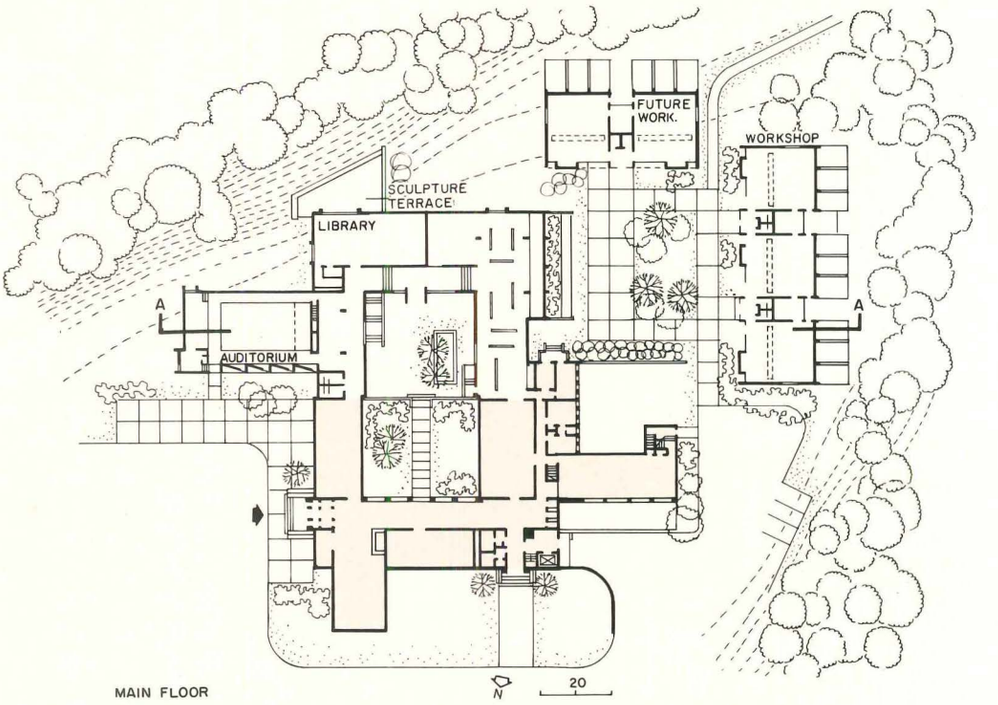
A quiet, unobtrusive building for the contemplation of art

The new addition to the Huntington Gallery in West Virginia by TAC has all the trademarks of having been designed in Boston. It expresses once more the familiar vocabulary of form, structure and materials which has been developed and perfected by TAC and other leading New England firms during the past 15 years—a system of interrelated box-like forms characterized by the use of a carefully articulated concrete frame with brick infill and exposed concrete waffle slab ceilings. Thus the building is essentially conservative in its architectural expression, particularly if compared to Mario Ciampi's museum on the preceding pages. In spite of (or perhaps because of) its conservatism, the new addition competently serves the purposes of the program.

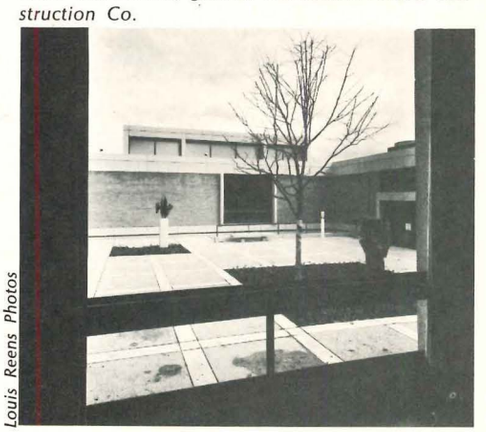
It is well lit by a carefully balanced system of natural and artificial light in which, during the daytime, natural light predominates. The interiors are flexible, spacious and in good scale with the small to medium sized works of art which the museum acquires and exhibits—an effect achieved by establishing a moderate ceiling height. The interior spaces do not impose themselves on the museum-goer's consciousness to forcibly distract him from the works of art, but he can distract himself, if he likes, by looking through the large windows which frame good views, or by enjoying the landscaped courtyard (below) or the terrace (opposite page top).

A second courtyard (see plan) will be formed when the last two of the five workshops are constructed. These generous, well-lit studios which are used by the community—and particularly by the young—for the development of their own creativity, were considered by the late Walter Gropius, principal-in-charge of the project, to be essential to the success of the gallery as a lively, contemporary institution.

HUNTINGTON GALLERY ADDITION, Huntington, West Virginia. Architects: *The Architects Collaborative—principal: Walter Gropius; associate-in-charge: Malcolm Ticknor;* associated architects: *Walter S. Donat;* structural engineers: *Souza & True;* mechanical and electrical engineers: *Beyers, Urban, Klug & Pittenger;* lighting consultant: *William Lam;* concrete consultant: *Architectural Concrete Consultants;* general contractor: *Persun Construction Co.*

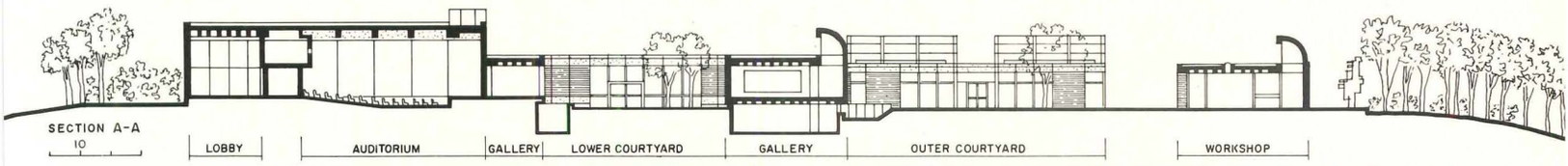


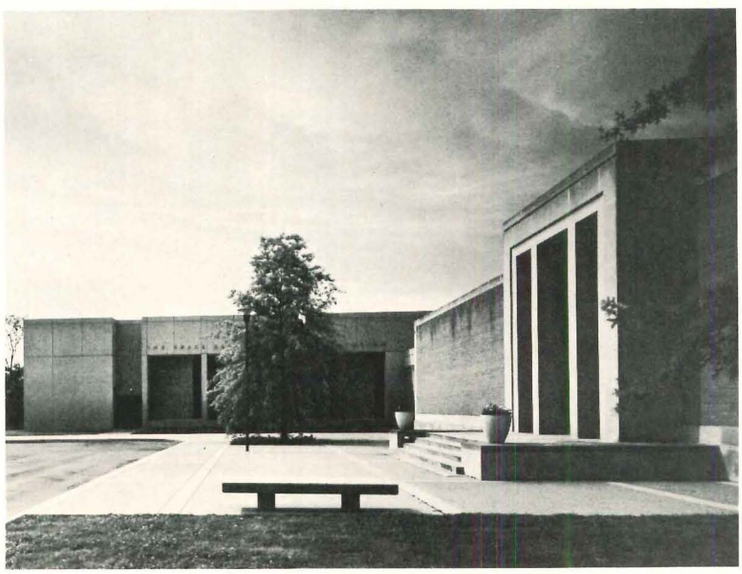
MAIN FLOOR

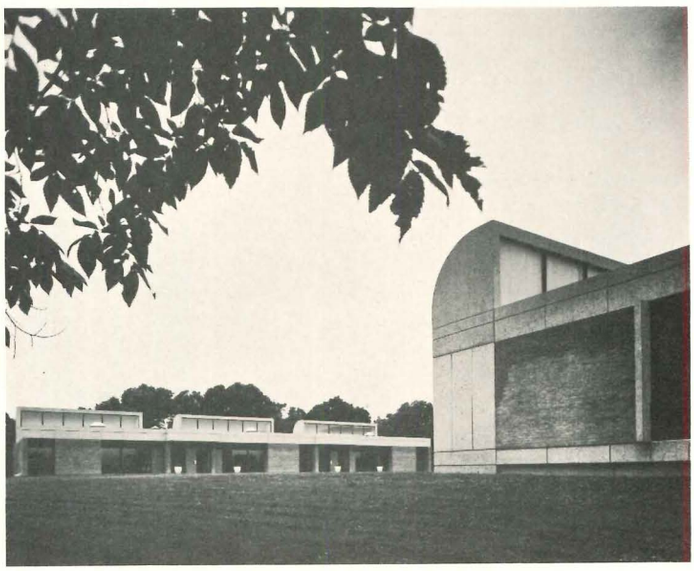


Louis Reens Photos

The only art gallery within a 75-mile radius, Huntington is located on a small plateau several miles outside of town. TAC's U-shaped addition contains gallery space, a research library and a 300-seat auditorium. A pathway underneath the addition connects the sculpture court (opposite page) and the lower sculpture terrace (top) which has been located to take advantage of the spectacular view. As the photograph (bottom left) indicates, the new addition has been carefully sited to enhance the principal entrance which had been the design focus of the older neo-classic structure. In scale, proportion and general architectural character, the new addition is sensitively related to the old museum. Natural daylight is brought in through half vaults as can be seen in the section (below) and the photo (opposite page bottom). Artificial lighting can be plugged in almost anywhere within the ceiling module. The parquet floors and fabric covered walls match the older structure.







A landmark art gallery restored to its gilded past

The Renwick Gallery was begun in 1859 as the original Corcoran Gallery of Art. Before it could open it was seized by the Union Army quartermaster corps for use as a Civil War clothing warehouse and did not open as an art gallery until 1871. Later the collection was moved to the present Corcoran Gallery and in 1899 the building became the U.S. Court of Claims.

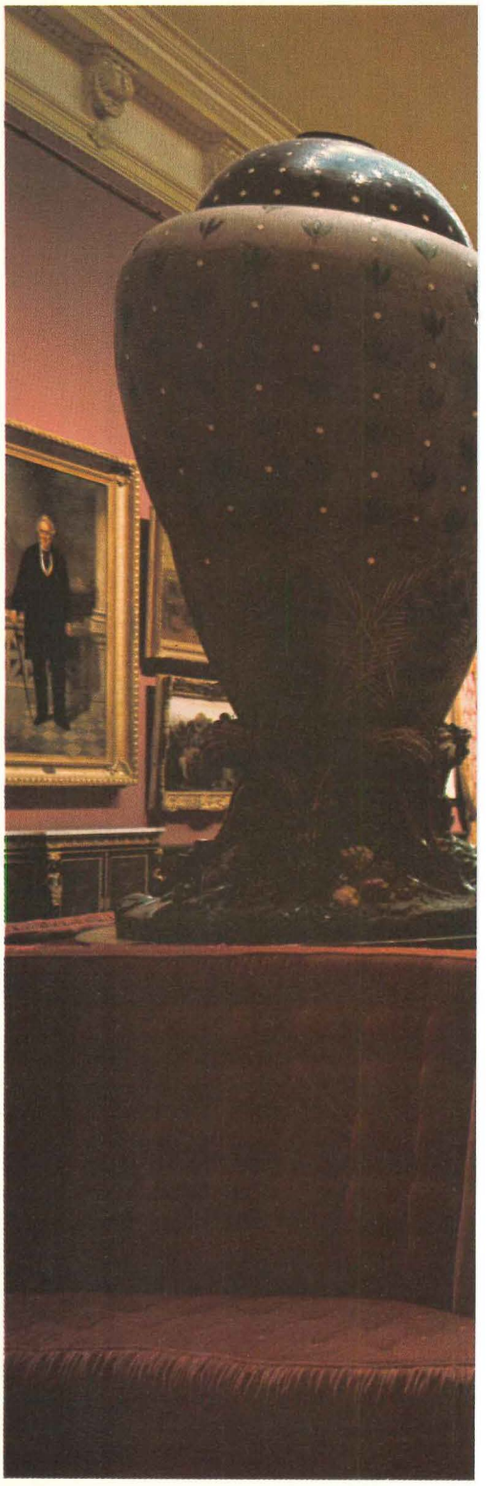
When the Court moved out in 1964, the building stood crumbling. In the same year, John Carl Warnecke's firm had produced a feasibility study of the restoration and rehabilitation of Lafayette Square (RECORD, April 1968). Included in the study was the old Court of Claims, which had been retained as a stylistic complement to the Executive Office Building across the street. (Both are excellent adaptations of the French Second Empire style which architect James Renwick used for the first time in the United States in his design for this building.) Warnecke's firm urged that the old Court of Claims be returned to its original function, that of an art gallery.

In 1965 President Johnson approved the transfer of the building to the Smithsonian and restoration began shortly thereafter. Warnecke's firm made the basic interior renovations, replacing the plumbing, wiring, heating and ventilating systems, as well as strengthening the structure in critical areas and removing the various partitions installed by the Court of Claims.

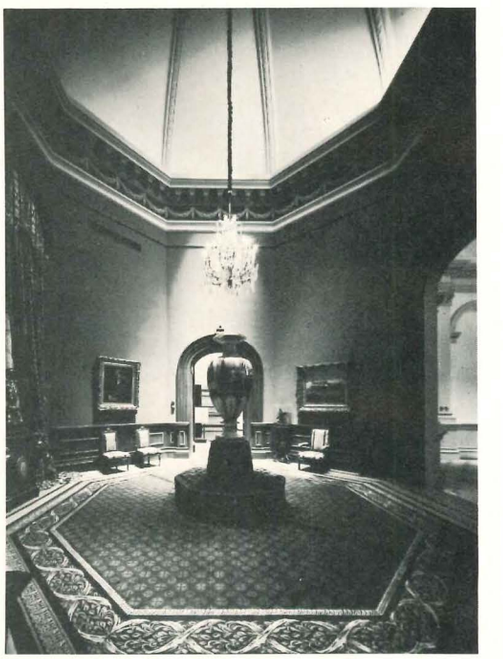
More than a century of weathering had obliterated more than 90 per cent of the original exterior ornament. A joint research team staffed by Warnecke and Universal Restoration Inc. researched various archives to find illustrations of the lost ornamentation, and succeeded in uncovering in the Library of Congress photos taken by Matthew Brady, as well as Renwick's original drawings. Hand carved models were made from blow-ups of the drawings and photos and latex molds were made from these. The new exterior ornamentation is actually a cast composite containing crushed particles of the previously removed stonework, which blends extremely well in color and texture with the older portions of the building.

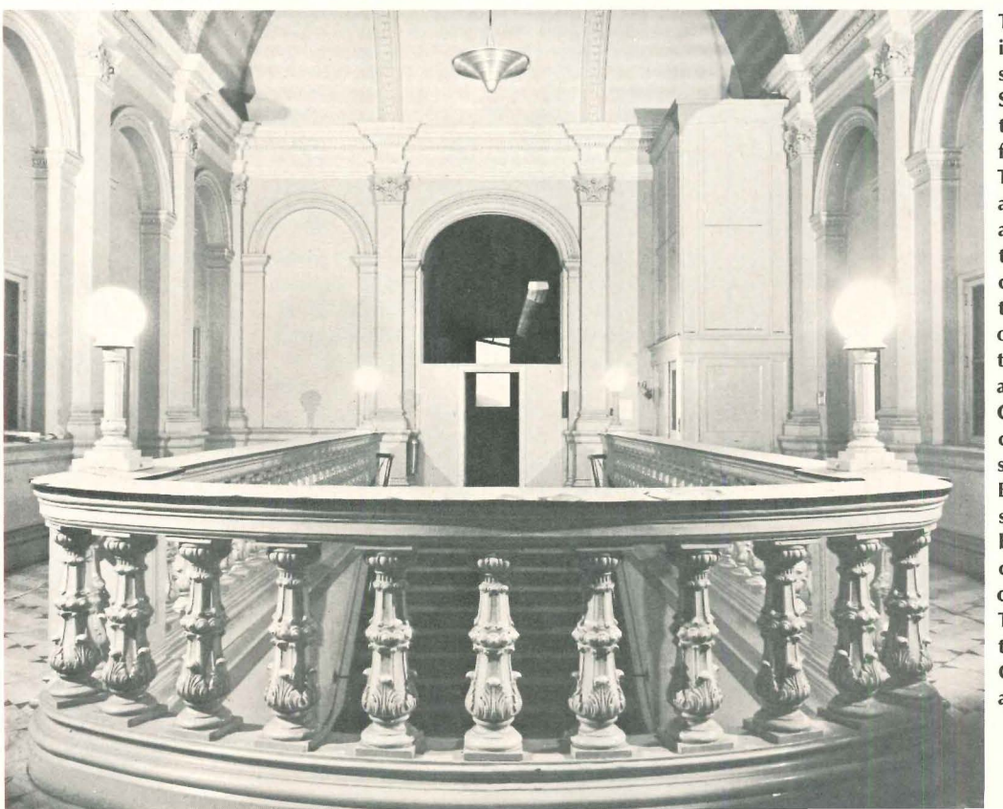
Hugh Newell Jacobsen & Associates won the commission to further restore the interior in the spirit of Renwick's time. It has been refurbished with period furniture of the last third of the 19th century. Several of the rooms including the Grand Salon (opposite page) and the Octagon Room (overleaf) are designed as permanent exhibitions. The paintings in the Grand Salon include many which were displayed there almost a century ago when the building served as the original Corcoran Gallery. The works are on loan from the new Corcoran.

The Renwick has no collections of its own. In addition to the two great rooms which are its permanent displays, it will hold design exhibitions of all kinds.



Many years elapsed from the time architect James Renwick finished his design for the original Corcoran Gallery of Art to its completion as a museum, and during this period he had gone out of fashion as an architect. While he was responsible for shaping the noble interior spaces of the gallery, he subsequently had little influence on the interior finishes of the building or the selection of furnishings. Nonetheless, even without the Renwick touch, the 19th century interiors of the Corcoran represented the epitome of the taste of the time. Architect Hugh Jacobsen's task was not to reproduce these interiors but to evoke them, which he has done with great skill. In the process he came to admire Renwick's ingenious manipulation of scale. "Renwick wanted to make the person smaller, the building grander" says Jacobsen. "Although 8 inch baseboards are customary, some of Renwick's are 14 inches. His chair rails are not all at the usual 36 inches. Some are 30, 48 or even 52 inches." The main foyer and stairs (opposite page, above) have the dark brown wainscoting, light beige walls and ochre trim which was typical of the period. The stair leads directly to the Grand Salon (above). In this room, which is also used for presidential receptions for dignitaries staying at the adjacent Blair House, the paintings are hung on plum colored walls in tiers, just as they were over one hundred years ago. The gigantic urns are from the Philadelphia Centennial Exposition of 1876. Unlike the Grand Salon and the Octagonal Room (overleaf), the remaining galleries will not be restored to their past grandeur as permanent exhibitions in themselves but will be used for changing exhibits (opposite page, bottom left). Such rooms are painted in white or light tones and their moldings and other architectural details are not emphasized by color accents as they are elsewhere. These rooms are high-ceilinged, spacious, and filled with daylight.





The Octagonal Room (above) is centered on the main staircase opposite the Grand Salon which can be seen in the photo (above left) taken from the Octagonal Room. The latter space is directly above the entrance foyer and its dome is expressed on the exterior by the central, curved mansard roof. Befitting its importance in the overall spatial hierarchy of the building, including its axial relationship with the Grand Salon, it too has received full and elegant restoration to the gilded age. By deliberate contrast, the stairhall itself, like the foyer below is of a subdued beige color, its ornament accented only by a change to ochre. The bottom photograph was taken soon after the old Court of Claims moved out and just before renovation.

MARQUIS AND STOLLER: CURRENT WORK

Readers of ARCHITECTURAL RECORD and other design journals are already familiar with the work of this 16 year-old, Bay Area firm. It is a relatively small office—relaxed and informal. Two of the five principals teach (Claude Stoller at Berkeley and David Glasser at Columbia) and everyone is encouraged to pursue a wide range of outside interests and activities. For some, this means AIA committee work; for others, the Sierra Club or a special housing task force.

Over the years, this office has patiently earned a reputation for excellence in the design of small- and medium-sized buildings. But like other design-oriented firms of this size, they have been caught in an economic squeeze. They are now reaching for a larger scale practice and have opened a New York office to have a presence in the East. The question that lingers is how to grow gracefully? What sacrifice must be made in either the design concern or personal service that has marked Marquis & Stoller's practice from the beginning?

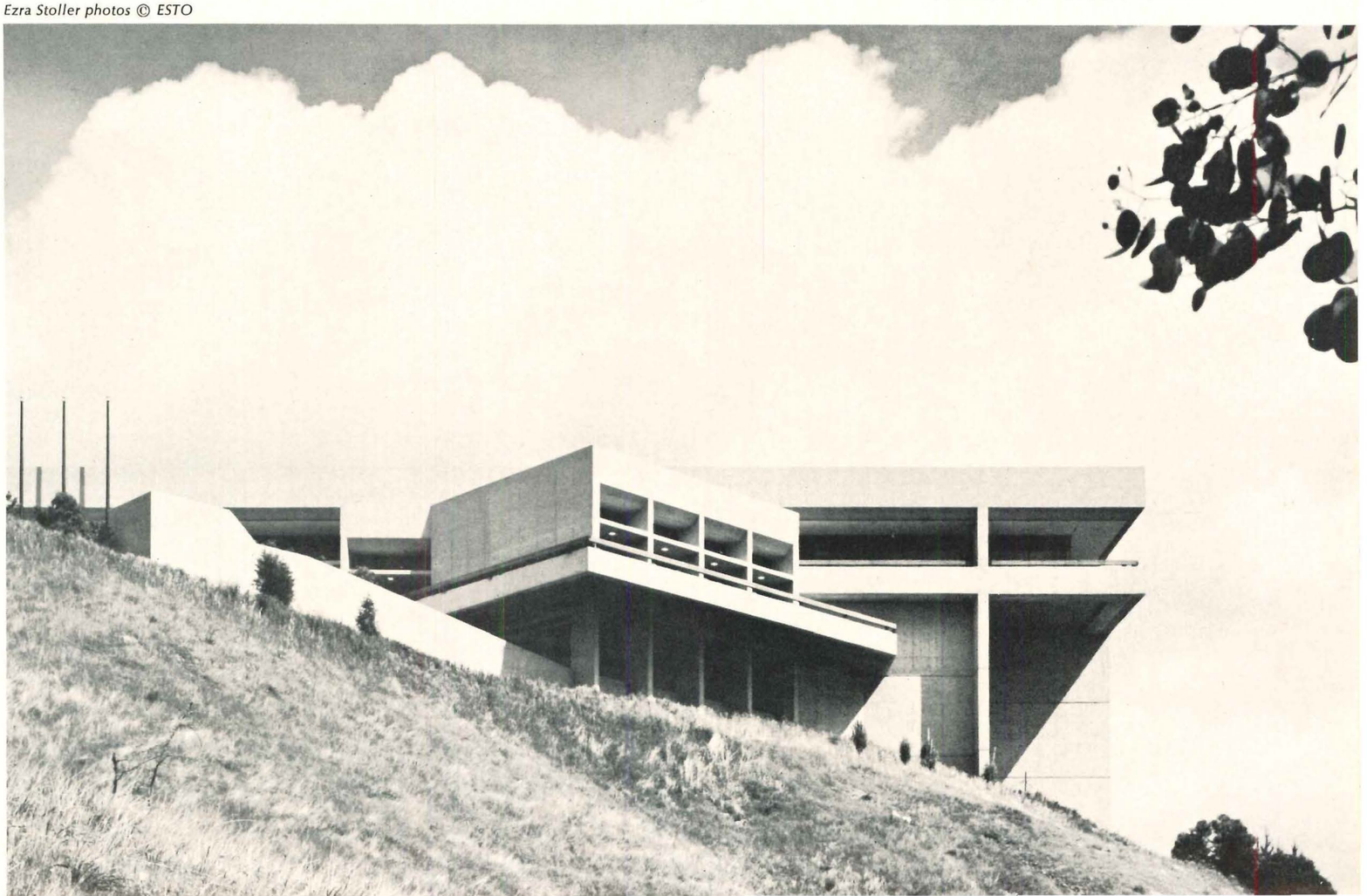
Several of the buildings in this group take a step toward this new scale. The same quality and attention to detail that characterized their domestic work seems to us to have carried over.

Offices for publisher part of master plan for Quail Hill development

The small summit of Quail Hill rises over Terra Linda Valley in the Northgate section of Marin County. It is grape country, and for more than a century its vineyards have been justly famous. In 1967, an 83-acre property, which included the hilltop, was purchased by a subsidiary of the Commerce Clearing House, publishers of tax business law reports.

The owners commissioned Marquis & Stoller to masterplan the site for mixed uses and to design a small office building to occupy the crown of the hill. The structure that emerged (photo below) is typical of the firm's approach to design. The building is fitted to the hill with obvious care. Employee parking is collected on the lower floors to leave the hillside uncluttered

Ezra Stoller photos © ESTO

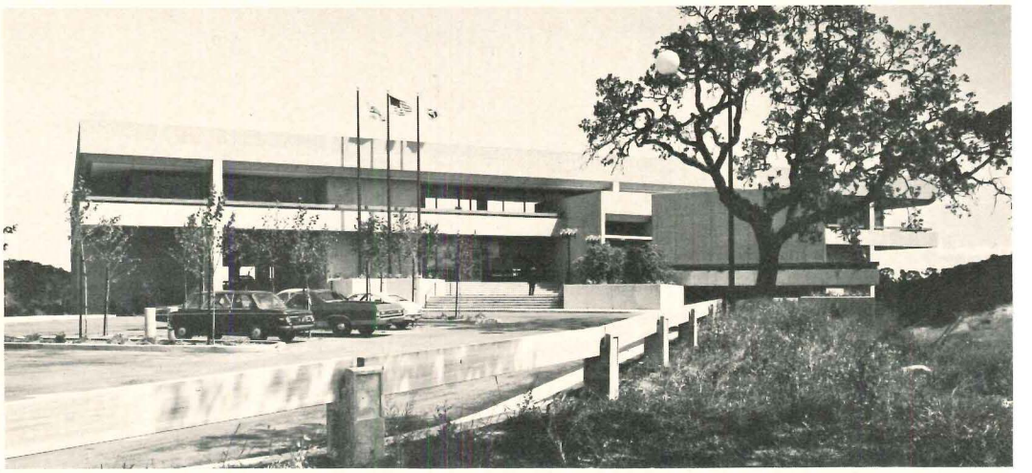


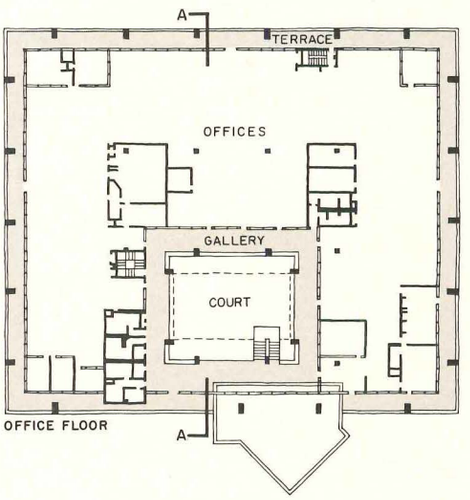
by cars. Offices are on the upper level, giving almost everyone a panoramic view of valley and surrounding hills (FLLW's Marin County Center stretches out just to the west).

The exteriors are formed in sand-blasted concrete and detailed in simple, crisp lines. Around the building, on the flanks of the hill, new vineyards (Cabernet Sauvignon) have been planted as an integral part of the landscaping plan. The owners anticipate a modest crop each year starting in 1972.

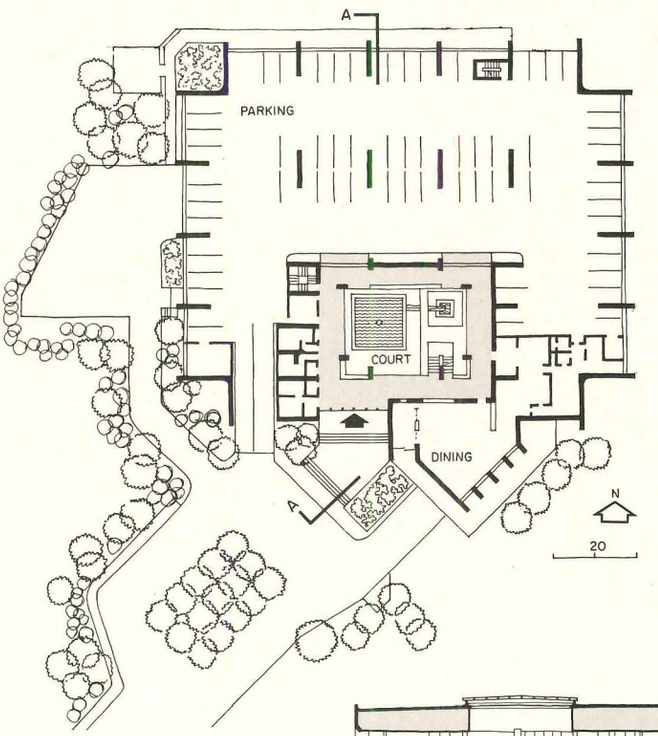
The interiors pivot around a landscaped three-story court that can be opened to the sky when the season permits. Court galleries, on each level, provide the building's primary internal circulation and are linked vertically by a handsomely sculpted stair (photo far right). The work areas are treated with a modified office landscape that retains corner offices but disperses its core elements. Library and conference areas are partitioned for privacy and acoustical control. Individual desks and work stations are located and positioned for maximum comfort and employee efficiency.

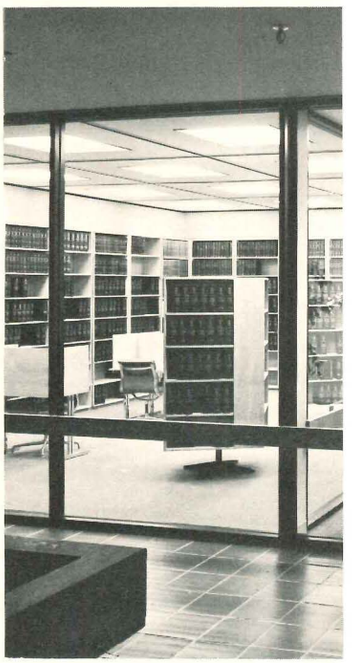
Inside and out, the visitor's first impression is one of quality. Closer inspection seems to confirm that impression.

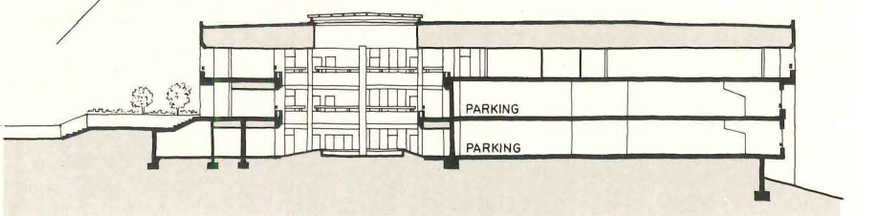




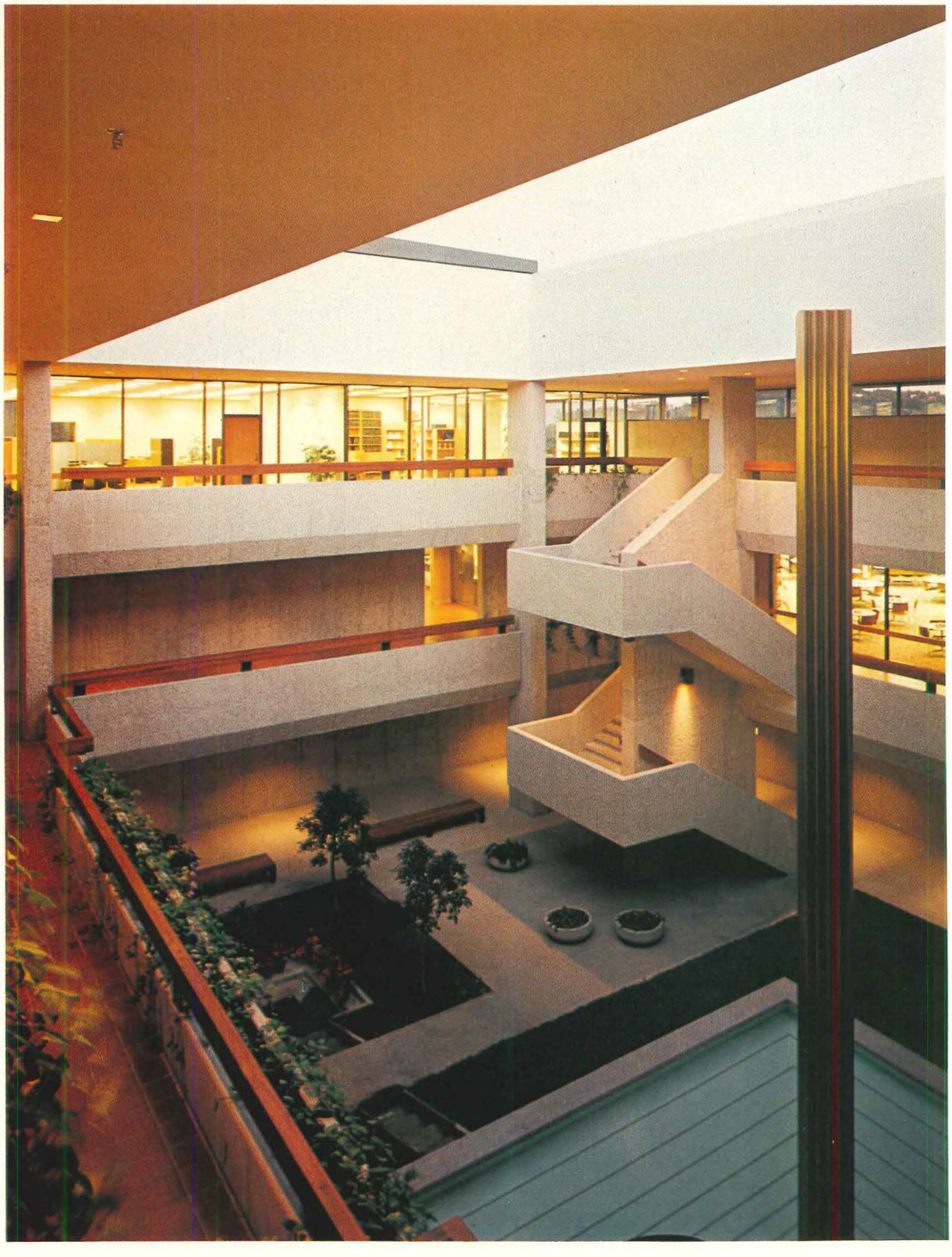
OFFICE FLOOR







SECTION A-A



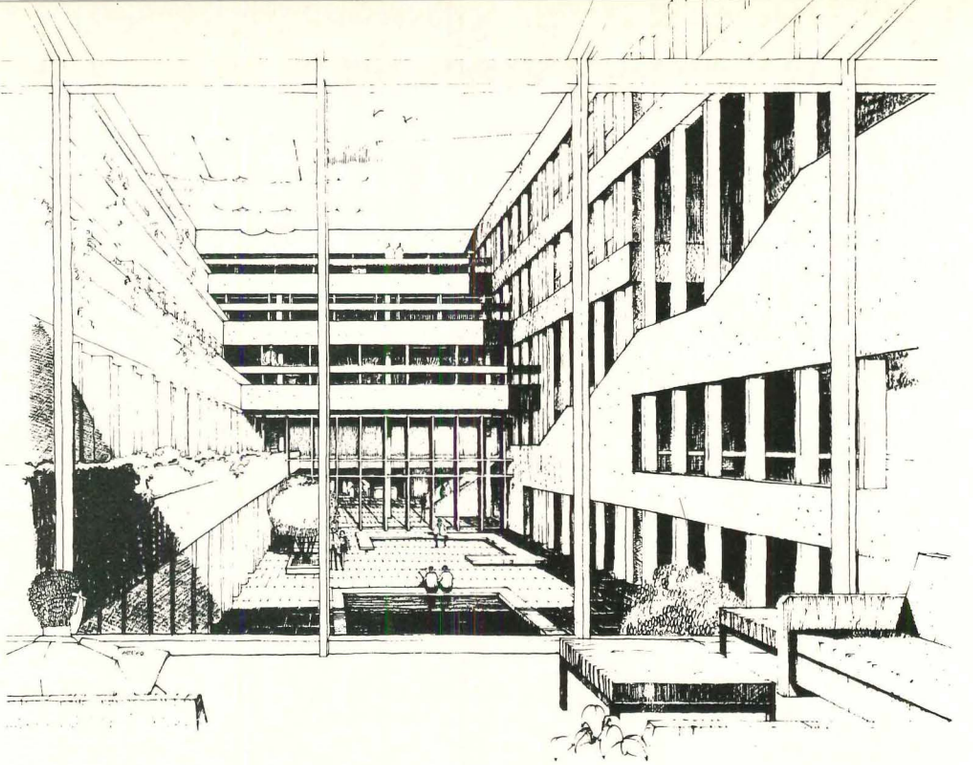
The tall column (photo right), is a fountain sculpture by Tony DeLap. Water trickles 36 feet down its fluted, stainless steel sides and is collected in a catch basin for recirculation.

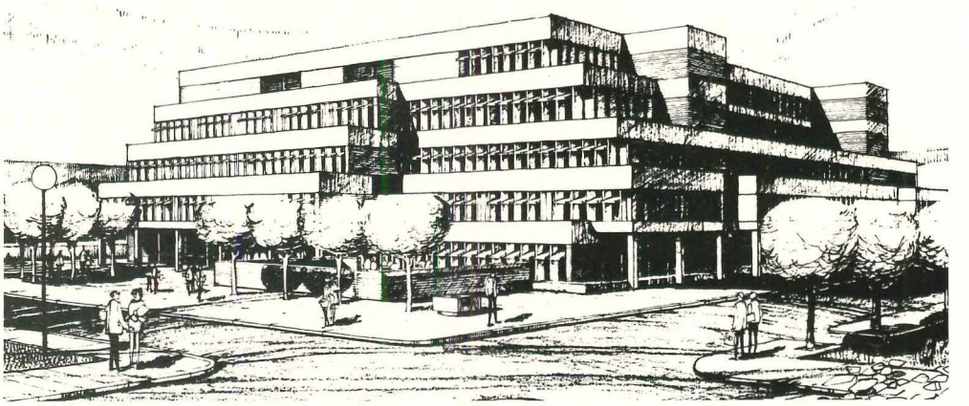
COMMERCE CLEARING HOUSE, San Rafael, California. Architects: *Marquis & Stoller;* structural engineers: *Forell/ Elsessor;* mechanical engineers: *G. L. Gendler & Associates;* landscape architect: *Richard Schadt;* contractor: *Aberthaw Construction Company.*

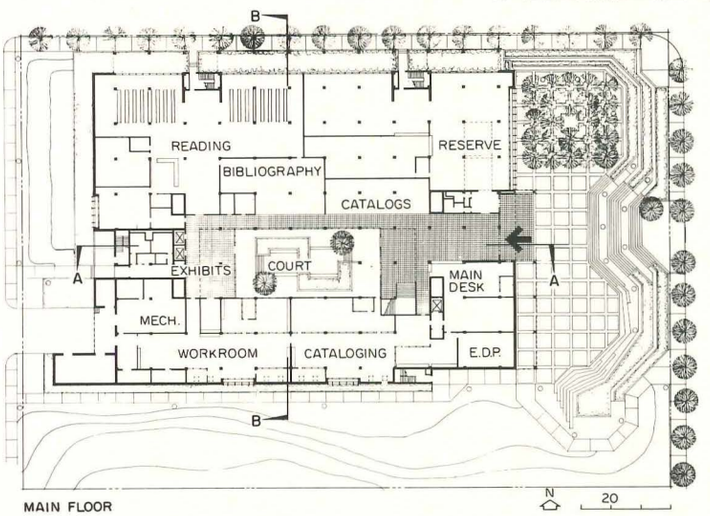
University library designed around central reading court

Preliminary drawings for a new library at California State Polytechnic College reveal a five-story, concrete and brick structure massed in a way that minimizes its very considerable bulk. When complete, the library will house nearly half a million volumes and contain over 200,000 square feet of stacks, reading rooms, staff and reader service areas. The building is planned around a central court (rendering right) that admits daylight deep into interior spaces while serving as an orientation or reference point for the library's users. Outdoor reading terraces, sequestered from the wind, overlook the court on three levels. A large stair begins in the entry lobby, rises through five floors and provides the building's principal circulation spine.

To be completed in mid-1973, at a cost of over $7 million, the Cal Poly Library is a step toward the new scale at which Marquis & Stoller is beginning to direct its attention.



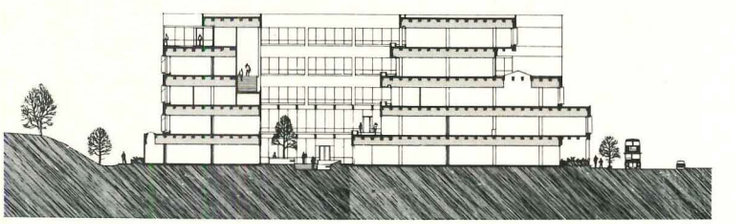




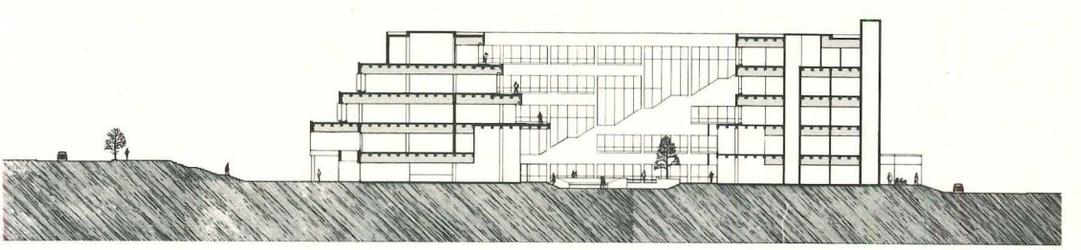
MAIN FLOOR

Precast sunshades are spaced out differently on each exposure to provide sensible, modulated sun control.

LIBRARY, CALIFORNIA STATE POLYTECHNIC COLLEGE, San Luis Obispo, California. Architects: *Marquis & Stoller;* engineers: *Rutherford & Chekene* (structural); *Archer-Spencer* (mechanical); landscape architect: *Anthony Guzzardo.*



SECTION B-B



SECTION A-A

Long spans and careful attention to detail in new California bank

In their design for the Carson Oaks Branch of the Stockton Bank, the architects responded to the need for a building of omni-directional character that would open to two surrounding streets and, in the near future, to a proposed suburban shopping center.

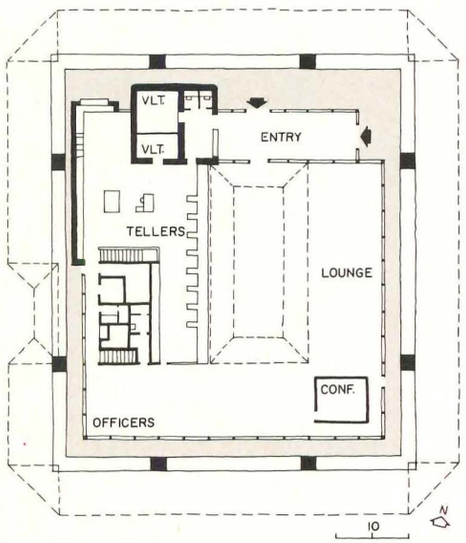
The bank's unusual roof structure—a wooden space frame supported outside the building perimeter—provides a deep overhang outside and unobstructed banking space inside. It also furnishes a powerful overhead esthetic that dominates the interior design. A vertical extension of the space frame, glazed on all sides, admits top light to the main space.

