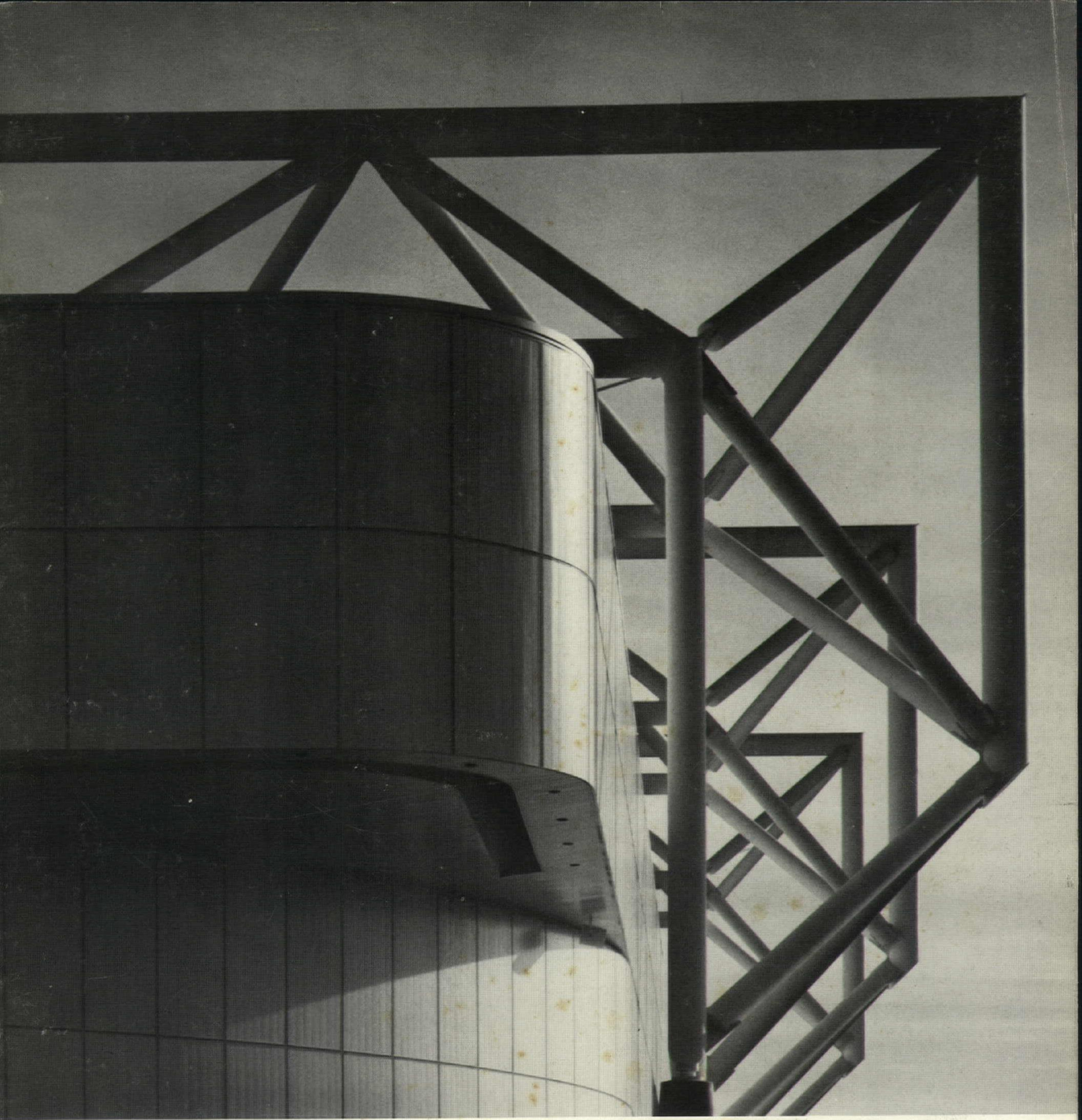

KEMPER ARENA, KANSAS CITY, MISSOURI, BY C. F. MURPHY ASSOCIATES

FIRST REPORT ON THE RESULTS OF IAF'S INTERNATIONAL DESIGN COMPETITION

AN AMERICAN CITY: A PREVIEW OF THE AIA'S NATIONAL CONVENTION IN PHILADELPHIA

WATERSIDE RESIDENTIAL COMPLEX, BY DAVIS, BRODY & ASSOCIATES

BUILDING TYPES STUDY: VOCATIONAL SCHOOLS

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

MARCH 1976 3 A McGRAW-HILL PUBLICATION FOUR DOLLARS PER COPY

The Brigantine® floor from Armstrong. At Liberty Junior High School, they've even put it in the gym. Because it's even tougher than the kids who try to beat it up.

If there's one word that describes most teenagers, that word is "active." So when you've got a junior high school with an enrollment of 600, you can easily imagine the kind of collective activity that takes place. Day in and day out.

With that many kids letting loose that much energy, you've got to be pretty particular about the covering you put on your floors. At Liberty Junior High School in the Richardson, Texas, Independent School District, they've found a particular way to cope with the continual tramping of all those busy feet. They've put down Brigantine Vinyl Corlon® from Armstrong.

In fact, school authorities are so confident of Brigantine's staying powers, they've even put it in the gym. Where the daily grind includes gym classes, basketball games, foot races, and volleyball —using tape for lane markings.

And where Brigantine is taking it on the chin and asking for more.

A special kind of rugged vinyl composition is the reason you'll also find Brigantine shrugging off all the heavy traffic in the school's lobby, corridors, and band room.

And with Brigantine's virtually nonporous surface, it also fits right in to the dining area of the school's cafeteria. Because spills won't sink in, dropped food and drink can't ruffle its composure. That helps make wipe-up fast and easy, custodial cleanup routine.

With a spectrum of colors from which to choose, Brigantine's traffic-resistant constitution fits nicely into almost any decor. Something else you'll like is the easy way that Brigantine installs. It comes in rolls 6 feet wide and up to 90 feet long that also eliminate a lot of seams where dirt might otherwise be trapped.

Architect: Fred Buford and Associates, Dallas; Contractor: Associated Interiors, Dallas

So if you've got a floor that has to stand up to a lot of activity, we suggest you follow the example of Liberty Junior High School and put down Brigantine where the action is.

For more information, write Armstrong, 303 Rock Street, Lancaster, Pa. 17604.

FROM THE INDOOR WORLD® OF Armstrong

For more data, circle 1 on inquiry card

When you want a ceiling system that gives your ingenuity full rein, come to the source. Armstrong.

More architects use Armstrong Luminaire Ceiling Systems because what they get is more than just a ceiling.

They get flexibility. Flexibility that translates into the kind of freedom they need to carry out their most innovative ideas. The kind of freedom that makes it relatively simple to design, specify, control, coordinate, and install a dramatic ceiling in any building. Like the four striking solutions shown on these pages.

Midland College, Midland, Texas, Architect: Preston M. Geren Architect & Engineer and Associates, Fort Worth, Texas, Ceiling System: Armstrong Symmetry Luminaire

What you get with Luminaire is truly a system. A system that combines lighting, air diffusion, fire protection, and acoustical control in one integrated assembly. But what you also get is versatility. Versatility that allows you to handle these functions in many different ways.

Datacenter/The Equitable Life Assurance Society of the United States, Easton, Pennsylvania, Architects: Kahn and Jacobs, New York City, Ceiling System: Armstrong C-60/60 Luminaire

There are five Luminaire Ceiling Systems: C-60/30, C-60/60, AW 3600, Symmetry®, and Pentaflex™. Each is basically scaled to a 5′-square module but is also available in custom variations to meet just about any requirement.

Each can offer you not only a choice of lighting patterns and a wide range of illumination but a flexibility of module, troffer, and panel arrangement that

Security National Bank, San Antonio, Texas, Architects: Environmental Professionals Corporation, San Antonio, Texas, Ceiling System: Armstrong AW 3600 Luminaire

results in almost unlimited design possibilities.

For instance, you can choose from three vaulted systems as well as two flat-type systems that provide either exposed or concealed grids. You can vault your entire ceiling or mix your vaults with flat types. You can light all the vaults or space your lighting to meet specific requirements of the job. Within a vaulted system like the C-60/60, you can even choose various light options—including square light fixtures 2′ x 2′, 2½′ x 2½′, 3′ x 3′, or rectangular fixtures 1′ x 4′ and 2′ x 4′. All of which adds up to a freedom of choice you'd be hard put to match.

Also available from Armstrong, of course, is the Armstrong man—bringing you the technical assistance that can help put your entire design into focus.

Add this kind of people support to the most advanced ceiling materials available, and you can see why Armstrong Luminaire provides you with the esthetic and performance characteristics you require in any building environment that bears your name and displays your talent.

To learn more, write: Armstrong, 4201 Rock St., Lancaster, Pa. 17604.

In Canada, write: Armstrong Cork Canada, P.O. Box 919, Montreal 101, Quebec.

Palmyra Area High School, Palmyra, Pennsylvania, Architects: Lawrie and Green, Harrisburg, Pennsylvania, Ceiling System: Armstrong C-60/30 Luminaire

For more data, circle 2 on inquiry card

FROM THE INDOOR WORLD® OF Armstrong

Letters to the editor

The marvelous article by Jean Paul Carlhian (January 1976) not only expresses my sentiments but does so with admirable clarity.

It seems to me that one of the grave defects of the Modern movement is the reliance on polemics and denigration of "unbelievers" so that the fate of the modern "saints" in another generation will be to trade extravagant scorn for today's extravagant praise.

Which reminds me that I would like to see Wright's literary opera and commentary moved to American Lit., where it belongs with Frost, Whitman and Mark Twain. He adds very little to the understanding of architecture but one cannot really understand American literature without reading his books. He invented the latter-day role of Norman Mailer. The ego as a monument.

Randolph W. Chalfant, architect
Baltimore, Maryland

We greatly appreciate the good coverage and comment afforded to four of our recent projects involving major additions to existing historic buildings in December.

It has come to my attention that, through our oversight, no credit was given to Peter P. Papesch as project architect of the Park Street Church addition into the working drawing phase of activity.

Frederick A. Stahl, FAIA
Boston, Massachusetts

It is often said that to ask the right question is half the answer. So I found it very disturbing that the December issue "Search for better buildings at lower cost" asked the wrong questions—and arrived at the wrong answers. I am not taking issue with the buildings if they had been published under the heading "In search for better buildings"—but at lower cost?

In fact the whole issue begs the real question. It starts with the understatement of the year: "The high cost of building is a problem that requires a response." Indeed it is *the problem* which, unless answered, will put us all, architects and the whole building industry, out of business. It surely cannot be solved by a new definition of value as "what we really want." We may all want a *Mercedes* rather than a *Pacer*, but what if we cannot afford it? Is it really true that we can enhance the quality of the built environment only by catering to the few who can afford the high-priced accommodations shown? Rhetoric like "accountants do not have the monopoly on bottom lines" will not help either. We live in a real world and have to look for solutions that enhance the environment while being economically feasible and affordable, and this cannot be achieved by ignoring accountants.

It is characteristic for RECORD's approach to the problem that the whole issue does not contain one bit of meaningful cost information regarding the published buildings. Juggling definitions will not solve anything, nor will such absurd statements as "cost savings can be achieved by reducing interest through borrowing for 10 years instead of 20, approximately 20 per cent of the total project cost." Have you ever heard of the time value of money? Let us leave this kind of "creative financing" to the politicians, and concentrate on the causes of the high cost of building, and trying to find ways to reduce costs, not by cutting, not by reducing quality (though the concept of quality merits some rethinking), but by hard work leading to creative solutions. Obviously it is not possible in a letter to address these problems seriously.

Immanuel H. Lewin, architect
and building economist
Los Angeles, California

Calendar

MARCH

8, 15, 16, 22, 23 Structural design seminar on "Contemporary Structural Connections," United Engineering Center, New York City. Sponsored by the Structures Group of the Metropolitan Section, American Society of Civil Engineers. Contact: Thomas Collins, Westenhoff & Novick, P.C., 420 Lexington Avenue, New York, New York 10017.

18-19 Seminar for Associated Pile & Fitting Corp., Saddle Brook, New Jersey. Seminars are non-technical, covering a wide variety of subjects in the deep foundations field. Contact: J.A. Brady & Co., 396 Midland Avenue, Garfield, New Jersey 07026.

18-20 Course of Study on Land Planning and Regulation of Development at Shoreham Hotel in Washington, D.C. Contact: American Law Institute-American Bar Association Committee on Consulting Professional Education, 4025 Chestnut Street, Philadelphia, Pennsylvania 19104.

24-25 Symposium on building construction, for public and private building owners, National Bureau of Standards, Gaithersburg, Maryland. Contact: Harry Thompson or James Haecker, Center for Building Technology, NBS, Washington, D.C. 20234.

31-April 2 National Conference, "The Conservation of the Older Courthouse: Some Practical Solutions," St. Louis. Sponsored by the National Trust for Historic Preservation, the National Clearinghouse for Criminal Justice Planning and Architecture, the University of Illinois Department of Architecture, the National Association of Counties, and the National Endowment for the Arts. Contact: Cheryl I. Krieger, Program Assistant, National Trust for Historic Preservation, 507 South Dearborn Street, Suite 710, Chicago, Illinois 60605, or Elmer Edwards, conference coordinator, University of Illinois, 116 Illini Hall, Champaign, Illinois 61802.

31-April 3 The Ninth National/International Sculpture Conference, "Monumental Sculpture for Today," New Orleans, Louisiana. Sponsored by the National Sculpture Center, University of Kansas. Contact: National Sculpture Center, The University of Kansas, Lawrence, Kansas 66405.

APRIL

7-9 Conference on creative play environments for children, University of Wisconsin-Milwaukee campus. Sponsored by The University of Wisconsin-Milwaukee, School of Architecture and Urban Planning, in conjunction with the University of Wisconsin-Milwaukee, Department of Physical Education, and the Wisconsin Park and Recreation Association. Contact: University of Wisconsin-Milwaukee, School of Architecture and Urban Planning, Milwaukee, Wisconsin 53201, c/o Thomas Lenchek.

19-23 Second Southeastern Conference on Application of Solar Energy, Baton Rouge, Louisiana. Meetings will be held at the Hilton Inn and sponsored by Louisiana State University. Contact: Dr. Arnas, Department of Mechanical Engineering, Louisiana State University, Baton Rouge, Louisiana 70803.

MAY

2-6 Annual convention, American Institute of Architects, Philadelphia.

4-6 Regional Highway Transportation Congresses. Sponsored by Highway Users Federation. Contact: John H. Jenrich, Highway Users Federation, 1776 Massachusetts Avenue, N.W., Washington, D.C., 20036.

31-June 3 1976 Architects' Workshop, Glorieta Conference Center near Santa Fe, New Mexico. Sponsored by The Church Architecture Department of the Southern Baptist Sunday School Board. Contact: Howard McAdams, AIA, Church Architecture Department, Church Services and Materials Division, 127 Ninth Avenue North, Nashville, Tennessee 37234.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER)

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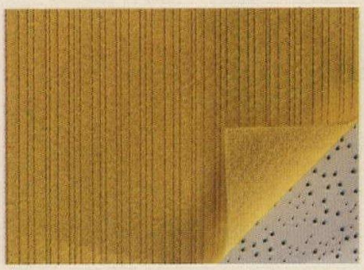
If you want to put up a beautiful wall, you've got a pretty wide choice of materials. But if you want your beautiful wall to help deaden noise as well, your options are limited.

You can affix fabric wallcovering or carpet, for instance, and your wall will look terrific. But like others before you, you'll find that neither one will absorb distracting sound to any appreciable degree.

What you need, of course, is something that combines handsome appearance with acoustical efficiency. And that's the whole idea behind Soundsoak Wall Panels from Armstrong.

Soundsoak Panels are acoustical fiberboard, mated to a soft modacrylic fabric reinforced with a woven fiberglass scrim. And with a 4-Frequency Average Sound Absorption of .60 (3-Frequency Average is .71), you know they work as well as they look.



Soundsoak Panels are 30″ wide, come in 9′ height, and are available in ten eye-pleasing colors. One man can easily install them on interior plaster, brick, or block walls or drywall surfaces—and they can be cut to fit flat surfaces of interior columns. Which makes them a decorative, hard-working answer in both new construction and remodelling applications.

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FROM THE® INDOOR WORLD® OF

Armstrong

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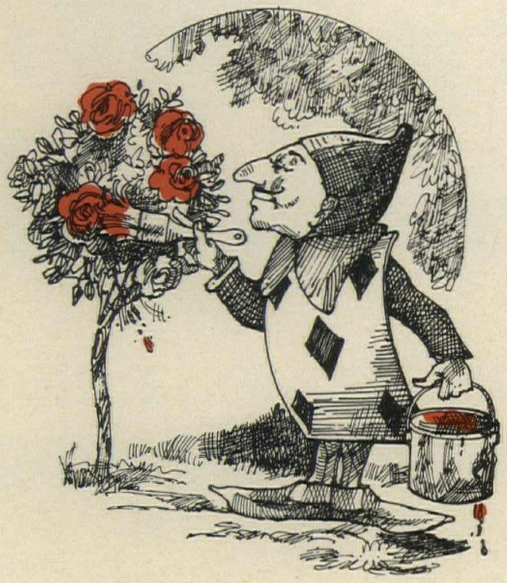
Tight Money Breeds Tough Customers

Designing buildings that will sell is no tea party these days. Americans take a hard...cost conscious...look at every detail you incorporate. But that doesn't mean your specifications have to be as plain as a rabbit hole.



A Little Beauty Goes a Long Way

Salesmen probably tell you a dozen times a day that their items will make your designs sell like hot cakes. On and on, they paint their roses red. But just consider this: Legacy doors work for you in *every* room of the structure. Its rich, deep-embossed grain on hardboard so delights the eyes and hands that few people can walk by one without running a hand over its surface.

Of Course It Has to Last and Last

You'd be mad as a hatter if you chose doors that just looked good but couldn't take the abuse of day to day use. No worries; Legacy is tough. It's 50% again as dense as natural wood and is prefinished with a highly stain and mar resistant coating. Legacy looks good a long long time. Maybe forever.

All of Which Means Legacy Stands Alone

Oak-tone

Walnut-tone

It was true when we first introduced Legacy; it's still true today. Oak-tone or walnut-tone, Legacy's deep embossed grain is unmatched. Priced well below solid real wood doors and just a bit above lauan and unfinished birch, Legacy puts a touch of Wonderland into every room at a cost that will make both you and your clients smile like Cheshire cats.

For the names of quality door manufacturers using Legacy write: Masonite Corporation, 29 North Wacker Drive, Chicago, Illinois 60606. Or consult your Sweet's 1976 File.

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depend on Bethlehem

Preliminary frame analysis showed a steel core would provide significant savings

A preliminary frame analysis, conducted by Bethlehem's Sales Engineering Buildings Group, helped the architects of First Federal Plaza Bank building in Rochester, N.Y., to achieve optimum framing economy.

At the outset of the building's design, a concrete core was considered. But the preliminary framing analysis, requested by the project's structural engineers, Rupley Bahler Blake, showed a steel core would provide significant savings.

John Goodman of the consulting engineers says, "The structure was designed in steel with four wind bents in each direction. Two are located at the exterior face of the tower and two at the interior face of the core."

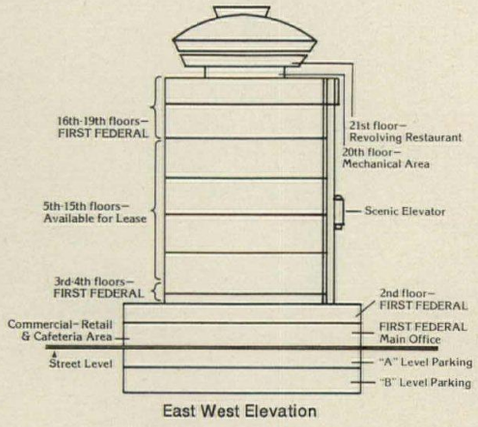
These rigid bents are used to resist the horizontal force of the wind. Because of the spacing of the columns within the two interior bents, vertical X-bracing was needed in two of the bays in each bent to limit total sidesway at the tower roof to five inches.

A control joint, surrounding the tower and low rise, isolates the tower so that low-rise columns will not have to resist tower movements, Mr. Goodman said. At each of the tower's exterior columns there is a second column supporting the two levels of the low rise. These double columns are joined to a common concrete pier below the plaza.

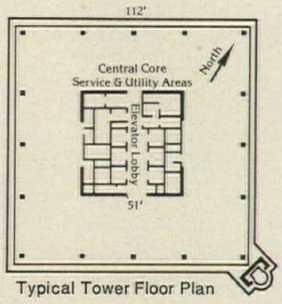
Bethlehem Steel provided 3,050 tons of structural shapes and 40 tons of high-strength bolts for the building frame. The floor system is lightweight concrete slab on steel deck.

Early involvement helpful. Our preliminary framing analysis program can be most beneficial to you and your client if the study is conducted before finalization of architectural parameters. This way, our Buildings Group and your structural engineer can develop an optimum frame design with minimum restrictions.

We'll be happy to tell you more about our preliminary framing analysis program along with the other technical and advisory services we can offer. Just ask for the sales engineer at the Bethlehem Sales Office nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.



East West Elevation



Typical Tower Floor Plan

Owner: First Federal Savings & Loan Association, Rochester, New York; *Architect:* Corgan & Balestiere, P.C., Rochester, New York; *Project Manager:* Balcor Assoc., Rochester, N.Y.; *Structural Engineer:* Rupley Bahler Blake, Rochester, New York; *Fabricator-Erector:* F. L. Heughes & Co., Inc., Rochester, New York; *General Contractor:* Stewart & Bennett, Inc., Rochester, New York.

Architect's rendering depicts the First Federal Savings and Loan office building in Rochester, N.Y. When completed in late 1976, the structure will feature a revolving roof-top restaurant, an outside glass-enclosed elevator, and a mirror exterior which will reflect the surrounding community.

Architectural building description

Rising twenty-one stories on the west bank of the Genesee River, the $20-million First Federal Plaza adds its unique statement to the skyline of Rochester, New York. It acts as a terminal at the south end of the attractive Genesee Crossroads Park. With its completion, it will make this park accessible to pedestrians from Main Street, one of the main arteries across the City. The project site is located within one of Rochester's Urban Renewal Districts.

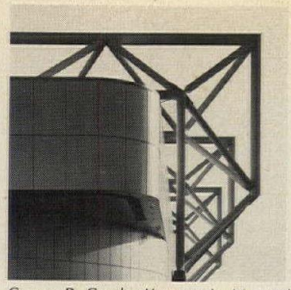
With more than a dozen easements, it created a structural and architectural challenge. Adequate access to the park from Main Street was one of the main concerns to the architects, Corgan & Balestiere, P.C., of Rochester. To accommodate this, almost one third of the site would have to be dedicated as park access. This turned out to be impossible since the remaining space would not have been adequate for placing a high-rise building, or it would be within 30 ft of a six-story building to the west of the site. To provide the desired leasing area and maintain adequate access to the park from Main Street, the architect provided a covered arcade on the Plaza level with parking below and second floor overhang above.

In order to retain unobstructed views from the neighboring buildings to the west and the lower tower floors, the architect rotated the tower 45 degrees to Main Street. Contributing to this strong design solution are the diagonal shapes in the park to the north and a Y-shaped pedestrian bridge across the river.

The exterior of the two story base will be clad with precast concrete with tan aggregate, and glass.

The tower skin consists of bronze reflective insulating glass with matching spandrel sections. The skin is interrupted every three floors by a recessed colored band that matches the curtain wall mullions and extends to support the precast concrete shaft that contains an exterior glass-enclosed elevator cab. A circular revolving restaurant cantilevers above the nineteen-story tower, separated by a mechanical floor.

The reflective insulated mirror exterior is more than an aesthetic item, says Richard Cott, representative for First Federal. "It has great energy saving qualities. This glass reduces the amount of heat transmission by two-thirds. Thus, there is much less heat loss in the winter and much less heat gain in the summer."



Cover: R. Crosby Kemper Jr. Memorial Arena
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Architects: C. F. Murphy & Associates
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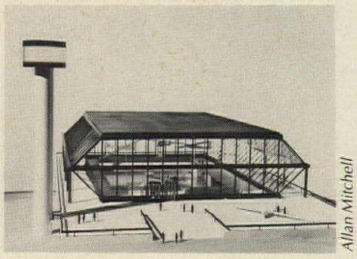
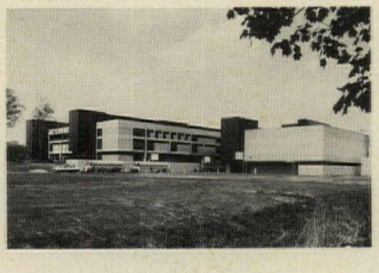


Allan Mitchell

ARCHITECTURAL BUSINESS

FEATURES

BUILDING TYPES STUDY 485



ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study: Stores and shopping centers

In April, a variety of retail outlets —from small stores and shops to large shopping centers—will be shown, representing the latest in designs for the marketplace. Despite inflation and a high rate of unemployment, people are spending, but now buying with a sharpened, selective approach. These projects demonstrate that good design sets the stage for the display of merchandise—together increasing retailers' business.

The most beautiful thing you can do for wood.

Architect: Ronald E. Thompson A.I.A.

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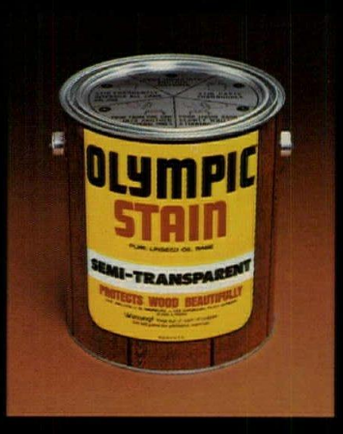

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First report on the results of the International Design Competition for the Urban Environment of Developing Countries focused on Manila—the most significant design competition of its kind ever held . . .

There were 493 entries from around the world, the jury has chosen the winners, and the results are very good indeed—and very important

"We are not so naive as to believe that architecture is the solution to all the problems of the world; that good planning and design is a substitute for jobs that don't exist, or for food that doesn't exist or is too dear. But housing and a sense of community are basic human needs—and that is the part of the problem we know most about and can best do something about. So let us try."

—Editorial, RECORD, April 1974

In that editorial, nearly two years ago, ARCHITECTURAL RECORD and *L'Architecture d'Aujourd'hui* announced the formation of The International Architectural Foundation, a nonprofit corporation, for the purpose of organizing and conducting a "one-stage international architectural competition for the design of a self-help housing community in a developing nation"—a prototype for a new and better way of living for the desperately poor rural migrants that live in squalor on the edges of a hundred cities around the world. Late in 1974, the competition focused on Manila—a city chosen because of the enthusiastic interest of the Philippine government in the competition, and because the Philippine government agreed to build at least one 500-family community to the first-prize-winning design. That community would be only the first stage in the development of a huge new project which will eventually house 140,000 people—all of whom are now squatters in an area called the Tondo Foreshore, adjacent to the redevelopment site.

In March 1975, architects around the world were invited by articles in RECORD and in other professional magazines, as well as in a bulletin of the Union Internationale des Architectes—to register for the competition. An astounding 2,531 registrations—from 68 countries!—were received, and registrants were sent the detailed and thoughtful program developed by Gutheim/Seelig/Erickson (Arthur Erickson was professional advisor to the competition).

In due course (a course slowed by a month-long Canadian postal strike), 493 submissions were received (again, a very high number in view of the complexity of the program and the detailed submission required—five boards showing the proposal from regional scale down to technical ideas for self-help and recycling). The judging began in Vancouver on February 1st, and was completed only after five days of concentrated study and extremely thoughtful analysis by a truly distinguished international jury including RECORD senior editor Mildred Schmertz (see full list on page 15).

The winning designs add an important new dimension in solving staggering problems . . .

. . . of urbanization around the world. Most efforts so far to help the millions of refugees from rural deprivation have not focused on physical planning, and have not involved much thoughtful participation by architects. Significantly—as was called for in the competition program—the entrants responded with far more than housing designs: they related housing to neighborhood to community to city and region, and they offered designs intended not just to offer the poor a better house—but suggesting patterns of self-help, work opportunity, food production, and school and medical care.

The first prize winner—who will receive $35,000 and will be commissioned by the Government of the Philippines to develop his design for a prototype community of 3,500 people (about 500 families)—is Ian Athfield of Wellington, New Zealand. Mr. Athfield, who is 35 years old, has a five-man firm which so far has done mostly housing but has just completed its first larger-scale job—a monastery. Except for a trip to Australia, he has not traveled outside New Zealand. His design proposed an extremely bold (and therefore much debated by the jury) fringe of low building around each neighborhood—space that would be provided by the government to encourage neighborhood residents to set up shops or other enterprises, would encourage light industry to locate in the neighborhood rather than in separate areas, and thus—in two ways—encourage development of the neighborhood not just as a place to live but as a place to work. In all regards, it seemed to the jury (and to me, who got to study the drawings after selections were made) that Mr. Athfield's design was extremely sensitive to the needs and living patterns of the people, offered great opportunities for individual decision by the residents, and was buildable through a combined effort of government help and self-help by the squatters. (Mr. Athfield's design—along with the other winners and a number of other entries which seemed to the RECORD staff to be of special interest—will be published in our May issue. That issue will be devoted entirely to the problem of human settlements in the world—with, of course, special emphasis on the competition and the winning designs.)

The second award, of $15,000, for an equally exciting, somewhat more technological solution, went to the Takagi Design Team of Tokyo—Mikiro Takagi, Kunihiko Hayakawa, and Keiichiro Takahashi, two 35-year-olds and a 26-year-old who started their firm in 1974.

Third prize went to Sau Lai Chan, a resident of Kuala Lumpur. A recent student at the University of Manchester (England), he entered the competition from there.

Four honorable mentions were given—one from Mexico, one from Japan, and two from the U.S., both (perhaps surprisingly) from San Francisco firms. They are listed in the announcement on page 15.

And so—with the competition complete—we have some important new beginnings.

One beginning is that the hundreds of architects around the world who participated in the competition have a kind of awareness and understanding of urban problems that they did not have before. And we hope that with our May issue (plus *L'Architecture d'Aujourd'hui's* major article in May) this awareness will be multiplied. As we said in that first editorial two years ago: "We want to involve architects and planners around the world in the solution of real problems.And we hope that some architects and planners will be moved to continue to dedicate their skills long after [the Competition] to the task of creating better human settlements around the world." That much—to the great credit of The International Architectural Foundation and the generous donors (see list, page 15) who made the Competition possible—has begun.

What else has begun is a new way for government officials and others responsible for alleviating the global-scale problems of the poor to think about those problems. As we suggested at the beginning of this piece, this competition presupposes a lot of things that don't happen easily. It presupposes some kind of jobs or income for the poor. It presupposes they have at least some money for building materials, and enough food to have the energy to help themselves. It presupposes some world financial support to the underdeveloped country. And those are big "supposes. . . ."

Nonetheless, what we now have are some important new proposals for self-help, and a host of new and thoughtful and affordable and socially acceptable ways for governments to intervene constructively in the lives of the poor of their countries.

And so—with the Competition on which so many people labored so long behind us—we begin.

—Walter F. Wagner, Jr.

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The International Architectural Foundation takes pleasure in announcing the winners in its International Design Competition for the Urban Environment of Developing Countries

FIRST AWARD ($35,000): **Ian Athfield, Athfield Architects, Wellington, New Zealand**

SECOND AWARD ($15,000): **Mikiro Takagi, Kunihiko Hayakawa, Keiichiro Takahashi; Takagi Design Team, Tokyo, Japan**

THIRD AWARD ($10,000): **Sau Lai Chan, Manchester, England and Kuala Lumpur, Malaysia**

HONORABLE MENTIONS ($1,000 EACH):

Hector Giron De La Peña, Mexico City, Mexico

Steven Holl, James Tanner, John Cropper; Holl, Tanner, Cropper, San Francisco, Calif., U.S.A.