Finish materials, inside and out, are chosen with care to provide textured contrasts and maintenance-free surfaces. Details are consistently simple in character and thoughtfully developed throughout the building. Cost of the structure, in 1970, was $687,000.

Ezra Stoller photos © ESTO

The main banking space, centered under the timber roof structure, is flooded with natural light by clerestories above.

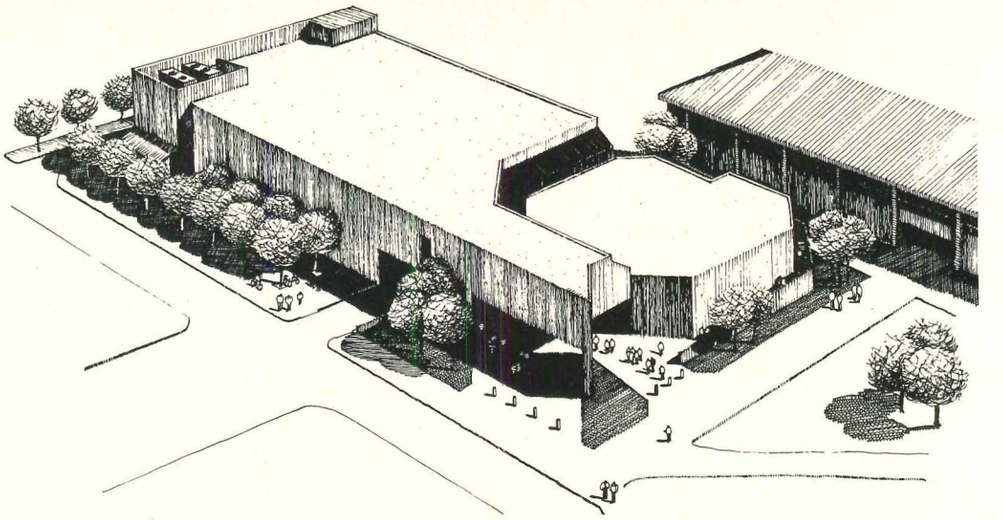
BANK OF STOCKTON, Stockton, California. Architects: *Marquis & Stoller*; engineers: *Forrell & Elsesser* (structural); *Montgomery & Roberts* (mechanical); *Tage Hansen* (electrical); landscape architects: *Lawrence Halprin & Associates*; contractor: *Craft Construction*.

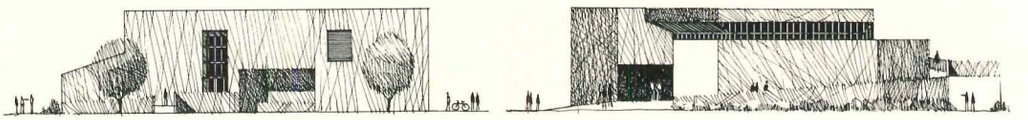


Learning resource center sited to reinforce existing circulation route

At the Santa Barbara campus of the University of California, Marquis & Stoller have planned a new Learning Resource Center that will greatly expand this department's teaching capability. The completed structure will stand astride an existing campus circulation route. The architects have let this route be an important determinant in their design. Students will be funnelled through the building past a sequence of windowed video production spaces (see partial section). Across the passage is a blind wall enclosing photo labs, research and support spaces. The whole route, expressed as a glazed seam between the building's two halves, will be illuminated by a broad, sloping ribbon of glass overhead.

The structure will be reinforced concrete, colored to match existing buildings. When completed in 1973, the new center will cost approximately $1,870,000.

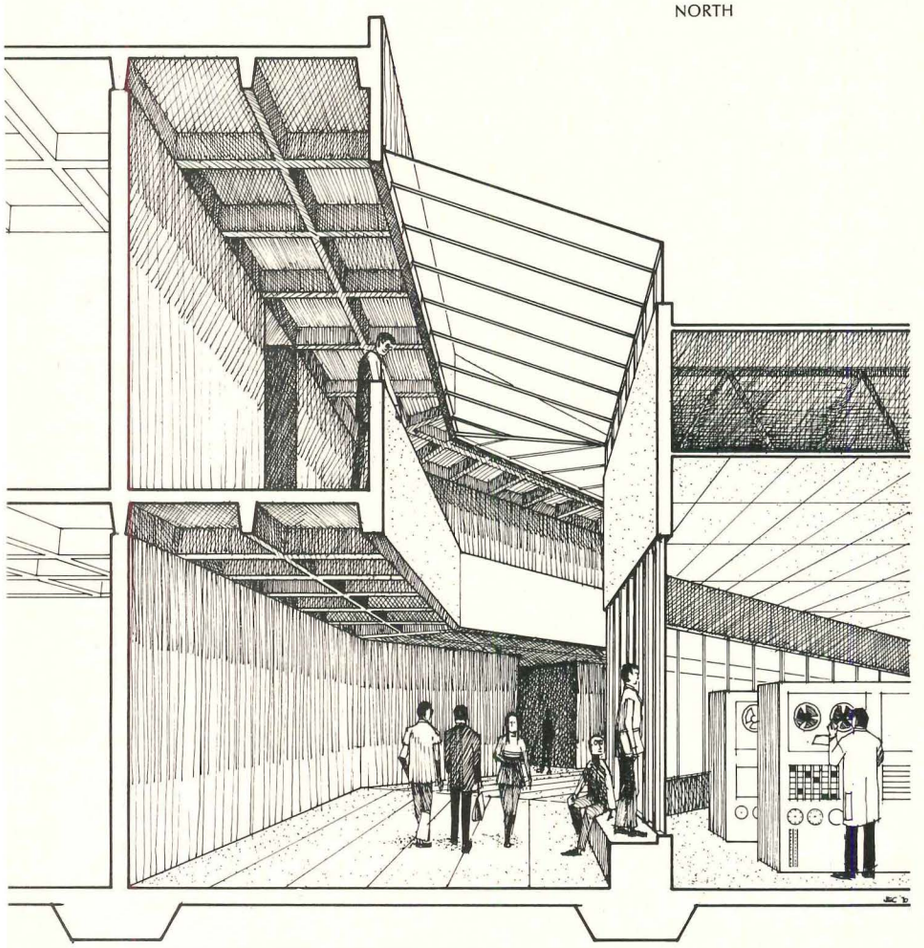




WEST EAST

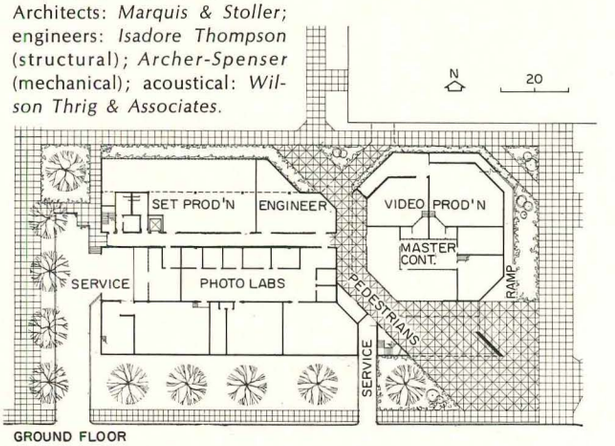
SOUTH

NORTH

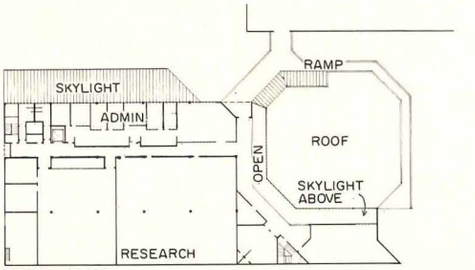


The architects have used the confined site with skill. A combination ramp and bridge links the center with adjacent building to the north.

LEARNING RESOURCE CENTER, Santa Barbara, California. Architects: *Marquis & Stoller*; engineers: *Isadore Thompson* (structural); *Archer-Spenser* (mechanical); acoustical: *Wilson Thrig & Associates*.



GROUND FLOOR



SECOND FLOOR

Paired lecture halls and rough concrete finish for California campus

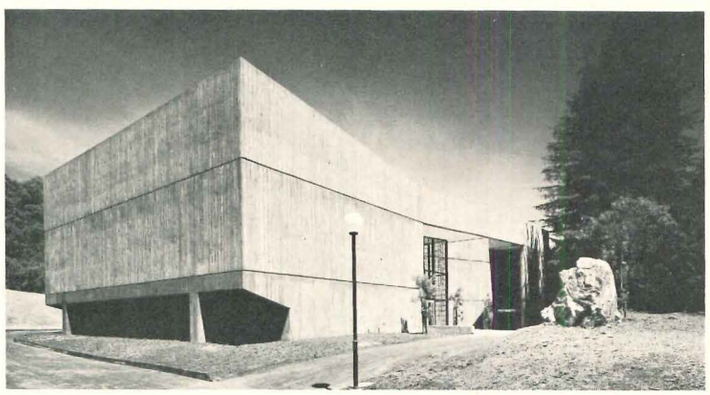
For the University of California's cluster campus at Santa Cruz, Marquis & Stoller were retained to design a large lecture and demonstration facility that can be used, simultaneously when desired, by groups ranging in groups ranging in size from 150 to 400 students. The program also called for a number of small seminar and tutorial rooms.

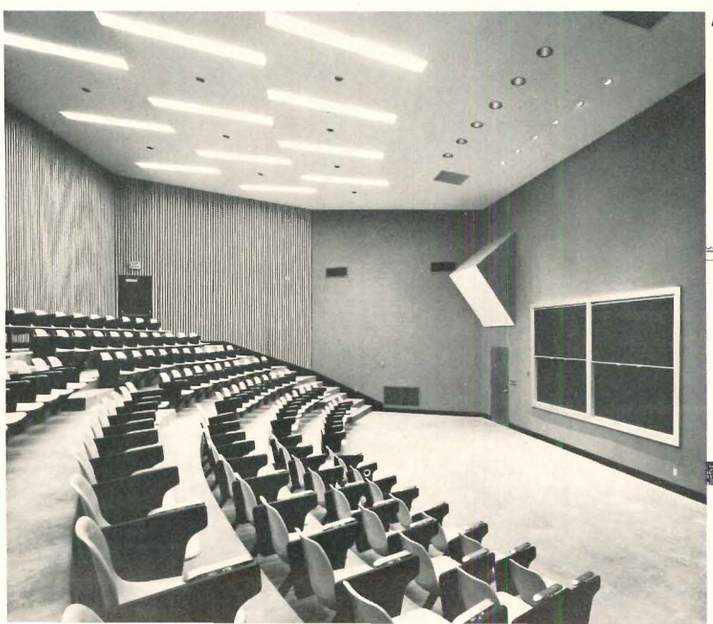
The planning was characteristically direct. The two large lecture spaces share a rear screen projection room, a storage and preparation space and are entered from a common lobby. The smaller teaching spaces are grouped at one end of the building and provided with separate access.

A simple but logical geometric form grows out of this plan. The lecture spaces are expressed in splayed exterior walls and sloping roof trusses. The stepped floor is revealed in the building's end elevations.

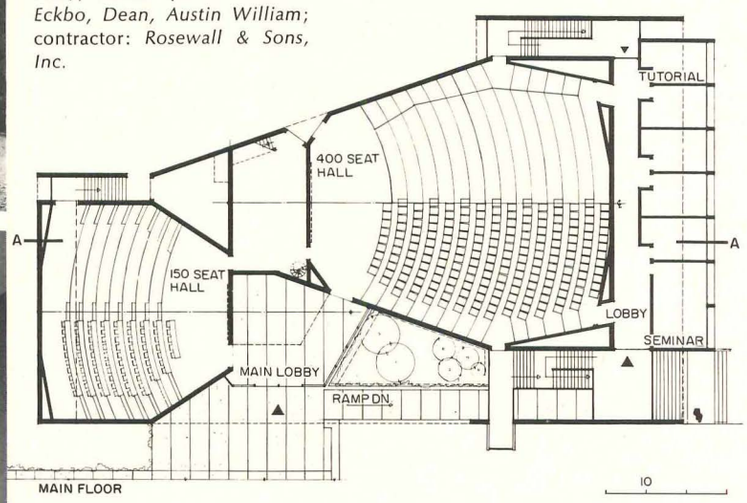
This much-needed facility was completed last year at a cost of just over $680,000.

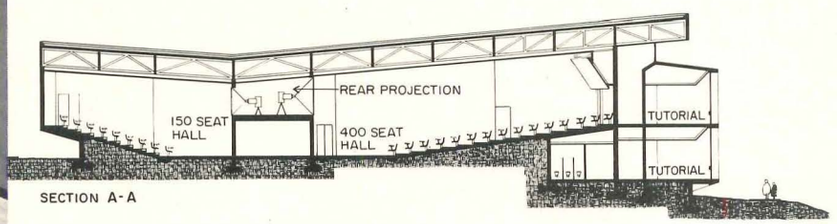
J. O. Bragstad photos





LECTURE AND DEMONSTRATION BUILDING, Santa Cruz, California. Architects: *Marquis & Stoller*; engineers: *Forrell & Elsesser* (structural); *G. L. Gendler & Associates* (mechanical); landscape architects: *Eckbo, Dean, Austin William*; contractor: *Rosewall & Sons, Inc.*



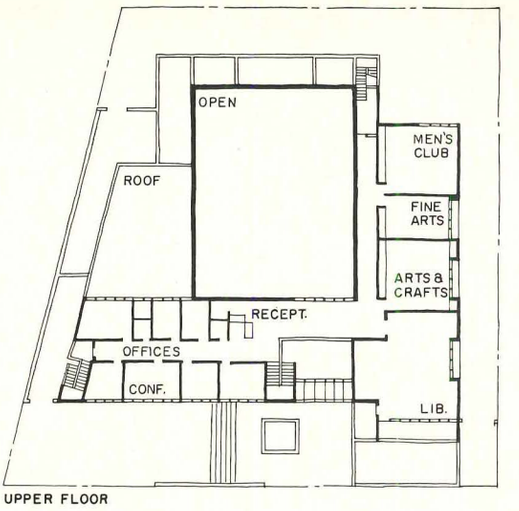


Community Center to be constructed with private and public funds

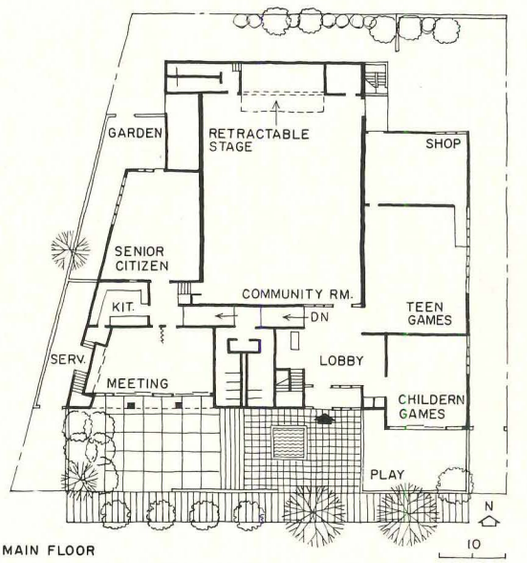
The Tarrytowns Community Opportunity Center, now in working drawings, is a challenge to both architect and client. Two-thirds of its funding will come from a HUD grant through the Office of Economic Opportunity. The remaining third will be raised from private funds within the community. The Rockefeller Foundation has already made a substantial contribution and local businessmen are expected to furnish the rest.

The 17,000 square foot plan includes a major multi-purpose space, day care facilities, club rooms, craft rooms and a small infirmary. Facilities will be provided for every age group and, if successful, will serve as a strong focus for community activity. The structure will be steel frame and exterior walls will be concrete block.

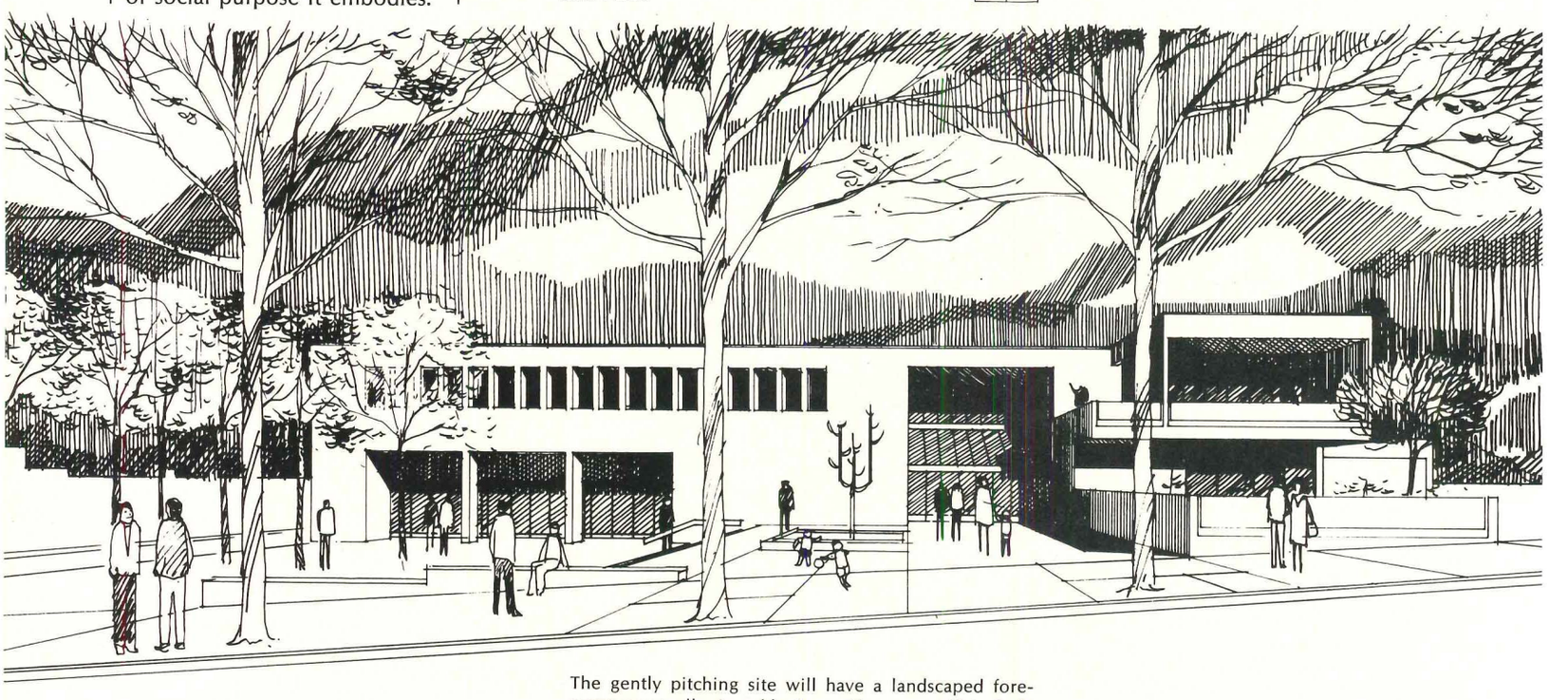
Though the smallest project in the portfolio ($500,000 construction budget), Marquis & Stoller continue to be drawn to this type of project and the sense of social purpose it embodies.



UPPER FLOOR

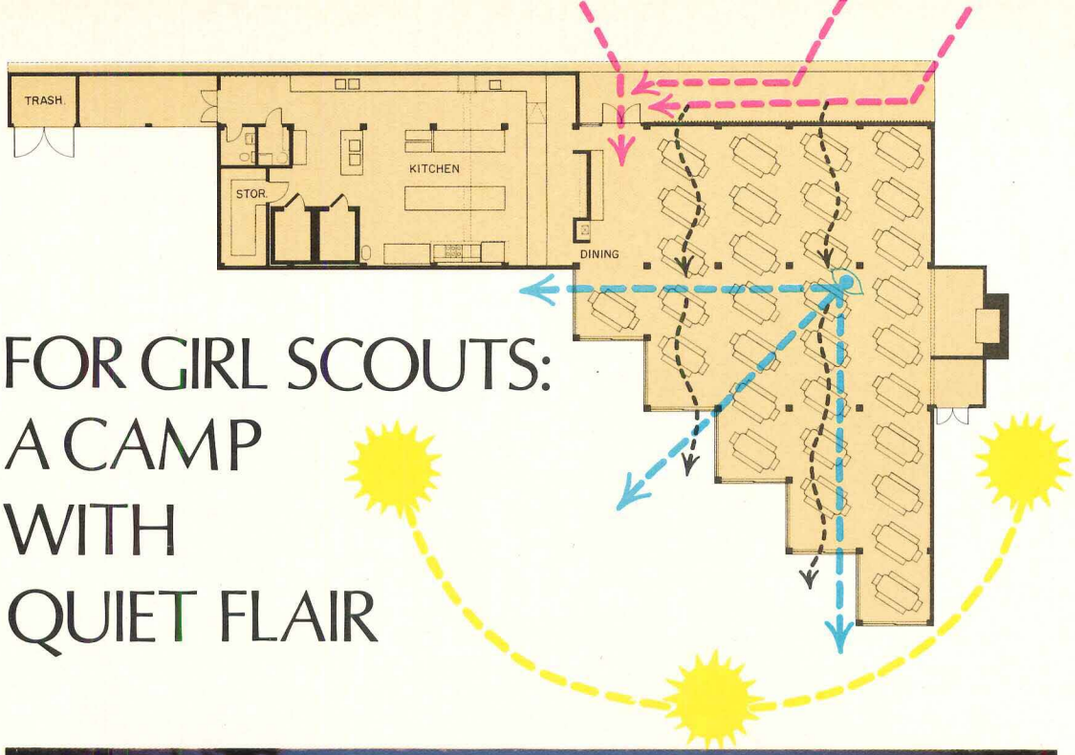


MAIN FLOOR



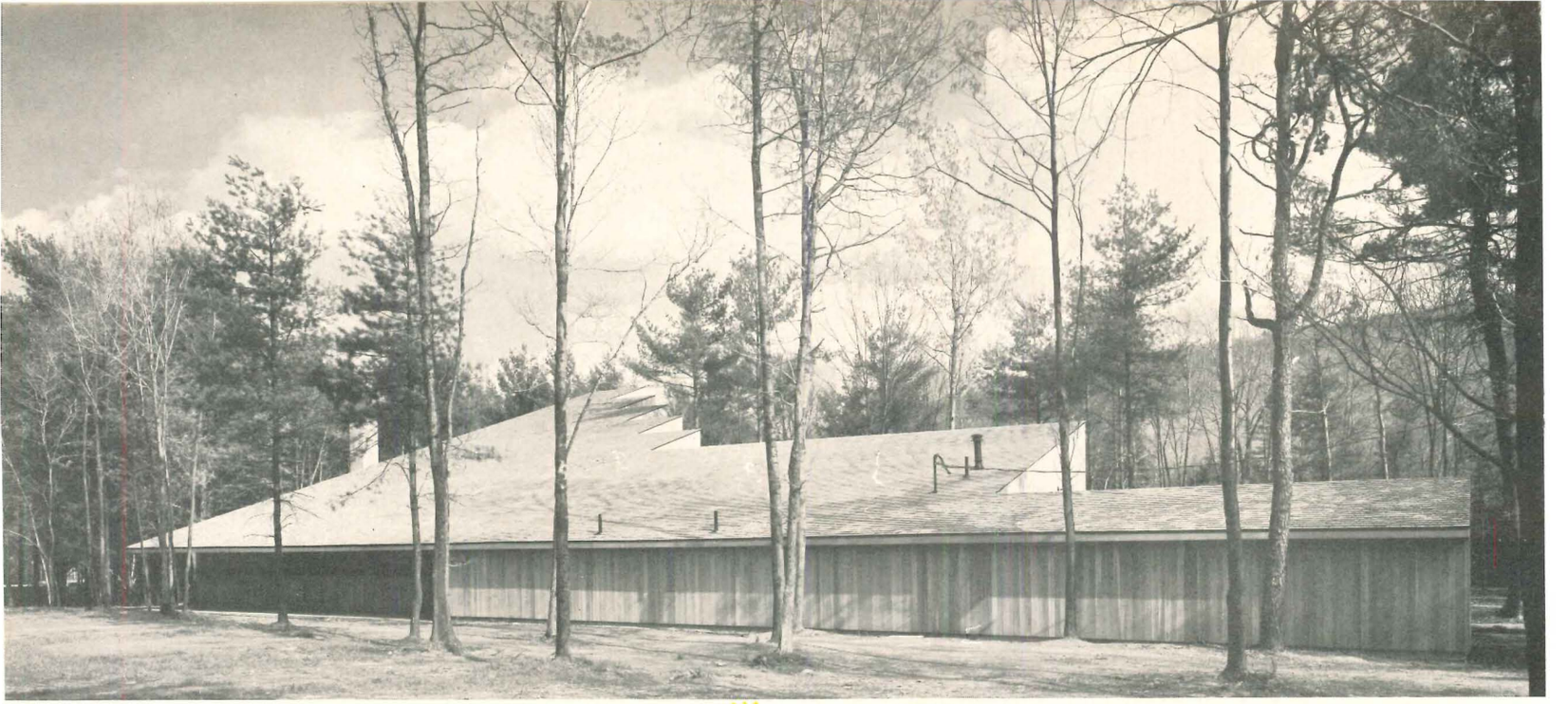
The gently pitching site will have a landscaped forecourt eventually ringed by trees. The court will include outdoor play areas and a sequestered seating area.

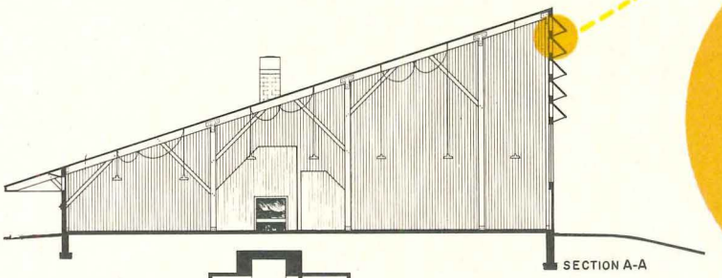
THE TARRYTOWNS COMMUNITY OPPORTUNITY CENTER, Tarrytown, New York. Architects: *Marquis & Stoller*; engineers: *SSV and K.*

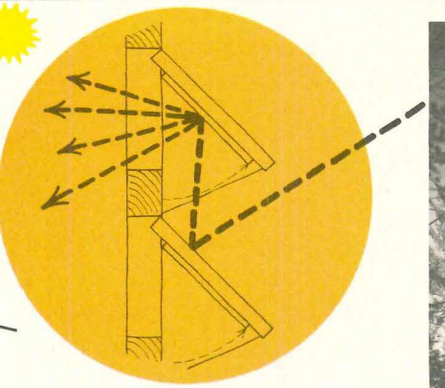


FOR GIRL SCOUTS: A CAMP WITH QUIET FLAIR

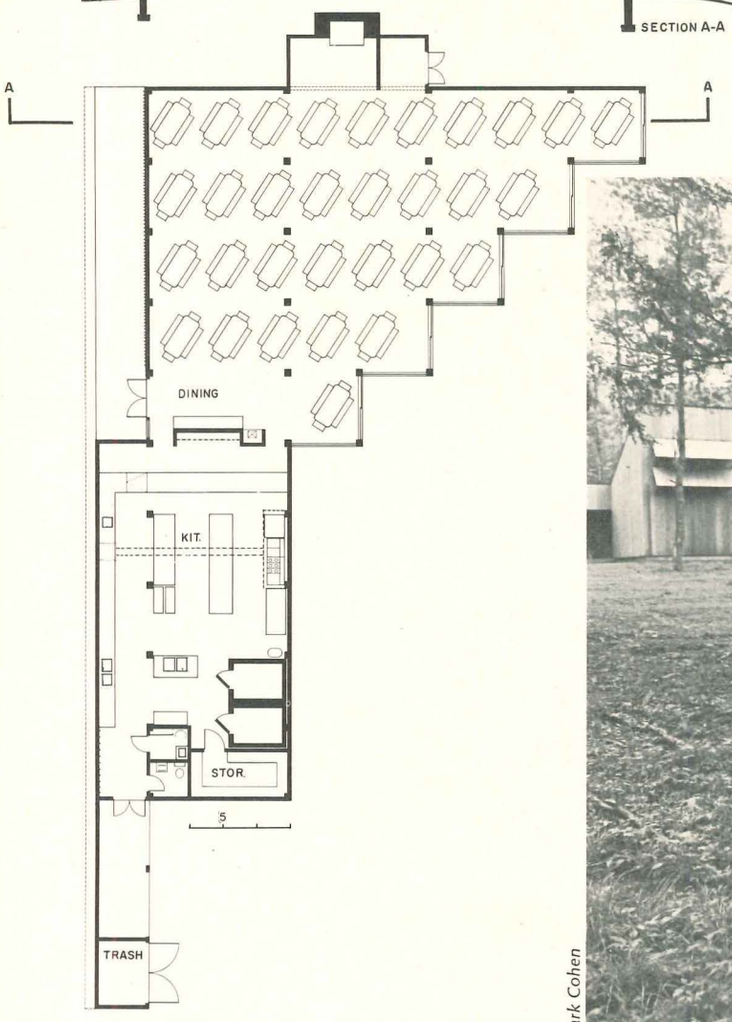
all photos by Joseph W. Molitor except as noted

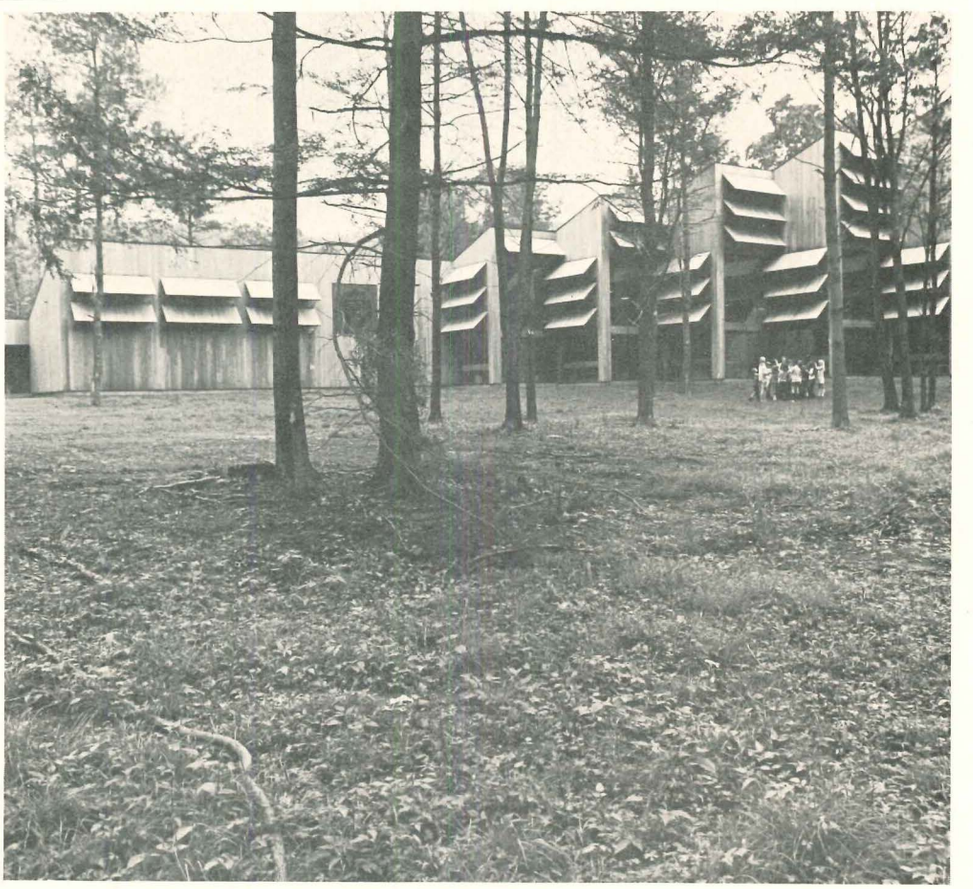






Sunlight off the fixed flap and the red-stained operable one fills the room with warm light.





Mark Cohen

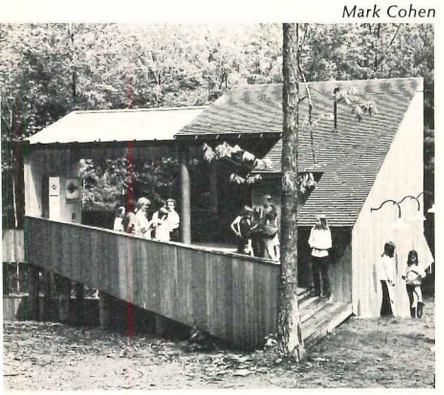
Mark Cohen

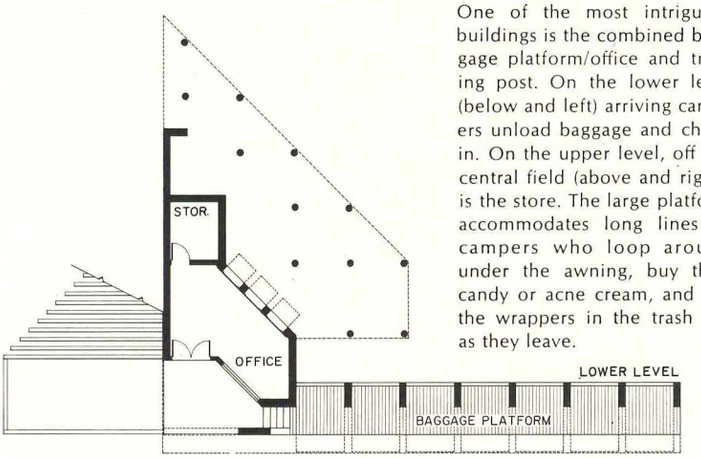
This soaring timber dining hall is part of Camp Louise, a 186-acre Girl Scout camp which nestles into a wooded valley in northeastern Pennsylvania. It is the latest addition to a master plan (overpage) which Bohlin and Powell, the architects, have been implementing since 1967.

All of the ten buildings now completed share visual similarities, from a tiny director's cabin, page 126, to the largest one, shown here. But the dining hall carries the idiom beyond the pleasant and the useful to a poetic expression of the community spirit of the camp. Each day, as the 250 campers and leaders gather for meals, the quality of light, which changes significantly from morning to night, will remind them of their kinship with nature. Light gently manipulated by primary colors, (right), is thus the building's only ornament. Vaguely reminiscent of Aalto's pre-war proposals for athletic buildings in Helsinki, the south elevation (left) thrusts toward the sun in a series of richly-faceted forms, all generated by the same section.

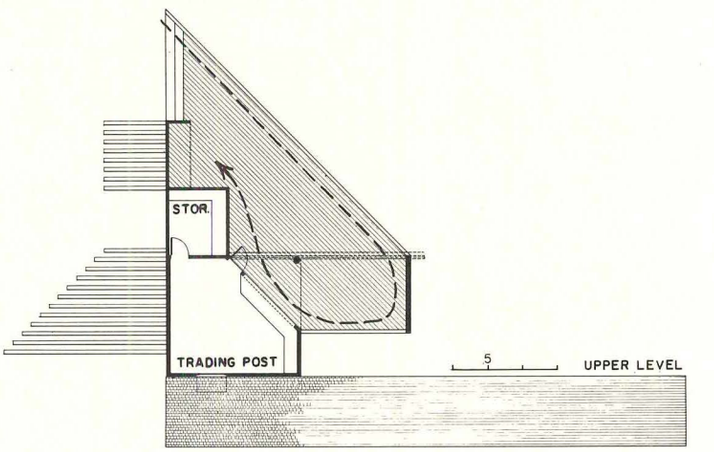
The columns, built up of five 3x12s, and the beams, five 3x14s, neatly accept pairs of 3x10 diagonal braces. Special steel column bases tie them to the foundations. From the roof deck, standard incandescent RLM fixtures hang, their feed-wires looped gracefully from boxes integrated into the beams. The plywood flaps have two parts; the larger, outer one is fixed while the inner one can be closed.

Mark Cohen





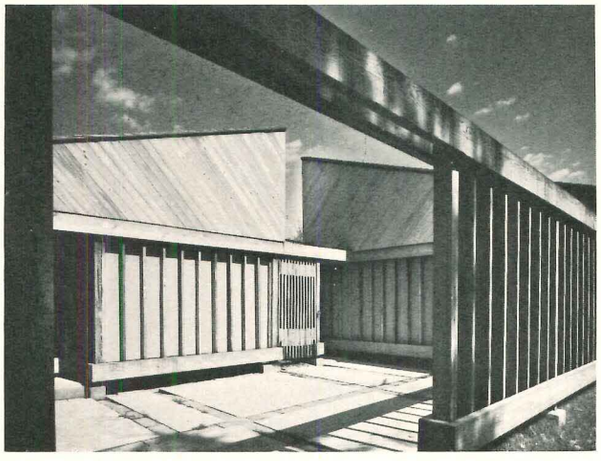
One of the most intriguing buildings is the combined baggage platform/office and trading post. On the lower level (below and left) arriving campers unload baggage and check in. On the upper level, off the central field (above and right), is the store. The large platform accommodates long lines of campers who loop around under the awning, buy their candy or acne cream, and put the wrappers in the trash bin as they leave.

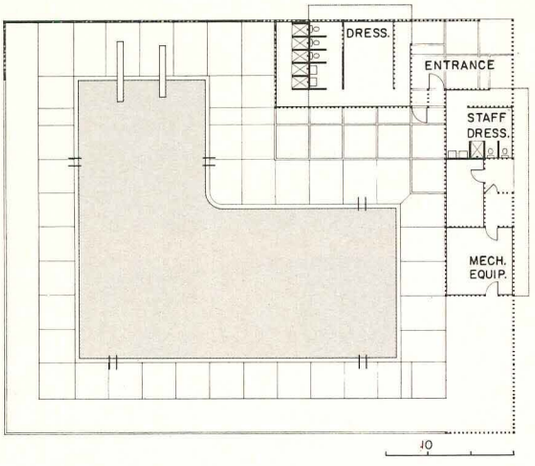


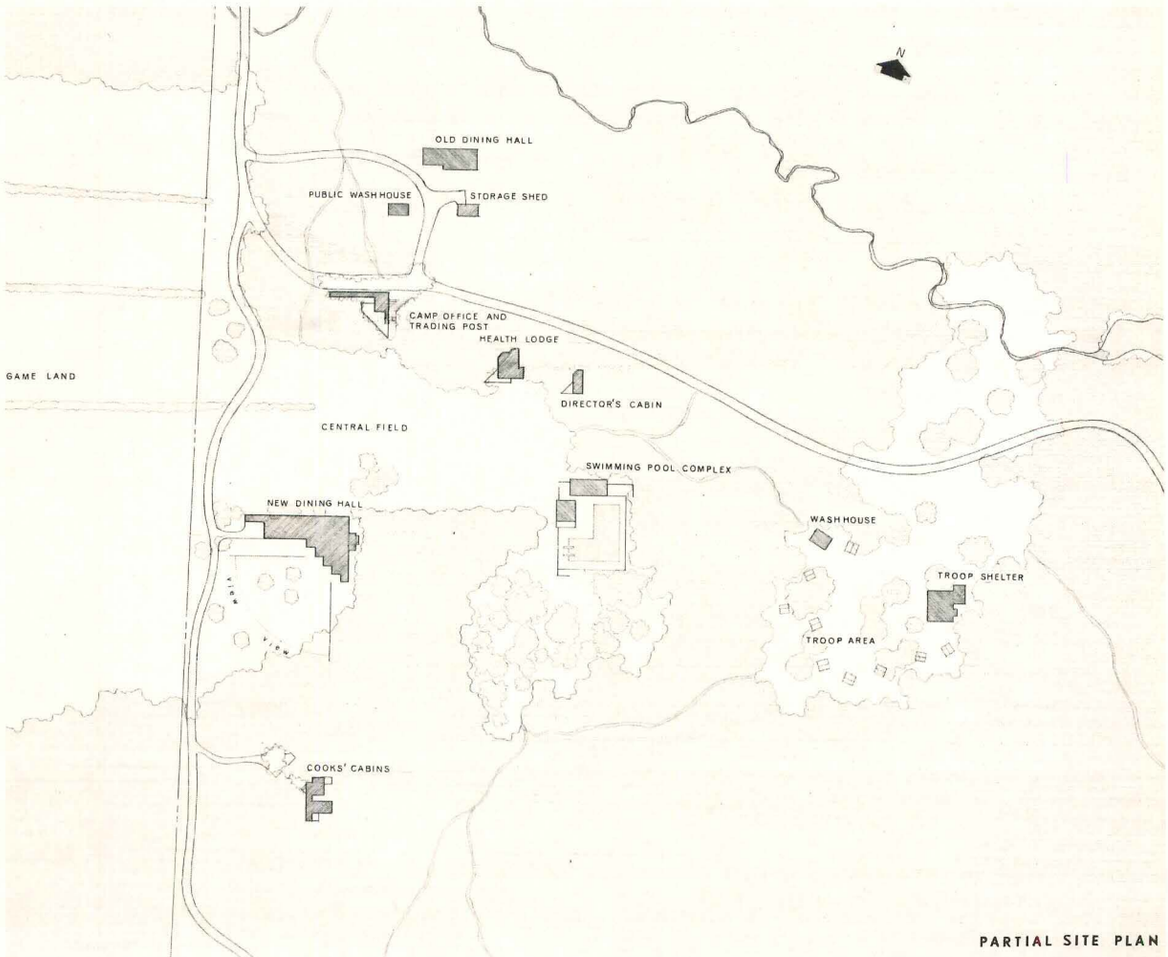
The site plan of Camp Louise, one of two operated by the Penn's Woods Girl Scout Council, does not derive its strength from the buildings Bohlin and Powell have designed—but rather the buildings are sympathetic reinforcement of the natural qualities. The dining hall, for instance, turns its tall facade to the sun, a long low one to the central field of the camp on which it is built. Thus, the field itself and its relation to existing hedgerows of adjacent state game lands dominates.

But most camps are like that, aren't they? They have simple buildings that tend to disappear into the trees. The thing that differentiates the work at Camp Louise is that while the new buildings relate humbly to nature, they do it with a flair and cleverness that makes them sophisticated indeed. As in the dining hall, bright colors and elements such as industrial windows and light fixtures are combined with old-fashioned structural details and careful circulation planning to produce unique and stylish results. The swimming pool (above), for instance, has cement-asbestos sheets on the inside faces of the studs. This provides an easily maintained surface in the changing rooms and a lively shadow pattern on the exterior.

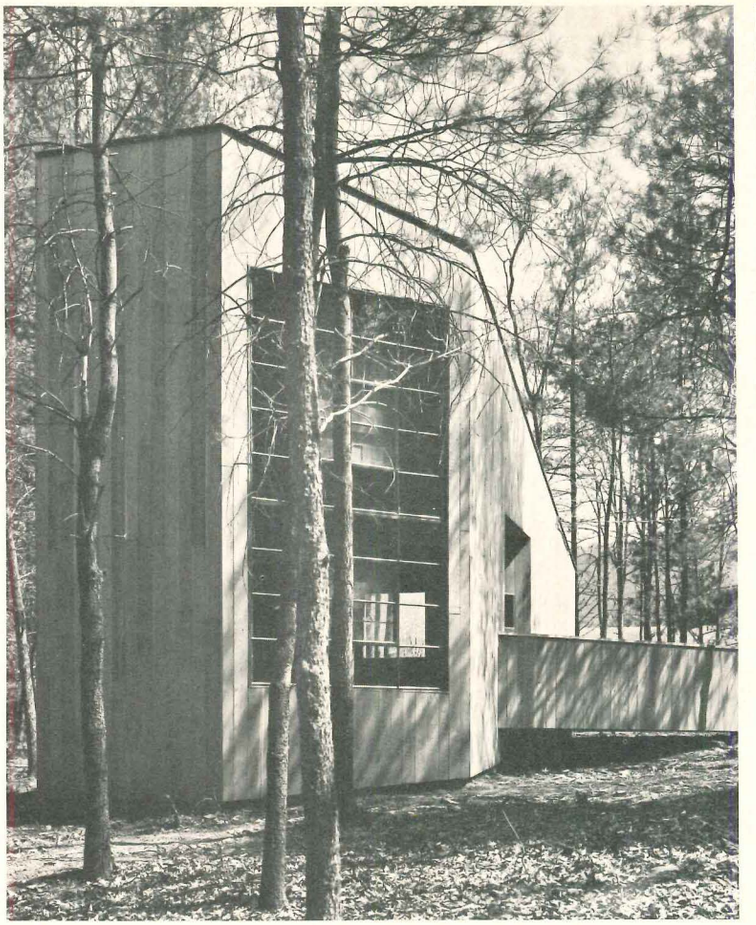
CAMP LOUISE, Columbia County, Pennsylvania. Architects: *Bohlin and Powell—Peter Q. Bohlin, partner-in-charge; Donald E. Maxwell, project architect.* Engineers: *Vincent B. Szykman, Inc.* (structural); *Martin and Fladd* (mechanical). General contractor: *Strausser Construction, Inc.*

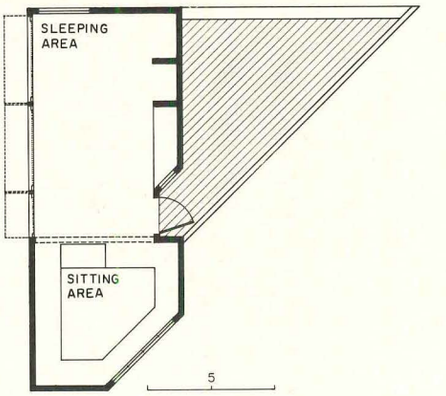


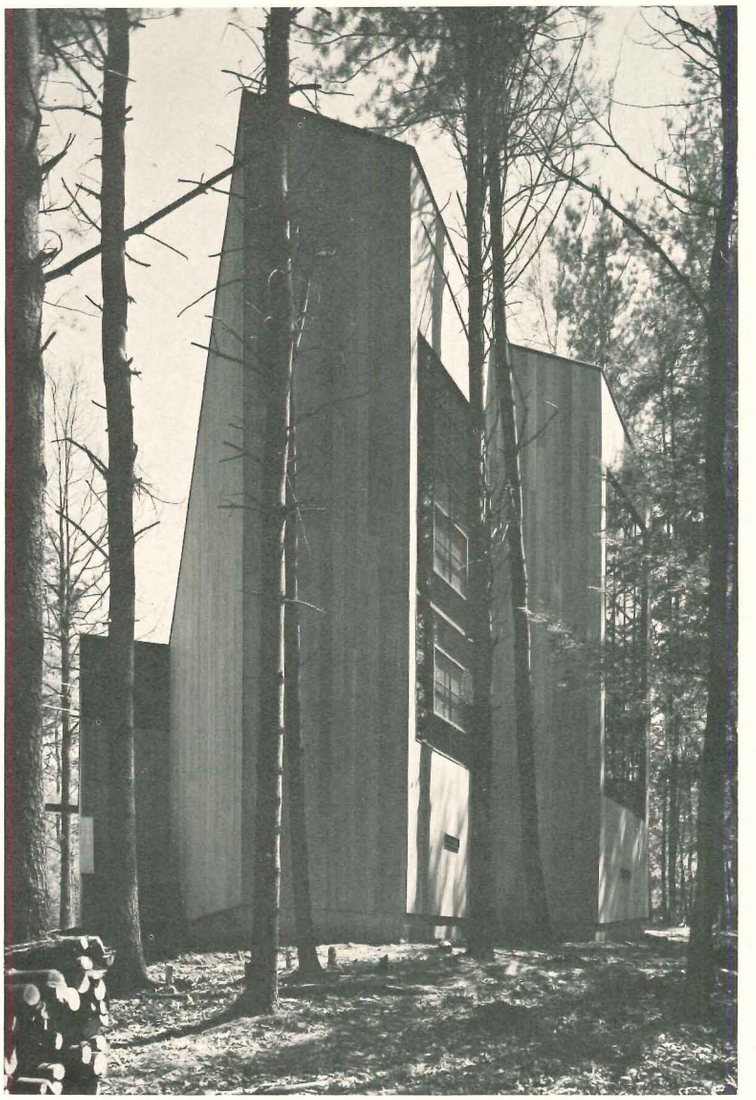




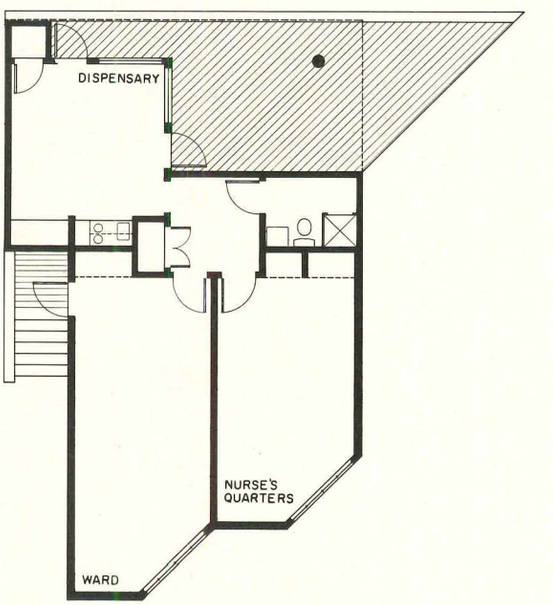
PARTIAL SITE PLAN

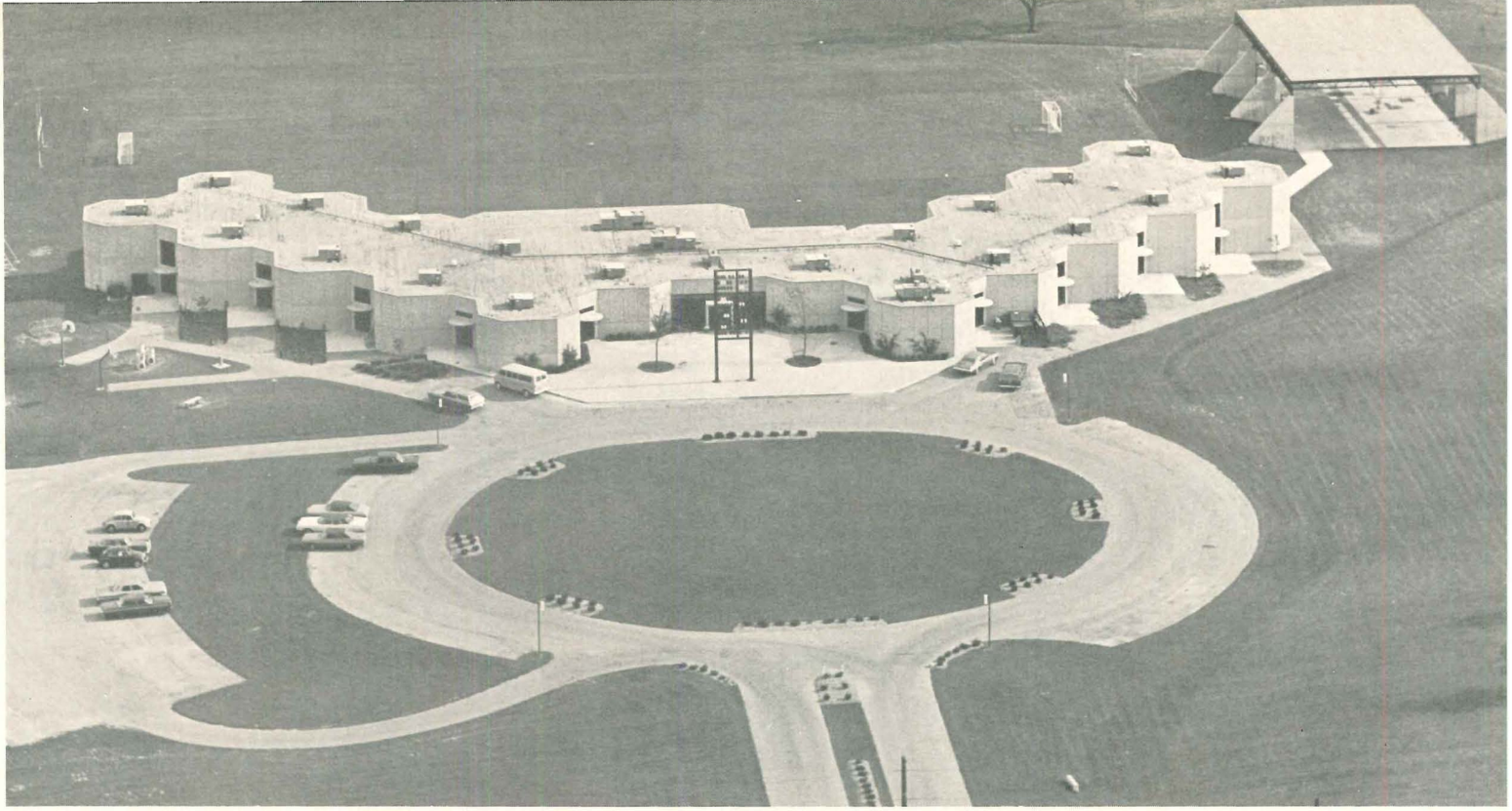






The director's cabin (above) and the health lodge are two adjacent buildings on the trail through the camp. They have been given similar facade treatment for that reason: industrial-type steel fenestration set into angled walls facing west. The pine grove protects them from heat build-up and casts lacy shadows on the walls each afternoon. Both have shed roofs which slope toward the central field. The health lodge, in which every camper is given a physical check-up, has a porch for those waiting.





HERE IS A SCHOOL THAT TURNS KIDS ON

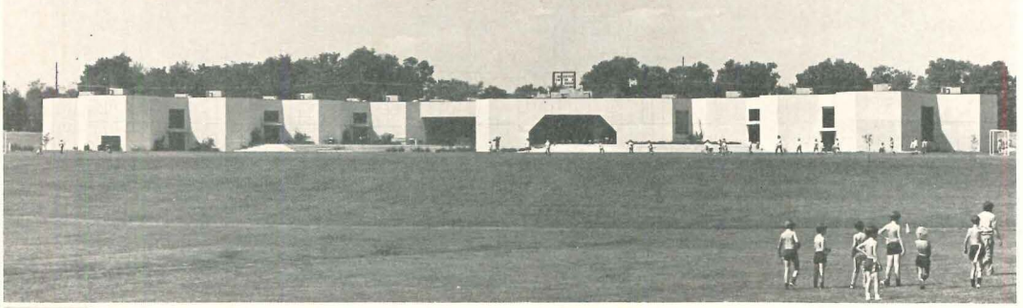
St. Francis School near Louisville is an uncommon combination of innovative education and innovative architecture: the "fit," to use Christopher Alexander's term, is remarkably tight. It's a design that turns kids on.

Architect Jasper Ward was given a challenging program: house a flexible—indeed fluid—curriculum aimed at reaching each child on his own terms in the most responsive structure that could be built within a slender budget. Specifically, nine forms (to call them "grades" is an impossibly narrow definition in this case) were to be accommodated, divided into a lower and a middle school. The 250 students generally enter in kindergarten and leave after completing ninth-grade work. Teaching techniques change and develop constantly. Thus, an open plan is more than just a matter of educational rhetoric.

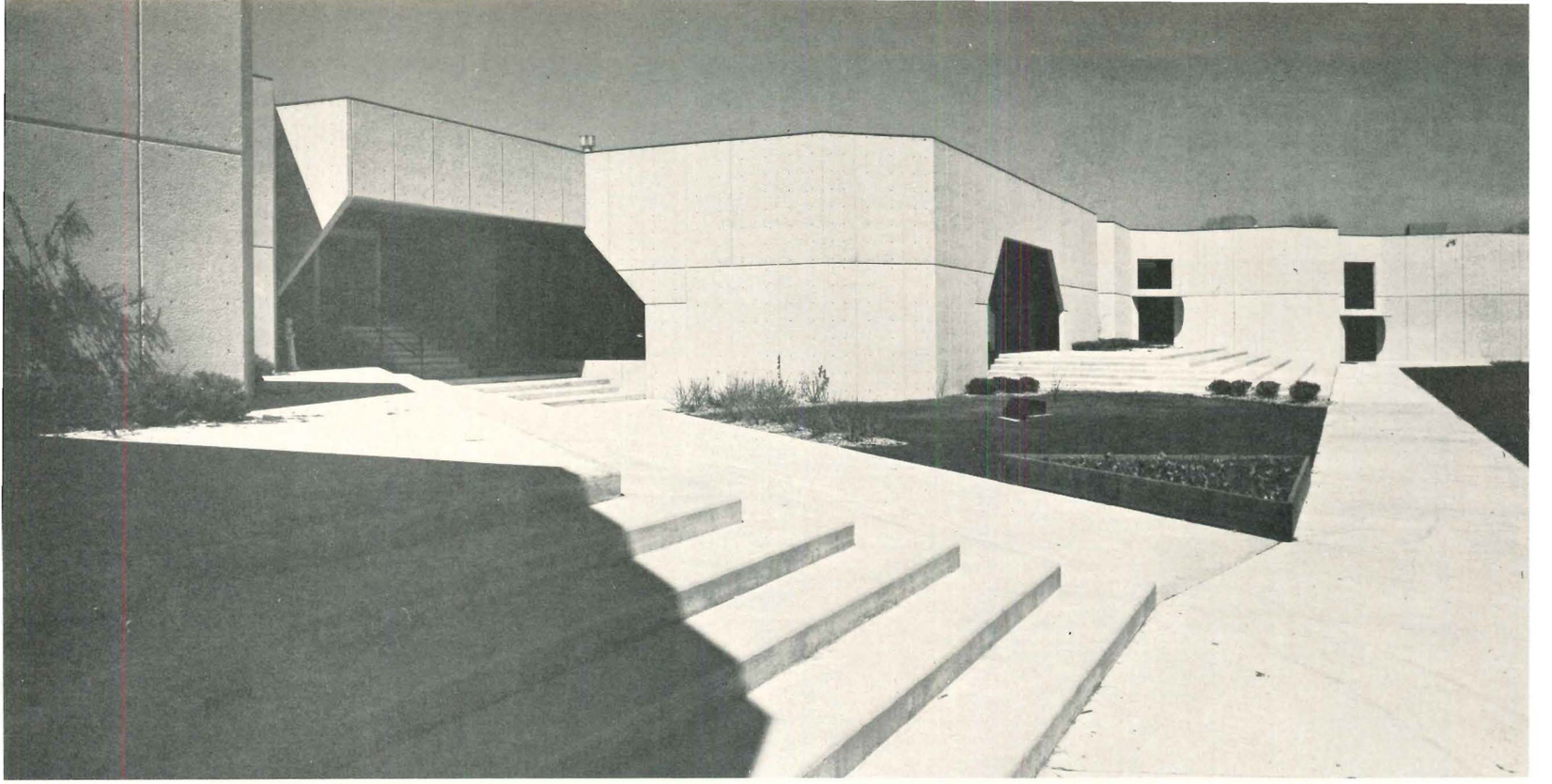
Contrary to the general opinion that private schools can afford better quarters than their public counterparts, St. Francis is an example of those new vigorous independent institutions which strive to provide first-quality education at fees middle-class families can afford. Finally, the Reverend Frank Quarles Cayce, headmaster and guiding spirit behind the new building, needed all the money that could be saved for scholarships to disadvantaged students.

Realization of the 31,200 sq ft building

Two photos by Karen Plummer

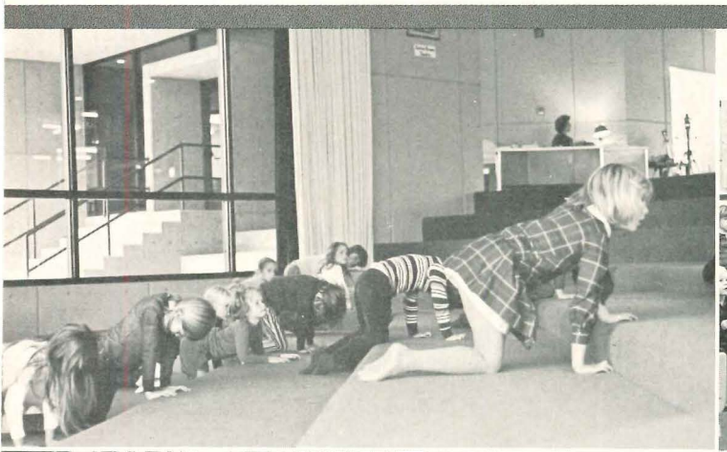


All photos by Bruce and Mitzi Quick except as noted



within the budget was a matter of continuous cooperation between the architect and the general contractor, Cochran Dick of Louisville. After the first scheme came in well above the budget, the client thought seriously of asking a shopping center developer to erect a shell for them. Jasper Ward asked for an opportunity to work out a new scheme with Mr. Dick, the low bidder, on a negotiated basis. Thus, they were able to produce an air-conditioned and equipped building for $19.10 per sq ft in 1970, fully 20 per cent less than comparable public school buildings being built around Louisville at the time. While Ward thinks that about 10 per cent was saved by the open plan—fewer walls and no corridors as such—he says the rest is due to the fact that the traditional method of bidding on iron-clad drawings and specifications was abandoned.

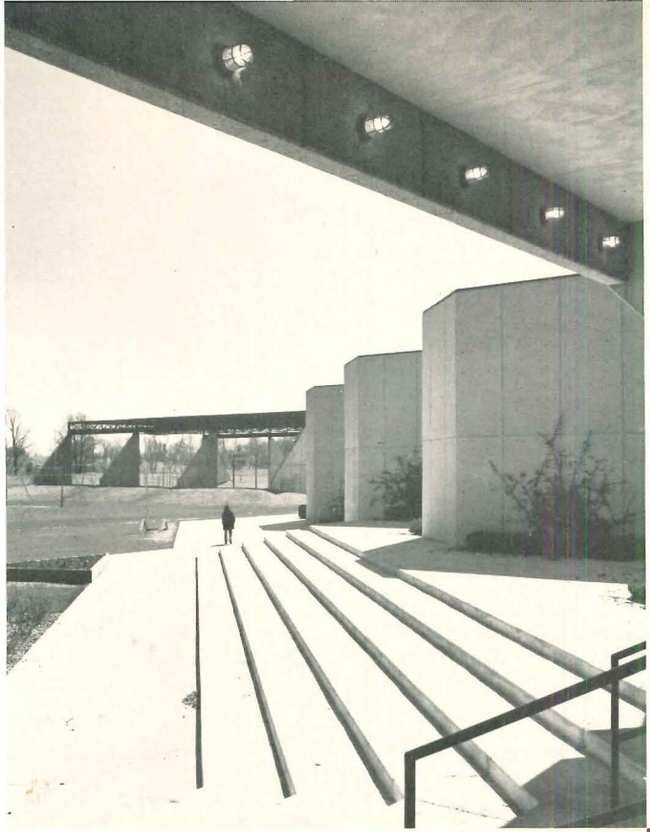
But in many ways the building is not unlike a shopping center: almost solid masonry walls (in this case poured-in-place concrete exposed inside and out); standard bar-joist roof construction; roof-top mechanical units. It is, however, the ways in which it is different from the usual commercial shell that make it a delightfully suitable enclosure for its community of young scholars: while the roof remains level, the entirely-carpeted floors step down the existing grade to provide substantial changes

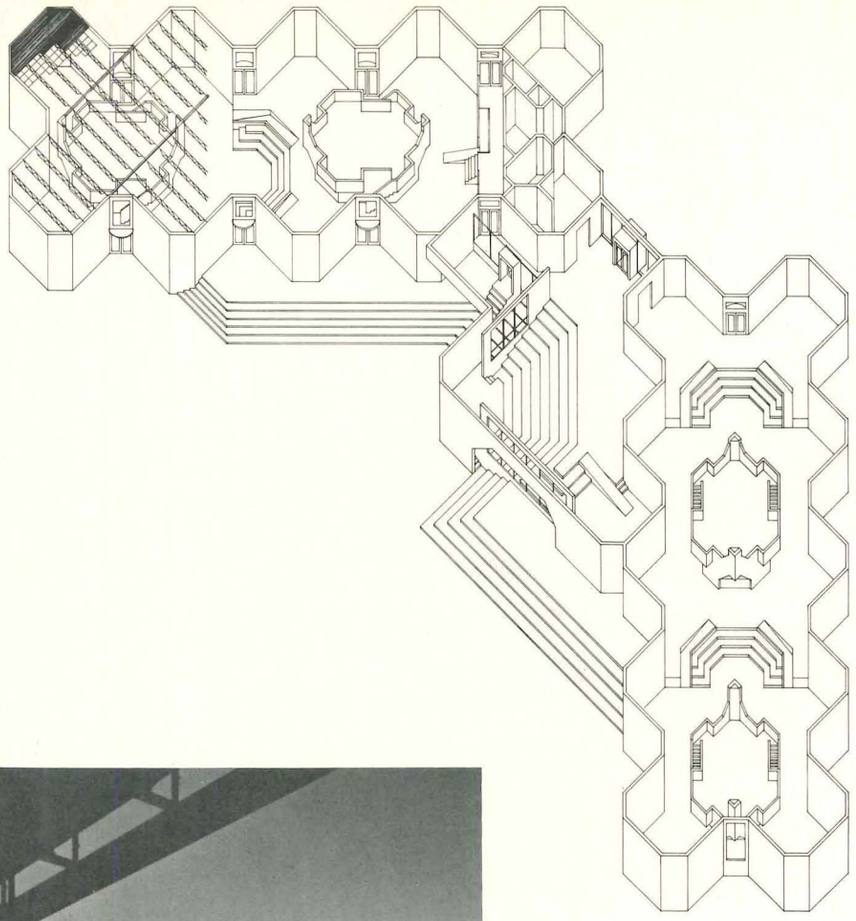


Karen Plummer

A wide variety of activity—from gym classes to lonely struggles with the handsaw—takes place daily at St. Francis. The minimally-detailed spaces accept it all with ease. Students move about the building freely because there are few class "periods" as such and the ramps and railings of steel tubing are constantly in use by young gymnasts. A straightforward open structure of concrete and steel (below) provides sheltered outdoor play space.

Karen Plummer

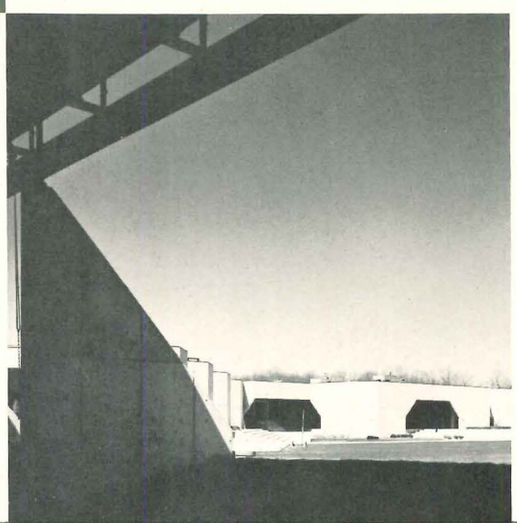




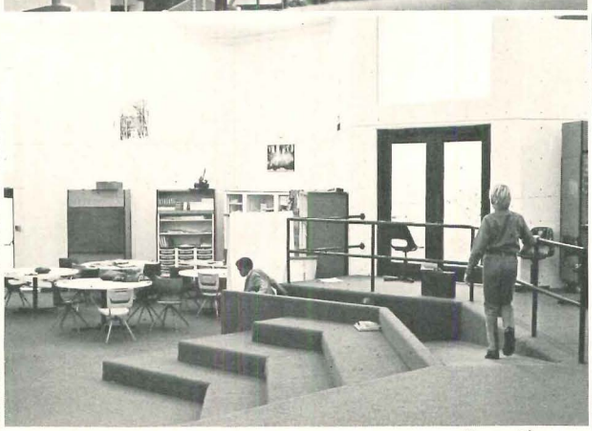
Three photos by Day Johnston

in ceiling height. The four intermediate pods modulate the larger spaces effectively and provide two levels of specialized work areas; the terraced main space is truly multi-purpose: lunchroom, gym and auditorium.

ST. FRANCIS SCHOOL, Goshen, Kentucky. Architect: *Jasper D. Ward.* Engineers: *Senler-Campbell Associates* (structural); *Kenneth J. Roy and Associates* (mechanical). Landscape architect: *Scruggs and Hammond.* General contractor: *Dick Construction Company.*

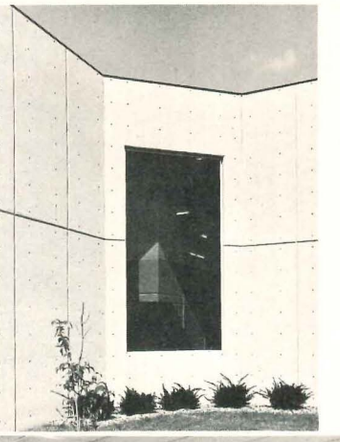


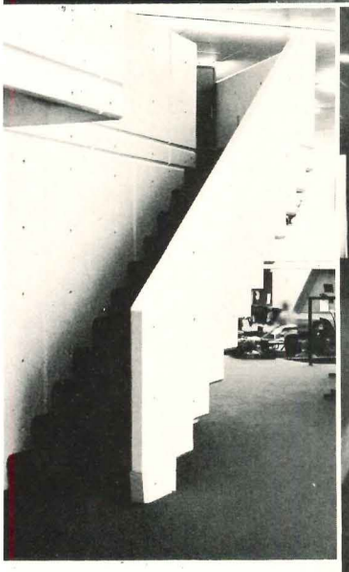
Although the over-all impression of the plan (above) is of diagonal movement, the structure is, in fact, a rigorous rectilinear system. Continuously undulating exterior walls permitted fast and inexpensive forming procedure for the poured-in-place bearing walls. Broad steps, which continue the interior terraces outdoors, are the principal landscaping element. They are useful for teaching sessions.

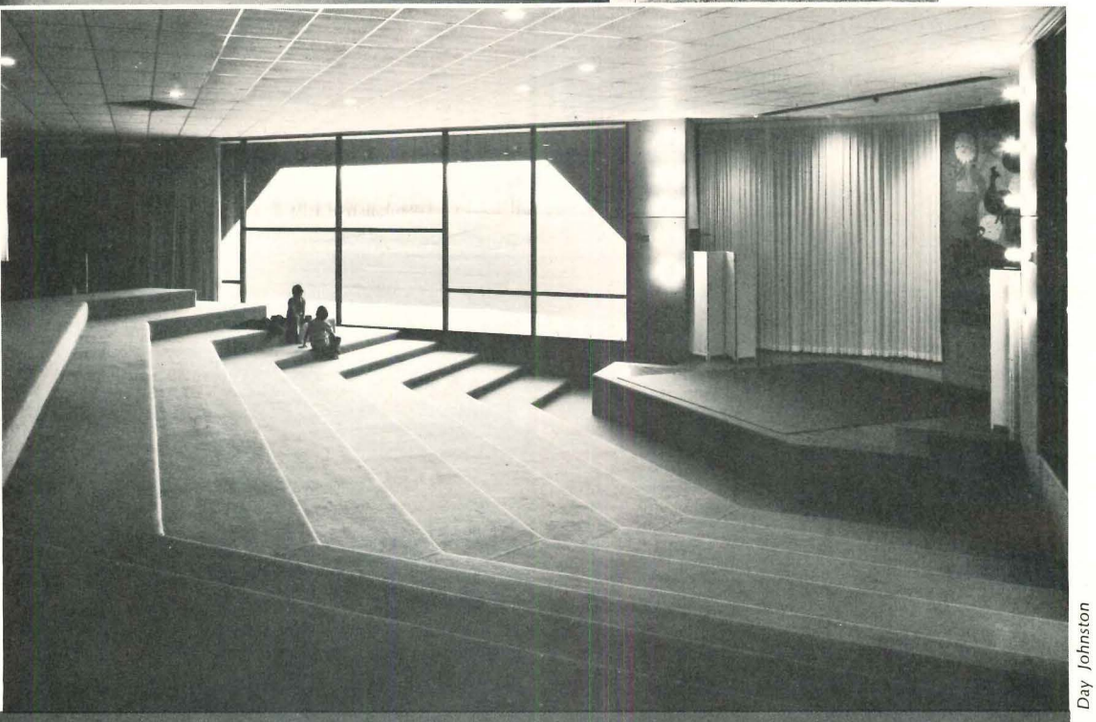


Karen Plummer

Day Johnston







Day Johnston

The interiors, with a fixed ceiling plane and constantly changing floor, have an ordered quality even though the spaces are not rigidly defined by the walls. The two-level pods, which also bear roof loads, modulate the volume without dividing it into rooms. Yet their hexagonal shape interacts with the exterior walls to produce effectively intimate teaching areas. The terraces between pods (above) serve as gathering places for larger groups. The multi-purpose area has a simply equipped stage for meetings and film-showings.

Karen Plummer

Open Space for People

by Mildred F. Schmertz

The American Institute of Architects, with the aid of an Urban Renewal Demonstration Grant awarded by the Department of Housing and Urban Development, recently published "Acquisition, Conservation, Creation and Design of Open Space for People." The book, which is available on request from the AIA,* is an anthology of papers presented at the 1970 International Conference of the Commission on Town Planning of the Union Internationale des Architectes and was edited by Miss Schmertz, a RECORD senior editor. The following article, based on the book, urges architects and planners to become more aware of open space in all its vital aspects. Excerpted from the book are several illustrated examples of enlightened open space planning.

*"Open Space for People" may be obtained by writing the American Institute of Architects, 1785 Massachusetts Avenue, N. W., Washington, D.C. 20036.

Open space is essential for man's most important needs. We are wearing out what we have, including the great parks which have been preserved as a legacy from our past; we are squandering the rest through inadequate advance acquisition; we must conserve what is left for the future and we must find new ways of creating and acquiring new kinds of open space within the imperatives of our technology.

Open space for a balanced ecology

There is an unmistakable human need for open space as an essential element in the total ecology. Architects and planners must become more broadly aware of the ecological consequences of our so-called "scientific" technology with its attendant waste of resources, air and water pollution, urban sprawl and the relentless exploitation of our rapidly diminishing open space.

To save our lives and our posterity we must become, as professionals and citizens, comprehensive architects of a balanced environment, transforming ourselves into steadfast guardians of the surface of the earth and its air and water. We must go beyond our traditional preoccupation with stone, mortar, steel and glass, our concern with what to build and where. Instead, we must design within a much broader scale of values which, in many instances, will force us to focus upon what not to build and where not to build it.

Man must find better ways to distribute himself on the globe, while architects and planners must learn to direct urbanization to the parts of the earth where it can function best within an ecologically determined environment. The first step should be the establishment of a broadly expanded and accelerated open space acquisition program of local, national and world scale.

What kinds of open space are needed now and in the future?

Many kinds at many scales for complex, interrelated and continually changing purposes. Of great importance is the need for open space where great concentrations of people are, land which is accessible physically, psychologically and socially. Some of the best accessible spaces are existing urban public parks such as New York City's Central Park, San Francisco's Golden Gate Park, the Boston Common and Public Garden and the Chicago lakefront park system, all of which are among the legacies of open space bequeathed to us by the foresight of late 19th-century planners such as Burnham and Olmsted.

Priceless as these and similar parks are, however, they are constantly endangered by so-called development nearby or within their borders. Parks are the natural prey of transportation planners for whom the only obstacles to encroachment are the usually ill-coordinated delaying actions of hapless citizens who have not yet learned to organize effectively to defend their en-

vironment. Central Park is presently being defaced at its southern end by the Metropolitan Transit Authority which is digging open trenches for a subway extension. Chicagoans may lose their magnificent lakefront as a relatively pollution-free place to swim, sail and fish if the ecologically disastrous offshore airport is constructed as proposed by city officials. Both New Yorkers and Chicagoans should be encouraged, nonetheless, by the example of the citizens of San Francisco who have added one more success to an impressive list by fighting off a recent plan to ram a highway through the length of Golden Gate Park.

Until now citizen action—either through putting pressure on elected officials, or more recently through initiating court action in the public interest—has been virtually the only weapon available for the preservation of existing park land and other types of recreational space. Today, the incorporation of existing parks within the context of broader metropolitan and regional planning controls can be an additional safeguard for their preservation.

The preservation, acquisition and creation of open space must occur within a broad framework which includes strategies which should help ameliorate social inequities. Inner-city park and recreation space tends to be heavily used by the inner-city poor. Not only must we preserve the inner-city park and recreation space which we already have, but we must make outlying parks accessible to these urban poor by providing or improving mass transportation. Further, we must acquire vast tracts of open space near major urban centers, making them easily reached by large-scale subsidized mass transportation systems. In the United States, the central-city poor are mostly immobile because they lack cars and mass transit is either too expensive and too time consuming as in New York, Los Angeles and Chicago, or so inadequate as to account for little. Thus the need for improved mass transportation is a corollary of the need for open space preservation and acquisition.

The enjoyment of open space can be a private as well as a public experience and out of the way, inaccessible spaces must be conserved as such for the hardy souls who seek the adventure of attaining them. The National Park Service, whose vast public acres are being increasingly overrun by vacationers arriving in cars, last year established controls which limit automobile access to the Yosemite Valley. The Park Service is increasing the number of buses which take visitors from point to point within the park, and taking additional measures to maintain difficult access areas for intrepid hikers and climbers.

Land which possesses outstanding examples of natural, scenic or historic resources must be preserved as open space, and land which is geologically unfit for development should be set aside for an appropriate use. In addition, open space should be preserved where necessary to act as a buffer between conflicting land uses; for an example, to screen housing from industrial development.

The newly emerging realization of the value of linear open space or linkages in the form of canals, stream beds, old rights-of-way, trails and little-used secondary roads, is receiving some implementation by architects, planners and citizen groups. Existing inner-city open spaces can be linked by means of closed streets or pedestrian paths to form a much-needed network of open space. In the aggregate, these can be as effective a recreational resource as a single moderately sized city park. In many U.S. cities, underdeveloped and uncommitted land can comprise as much as 20 per cent of the central-city area. Much of it could be incorporated into linear networks.

New definitions of open space

The foregoing listing of the kinds of urgently needed open space leads to a definition of open space which is broader than has been customary in the past. Open space no longer simply means the wilderness nor the usual types of recreation space—parks, playgrounds and roadside picnic areas. We now realize that we need kinds of open space which cannot be categorized. We now think of open space as flexible and adaptable to many uses as many of our great 19th-century parks such as New York City's Central Park turn out to be. We have learned that open space can function in different ways at different times and seasons. More and more parks across the U.S. are beginning to follow the example of Central Park and are excluding motorists in favor of bicyclists and pedestrians during the hours or days of peak recreation demand. Cities such as New York now close certain streets to automobile traffic at appropriate times such as the lunch hour or summer evenings, thus creating part-time pedestrian malls and seating areas. With flexibility and adaptability to multiple use in mind, park managers are experimenting more with movable rather than fixed installations.

Open space is becoming more directly integrated with its surroundings, and is no longer thought of by its planners as a separate and contained entity. Becoming more a part of the total urban fabric, it is being carefully integrated, by skilled urban designers with patterns of urban movement, air rights and areas for living, shopping and working. One notable example of this approach is the proposed Hudson River Edge Development (pages 138-140).

Strategies for saving and acquiring open space including those of the AIA

The open space inventorying technique is the best means of determining priorities in open space acquisition. Two good examples of the use of this technique are the Regional Open Space Plan of the Comprehensive General Plan of Northeastern Illinois (pages 133-135) and the Open Space Plan of the Comprehensive Plan of San Francisco (pages 136-137). The inventorying technique alone, however, will not provide the open space which we shall need within the next 50 years, but if this technical approach is combined with public leadership, timely discussion, and increased public expenditure for acquisition, there is hope.

The U.S. must develop a combined national land-use policy and a national urban growth policy. Such an over-all strategy would require each of the states to set up a central planning body which would create land-use plans to shape urban and rural development. Such a planning mechanism would provide a broader, more comprehensive approach. Federal grants would be forthcoming only to those states which had developed effective planning controls.

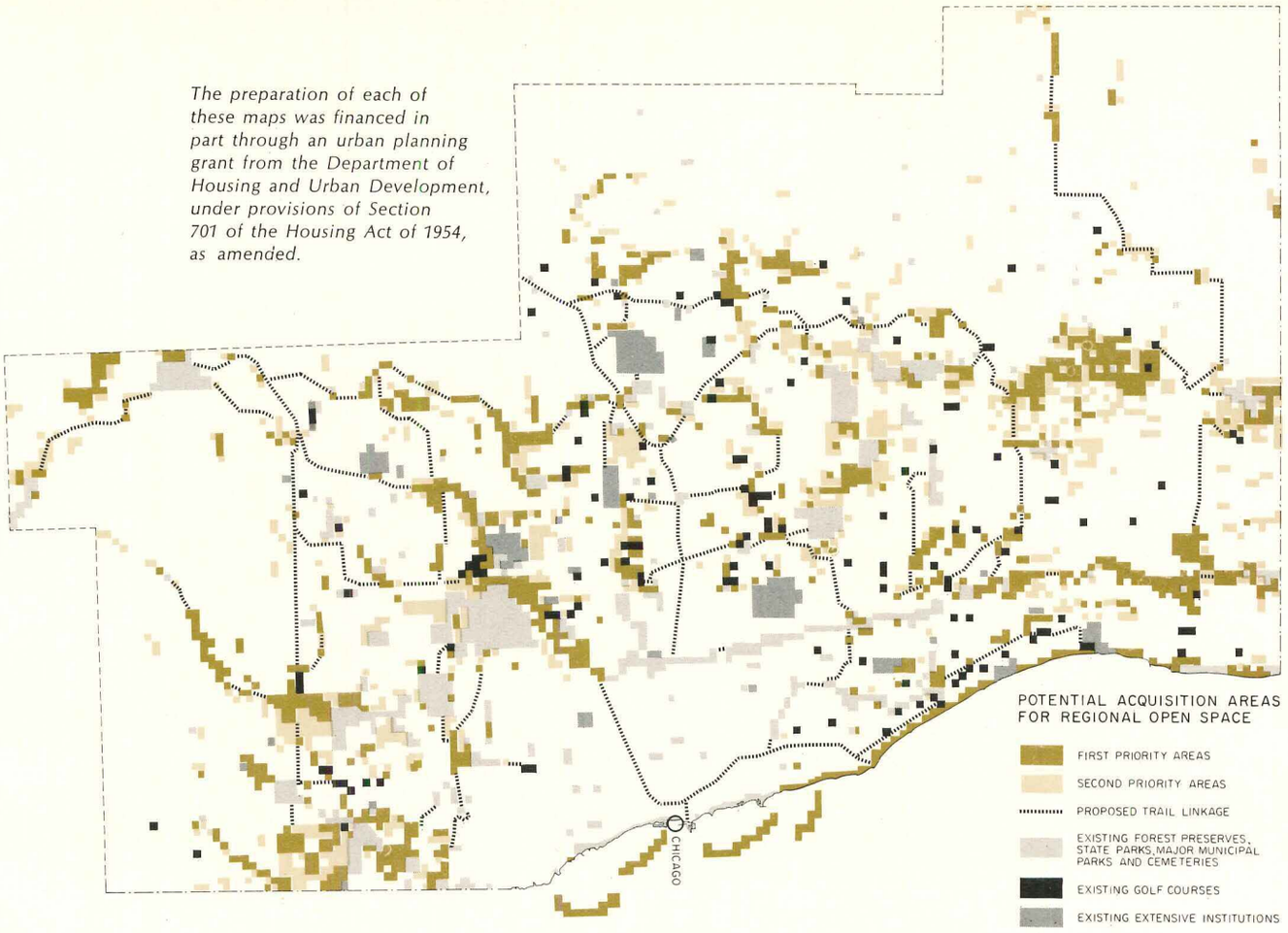
The AIA National Policy Task Force Report urges that land development be increasingly brought under public control and urges that areas of critical ecological importance such as flood plains and coastal regions should be protected. The AIA also supports the radical concept that appreciating value of land developed by public investment in roads, sewers, or nearby parks and other kinds of open space should no longer accrue to the landowner, but should revert to the public and be recycled into the costs of developing, serving and maintaining such land.

Citizen advocates for open space

Open land will be saved, donated and preserved for public use in direct proportion to the scope of public demand for it as articulated through citizen advocacy. The pressures of private interests on Federal, state and and local authorities to develop land under government control in ways which in the long run or short run are inimical to the public interest are overwhelming. The pressures upon private landowners to sell to the oil, mineral and lumber interests or to developers are increased by taxation policies and spiraling land values.

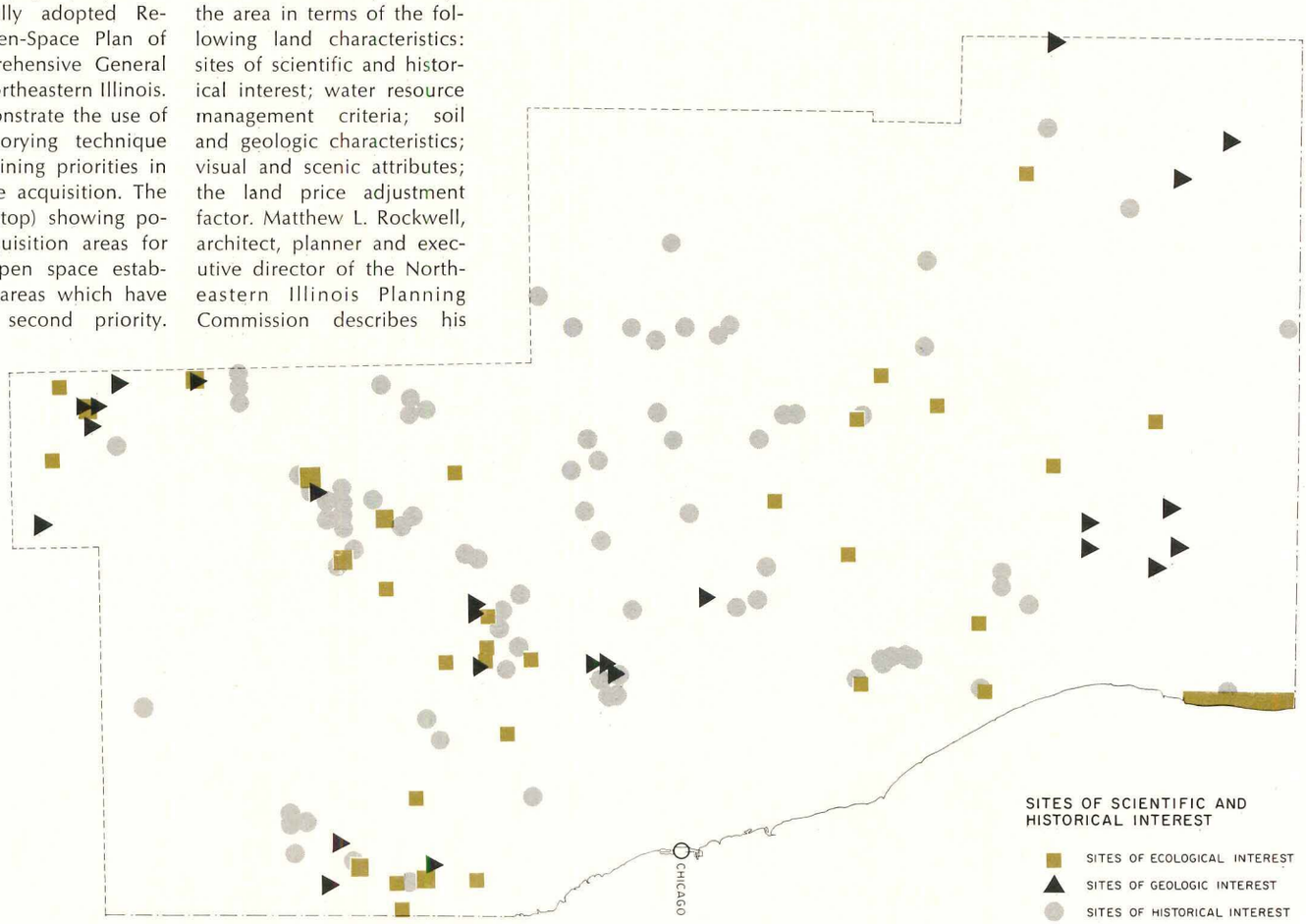
Since the implementation of most open-space plans is the responsibility of one or more public agencies at levels of government which must respond to the judgments and pressures of the people, all efforts of planners and government officials will fall short of ultimate achievement without broad citizen support. Architects and planners must acknowledge the role which citizens must play and learn that public opinion can no longer be ignored in the planning process. Although too many plans are still devised without the knowledge and consent of the public, more planning agencies have begun to present their plans to the citizens in some detail at official public hearings. The idea is beginning to take hold that the public, if given strong leadership and kept informed, will respond in strength to bold plans.