Jim Fong and Robert Olwell, Reid & Tarics Associates, San Francisco, Calif., U.S.A.

Akira Kuryu, Tokyo, Japan

The IAF wishes to express its appreciation for services rendered by:

- **The distinguished international jury:** Balkrishna Vithaldas Doshi, architect (India); Eric Lyons, FRIBA (Great Britain); Moshe Safdie, PQAA (Canada); Mildred F. Schmertz, AIA (U.S.A.); General Gaudencio V. Tobias (Philippines); Takamasa Yosizaka, JAA, AIJ (Japan); William Whitfield, RIBA (Great Britain)
- **The Union Internationale des Architectes**
- **The Professional Advisors,** Gutheim/Seelig/Erickson
- **The Organizations and Individuals whose grants made the Competition possible:**

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Contributors: L'Architecture d'Aujourd'hui; Architectural Record Staff; W. R. Bonsal Company; Building Industry Development Services; CP Air; Dalton•Dalton•Little•Newport; Arthur Sworn Goldman & Associates, Inc.; Ir. E. Hendrik Grolle, RAIC; Gruzen and Partners; Harrison & Abramovitz; Hellmuth, Obata & Kassabaum, Inc.; Smith, Hinchman & Grylls Associates Inc.; Stone, Marraccini & Patterson

Special Grant: The Government of the Philippines

Habitat '76 Exhibit *Winning designs will be exhibited in The Vancouver Art Gallery during the United Nations Conference on Human Settlements (May 31-June 11) and until July 4. You are cordially invited.*

INTERNATIONAL ARCHITECTURAL FOUNDATION, INC.
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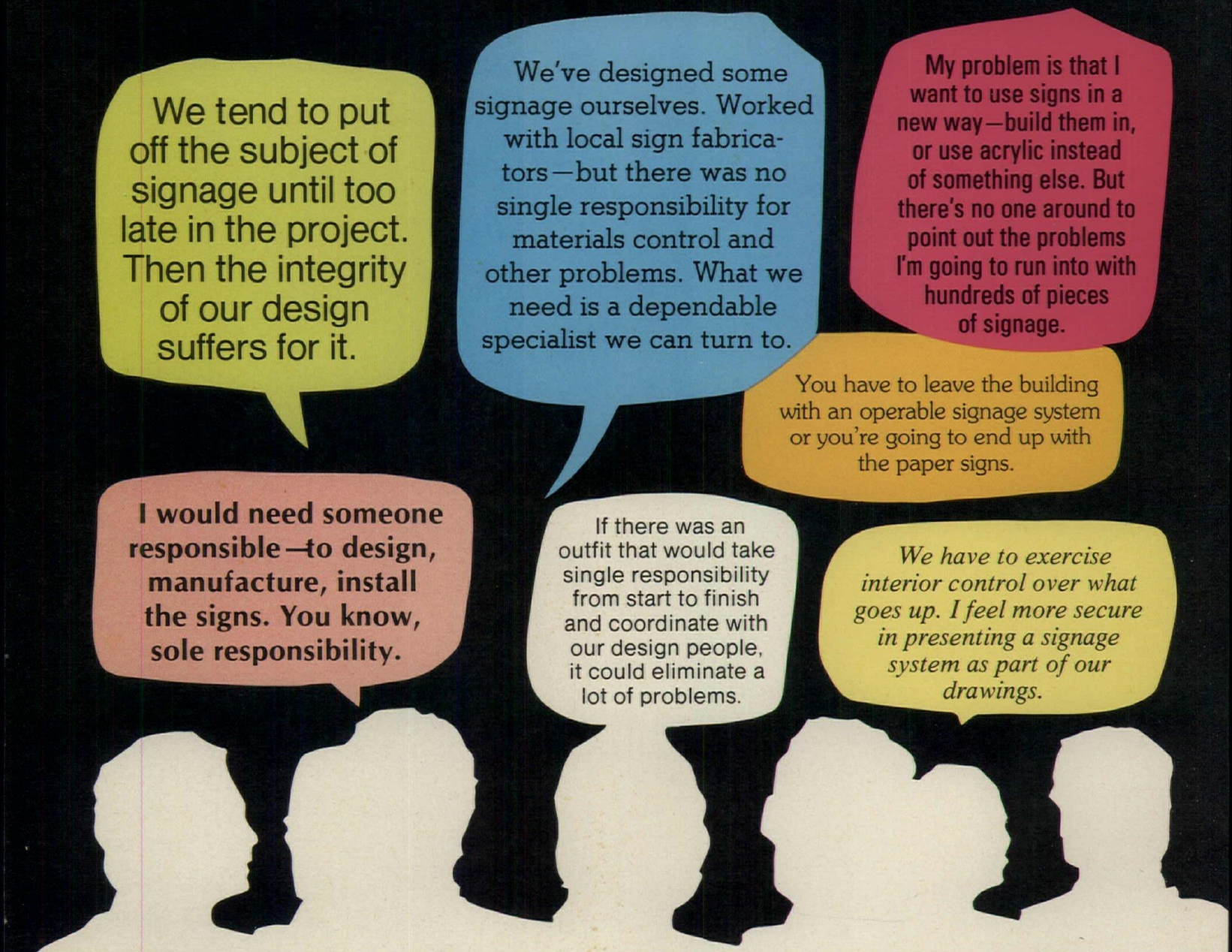

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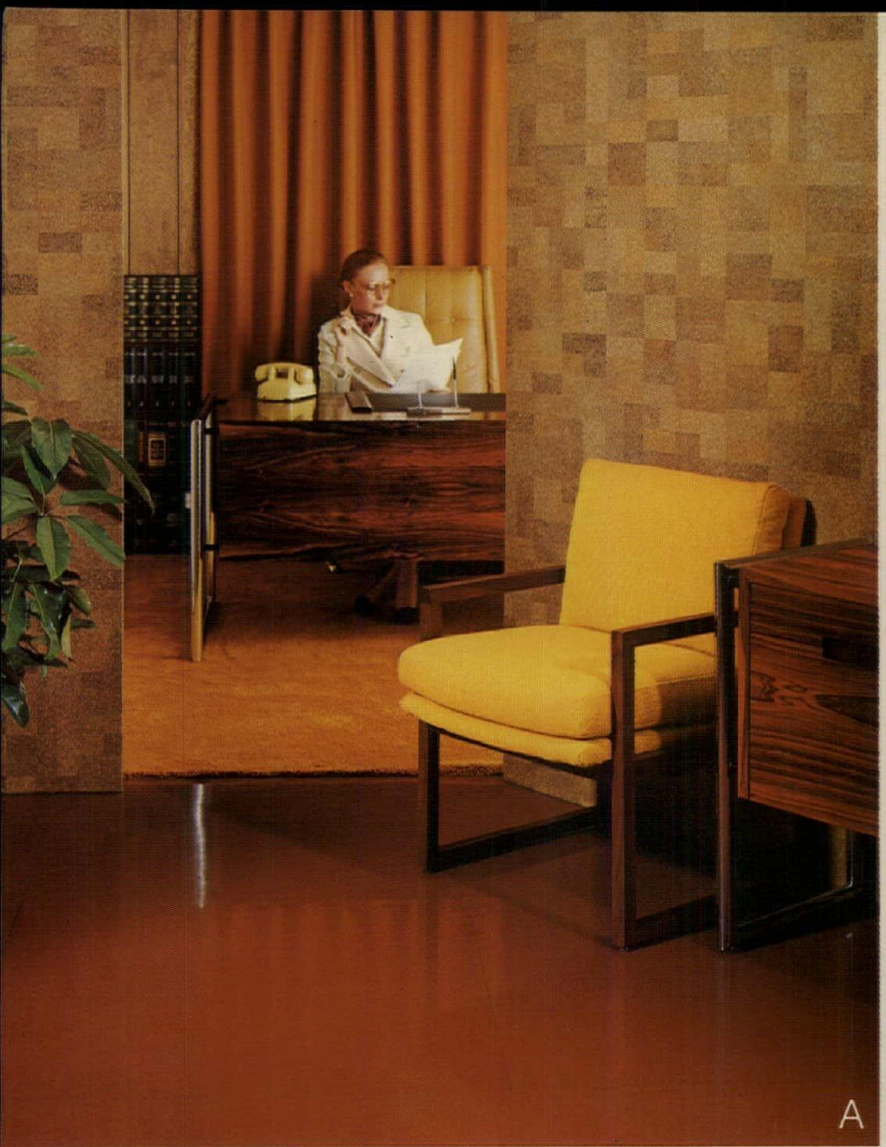

A

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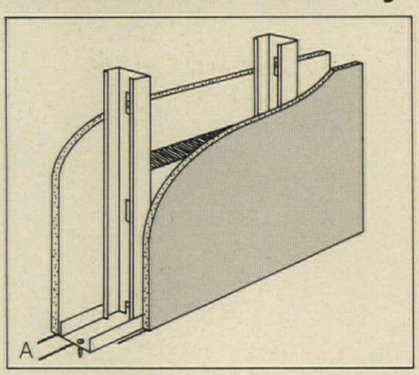
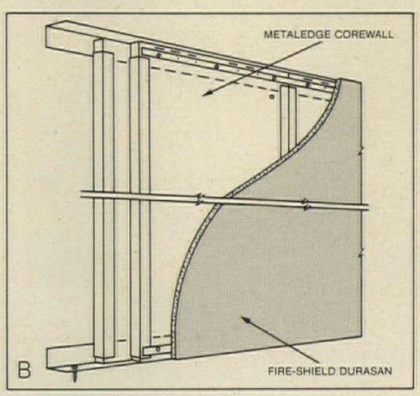
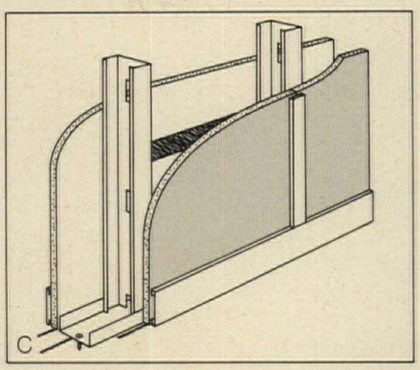


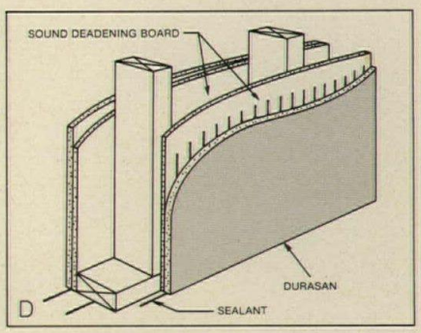
A. Upper left, the look of cork and the wearability of vinyl. Mediterranean Parquet® Fire-Shield Durasan panels over steel studs with 2½-inch Fiberglas in cavity. Sound Transmission Class 45, Fire Resistance Rating 1 hour.



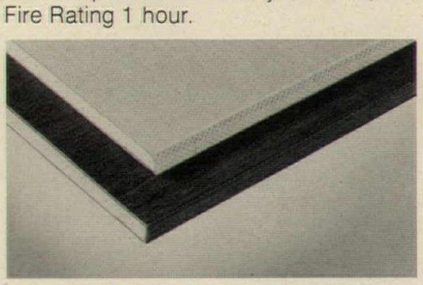
B. Upper right, 1/2-inch Fire-Shield® Durasan is applied with batten-covered screws to 2-inch Gold Bond Metaledge Corewall in the elevator area. Fire Orange Burlap is shown. Durasan is particularly effective in high traffic areas such as this. STC 36, Fire Rating 1 hour.



C. Lower left, 5/8-inch Fire-Shield Durasan in a woodgrain pattern with matching battens is used in the demountable Contempo-Wall® system. Durasan over steel studs with 3-inch Fiberglas in cavity. STC 49, Fire Rating 1 hour.



D. Lower right, 1/4-inch Gypsum Sound Deadening Board base layer is nailed to wood studs. Face layer of 1/2-inch Fire-Shield Durasan is laminated with beads of Joint Compound, nailed top and bottom only. STC 45, Fire Rating 1 hour.



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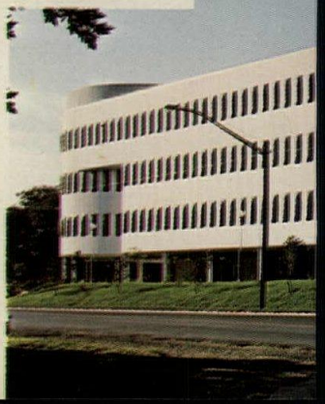

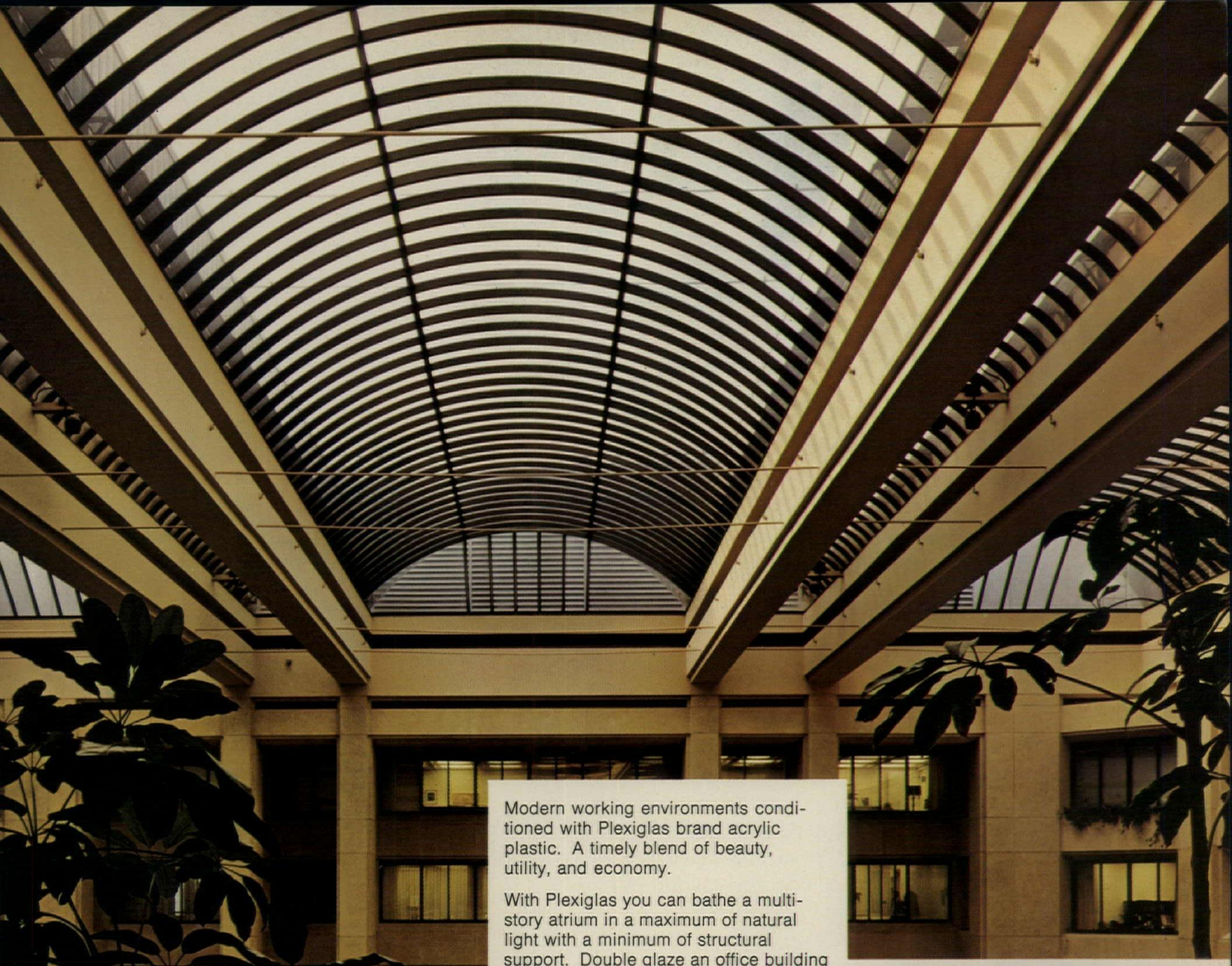

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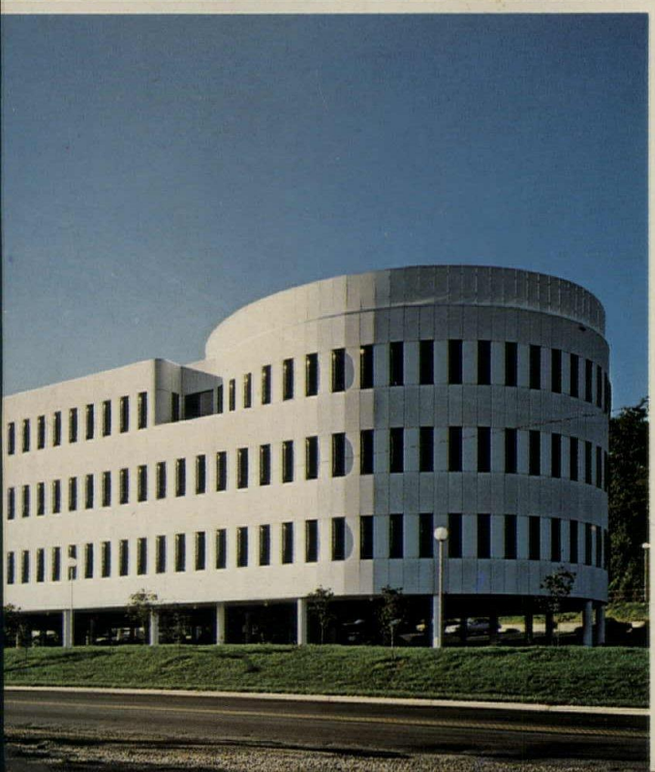
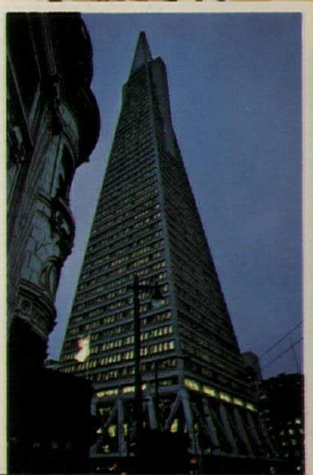


Skylight, International Monetary Fund, Washington, D.C. Architect: Vincent G. Kling & Partners, Philadelphia, Pa.

Fenestration, Ingleside Office Building, McLean, Va. Architects: Segreti, Stillwell & Hasselman, Washington, D.C./Francis L. Koenig, McLean, Va.

Luminaire Lenses, Transamerica Pyramid, San Francisco, Cal. Architect: William Pereira & Associates, San Francisco, Cal.



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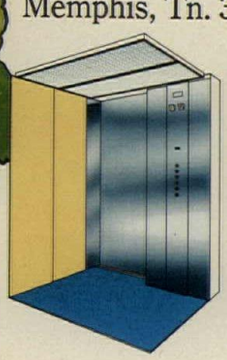

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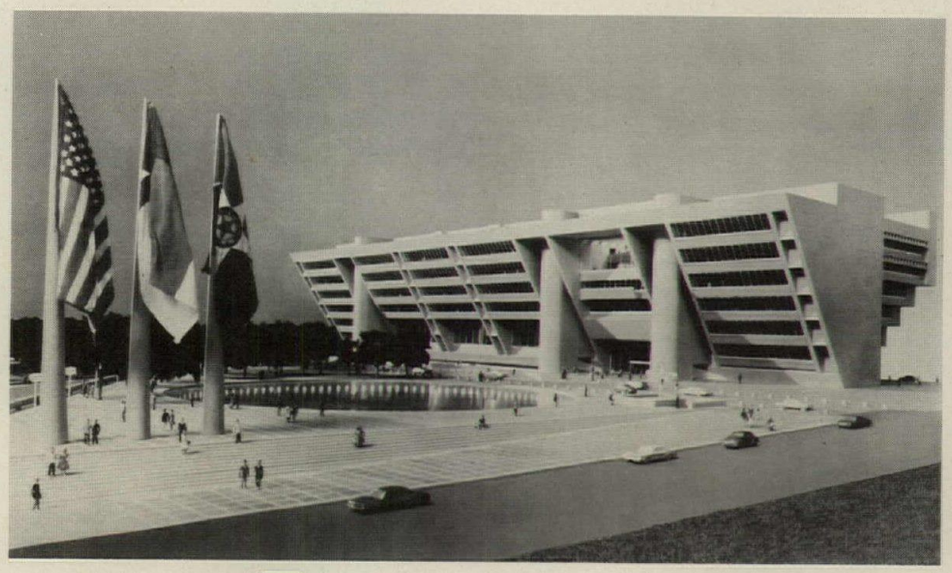

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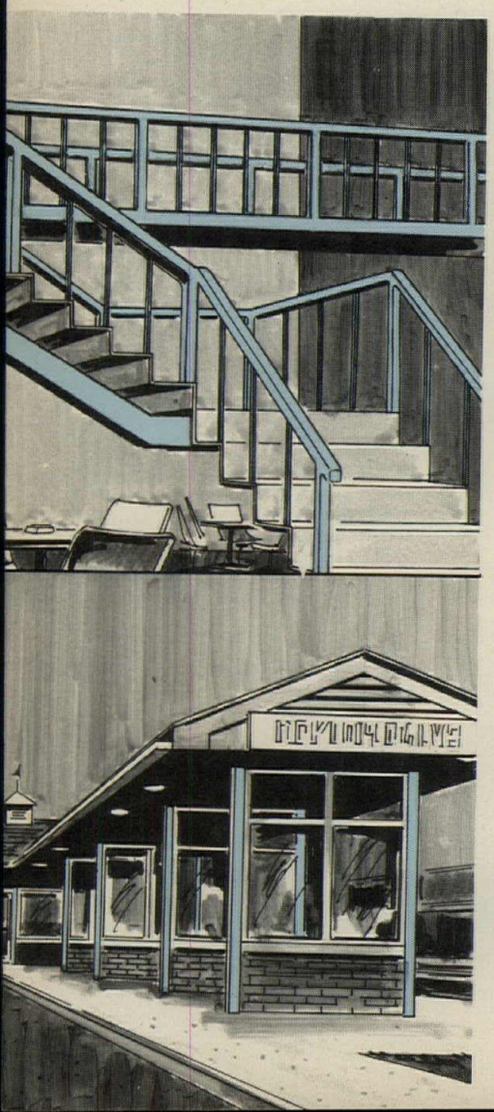

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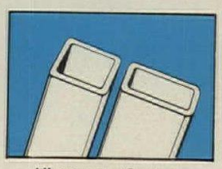

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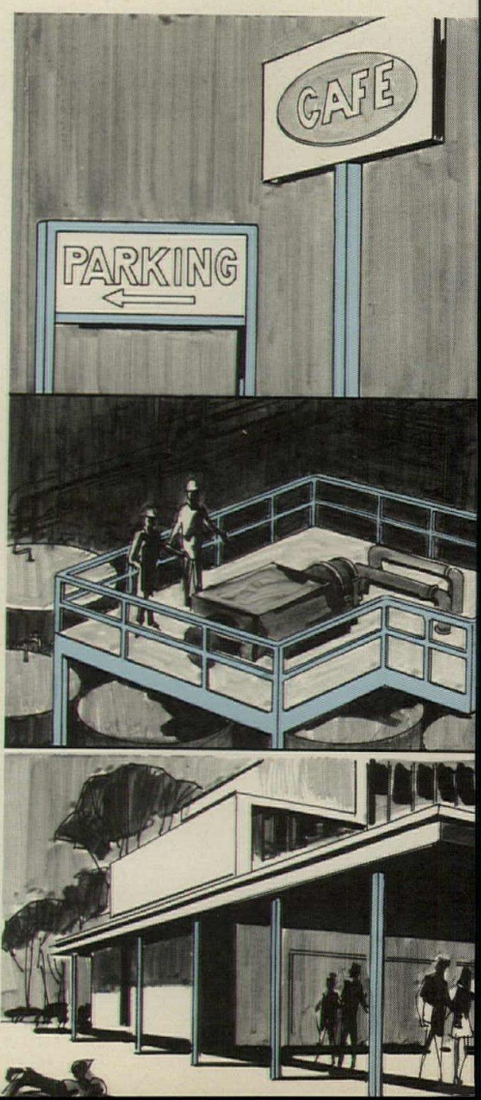

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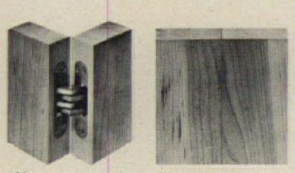

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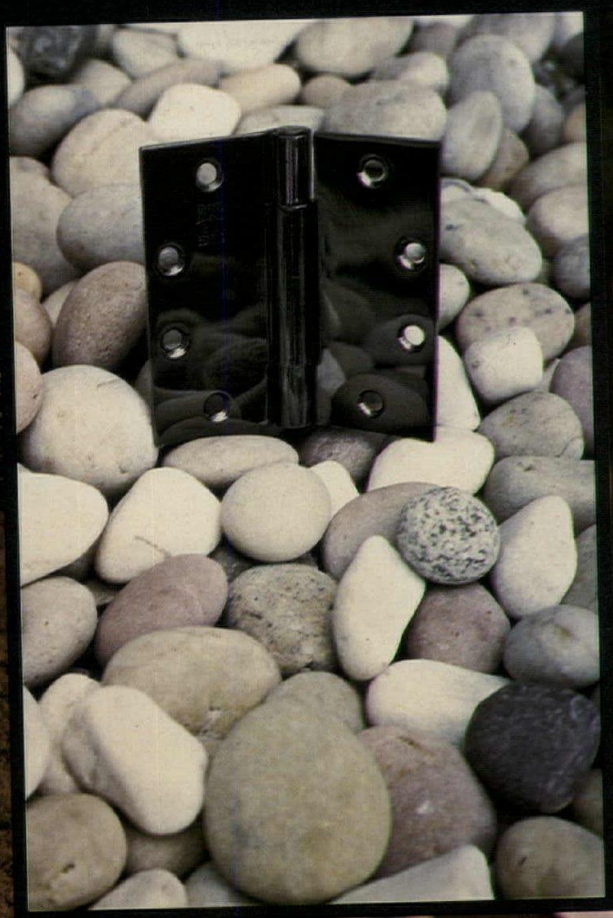

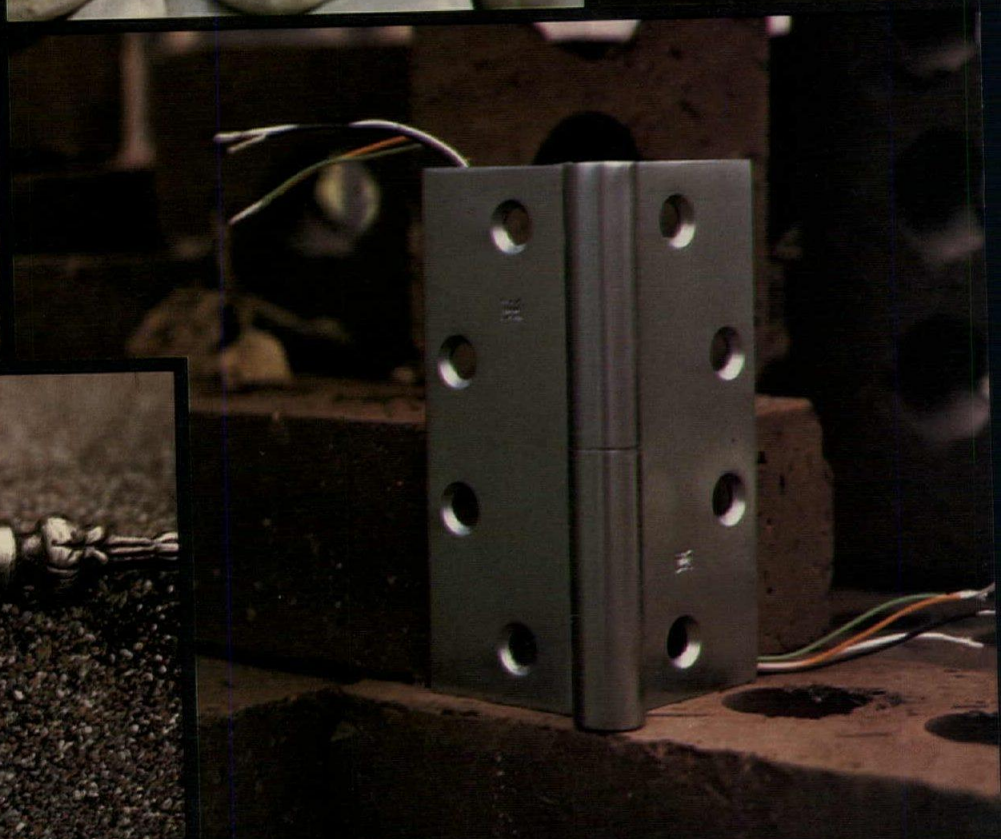

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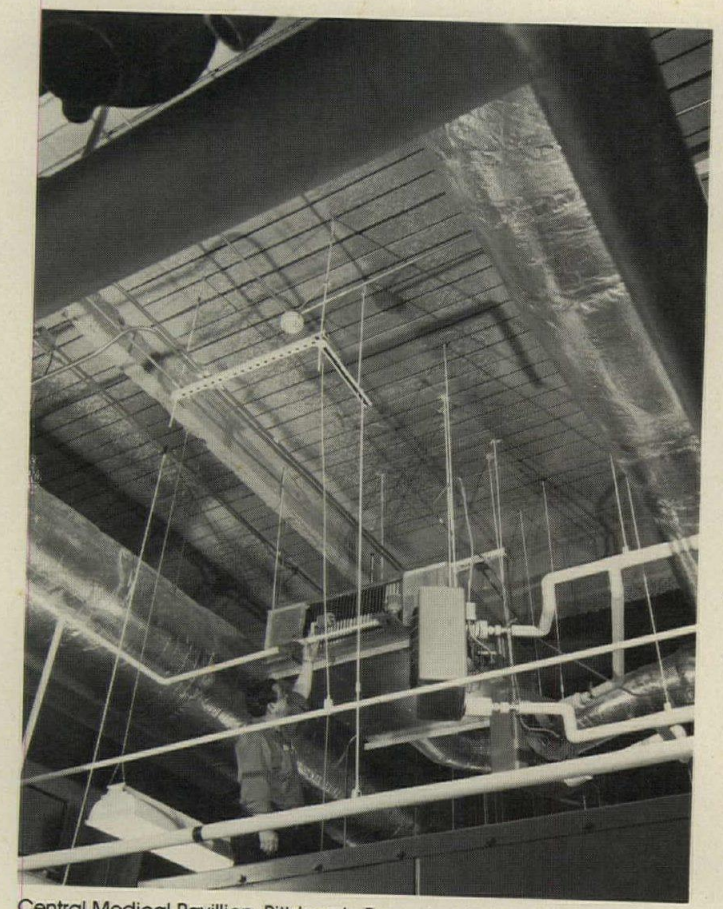

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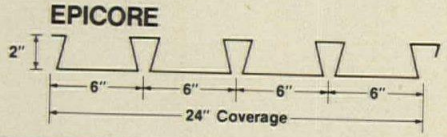
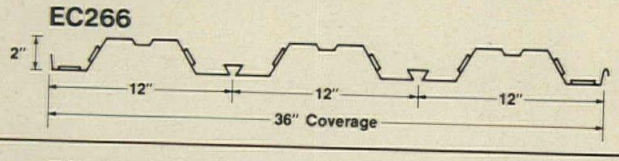
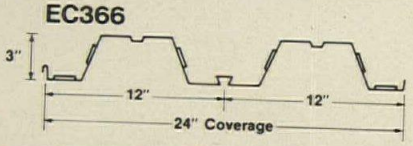
EPICORE 	Continuous	6"	Standard/200 lbs. Wedge bolt/1000 lbs.
EC266 	Continuous	12" & 24" at alternating intervals	Standard/100 lbs.
EC366 	Continuous	24"	Standard/100 lbs.