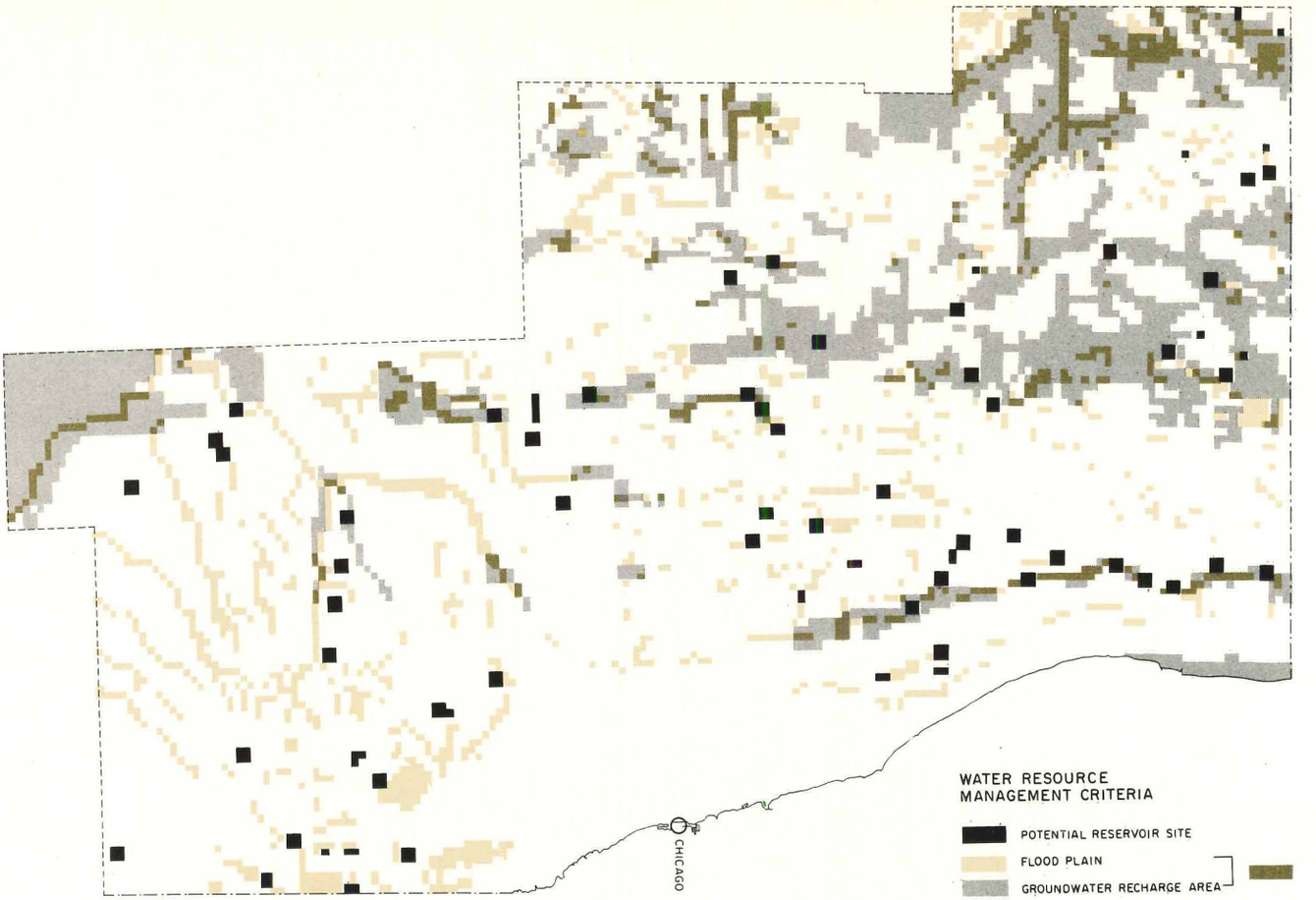
The preparation of each of these maps was financed in part through an urban planning grant from the Department of Housing and Urban Development, under provisions of Section 701 of the Housing Act of 1954, as amended.



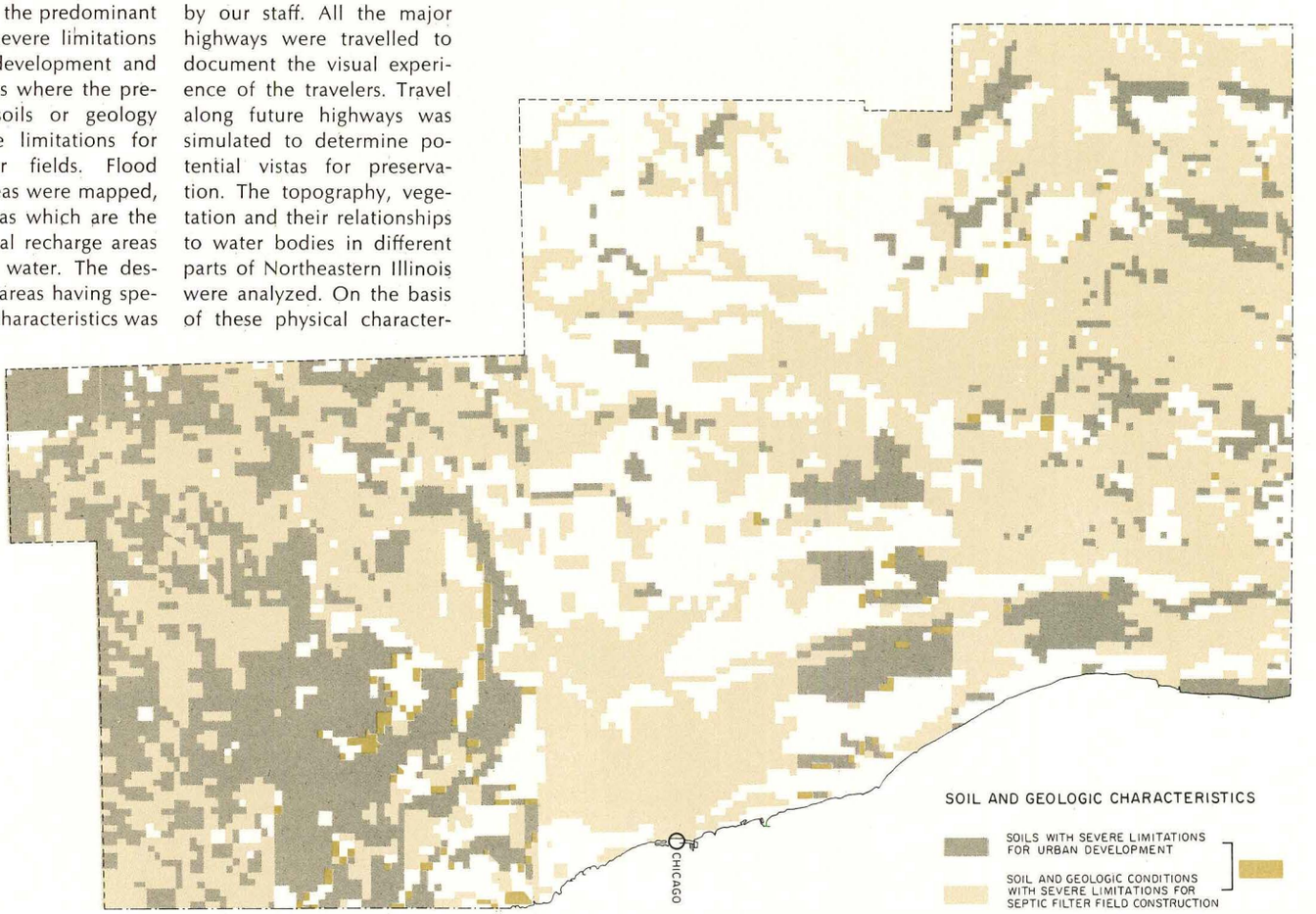
AN OPEN SPACE INVENTORY AT THE REGIONAL SCALE FOR NORTHEASTERN ILLINOIS

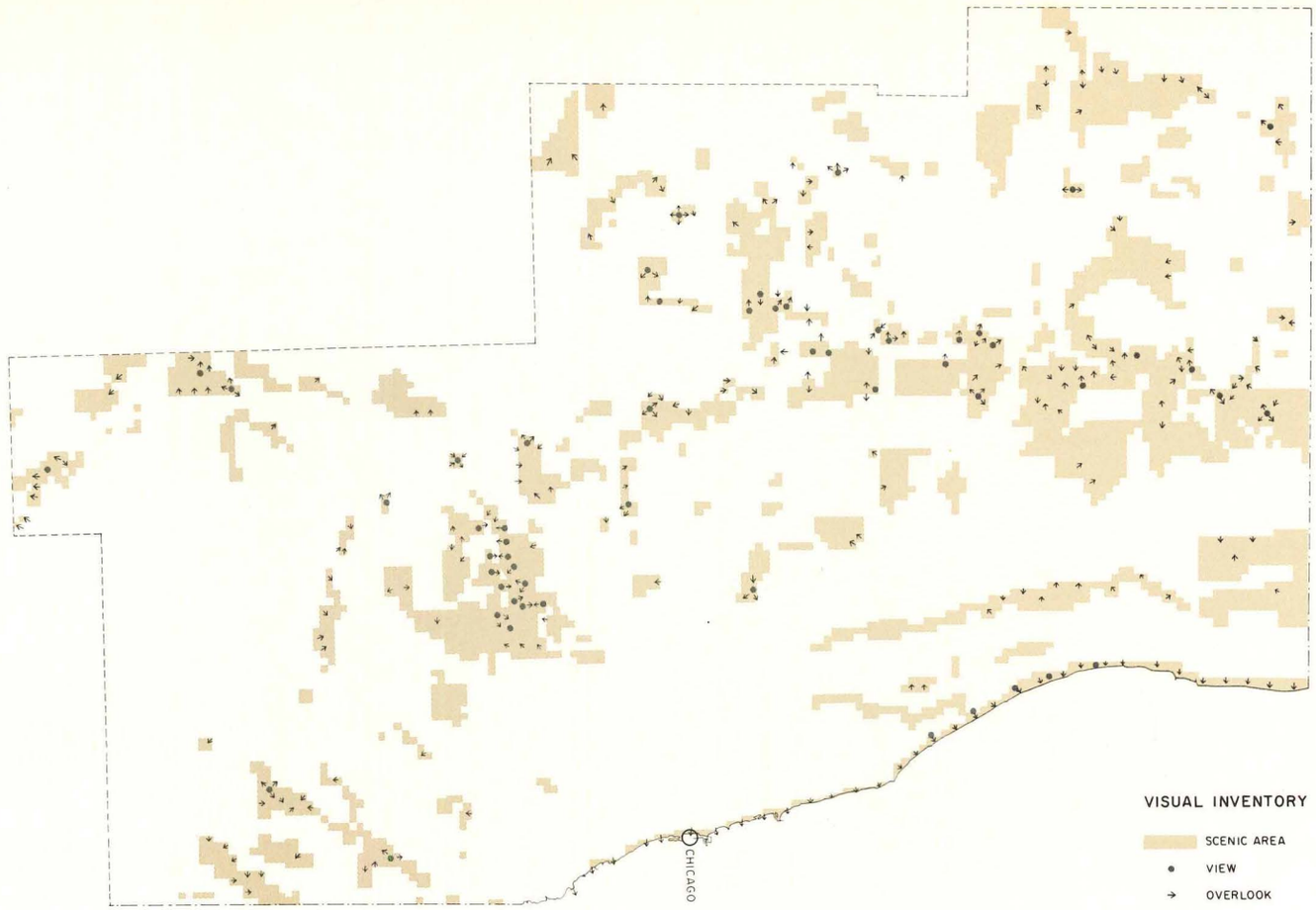
The six regional inventory maps on this and the following two pages are part of the officially adopted Regional Open-Space Plan of the Comprehensive General Plan for Northeastern Illinois. They demonstrate the use of the inventorying technique for determining priorities in open space acquisition. The first map (top) showing potential acquisition areas for regional open space establishes the areas which have first and second priority. This map is the final result of an inventorying process which measures and maps the area in terms of the following land characteristics: sites of scientific and historical interest; water resource management criteria; soil and geologic characteristics; visual and scenic attributes; the land price adjustment factor. Matthew L. Rockwell, architect, planner and executive director of the Northeastern Illinois Planning Commission describes his



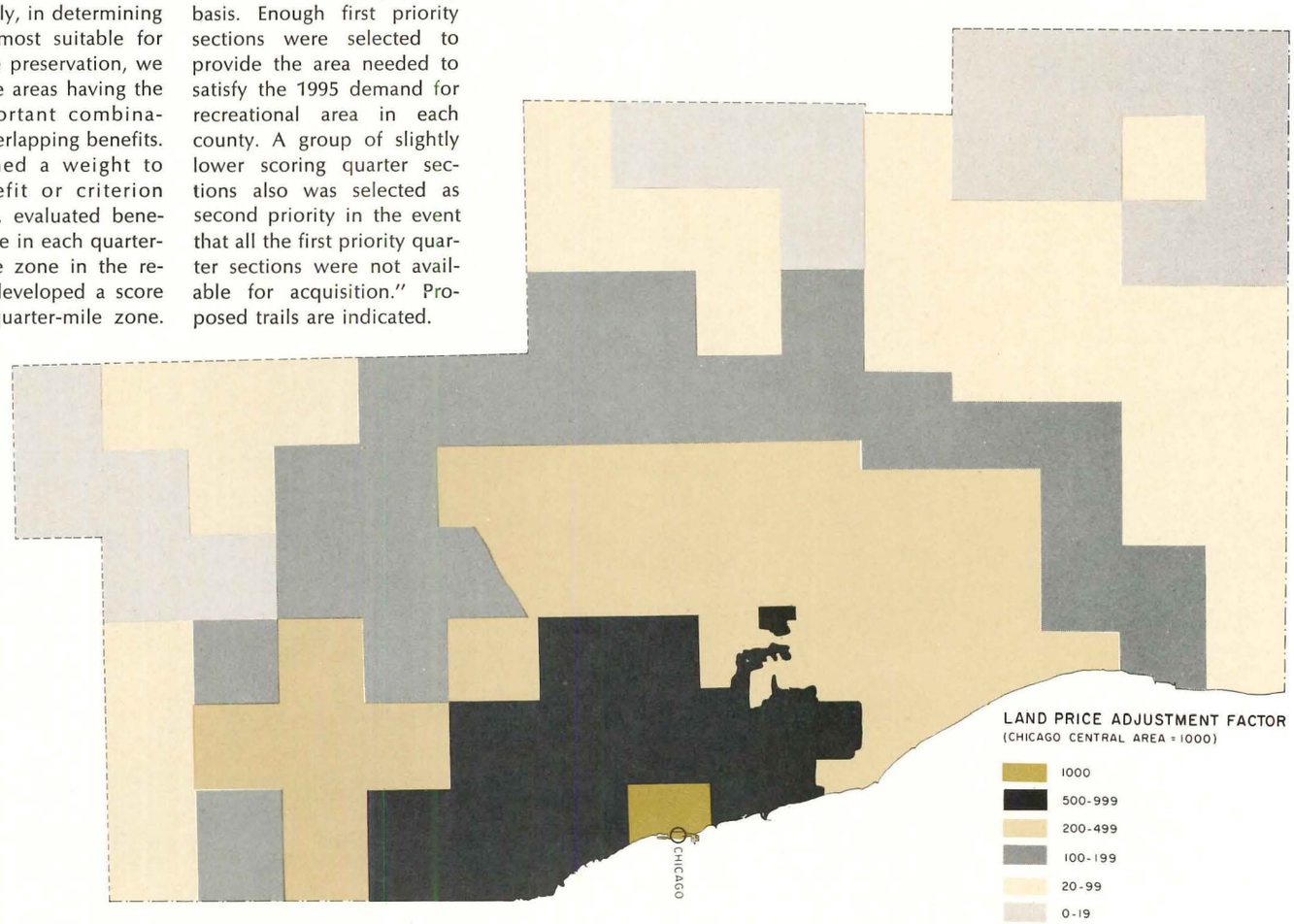


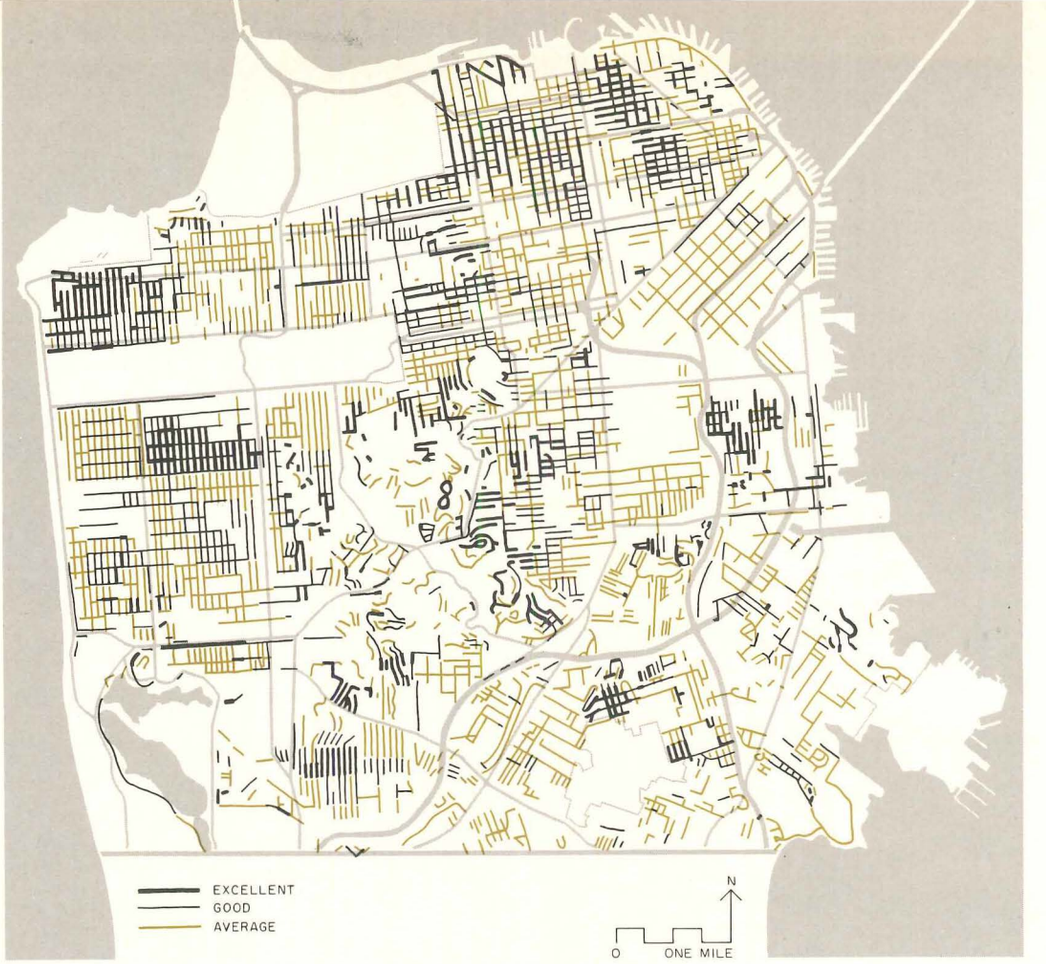
agency's use of the inventorying process as follows: "Maps were made for the areas where the predominant soils have severe limitations for urban development and for the areas where the predominant soils or geology have severe limitations for septic filter fields. Flood problem areas were mapped, as were areas which are the prime natural recharge areas for ground water. The designation of areas having special design characteristics was based on a detailed visual inventory of Northeastern Illinois which was developed by our staff. All the major highways were travelled to document the visual experience of the travelers. Travel along future highways was simulated to determine potential vistas for preservation. The topography, vegetation and their relationships to water bodies in different parts of Northeastern Illinois were analyzed. On the basis of these physical character-





istics, we prepared a summary map showing the scenic areas, vistas and overlooks. Finally, in determining the areas most suitable for open space preservation, we isolated the areas having the most important combinations of overlapping benefits. We assigned a weight to each benefit or criterion considered, evaluated benefits available in each quarter-square-mile zone in the region and developed a score for each quarter-mile zone. Designation of first priority quarter sections was undertaken on a county by county basis. Enough first priority sections were selected to provide the area needed to satisfy the 1995 demand for recreational area in each county. A group of slightly lower scoring quarter sections also was selected as second priority in the event that all the first priority quarter sections were not available for acquisition." Proposed trails are indicated.

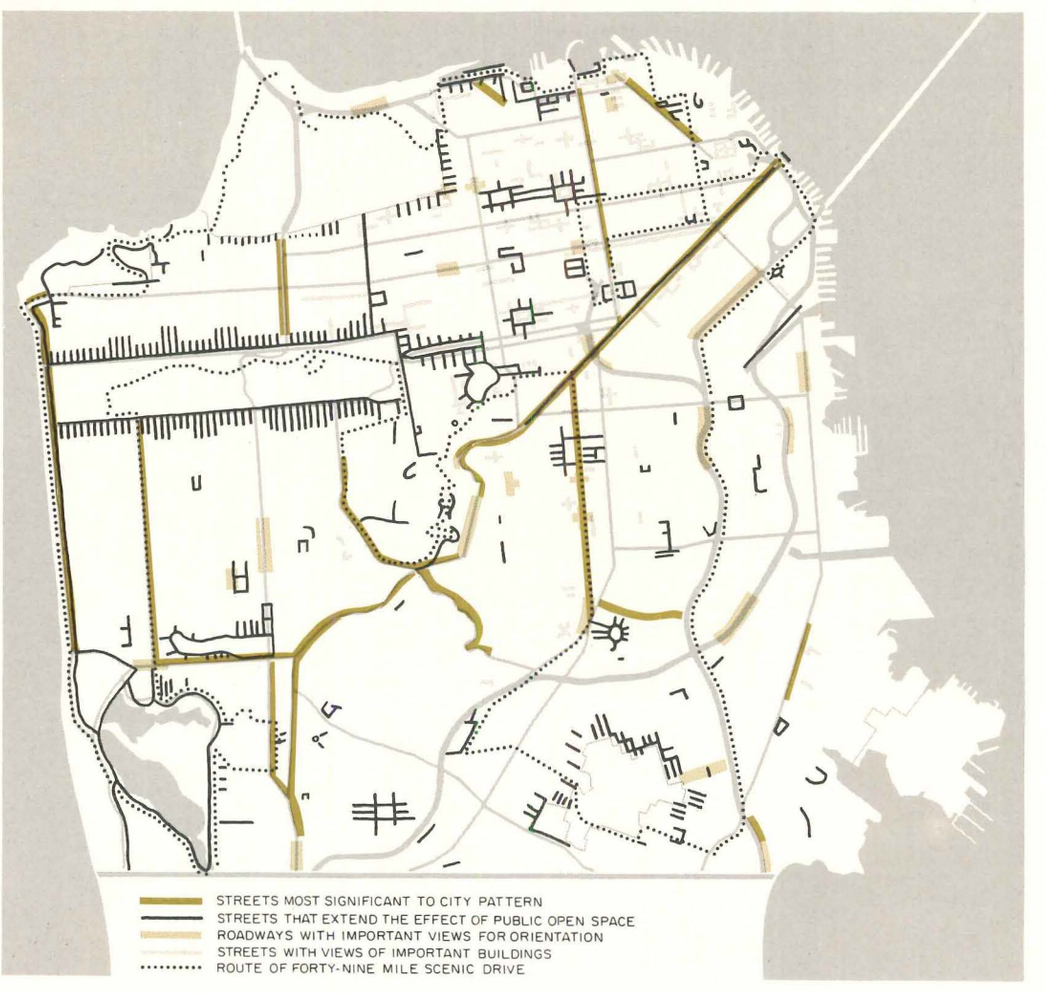




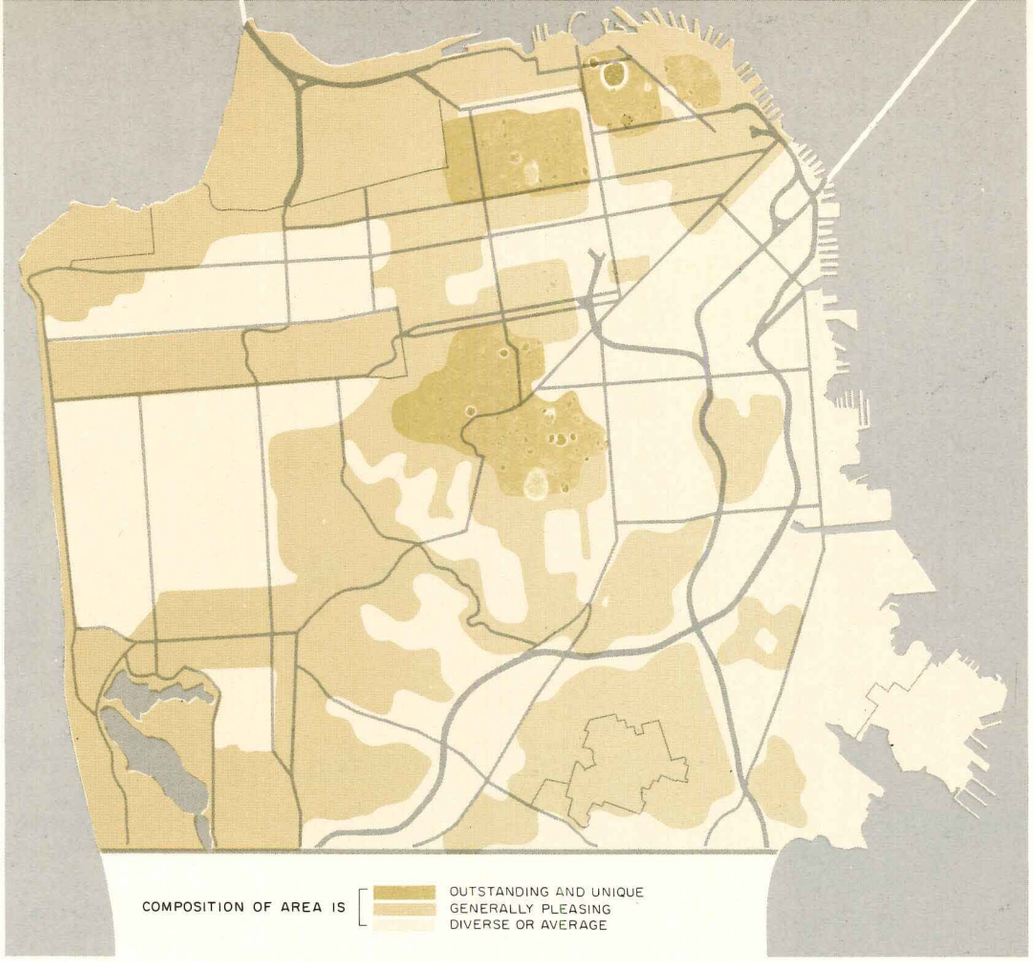
STREETS IMPORTANT FOR THEIR QUALITY OF VIEWS

AN OPEN SPACE INVENTORY AT THE CITY SCALE FOR SAN FRANCISCO

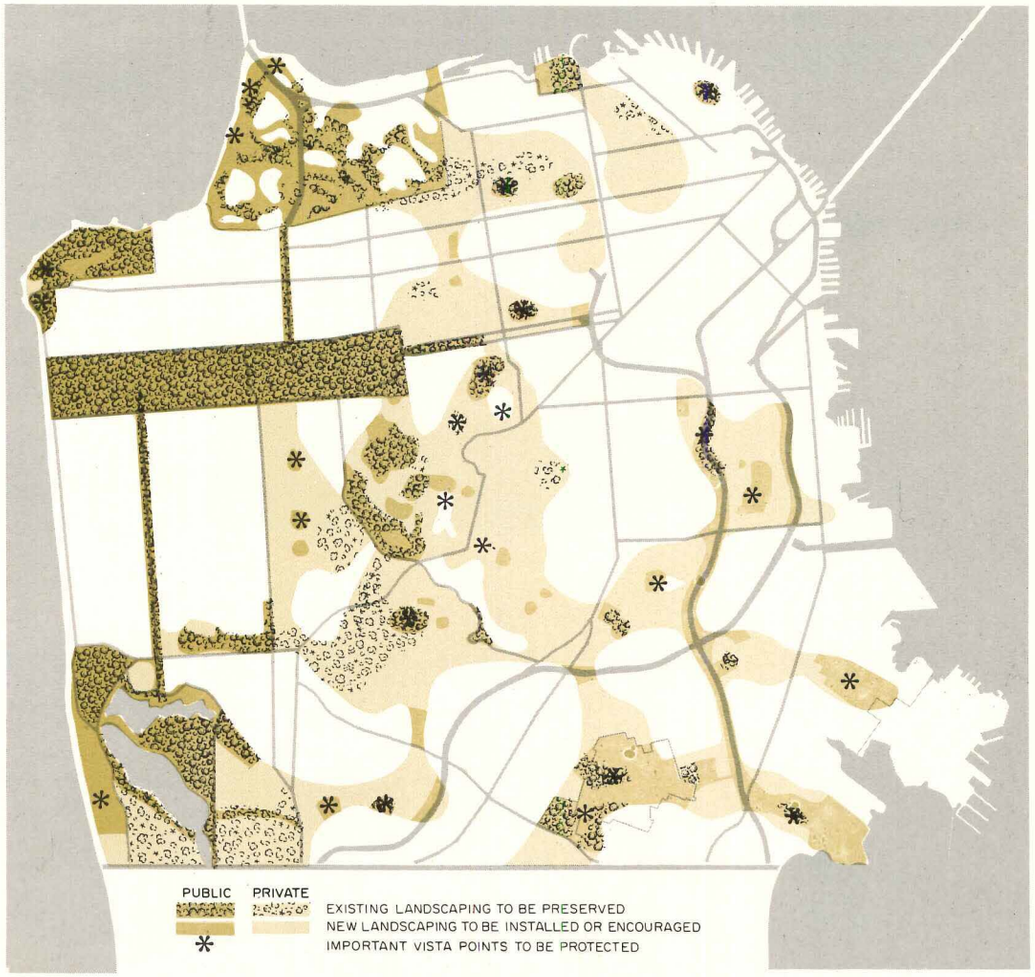
The open space inventory can be an effective planning strategy for preserving visual form and character and conserving and acquiring recreational space at the city scale —as shown here for San Francisco—as well as at the regional scale described on the preceding pages by Matthew Rockwell. This inventory was developed as part of the Urban Design Plan for the Comprehensive Plan of San Francisco prepared by the urban design staff of the Department of City Planning with the aid of consultants and the participation of community groups. Completed in May 1971, the Urban Design Plan has been adopted by the City Planning Commission as part of the San Francisco Master Plan. The comprehensive report from which this open space inventory has been adapted was financed in part by an urban planning grant from the Department of Housing and Urban Development.



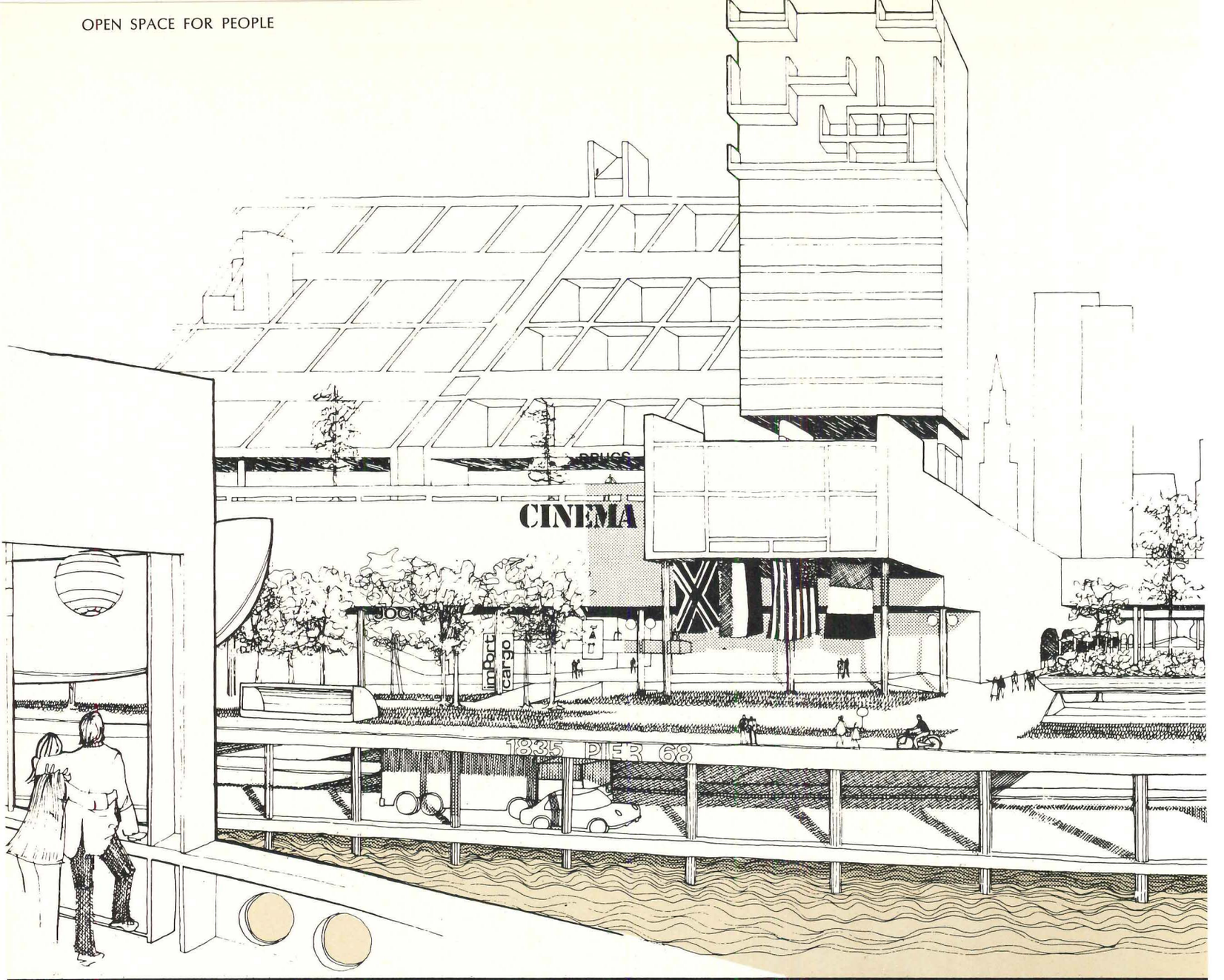
STREET AREAS IMPORTANT TO PERCEPTION OF THE CITY

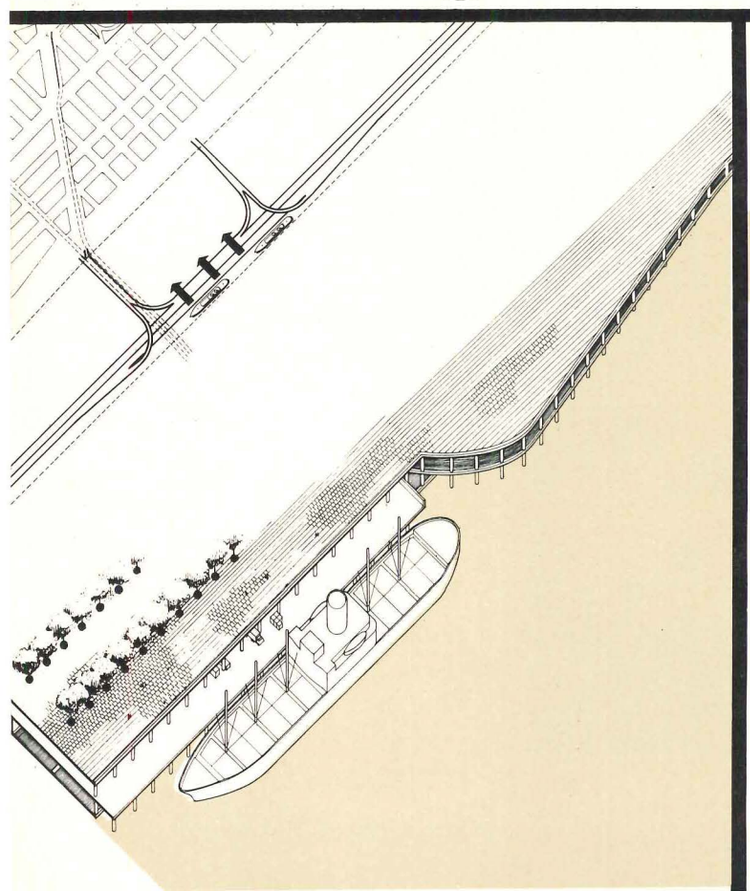


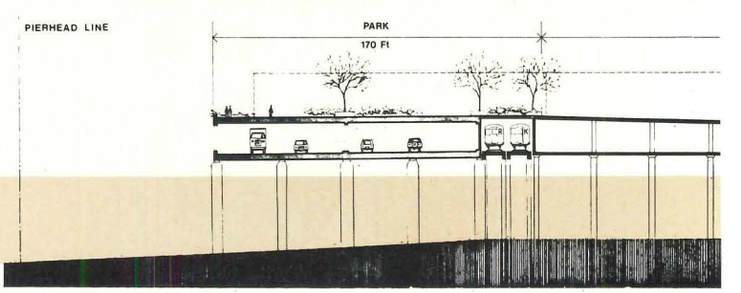
QUALITY OF VISUAL FORM AND CHARACTER



PLAN TO STRENGTHEN CITY PATTERN THROUGH VISUALLY PROMINENT LANDSCAPING

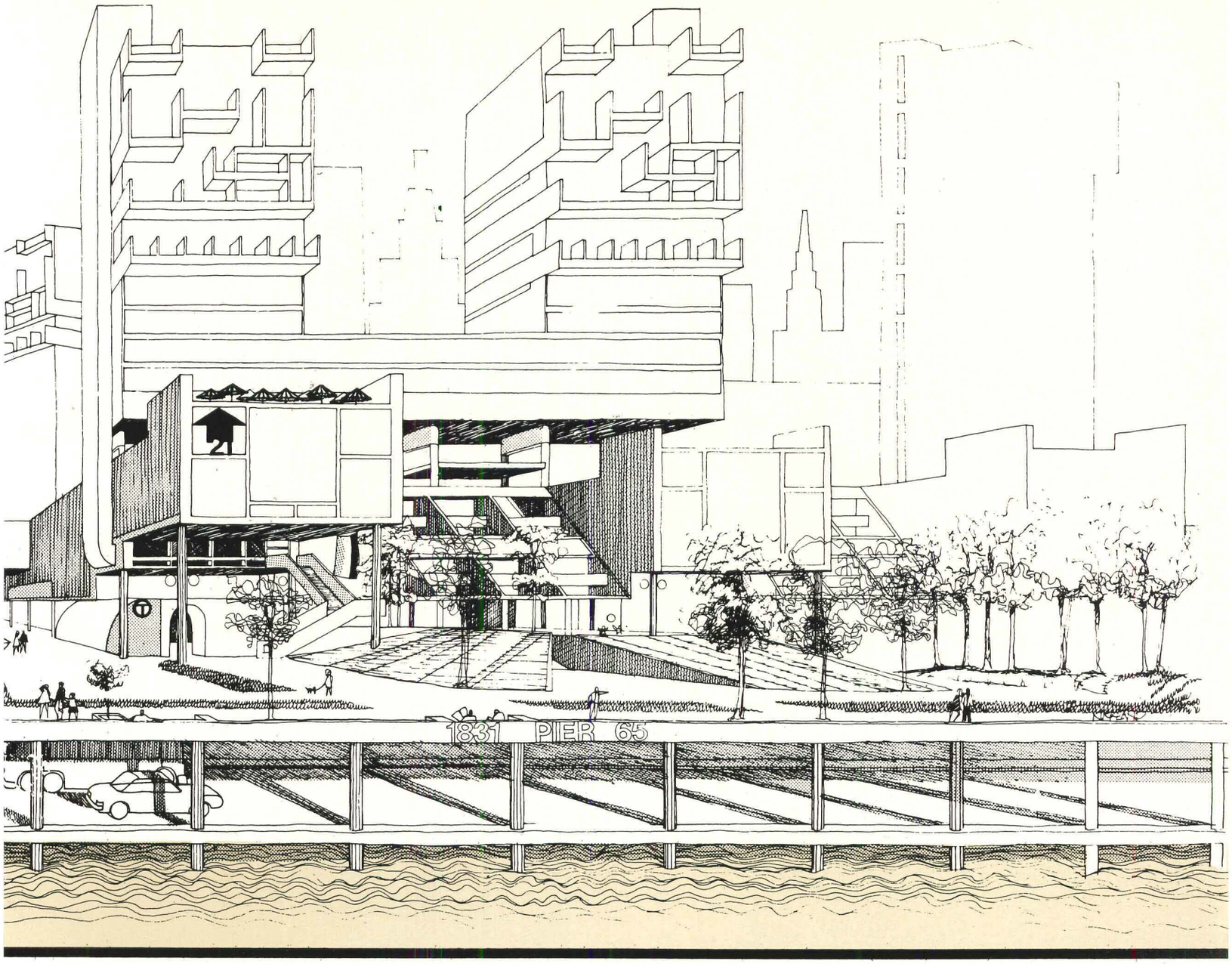


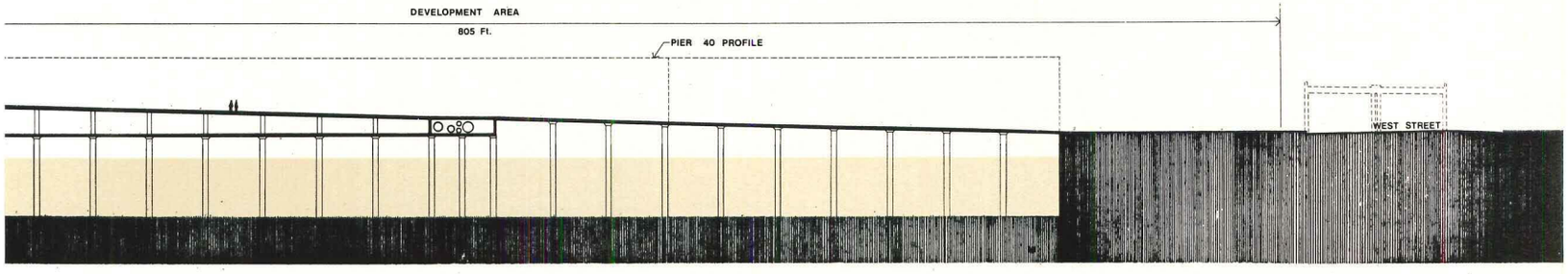




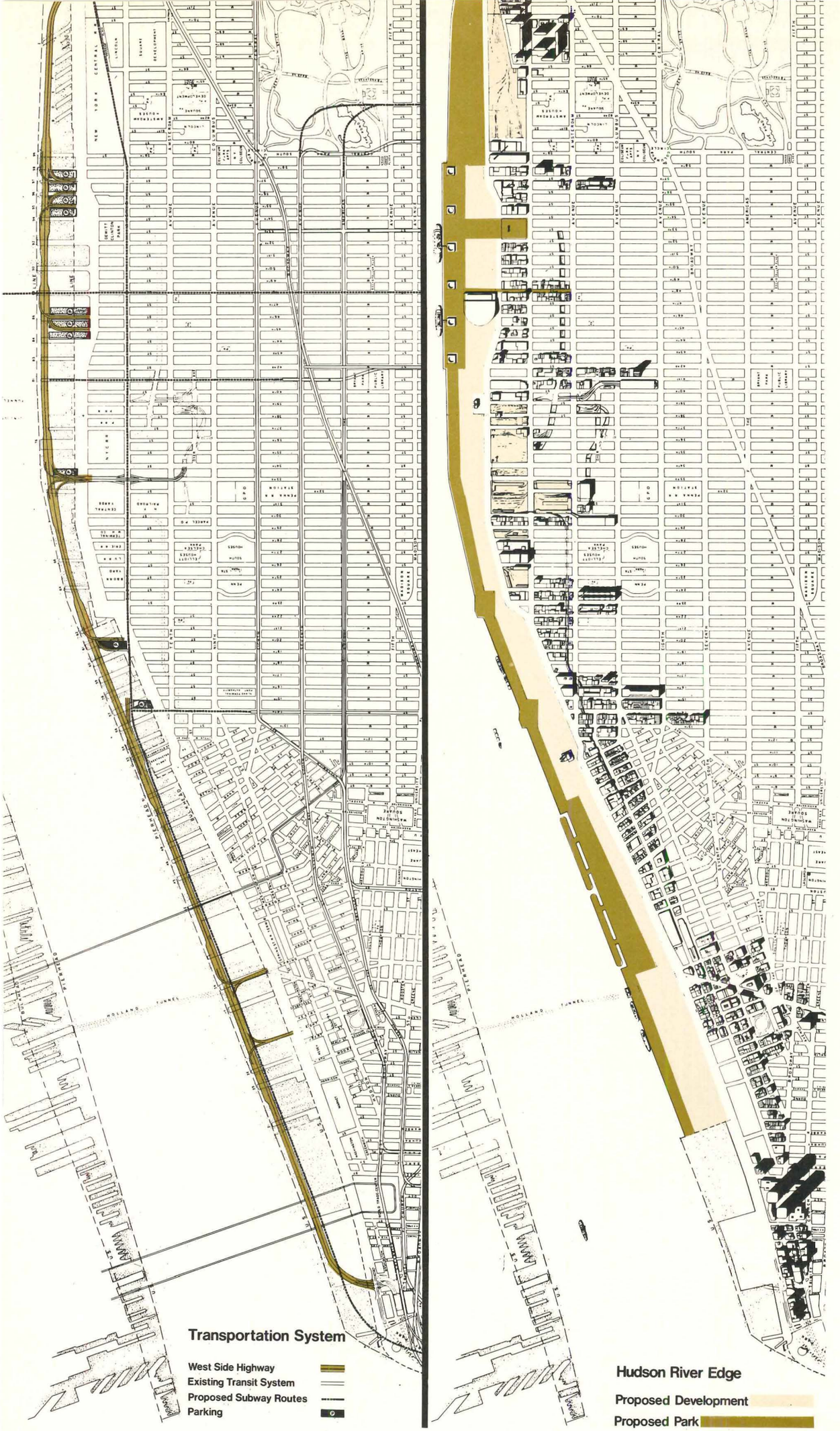
PROPOSED HUDSON RIVER EDGE DEVELOPMENT

The Hudson River Edge Development proposal will, if implemented, create a 700-800-acre land bank for present and future development of New York City by replacing the obsolete and delapidated West Side Highway. The proposal by the Wateredge Development Study staff of the New York State Urban Development Corporation, envisions a platform structure built on piles in the Hudson River. The highway would be on the lower of two levels, with service, maritime back-up and industrial and warehousing functions behind. The platform above would be used for parks, an esplanade and housing, commercial, community and institutional uses.





North of 72nd street the highway would be put in the water as a decked structure. Briefly the proposal includes the following: First, construction of the new West Side Highway on piles in the Hudson River some 700 to 1000 feet west of its present location, as close above the high-water line as tides and other ecological considerations permit. The structure in the form of a reverse "C" would face the water. Second, creation of a new development plane or platform connecting the pedestrian deck with the upland area to form the land bank. Third, the inclusion of a continuous pedestrian esplanade along the water which would link Riverside Park to Battery Park at the tip of Manhattan. Fourth, creation of a subsurface plane of approximately 10 to 13 million. square feet for parking, cargo handling, truck transfer, light industry and service functions. Fifth, provision of modern passenger and cargo handling potential through a system of quay docking (opposite page bottom) parallel rather than perpendicular to the highway as in the old finger piers. Sixth, the provision on the lower level of space for a future West Side mass transit facility. Seventh, creation of large fringe parking facilities on the lower deck to help keep automobile traffic out of the Manhattan Street system. The Wateredge Development study program staff, headed by Samuel Ratensky was formed by UDC to improve all of the city's waterfronts. This staff has recently become part of a new organization called the West Side Highway Project which has been formed by the City of New York and the State of New York to give more detailed study to the scheme.



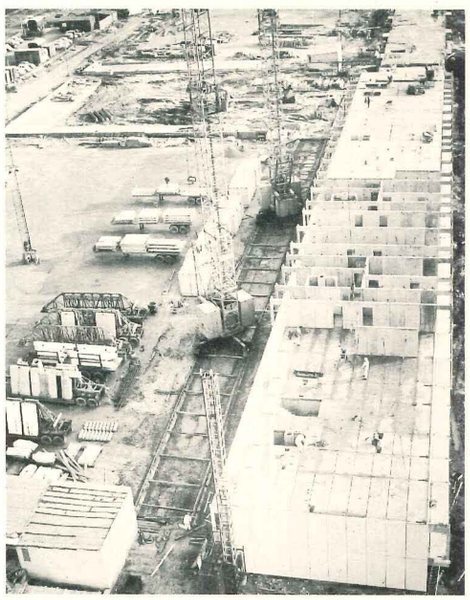
OPEN SPACE FOR PEOPLE: PROPOSED HUDSON RIVER EDGE DEVELOPMENT

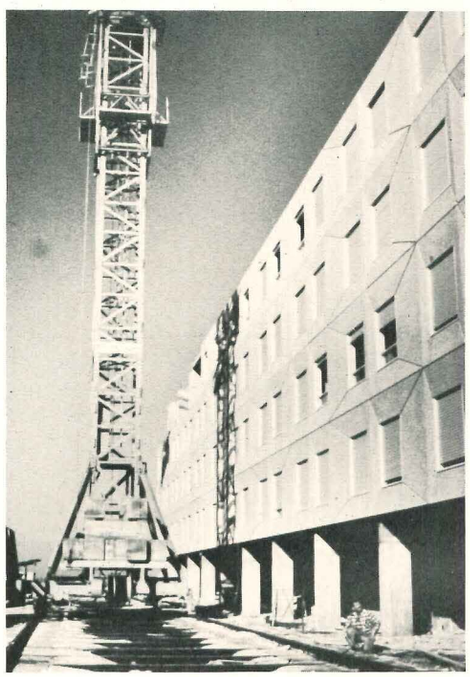
As the maps indicate, the scheme if implemented, will link up with Riverside Park and provide a continuous open space system to Battery Park at the tip of Manhattan. New York City would gain the priceless possession of a waterfront park the entire length of the island.

The management of systems-building projects: what it means to architects and engineers

By Abba A. Tor, partner, Pfisterer, Tor and Associates, consulting engineers

Based upon first-hand experience with industrialized housing in Israel, the author, a New York City consulting engineer, tells how he thinks the professions should respond to this approach to best utilize their talents.





With the gradual acceptance of industrialized building systems by private developers, as well as the major agencies involved in construction of mass housing, the architectural and engineering professions need to adapt their thinking and their practices to a new set of criteria if they want to work within this discipline.

A mere modification or adaptation of design and construction management sequences and procedures used in conventional construction just won't do in the case of industrialized building systems, and, if used, will reduce the significance of the industrialized building system to a mere substitution of, say, precast elements for poured-in-place concrete.

In each case the architect-engineer operates within a given set of constraints. The difference between these sets of constraints, for conventional and industrialized buildings, requires different responses, and thus different design and construction-management approaches. The number of constraints is larger and their interrelationship much more complex with the industrialized building project. The "think-ahead" doctrine applies more severely, and there is little room for improvisation and harmless change orders—not only during the construction phase, but even in the advanced design stage.

One of the major constraints is effective use of the crane at the building site

For the inherent benefits of an industrialized building system to be maximized, the systems constraint should be operative in the program phase. For example, assuming that the total number of apartments to be built and their mix is predetermined, the system constraint affects the grouping of the apartments into buildings and the siting of these buildings.

In an industrialized building site operation, the crane is the pacesetter for the erection crew and the single most expensive cost item—be it a tower crane on rails, or a mobile crane. An analysis of the number of crane-lifts per apartment taken from several projects built in different locations under different conditions, (Denmark, Israel) using the Jespersen system indicated between 40 and 60 lifts per apartment, depending on its size; or, reduced to a common denominator, approximately 6 to 7 lifts per 100 square feet of floor area. Tower cranes on tracks were used.

The crane capacity being approximately 100-120 lifts per day, the rate of erection as governed by the crane could be about two apartments per day per crane. In all cases two cranes were used, thus pacesetting the erection at between 3¾ and 4¼ apartments per day.

So far in the Canadian and U.S. Jespersen-Kay projects, the number of lifts per day has been 40-60. Because the components are larger, however, the amount of square feet per man-day of erection crew is not reduced. Based upon an average of 30 lifts per 1,000-sq-ft apartment, rate of erection would be 1⅔ apartments per day per crane, or 3⅓ apartments per day for two cranes.

Obviously the frequency with which the cranes have to be moved between buildings at a site, or between sites, as well as slopes of the sites, constitute important factors in the economy of the use of the system. Thus, considerations of the size of individual buildings and their groupings should also include fairly early the effect of different solutions on the operation of cranes.

The productivity of the erection crew is a function of the duration of its involvement at a site. Using again two randomly selected sites—one in Israel, consisting of five-story buildings, and one in Denmark, consisting of a mix of nine-story and 16-story buildings—the erection capacity of a crew started at approximately 70 sq ft per man-day and built up to 115 sq ft per man-day. Interestingly enough, these figures were identical for both projects, despite the great differences between the sizes and layouts of the apartments, the sizes of the erection crews, and the countries in which they were built. In the Canadian and U.S. projects, the rate of erection achieved has been slightly higher, about 130 sq ft per man-day, primarily as a result of the larger components used.

A STEP-BY-STEP COMPARISON OF CONVENTIONAL BUILDING WITH SYSTEMS BUILDING

Conventional building constraints	Industrialized systems building constraints
1. Client's program	1. Client's program
2. Budget and cash flow	2. Budget and cash flow
3. Not applicable (n.a.)	3. System
4. Time schedule	4. Time schedule
(a) Design (b) n.a.	(a) Design in A/E offices (b) Design in systems manufacturer's plant
(1) Architectural	(1) Architectural } standard & special elements; shop drawings
(2) Structural	(2) Structural }
(3) HVAC, electrical, plumbing	(3) HVAC, electrical, plumbing } variants of above; shop drawings
(c) n.a.	(c) Price negotiation with systems manufacturers; refinements of systems components and their integration in the detailed design, i.e., interaction between 4(a) and 4(b) above.
(d) Bidding or negotiation	(d) Bidding on conventional construction elements (e.g. foundations), sub-systems and finishing trades
(e) Construction phase	(e) Construction phase
(1) Shop drawings sequence	(1) Final coordination of shop drawings between conventional part and "systems" part (of 4(b) above)
(2) Construction, monitored by CPM	(2) Construction, monitored by a sequence of trades calendar

A big factor in the use of the systems approach is the cost of financing

The budget constraint operates differently in the case of the project using industrialized building systems than in conventional construction, primarily on the planning of cash flow.

The over-all time required from program approval to completion of construction may be shorter in a systems-built project than in an analogous conventionally designed and built project, but the distribution of activities within the design-construct period will certainly be drastically different. The time which requires relatively low cash flow will be longer, while the period of heavy expenditures associated with the field operations will shrink appreciably. The entire design and detailing effort for the systems project will progress on a broader front, involving more disciplines working simultaneously and incorporating their input in the final product at a faster rate and in greater depth than in the conventional manner where the various design disciplines work in a leap-frog fashion, frequently in tandem and breaking their stride during the bidding period, resuming during shop drawings.

To maximize the inherent savings in the redistribution of cash flow and to minimize the effect of design contingencies and cost escalation, it is important to proceed along two parallel lines:

a) Incorporate as many subsystems as possible in advance into the plant product, thus reducing the on-site labor component,

b) Pre-buy as many of these subsystems as possible on the basis of the substantially completed shop drawings.

In Denmark, Sweden and Israel, the ratio of the cost of the basic superstructure components supplied by the plant and erected at site (including facade elements) to the total construction cost varies between 35 and 45 per cent of total cost of construction—the cost ratio of labor to materials being about 1/3 labor versus 2/3 material. In the U.S. the percentage of cost of superstructure to total cost would be lower, because of the higher cost of electrical and mechanical subtrades—the ratio being in the order of 25 to 30. In projects abroad, the labor component has been distributed at a ratio of 70 per cent to 30 per cent between factory and site. In the U.S. the cost of erection runs higher, about 50 per cent of the cost of panels, as the erection crew is larger, dictated by union practices in this country.

How architects and engineers should respond to system constraints

So far we have touched upon the impact of the industrialized system upon the constraints of program and budget. Let us examine now the system itself as a major constraint for the architect-engineer.

The importance of "working within the system" from the outset rather than trying to adapt the system to a preconceived set of floor plans cannot be over-emphasized. The architect-engineer should thoroughly familiarize himself with the nature of the system and its potentialities, in terms of dimensional limitations and tolerances; degree of standardization of various elements; degree of possible integration of mechanical, electrical and plumbing trades with the elements at the factory and what it takes to achieve it; transport requirements to the site and erection sequences.

In the case of several projects in Denmark, Sweden, Britain and Israel built with the Jespersen System, the architect-engineer team underwent a short indoctrination and in-house training period at the system manufacturer's offices and plant, (as opposed to a mere cursory visit), in order to obtain a working level familiarity with the system. Following this period the architects embarked on a series of study plans, which could be termed "finger exercises."

Within this phase, scores of unit plans of apartments, ranging in area from 550 square feet to 1,300 square feet, were developed using the modular components of the system. These individual combinations and permutations of systems elements were then analysed, and many were discarded as poor housing solutions, albeit good applications of the system.

The point has been made that a major constraint industrialized building imposes on the design-construct team is an early commitment to the use of a given system. The early commitment is also most important in order to arrive at a reasonably firm price. Too often the conventional design is adapted in a hurry to the use of a "systems building." This results in a fast pricing of the "typical" elements, leaving the pricing of the non-standard conditions for later. Usually these non-standard conditions (e.g. ground floor, and non-standard mechanical and electrical requirements) constitute a much more important part of the cost than initially assumed.

"Specials" have a much higher ratio of labor cost to materials cost

Most industrialized building systems using concrete that are suitable for high-rise housing projects are comprised of several basic superstructure components, i.e. floor slabs, bearing wall panels, end wall panels, stair runs, stair landings, insulated sandwich facade wall elements, "sanitary" walls containing embedded piping, "electrical" walls containing major electrical ducts and meters as well as miscellaneous parapets, closure pieces and the like.

The degree of industrialization in the production of these components varies from assembly line techniques for floor slabs, through multiple-form batteries for wall panels to a one piece-at-a-time production of the stair-runs, etc.

Within the highly industrialized floor and wall elements, the labor input varies between a minimum for "standard elements" which have no additional requirements beyond load bearing and enclosure to a larger amount for what will be termed "variant elements," i.e. those that are dimensionally identical to their standard counterparts, but have additional requirements such as embedded electrical conduits, pipe chases, cut-outs, etc. The "special elements," however, have the highest input of labor of all in the plant.

The table on page 143, bottom left, taken from a Jespersen system study illustrates this point without differentiating between the standard and variant slab and wall elements.

The most efficient design with a systems building will strive first to maximize the ratio of standards and variants with respect to specials, and second to maximize the ratio of standards to variants within the slabs and walls categories.

A project within which the "specials" account for, say, 25 per cent of the total elements, and in which the "variants" equal the standards, indicates a poor use of the system, as such.

How about the other elements, i.e.: carpentry, partitions, surface treatment, roofing, various finishes, miscellaneous iron, mechanical, HVAC, electrical and plumbing systems? The table on page 143, bottom right, provides a breakdown of the man-hours at site per 1000-sq-ft apartment in a project near Copenhagen.

At first glance the figures look rather disappointing, and one may question the validity of all this "fuss" if the industrialized system proper applies to only 16.5 per cent of the total man-hour expenditure at the site. This doubt may be dispelled by the fact that a similar apartment produced as part of a conventionally built project would require approximately 1,450 man-hours at site, about three times as much as in systems building case.

Just as the crane is the pacesetter for the erection process at the site, so the industrialized system as a whole, if used as such, and not merely as an assortment of precasts, will act as a pacesetter and catalyst for the entire building process.

Shop drawings should be started early and refined during design

Turning now to the constraints which the system imposes on the time schedule, (see table page 142) many more activities must take place before construction can start. Because of these, it is extremely important that the systems manufacturer's engineers be involved early in the design process.

In the conventional sequence, the contractor's/builder's staff gets involved in the preparation of shop drawings after the contract documents are complete. In the case of systems building, the shop drawings should begin in the design development phase and be refined as the overall design progresses. This creates the need for a constant flow of information and input on the part of the architect, engineers and systems designers. Shop drawings have to be approved in stages, e.g. standard components may be approved, *en bloc*, at a very early stage to allow for lead time in their production at the plant. Miscellaneous variants will be approved in groups in ascending order of complexity, i.e. those with minor variations before those with more complicated requirements. The specials may be the last to be approved, even though their production at the plant may take the longest time per unit, because of their relatively low level of industrialization.

It is therefore extremely important to set up a fairly detailed schedule of preparation and approval of shop drawings, in predetermined groupings and sequences—taking into consideration the time requirements of the architect-engineer, the system manufacturer's design office, and the lead time required for production in plant. Any deviation from such a schedule may have considerably wider repercussions than in the case of a similar lag in conventional construction.

It is at this stage in the design proceedings that the lack of well-defined managerial responsibilities and "chain of command" may cause the most harm to the orderly development of the project.

The schedule shown at top of next page was used successfully on a project in Haifa, Israel involving 300 apartment units grouped into 5-story buildings. This was the first project using the system, therefore more time was required for the various steps. The project was being designed in parallel with the design and erection of the plant. This complicated matters to a degree, and on the following projects the time schedule for over-all design and detailing was compressed from 11 months to 9 months. It should be emphasized here that this time schedule worked smoothly due to an early commitment to the use of a given system and a given plant.

The bidding period with industrialized building is active for all partners

While the bidding period within the conventional construction sequence serves as a "cleaning-up" and last-minute-coordination period for architect and engineers, in the systems-building projects this period is one of intense activity for all members of the design team. Many of the details used may be challenged here; last minute manufacturers' and suppliers' suggestions may be weighed, some of them being accepted and incorporated in the final documents. It is also at this stage where the original performance specifications are tightened up to reflect the details developed.

Following the industrialized building sequence we reach the start of construction with a much more detailed set of documents to follow than in the case of conventional construction. All the "change orders" and "bulletins" which keep cropping up during the construction phase of the conventional sequence should have been thought out in advance and incorporated in stage 4(c) of the industrialized building sequence.

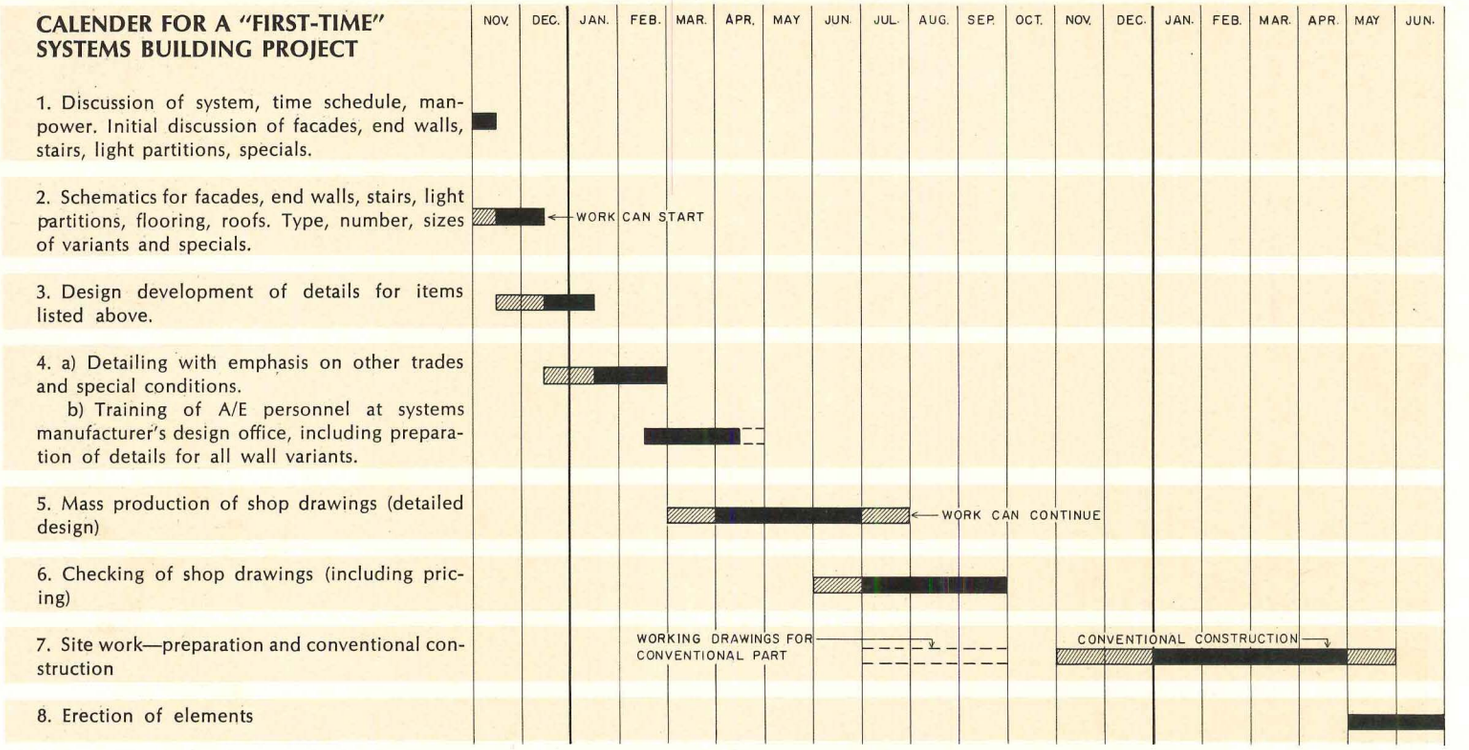
By this time all documents have been

Ratios of labor to material costs for a Danish system

Labor	Slabs	Walls	Specials	Average
	standards and variants			
Factory	16.3	16.1	38.1	23.5
Site (erection)	11.4	9.6	7.4	9.4
Total labor	27.7	25.7	45.5	32.9
Material	72.3	74.3	54.5	67.1
Total	100.0	100.0	100.0	100.0
Portion of building cost	85.29		14.71	100.0

Site man-hours for a 1,000-sq-ft apartment project in Denmark

Activity	Man-hours at site	Per cent of total
1) Erection of system elements	70	16.5
2) Preparation for finishing trades	50	11.7
3) Erection of light partitions	30	7.1
4) Erection of curtain wall	20	4.7
5) Miscellaneous services		
a) Radiators, central heating, water supply, plumbing	32	7.5
b) Electrical	15	3.5
6) Roof and ventilation	10	2.3
7) All others, including site work and conventional construction, e.g. foundations, etc.	198	46.7
Total:	425 hours	100.0



completed, and some production of standard elements is already on its way. Now, all the extra effort that went into the advanced planning and detailed design should pay off in a fast and orderly erection sequence—pacesetting all the other trades and culminating in the early completion and thus earlier occupancy of the building.

The method of bidding the subsystems and finishing trades has a lot to do with the realization of these expectations. Unlike in conventional construction, the PERT/CPM method of scheduling and monitoring won't be effective. In systems-building construction, the finishing trades and subsystems follow closely the erection sequence and every trade has to match the speed of erection; thus if the erection speed is 4 apartments per day, every other trade automatically falls on the critical path, and it makes virtually no difference whether it is the plumbing or the painting subcontractor who finishes his work at the rate of 3¾ apartments per day—the scheduled date of first occupancy will not be met.

The most effective way of coping with the dangers of the out-of-step subcontractor or trade would be to have the systems-building manufacturer and erector be also the general contractor or at least construction manager for all the other trades. This may not be realistic however, as most systems-building suppliers in this country, at least, do not have the organizations to undertake this kind of task.

Another way, used extensively in Scandinavia, is to subdivide the trades into 8-10 major subs (e.g. partitions and facade elements, carpentry and joinery, flooring, etc.), and have them all bid on a set of documents which includes a detailed job calendar prepared in advance by the construction manager. The calendar, which includes all trades, is broken down into 4-hour work periods (i.e. 2 work periods per calendar day) and lists the work to be done by each trade in each work period from start to finish of project. Thus the painting subcontractor who bids on his portion of the job guarantees his performance in accordance with the time sequence specified in the calendar and is aware in advance of all other activities going on around him at a given place and time.

If one could have conceivably gotten through the design sequence of the industrialized-systems-building process using the management processes and sequences of conventional building, it would be virtually impossible to apply conventional scheduling and monitoring techniques to the construction sequence without sacrificing one major advantage of systems building—short duration of actual construction.

The creative management approach to industrialized building systems

Now having highlighted and illustrated some of the basic constraints which the use of industralized building systems imposes on the design-construct process, one may say that meeting these constraints head-on in a creative manner, rather than attempting to get around them is the right attitude.

What kind of an organizational structure would be most suitable to provide the proper climate for creative management of the systems-building project and in what way would it differ from that used on a conventionally built project?

There is no definite answer to this question, especially in the United States today where no one has as yet accumulated a wealth of experience. Some major broad-brush suggestions can be made, as follows:

1. The basic systems manufacturer should be made an active partner in the design-construct, decision-making process, rather than being treated as another supplier of components.

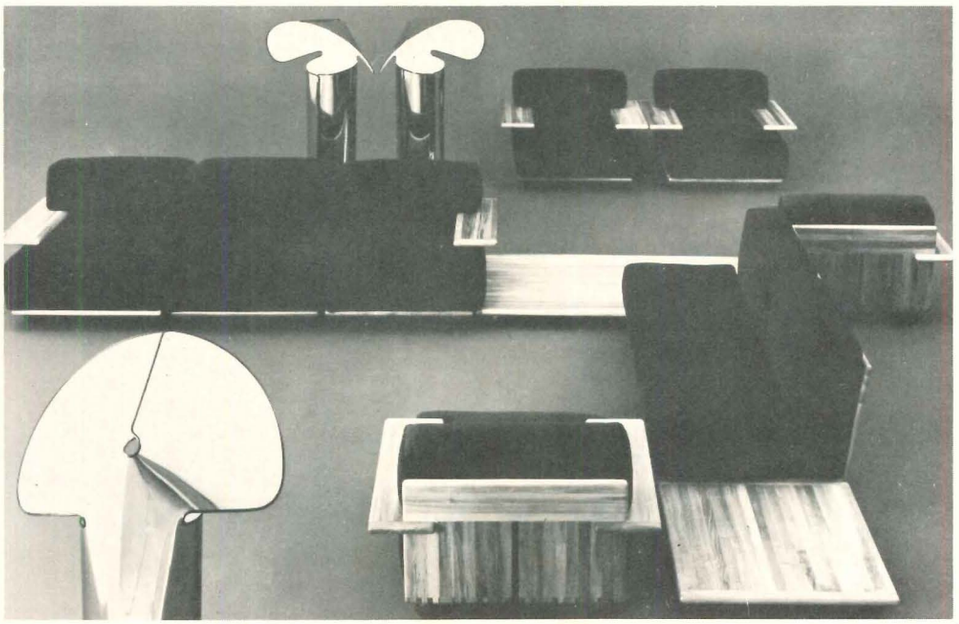
2. The systems manufacturer should be willing, and should have the necessary in-house capability, to assume this role. He would have to allocate a significant part of his overhead to educational activities, on-the-job training of users and get more involved with the solution of problems of other disciplines affected by the system.

3. The owner, in case of a major agency which may generate repeat work, should build up a staff of professionals with systems experience in all its ramifications and use them to play more active management roles as part of the design-construct teams.

4. Until such time as specialized construction management firms emerge, through gradual accumulation of experience in all phases of industrialized building systems, I would suggest a design and construction management team consisting of owner (or owner/developer) architect, engineer, and systems' manufacturer and supplier, with the lead role shifting among the team members according to the position in the design-construct sequence. Thus, for example, the owner/developer would be responsible for the coordination, expediting and integration of input of all members during the program and budget phases. The architect would take over this function during the schematics and early design development phase, and the engineer would coordinate detailed engineering design including approval of shop drawings. The engineer or the system producer could then perform the management role during the erection and major trades sequence.

UPHOLSTERED LOUNGE SEATING / Oiled walnut, in edge grain laminated solid strips provides a strong shell for the basic chair, available without arms, with one arm or two. "Pianura" is the model which can be ganged in sofa configurations. Available in fabric, leather or vinyl. ■ Atelier International Ltd., New York, N.Y.

Circle 300 on inquiry card



CONTINUOUS CAST ACRYLIC / Translucent, concentric rings in a lighting application illustrates a possible use for seamless acrylic sheets, available in unlimited lengths. Continuous cast clear acrylic is also available for uninterrupted display windows. ■ Swedlow, Inc., Garden Grove, Calif.

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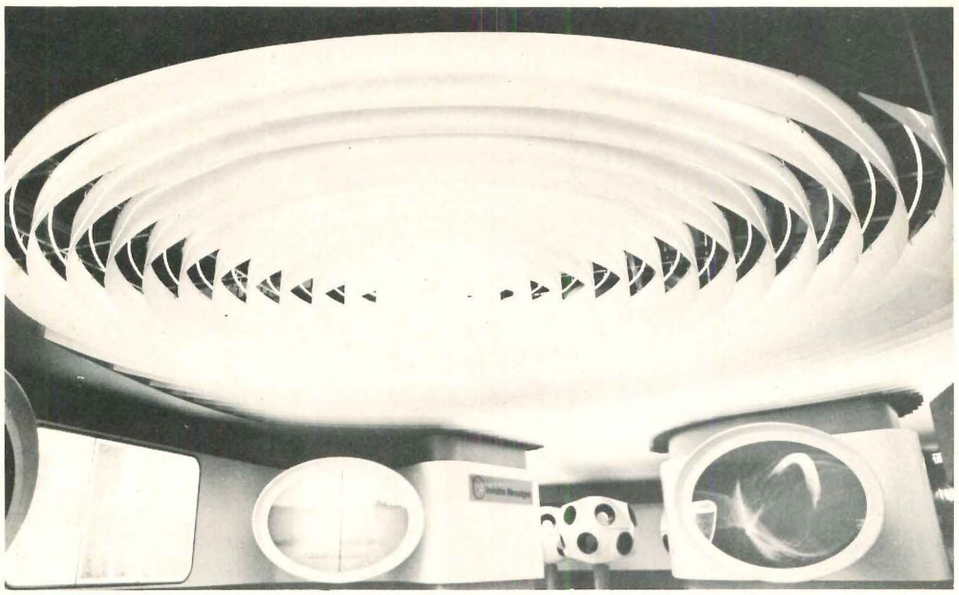

SHEATHING HOSE / Light weight, stainless steel hose will not collapse when used in vacuum applications and maintains its true diameter when bent. Available in a wide range of diameters, it can also be used as insulation sheathing, in low pressure applications and in ventilation and heating ducting. ■ Flexonics Division, UOP, Bartlett, Ill.

Circle 302 on inquiry card

FIRE DETECTOR, DOOR RELEASE / Door frame mounted unit provides early warning smoke detection and automatic door release and closing where ceiling heights are normal. Low profile and self contained, the unit adjusts for closing speed and force. Available in a variety of finishes. ■ Firemark, Franklin Park, Ill.

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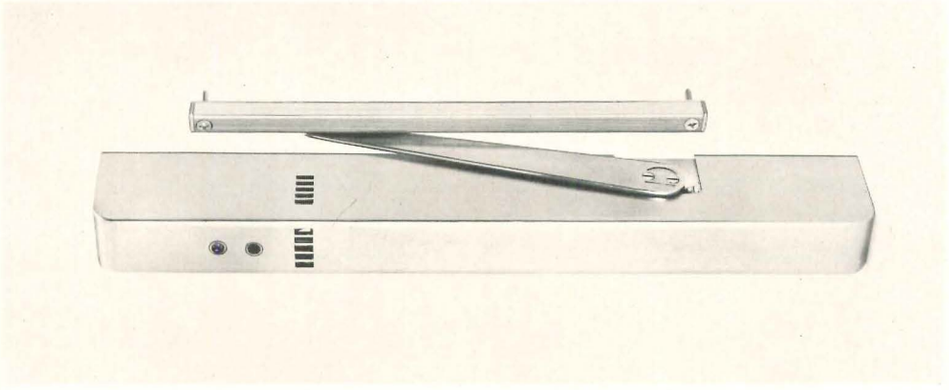


more products on page 160

this new concept may change your entire thinking about roof decks!

A leaking roof deck is not only destructive to a building's contents, but embarassing to the men who designed it. Leaks happen every day. Even on relatively new buildings.

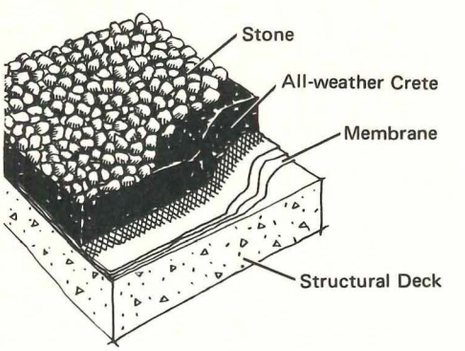
Consider these facts. For a roof deck to leak, there must be a fault or opening through the waterproof membrane. This can be in the form of an accidental puncture caused by man or his equipment.

One of the most powerful forces of nature that affects even the strongest of materials is temperature. The expansion and contraction caused by extreme temperature cycling can in time tear the guts out of most membranes. Whether attached or not, materials must move.

With each temperature cycle most roofing membranes shrink permanently, thus getting smaller and smaller. Cracks occur and membranes tear away from edges and roof protrusions.

There is a solution. A new concept! Simply stated, the principal is to protect the membrane by covering it with insulation. Why isn't this standard practice?

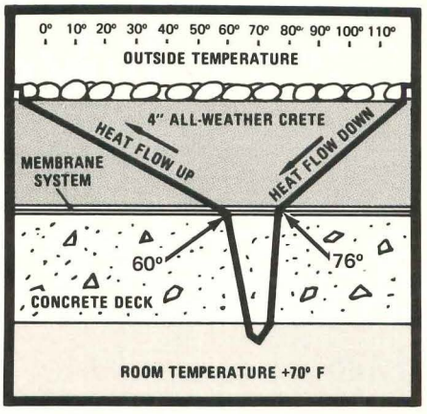
The answer is simple. Except for the age old sod roof principle, there has not been an efficient, modern insulating material tough enough to stand up to the abuse. As a matter of fact, water and freezing will in time destroy most insulations. It's no wonder that for years designers have been protecting the insulation, not the membrane.



The answer is found in a unique insulating material called All-weather Crete. It is composed of sealed cell expanded volcanic rock, one of the world's finest insulating materials, coated with a thermo-plastic binder. It is mixed on the job site and applied over the membrane system. There are numerous membranes on the market that are excellent when protected by this insulation. A final touch is a layer of stone over the All-weather Crete for added protection and decor. Here is how All-weather Crete works to perform these functions:

a) The membrane is always kept warm and ductile. Example:

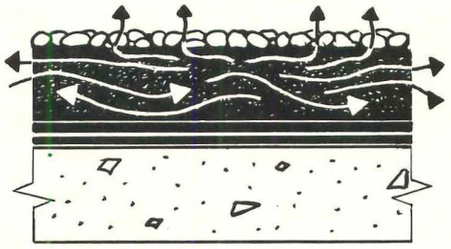
HEAT FLOW CHART



In a severe climate where roof deck temperatures may range from -10° to +120°, the membrane insulated with 4" of All-weather Crete will experience only a 16° temperature variation. Thus, the membrane remains "alive" and ductile for years with negligible effects from expansion, contraction and shrinkage.

b) It is applied in various thicknesses providing a tough protective cushion over the membrane. Most accidental punctures will not penetrate through.

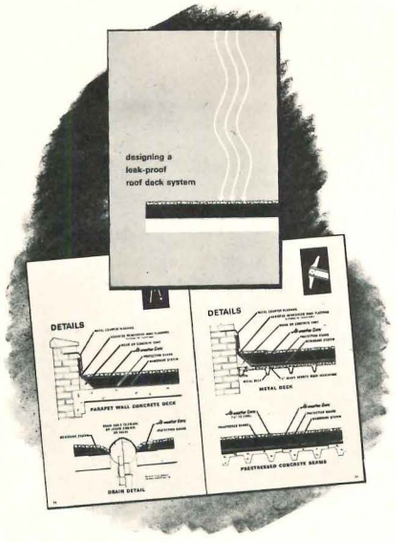
c) Water will never freeze on the membrane. All-weather Crete is contoured to provide slope to drains. There are no joints. Water is drained away naturally! Water or vapors which might enter the system cannot freeze near the membrane and freezing and thawing have no effect even on the surface of All-weather Crete! Furthermore, All-weather Crete transmits vapors.



Vapors entering the system are evaporated out through the surface and never trapped within.

We call this concept the All-weather Crete Insul-top System. Some architects refer to it as the "upside-down" roof. We are beginning to believe it's the only "rightside-up" one. All-weather Crete insulation is a proven product. Most of the nation's successful plazas utilize this concept with the addition of a wearing slab over the insulation to take foot and vehicle traffic. Hundreds of plaza decks are protected with All-weather Crete.

In conclusion: Consider this "New Concept", the All-weather Crete Insul-top System, on your next project if you want the ultimate in a long lasting, leak proof roof deck.



Get the facts. A technical booklet titled "Designing a Leak Proof Roof" contains temperature charts, technical facts and details. It's yours for the asking. Just write Silbrico Corporation, 6300 River Road, Hodgkins, Illinois 60525. Study it, compare, ask questions - we think you may change your entire thinking about roof decks.

All-weather Crete® Insul-top System

SILBRICO

For more data, circle 60 on inquiry card


CATERPILLAR

Du Pont invents carpet cushion for heavy traffic.

Gas-filled cells won't flatten under load.

Pneumacel is a first.

Structurally, it's a new form of matter—a carpet cushion of tough fibers, each made up of billions of tiny closed cells inflated with an inert gas and air.

Functionally, it's a pneumatic wonder. The cell walls are impermeable to the gas. Yet they breathe air. In and out.

This means that pneumacel never compresses completely. There is always a cushion of gas to give resiliency—even after years of heavy traffic.

Gives carpet longest life, luxury feel.

Pneumacel is the first cushion to combine underfoot luxury with carpet pile protection.

By spreading the load and never bottoming out, it eases the crush on the pile face and the strain on the backing material.

It extends carpet life more than waffle rubber, polyurethane foam, hair-jute or all-hair cushions.

In addition, pneumacel was engineered to give carpet the underfoot feel overwhelmingly preferred in consumer panel tests.

Muffles noise. Retards flame. Won't stretch.

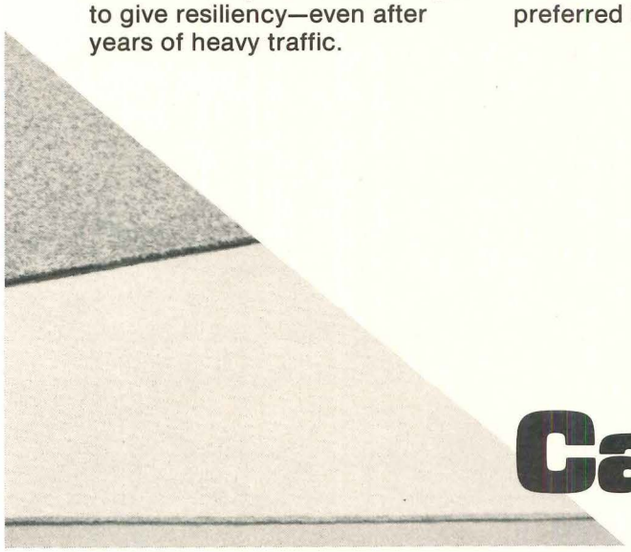
Acoustical tests show that pneumacel transmits the least impact sound of any cushion.

It meets or exceeds recognized industry and government standards for fire retardancy, smoke and fume generation.

Completely stable, it lays flat and stays flat. Won't rot, swell or degrade.

Backed by eight years of testing, it has proved its exceptional performance in a variety of heavy-traffic installations.

Specify pneumacel. It combines everything you want in carpet cushioning.