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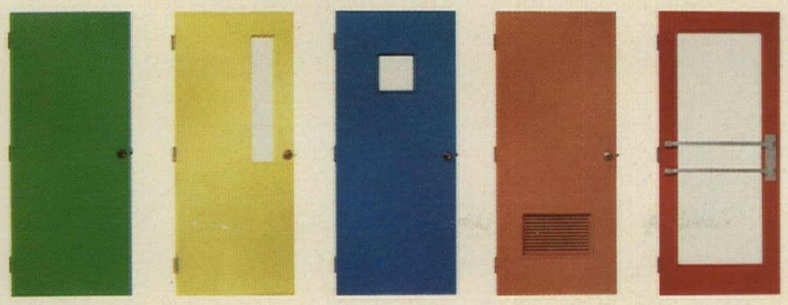

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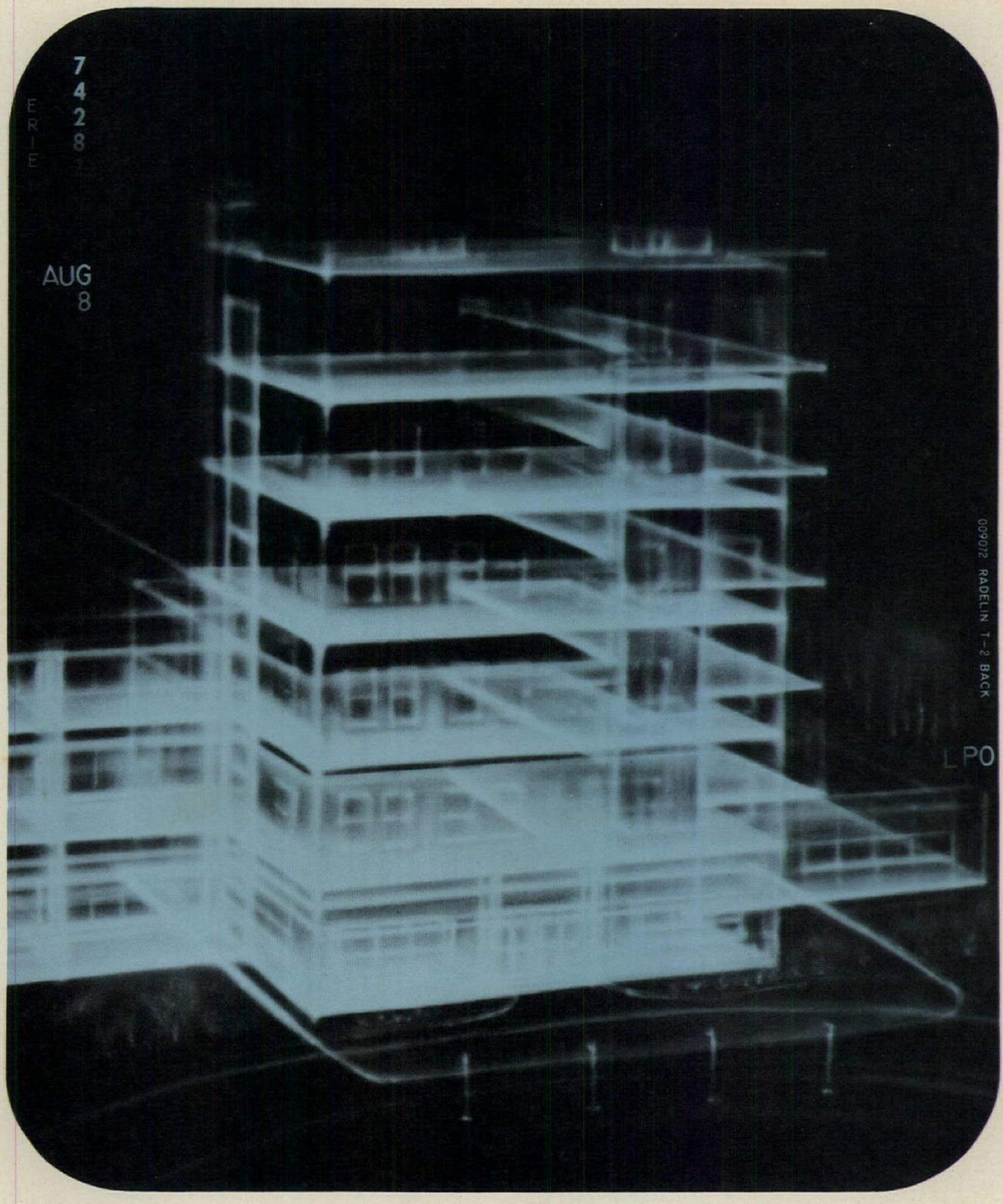

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Architect Ian Athfield of New Zealand took the $35,000 first prize in The IAF International Design Competition for the Urban Environment of Developing Countries Focused on Manila. The competition involved regional planning for the Dagat-Dagatan Resettlement Area, as well as housing design. Details and the names of other winners on pages 13, 15, and 37.

December construction contracts totalled $5,431,239,000, a 23 per cent drop from December 1974, according to year-end Dodge figures. The 1975 total of $90 billion, 4 per cent less than 1974, marked the second consecutive annual decline in construction contracts. Most of the December 1975 decline was due to a fall-off in energy-related nonbuilding construction, but nonresidential building was off 19 per cent for the month. "December's slippage confirms that the early 1975 recovery is going sour," says Dodge economist George A. Christie. Though he believes chances are good for improvement in 1976, Christie adds, "It is now quite clear that the industry's initially strong recovery failed to survive the Ford Administration's 1975 'go-slow' economic policy of tight money and cutbacks in social programs."

An Affirmative Action Plan for Women in the Architectural Profession and the American Institute of Architects has been adopted by the AIA, aimed at increasing the number of women architects, at equalizing pay and promotion opportunities, and at encouraging greater participation among women in Institute activities. Details on page 35.

Governmental design staffs have been accused of competing with private firms for architectural and engineering work by the American Consulting Engineers Council, which has undertaken lobbying efforts to urge preventive legislation. Details on page 37.

From the professional ethics front: the American Bar Association has moved to allow advertising by its members, at least in the Yellow Pages, though not in newspapers or consumer guides. Ads may include information on fields of concentration, names of regular clients, and, to an extent, fees. The action is a response to recent Supreme Court rulings, as well as to consumer advocate pressure and rumors of Justice Department suits.

The American Institute of Architects has named 10 persons outside the professional Honorary Members of the Institute: Weld Coxe, Philadelphia management consultant; Dwayne E. Gardner, executive director, Council of Educational Facility Planners; Gordon Gray, chairman emeritus, National Trust for Historic Preservation; Andrew Heiskell, chairman and chief executive officer, Time, Inc.; Henry A. Judd, chief historical architect, National Park Service; Sen. John L. McClellan (D.-Ark.); S. Dillon Ripley, secretary, Smithsonian Institution; Vincent J. Scully, Jr., professor of art and architectural history, Yale University; Pete Wilson, mayor of San Diego; and William Zeckendorf, New York real estate developer. In addition, three executives of AIA components have received honorary memberships: Marie Laws Farrell, executive vice president, Northern California Chapter; Jay C. Leavell, executive secretary, Alabama Council; and Ann Stacey, executive director, Michigan Society of Architects and the Detroit Chapter.

A proposed law in New York City would allow private architectural and engineering firms to inspect construction and certify code compliance, a measure intended to forestall further bribery scandals. Details on page 34.

The Civil Service Commission will offer a new examination for architects, interior designers and landscape architects. Applications, which require submission of a portfolio, will be accepted April 1-30. Details on page 34.

The AIA Association of Student Chapters elected Gerald R. Compton president at the ASC/AIA Forum in Tempe, Arizona, November 23-29. Mr. Compton is a student at the Southern California Institute of Architecture in Santa Monica. The new vice president is Robert Rosenfield, a master's candidate at the University of California at Berkeley.

A new Sweet's file, the Engineering Catalog File, is now being distributed by the McGraw-Hill Information Systems Company to consulting engineering and architectural/engineering offices, engineering departments of corporate and government planning and design offices, design/construct offices and mechanical contractors. Catalogs in the five-volume Comprehensive Edition and the two-volume Summary Edition cover hvac equipment, conveyances, plumbing equipment, fire protection and smoke control equipment, and energy conservation equipment.

The American Society of Planning Officials seeks information on experience with public-buildings re-use programs for a projected report on recycling such buildings. Further information is available from Judith Getzels, Senior Research Associate, ASPO, 1313 East 60th Street, Chicago, Illinois 60637 (312/947-2575).

A competition for six-month design fellowships at the American Academy in Rome has been announced by the Academy, in conjunction with the National Endowment for the Arts. Architects applying must hold a B.A. degree and a license, must have five years experience, and must presently be engaged in practice. For information: American Academy in Rome, 41 East 65th Street, New York, New York 10021.

Ford and Congress disagree on building recovery measures

A tug-of-war pitting the Democratic Congress against President Ford and his GOP allies will dominate construction's economic picture in 1976. Democrats hope to snap the economy out of its doldrums with direct Federal spending for public works projects that employ large numbers of construction workers. Ford, believing that economic conditions are already improving, favors business incentives to encourage private investment in new construction efforts.

Both sides are noisily pushing their views in anticipation of the Presidential and Congressional elections in November. There are unmistakable indications that the state of the economy—and the construction economy in particular—will be a central factor in the election struggle.

Neither side offers a very promising outlook for this year. The White House says unemployment will remain in the seven per cent range throughout the year. Various Congressional plans would attempt to increase employment by 600,000 to 800,000 workers and reduce the unemployment rate to around six per cent—still far short of the four per cent level that is considered "full employment."

The Republicans are banking on a return to greater confidence by businessmen that will entice them to invest more heavily in new plants and equipment. Tax credits would be offered to encourage this.

But right now economists estimate that only 75 per cent of the industrial capacity in the country is being utilized. Many feel the percentage must improve substantially before businessmen will make substantial new investments.

Ford Administration economists, on the other hand, take a more optimistic view on the outlook for industrial building, arguing that the high price of energy has quickened the obsolescence of manufacturing facilities and thus will force replacement of old facilities. Moreover, many manufacturing businesses are expected to have cash surpluses by mid-1976 and so have another reason for making large capital investments.

With these economic conditions and the elections firmly in their minds, the lawmakers and the White House will try to fashion their distinctly different plans for recovery.

President Ford has proposed a Federal budget for the fiscal year beginning October 1 that calls for spending $395 billion, collecting $350 billion in revenues, and winding up with a deficit of $40 to $45 billion. Congressional Democrats want to spend about $420 billion, collect $370 billion in revenues, and contend with a deficit of about $50 billion.

Ford's budget calls for reduced spending levels for most Federal construction programs except energy research facilities and mass transit. Housing programs are virtually unchanged in the budget, though the President's Council of Economic Advisors is predicting a surprisingly high new-starts figure: 1.75 million by the end of this calendar year.

Coupled with this, the budget proposes reduced corporate income taxes, special incentives to build new manufacturing facilities in areas of high unemployment and special inducements for home mortgage lending institutions.

The Democrats will counter with their public works jobs creation proposals, tax breaks for low- and middle-income individuals, and accelerated spending for highways and water resource projects.

President Ford's plan to combine scores of categorical grant programs to states into four block-grant programs will get a close going over by the Congress. Covered would be housing and urban renewal programs, health and welfare. The outcome is too close to predict, though the Congress's initial reaction to the plan was negative.—*William Hickman, World News, Washington.*

Conferees study taxation and architectural preservation

Some 200 architects, fund-raisers, and civic-minded citizens interested in architectural preservation met in Washington February 5-6 to try to work out a tax strategy that would make it more economical to rehabilitate old buildings rather than to build new ones. They quickly broke into camps that make a united lobbying front look highly unlikely.

There was agreement at the two-day meeting, sponsored by the National Trust for Historic Preservation, about the way current tax laws draw those with investment capital to new building rather than to redoing existing structures. The tax breaks that most tempt developers to sacrifice old buildings for new construction include the loss deduction that can be taken when an old commercial building is demolished, and accelerated depreciation—worth twice what straight-line depreciation is worth for new apartment units in the first year.

A number of bills currently in Congress would put a finger on the scale in favor of preservation, giving to substantially rehabilitated buildings many of the extras now the special advantage of new construction, and adding some special penalties for developers who tear down the finest old structures: limits on the deductibility of demolition costs, for instance, and a ban on accelerated depreciation of new construction on the cleared site. But the Congressmen who came to the conference made it clear that the bills have only a slim chance of passage, and that only if preservationists whip up a solid grassroots campaign for them. Said Sen. J. Glenn Beall, Jr. (R-Md.): "We just don't get enough people writing and saying, 'I support your bill.'"

The only kind of bill that could get through, the Capitol Hill sources agreed, is a very narrow one, limited to buildings on the National Register and, perhaps, similar state certified lists. But many of the preservation forces are committed to keeping alive buildings that do not have the cachet of National Register structures. Architect James Duggan, executive director of the FOCUS Redevelopment Corp. in Schenectady, for instance, argued that more important building recycling jobs are those that help keep older downtowns bustling. Tax relief broad enough to cover that kind of commercial building, however, would cost the U.S. Treasury between $200 million and $300 million a year, estimates Rep. Barber Conable (R-N.Y.)—far more than is politically palatable to the Ways and Means Committee.

Another practical objection raised by Conable to broad tax help for recycling: "Rehabilitation is very often not done by union labor, and new construction usually is."

Actually, the conference threw some doubt on the ability of tax law changes to pull substantial amounts of money from new construction to renovation. A few states have on their statute books tax carrots for restoration—New Mexico allows restoration costs to be applied as a credit to local property taxes, Connecticut allows a property tax abatement if high rates threaten to force demolition of an old structure—yet they have virtually never been used. And high-rise developer Oliver T. Carr ticked off a list of rehab problems that he says keep him out of the market: difficulty in estimating costs because of unknowns in the old structures, absence of parking, difficulty of financing, "the demand on the part of the consumer for shiny new space."

In fact, case studies of successful commercial rehab projects suggested that often it was something other than economics that drew in the money. Peter Brink, executive director of the Galveston Historical Foundation, on the eve of signing a contract with a local oil tycoon to buy an old ironfront building in the Texas seaport, pointed to one of the biggest pluses that involvement in restoration can give an investor: "positive recognition value in the community."—*Dan Moskowitz, World News, Washington.*

Civil Service Commission offers new exam to architects

The Civil Service Commission has announced a new examination for Federal environmental design positions—architects, interior designers and landscape architects. Applications for these positions will be accepted April 1-30, after which receipt of applications will be suspended until further notice. Applicants who are qualified by the portfolio review board will be placed on a list of eligibles for GS-5 ($8,925 starting) through GS-12 ($19,386 starting) positions in Washington and overseas (except for the Pacific).

The new examination, designed to raise the professional standards for Federal design positions, results from recommendations made by a 1972 Presidential task force which studied ways in which design talent could be more accurately identified and evaluated. Applicants, rather than being evaluated solely on résumés of education and experience, will submit portfolios of 16 to 20 35mm slides and supplemental information on their work; portfolios will then be examined by panels of Federal and private experts.

An announcement of the examination, applications and supplemental forms will be available in mid-March at local Civil Service Commission Federal Job Information Centers. Portfolios must be postmarked no later than May 20.

New York City code revision allows architects to inspect

In an effort to prevent repetitions of the Buildings Department scandals that have occupied headlines over the past five years, Mayor Abraham Beame has offered the New York City Council a bill that would alter procedures now used to inspect building construction and to certify code compliance.

Under the proposed law, building owners would engage private architects and engineers to grant certification, a function now restricted to Buildings Department officials. (Examination of plans and specifications would remain the responsibility of the Buildings Department, as would inspection of buildings costing less than $150,000, rising less than 15 stories, or having fewer than 40 residential units.)

Architect Martin Raab, chairman of the public agencies committee of the New York Chapter, American Institute of Architects, which worked with the Mayor's office in preparing the bill, points out that the proposed practice is customary in many places outside New York City. He cites as a major advantage of architects' involvement the expedition of field inspection—bribery is generally undertaken to hasten certification rather than to buy a code violation.

Only architects and engineers qualified by the city would be able to issue certificates, but professionals so qualified would be allowed to approve projects on which they have worked themselves.

The bill, over a year in preparation, had considerable input from the Buildings Department, which strongly favors its adoption as an alternative means for owners to obtain construction approval. (Only incidentally, since the bill's drafting preceded the city's financial difficulties, an additional advantage for the Buildings Department would be to relieve pressure on its personnel budget.)

One of the difficulties presented by the bill may be the inability of many design professionals, for lack of practical experience, to perform adequate inspection. Mr. Raab reports that

the city has been asked to issue a set of standards of inspection, similar to those presently used by Buildings Department officials.

The proposed legislation also raises a number of questions of professional liability, the implications of which are being examined by the New York Chapter, and which are likely to stimulate spirited discussion among architects and engineers over the coming weeks.

AIA affirmative action plan attacks sex discrimination

Two years of study by the American Institute of Architects' Task Force on Women in Architecture have culminated in the Institute's adoption of an Affirmative Action Plan for Women in the Architectural Profession and the American Institute of Architects.

The plan proposes action in three main areas: (1) an increase in the number of women in the profession, (2) correction of inequities in hiring, salaries and advancement, and (3) greater participation by women in Institute activities.

In the first area, largely focused on architectural education, the plan stipulates that women students should account for 10 per cent of the schools' enrollments in 1976-77, with the percentage rising to 23 in 1979-80. The plan also calls for an increase in the number of women on architectural faculties, to 10 per cent in 1976-77, and to 15 per cent in 1979-80. This program would require considerable effort to change the image of the profession among prospective women students and to disseminate career guidance materials.

In the second area, the program aims for complete parity of salaries for men and women by 1980, with complete parity of starting salaries by 1979. Specifically, women should be earning 70 per cent of men's salaries by 1976, 90 per cent by 1979. (At present, women's salaries are 28.64 per cent less than men's.) Suggested actions include the incorporation of guidelines on employment practices in the Handbook of Professional Practice, the development of articles on legal and ethical aspects of employment discrimination for the *AIA Journal*, and greater involvement of women in the Intern Development Program.

In the third area, the plan calls for an Institute membership drive among women architects. Moreover, women members of the Institute should be mustered for more active committee participation—19.5 per cent of women AIA members should be on committees by 1976, 25 per cent by 1979. The AIA is expected to offer help to regional and committee chairmen in finding qualified women for committee assignments.

Co-chairmen of the Task Force were Judith Edelman and Marie Laleyan. Other members were Natalie DeBlois, FAIA, Patricia Schiffelbein and Jean Young.

Illinois bicentennial celebration glorifies state's architecture

The Illinois Arts Council has used the state's architecture as the foundation of its ambitious bicentennial program, "Illinois Architecture: Revolution on the Prairie."

Central to the program is a group of 26 exhibitions that will travel around the state. The series includes, in addition to several shows devoted to Chicago architecture, exhibitions on courthouses, on 19th-century architecture in Quincy and Adams counties, on Pullman—a 19th-century company town, and on terra cotta ornamentation.

The Arts Council will also establish ArchiCenter in Chicago. Administered by the Chicago School of Architecture Foundation, it will provide architectural tours and exhibits, films, slides and books. It will also sponsor a mobile extension, ArchiVan, which will tour the state.

Beyond these, program plans include a mini-course on architecture for Illinois schools, a number of architectural film and slide shows, sponsorship of two architects-in-residence at schools in Chicago and downstate, conferences and lecture series, and five guidebooks.

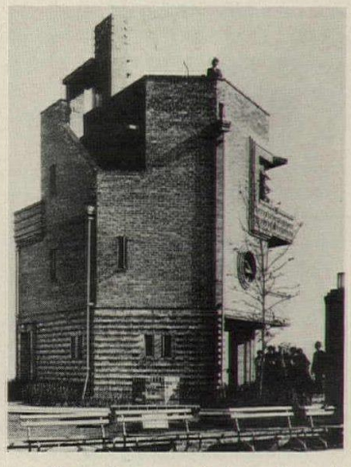
As part of its Bicentennial program, the Arts Council has provided funding for two major architectural exhibitions—"100 Years of Chicago Architecture: The Continuity of Structure and Form," and "Form, Space and Symbol in Chicago Architecture."

The first, which has already been seen in several European cities, will be on display at the Museum of Contemporary Art from May 1 to June 20. Conceived by Oswald W. Grube, the exhibition focuses on "the structural and rational approach to architecture," and includes the work of more than 120 architects. (The exhibition is partly funded by the Graham Foundation for Advanced Studies in the Fine Arts.)

The second exhibition, organized by architects Stanley Tigerman, Ben Weese, Stuart Cohen and Laurence Booth, aims to show Chicago's architectural achievements independent of the development of steel-frame construction, which has largely occupied the attention of 20th-century critics and historians.

The purpose of the exhibit, say its organizers, is to take a new look at buildings forgotten in most modern interpretations of Chicago architecture, and "provide a more complete picture of Chicago's architecture, putting better known work in a new perspective."

The exhibition will include the work of more than 40 architects, among them David Adler, S. S. Beman, Bertrand Goldberg, George Fred Keck, William Pereira, Andrew Rebori, Paul Schweiker, Louis Sullivan, Mies van der Rohe, Harry Weese, Philip Will and Frank Lloyd Wright. (The collection includes two buildings designed for the Chicago World's Fair in 1933: the House of Tomorrow above, by architect George Fred Keck, and the masonry building below, by architect Andrew Rebori.)



Currently on display, through March 27, at Cooper Union in New York City, the exhibit is scheduled to open in Chicago on May 20 at the Time-Life Building. It will also be seen at Harvard University, the University of California at Los Angeles, and throughout the state of Illinois as part of the Art Council's bicentennial celebration.

Convening homebuilders show a cautiously upbeat mood

What will it take to turn the housing industry around after three years of severe depression? Perhaps equally important, how can stabilization be achieved for an industry more subject than any other to cycles of boom or bust?

These were the questions presented to 50,000 members of the National Association of Home Builders when it held its 32d annual convention-exposition in Dallas, January 18-21.

With the industry coming off one of its worst production years, there was some cheering news in Dallas, and a feeling of general optimism. Michael Sumichrast, NAHB's head economist, predicted that an improvement in the economic trends of the nation will push 1976 housing starts to 1.5 million, an increase of 330,000 over 1975. Mr. Sumichrast said the trends that will make for an improvement over the 1.17 million starts last year include a rising demand for housing, an improvement in personal income, an increase in real growth of the economy, and a continued rise in investment through personal savings. Increased flow of savings into institutions will mean more home mortgage money, with rates likely to drop during 1976 by ½ percentage point.

Taking over as new president of NAHB, John C. Hart of Indianapolis said homebuilders will urge the Federal government to:

- Make prompt commitments to buy the $3 billion in insured apartment mortgages authorized by the Brooke-Cranston Act (see Architectural Business, page 68).
- Help fund single-family housing by releasing the additional $2 billion in Brooke-Cranston funds being withheld by HUD.
- Offer a tax exemption to small investors in savings accounts used for home mortgage purposes.
- Eliminate the tax exemption on pension funds unless a certain percentage of their assets is invested in home mortgages.

Sen. Edward Brooke (R.-Mass.) addressing the builders stated that he would introduce a bill to provide $1,000 down-payment grants to homebuyers on the initial purchase of a new home if there is not any evidence soon that the housing situation is improving.

Brooke also saw no reason not to expect all of the $5 billion of the Brooke-Cranston funds to be spent, and Sen. Hubert Humphrey (D.-Minn.) said that the bill called for complete expenditures of the money. If it wasn't spent, he said, "there would be hell to pay in Washington."

Rep. Henry Reuss (D.-Wis.) proposed attacking the nation's depressed housing market by coordinating the existing housing programs into a multi-family package, and by improving the way the nation's financial institutions channel money into housing. —*Charles E. Hamlin.*

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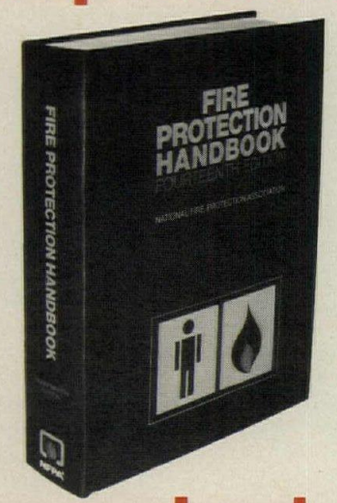

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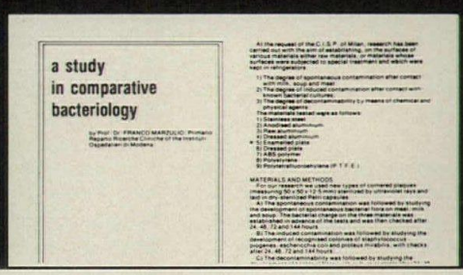
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ACEC deplores competition from government design staffs

Private architectural and engineering firms are increasingly worried about a new kind of competitor for the shrunken design dollar: the in-house design staffs of Federal, state and local governments.

The American Consulting Engineers Council is launching a counterattack, asking that other design societies join the battle. They want various legislative bodies to make it plain to in-house staffs that they should not invade the private design market.

Billy T. Sumner, ACEC president, says many agencies increased the size of their staffs while work loads were heavy a few years ago instead of hiring private firms for the peak loads. Now, with the work tapering off, the unnecessarily large staffs are hungrily gobbling up any kind of work they can get, including jobs traditionally done by private firms.

The most celebrated instance had California's highway department engineers actively vying for design work in Saudi Arabia. This effort was abandoned, but Sumner offered a long list of other instances where government agencies have attempted to lop off private work, including a bid by the General Services Administration to design expanded facilities in Colorado for another Federal agency.

Resolutions are pending in both the House and the Senate to put Congress on record opposing further encroachment. The White House Office of Management and Budget (OMB), however, thinks it may make the resolutions unnecessary by reworking instructions to Federal agencies that govern the functions of agency staff designers.

The government staff designers and unions representing government employees do not view their efforts as encroachment. Rather, they see private designers trying to reduce their natural role in performing design work.

In any event, the ACEC has increased its government affairs budget by $100,000 and charged the newly beefed-up lobbying operations with fighting the battle for private firms.—*William Hickman, World News, Washington.*

ERDA okays solar collectors and drops Citicorp project

The Energy Research and Development Administration has published its first "buy list" of 36 approved solar heating systems. Only manufacturers whose systems are on the list will be used by the Department of Housing and Urban Development and the Department of Defense for solar demonstration units.

The 36 systems receiving an immediate stamp of approval were selected from 130 submitted by manufacturers. The systems were reviewed separately by an inter-agency governmental panel and by a panel of consultants selected by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. The groups rated the systems as technically acceptable, acceptable with further testing, or needing more development. Additions to the list will be made as new systems qualify, an ERDA spokesman says.

Both HUD and DOD have announced that they will sponsor as many as 150 demonstration systems within the next few months. ERDA also has plans to spend about $4 million on 15 to 20 demonstration projects this spring.

On another front, ERDA dropped its plans to cost-share a solar cooling system for Citicorps' new 56-story center in New York City when anticipated annual savings fell from $50,000 to only $3,000. That action came after the National Science Foundation had made a $186,000 grant to the Massachusetts Institute of Technology last year to study the feasibility of the system.

The shift in economics came after engineers for the building decided to use more recirculated air in cooling the building than originally planned. Initially, the cooling system was to dry outside air by spraying it with triethylene glycol in order to remove moisture. Solar heat would then be used to heat the desiccant for reuse. To install this system would have cost about $1 million more than a conventional plant, with ERDA sharing costs with Citicorp. But it would have produced an estimated $50,000 a year in energy savings. By recirculating the air, the solar system's net savings dropped to only about $3,000 a year, making it economically unattractive.—*Seth Payne, World News, Washington.*

John Burchard, MIT dean and architectural critic, dies at 77

John Ely Burchard, dean emeritus of the School of Humanities and Social Science at the Massachusetts Institute of Technology and well-known as an architectural critic and historian, died in Boston December 25, 1975, at the age of 77.

Burchard, who graduated from MIT as an architectural engineer and who subsequently served in private practice and government, returned to the university in 1950 as its first Dean of Humanities and Social Science. He remained in that post until his retirement in 1969.

An indefatigable observer of architecture and an industrious writer, Dean Burchard was a frequent contributor to ARCHITECTURAL RECORD in the fifties and sixties, providing the magazine with many commentaries on contemporary architecture as well as critical reports on architecture abroad. He also wrote a number of books on architecture, and at the time of his death had completed *Bernini Is Dead? Architecture and the Social Purpose,* to be published this month by Scholarly Books, a division of McGraw-Hill.

UIA drafts a charter on human settlements for Habitat '76

The International Union of Architects (UIA) has delivered a "Charter of Habitat" to the Secretary General of the United Nations conference Habitat, to be held May 31 through June 11 in Vancouver. Drawn up by UIA's Habitat working group in Kazimierz, Poland, in November, the four-part charter states the principles that the UIA believes should guide national and international decisions regarding human settlements.

The charter's first part, entitled "Man," states that "by nature of his natural creativity, man has the inalienable right to express himself freely in the shaping of his own immediate environment, independent of any given model, and to participate as directly as possible in all decisions affecting his broader environment."

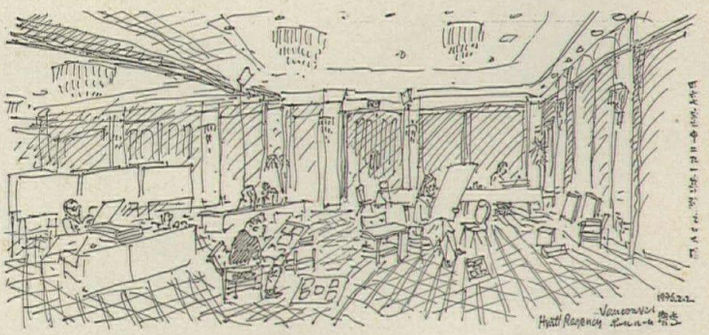
Under the second section, "Man and Society," the charter states that the "fulfillment of the spirit of man in his habitat demands that the primacy of cultural and spiritual functions over material and technical contingency be ensured." Among the arguments of part three, "Nature and Site," is the statement that "human settlements must enhance the ecological and cultural characteristics of their natural or built sites." Part four, "Physical Means and Technology," includes the claim that "inseparable from the culture it expresses, all technology must be compatible with the natural conditions and the material and human resources of its context, in place and time."

UIA Secretary General Michel Weill said the organization will be present at the conference in the role of observer. "What we have been aiming for is the right to be present at the time political choices regarding Habitat are made," Weill comments. "Too often, the architect is not present at that moment, and afterward he finds himself enslaved by regulations and plans he had no part in. The architecture is thus written before it's designed."

Weill admitted, however, that architects have had a tendency to accept their exclusion from the planning process too passively. "We have allowed ourselves to follow," he says, "often attaching more importance to regulations than to even moral or religious rules."

As part of the Forum which will parallel the conference, the UIA will organize workshops and exhibitions around the themes "Let's Build with Nature" and "Build Your Habitat." The workshops will be run in conjunction with other nongovernmental organizations, including FIHUAT (urbanism), ICSIC (industrial design), ICOMOS (historical monuments) and IFLA (landscape architecture). In addition, Weill says the UIA is considering distributing posters that represent graphically the organization's two main themes, and is working to contact television producers to encourage local reporting of the conference.