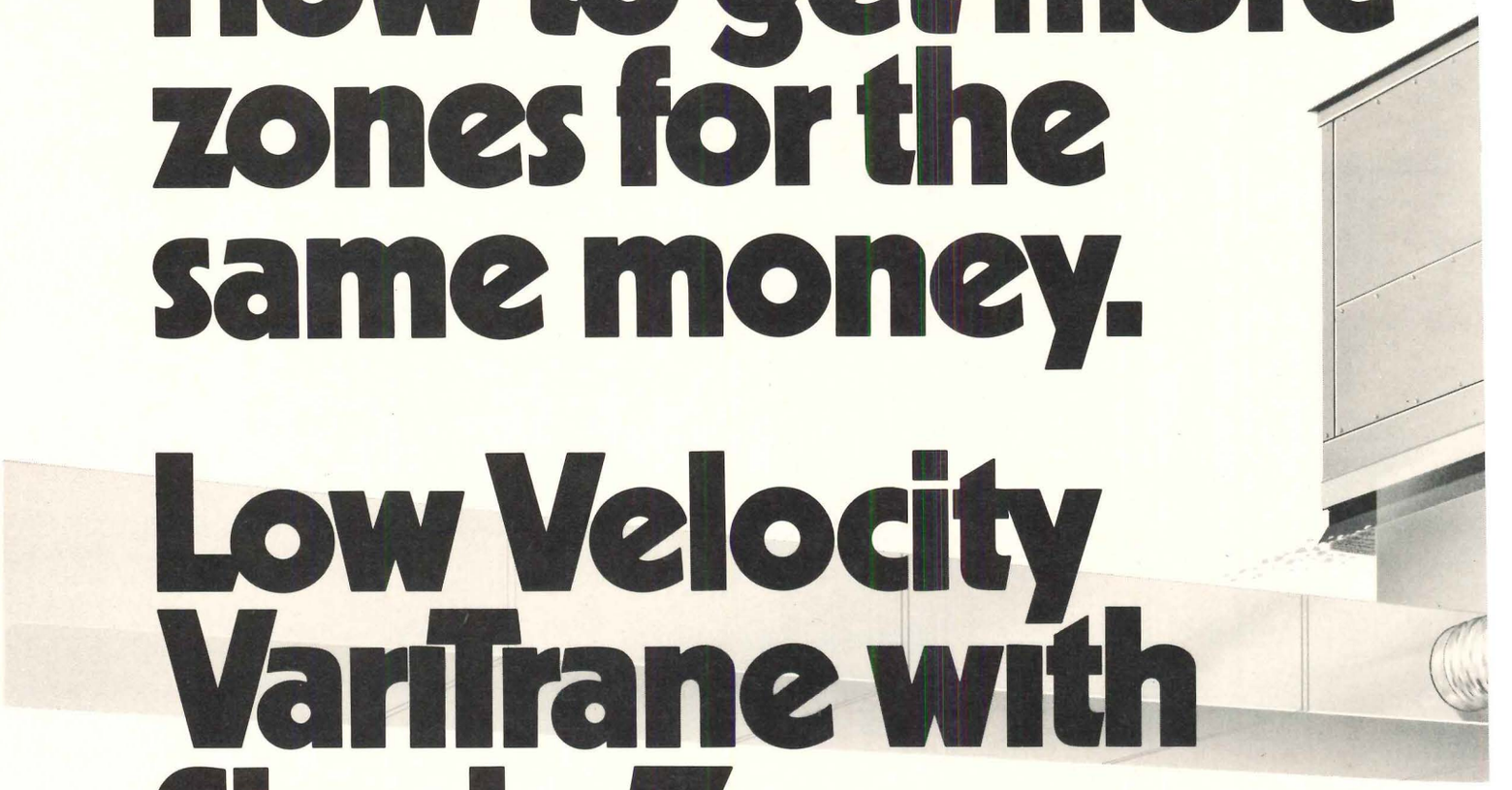


DU PONT
REG. U. S. PAT. OFF.

Pneumacel Carpet Cushion

For more data, circle 61 on inquiry card

How to get more zones for the same money.



Low Velocity VariTrane with Single Zone Rooftops.

This combination offers a simpler, more flexible, quality air conditioning and heating system for low profile buildings than currently marketed multizone systems. It typically offers more zones at the same cost as equivalent multizones, and lower maintenance costs through a greatly simplified system concept and design.

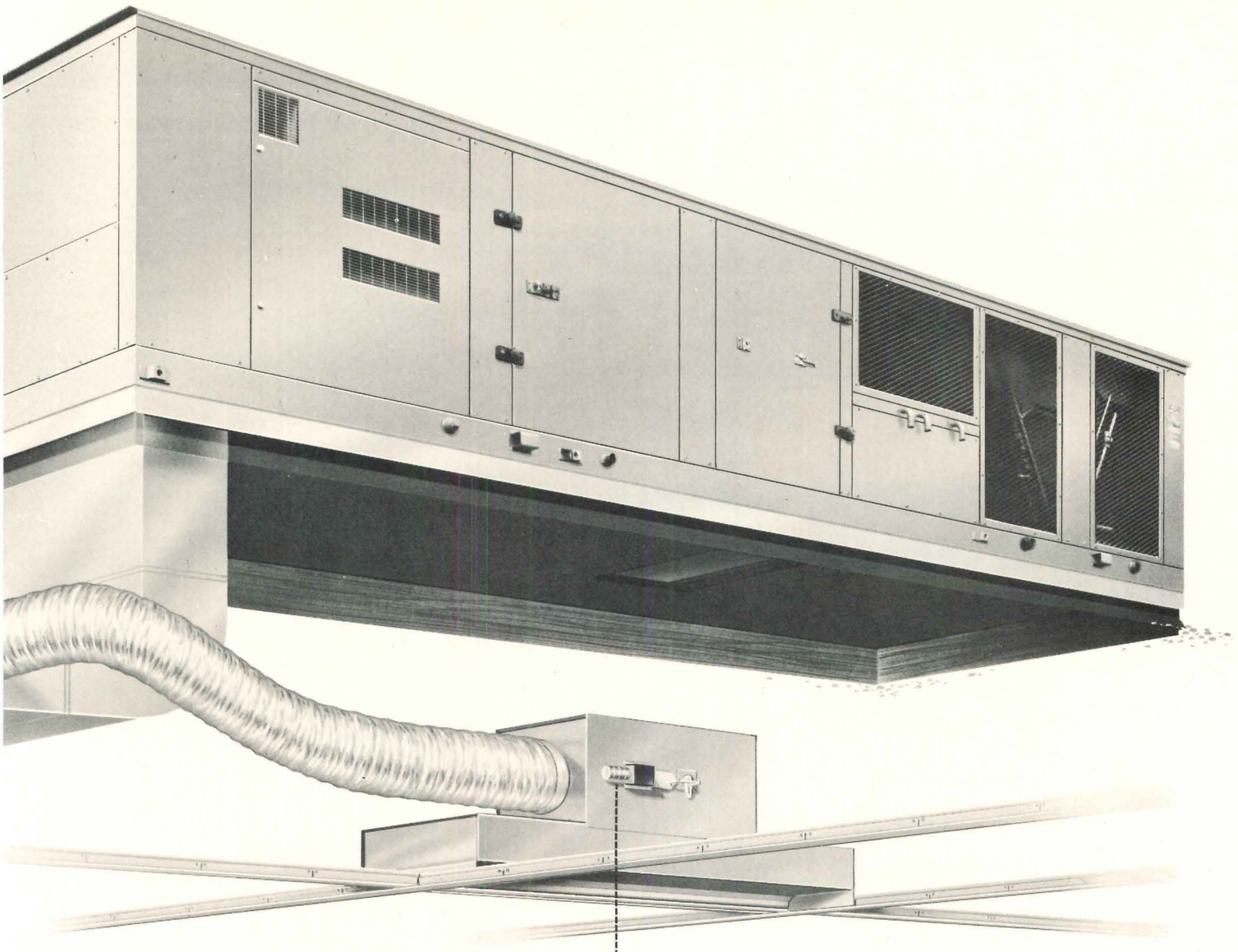
Low velocity VariTrane, a variable air volume system, requires only one main air duct from a single zone rooftop air conditioner which supplies conditioned air at a constant volume to the many terminal zones. Yet each zone has individual temperature control because the variable air volume control terminals regulate *air flow* into each zone, bypassing conditioned air not needed.

Simplified Control System

A VariTrane system eliminates the need for complex refrigeration and heating controls inherent in "multizone" rooftop units. Further simplification is achieved because multiple control tie-ins from each individual zone are also eliminated. The basic simplicity of the VariTrane variable air volume system thus offers high reliability and greatly reduced maintenance costs.

Installation and relocation flexibility

VariTrane offers true modular flexibility. It can be easily fitted into almost any type of ceiling. With the popular T-bar ceiling system, units and



thermostats are easily relocated to meet new tenant needs, and at small cost, because alterations to primary ducts are seldom required. Flexible ductwork to individual units can be provided for easy relocation of terminal diffusers.

Lower operating costs

A multizone system mixes over-cooled and overheated air streams to achieve a desired temperature. By comparison, the VariTrane system achieves the required temperature by varying the amount of conditioned air supplied. Thus, VariTrane operating cost is less.

Single-source responsibility

The TRANE Company supplies all major products for this VariTrane System — rooftop air conditioners, terminal units and diffusers—plus design aids for system engineers, and complete service back-up.

For complete information on VariTrane or any other air conditioning system, call your local TRANE office or write The TRANE Company, La Crosse, Wisconsin 54601.

TRANE® AIR CONDITIONING

For more data, circle 62 on inquiry card

continued from page 153

MULTI-ROLL TOILET TISSUE DISPENSERS / 
Units operate automatically, with a releasing device that triggers the concealed extra roll and automatically drops it in place after the first roll has been used up. Unit recesses in walls. Construction is stainless steel, with satin finish. A cylinder lock prevents roll pilferage. The flange is one-piece, seamless construction without mitered corners. ■ Bobrick Architectural Service Dept., New York City.

Circle 304 on inquiry card

PLANTERS AND SAND URNS / 
Eight-sided planter is available in four heights. Matching eight-sided sand urns and trash receptacles with snap-out lids are also available. Planters have a textured finish available in 10 colors. ■ L. Paul Brayton Ltd., High Point, N.C.

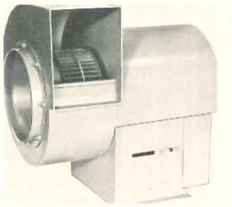
Circle 305 on inquiry card

JOINT SEALS / An effective watertight seal against thermal expansion and seismic shock movement is available to maintain effective sealing throughout movements from 1/32 in. to 3 in. ■ Acme Highway Products Corp., Buffalo.

Circle 306 on inquiry card

VANDAL-RESISTANT DRINKING FOUNTAIN / 
Construction is heavy-duty 10-gauge steel. Bubbler features a steel guard. The access panel is reinforced and locked to the fountain with Allen screws. Unit is completely undercoated and is available in a range of colors. ■ Western Drinking Fountains, San Leandro, Calif.

Circle 307 on inquiry card

VENTILATING FANS / An improved line of 
standard ventilating sets for commercial and industrial applications is available from the manufacturer. Backwardly inclined wheel units and forward curved wheel units are available. Both are available in a wide range of capacities. ■ Anti Pollution Industries Inc., Milwaukee.

Circle 308 on inquiry card

ALUMINUM WINDOW / Corners are mechanically connected and welded corners are optional. All operating vents are double weather stripped. The vents are 2-in. tubular sections with ⅛-in. walls, flush with frame. Glass or panels are removable from the exterior at the fixed lites. ■ Amarlite/Anaconda, Atlanta.

Circle 309 on inquiry card

REFRACTOR BOLLARD LUMINAIRE / Low-profile 
unit casts a wide spread of light outward and downward. To assure color stability and weather resistance, refractor is enclosed in clear acrylic. Luminaire is housed in heavy extruded aluminum for vandalism protection. Black, bronze, and aluminum finishes are available. ■ Lightolier, Jersey City, N.J.

Circle 310 on inquiry card

MODULAR SEATING UNITS / Each seat has a 
built-in interlocking system in which all four legs interlock for stability and safety. Seats stack for efficient storage in minimum space. A wide selection of colors in vinyls and fabrics for upholstering seats and/or backs is available. ■ Sauder Designare International, Inc., Archbold, Ohio.

Circle 311 on inquiry card

more products on page 164

For more data, circle 64 on inquiry card

Go the building codes one safer, with PPG Wall and Panel Insulation.

For your next high rise, specify PPG Wall and Panel Insulation—made of fiber glass. It carries an Underwriters' Laboratories smoke developed rating of 50 and a flame spread rating of 25.

These are the same "Fire Hazard" ratings that most building codes require for pipe and duct insulation, but not necessarily for wall and panel construction. In fact, when it comes to wall and panel insulation, most codes do not specify a smoke developed rating.

As a result, insulation materials can be used which, during a fire, generate dense clouds of smoke. Up to a rating of 200 or more. And fire protection authorities agree that more fire-related injuries and fatalities are caused by smoke than by heat or flame.

PPG fiber glass Wall and Panel Insulation is listed by UL for use in a variety of fire-rated wall and partition designs.

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PPG Industries, Inc., Fiber Glass Division, One Gateway Center, Pittsburgh, Pa. 15222.

I'm interested in more information on PPG Wall and Panel Insulation. Please have your salesman phone for an appointment.

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State_____ Zip_____

Phone Number_____

For more data, circle 65 on inquiry card

For more data, circle 64 on inquiry card

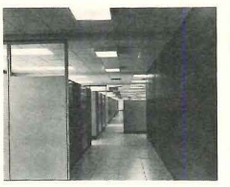
continued from page 160

MODULAR LOAD-BEARING WALL PANELS / Two

separate operations of installing the frame and adding the skin for buildings are combined, resulting in a panel which doubles as skin and frame. Panel sheet is strongly attached to the support sections. On-site construction operations consist of joining the load-bearing side panels to the foundation and to the roof trusses. ■ Jones & Laughlin Steel Corp., Pittsburgh, Pa.

Circle 312 on inquiry card

MOVABLE WALL SYSTEMS / Each style is constructed of heavy-gauge steel, reinforced internally by welded steel ribs and insulated with rock wool. Walls are completely reusable and require minimum maintenance over a 10-year period. Thirty-two color finishes are available. ■ The Gray Mfg. Co., New York City.

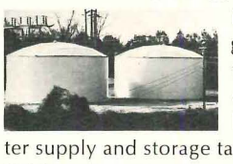


Circle 313 on inquiry card

LUMINAIRE / Enclosure is 26 in. in diameter and made of impact-resistant acrylic translucent body and bronze-tinted end panels. Either clear or smoked panels are available on special order. Units take a maximum wattage of 175. ■ Street Lighting Equipment Corp., Woodside, N.Y.

Circle 314 on inquiry card

POLYFRAME DOME COVERS / Structural aluminum panels, struts and gussets comprise the system. Each dome weighs only 4000 lbs. They have been used to cover water supply and storage tanks. ■ Temcor, Torrance, Calif.



Circle 315 on inquiry card

ALUMINUM ENTRANCE / Unit is designed for educational buildings and is said to provide exceptional strength, security and weatherability. Interlocking security stiles prevent prying the locked door open or removing it from the frame even if the hinges are cut away. Weathering features include double weatherstripping in the stile interlocks and at the door head. ■ Kawneer/AMAX, Niles, Mich.

Circle 316 on inquiry card

TABLE SUPPORT / Designed as a continuous framework for executive desks and tables, steel support will accommodate tops to 8 ft in diameter and 24 ft long. ■ Domore Office Furniture, Inc., Elkhart, Ind.

Circle 317 on inquiry card

more products on page 170

For more information, write or call any of the Institute members listed below:

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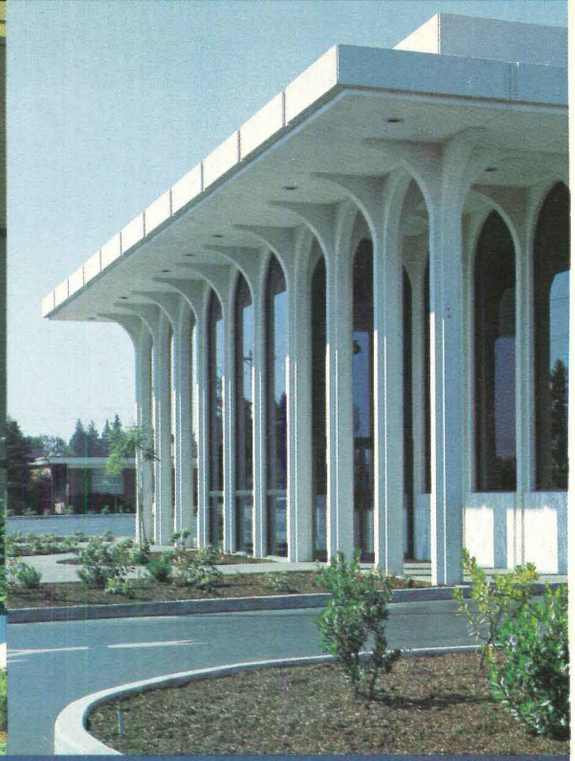

National Bank of Commerce/Ballard Branch
Seattle, Washington
Architects: Mandeville & Berge

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

BANKS... BRANCHING OUT IN MO-SAI.®

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.

If your bank client is branching out, let your local Mo-Sai manufacturer (adjacent listing) help you in your design stages. He will provide actual Mo-Sai color and texture samples and pricing information. Call him now.

Top left:

Washington Mutual Savings Bank,
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

Mo-Sai®
PRECAST, PRESTRESSED CONCRETE
WITH EXPOSED AGGREGATE

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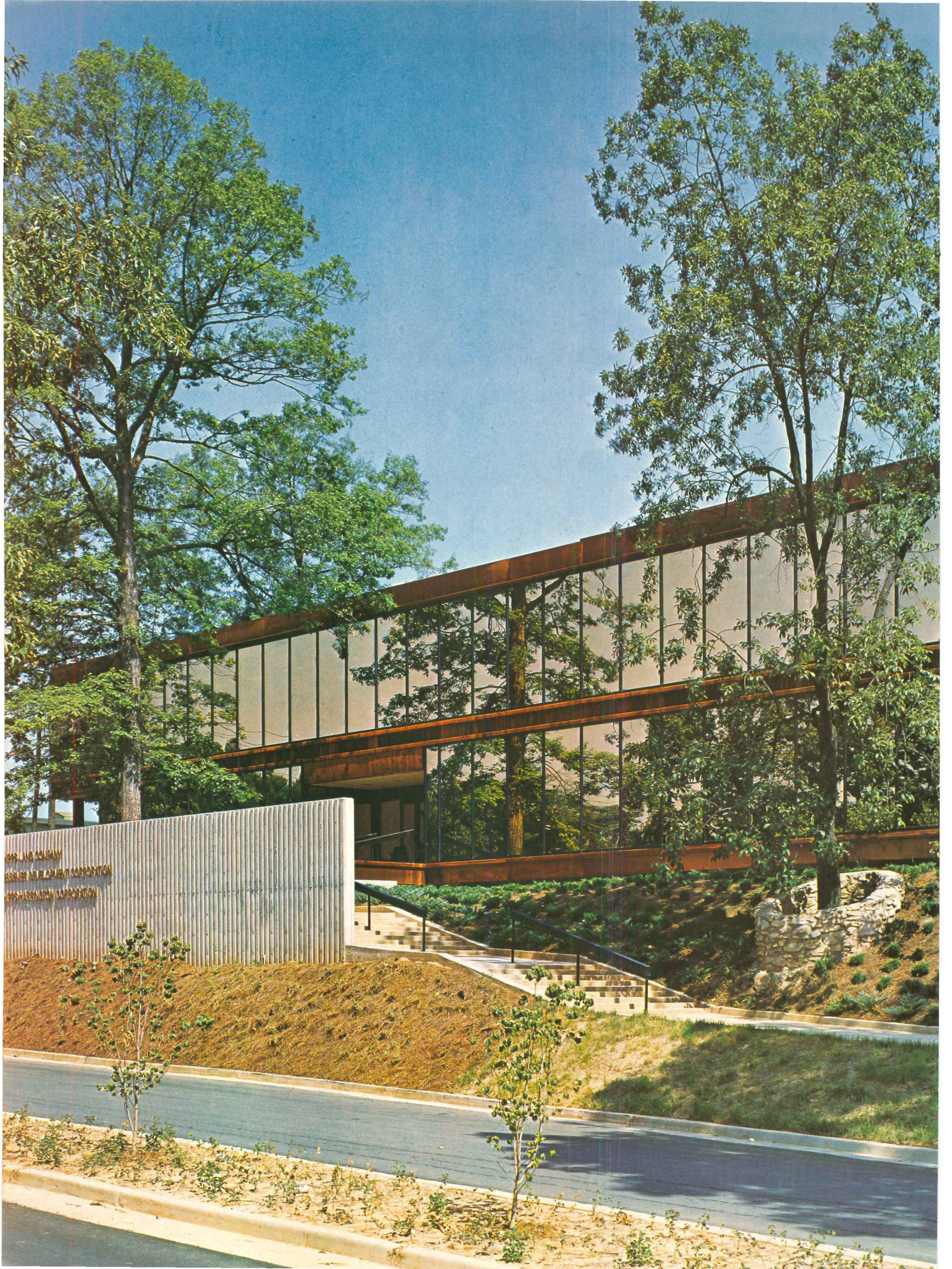

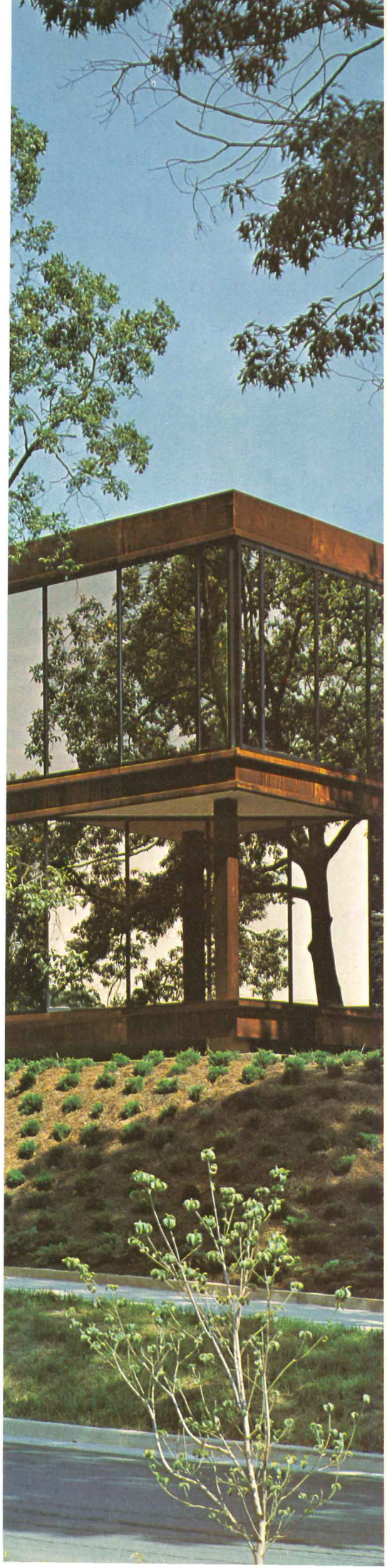

Fits Glazing Functions Eight Ways

C-E GLASS

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®

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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.

C-E GLASS

A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.

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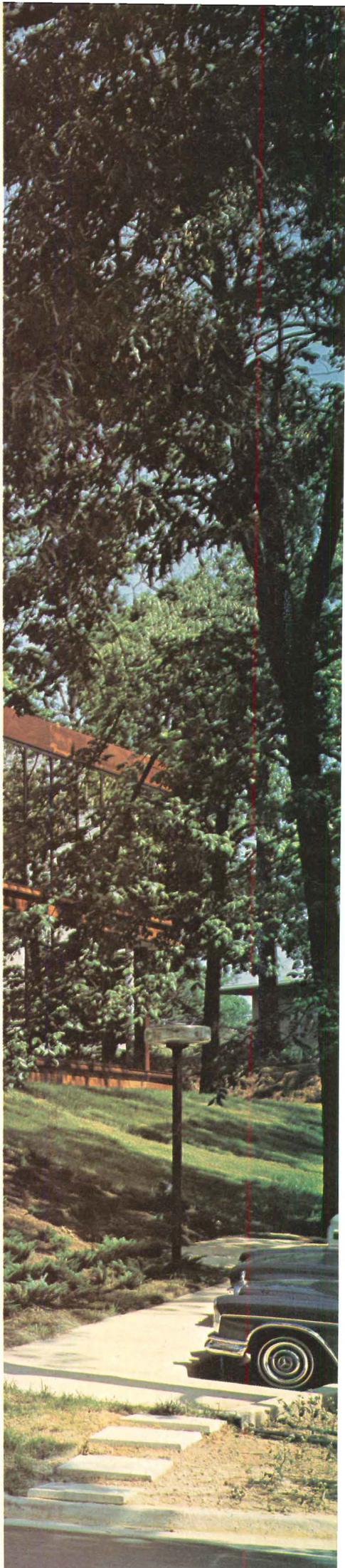
Owner: Phipps Land Co.
Architect: Toombs, Amisano & Wells
Stopray #2016 glazed by PPG, Atlanta



CPR urethane provides more insulation, seals any shape, fights fire, resists chemicals, adds strength, absorbs sound.

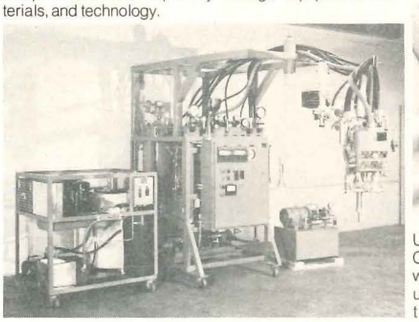
Great stuff. But if I specify, who will apply it?

There's a network of applicators and fabricators across the nation, trained and equipped by CPR. They have the skilled personnel and the right equipment to pour, spray-in-place, or supply board stock.

They make use of the wide range of dimensionally stable CPR materials, such as the UL-classified isocyanurates: KODE 25™ and CPR 421 spray, both having low smoke-emission properties and high temperature tolerance.

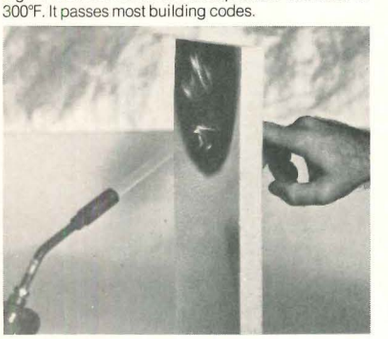
So specify urethane insulation wherever you feel it's right for the job. There's a qualified CPR applicator or fabricator in your area, ready to help.

The Upjohn-owned Admiral Equipment Company, manufacturer of urethane application equipment, makes CPR the first and only urethane systems supplier offering a complete urethane capability through equipment, materials, and technology.



Upjohn's Donald S. Gilmore Laboratory provides CPR customers with the support of one of the world's most extensive facilities devoted to urethane product development and new applications technology.

KODE 25 is a new, urethane-type rigid isocyanurate foam insulation material, classified by Underwriters' Laboratories, Inc., with a Fire Hazard Classification Flame Spread Rating of 25, according to UL 723 and ASTM E-84 test method (UL Tunnel Test). This means higher fire retardance and a temperature tolerance to 300°F. It passes most building codes.



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Company_____

Address_____

City_____ State_____ Zip_____

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Our stone facing goes up as easy as

1

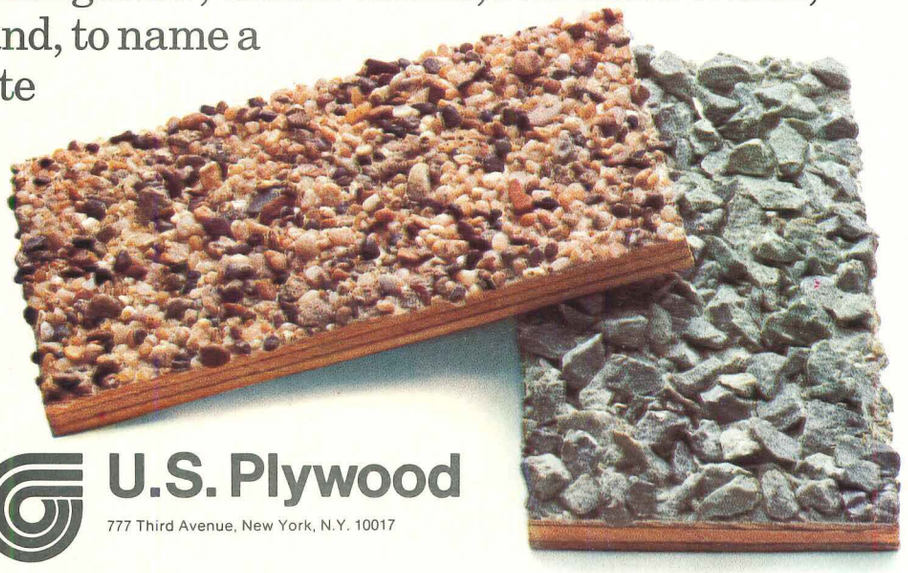
Stone wall cladding that installs with ordinary carpenter's tools? That's Sanspray,® the great stone facing from U.S. Plywood. On top, a handsome natural stone aggregate. Bonded beneath, a sturdy panel of exterior plywood. The result: a distinctive cladding that does great things for residential and light commercial exteriors. At a far lower cost than conventional stone and masonry treatments.

2

Sanspray panels cut with a power saw. They can be nailed or glued to wood, masonry or steel frame constructions. They are relatively light and easy to handle. So installation costs are cut way down. Once in place, Sanspray is virtually maintenance-free, in all climates.

3

Sanspray comes in two aggregates — large and regular, both of which are shown below. And a wide selection of natural stone colors — like Tangerine, Gaelic Green, Northern White, Pearl Gray and Monterey Sand, to name a few. But to really appreciate Sanspray, you ought to see and feel the real thing. We'll be happy to supply you with hand-sized samples, as pictured, if you'll call your local U.S. Plywood Branch Office. Or, if you prefer, write directly to our New York office.



U.S. Plywood

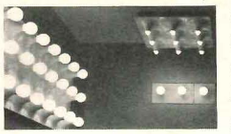
777 Third Avenue, New York, N.Y. 10017

For more data, circle 70 on inquiry card

PRODUCT REPORTS

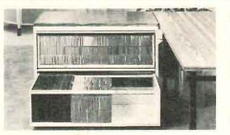
continued from page 164

LUMINAIRES / Softly curved forms present a molded appearance. Protruding necks wrap around the stem of the bulb to emphasize the sculptured look. Luminaires can be mounted on walls or ceilings. ■ Lightolier, Jersey City, N.J.



Circle 318 on inquiry card

LATERAL DRAWER FILE / Unit combines filing and collateral material. Two-drawer model is 28 in. high and comes in 30-, 36- and 41½-in. widths. Interlock system prevents one drawer from opening while the other is extended. ■ Mosler, Hamilton, Ohio.



Circle 319 on inquiry card

LECTURE ROOM SEATING / Cantilevered seats tilt, swivel and rotate freely. Seats are one-piece molded fiberglass. Laminate top has a vinyl edge. Vinyl or fabric upholstery is available. ■ The Vecta Group Inc., Kalamazoo, Mich.

Circle 320 on inquiry card

PORTABLE MICROFICHE READER / Large-screen unit can be transported as easily as a portable typewriter. Side-loading reader handles any size fiche, tab cards and jacketed fiche up to 4 in. by 6 in., and has an indexing system. A choice of 24x, 40x or 90x lens is offered. A mechanism maintains focus when scanning at 90x. ■ Dukane Corp., St. Charles, Ill.

Circle 321 on inquiry card

PANELING / Porcelain-on-steel finish is available in a wide range of colors. Glass-hard enamel is designed to withstand the severest weather conditions and corrosive atmospheres. Both insulated and non-insulated panels are available. ■ Kaiser Mirawal, Port Carbon, Pa.

Circle 322 on inquiry card

MODULAR FURNITURE SYSTEM / Curved, oak-capped acoustical screen is used here to define a secretarial area. System incorporates free-standing working walls, acoustical screens, desks and a wide range of components. ■ Hardwood House, Rochester, N.Y.

Circle 323 on inquiry card

CEILING / Heavy-textured, lay-in panels measure 2 ft by 2 ft by ¾ in. Acoustical ceiling has a factory-applied, washable, white vinyl latex paint finish. ■ Armstrong Cork Co., Lancaster, Pa.

Circle 324 on inquiry card

more products on page 188

NuTone's talking walls are your best silent partners

Your lobby designs are the interior hallmark of your work.

They set the texture, tone and personality for your entire building.

To residents and visitors alike, the finished lobby is your personal signature and permanent calling card . . . your long-term investment in talent . . . worth protecting — with Lobby Communications Systems by NuTone.

With NuTone's low-profile, modular Systems you've finally got a mailbox-intercom-directory combination whose clean, flush-mounted lines match the same clean lines you envisioned in your first rendering.

Whatever the job, whatever the budget — from high rise apartments to custom townhouses — you'll find a NuTone Lobby System to satisfy your design expectations, with built-in convenience, styling and dependability.

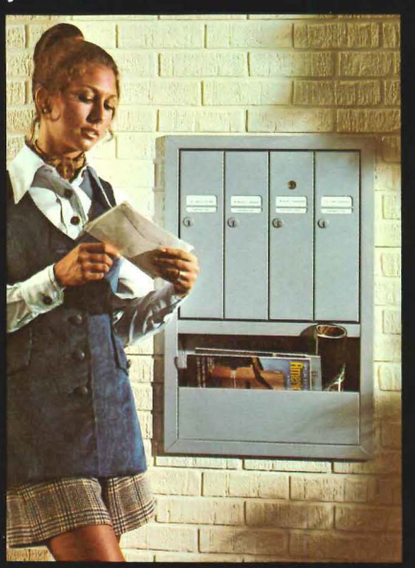
NuTone's talking walls are designed to match, in high fidelity, the most impressive transit areas you can put on paper.

Inobtrusive elegance. NuTone Lobby Systems — the best talking silent partner an architect ever had.

A glance at the flip-side of this page will give you some idea of what we mean.

NuTone Lobby Systems. Low profile, with modular versatility.

Mailboxes:
Vertical modules of steel and aluminum are designed to match all Direct-A-Com units. They meet all federal postal requirements. Groups of mail compartments tilt out for efficient mail deposit. Full height individual doors with baked enamel interiors include pin tumbler locks and pushbutton chimes. Matching built-in or surface mounted magazine receptacles available. In Satin Silver or Brass Baked Enamel on zinc-coated steel, or Anodized Silver or Brass on extruded aluminum. Shipment guaranteed three weeks from receipt of order. Could you ask for more?



Apartment Speakers:
Residents talk to callers without opening doors or unlocking main entrances. Voice transmission is crystal clear. Easy to use tenant activated Talk-Listen and Door-Lock Release switches, with time-delay action, insure privacy and security. Terminal strip connector plugs save installation costs. For double entrance apartments Auto-Call Transfer circuitry automatically connects apartment speakers to the proper Entrance Speaker and Lock Release. Eliminates duplicate wiring systems.

Direct-A-Com:
Three distinct systems, tailored to meet low, medium and high-rise requirements, combine economy with distinctive styling. Handle high volume occupancy with compact banks of push-button Directory Panels. Give garden apartments and townhouses the custom treatment with individual Door Chime Communicators. One solid state Central Amplifier with system Volume Control does the job. Silver or Brass Anodized finishes. Quite a package.

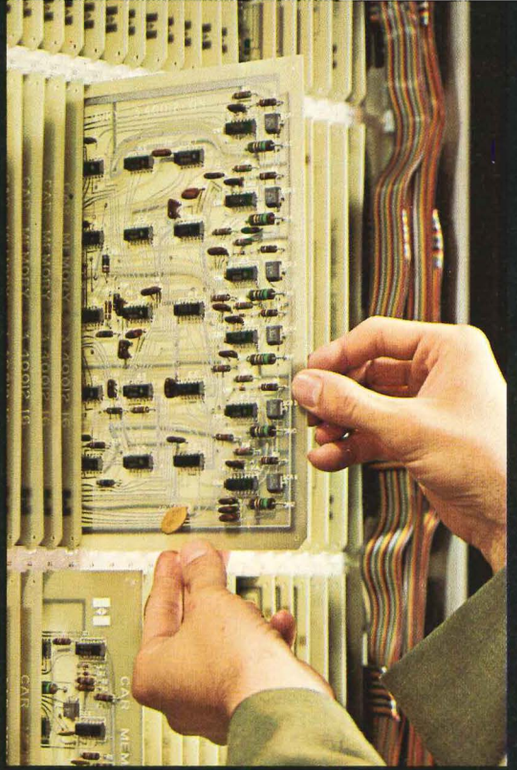
For complete details and specifications, look us up in Sweet's File. For sales information, see your NuTone representative or Dial NuTone. **800-543-8687** (In Ohio, 800-582-2030), for the name and address of your nearest NuTone distributor.

NuTone Housing Products

Scovill

Madison and Red Bank Roads, Cincinnati, Ohio 45227

Dept. AR7. Form 1166, Printed in U.S.A.



Only Haughton 1092-IC can ensure the shortest Passenger Destination Time.

This is the most efficient and comprehensive system ever perfected for group elevator service. It's the only one that "thinks on its feet" — constantly recognizes and responds to everything affecting any car's ability to pick up and deliver passengers quickly. It's the only system able to provide the shortest Passenger Destination Time.

Faster than description — in milliseconds — 1092-IC locates every call as it's registered, computes distance between cars and calls, measures each car's load, counts every call, instantly and continuously allots and reallots calls to cars best able to handle them.

And 1092-IC is not merely last year's relay system warmed over. It's exclusive — an entirely new concept of elevator control. Microminiature integrated circuits are employed to their full capability for the first time in elevator application.

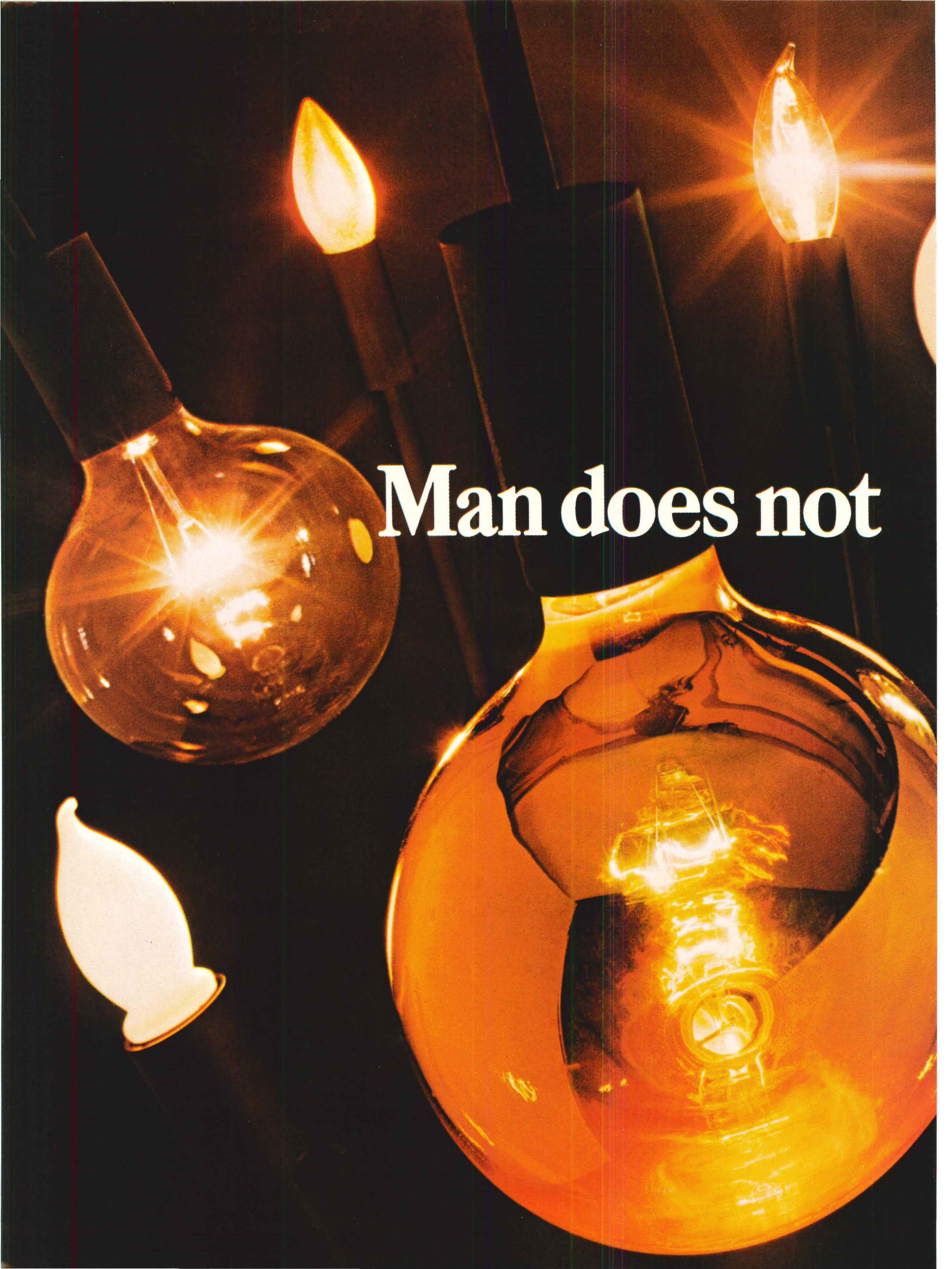
A compact cabinet of integrated circuits replaces a roomful of old-type hardware. Yet 1092-IC speed and scope exceed any other elevator system — deliver the shortest Passenger Destination Time ever achieved.

Personal investigation will convince you that Haughton 1092-IC introduces a new generation of passenger elevator service. We're ready. Just tell us when you are.

HAUGHTON ELEVATORS
AND ESCALATORS
Toledo, Ohio 43601

DIVISION OF **RELIANCE** ELECTRIC COMPANY

For more data, circle 73 on inquiry card


Man does not

live by lumens alone.

GTE Sylvania makes all kinds of decorative lamps.

Plump, clear-glass globes. Silver globes. Golden globes.

Shapes like flames and old-fashioned lamp chimneys.

Bulbs that flicker and quiver.

Colors that rival the sky, the grass, the sunset, the rainbow, the wings of butterflies.

Fun lamps, mod lamps, mood lamps.

Lamps that throw a splash of light or color across a room: spots, beams, floods of color.

Arrange them in clusters, rows, arcs, circles, cascades, constellations, galaxies.

Put them in elegant fixtures.

Use them as elegant fixtures.

Lighting for lumens is bread-and-butter lighting.

But sometimes man needs cake.

See them at your nearest lighting fixture showroom. For details, call your GTE Sylvania representative or independent electrical distributor. Or write to Sylvania Lighting Center, Danvers, Mass. 01923.

GTE SYLVANIA

For more data, circle 74 on inquiry card

OFFICE LITERATURE

For more information circle selected item numbers on Reader Service Inquiry card, pages 217-218

CONTRACT CARPETING / A 24-page booklet shows 36 contract installations of the company's product. Forty-four patterns, colors and textures are illustrated. ■ Downs Carpet Co., Inc., Willow Grove, Pa.

Circle 400 on inquiry card

LAMINATED WOOD PRODUCTS / Uses, advantages, characteristics and design opportunities of the manufacturer's products are described in a 12-page booklet. ■ Potlatch Forests, Inc., San Francisco.*

Circle 401 on inquiry card

ELEVATOR PLANNING GUIDE / Standard premanufactured oil hydraulic passenger elevators are described in a 8-page booklet. ■ Montgomery Elevator Co., Moline, Ill.*

Circle 402 on inquiry card

DECORATED WALL TILES / More than 125 patterns and colors are shown in an 8-page brochure featuring abstracts, geometric and other motifs on ceramic tile for residential and commercial applications. There are several tile sizes included, made by a French manufacturer. ■ Amsterdam Corp., New York, N.Y.

Circle 403 on inquiry card

SCHOOL FURNITURE / A line specifically meeting the needs of open-plan schools is presented in a 28-page catalog. Two pages are devoted to the large variety of colors available for chair shells, desk work surfaces and upholstery materials, and wood finishes available for chairs and desks. ■ Peabody, Div. of Modernfold Industries, North Manchester, Ind.