Weill says the UIA, if asked to speak at the conference itself, will take "merely a minute—to remind the delegates of the charter and to emphasize that the factors we group under our main theme must be written in the heart, not only on paper."—*Ken Jacobson, World News, Paris.*



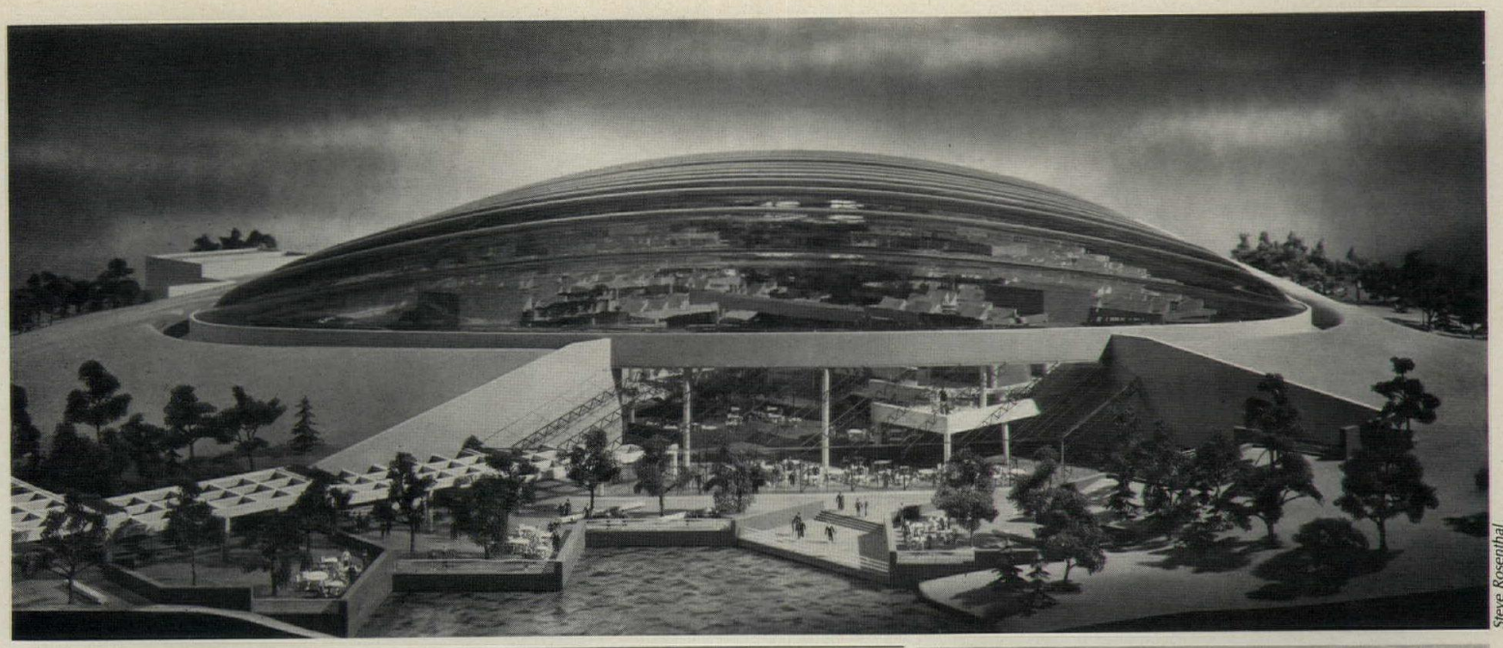
Habitat '76 exposition will display IAF competition winners

Throughout the Habitat conference period, The International Architectural Foundation has arranged for an exhibit of the winning designs and other materials from its International Design Competition for the Urban Environment Focused on Manila. The exhibition will be at the Vancouver Art Gallery, and will include a visual display of the conditions of housing around many cities in the developing world, including a multi-screen presentation on housing problems in Manila. The three winning designs—by Ian Athfield of Wellington, New Zealand (first); Takagi Design Team, Tokyo (second); and Sau Lai Chan of Kuala Lumpur, Malaysia—will be shown in drawings; and there will be models of the first-prize design. Selections will be made of other non-premiated material from the 473 entries in the competition for display.

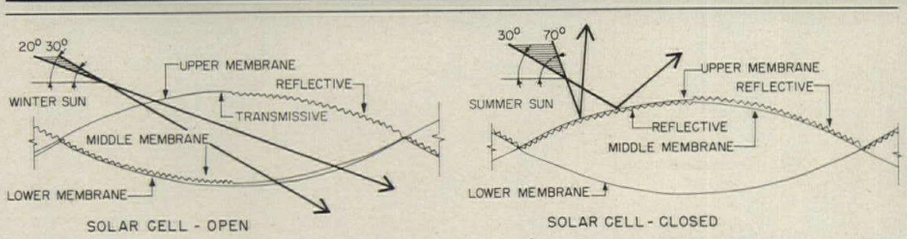
Further, plans are underway to construct in a Vancouver park a full-scale prototype house from Athfield's prize-winning design, and—for comparison—a dwelling typical of the substandard housing in which the Manila squatters now live.

Details on the competition, which was conceived by ARCHITECTURAL RECORD and *L'Architecture d'Aujourd'hui,* are on pages 13 and 15.

IAF's international panel of jurors is seen at work in Vancouver in this sketch by alternate juror Takamasa Yoshizaka.—*Walter F. Wagner, Jr.*

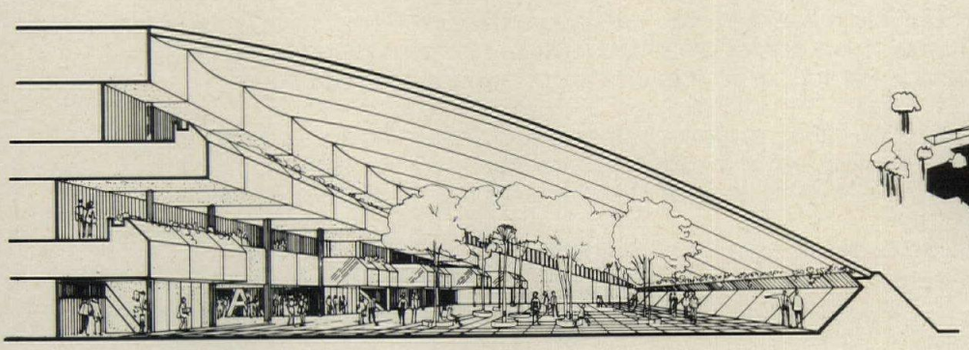


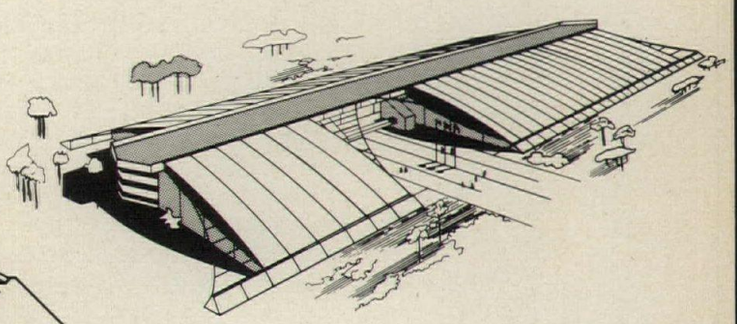
Steve Rosenthal

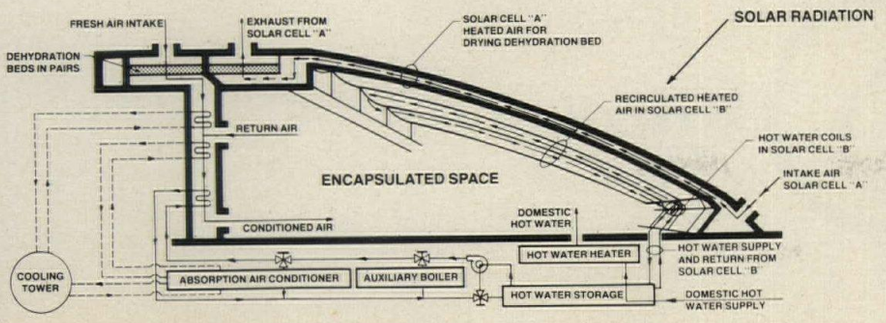


Office landscape under a pneumatic "sky" proposed for Federal building

A recent study of Federal office design, sponsored by the Public Buildings Service, supports the feasibility of a vast pneumatic structure—400 by 1,000 feet—to house three-story work pavilions in a large-scale variant of office landscaping. Major energy savings are predicted for the three-layer solar-cell roof membrane, the upper and middle layers of which would be half translucent, half reflective. During the winter, the middle layer would lie on the bottom layer to permit passage of solar heat from the south through translucent panels. On summer days, reduced air pressure between the upper layers would cause the middle layer to rise, forming a reflective surface across the entire roof; after sundown, the envelope can be opened to allow radiation of heat to the cooler sky. The study group suggests that such a building could save the government $13 million over 30 years. Study team included Building Sciences, Inc., project administration; Cambridge Seven Associates and Davis Brody & Associates, architecture; Weidlinger Associates, structural/civil engineering; Geiger Berger Associates, structural/mechanical engineering; Cosentini Associates, mechanical/electrical engineering: Tishman Research Corporation, construction and building technology.







Air-supported roof will collect solar energy

For botanical gardens and offices at Florida Junior College in Jacksonville, engineers Geiger Berger Associates have designed a translucent air-supported roof that incorporates two types of solar energy collectors—solar cells—within the double-layered fabric skin. These cells will provide heating, cooling, domestic hot water and dehumidification. Solar cell A will heat outside air that will be discharged after it has absorbed moisture from dehydration beds at the top of the enclosure. Recirculated air in solar cell B will transfer heat to stored water; this heat will be used to warm incoming air in winter, to drive the absorption air conditioners in summer and to provide domestic hot water. Architects are Reynolds, Smith & Hills.

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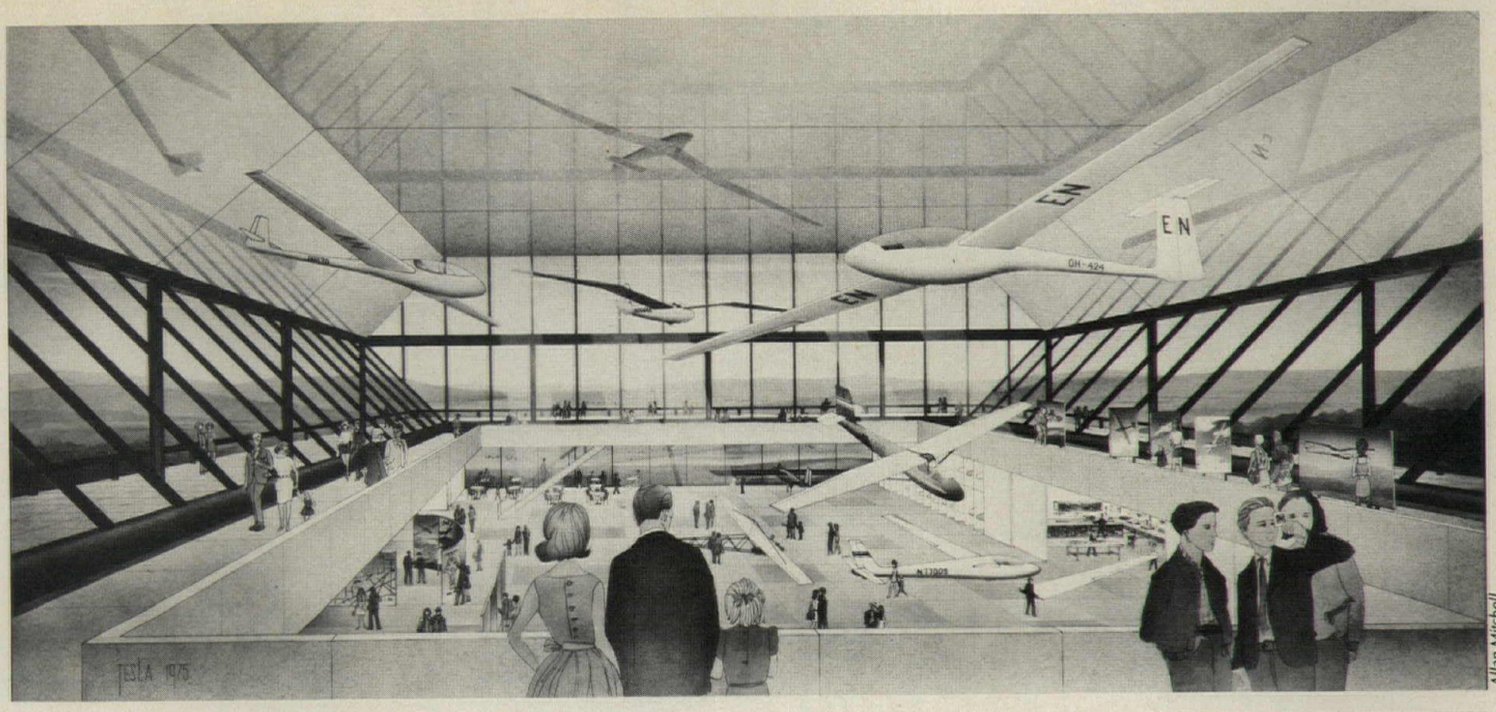
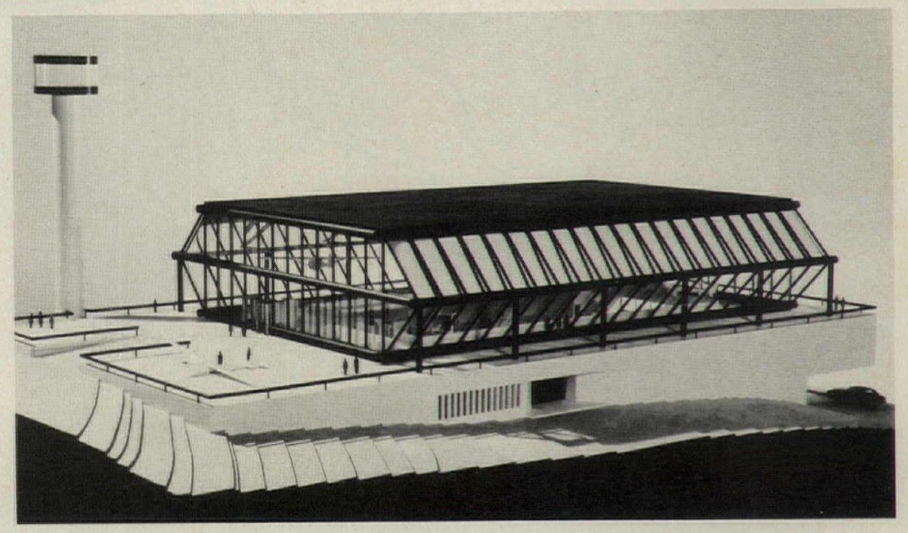
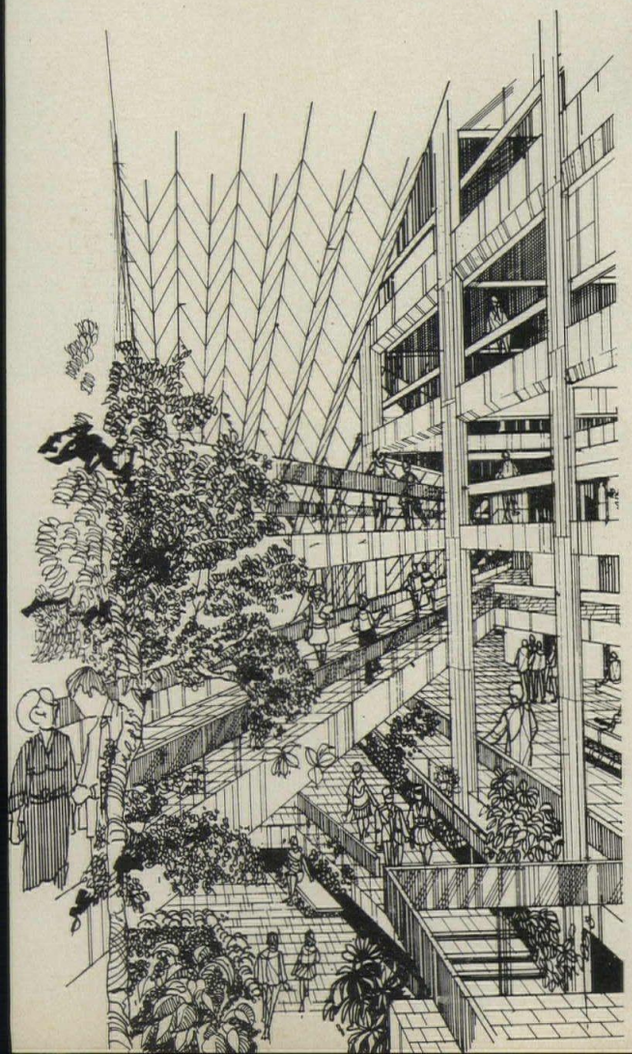


Allan Mitchell

Hilltop museum will honor American soaring

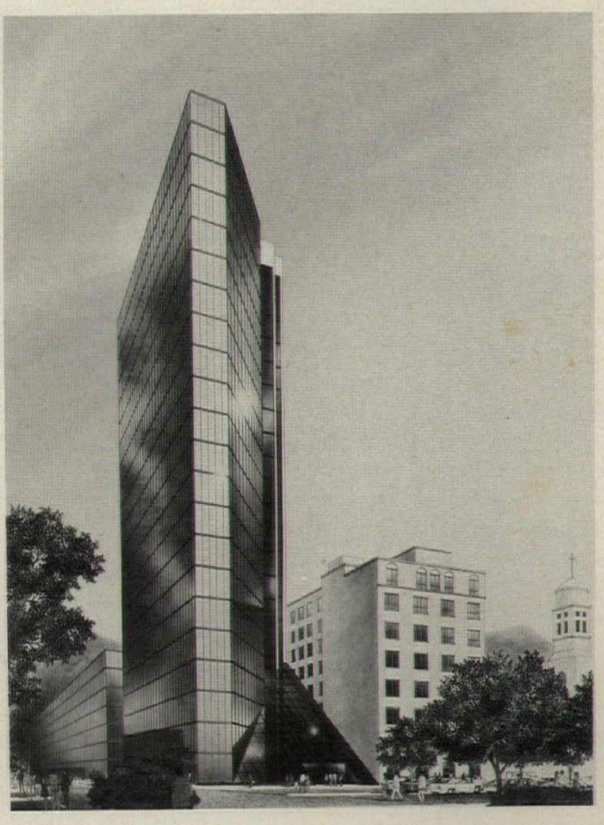
According to the Soaring Society of America, soaring got its start on Harris Hill at Elmira, New York. To celebrate this fact—and the sport itself—the society plans a National Soaring Museum, which architect Eliot Noyes has designed for a site on the edge of Harris Hill. Exhibition space, which will accommodate the museum's collection of sailplanes, will be a light cage of tubular steel, set on a concrete base cantilevered over the hillside. Among the exhibits: a sailplane suspended in a window overlooking the valley, and intended to give an occupant of the cockpit the illusion of free flight. The base of the building will house more exhibition space, as well as offices, conference rooms and a cafeteria. Construction awaits completion of the museum's fund-raising drive.





Bolivian oil company builds a tower in La Paz

In La Paz, surrounded by the Andes, a major office tower is under construction for Y.P.F.B., a national company for the administration of Bolivia's petroleum resources. Designed by architects Neuhaus & Taylor of Houston, the 18-story building will be sheathed in gold-colored reflective glass, trimmed with bronze anodized aluminum and tan marble. An atrium court, enclosed by a space frame inclined at 45 degrees, will be overhung by split level display floors. Glass-enclosed elevators will provide access to office floors.



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Twentieth-century antitheses

ARCHITECTURE, MYSTICISM AND MYTH, *by William Lethaby; George Braziller, New York, 280 pages, illustrations, $10.00.*

MEANING IN WESTERN ARCHITECTURE, *by Christian Norberg-Schulz; Praeger Publishers, New York, 445 pages, illustrations, paperback, $9.95.*

Reviewed by Richard Oliver

Two recently republished books deal with the history of architectural symbolism. Both contend that the primary role of architecture is to provide psychological shelter, and only secondarily physical shelter. Both suggest that architectural symbolism has provided, in the past, a sense of existential security. Although written 80 years apart, each book poses the same problem: what kind of architecture is suitable to (and symbolic of) our time?

The earlier book, *Architecture, Mysticism, and Myth,* by William Lethaby, is essentially about romance in architecture—that is, a sense of myth—and it is a discussion of ancient and, to Lethaby's eyes, universal symbolism. There are chapters entitled "Microcosmos," "Center of the Earth," "Labyrinth," "Pavements like the Sea," and "Ceilings like the Sky." The author's essential point is that sacred temples of yore achieved their form and organization through a process of imitating the heavenly temple—that is, the universe as it was then understood. The examples that Lethaby uses to embroider his theme are drawn both from known past and from legend. Indeed, two of the most provacative aspects of the book are an ambiguous merging of fact and fable, and the implication that a contemporary lesson can be gleaned from a consideration of what has been *imagined* as well as what has been known. The book makes for lively reading, although complicated by casual references to the most remarkably obscure sources.

By contrast, *Meaning in Western Architecture,* by Christian Norberg-Schulz, is a methodically organized, logically constructed treatise which proposes that during each epoch of Western history, man has had a unique view of existence and that the architecture of each epoch embodies that view in symbolic ways. More precisely, each architectural epoch consists of a re-interpretation of what Norberg-Schulz views as three fundamental organizational themes: PLACE (or Center), PATH (or Linear Movement), and DOMAIN (or Sphere of Influence). Thus the Egyptian pyramids, Greek temples, Gothic cathedrals, Baroque palaces and Functionalist glass exhibition halls are not only related to their respective epochs, but are also woven into a linear pattern.

A reading of these two books amplifies what I think is one of the fundamental paradoxes of modern architecture. On the one hand, the architecture of the 19th and 20th centuries has always been involved in a search for fundamentals, a return to simplicity, and, as a corollary, the formulation of the prototype. On the other hand, architects have searched, desperately at times, for a style for this century, for a "Modern" architecture (as opposed to a "Gothic," or "Greek," or other kind of style).

Why should these two searches constitute a paradox? The former search is essentially Romantic, because any search for fundamentals very quickly takes one beyond the limits of the known past into the realm of legend. The latter search, which is usually cloaked in an air of rationality, starts from a position heavily overshadowed and intimidated by a past that, with hindsight, seems so integrated, while our own century seems so chaotic.

What is architectural symbolism? Essentially, any object or space that amplifies and clarifies one's understanding of one's existence is symbolic—that is, it has meaning beyond itself. But architectural symbolism must be visual or spatial, and architectural meaning is understood through the language of constructed things. Therefore, architectural meaning is inextricably related to imagery and iconography. If one is therefore interested in a "style for the century," the meaning of such architecture will be limited to the *imagery* of the century. A search for fundamentals, on the other hand, is quite another thing, since the imagery connected to fundamental meanings involves everything back to Adam's house in paradise.

These two books, one written in 1891, the other in the 1970s, in a sense give definition to the boundaries of the 20th century paradox of which I speak. Lethaby was a member of the Arts and Crafts Movement, and related to the Pre-Raphaelite Movement, both of which proposed a return to a simpler, almost idyllic, often occult way of life, and to art forms of a chaste, fundamental, and often Medieval nature. Lethaby, understandably, would have stood in opposition to the architectural eclecticism of the period. For someone like Lethaby, the antidote to what were viewed as architectural excesses would involve the resuscitation of a golden past. For Lethaby, architectural symbolism would always embrace the romance of the past.

Norberg-Schulz, has been, together with Peter and Alison Smithson in England, a major spokesman for the generation of European modernists who have in a sense been trapped by a dissatisfaction with the forms of the International Style, and an inability to break out of the so-called rational theories of Modern architecture. This is the generation which had a mad, but guilt-ridden love affair with images from the past such as the Italian hill town and the Aegean island village, and yet felt at ease only with the romance of technology, with the supposed symbols of the 20th century—the ocean liner, the airplane, etc. Norberg-Schulz is clearly interested in what he terms "the history of meaningful forms" (and he has a nearly encyclopedic knowledge of them), but reading his book, one comes away with the suspicion that something is being suppressed.

Quite simply, what Norberg-Schulz is suppressing is a sense of wonder about the images and iconography of the past. One feels that he is searching the past merely for the object lesson, for the "moral of the story," and that he is rather timid with regard to the images he encounters, and downright terrified of the iconography. Thus, by couching his point of view in a rational, cause-and-effect treatment of history, he protects himself from any accusations of wayward fascinations. For Norberg-Schulz, architectural symbolism must be expressed in contemporary forms without reference to the past.

Although Lethaby certainly skirts the problem of contemporary symbolism, one feels that he would have supported an enthusiastic sense of wonder about the legacy of the past, both the images and iconography. Even though Norberg-Schulz's book is probably the more important (and certainly the more conventional), Lethaby's is more stimulating and the more liberating of the two, primarily because it sees the past as an enormous and rather egalitarian treasure trove of ideas and images to be used willfully and generously. Lethaby's book implicitly recognizes imagery as a fundamental aspect of design, and is therefore prophetic of the associational qualities of late 20th century architecture.

For a century so self-conscious as ours, new and appropriate symbolic meanings, of the sort yearned for by Norberg-Schulz, might well emerge from the collision of imagery from the past and the circumstances of the present. In the meantime, in these two books one can obtain a clear picture of the antithetical attitudes we have toward the meanings and images of the past—embracing on the one hand, and stand-offish on the other—and the somewhat neurotic vacillation we experience between being turned on and turned off by what has preceded us.

Richard Oliver is an architect who practices in New York City.

TWO MORE PLYWOOD ROOF SYSTEMS.

U. of Idaho truss-arched roof spans 400 feet, built in 26 days, saves millions.

Estimates for doing this stadium job in concrete and steel ran $10-$12 million.

Concrete was ruled out because the job had to be done in phases.

Steel contractors were hedging because of cost limitations and material availability.

Used: a wood and steel-trussed arch system with plywood decking. The system was invented by Trus Joist Corporation and designed by KKBNA Consulting Engineers, Denver, Colorado.

Cost: $7.4 million ($4.2 million for roof and end walls, including mechanical and electrical).

The stadium roof was designed for heavy snow loads and high wind conditions. The arch spans 400 feet with a rise of 100 feet from the spring line to reach a maximum height of 150 feet over the playing surface.

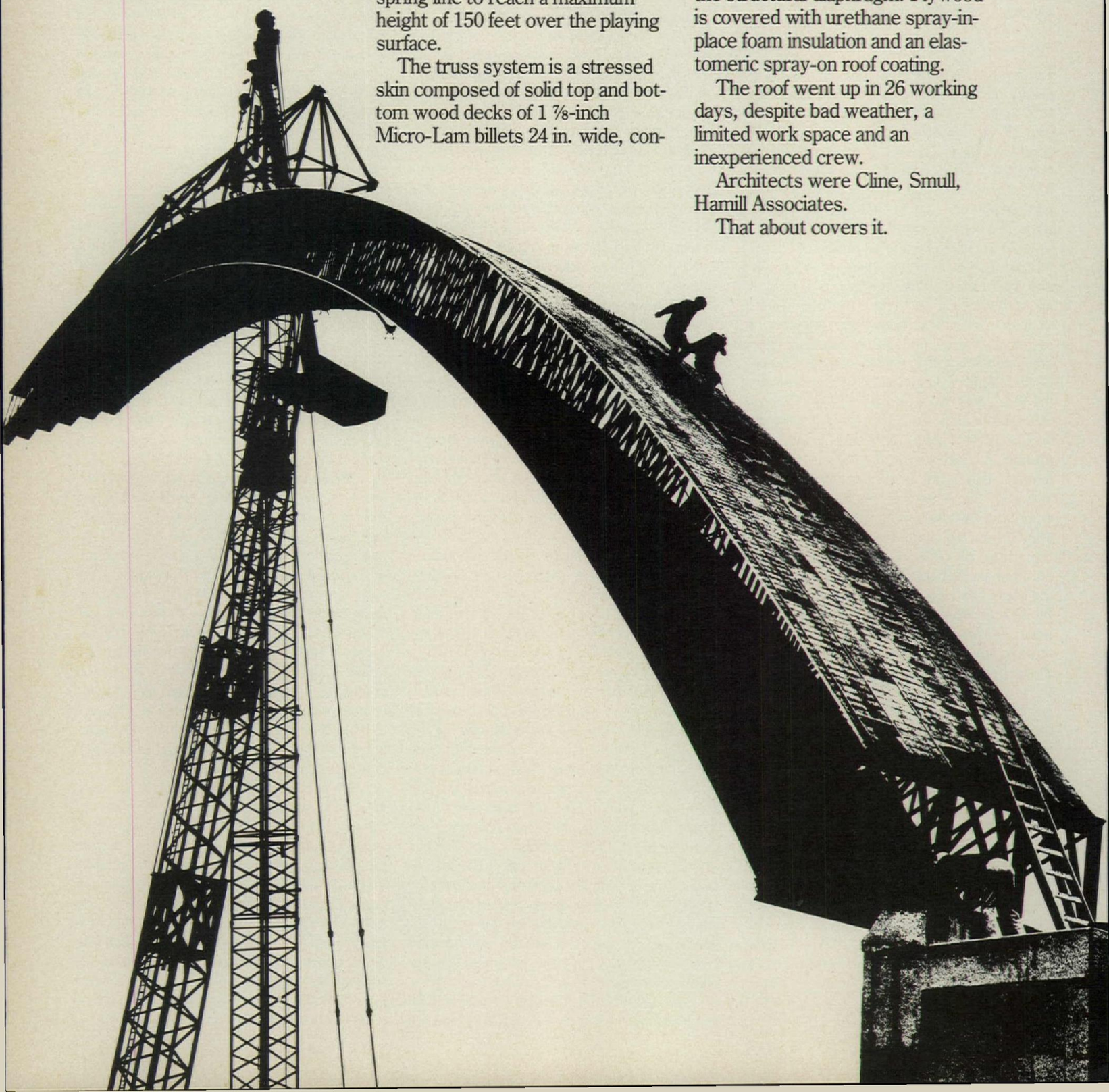
The truss system is a stressed skin composed of solid top and bottom wood decks of 1 ⅞-inch Micro-Lam billets 24 in. wide, connected by tubular steel webbing.

Roof deck is ⅜-inch plywood in a herringbone pattern which acts as the structural diaphragm. Plywood is covered with urethane spray-in-place foam insulation and an elastomeric spray-on roof coating.

The roof went up in 26 working days, despite bad weather, a limited work space and an inexperienced crew.

Architects were Cline, Smull, Hamill Associates.

That about covers it.



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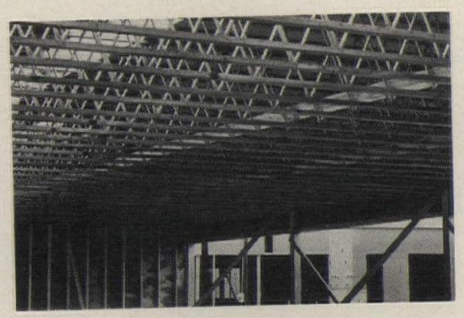


Michigan elementary school: 1974 plywood roof deck at 1970 prices.

"We specified plywood roof decking for two reasons: 1) uncertain delivery of steel in the Detroit area, and 2) the cost of plywood was half the cost of steel." Said George Craven, T.R. Jahr Associates, Dearborn architects.

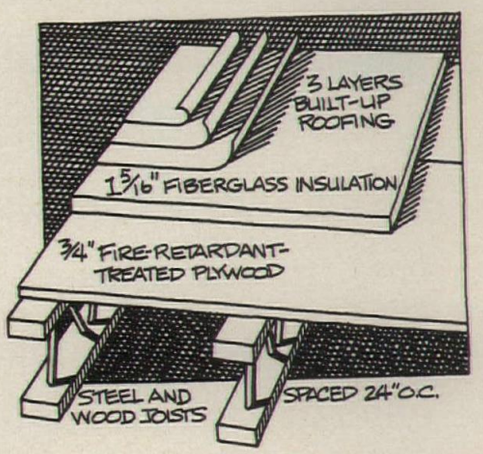
"Essentially the Romeo School District wanted to duplicate an existing structure we had designed for them in 1970," he said.

No one was more surprised than the architects when the bids came in: Low bid for the 44,000 sq. ft. Fire-Retardant-Treated (FRT) plywood roof deck was $11,000.

That was less than half the $28,500 low bid received four years earlier for the previous steel and gypsum roof system.

E. Gilbert and Sons, Utica, built the roof deck of 5/8-inch plywood over Trus Joists® 24-in. o.c. Specs called for 1-5/16 inches of fiberglass insulation with a 3-ply built-up roof.

Both the plywood deck and Trus Joist chords were pressure treated with fire retardants. (FRT wood



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Total cost for the Romeo Elementary School project: $29.10 per square foot.

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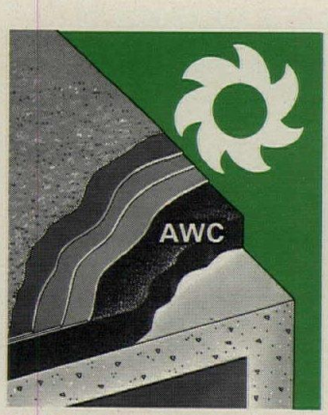

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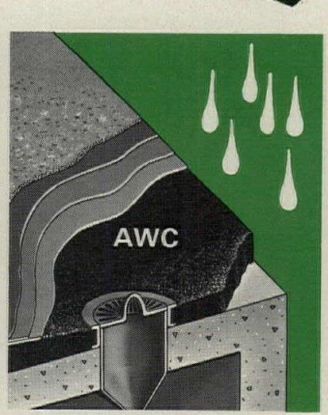

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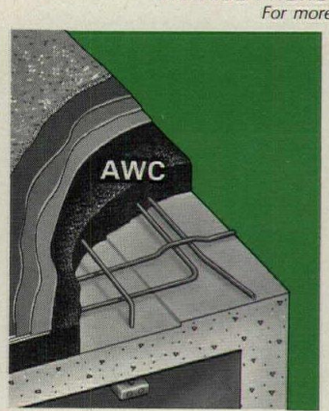

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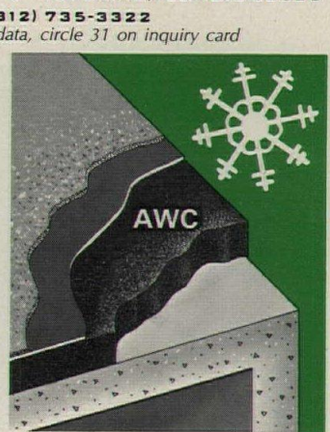

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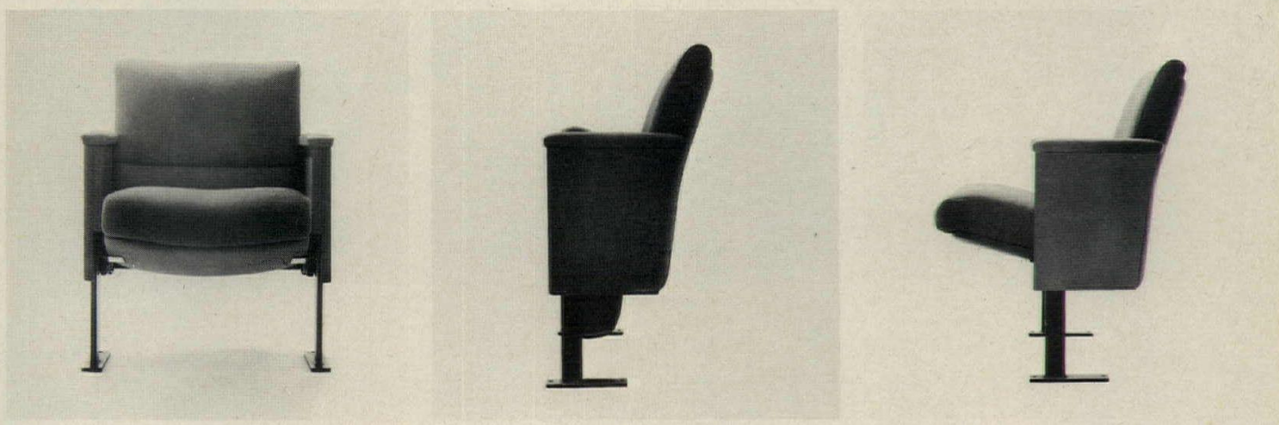
design: Dave Woods

Westminster
design: Dickinson/Smith



T-74
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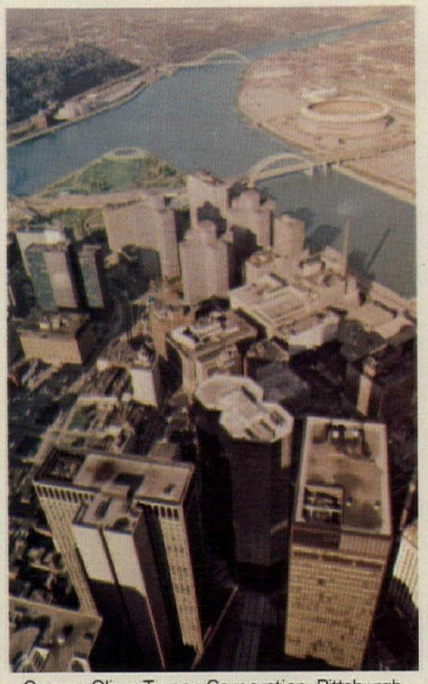
Pittsburgh's Golden Triangle now boasts a new 34-story jewel with 14 glimmering facets. (The two octagons share a side, if you're counting.)

It's the twin towers of the Equibank Building, at Oliver Plaza, sheathed entirely in PPG Solarban® 550 Twindow® reflective insulating glass.

The glass adds to a fascinating, unconventional design and makes it an incredible visual drama that teases the passer-by with eye-boggling reflections.

It's an inviting building. Warm and welcoming. And a welcome relief from the cold, impersonal bank buildings of the past.

Yet for all its reflective beauty, the glass gives the building a very practical side, too. The inside.



Owner: Oliver Tyrone Corporation, Pittsburgh
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Because of the reflective and insulating qualities of PPG Solarban 550 Twindow glass, the building will stay warm in the winter and cool in the summer.

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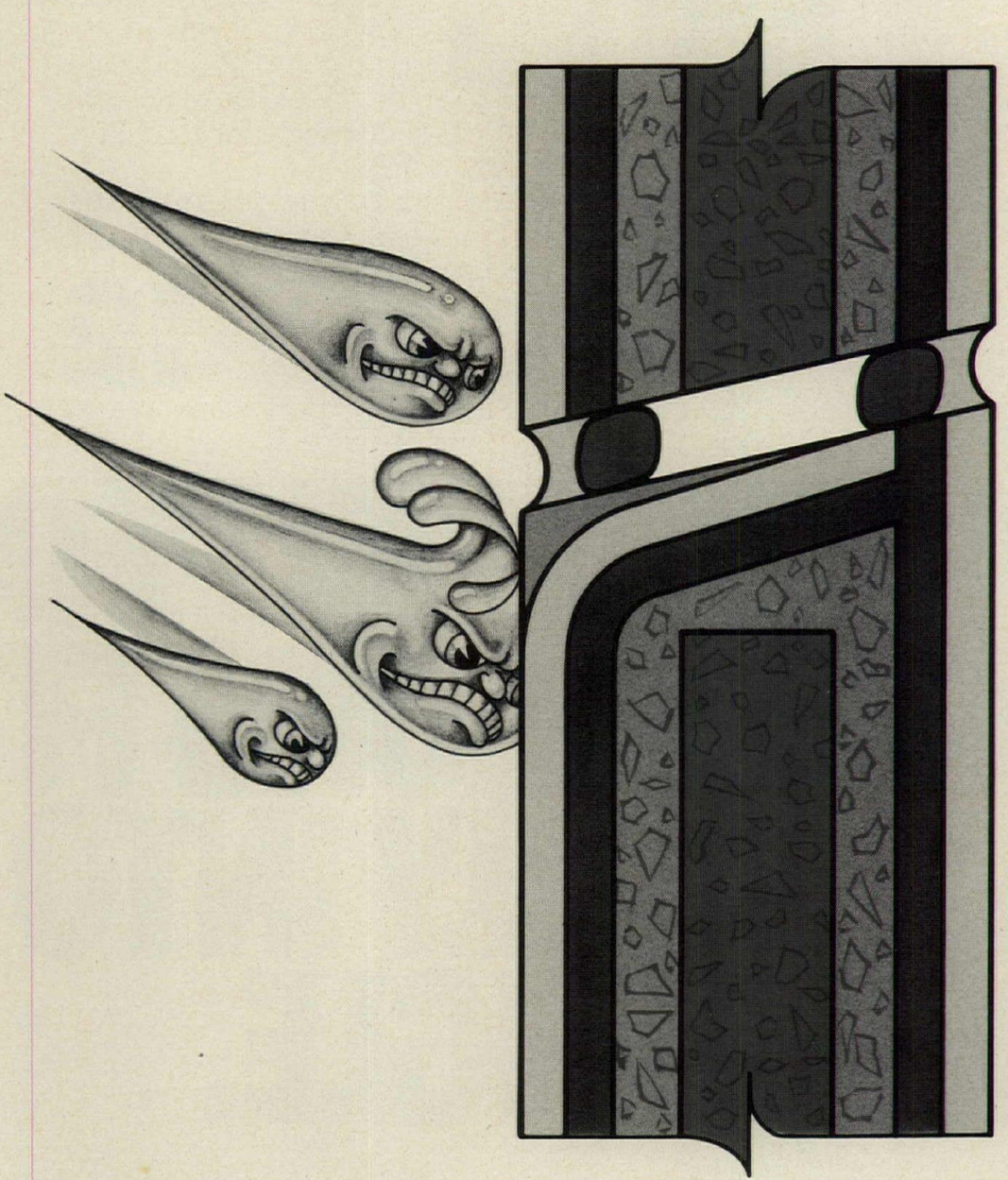
PPG GLASS HELPED TWIN OCTAGONS FIT BEAUTIFULLY INTO A TRIANGLE.

HOW TO DESIGN A PRECAST JOINT FOR WEATHERPROOF SECURITY.



With all its design advantages, precast also presents some joint sealing problems. Tremco has developed the modified rain-screen principle to help you keep the advantages of precast and still get weather-proof security.

One problem with precast panels is that they are subject to dynamic movement. That movement can create openings in even the most carefully constructed panels and joints.

The modified rain-screen calls for a vented joint seal on the exterior, and a total airseal on the interior side. This creates an air-pressure equalization chamber between the joints. Unlike one-stage sealing systems, this design gives you two lines of defense against the weather.

Why the modified rain-screen works better.

With one-stage joints, openings can let wind-driven water into the building or pull warm moist air from the interior into the wall cavity. Either way, there are problems: uncontrolled air flow, water in the building, moisture condensation and ice-damage in the walls. With the two-stage rain-screen principle, you can avoid these problems, and control air flow – reduce energy loss.

The modified rain-screen consists of three elements: an airtight seal on the interior joint, an air chamber and a vented seal on the exterior joint. (See diagram on left page.)

If there's a break in the exterior seal, wind-driven water entering the air chamber drops down and drains out because of the pressure equalization effect. (See diagram 1.)

What happens if there is a break in the interior seal? If the warm interior air is carrying moisture, as it usually does, the moisture condenses in the cooler wall cavity, drops down and drains to the exterior. (See diagram 2.)

Qualified help from Tremco.

Your Tremco man can show you a number of details which will help you adapt the modified rain-screen principle to your precast design. He can also fill you in on the performance of DYmeric®, the Tremco sealant formulated especially for precast work. DYmeric stands up to the joint-movement and stress of precast cladding and seals joints up to 2 inches wide without sagging.

For more information or specific help with the rain-screen principle, or designing a fire resistive joint for precast buildings, see your Tremco man. He can be a big help from drawing board to on-site instruction of joint sealing techniques.

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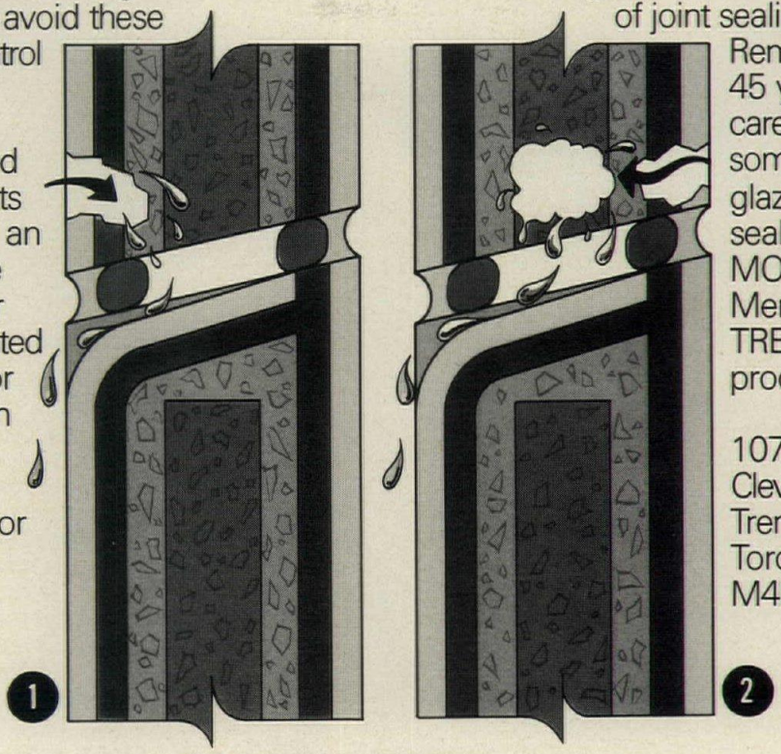

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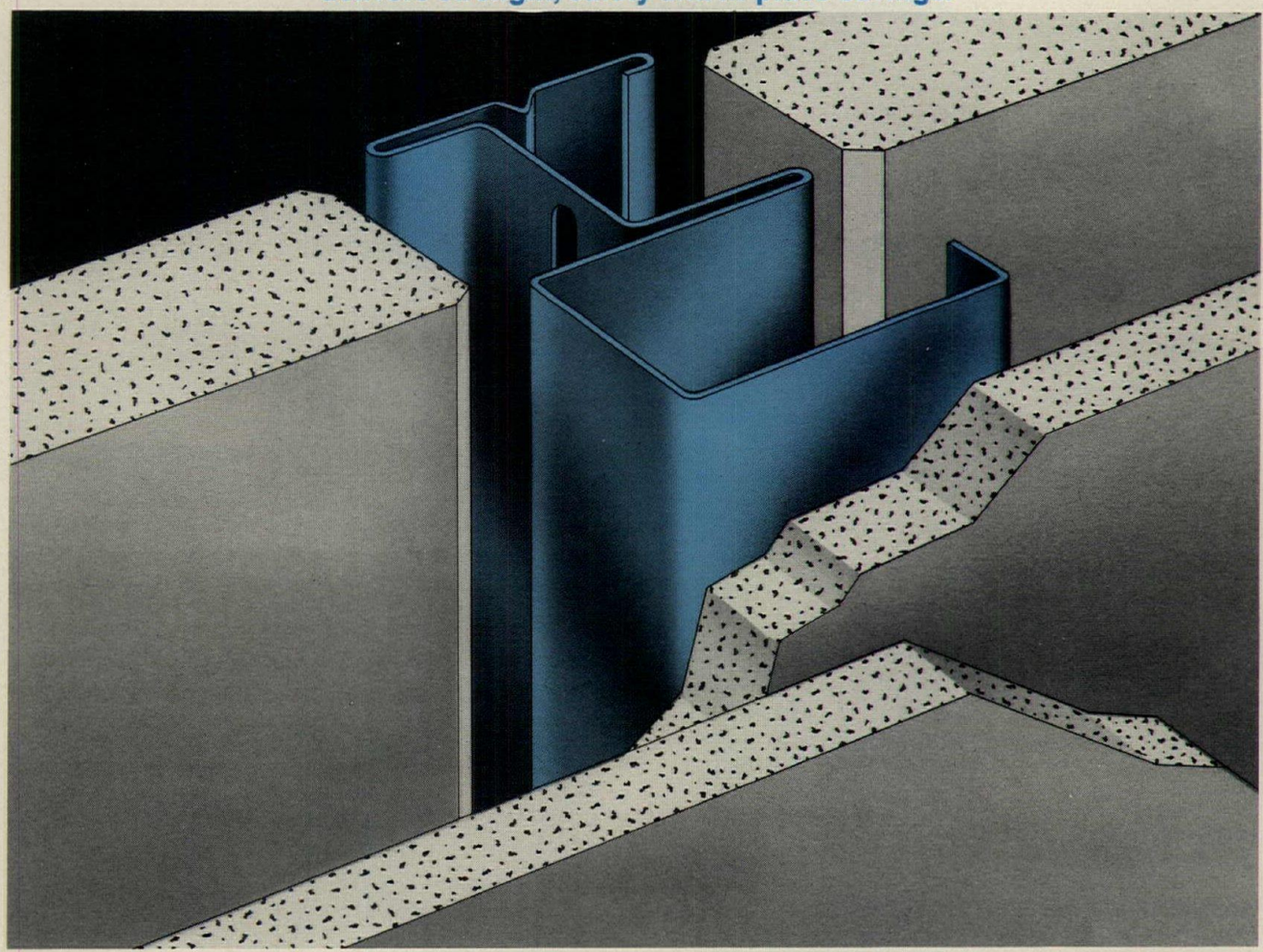
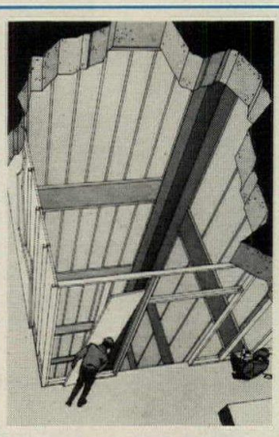


Now, there's an even greater money-saving version of the original gypsum shaft wall from the people who started it all! And it's tested and proven to meet requirements of working shaft walls. The key component is our new C-H stud which permits use of ½" SHEETROCK* FIRECODE*C Gypsum Panels, instead of the customary ⅝" SHEETROCK FIRECODE-C Gypsum Panels. The result is a system that reduces weight by up to 15%, trims dead load to save on structural steel. Yet, with all this timely economy, the C-H shaft wall provides 2-hour fire and from 39 to 50 STC sound ratings, and air pressure loadings of from 5 to 15 lbs. psf. And benefits don't stop there. Because it utilizes lighter-weight, lower-cost materials, the C-H system installs easier and faster, gets elevators running sooner than other shaft walls. See your U.S.G. Representative for specifics. Or write to us at 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. AR–36.



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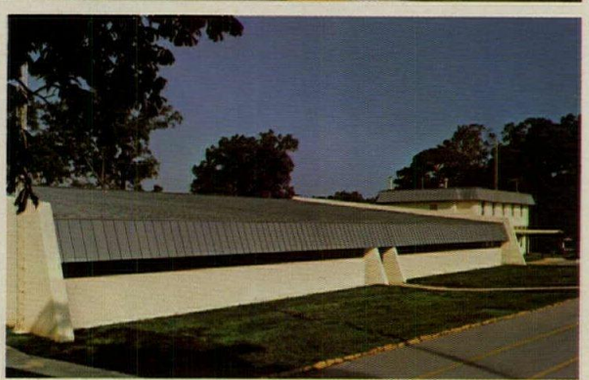

Georgia National Guard Emergency Center, Atlanta, Ga., Architect: Barker & Cunningham

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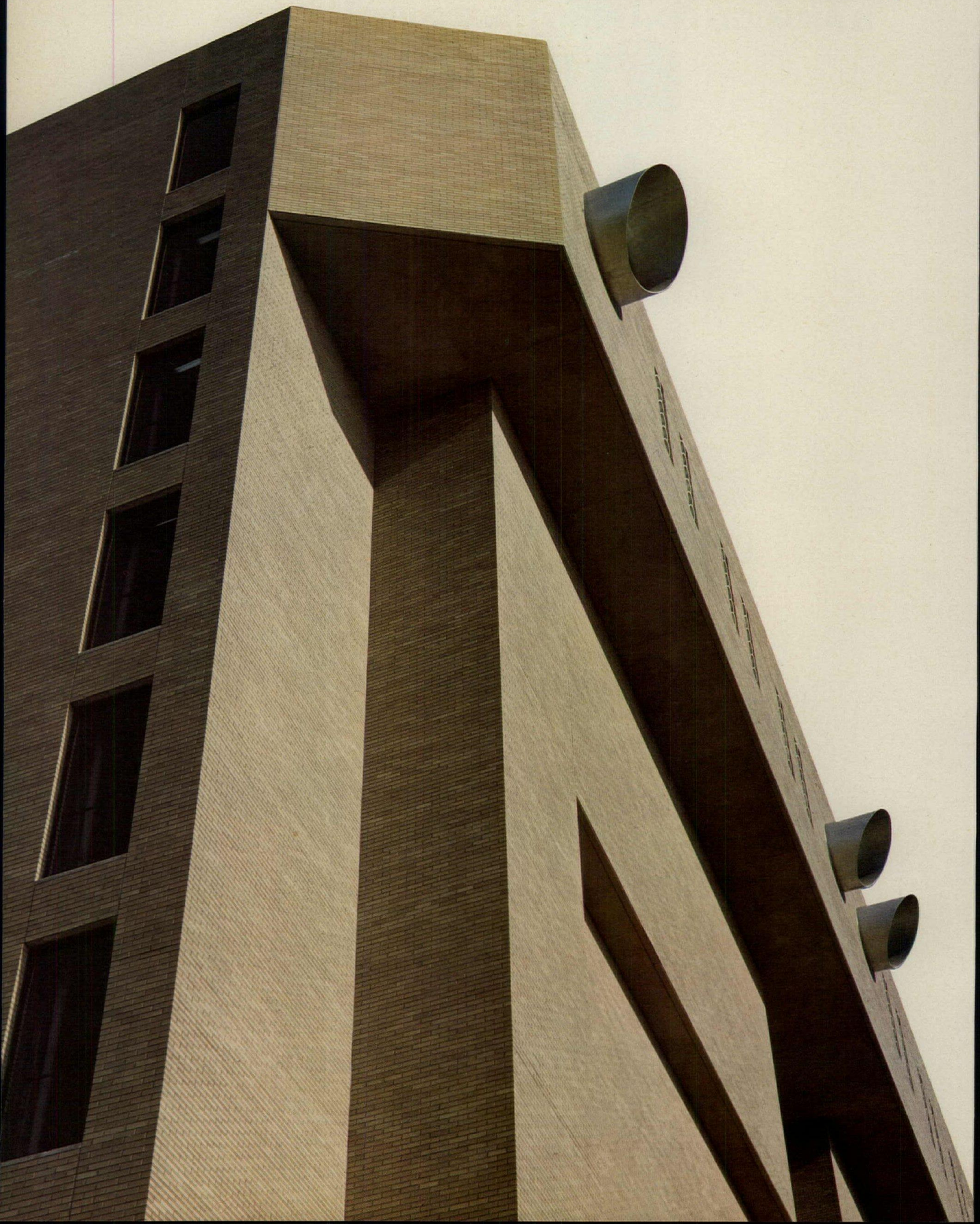
Expressions in Masonry



A biological research tower, a building for which there is no historical precedent, is given human scale and historic reference by brick.

Concrete masonry units enclosing apartments provide protective firmness and the detail interest of hand-layed units.

Two expressions of the beauty and flexibility of masonry by Ulrich Franzen, FAIA.

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202-783-3908

Research Tower, College of Veterinary Medicine, State Colleges, Cornell University, Ithaca, N.Y.
Architect: Ulrich Franzen & Associates

William Street Apartments, Wesleyan University Middletown, Conn.
Architect: Ulrich Franzen & Associates

Photographs: David Franzen

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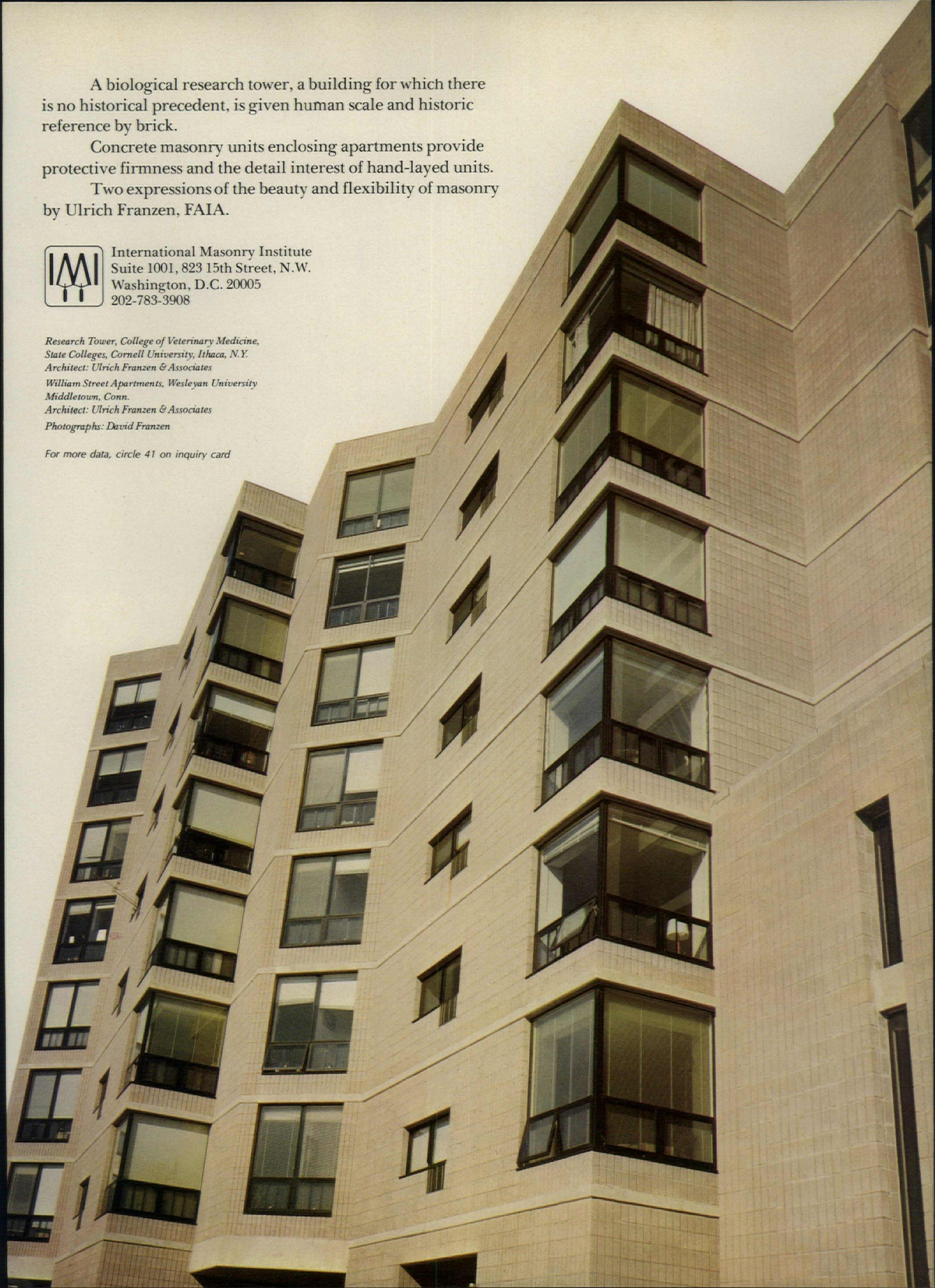

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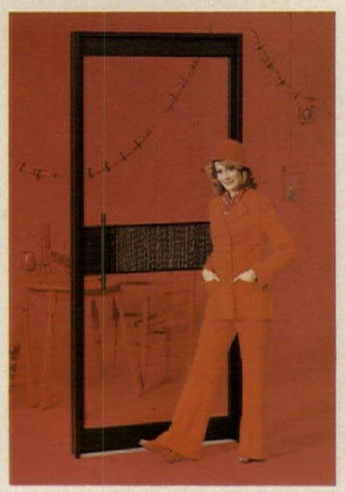
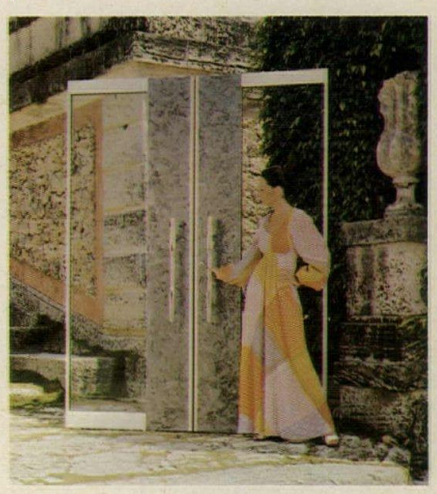
How to turn 12 into thousands,

The variety begins with 12 basic door systems. And then, each can be adapted to meet special design or functional needs. For example, the basic 190 series door can be specified in more than 200 separate and distinct combinations of push/pull hardware, operating hardware options and finishes. Each element is designed and engineered to meet the exact and unique requirements of any entrance situation. And, in a complete system of design coordinates, such as Entara, the exact number of entrance styling and functional combinations is practically unlimited. Kawneer makes more out of entrances so designers can make more of their buildings.



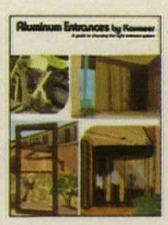
I-Line series 3000 door in Permanodic Black finish with tapered pull and Stria textured panel in Pewter finish.

I-Line 4000 Series entrance in clear anodized aluminum finish, with panels of Quarry texture in Pewter finish and a cast aluminum pull handle.



by Kawneer

And yet, behind this wide variety available in Kawneer entrances is only one standard of engineering and construction: The very best. Each Kawneer Entrance System is a total performance combination of door, frame, and hardware that will stand up to the demands of traffic volume and building usage. The excellence of engineering and rugged construction is backed by a continuing program of testing which assures the user that Kawneer Aluminum Entrance systems will provide efficient performance for years and years. No matter what the variety.



A helpful, 28-page guide to entrance systems is available from Kawneer. Write for your copy of *Aluminum Entrances by Kawneer.* Kawneer Product Information, 1105 North Front Street, Dept. C, Niles, Michigan 49120.

"190" door in Clear anodized aluminum finish with F-2 style hardware.

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

A "preservation addict" looks at the practical side of rehabilitating for profit

by Herbert P. McLaughlin, Jr.

Mr. McLaughlin, AIA, is a partner in the San Francisco firm of Kaplan/McLaughlin, Architects, Planners, and a partner in Conner/McLaughlin, a development firm specializing in the rehabilitation of older buildings which the firm holds for investment. He is in his words, "a preservation addict," but more than that, he is keenly aware of important cost considerations and special practice problems that can confront the architect taking the renovation route to development. The article is based in part on Mr. McLaughlin's speech to a Seattle preservation conference last summer. The full proceedings of the conference will be published in April as Economic Benefits of Preserving Old Buildings, *a book copyrighted 1976 by the Preservation Press, National Trust for Historic Preservation.*

Renovation and preservation are receiving increasing emphasis in all architectural practices.