Circle 404 on inquiry card

INDUSTRIAL FABRICS BUYERS GUIDE / 1972 guide to products, manufacturers and suppliers in the industrial fabrics industry. Includes "Where to Buy" sources. Price $1 postpaid. ■ Canvas Products Association International, 600 Endicott Building, St. Paul, Minn., 55101.

OUTDOOR LIGHTING / A full-color, 84-page catalog designed for architects, landscape architects and consulting engineers is available on a complete line of lights. Included are concourse down lights, geometric luminaires, large-area, utility and high-mast lighting. Complete specifying data are offered. ■ McGraw-Edison Co., Racine, Wis.*

Circle 405 on inquiry card

GYPSUM BOARD SHAFT WALL SYSTEMS / Non-load bearing assemblies designed to provide economical closures for elevator shafts, stairwells, smoke towers and other vertical shafts in high-rise buildings are described in a brochure. ■ The Celotex Corp., Tampa, Fla.*

Circle 406 on inquiry card

CERAMIC TILE / A complete line is presented in a 16-page catalog. More than 160 colors and nearly 100 patterns and color combinations of floor and wall tile are shown. ■ United States Ceramic Tile Co., Canton, Ohio.*

Circle 407 on inquiry card

AUTOMATIC FIRE VENTS / A 4-page folder carries specifications and illustrations dealing with single and double leaf vents. ■ The Bilco Co., New Haven, Conn.*

Circle 408 on inquiry card

CONTRACT SEATING / A 52-page color catalog illustrates 154 chairs, booths, table tops, table bases, stools and settees. Twenty-seven items are new. The catalog emphasizes booths and chairs for the food service field. ■ B. Brody Seating Co., Chicago.

Circle 409 on inquiry card

PARKING SIGNAGE / Modular system is described in a brochure. Signs are made of medium density ply, plastic-edge-banded and paint-finished. ■ Parking Signage Inc., Manhattan Beach, Calif.

Circle 410 on inquiry card

SIGN SYSTEMS / A 28-page guide is offered to aid in the designing, selecting and specifying of exterior graphics, directories, plaques and exit indicators. Standing signs and standard mounting fixtures are included with materials, colors and typefaces. ■ Best Manufacturing Co., Kansas City, Mo.*

Circle 411 on inquiry card

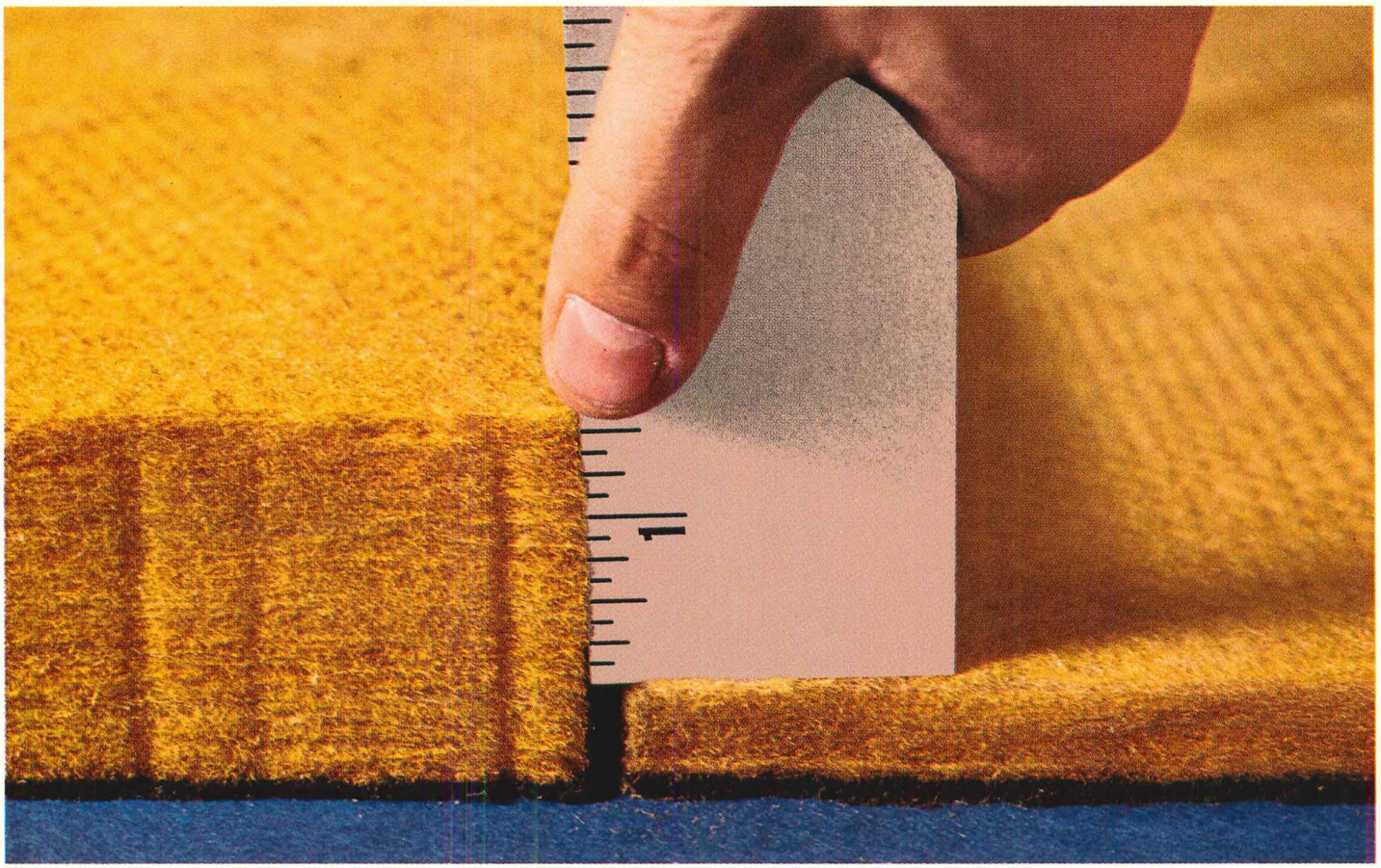
CEILINGS / Fire-resistant ceiling tile and lay-in panels are described in a 4-page folder. *Mylar* surfaces are said to provide good acoustical control and are especially applicable in hospitals where unusually high standards of cleanliness must be met. ■ Armstrong Cork Co., Lancaster, Pa.*

Circle 412 on inquiry card

**Additional information in Sweet's Architectural File*

more literature on page 180

Efficient building idea: Use this much more Fiberglas roof insulation and save up to $27,000 every 60,000 sq.ft.



Those are the potential savings you could realize on the initial cost of heating and cooling equipment. Your client could also save an additional $2500 a year on fuel.

Simply by using 2¼" instead of ¾" of Fiberglas* roof insulation.

These particular savings were figured for a suburban office plaza in the northern climates (zone 1). Factors taken into account were: the normal temperature range of the region, size and type of roof deck, the "U" improvement due to thicker insulation. And the added cost of the thicker insulation.

How much can you and your client save by using 2¼" insulation?

Send for our free booklet "Raising the Roof." It'll show you how to figure your own savings for your section of the country for common types of roof decks.

Write Mr. A. D. Meeks, Architectural Products Division, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Energy Conservation Award

Owens-Corning is offering awards to stimulate new designs and ideas for conserving energy. Special Steuben sculptures will go to the three architects or engineers who—according to a panel of independent judges—do the best job of designing buildings that don't waste fuel. For details, write to Mr. Meeks at the above address.

Owens-Corning is Fiberglas

OWENS/CORNING FIBERGLAS TRADEMARK®

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

For more data, circle 76 on inquiry card

Owner: National Airlines. Architect: I. M. Pei & Partners, New York. Building Contractor: John Lowry, Inc., New York. Glazing Contractor: Collyer-Sparks Company, Inc., New York.

LOF helps National Airlines

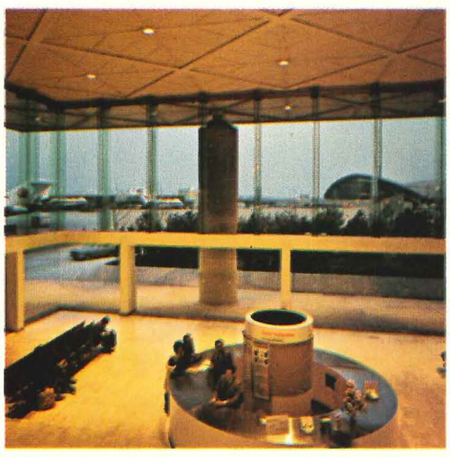
There's a lot to see at Kennedy International. And the architects who designed the National Airlines terminal make sure visitors see it all—through suspended clear plate glass.

To support this hanging glass curtain —more glass. Vertical glass mullions that keep the facade of the building light and transparent. Which is in keeping with architects I. M. Pei & Partners concept of the terminal: one of classic simplicity, an antidote to the visual hodge-podge of unrelated structures at the airport.

Suspended glass braced by more glass is a new idea for an airline terminal, where jet blasts and high winds can raise havoc with a design concept.

The architects proved the terminal's "airworthiness" to the New York Port Authority by testing a full-scale mock-up against 140-mph winds. It passed with flying colors.

enjoy maximum visibility.



We supplied the heavy-duty plate glass for this "glass pavilion," in ½", ⅝", ¾" and ⅞" thicknesses. As well as Tuf-flex® tempered glass for doorways and high traffic areas. The next time you're at this airport, give National's Sundrome Terminal a longer look. We think it represents an exciting new design concept for architects—and shows how glass walls work under somewhat adverse environmental conditions. Libbey-Owens-Ford Company, Toledo, Ohio 43695.

Making progress in architecture

LOF

For more data, circle 77 on inquiry card

OFFICE LITERATURE

continued from page 176

COATING / A lead and mercury free vinyl epoxy coating which is said to be safe for use on surfaces accessible to children is described in literature. Product is designed for both interior and exterior applications and can be used on virtually any surface. ■ Kankakee Coatings Corp., Kankakee, Ill.

Circle 413 on inquiry card

VANDAL-RESISTANT LIGHTING FIXTURES / A line using high impact materials to reduce the possibility of breakage and protective banding or tamper-proof fasteners is described in a 12-page brochure. ■ Emerson Electric Co., Day-Brite Lighting Div., St. Louis, Mo.

Circle 414 on inquiry card

WASHROOM ACCESSORIES / A complete line including wash centers, multi-purpose units, towel dispensers and waste receptacles, soap spray systems and soap dispensers, and mirrors and shelves is presented in a 28-page catalog. ■ Bradley Washfountain Co., Washroom Accessories Div., Menomonee Falls, Wis.

Circle 415 on inquiry card

HORIZONTAL METAL DOORS / A 16-page catalog contains specifications and technical data on metals, gauges and weights for spring-operated roof scuttles, automatic fire vents, interior/exterior doors, and ceiling access and basement doors. ■ The Bilco Co., New Haven, Conn.

Circle 416 on inquiry card

FIRE DAMPER INFORMATION / Booklet answers some of the most frequent questions about primary and secondary fire dampers, including UL test methods for fire rated floor-ceiling systems. ■ Airstream Products Co., Inc., Philadelphia, Pa.

Circle 417 on inquiry card

ROOF SYSTEM / A standing-seam roof with a 20-year guarantee is described in an 8-page brochure ■ Armco Steel Corp., Metal Products Div., Middletown, Ohio.

Circle 418 on inquiry card

ROOF-MOUNTED MULTIZONE SYSTEM / A new 16-page brochure features design descriptions, dimensional drawings, component data and photos for a complete HVAC system. Information is offered on facade frames which permit fascia material architecturally compatible with building design. ■ American Air Filter Co., Inc., Louisville, Ky.

Circle 419 on inquiry card

ROOF DECK SYSTEM / A 16-page booklet gives technical details of a concept wherein waterproof membrane is installed directly on the structural deck and insulating material is applied over it. ■ Silbrico Corp., Hodgkins, Ill.

Circle 420 on inquiry card

TEMPERED GLASS PANELS / Color coated panels are described in detail in a 6-page brochure. Twenty-two standard colors are available. ■ Virginia Glass Products Corp., Martinsville, Va.

Circle 421 on inquiry card

HOSPITAL LIGHTING / A series of lighting ideas specifically keyed to hospital applications is presented in a 26-page catalog. ■ Alkco Mfg. Co., Chicago.

Circle 422 on inquiry card

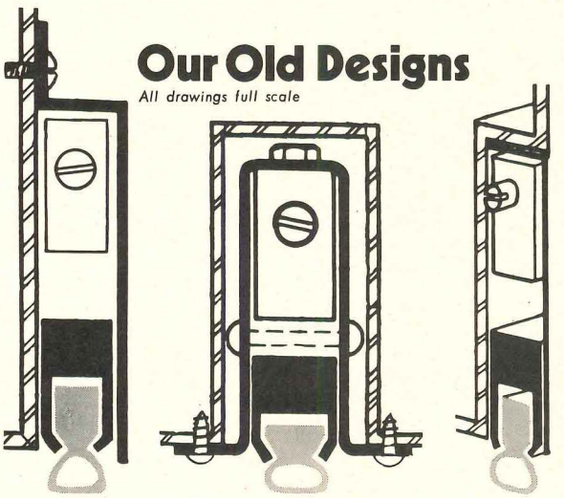
more literature on page 196

For more data, circle 80 on inquiry card

The only thing that can top Zero's automatic door bottoms are our revolutionary new, improved models.

Our Old Designs

All drawings full scale



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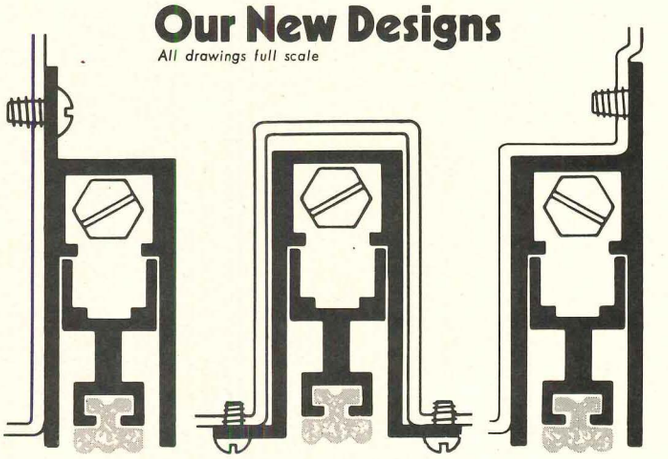
Our New Designs

All drawings full scale



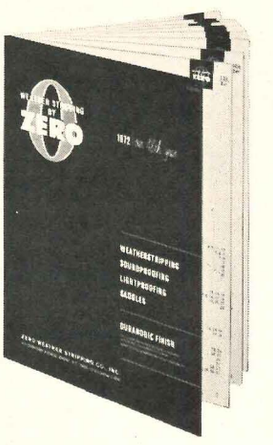
351 350 352

Our Old Specifications

1. Solid Neoprene insert; dropped only 5/8"
2. Available in stock sizes: 24"- 48", special sizes 48"-60". Allowed for a cutting adjustment of 2" maximum.
3. Open back on surface and semi-mortise types.
4. Quick-drop often resulted in catching on carpets and saddles.
5. Surface and semi-mortise models difficult to reverse from left to right.
6. If damaged or destroyed, solid Neoprene insert not replaceable.
7. Available in anodized aluminum, stainless steel and bronze.

Our New Specifications

1. Close cell sponge Neoprene insert; drops as much as 1" (1½" for surface type).
2. Sizes available: 24", 30", 36", 42" and 48". New spring-design permits a cutting adjustment of up to 6".
3. Closed back on surface and semi-mortise types for better protection against weather, light and sound.
4. Delayed-action drop safeguards carpets and saddles.
5. Surface and semi-mortise models easily reverse from left to right with a slight adjustment — and in a fraction of the time it took to replace old units.
6. Close cell sponge Neoprene insert may be easily replaced without removing door.
7. Available in anodized aluminum and Duranodic 313.



Now, for the first time in 20 years, Zero introduces 3, new automatic door bottoms. Their designs are so superior, they replace what, until now, have been the standards of the industry — ours!

Please write us and we will send you a special, new specification sheet on bottoms that are tops — along with our 1972 Catalog.

Zero Weather Stripping Co., Inc.
415 Concord Avenue, Bronx, N.Y. 10455 / (212) LUdlow 5-3230

For more data, circle 86 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.

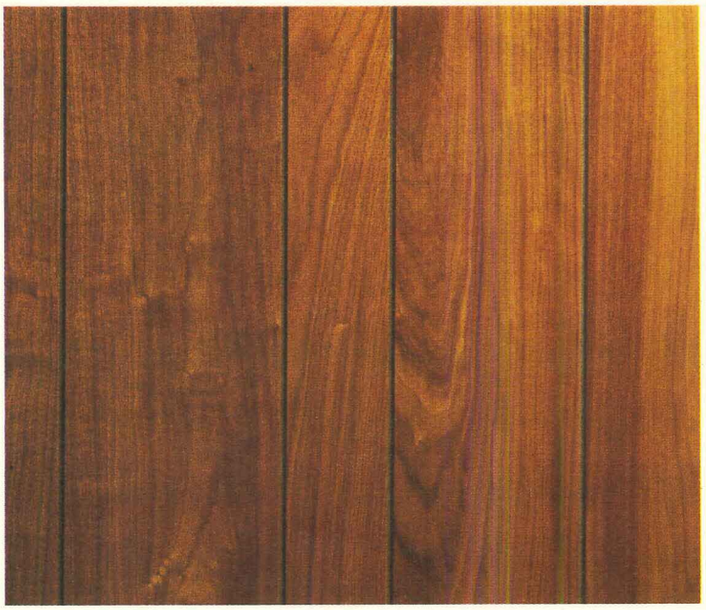
2. Sanspray,® the Great Stone Facing. Beautiful, durable stone aggregate bonded to plywood. Can be sawed, drilled, glued or nailed, and is virtually maintenance-free. In both regular and large aggregates. And a raft of natural stone colors, like Tangerine shown here.

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.

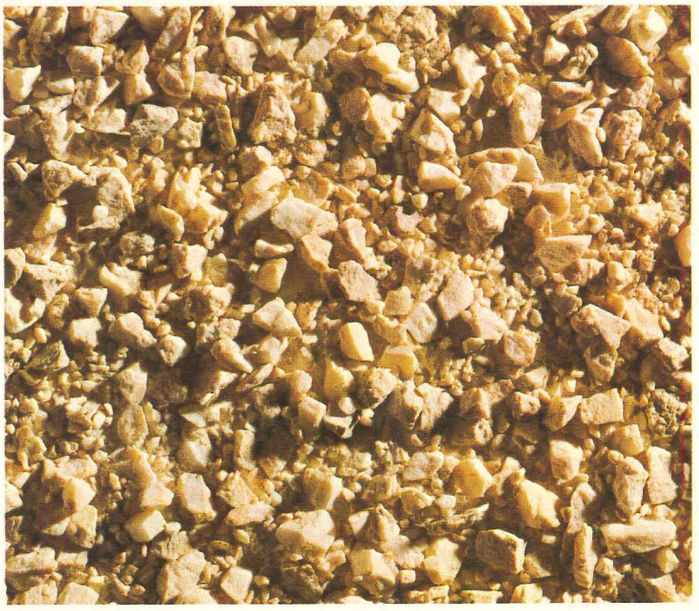
4. Bring the outdoors indoors with U.S. Plywood Textured Sidings. Natural or rough-sawn. Flat panels or lap that play up (or down) any decor. 15 different styles to choose from. Shown here is Oldbridge® V-groove, available unfinished or pre-stained in a choice of six earthtone colors.

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

U.S. Plywood
A Division of Champion International
777 Third Avenue, New York, N.Y. 10017

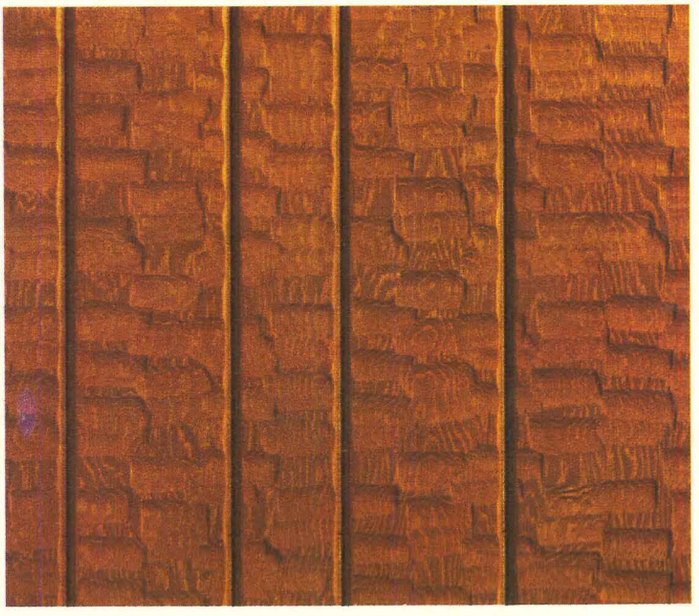


1. The paneled wall.

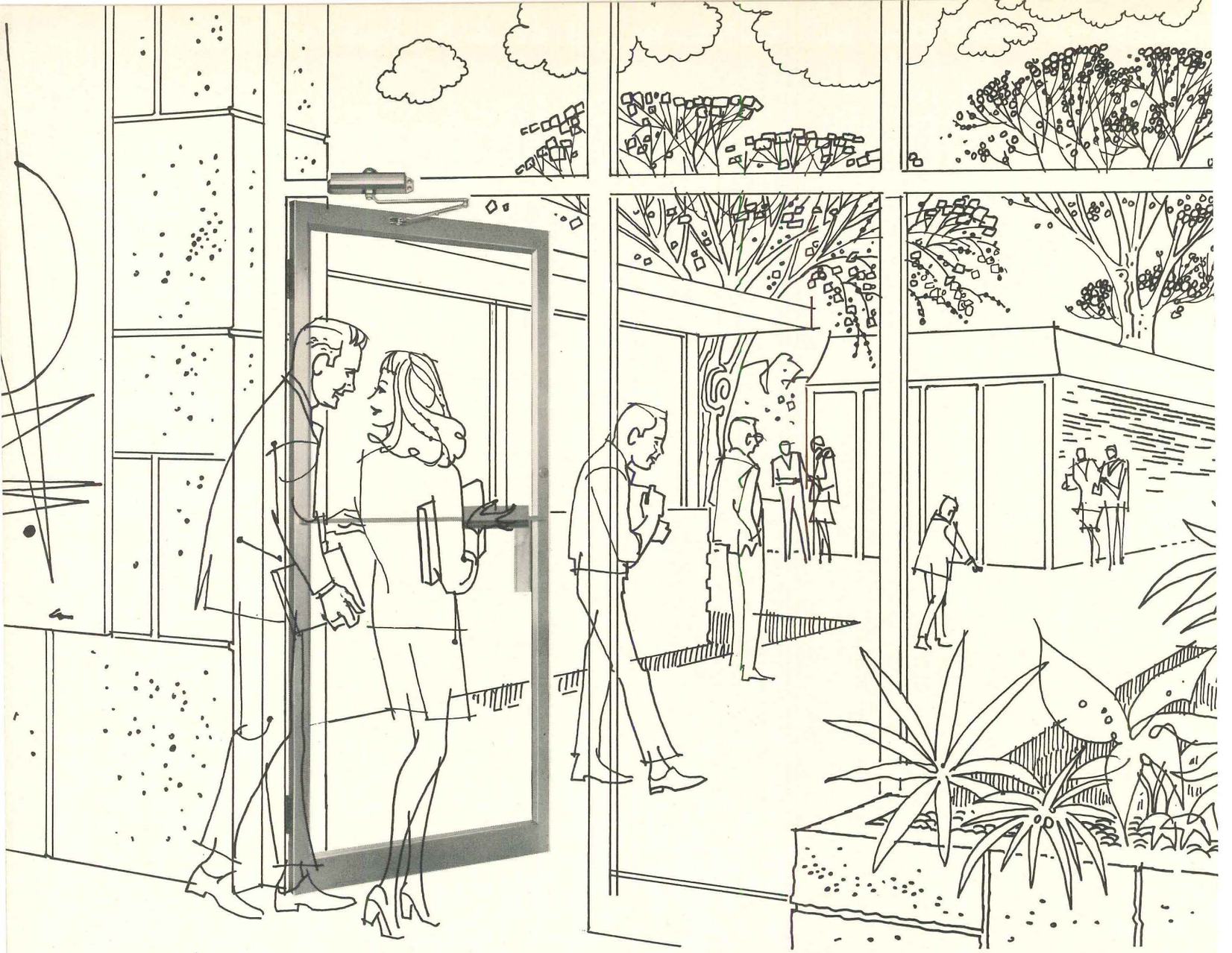


2. The stone wall.

3. The sculptured wall.



4. The textured wall.



It has clean, classic lines.
It can be installed non-handed either top-jamb, parallel arm or regular arm...in a choice of three mounting methods.
How's that for all-purpose flexibility?

the **Norton**® 1600 Closer

1198

For complete details, contact your Norton Representative or Eaton Corporation, Lock and Hardware Division, Norton Marketing Department, 372 Meyer Road, Bensenville, Illinois 60106.

EATON Security Products & Systems

For more data, circle 88 on inquiry card

When you specify an Onan standby power system the buck doesn't

To borrow Harry Truman's famous line . . . when you specify Onan standby power, "the buck stops right here."

Standby power is our only business. So there's no place to hide. Nobody to blame.

We can't throw a system together on the job site and then let somebody else worry about it.

Onan didn't get to be the world's Number One standby power supplier that way. What keeps us going strong is assuming complete responsibility for the entire standby installation.

One specification. Onan builds the complete package . . . engine, generator, automatic transfer switch. We take responsibility for supplying everything for your installation . . . even fuel tanks.

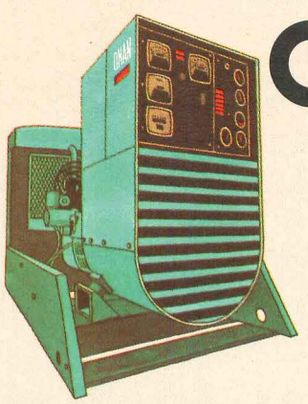
One order. You place one order, get one quotation, one invoice. Discuss it all with one phone call to one man . . . a factory-trained Onan distributor.

One matching system. Engine, generator and automatic transfer switch are designed as one compatible system tailored to your application. They're tested as a system; run in under full load for 2-8 hours. Performance Certified by an independent testing lab to deliver every watt of power the nameplate promises.

One local source for service. The Onan distributor is on hand for startup and performance checks. He's just a phone call away when you need service and factory parts.

One phone call to one guy will get it all started for you. Just look for Onan in the Yellow Pages (under Generators — Electric). And ask about our new 100% Lease Financing Plans on package installations. Or write us for more information.

Onan Division, Onan Corporation. 1400 73rd Avenue N.E., Minneapolis, Minnesota 55432



Onan®

For more data, circle 89 on inquiry card

continued from page 170

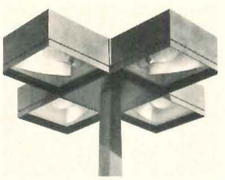
WATER COOLER / Unit extends 1 in. from the wall and is 60 in. high, 18 in. wide and 13 in. deep. A metal mounting box for easy installation is included. Chrome bubbler is mounted flush with the sidewall to allow ample headroom and to discourage tampering. Finish is available in five colors. ■ Haws Drinking Faucet Co., Berkeley, Calif.

Circle 325 on inquiry card

GENERAL PURPOSE ARMCHAIR / Unit combines a polished chrome steel tubular frame and a molded high-impact polystyrene shell. Contouring of the molded shell has been designed to eliminate pressure points, especially at the thighs, for maximum seating comfort. Seven finishes or fabric upholstery are available. ■ Harter Corp., Sturgis, Mich.

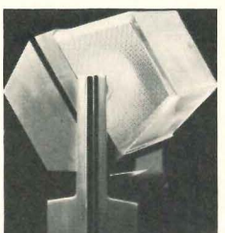
Circle 326 on inquiry card

ROADWAY LUMINAIRE / All light is directed downward; none is above the horizontal. Cutoff is provided by the luminaire until the rooftop of the car blocks the luminaire from view, resulting in minimum glare and maximum safety. ■ Lightolier, Jersey City, N.J.



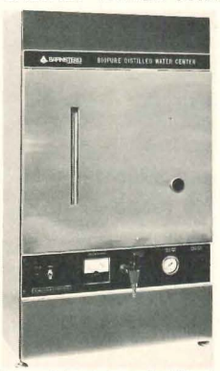
Circle 327 on inquiry card

OUTDOOR BRACKET / Weathertight fixture can be mounted on a wall, ceiling or pad and can be adjusted in eleven different positions to fill a variety of purposes. The reflector is engineered for maximum light output delivered at the correct angle to the refractor. A choice of painted aluminum or brushed duranotic bronze finish is available. ■ Art Metal Lighting, Cleveland.



Circle 328 on inquiry card

CABINET WATER STILL / Two gallons of sterile and pyrogen-free distilled water are produced every hour. A built-in storage tank holds up to 10 gallons of biopure water. An air filter protects the stored water by removing airborne impurities down to 0.2 microns. The elements can last up to 60 days under normal operating conditions. Designed for hospitals and laboratories with strict distilled water requirements, unit eliminates the need of an operator. ■ Barnstead Co., Boston.



Circle 329 on inquiry card

A Washfountain that puts corners to work.

Uses the space that used to be wasted. Teams with circular, semi-circular and Duo models to make better use of floor and wall space. Like all Bradley Washfountains, it costs less to install and maintain than ordinary lavs. Uses less water. More sanitary because it's foot operated. Put the corners to work, in plants, commercial buildings, schools, institutions . . . wherever Corner Washfountains fit in with your scheme of things. See your Bradley washroom systems specialist about the corner concept. And write for latest literature. Or call (414) 251-6000. Telex 2-6751. Bradley Washfountain Co., 9109 Fountain Boulevard, Menomonee Falls, Wisconsin 53051.

from Bradley!

BRADLEY

Leader in Washroom Fixtures and Accessories

For more data, circle 91 on inquiry card

PPG SOLARBAN® TWINDOW® INSULATING GLASS

How a PPG Glass minimizes HVAC costs and keeps a student body comfortable.

All the students live comfortably at the Sander Residence Complex of the University of Cincinnati. And University officials are comfortable with the minimal equipment and operating costs of the heating and cooling system. All because the architect chose to use PPG's *Solarban* 575 (3) *Twindow* Insulating Glass for the building's exterior.

The *Solarban Twindow* Units provide thermal comfort summer and winter. They also significantly reduce solar glare.

Of course, the Units also proved to be practical from an economic standpoint. The architect says: "We have proved time and again that in air conditioned buildings, the selective use of insulating glass pays for itself before the building is occupied by the resultant reduction in heating and cooling equipment alone. The reduced operating costs become an important and continuing bonus 'on the house.' The *Solarban Twindow* Units ensure all this and, in addition, give us an answer to shading glare."

Another "plus factor" is the great reflectivity of the Units. They present a mirrorlike facade that changes as often and dramatically as the sky tones and clouds. "It takes the building away from being a piece of static architecture. And . . . we're greatly pleased that it is so colorful."

See PPG about Glass Conditioning* for your next building. Early in the design stages. There's a PPG Glass that you can use as an active design medium to meet esthetic considerations, help solve environmental control problems, and contribute to a significant cost savings for your client. Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

For more data, circle 92 on inquiry card

*Glass Conditioning is a service mark of PPG Industries, Inc.

PPG INDUSTRIES

Owner: University of Cincinnati, Cincinnati, Ohio
Architect: Woodie Garber, Hughes and Associates, Cincinnati, Ohio

When you specify resilient flooring, specify a Hillyard® system to keep it like new.

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continued from page 180

MEDIA CENTER FURNITURE / An entire system illustrated in a 24-page catalog. Product groups include media transport and adaptation, storage and display, study carrels, reading area furnishings and lounge group furniture. Design ideas are also presented. ■ American Seating Co., Grand Rapids, Mich.*

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ZONAL AIR CONDITIONING / A line of heating/cooling package terminal units for residential and commercial buildings is described in a 16-page publication. ■ General Electric Co., Louisville, Ky.*

Circle 424 on inquiry card

LIGHTING GUIDE / A complete line of luminaires, standards, pole bases, enclosing globe luminaires, electrical lowering mechanisms and lighting accessories is presented in a 32-page guide. ■ Pfaff & Kendall, Newark, N.J.

Circle 425 on inquiry card

PROTECTIVE DOORS / A broad line including acoustical, radiation shielding, low-yield blast, high-performance blast, and sliding fire doors are described in a 12-page brochure. ■ Overly Mfg. Co., Greensburg, Pa.*

Circle 426 on inquiry card

REDWOOD INTERIORS / Application photos of redwood and redwood paneling in a variety of patterns are presented in a brochure. ■ Simpson Timber Co., Seattle.*

Circle 427 on inquiry card

FLUORESCENT EMERGENCY LIGHT / Three UL-listed models are described in an 8-page brochure. Three models incorporate U-shaped 40-watt fluorescent lamps. ■ Siltron Illumination Co., Gardena, Calif.

Circle 428 on inquiry card

ALUMINUM ROLLING WINDOW / Pre-engineered unit can be used individually or in window wall units using fixed glass or panels. Literature describes special features including an automatic locking latch. ■ Olin Corp., Lupton Mfg., Aluminum Group, Philadelphia.*

Circle 429 on inquiry card

STEEL DOOR FRAMES AND DOORS / A 1972 brochure covers custom door frames, special frame units, custom metal doors, fire doors and frames, and stock doors and frames. ■ Builders Mfg. Co., Birmingham, Ala.*

Circle 430 on inquiry card

UNDERWATER PRIMER / A technical bulletin describes an epoxy-resin materials which brushes or rolls on dry, damp, wet and underwater surfaces. Product is said to give dense, tile-like protection against salt, fresh or acid water, detergents, sewage, and other common pollutants. ■ Sika, Lyndhurst, N.J.*

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METAL BUILDING SYSTEMS / A complete line offering a minimum of 7,100 different building size-load combinations is presented in a 12-page planning guide. ■ Star Mfg. Co., Oklahoma City, Okla.*

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**Additional product information in Sweet's Architectural File*

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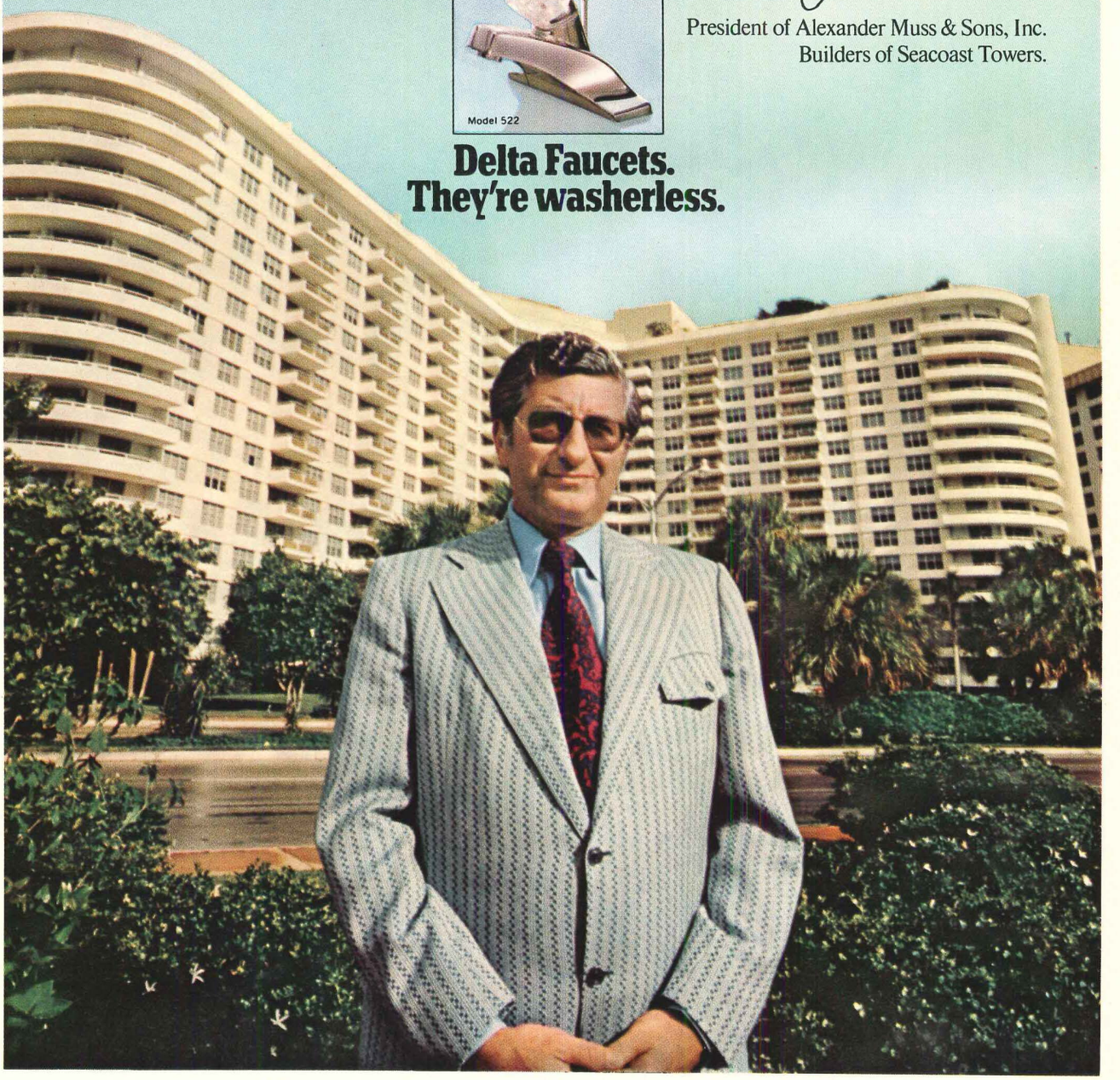

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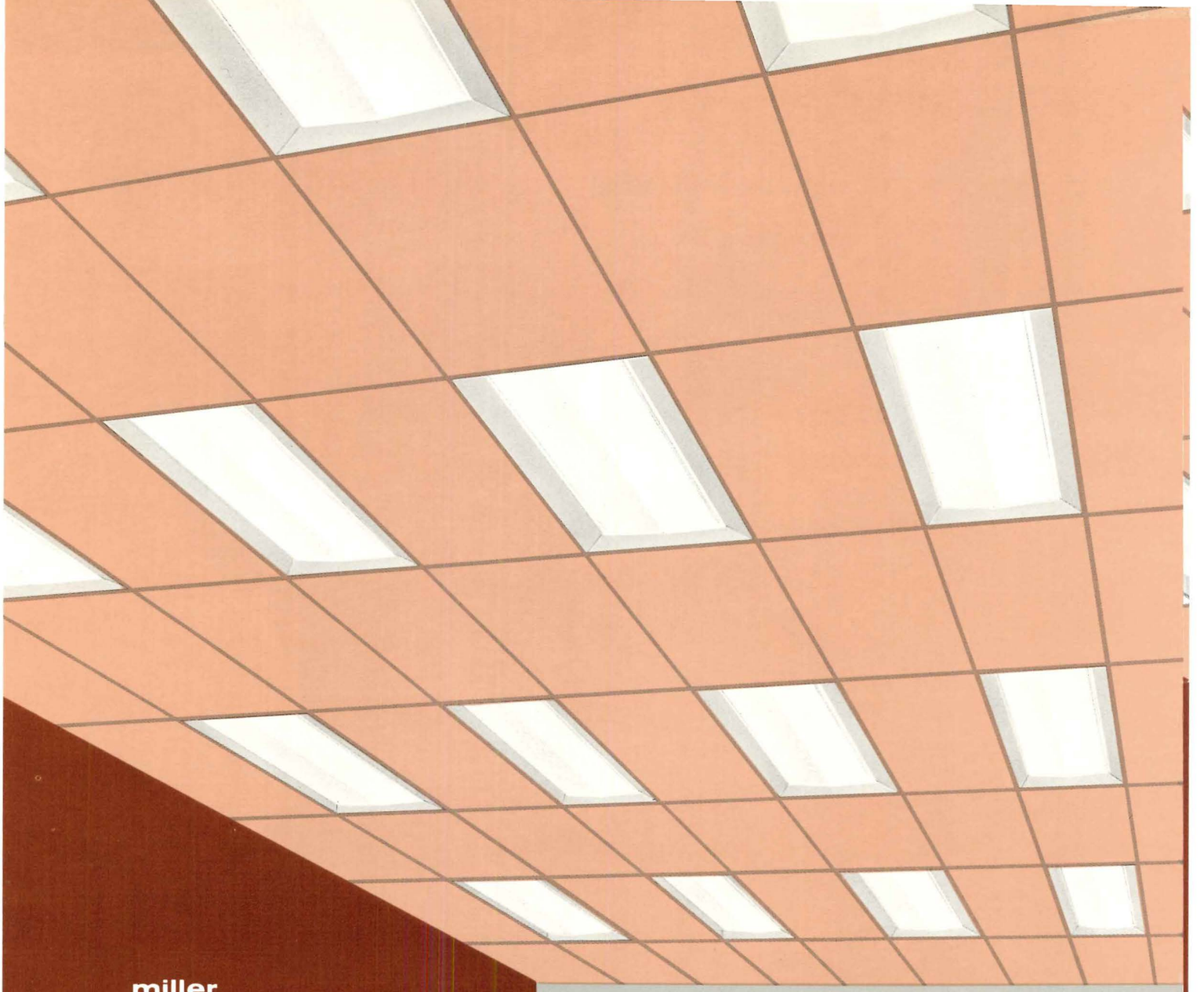