At Kaplan/McLaughlin, they have been an important part of the practice for over 10 years, and in the last five years I have become involved as owner/developer of a number of converted commercial and residential structures in San Francisco.

The renovation experience at Kaplan/McLaughlin has been instructive at three levels—how does one act as an effective advocate for preservation generally; how does one practice architecture for renovation; and what is involved in being an owner/developer?

Our work has stressed adaptive use, and we are most interested in preserving a vernacular, an urban texture. We have worked on many basic, unprepossessing structures and one extraordinary building, the Hallidie (right), which in my view, is an internationally significant monument. Even in this case, preservation must be linked to modification of the building.

Adaptive use, perhaps even more than the supposedly more difficult "accurate" restoration, requires unusual skills and attitudes in the architect. He is at the center of the economic and building process here more than in any other type of development, because his particular areas of expertise, knowledge of codes and innovative design abilities make an enormous difference in costs. Only the architect can accurately predict them.

For instance, when we do new developer housing, the floor plans are generally quite similar to others that have been tested in the marketplace. Codes do not require any special expertise and cost estimates are easy. Not so in renovation. But renovation can have many advantages.

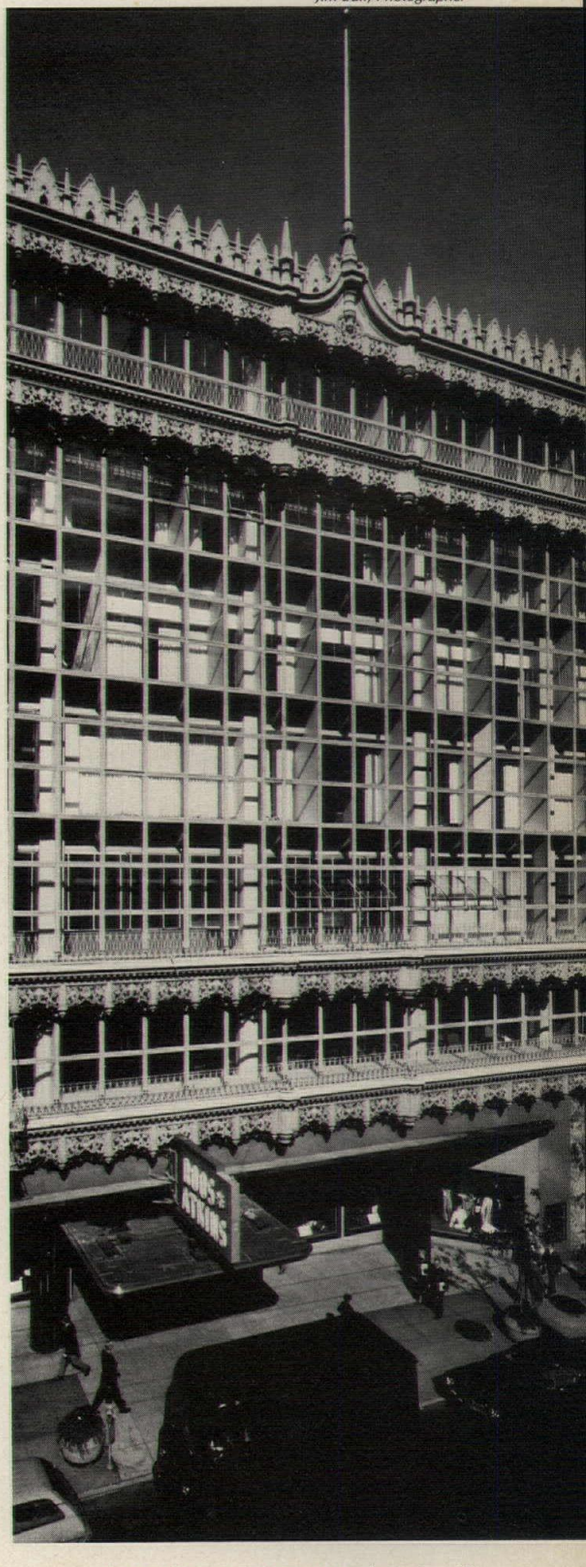
Increasingly we recognize its cultural value. Additionally, for the architect, it can provide design opportunities which are often richer than those available in the stereotyped mold in which standard office buildings are generally cast.

Also, renovation can provide a somewhat simple (if anything is) entry into the world of development, because it usually is faster, cheaper and less risky than new construction.

The rehabilitation scene today needs institutional developers

How does one accomplish this? You must start with a developer. Rehabilitation development has been characterized by the romantic type who in typical style will buy a building—as has been done in parts of Pioneer Square (Seattle, Washington)—with no tenants, go in and renovate it, and then rent space—generally to smaller, non-corporate tenants. The results are generally beautiful, not particularly profitable and thus not widely emulated, and not attractive to the larger corporate tenant who must be brought into the renovation market if larger buildings are to be saved. The institutional developer—the insurance company or the large bank in a middle-sized city—must also be brought into rehabilitation. In the past, these developers have often put up expensive skyscrapers whose cost is not justified by local rent—at least from the point of view of someone like myself who is interested in profits. These institutional developers usually put a substantial amount of cash into a new building and may expect to make as little as 2 to 3 per cent on their outlay, feeling that the low return is compensated for by civic pride, public relations and inflation.

Jim Ball, Photographer



Hallidie Building, San Francisco. Designed by Willis Polk, this is the first true glass curtain wall office structure. Restoration by the author's firms is underway, with the exterior returned to its original bright blue and gold, and four upper floors are rented to new tenants. Ground floor renovation will correct an unsympathetic remodeling of the 1950s.

	New construction	Major renovation*	Minor renovation
1. Property acquisition	$ 3.00	$ 9.00	$14.00
2. Front end renovation		2.50	1.50
3. Demolition	.15		
4. Basic building	38.00	10.00	7.00
5. Tenant improvements/finishes	8.00	8.50	8.05
Subtotal: hard costs	**$49.15**	**$30.00**	**$30.55**
6. Interim operating	2.70 (3 years)	.80 (1.6 years)	1.30 (1.6 years)
7. Architect/Engineer & legal fees	2.60	1.60	1.20
8. Interim cash flow	(negligible)	(1.00)**	(2.00)**
9. Marketing & real estate fees	2.70	2.50	2.80
10. Developer overhead	1.00	.50	.50
11. Interim financing	6.60	2.50	3.00
12. Developer profit	6.00	3.00	3.00
Subtotal: soft costs	**$21.60**	**$ 9.90**	**$ 9.80**
Total:	**$70.75**	**$39.90**	**$40.35**

Figure 1 * *No major structural changes.* ** *Net income from existing tenants reduces costs during renovation.*

Operating costs (range for single tenant floors)

	Rehab net/sq. ft.	New net/sq. ft.
1. Energy (air conditioned)	.70	.90
2. Janitorial	.55	.55
3. Building operating, reserve, maintenance	.75	.95
4. Vacancy allowance	.25	.40
5. Taxes	.60	1.10
Total operating costs:	**$2.85**	**$3.90**

Figure 2

They should be persuaded to underwrite old buildings the way they currently underwrite new buildings.

The simple cost advantages of rehabilitating older buildings

New office space rentals are rising rapidly—or at least should be as both construction and operating costs escalate. Present low rental rates in cities are the result of suburban competition and, more to the point, high vacancy rates.

In Figures 1 and 2, take a look at new construction versus large-scale renovation on a developer basis, something architects should learn to do. Typical costs per gross square foot for a new downtown building of 15-20 stories (parking not included) are used in the example.

Rehab is obviously advantageous in many areas. First, so-called "soft" costs are roughly 18-20 per cent of "hard" costs and aggregate to less than one-third the comparable costs in new construction.

How does one reduce these costs? They can be minimized most by marketing rapidly and thus reducing the length of time the basic structure is in interim financing stages; secondly, by phasing construction to conform with the marketing program, thereby reducing interim financing.

Do not improve unless you have to. Do the lobbies and elevators first, then try to market from the existing space. If necessary, put in a sample suite. In new construction, all the improvements must go in to meet a marketing and space delivery schedule, but rehab can be marketed faster, from the existing building and, if tenant work is properly managed, space can be delivered from shell to occupancy very quickly.

The problem with this approach is that you are marketing a dream, a vision. A developer *experienced* in rehab can begin to overcome this since tenants can visualize effects in other buildings, and be secure that the developer will deliver them. Much of our success in marketing has been due to our experience. Previous projects can be seen. If you are in a town inexperienced in rehab, budget some money for trips by prospective tenants to cities where examples and experiences exist.

It is also vital that delivery of space be very rapid. Tenants who make deals are generally in a hurry. You and your financing agent should be ready for this eventuality.

We normally do major renovation in packages up to 30,000 square feet in four months—or less. Our best effort has been 22,000 square feet in 60 days for a complete job—excluding elevators.

Real estate fees are very hard to reduce, unless you develop for a tenant who has been approached directly or vice-versa. Any developer who hopes to continue in one town must stay in the good graces of the real estate community and pay fees accordingly.

Remember that the architect is critical. His fees are often less in rehab than new, despite popular conceptions. An architect is a vital part of the marketing team. He can help the inexperienced tenant visualize effects and get him excited. If the building's architect drops out after that first contact, there is a hiatus and the tenant's own architect may be in conflict with the previous advice—for reasons of logic or ego, and can exert a negative influence on making a deal. Secondly, the architect is a vital part of cost control—at all points. Rehab marketing emphasizes improvements. Seldom do we deliver "standard" office space—or costs; and the architect plays a vital role in holding down costs and emphasizing the romance.

Know the market and research the project

Controlling construction costs depends on a number of factors. Most of you who are experienced in renovation will note that the costs shown earlier are quite low. This comes only through relentless discipline. Our firm has the significant advantage of being both developer and architect, and a firm that specializes in renovation and construction management. These two roles are often uncomfortable but they do result in a consistent push for design and management economy.

The acquisition phase is critical. The first information required is a description of the potential tenant market: Is the building for the small user—1,000 square feet, 5,000 square feet—or for those who can take full floors? Buildings suitable for one are generally not for the other.

The full-floor tenant is infinitely preferable. Building Owners and Managers Association formulas allow you to charge this type of tenant for restrooms, lobbies and corridors—and their operating cost formulas favor the developer who can capture this type of tenant. Even in areas where the full-floor user traditionally pays less a square foot than the partial-floor tenant, the usual differential is less than the savings to the developer.

Obviously, the acquisition decision has other cost implications. Because of code or other problems, certain floor-plan types are much more amenable to remodeling than others. Also, changes in occupancy can give rise to serious code costs, while retention of existing use does not. In any event, new exitways may well be required. The building should also be evaluated in terms of the retroactive "towering inferno" codes that are bound to be coming.

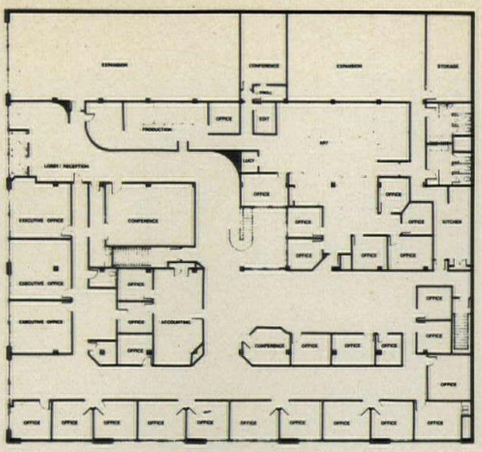
Controlling costs in design and construction is critical

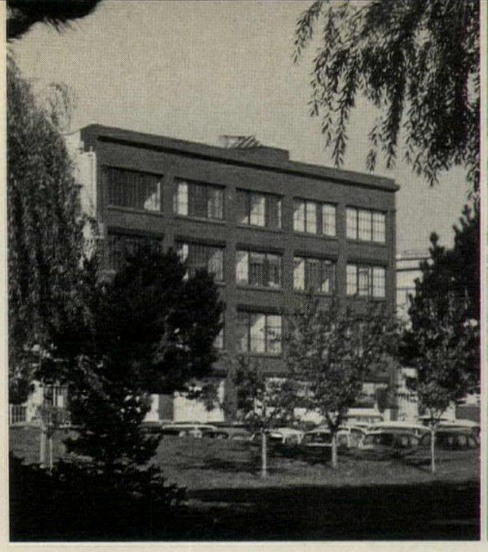
Once the basic acquisition decision has been made construction costs can be controlled in two areas: 1) Design, and 2) Construction management.

Often renovation has been an intensely romantic venture. The designs have reflected that romanticism and, while artistic successes, can be financial disasters. Tenants in renovated buildings generally do want romance, but their view of what constitutes romance and good design and the view of the architect may vary considerably.

My experience has been mostly with larger corporate tenants. I feel that they are the key to successful commercial renovation. These tenants want buildings that have overt romantic touches, such as exposed brick walls, or panelled lobbies; they do not particularly note the height or detailing of their doors or hung ceilings. Architects do, and the architect's vision is an expensive one. Doors that go up to a nine-foot ceiling add $1.00 per square foot to improvement costs, for instance. The tenant should pay extra for this, but few are willing to do so. If these kinds of improvements are provided, it is often at the cost of profits.

Aggressive construction management is critical. It means reduced construction costs and time, hastening income. My development company often acts as a limited general contractor, subbing out the electrical, mechanical and elevator work ourselves in advance of the normal general contractor work. It is also possible to do the same with the exterior and finish





747 Front Street, San Francisco. Kaplan/McLaughlin have framed pleasant new office space within this former industrial building. It is fully rented. Jeremiah O. Bragstad

work of carpets, cabinets, etc.

Aggressive management invariably means fast-track construction. Major work will be begun well before all general building drawings are complete, and long before many of the tenant improvement drawings are done.

Yet in today's construction market, bidding is desirable. We use a version of the English quantity survey method: Sub-contractors are notified of the site conditions (e.g., the floor in the building and access to it, the dates of installation and the approximate quantities involved). They then bid on a unit cost.

What special demands does renovation make on an architect?

Two aspects of work are critically important. One is the knowledge of codes mentioned earlier. This often extends to knowledge of all sorts of local conditions. For instance, will the utility company require a totally new service, or will they allow an addition to the existing? Can a new transformer vault be avoided?

The second is the ability to develop reliable cost estimates which are often closely related to code provisions. Unit costs in rehab are often very different from new construction. Developers of new construction have many standardized formulas of land, building or soft costs. Not so in rehab. The developer is unusually dependent on his architect for cost information. The purchase of a building is dependent on a rehab cost estimate which can have wide variations. Contractors are generally an unreliable source for rehab costs since rules of thumb work poorly. The architect must carry this burden and he must be capable of rapid evaluations, for the decision to purchase a property usually must be made rapidly.

Commercial rehab adds a special administrative strain on the architect. Typically, there is a spurt of activity at the time of purchase: code checking and negotiations and cost estimating. This is followed by a basic building improvement/marketing effort which involves exterior and lobby improvements—all usually done quite urgently. But the real effort begins during marketing of the building and lease signature.

In any sort of new construction, or a residential renovation project, the end product is well described at the start of construction—which proceeds on an orderly basis towards a well fixed end product. There may be some variety in individual tenant improvements in a new office building, but it is usually insignificant in scope.

One of the appeals of office building rehab is that the end product can be tailored quite individually for the tenant—esthetically, functionally, and economically. Conner/McLaughlin exploits this heavily in our marketing. We market warehouse space that has lobby, elevator and restroom improvements. The tenant can then have this space improved to a building minimum or to an elaborate maximum. He can even hold unfinished, absolutely raw space as a very low cost expansion reserve. The rent consists of a fixed base with an add-on dependent on the cost of improvements.

Making the tenant understand what he is going to get and accurately forecasting the costs is difficult. It is particularly so when it is done under considerable time pressures.

Producing the improvement once a lease has been signed is equally urgent. All work is negotiated and fast-tracked, with a real sense of alacrity since the tenant usually has an occupancy delay penalty in his lease. This means the architect must be aggressive in prodding the contractor and in producing drawings and documentation for the changes that take place during construction.

Typically a contractor signs an agreement to provide certain standard improvements such as walls, doors, and ceilings at a fixed unit price. Mechanical and electrical subs are negotiated or bid competitively to a fixed price based on plans approved by the tenant. Other subs are estimated at the start and then bid or negotiated after work has begun.

What are some general notes on project selection and development for the interested architect? How do we evaluate a project? Location is, of course, critical, but other factors are important. We prefer to rent to large or full-floor tenants with average lease size of over 15,000 square feet. This means that efficiency of floor plan is critical. Projects are characterized by large squarish floor plans with elevator cores at the side rather than the center. Such layouts provide maximum efficiency for most modern office usages. The classic contemporary office plan of a central service core containing elevators, stairs and lavs is designed for a number of small tenants and represents a major efficiency compromise for tenants who take full or half floors. More efficient open floor plans occur naturally in the conversion of warehouse and light industrial buildings.

Column spans are seldom a problem—except in marketing. A minimum bay of 18- by 22-feet is adequate for almost all typical spaces, except very large conference rooms.

The end product is generally competitive in amenities with standard new construction, more efficient and personalized. And the rents are lower—not because quality or profits have been sacrificed, but because costs across the board are lower.

It is true that in small-scale projects, renovation is frequently more expensive than new construction. But a 100,000-square-foot building is not like a new kitchen. It is clearly cheaper to rehabilitate than to build new.

It is also important when evaluating a project to look at *all* the costs involved. This has been the cause of failure for many a novice developer who traditionally underestimates them.

Ed Conner, who is responsible for financing, notes that costs such as taxes during construction and interim financing are much less in renovation. "When interim money costs 10 per cent and higher, anything that can reduce construction and marketing time and gets rents onstream earlier has extraordinary impact. We feel that renovation, by reducing first costs and saving time in construction and often in marketing, and thus interim financing, amounts to a $5-$10 per square foot savings in capital costs."

Capital demands can be heavy, particularly for an inexperienced developer who has difficulty borrowing. This can be accentuated in a city in which the lenders and renters have not had sufficient experience with rehabilitation to trust its potential. But lenders can be surprised; recently one of our largest lenders made the trip from Los Angeles to San Francisco to see some of our projects, after his evaluation staff had ranked the loans as the best they had made in several years.

If an architect is to develop, obviously he should start with smaller projects, preferably getting his feet wet with an experienced developer partner. I think that renovation is a very good situation for this kind of work, and provides the plus of effectively preserving good urban structures.

An analysis: the effect of Federal programs on housing rehab

The new Cranston-Brooke Act providing subsidized mortgages—at 7.5 per cent—for FHA-insured apartment projects is stimulating additional apartment construction. (RECORD, February 1976, page 34.)

But the builders most likely to use the HUD program are those with projects that were already in the FHA insurance processing pipeline when the Government National Mortgage Association (GNMA) opened up the $3-billion program at the end of January.

The new "tandem plan" for multi-family housing is HUD's response to the depression in housing starts which saw multi-family starts last year drop to 268,000.

In part because of the hangover from the boom years (1970-72) and because of inflation of costs and labor, high interest rates, rent controls, and similar factors the stimulative effect of the new program may be less than the projections made by HUD Secretary Carla Hills.

There are funds enough for 120,000 units, figuring $25,000 per unit, and it may be a "boon" as some builders suggest in markets where the vacancy rates are low and demand for apartments is high.

GNMA president Daniel P. Kearney said in a recent statement that the new program "should give" the multi-family sector of the housing industry "the necessary support to ensure recovery," and many builders say they will move vigorously to take advantage of the lower-cost mortgage money.

About $200 million in commitments was sought from GNMA the first week they were available, but one GNMA official suggested that applications might settle down to about $25-$50 million per week. If he is right, this would indicate that only $1 billion or so might be applied for by June 30, when the offering is supposed to end.

The level of demand is difficult to predict, of course. But if only $1 billion is taken, that would indicate 40,000 starts, not the 120,000 that is possible.

The applications are processed by GNMA/FNMA approved firms (mainly mortgage bankers) and the local FHA offices, since FHA insurance means that FHA has to certify the feasibility of the project.

Actually fees and charges levied bring the effective mortgage rate up to 8.25 per cent—which, as one mortgage banker notes, "is not exactly giving the money away."

GNMA charges a 2 per cent non-refundable fee for a two-year commitment: on a $2.5-million mortgage application, for instance (enough for 100 units), that means putting down $50,000. The regulations also allow the originator of the mortgage to charge up to 1.5 per cent origination fee, another $37,500. In addition, GNMA charges another 2.5 per cent when the mortgage money is actually delivered, another $62,500—bringing the total fees involved to 6 per cent. They also bring the effective yield to the lender—and cost to the borrower—to 8.25 per cent.

The housing industry had hoped that HUD would produce a program for conventional mortgages, but HUD officials were unable to devise a program that would ensure a secondary market for the mortgages.

The program can be used in connection with half a dozen FHA programs: section 207, for unsubsidized rental housing; for urban renewal housing, under Section 220; Section 213 co-op apartments; condominium projects, including those for the elderly; nursing homes; and market-rate projects under Section 221(D)(4). Projects calling for Section 8 subsidies for low-income families are eligible also, but there are no set-asides especially for such applicants.

There are no geographical allocations under the program; funds are committed on a first-come, first-served basis to all "qualified lenders."

Regarding the Community Development Act of 1974, HUD says its reports and surveys on uses to which block grant money is being put shows clearly that "there is greater emphasis on preventing and eliminating blight in the early stages of decay."

The swing in spending patterns, based on surveys of a large number of cities, shows that for every $1 spent on acquiring property for demolition, 90 cents is being spent on rehab loans and grants. In the bad old days under urban renewal, for every $1 spent on rehab loans and grants $13 was spent on acquiring properties for demolition.

In 151 cities checked, 27 per cent of their funds are being used to "improve and upgrade neighborhoods through the use of urban renewal/neighborhood development programs"; 18 per cent of their funds are for upgrading blighted residential neighborhoods.

A survey of 397 communities shows that they are planning to rehab or replace 9 per cent of their total substandard units immediately. As HUD notes, "at this rate, identified existing substandard housing could be eliminated within 11 years."

These 397 communities are planning assistance to 209,000 units—of which 30 per cent are rehab, 43 per cent new construction, and 27 per cent will be putting low-income families into existing structures.

Only 7 per cent of the cities are planning new construction only, only 4 per cent rehab only, and only 9 per cent using existing housing only.

More than half the new construction planned is for the elderly, probably because, the report suggests, "existing housing may have architectural barriers restricting mobility of those household types."

In general, mayors now have at their disposal a big new pot of money for housing and community development—and the local citizenry must be given a chance at influencing how the money is spent. That is, the mayor must hold meetings for citizen participation. The law depends on the voters to force the local politicians and bureaucrats to spend the money as the citizens want. HUD in Washington is out of the picture, except to see that spending plans and follow-through conform to the law and HUD's regulations.—*Donald Loomis, World News, Washington.*

Joshua Freiwald

Sacramento Street Apartments, San Francisco. Kaplan/McLaughlin, Architects, Planners

Costing an indoor tennis building

Building System	Average $/SF	Average %Tot	High average $/SF	High average %Tot
Foundations	$0.37	1.7	$0.39	1.6
Substructure	0.74	3.4	0.78	3.2
Superstructure	1.47	6.8	1.55	6.4
Exterior closure	2.95	13.6	3.42	14.0
Roofing	1.99	9.1	2.11	8.6
Partitions	1.78	8.2	2.18	8.9
Wall finishes	0.20	0.9	0.25	1.0
Floor finishes	0.27	1.2	0.33	1.4
Ceiling finishes	0.55	2.5	0.67	2.7
Specialties	0.68	3.1	0.72	3.0
Conveying systems	0.00	0.0	0.00	0.0
Plumbing	2.20	10.1	2.46	10.1
Fire protection	0.06	0.3	0.07	0.3
Hvac	4.12	18.9	4.62	18.9
Electrical	2.06	9.5	2.31	9.5
General conditions	1.10	5.1	1.16	4.8
Net building cost	20.54	94.4	23.02	94.3
Equipment	1.23	5.6	1.38	5.7
Gross bldg. cost	21.77	100	24.40	100
Sitework	1.22	5.6	1.37	5.6
Construction cost	$22.99		$25.77	

Space planning guide

Indoor tennis court (6 ea)	37,700	sq. ft.	.57%
Squash & handball	3,400		.05
Lockers, saunas	2,700		.04
Office, pro shop, refreshments	2,700		.04
Spectator & storage	6,300		.10
Walkways (covered)	13,500		.20
Gross Area	66,300		100%

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

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.5	522.0	479.6	514.2	501.5	+ 9.6
Atlanta	7.5	607.4	572.8	598.6	587.8	+ 4.1
Baltimore	8.5	592.5	557.2	583.6	566.7	+ 8.7
Birmingham	7.3	456.2	424.4	424.9	438.6	+ 6.5
Boston	9.0	521.4	492.7	524.0	506.1	+10.9
Buffalo	9.1	580.2	528.9	571.7	554.9	+10.0
Chicago	8.3	557.3	523.4	549.1	542.3	+ 5.7
Cincinnati	8.8	555.0	510.0	547.4	534.5	+10.0
Cleveland	9.0	538.4	494.2	530.5	517.4	+ 4.2
Columbus, Ohio	8.2	536.6	489.0	528.7	513.0	+ 5.9
Dallas	7.9	504.2	478.4	499.2	489.1	+ 4.5
Denver	8.4	559.7	515.9	553.1	541.8	+ 8.5
Detroit	9.8	625.2	570.6	617.8	591.8	+10.8
Houston	7.4	488.0	450.2	480.8	472.3	+13.6
Indianapolis	7.8	460.8	422.9	454.0	443.6	+ 7.4
Kansas City	8.7	514.4	477.6	507.3	498.4	+14.3
Los Angeles	8.5	604.4	542.1	590.9	579.6	+11.6
Louisville	7.6	500.3	460.7	492.9	483.3	+ 6.9
Memphis	8.4	535.9	493.2	528.0	517.4	+11.6
Miami	7.9	565.1	525.6	557.9	544.6	+15.0
Milwaukee	8.7	613.9	557.7	604.9	585.1	+16.0
Minneapolis	8.9	547.8	503.5	541.3	528.8	+10.0
Newark	9.0	500.6	456.6	493.2	479.3	+ 6.3
New Orleans	7.5	502.7	465.7	495.8	486.5	+11.8
New York	10.0	548.3	499.1	535.5	524.2	+ 3.5
Philadelphia	9.1	582.2	538.3	574.3	558.3	+ 9.4
Phoenix (1947 = 100)	8.2	300.0	275.8	295.6	289.3	+11.3
Pittsburgh	8.9	521.0	474.9	514.9	498.7	+ 9.4
St. Louis	8.7	541.4	499.6	534.0	521.9	+10.9
San Antonio (1960 = 100)	7.6	200.6	184.9	198.0	193.9	+ 9.2
San Diego (1960 = 100)	8.7	223.0	203.8	219.7	213.7	+10.8
San Francisco	9.6	778.4	692.3	761.0	740.2	+11.9
Seattle	8.6	537.1	463.8	523.1	504.5	+14.3
Washington, D.C.	8.4	525.5	479.4	517.8	502.9	+11.7

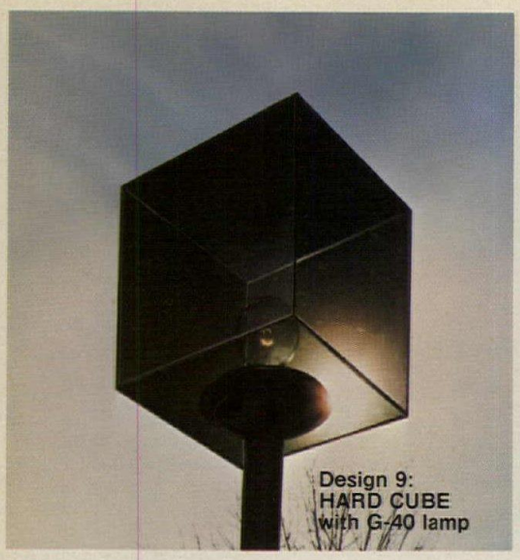
Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

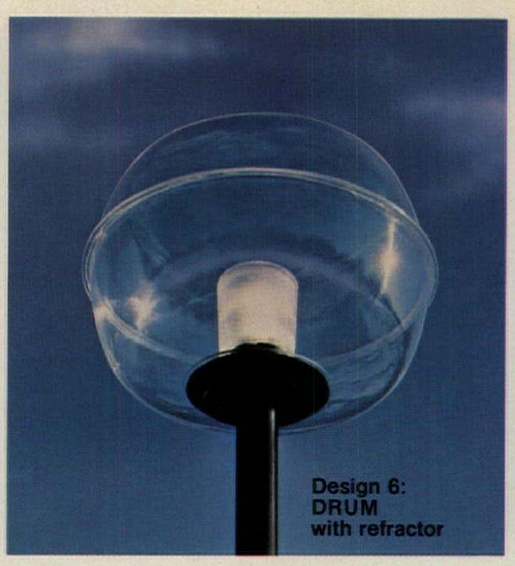
Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

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

Metropolitan area	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 (Quarterly) 1st	2nd	3rd	4th	1975 (quarterly) 1st	2nd	3rd	4th
Atlanta	321.5	329.8	335.7	353.1	384.0	422.4	459.2	497.7	544.8	555.2	556.7	573.5	575.0	583.8	585.3	597.2	598.7
Baltimore	285.7	280.9	295.8	308.7	322.8	348.8	381.7	420.4	475.5	516.3	517.8	532.8	534.3	538.7	540.2	579.6	581.1
Birmingham	265.9	270.7	274.7	284.3	303.4	309.3	331.6	358.3	402.1	405.5	407.0	419.7	421.2	438.6	440.1	447.4	448.9
Boston	257.8	262.0	265.7	277.1	295.0	328.6	362.0	394.4	437.8	455.1	456.6	461.0	462.5	484.1	485.6	511.7	513.2
Chicago	311.7	320.4	328.4	339.5	356.1	386.1	418.8	444.3	508.6	514.2	515.7	528.1	529.6	539.2	540.7	558.6	560.1
Cincinnati	274.0	278.3	288.2	302.6	325.8	348.5	386.1	410.7	462.4	484.5	486.0	498.6	500.1	518.0	519.5	549.1	550.6
Cleveland	292.3	300.7	303.7	331.5	358.3	380.1	415.6	429.3	462.2	490.3	491.8	508.0	509.5	516.6	518.1	529.5	531.0
Dallas	260.8	266.9	270.4	281.7	308.6	327.1	357.9	386.6	436.4	453.7	455.2	476.4	477.9	488.3	489.8	498.1	499.6
Denver	294.0	297.5	305.1	312.5	339.0	368.1	392.9	415.4	461.0	476.1	477.6	508.5	510.0	530.4	531.9	552.1	553.6
Detroit	284.7	296.9	301.2	316.4	352.9	377.4	409.7	433.1	501.0	519.5	521.0	537.2	538.7	554.4	555.9	596.0	597.5
Kansas City	256.4	261.0	264.3	278.0	295.5	315.3	344.7	367.0	405.8	435.6	437.1	443.4	444.9	481.1	482.5	507.6	509.1
Los Angeles	297.1	302.7	310.1	320.1	344.1	361.9	400.9	424.5	504.2	514.3	515.8	531.3	531.8	546.7	548.2	592.6	594.1
Miami	277.5	284.0	286.1	305.3	392.3	353.2	384.7	406.4	447.2	467.6	469.1	484.6	485.5	499.5	501.0	557.4	558.9
Minneapolis	285.0	289.4	300.2	309.4	331.2	361.1	417.1	412.9	456.1	469.7	471.2	487.1	488.6	513.9	515.4	536.5	538.0
New Orleans	256.3	259.8	267.6	274.2	297.5	318.9	341.8	369.7	420.5	437.5	439.0	440.6	442.1	463.5	465.0	493.2	494.7
New York	297.1	304.0	313.6	321.4	344.5	366.0	395.6	423.1	485.3	497.4	498.9	513.8	515.3	524.1	525.5	532.0	533.5
Philadelphia	280.8	286.6	293.7	301.7	321.0	346.5	374.9	419.5	485.1	495.7	497.2	517.0	518.5	531.5	533.0	566.0	567.5
Pittsburgh	267.0	271.1	275.0	293.8	311.0	327.2	362.1	380.3	424.4	443.7	445.2	464.1	465.6	475.2	476.7	508.0	509.5
St. Louis	280.9	288.3	293.2	304.4	324.7	344.4	375.5	402.5	444.2	458.7	460.2	475.2	476.7	497.5	499.0	527.4	528.9
San Francisco	368.6	386.0	390.8	402.9	441.1	465.1	512.3	561.0	632.3	647.1	648.6	671.0	672.5	716.0	717.5	751.8	753.3
Seattle	268.9	275.0	283.5	292.2	317.8	341.8	358.4	371.5	424.4	437.8	439.3	448.7	450.2	472.5	474.0	513.6	515.1

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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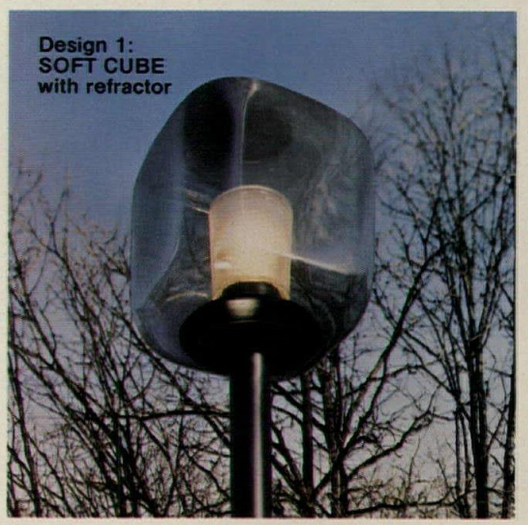

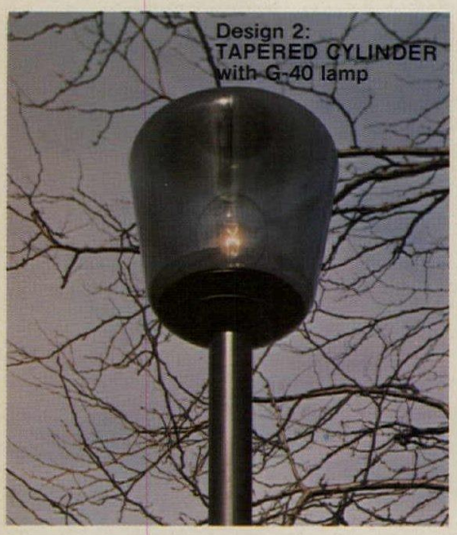

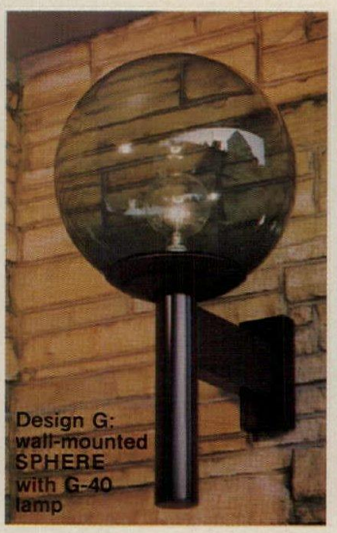

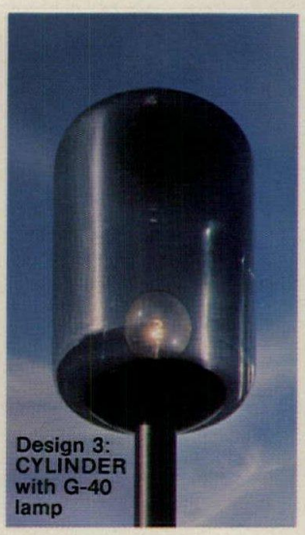

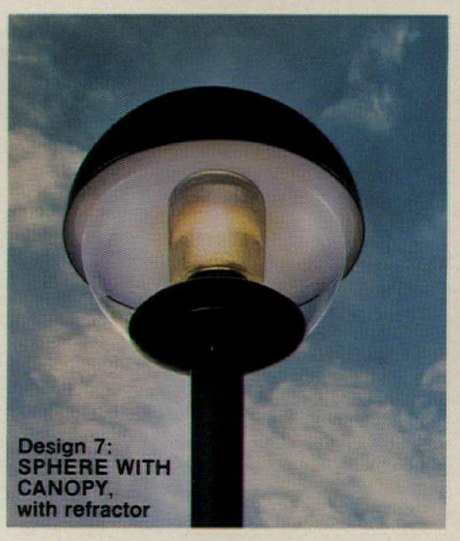

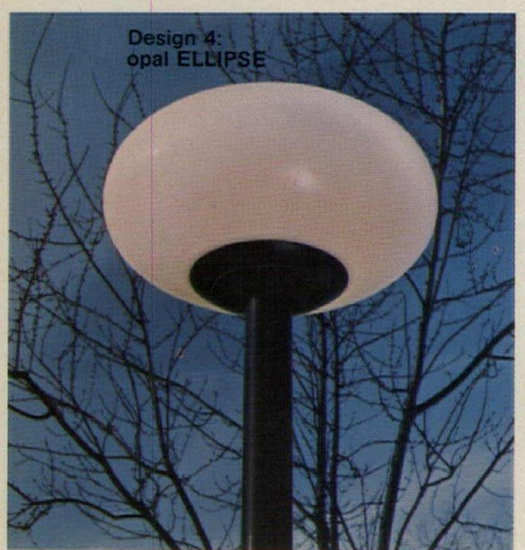

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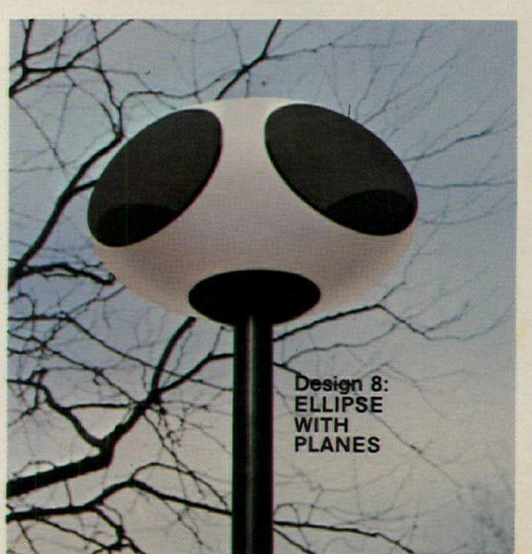


Regional building roundup: 1975

Without the assistance of energy-related projects and the improvement in single-family housing, the value of construction would have declined sharply in 1975. Instead, the Northeast was the only region where the decline in the value of total construction was greater than in 1974. The totals for the Midwest and the West were edged up in 1975 by the start of nuclear power plants (in the Midwest), oil refineries, petrochemical plants and the Alaska pipeline (all in the West). The South also benefited from the petroleum industry and nuclear power projects, but not enough to offset a decline in other construction. Certain types of construction, such as commercial and apartment building, did poorly in 1975.

Construction costs increased at an average rate of 9 per cent through September. The value of construction has been inflated by rising costs. In order to get a clearer picture of developments in the industry in 1975, comparisons have been made based on changes in physical area.

Nonresidential building

Office and bank building was off sharply (measured in number of square feet) in all regions in 1975, following its sharp decline in 1974. The office and bank building expansion of the sixties and seventies was interrupted by the recession, high vacancy rates, and high interest costs. The shift from blue- to white-collar employment nationwide in the sixties and seventies explains the office building boom of the same period. In the Northeast and the Midwest, office and bank building was leveling off before the recession. Employment trends in the South and the West suggest that office building will resume in these regions when interest costs and vacancy rates improve, but the Northeast has been overbuilt, as the vacancy rates demonstrate only too well.

Stores, warehouses and other commercial buildings under construction in 1975 also dropped sharply, following earlier declines in single-family and multi-family housing in 1973 and 1974. In the Midwest, where unemployment is very high and aggregate purchasing power is correspondingly low, construction of stores dropped 30 per cent. The South and the West dropped 20 per cent. In the Northeast, construction dropped to such an extent in 1974 and 1975 that the region's normal market share dropped by 5 per cent. Improvement in the construction of stores and shopping centers will come first in the West, where single-family housing construction was already on the rise in 1975 (but is close to its ceiling).

Excess capacity produced a drop of 35-40 per cent in *manufacturing* plants under construction in 1975. There were some notable exceptions in the South and the West, where construction of oil refineries and petrochemical plants increased the dollar value of total construction.

Institutional building—schools, hospitals, public buildings, religious buildings, amusement buildings, social and recreational buildings—is characterized by relatively stable long-term growth. In the past, the more heavily populated and affluent Northeast and Midwest had the larger share of the institutional construction market, but, with shifts in population and faster growth in personal income, the South and West have increased their share of the total market, and the South has emerged with the largest share.

Educational and science buildings construction has shown a declining trend in three out of four regions in recent years because of declining enrollments and demographic changes. All regions declined in 1975, except the West, which has been running counter to the trend since 1973.

Hospital construction dropped off in the South and the Northeast in 1975, following increases in these regions in 1974. The Midwest showed a small gain and the West was unchanged. Trends differ among the regions—the Northeast appears to be declining, the Midwest and the West are steady, and the South is increasing slightly.

All other types of institutional construction were unchanged or lower in 1975. There were some exceptions—public buildings were up in the Northeast, amusement, social and recreational buildings were up in the West, and religious buildings were up in the Northeast.

Residential Building

Single-family housing showed considerable improvement in 1975, although the year-to-year totals declined in two out of four regions. The South was unchanged. The West was the exception: both physical volume and contract value increased. Year-to-year contract value showed a small increase in the Midwest and the South, a 25 per cent increase in the West, and a 1 per cent decline in the Northeast. Following two very good years—1971 and 1972, when interest rates nose-dived—housing construction began to slip downward in 1973, and then dropped sharply in 1974 as interest rates reached record highs and mortgages declined.

The turnaround in 1975 came after short-term rates declined through June 1975 under the influence of an easier monetary policy, but then rates began a sharp, though temporary, rise in July and August. The higher level of interest rates was enough to startle the recovery, and savings institutions hesitated to make additional long-term commitments when confronted by the possibility of another run on deposits. Although interest rates remained high in 1975, short-term rates receded from the August peak. Lower rates in 1976 should sustain the recovery in this market, but expansion will be restrained by high prices and a recession-induced caution on the part of some buyers.

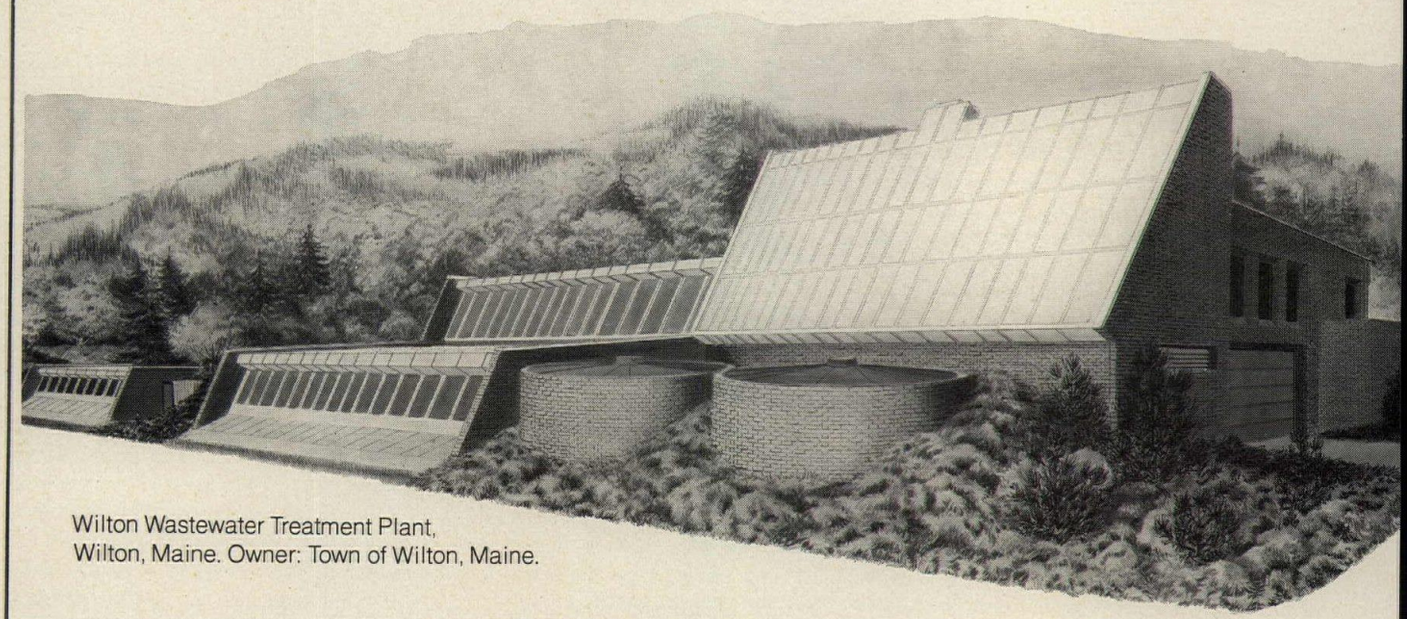
The construction of *multi-family* housing in 1975 was at a 15-year low. There is no mystery surrounding the causes of the slump which affected all regions beginning in 1973: first, the moratorium on Federal subsidies leading to a scaled-down Federal housing program; second, the over-extension of real estate investment trusts (RECORD, December 1975, page 57); third, the inflation of costs, and rental or selling problems (condominiums). The Northeast and the Midwest were depressed by the loss of HUD 236 money, the South was depressed by overbuilding for the private market (condominiums), and the West was affected by a combination of the problems besetting the other regions. The declines in the West have been sharp, but not as deep as in the other regions. As for 1976, there are too many problems with multi-family housing to permit much of a recovery.

For two years in a row, *hotel and motel* construction dropped very sharply. The biggest drop was in the Northeast—65 per cent; the least was in the West—35 per cent. The industry was more than likely adversely hit by the uncertainty of the effect of the increase in gasoline prices in 1973 and 1974, and the 1974-1975 recession. Both resulted in less traveling for some families. This attitude will change with economic recovery and building should resume, although at a slower rate than in the early seventies.

Dormitory construction was mixed among the regions in 1975. The Northeast was off sharply, while the Midwest was unchanged. The South and the West increased sharply, most likely in response to the needs of a faster growth in the population of these two regions.

Jeanne A. Grifo
Senior Economist
McGraw-Hill Information Systems Co.

Announcing the 1975 Owens-Corning Energy



Wilton Wastewater Treatment Plant, Wilton, Maine. Owner: Town of Wilton, Maine.

When Owens-Corning initiated its Energy Conservation Awards Program in 1971, our first year's winners conserved energy by concentrating on ways to be more energy efficient.

Our two winners this year—plus a third building receiving honorable mention—go beyond that. They set out to be *energy independent.* At most, only 20% of their power comes from outside sources.

Read on for details. You may find a way your company can save energy.

Wilton Wastewater Treatment Plant, Wilton, Maine

Three solar collectors set at 60° southern exposure supply a large portion of the thermal energy needed by the plant. In addition, methane gas, created as a by-product of the waste treatment process, is collected and stored to power a gas boiler and an electric generator on cloudy days.

The plant is built into a hillside. This provides gravity flow for the waste treatment process, reducing energy requirements. The hillside also maximizes solar energy gain and reduces heat loss.

The plant's unusually compact design helps retain heat.

Heating costs (using solar energy, methane gas and occasional outside sources) are estimated to be 80% less than for a conventional structure heated by oil.

Design by Douglas A. Wilke, Architect and Engineer, Glen Head, N.Y., and Wright, Pierce, Barnes, Wyman Engineers, Topsham, Maine.

Terraset Elementary School, Reston, Virginia

A 7,000-sq.-ft. solar collector plays a primary role in supplying energy to heat and cool this 60,000-sq.-ft. structure.

The solar collector is complemented by a double bundle heat reclaim water chiller plus a variable-volume air distribution system. In addition, a 60-ton absorption chiller will be connected in series to a 100-ton electric-driven reciprocating water chiller unit for maximum cooling efficiency in summer.

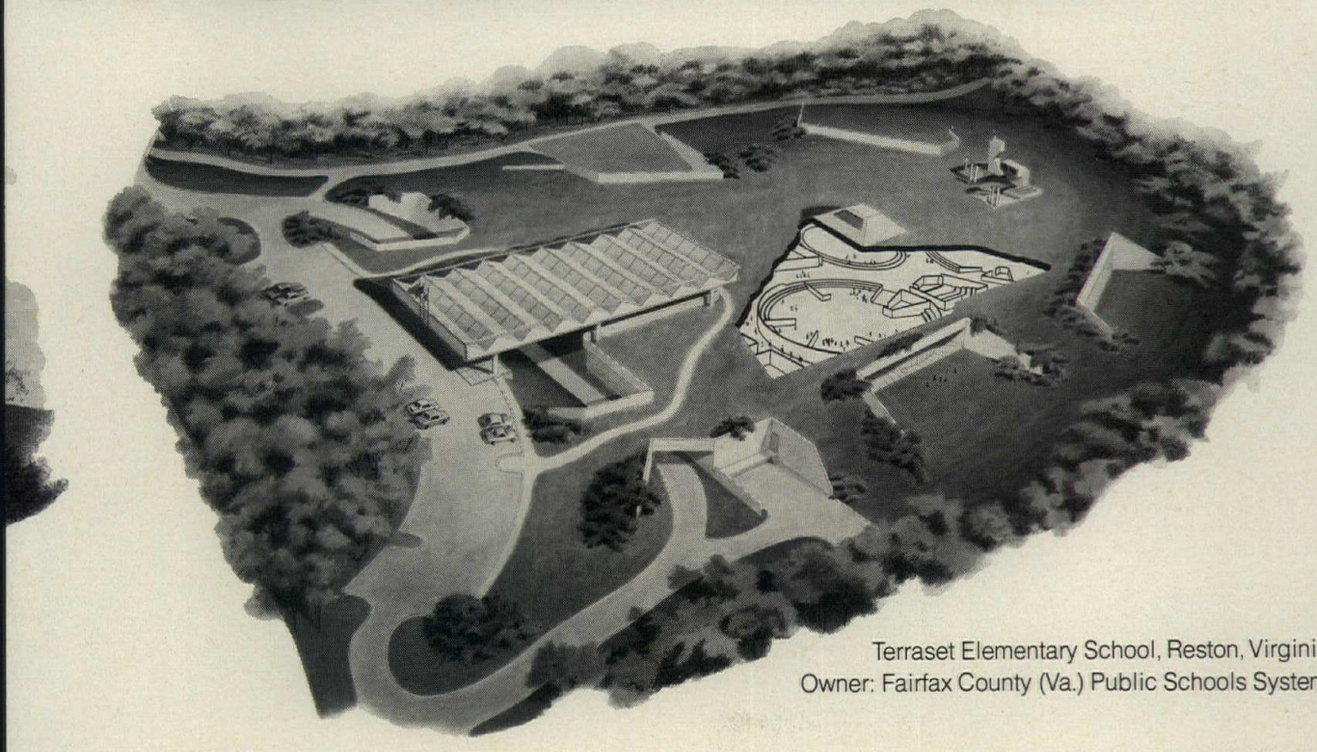
Both the solar and mechanical systems are computerized to optimize energy efficiency.

The structure is mostly below ground, which provides efficient, natural insulation. Only 20% of the wall area contains glass, with the glass recessed to minimize heat loss and gain.

Energy costs for the first year of operation are expected to be $31,600 *less* than for an all-electric system. And $19,400 *less* than for a fossil-fuel system.

Design by Davis, Smith & Carter,

winners of the Conservation Awards



Terraset Elementary School, Reston, Virginia.
Owner: Fairfax County (Va.) Public Schools System.

Inc., Architects. Mechanical system design by Vinzant Associates. Both of Reston, Virginia. Hankins and Anderson, Inc., Richmond, designed the solar energy system.

Honorable Mention

For the Princeton Education Center, Blairstown, New Jersey.

Solar collectors provide about 75% of heating load and nearly 100% of the hot water needs.

A 12-kw hydrogenerator on a nearby 12-acre lake, and a 6-kw experimental "sail wing" wind generator, provide 90% of electrical needs.

Design by Harrison Fraker, Architect, Princeton, N.J., and Flack and Kurtz, Consulting Engineers, New York.

The 1975 Energy Conservation Awards Jury

This year's winners were selected by:

Ken Mahal, President, L.K. Mahal Associates, Bloomington, Minn.

William L. Porter, Dean, School of Architecture and Planning, MIT, Cambridge, Massachusetts.

Robert R. Ramsey, V.P., Leo A. Daly Company, Omaha, Neb.

Richard E. Masters, Partner, Jaros, Baum & Bolles, New York, N.Y.

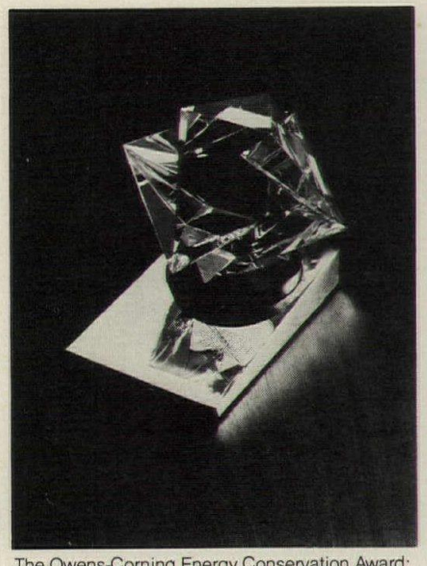
Dr. Robert Wehrli, Chief, Architectural Research Section, National Bureau of Standards, Washington, D.C.

Chih-Chen Jen, Principal in Charge of Design, Kahn and Jacobs/ Hellmuth, Obata & Kassabaum, P.C., New York, N.Y.

Free Energy Conservation Awards Program brochure

For more information about the winners and their designs, write:

Owens-Corning Fiberglas Corporation, Att. B.C. Meeks, Fiberglas Tower, Toledo, Ohio 43659.



The Owens-Corning Energy Conservation Award: "Triangles," a multi-faceted Steuben Crystal sculpture that captures and reflects light from triangular planes.

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There are a great many structural concepts, gaining wide acceptance around the country, that owe their commercial feasibility—or their very existence—to extensive pioneering by United States Steel.

Some of them are shown here. You'll recognize most of these ideas—you have probably utilized some of them. Of course, they help us sell steel in construction. But they also help you—by giving you more freedom in your designs, and more flexibility and economy in your buildings.

U.S. Steel has years of in-depth experience with these concepts, and we'd like to share our expertise with you. Check the concepts that interest you on the coupon below—we'll send you structural reports or other technical information on each of them. Or contact a USS Construction Representative through your nearest USS Sales Office.

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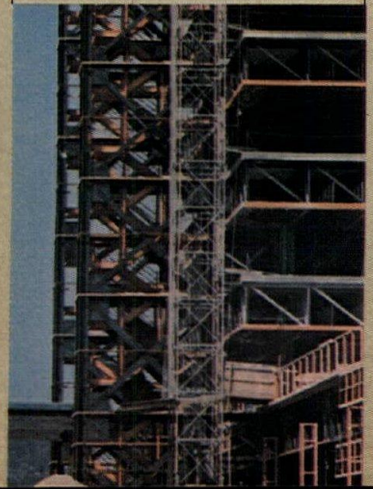
USS TRADEMARK **United States Steel**

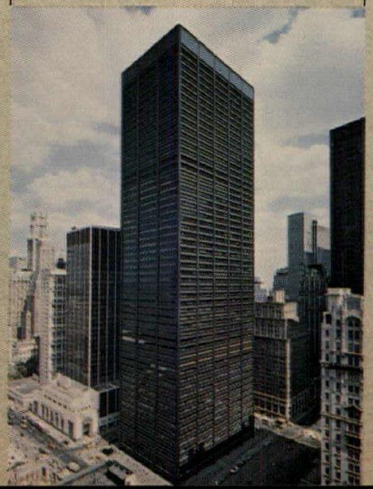
Interstitial Space Design. A series of structural steel 'sandwiches' or full height service levels between working floors—in which mechanical, electrical communication lines and distribution and collection systems can be housed and maintained. Over the past 6 years, 35 hospitals have been designed with it.

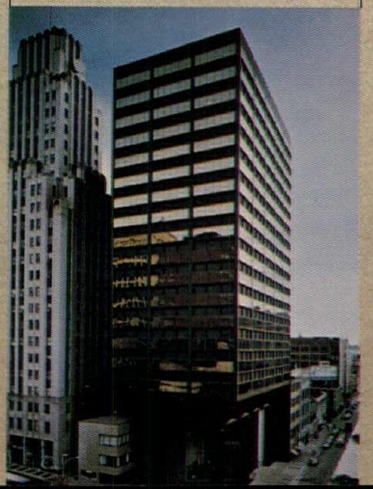
Flame-Shielding. Another fire-protection concept developed by U.S. Steel. Flame shielding eliminates having to cover perimeter structural steel members with fireproofing materials. Spandrels are protected by shields attached to the flanges of girders. The shields deflect the flames outward and away from the steel.

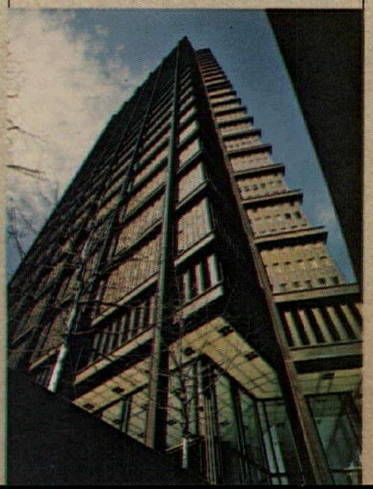
Fluid-Filled Columns. U.S. Steel advanced this unique method of providing fire protection for exposed steel columns. The hollow columns contain water, antifreeze and corrosion inhibitors. In case of fire, the fluid absorbs the heat and circulates within the closed-loop system.

Bare USS COR-TEN Steel. When boldly exposed to the atmosphere, USS COR-TEN High-Strength, Low-Alloy Steel weathers to a dark, earthy color that only nature imparts. The oxide patina inhibits further atmospheric corrosion. Unlike most materials, its appearance improves with age.









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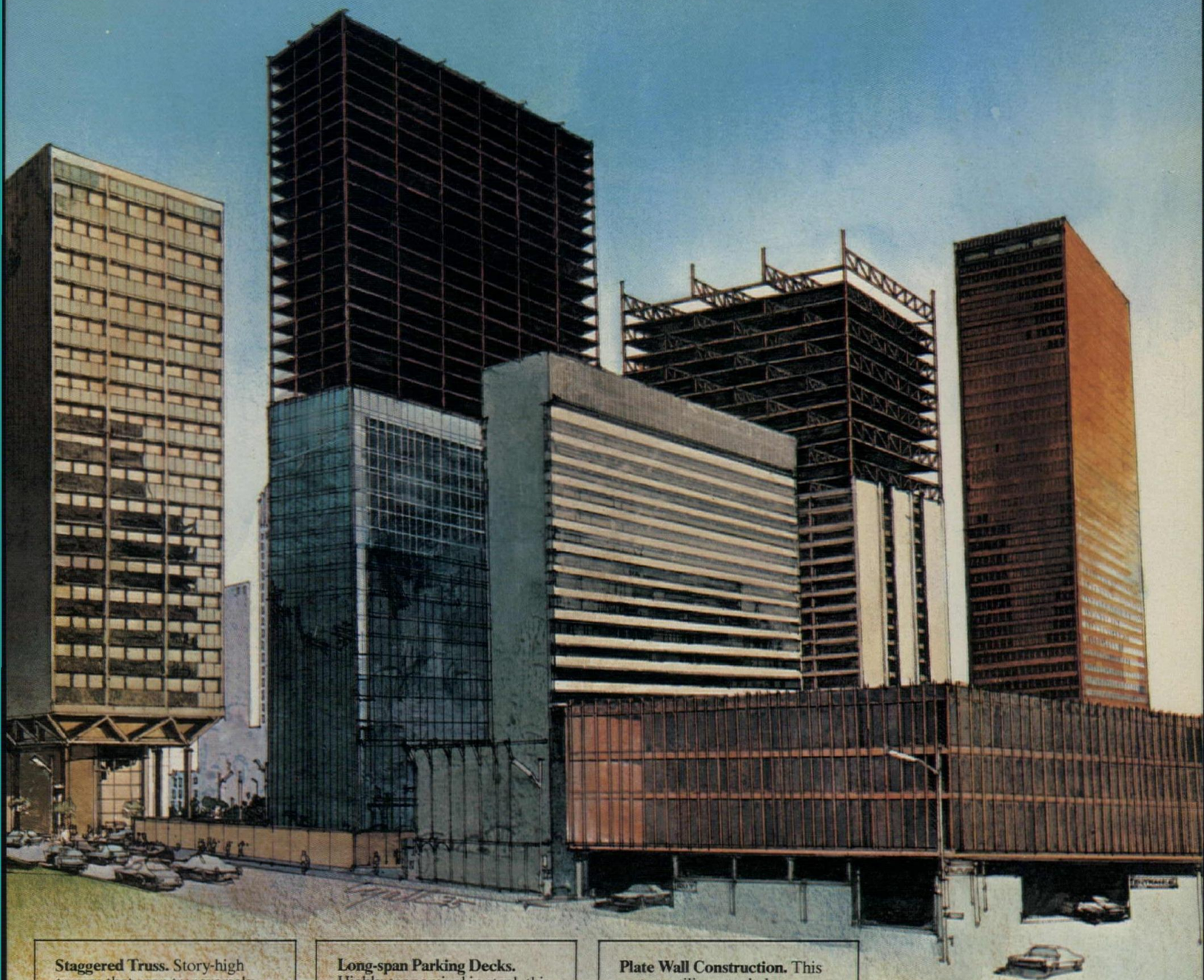
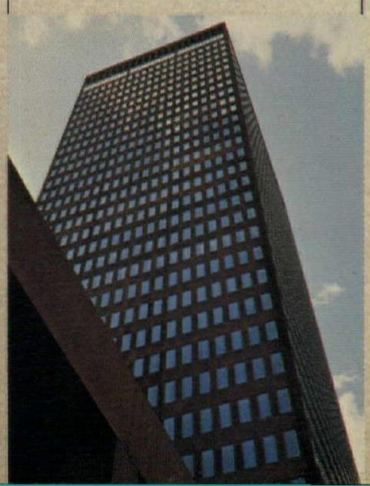


Staggered Truss. Story-high trusses that span transversely between exterior steel columns, in a staggered pattern, from floor to floor. Provides column-free interiors with less steel and simpler foundations. Speeds construction and permits earlier occupancy.

Long-span Parking Decks. Highly economical in steel, this concept has replaced precast or poured-in-place concrete in many new open-deck parking structures—because it results in more open space with a minimum of interior columns, and speeds construction time.