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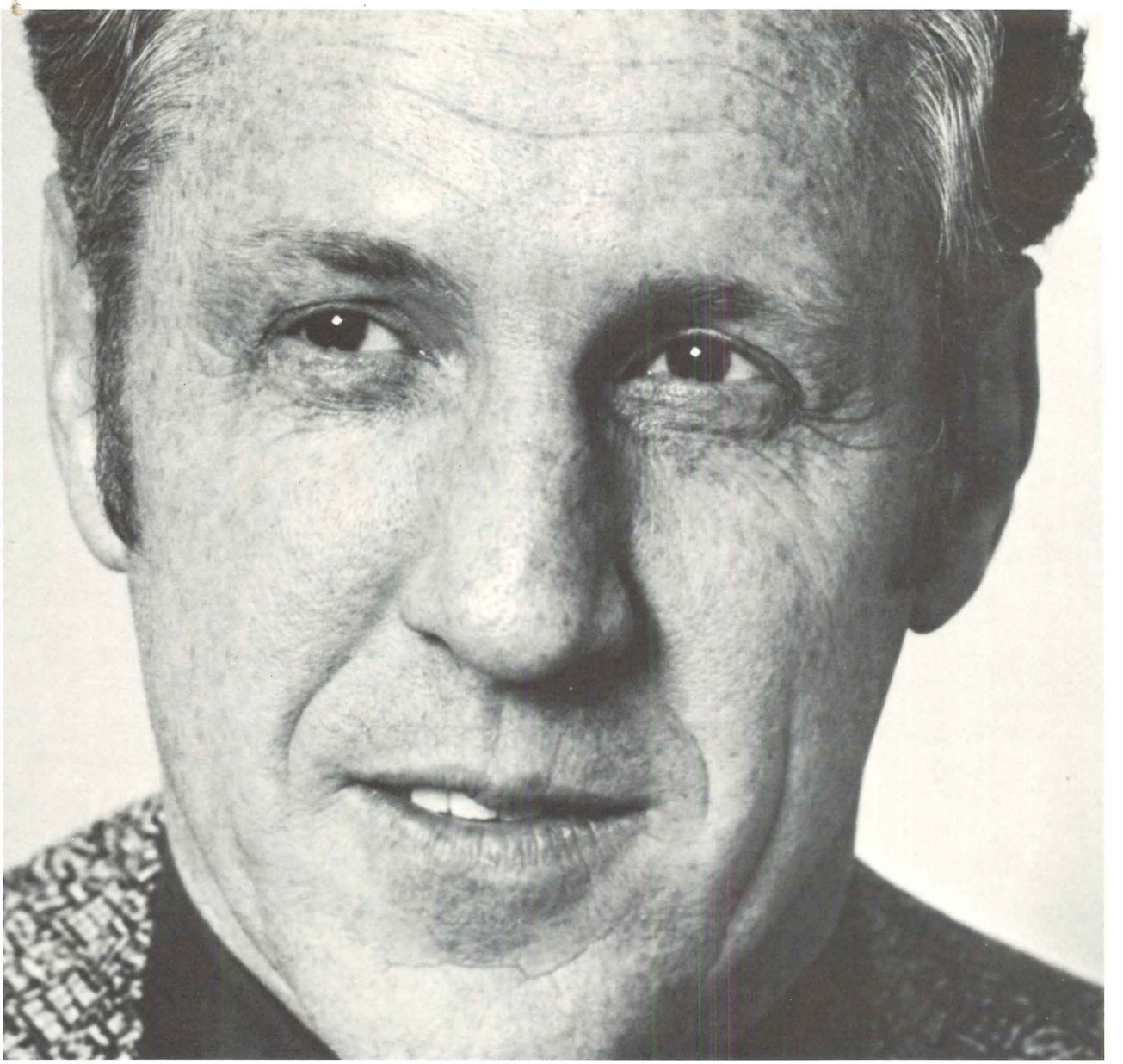

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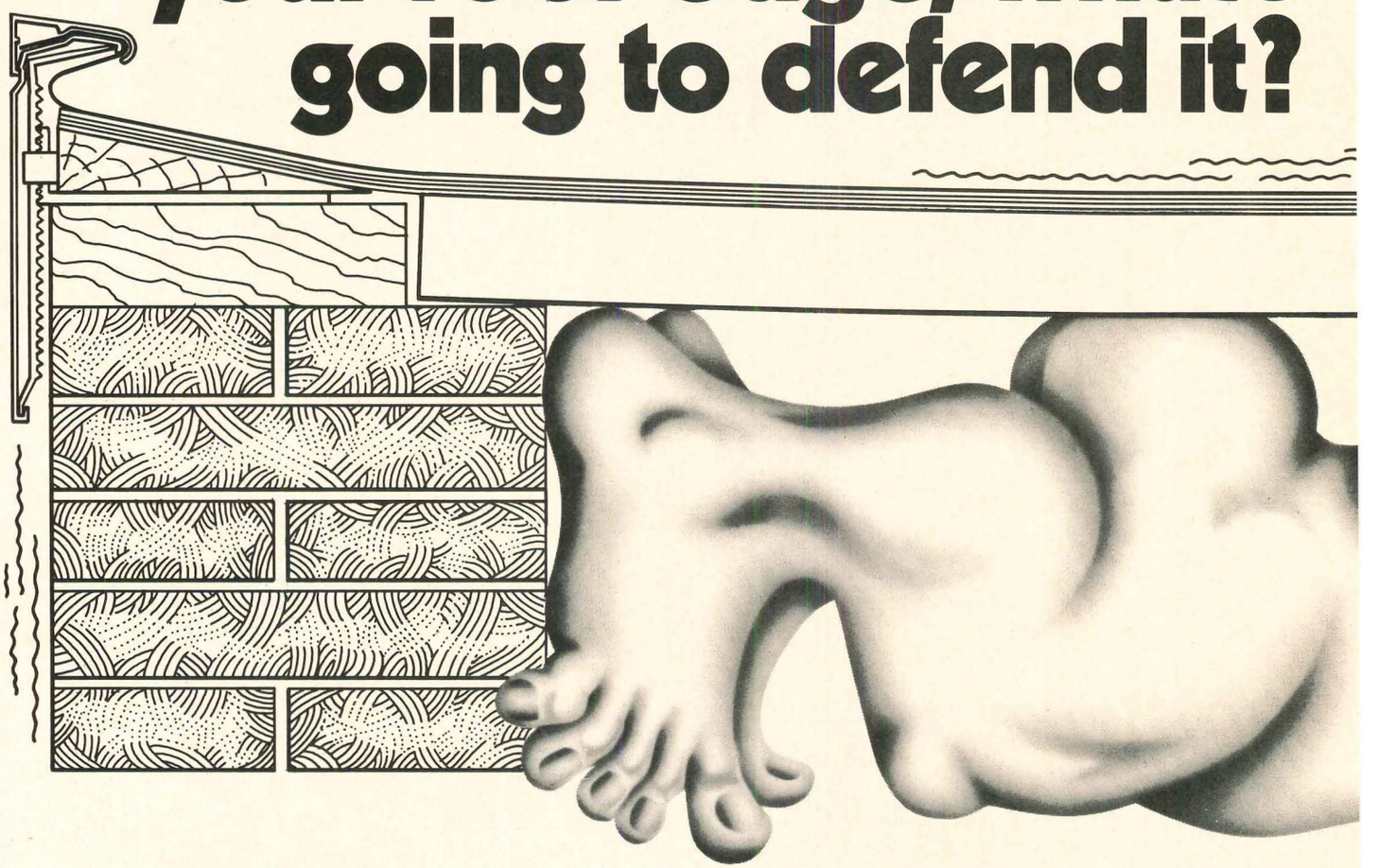
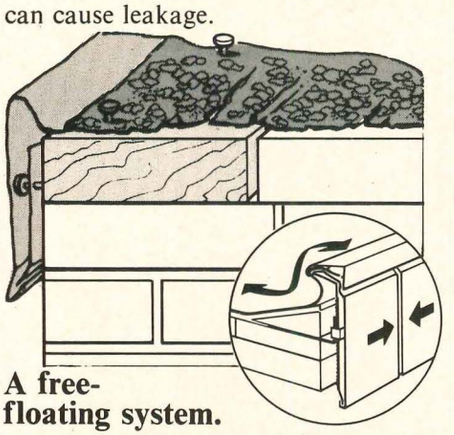
When movement attacks your roof edge, what's going to defend it?



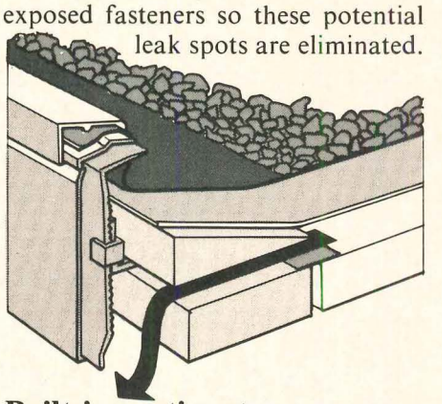
Everybody knows you can't stop the attack. For wherever you find two adjoining structural planes, you'll also find movement. Movement in different directions, at different rates, that makes nails pop, nail holes enlarge, joints open, etc. Any of which can cause leakage.



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.

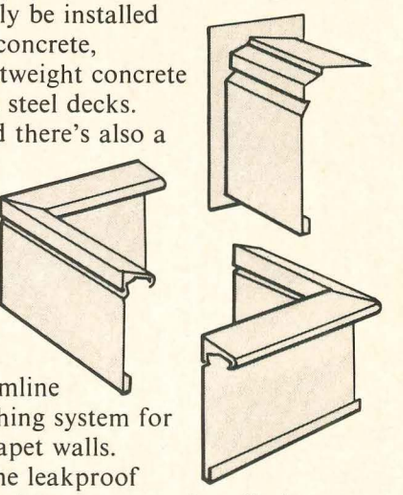


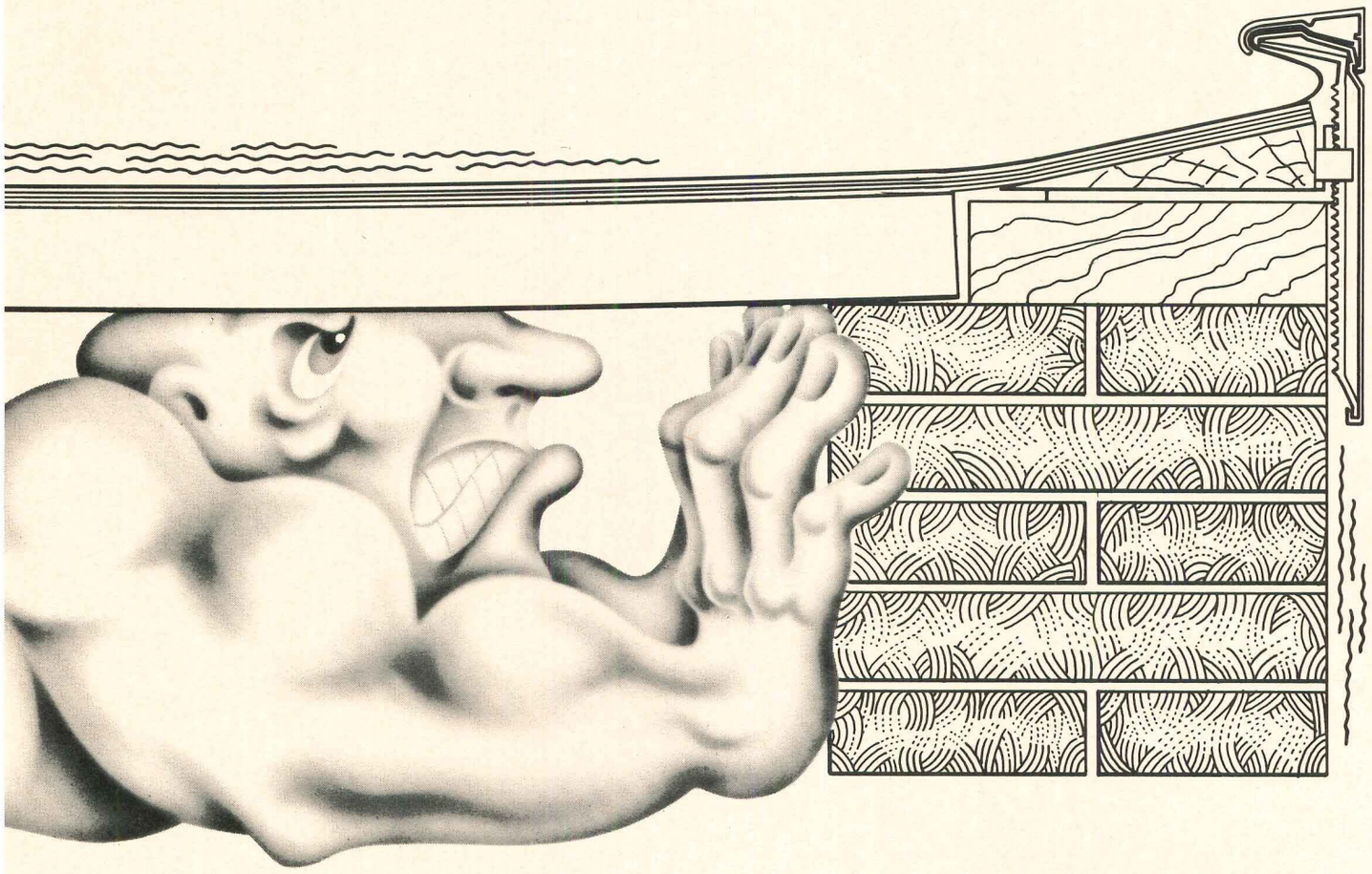
Built-in venting, too.

Tremline also allows perimeter venting of the roof insulation. Other edgings provide only partial venting, if any. And with the neoprene membrane 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.

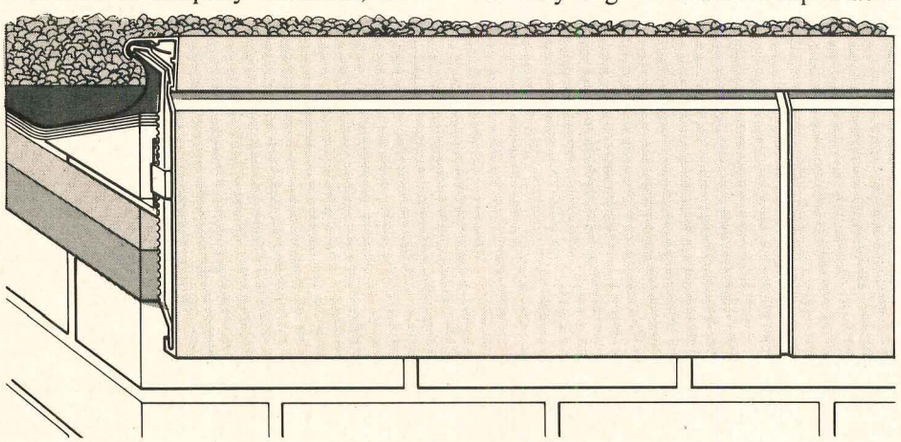
Architecturally beautiful.

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.



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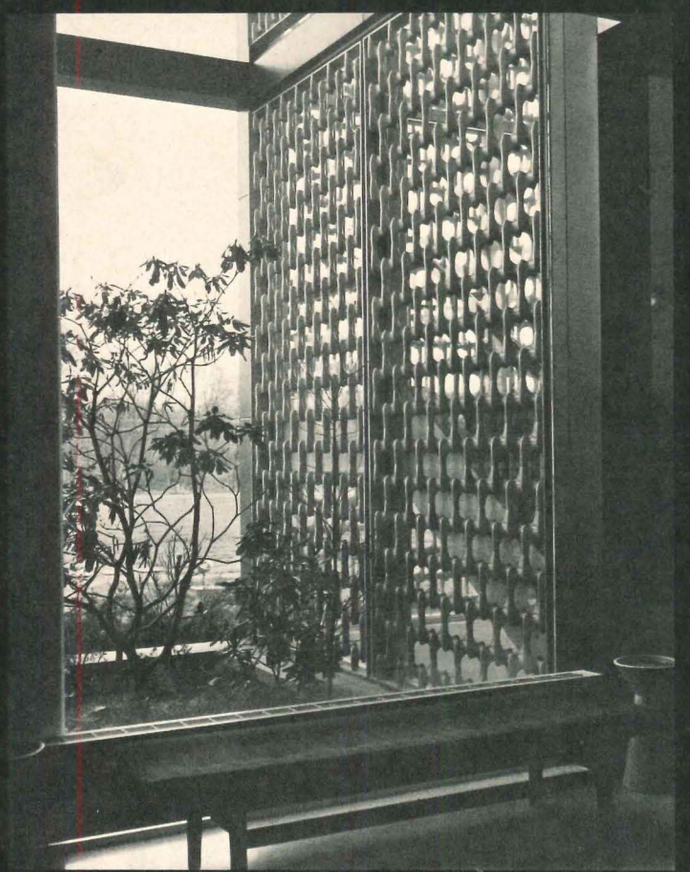

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Prepared by William E. Lunt, Jr., C. S. I.

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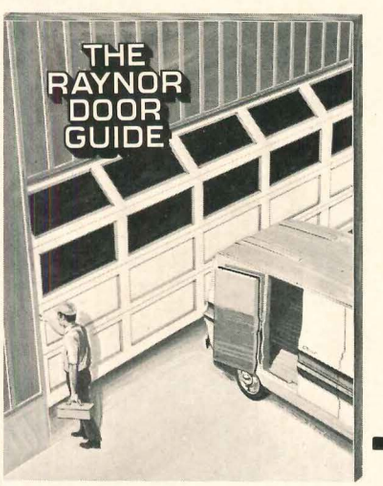

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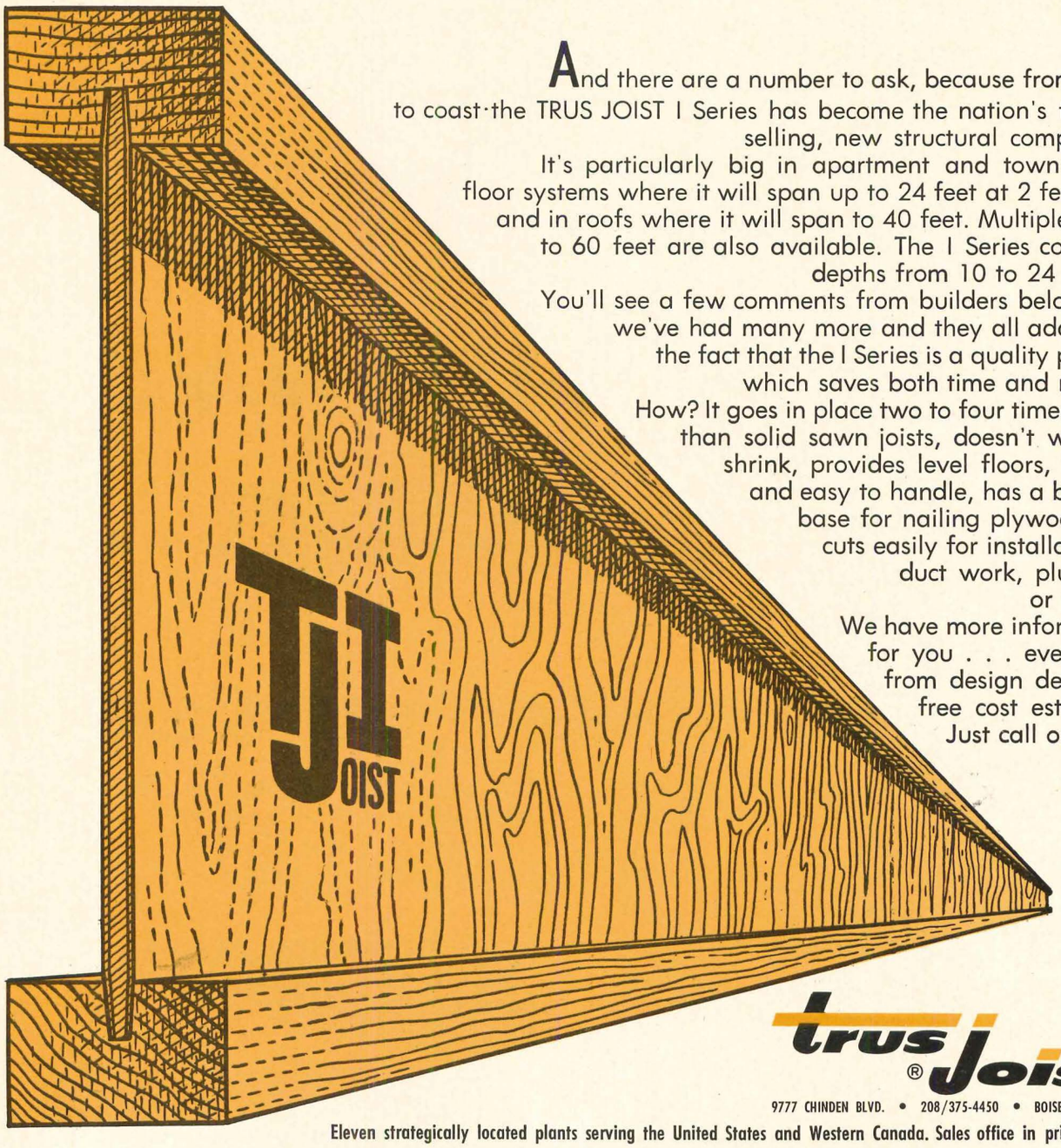

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How? It goes in place two to four times faster than solid sawn joists, doesn't warp or shrink, provides level floors, is light and easy to handle, has a broader base for nailing plywood and cuts easily for installation of duct work, plumbing or wiring.

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Louis L. Rostov, President

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Rod Peterson, Job Superintendent

WILLOWBROOK APARTMENTS:
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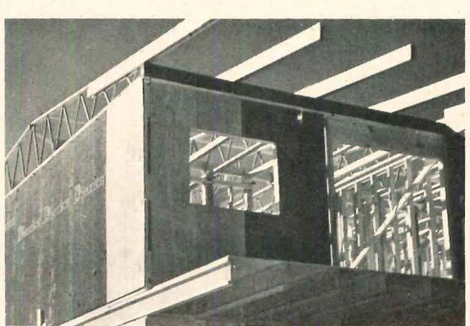
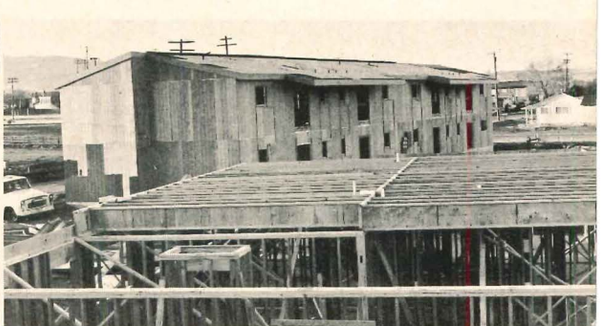
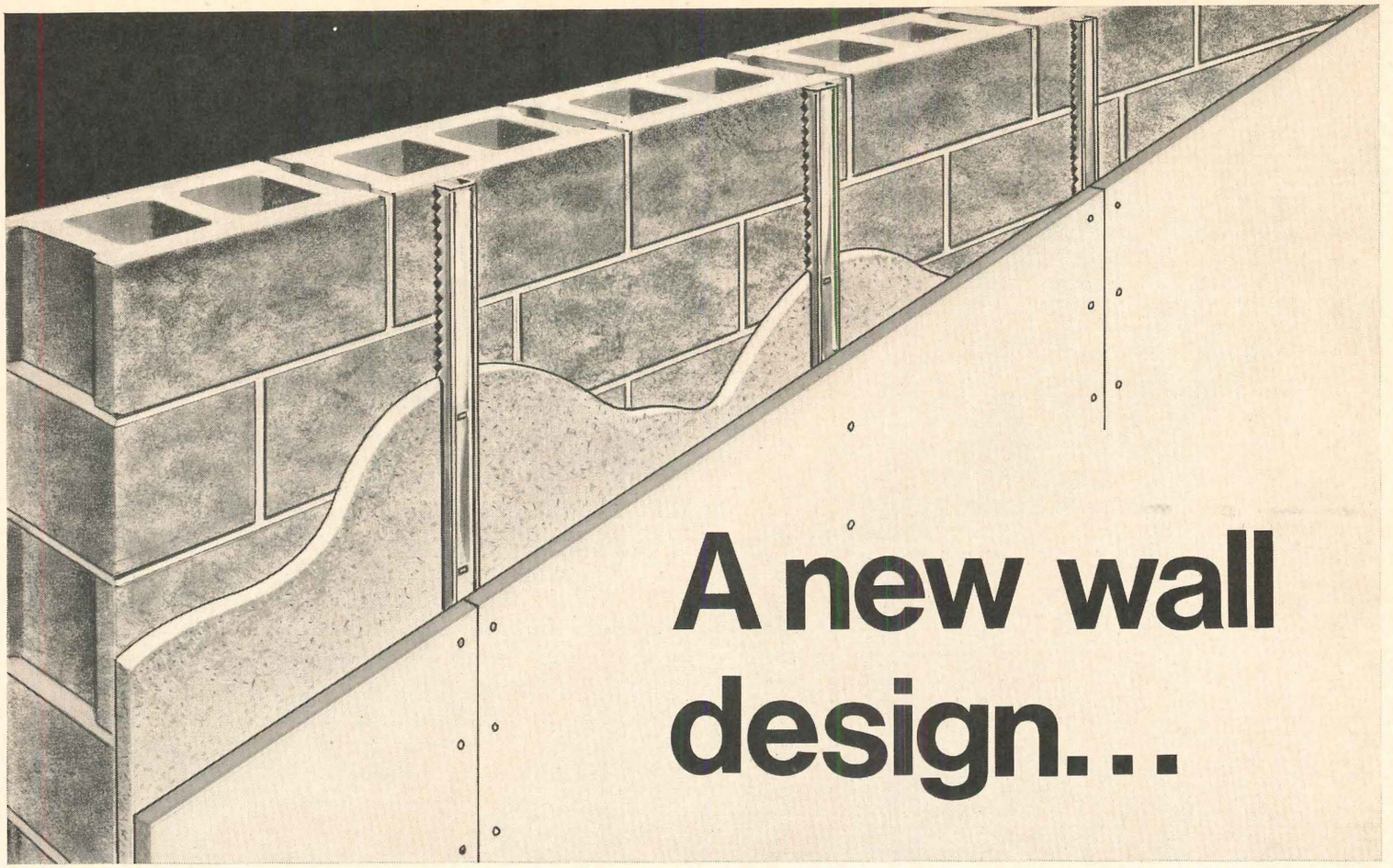
"With your I Series the work goes much faster and we'll have a real saving on the job. We're planning to use them again on two more apartment jobs, one of 80 units and another with 200 apartments."
Bud Michelson, Project Manager







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When you insulate a masonry wall and finish with gypsum drywall, try the Zonolite Thermo-Stud System.

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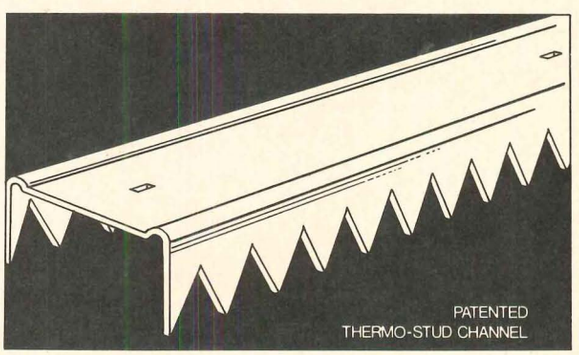

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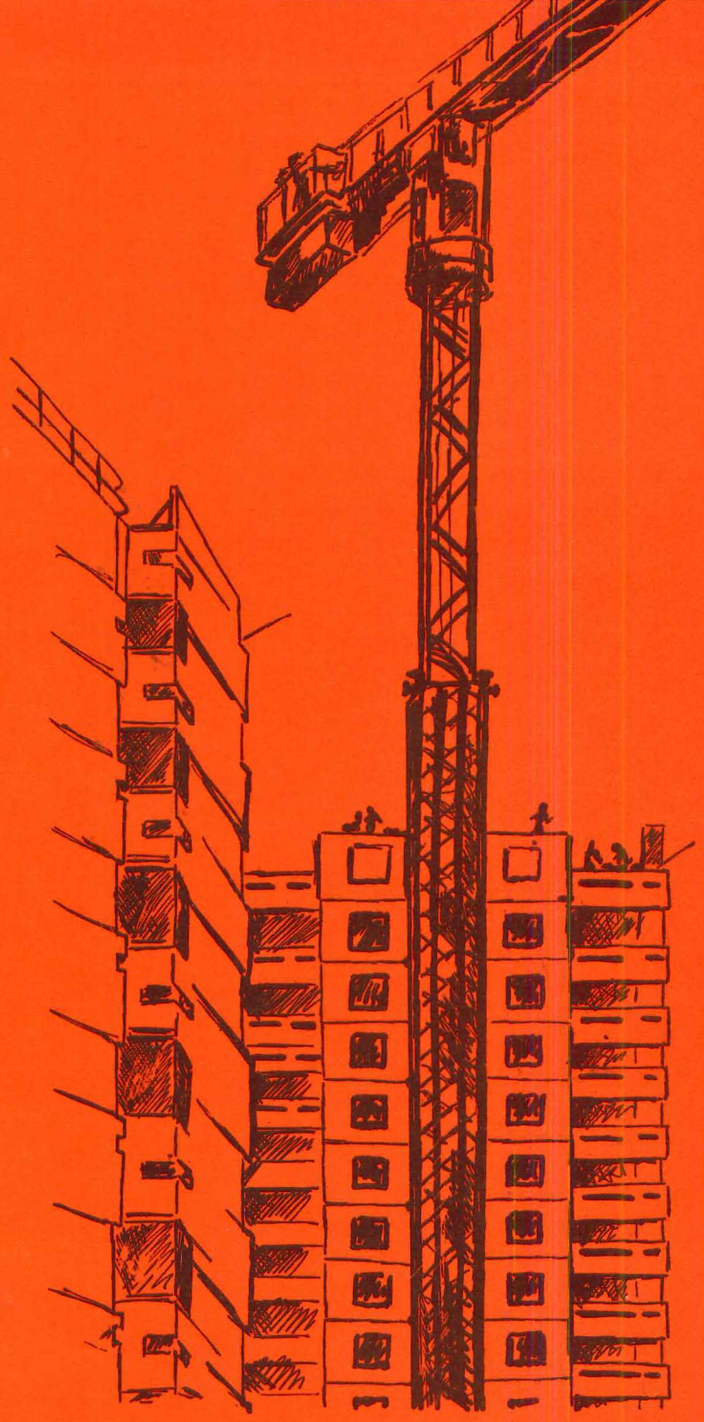

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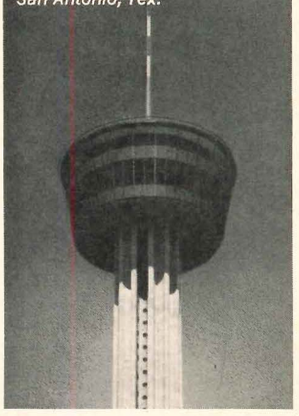

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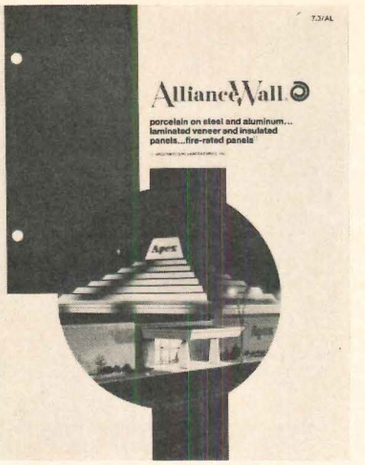

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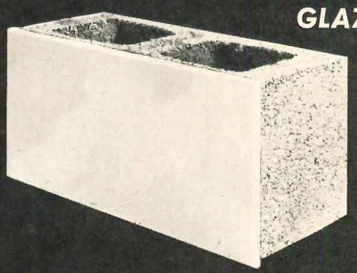

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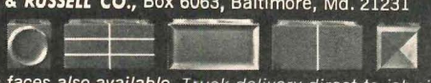

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NATIONAL CONFERENCE

Special Announcement—A National Conference, "Focus: Shelters for Mankind" will be held at California State University, Los Angeles, on September 22, 23, and 24, 1972. The conference will bring together for the first time students, academicians, and practitioners from the fields of structures, design, materials, land use, ecology, human adaptation, community involvement, art and city planning. Among the scheduled speakers are Paolo Soleri, Steve Baer, Niels Diffrient, Walter Goldschmidt, David McDermott, Robert Sommer, Victor Papanek, Peter Pearce, John Platt, Sim Van der Ryn and Richard Saul Wurman. In addition to presentations, there will be related events such as "Community Planning by Computer," a variety of domes, and pneumatic structures. Please send $60.00 enrollment fee ($15.00 for students) or request for additional information to Office of Community Services, California State University, Los Angeles, 5151 State College Drive, Los Angeles, California 90032, telephone (213) 224-3503. After August 22, 1972, fee becomes $75.00

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NEW FIRMS, FIRM CHANGES

Lester Philip Glass, Architect announces the removal of his office to 12 East 41st Street, New York, N.Y. 10017, Room 1505. The phone number is (212) 689-3396.

Maurice W. Perreault and Associates, Inc. announces the relocation of its office to 1401 Wilson Boulevard, Arlington, Virginia 22209.

The architectural firm of **Begrow and Brown Architects, Inc.** of Bloomfield Hills will henceforth be known as **Jack Brown and Associates Architects, Inc.**

The office of **Caswell Cooke Architect** has moved from 17 Broadway to 554 Chapel Street, New Haven, Connecticut 06511. The phone number is (203) 787-0909.

The partnership Decker, Kolb & Stansfield AIA Architects continues with the new firm name **Kolb & Stansfield AIA Architects.** They are located at 1040 Washington Building, Seattle, Washington.

Richard L. Dorman announces a change in the firm name to **Richard Dorman FAIA Architecture and Planning** at 8899 Beverly Boulevard, Los Angeles, California 90048, and a dissolution of Dorman/Munselle Associates.

Eckbo, Dean, Austin & Williams, San Francisco based landscape architects, urban designers and environmental planners, has opened an office in Minneapolis to serve its growing clientele in the Midwest. The new facilities are located at the Loring Park Office Building, 430 Oak Grove. **Guy R. Johns** has been appointed senior associate in charge. Additional offices of the firm are located in Los Angeles and Honolulu.

Holder, Kennedy & Co., Inc. have relocated at 880 West Peachtree, N.W., Atlanta, Georgia.

Pearce and Pearce, Inc., St. Louis architectural and engineering firm, has changed its name to **Pearce Corporation—Professional Management Service to Solve Environmental Problems.**

ERRATA

The Record regrets that there were errors in the story on Worcester Center (May 1972, pages 99-104). The correct credits should be as follows: Architects: Welton Becket and Associates, Fred van Gaasbeek, project architect, Marvin Krosinsky, David Beer, project designers. Engineers: Wayman C. Wing, structural; Cosentini Associates, mechanical/electrical. Landscape architects: M. Paul Friedberg & Associates. Lighting: Seymour Evans & Associates. Art program: Annie Damaz. Graphics: The exterior spotlight pole shown on page 104 of the May 1972 issue was designed by Evans and Hillman Lighting Consultants for Worcester Center, not by Chermayeff & Geismar as indicated. General contractor: Beacon Construction Company.

ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1972 Sweet's Catalog File as follows.

A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)
D Interior Design File (black)

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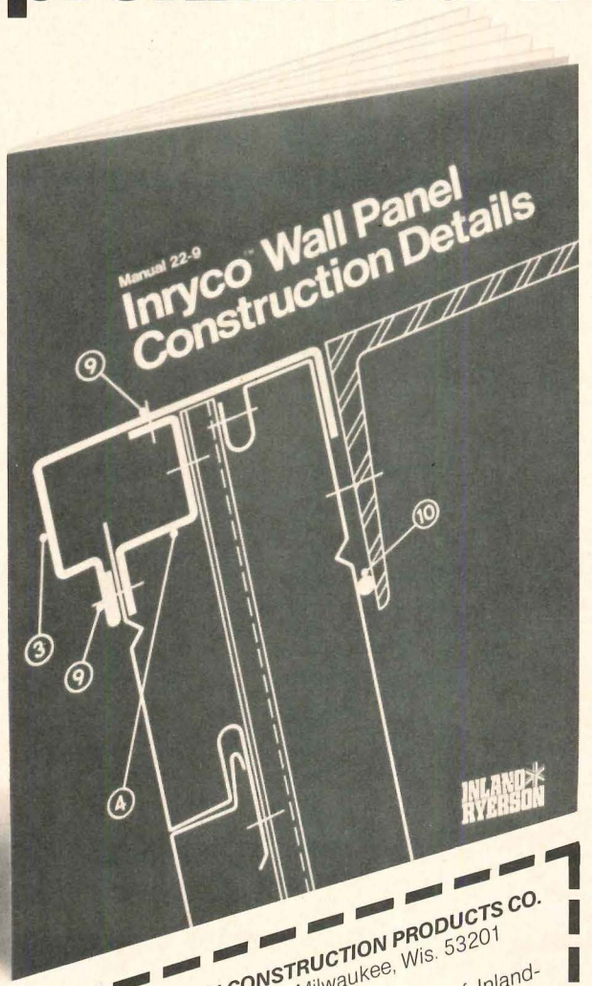

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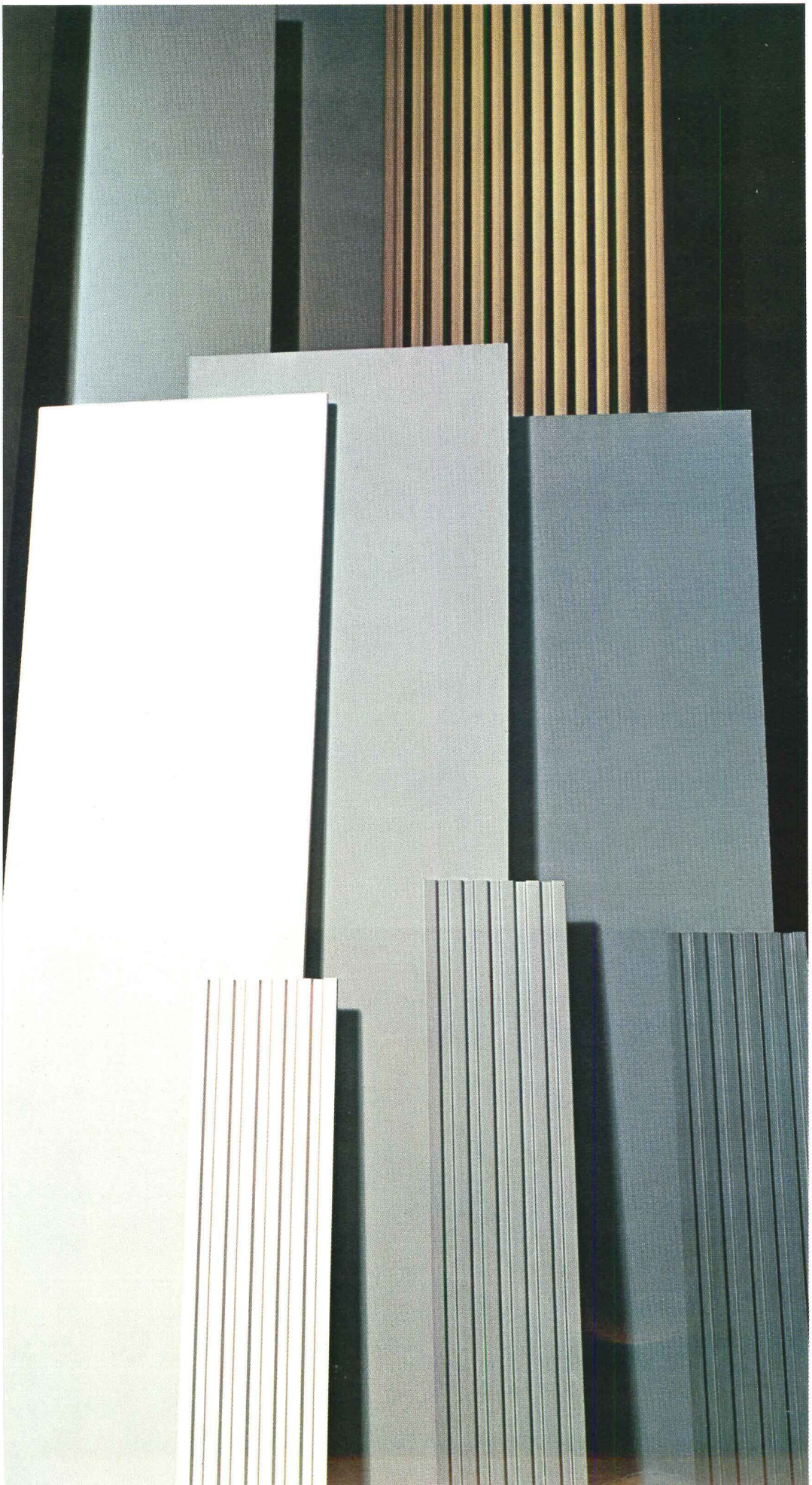

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See our Aluminum in Architecture catalog in Sweet's Architectural File. Index No. 5.1/Ka.

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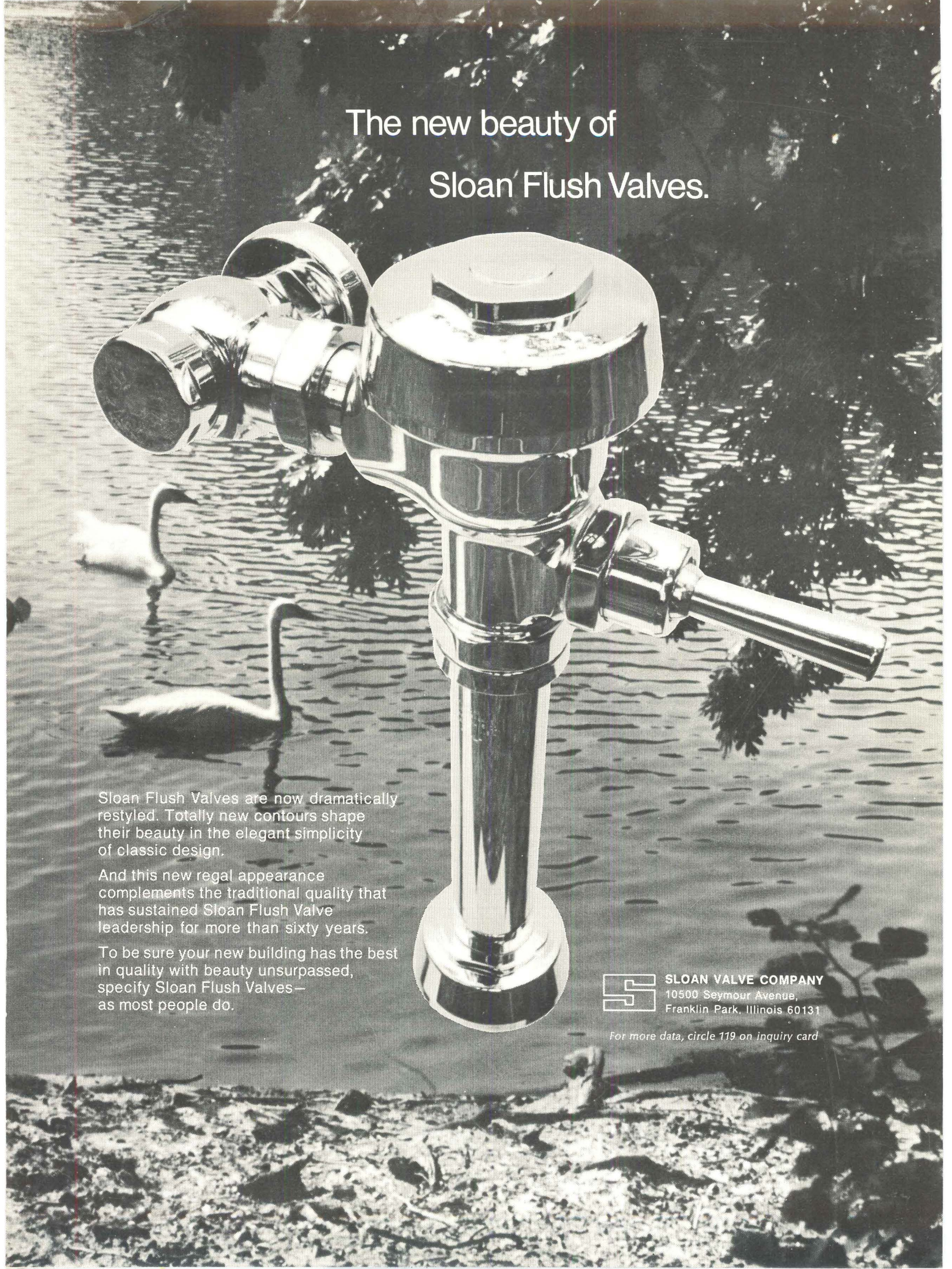
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