Plate Wall Construction. This system utilizes steel plates which have been shop-fabricated to form large exterior wall sections. These sections, which are generally a full story high and a bay wide, are fastened directly to the structural frame.



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Please send me information on the items checked:

- ☐ Interstitial Space Design.*
- ☐ Flame-Shielding.
- ☐ Fluid-Filled Columns.
- ☐ Bare USS COR-TEN Steel.
- ☐ Staggered Truss.
- ☐ Long-span Parking Decks.
- ☐ Plate Wall Construction.*

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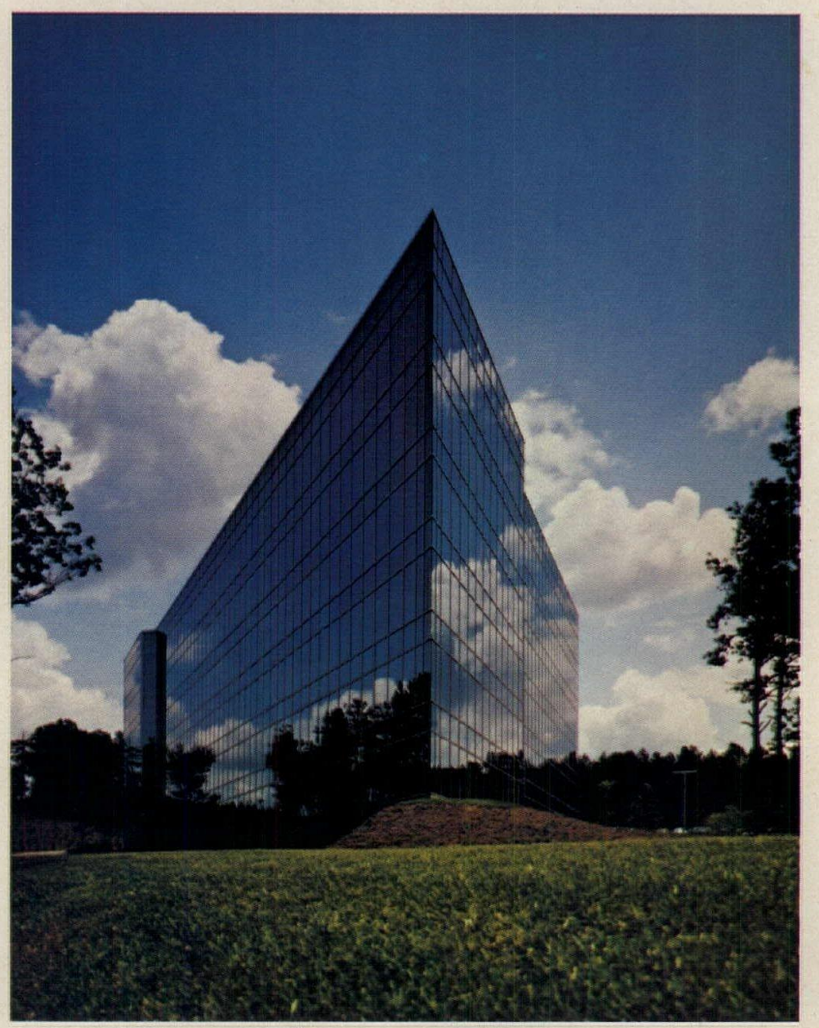

The Triangle Building, Atlanta, Ga.
Thompson, Ventulett & Stainback, Inc., Architects

"I call architecture frozen music," Johann von Goethe wrote in 1829.

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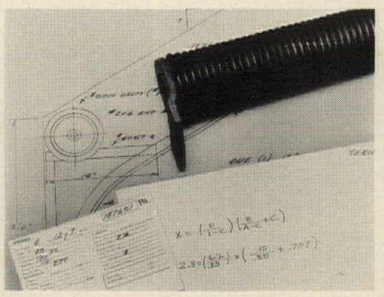

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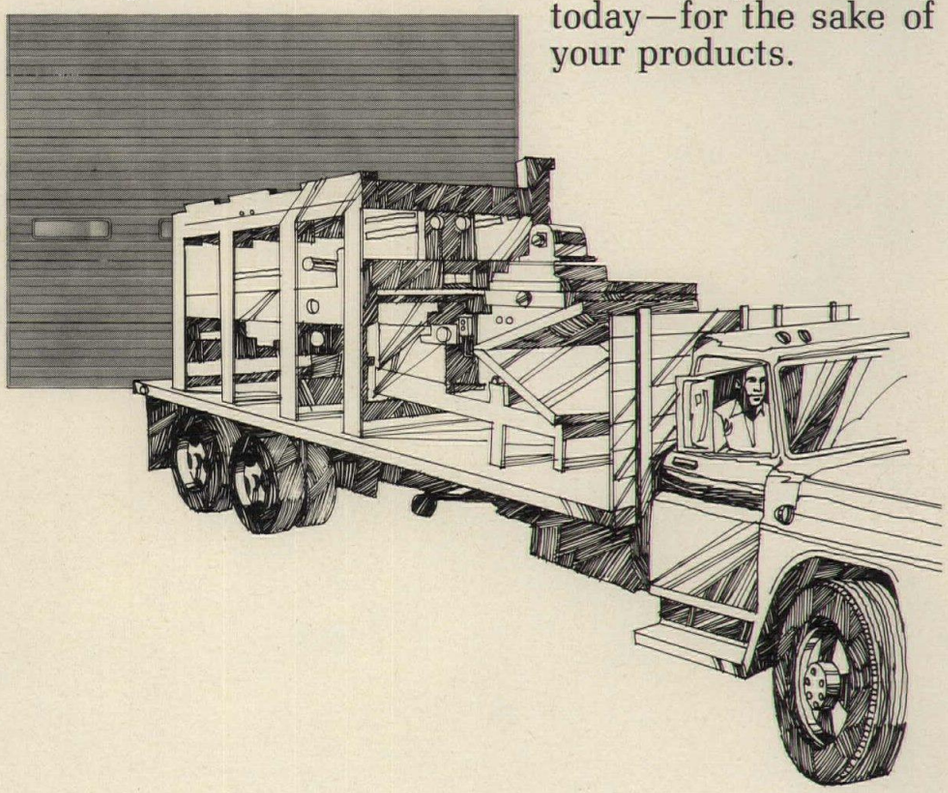

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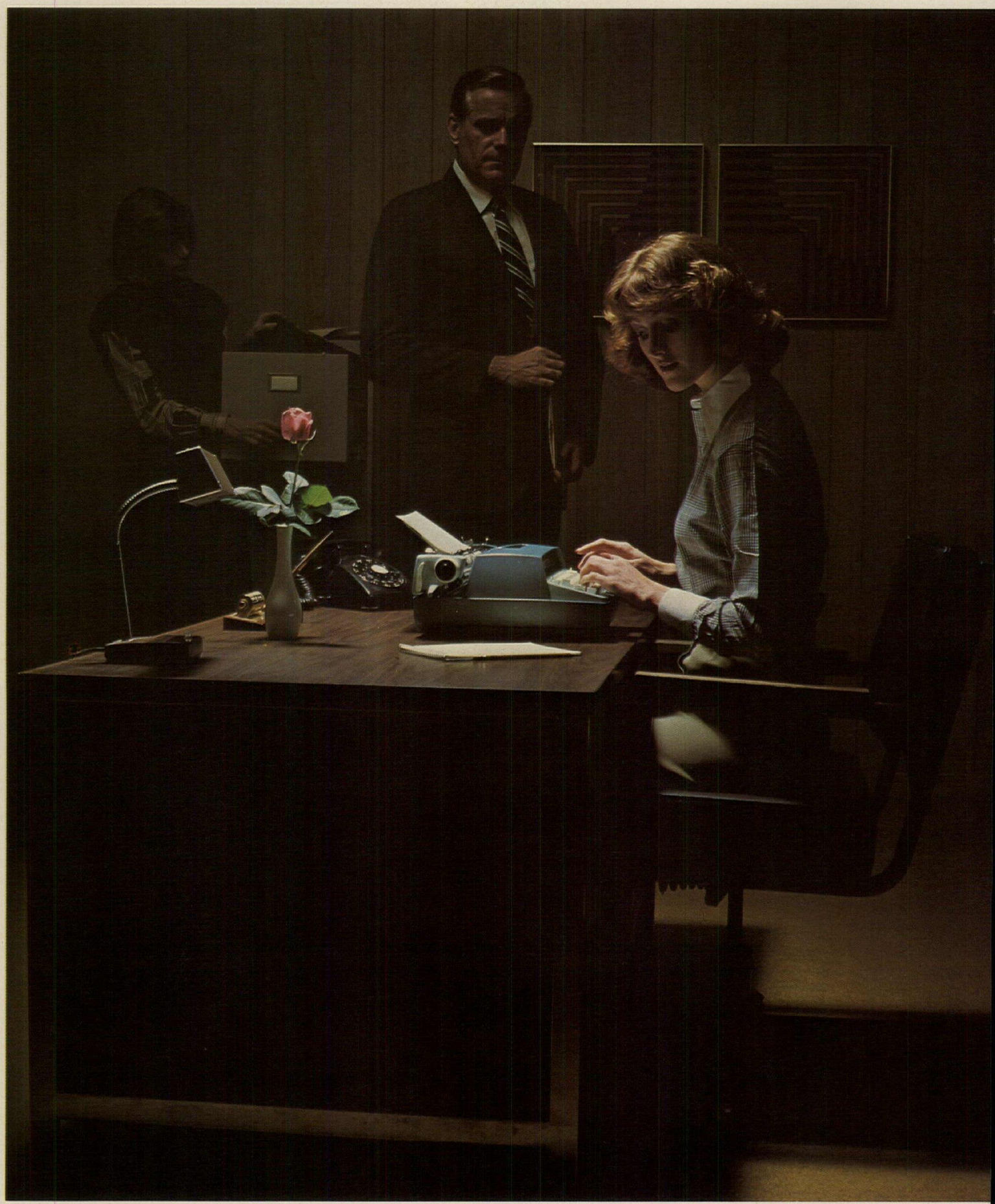

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If your people see better, it stands to reason that they can work better. And you'll get more good work done, with a lot less error. And when you do set up a Group Relamping program for your office, you can save extra money on labor costs. For information on Watt-Miser fluorescents and Group Relamping, write General Electric, Dept. C-601, Nela Park, Cleveland OH 44112.

Cut the cost, not the light.

GENERAL ELECTRIC

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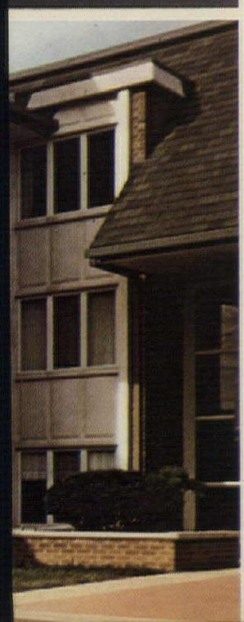

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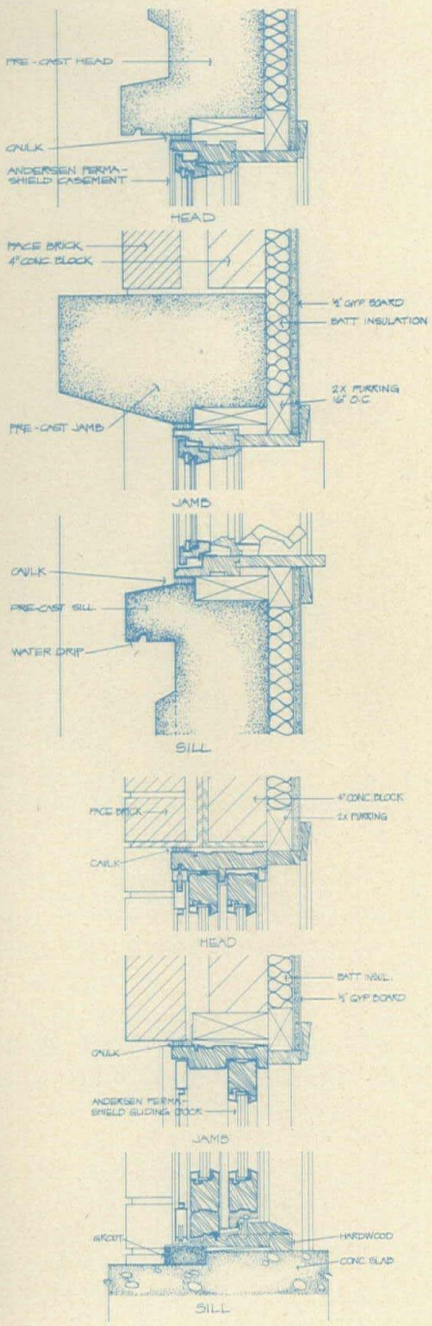

The Oak Brook Club, Oak Brook, Ill.
Developer: American Growth Development Corporation, Oak Brook, Ill.
Architect: Leitch/Kiyotoki/Bell & Assoc., Newport Beach, Calif.

The Oak Brook Club provides lavish, spacious condominium living in one of Chicago's finest suburbs.

Each unit is designed exclusively for upper income buyers no longer wanting the bother of maintaining a large home.

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Perma-Shield Windows and Gliding Doors are also two times more weathertight than industry air-infiltration standards. To help seal out drafts and dust, help save on heating and cooling costs.

And their solid, easy operation and secure locking connote the feeling of Oak Brook Club luxury and security.

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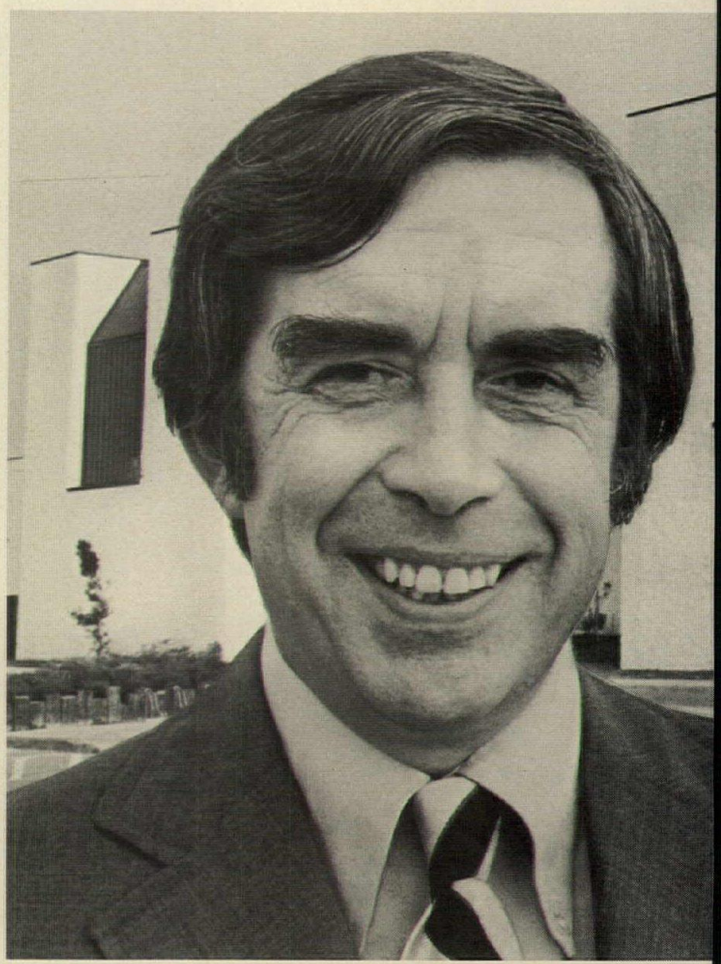
"BlocBond helped job in 9 months. Believe



"Normally, we take 12 months to do a job the size of Westwood Fashion Place Mall. But we had to bring this one in within nine. Not easy."

That's Ken Miller talking. He's Vice-President and Project Manager of Monumental Properties, Inc.

"BlocBond* went a long way in helping us do it—because you just trowel it on the concrete block walls. (NOTE: BlocBond can also be sprayed on. See photo below.) With block and mortar construction you lose time—you've got to put mortar between every block.

Spraying is the fastest way to apply BlocBond. Three men can cover about 1200 sq. ft. an hour.

"BlocBond is also more water-resistant than any other system I know of. There's a definite plus.

"And you know the final thing that made us go BlocBond? The first-class textured finish it gives on the exterior walls—that really sold us. (BlocBond comes in white, gray, and beige.)

"It's a quality product and a good system. We'll use it again."

BlocBond is a revolutionary masonry product that lets builders use a new construction technique. It's made with a cement base, alkali-resistant glass fibers, and has water-resistant qualities.

One-eighth-inch thick, BlocBond is equal in racking strength to a conventional block and mortar wall—and superior in flexural strength. It is also more water-resistant and more fire-retardant.

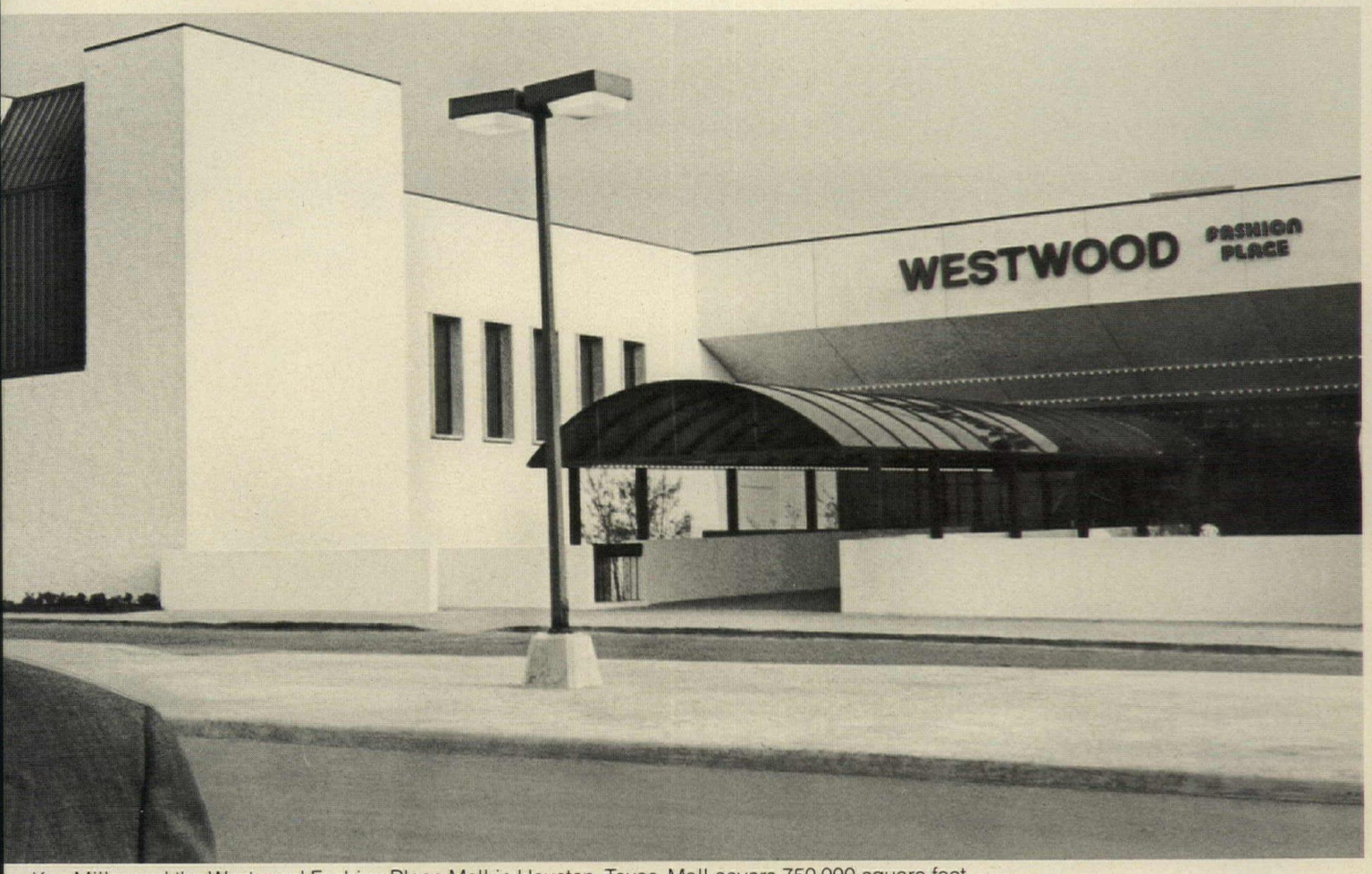
Basically, here's all there is to using it:

1) Dry lay the blocks.
2) Wet the wall.
3) Spray or trowel BlocBond on exterior and interior surfaces.
4) Mist walls to assure full hydration.

Give it the finish you want. Apply trowel BlocBond ⅛" thick—it can be left as is, swirled,

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

us do a 12-month
me, we'll use it again."



Ken Miller and the Westwood Fashion Place Mall in Houston, Texas. Mall covers 750,000 square feet.

or ribbed with a brush. Apply spray BlocBond ⅛" thick for a basic stipple finish. Or, for a smoother finish, spray one coat 1/16" thick, trowel it over, then spray a second coat 1/16" thick.

What do the people who work with BlocBond think of it?

James Hoggatt, masonry contractor for Westwood Fashion Place Mall, says, "My men found BlocBond easy to work with—really enjoyed doing the job. Now, we're recommending it on a lot of projects."

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B. B. Meeks, Owens-Corning Fiberglas Corporation
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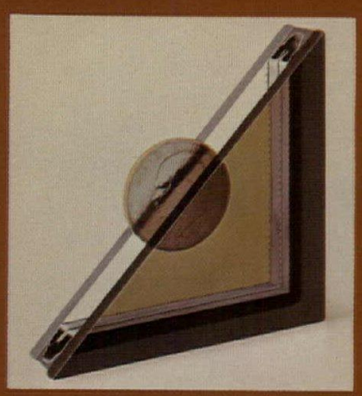
We've designed Tru-Therm® to save 2 of the scarcest things in today's world. Energy and money.



We know the crunch affecting both is something you recognize all too well. We also want you to have a solution you can live with —aesthetically and economically—for years to come. That's why ASG Tru-Therm insulating glass units are built to provide outstanding efficiency, trouble-free performance and genuine durability. And they can do it right from the beginning, facilitating a reduced initial investment in heating and air conditioning equipment, along with a long-term cut in the consumption of costly fuel.

Thanks to Tru-Therm, it's feasible to increase the size of exterior openings to take maximum advantage of natural light, thereby minimizing the energy consumed by artificial lighting. Tru-Therm units are available in a wide variety of sizes with a choice of air spaces. What's more, they're adaptable to all the latest glazing techniques; and all glass used in them can be tempered for extra strength and safety.

Tru-Therm shows its real beauty with an exterior lite of Bronze or Gray tinted twin-ground plate glass. Both are heat absorbing and glare reducing. Gray tinted glass blends with white, gray and black accented buildings. The Bronze harmonizes ideally with tinted glass spandrels and other earthtone materials, while giving a beautifully subdued reflective appearance. In fact, when you stop to think about it, we're going easy on three things. Energy, money and who knows how many eyes. For complete information, write ASG Industries, Inc., Dept. A, P.O. Box 929, Kingsport, Tennessee 37662.

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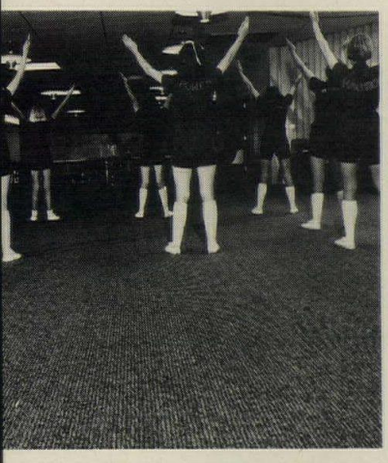
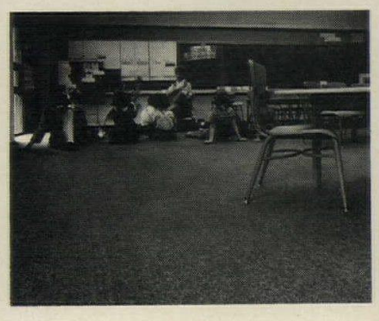
ASG
the glass company





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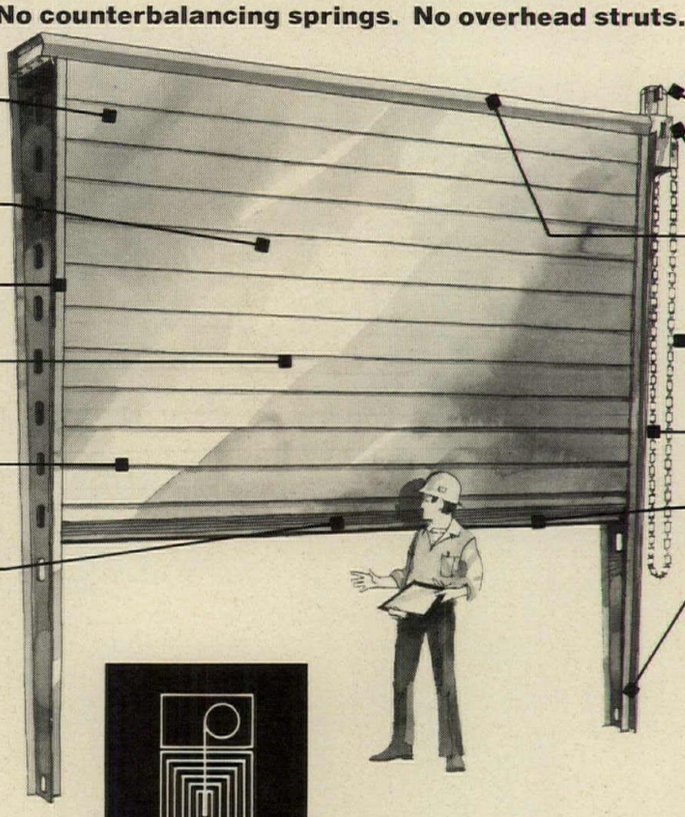
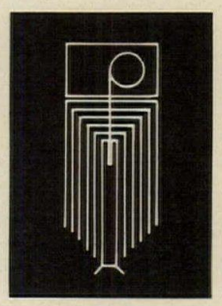
IF YOU'RE LOOKING FOR AN INDUSTRIAL DOOR THAT'S SIMPLE, COMPACT, STRONG, RELIABLE, SAFE, FAST AND QUIET, HERE IT IS . . .

No counterbalancing springs. No overhead struts.





When door is open, hollow sections nest compactly overhead—saving space—minimizing clearance requirements.

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The Inryco Telescoping Door has no counterbalancing springs or weights and few moving parts subject to wear and tear. Thus it eliminates the major causes of operating failure—provides the reliability so critically needed at high traffic openings. Outstanding resistance to damage—easy repair. Fast, quiet operation. Simple, all-steel construction, with two coat baked enamel finish on door panels. Standard sizes available for doors 100 to 400 sq. ft. in area. Custom doors furnished in smaller sizes and larger sizes thru 30 ft. x 30 ft.

For further information, see Sweet's Arch. or Ind. Constr. Files, section 8.9/In. Or write to Special Products Group—Milcor Division; INRYCO, Inc.; Dept. C, 4033 W. Burnham St.; Box 393; Milwaukee, WI 53201.

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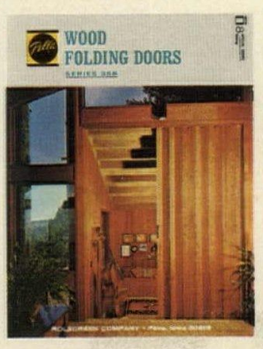
For more detailed information, send for your free copies of our 8-page, full-color brochures on Pella Wood Folding Doors. See us in Sweet's Architectural File. Call Sweet's BUYLINE number or look in the Yellow Pages, under "doors", for the phone number of your Pella Distributor.



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VULCRAFT WENT TO GREAT LENGTHS TO ACCOMMODATE SPEED FAB-CRETE®.

Speed Fab-Crete International, a large experienced builder, was never one to shrink from a challenge.

And that's just what they got when they were approached by the Electric Hose and Rubber Company.

Electric Hose and Rubber was growing. That meant they needed to grow right into a new manufacturing building. Fast.

As general contractor, Speed Fab lost no time getting into action. They took a thorough look at the rough plans for the 76,000 square foot facility to be built in Olney, Texas. The plans required unusually large bay areas. And that was no small order.

Vulcraft recommended the use of joist girders rather than I-beams. And they had the data to back up their recommendation, too.

Speed Fab took their advice. And the results were impressive.

Joist girders, together with 106 foot long-span joists, provided for the necessary large clear span bays inside the building.

Joist girders and joists were engineered and designed to accommodate special load requirements, such as three 50' overhead cranes capable of carrying 6-ton loads.

Joist girders and joists were manufactured and shipped to Speed Fab quickly. And that enabled them to complete a turnkey job in only 80 working days.

Speed Fab, with the help of Vulcraft, had filled the bill for Electric Hose and Rubber.

To find out how Vulcraft can accommodate your operation, contact your local Vulcraft representative. Or write Vulcraft, P.O. Box 17656, Charlotte, North Carolina, 28211 for your Joist & Joist Girder Guide. (See Sweet's 5.2/Vu.) Or call (704) 366-7000. Vulcraft will go to any length to help you.

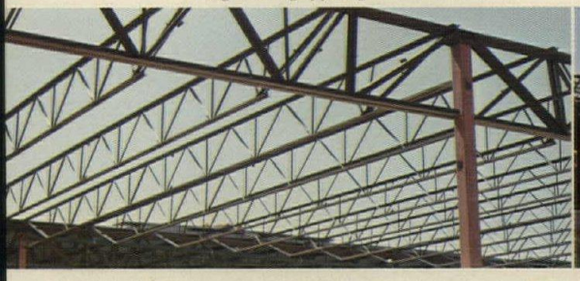
VULCRAFT
A Division of Nucor Corporation

Building Owner: Electric Hose and Rubber Company, Wilmington, Delaware. General Contractor: Speed Fab-Crete Corporation International, Fort Worth, Texas.

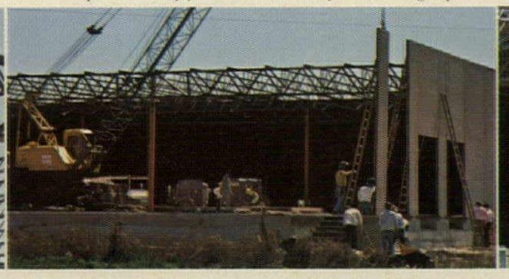
For more data, circle 65 on inquiry card

Long-span joists of 106' length provided large clear span bays needed for this building.

Lighter weight columns could be used because of the weight saving of joist girders over I-beams.



A complete turnkey job was done in only 80 working days.



Joists and joist girders were highly compatible with Speed Fab-Crete's load bearing concrete wall panels.

Joist girders were engineered and designed to meet the particular requirements of this job.

GRAND CENTRAL STATION vs. ACRILAN® 2000+

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THE SAME ACRILAN 2000+ CARPET, 1 MILLION TRAFFICS, SEVERAL POUNDS OF DIRT AND GRIME, AND 1 THOROUGH CLEANING LATER.

Monsanto is constantly testing the capabilities of Acrilan 2000+ carpet. Last year we put it up against one of the toughest opponents we could think of... Grand Central Station. Grand Central gave the carpet a real work out, but again Acrilan emerged the decided winner.

Not even the high traffic of Grand Central Station and the dirt and weather elements of a city the size of New York would beat the incredible stain resistance, abrasion resistance, colorfastness, and static resistance of Acrilan 2000+ carpet.

But, the real triumph was the amazing ability of Acrilan 2000+ carpet to be restored to its original appearance.

How does this example of Grand Central Station relate to your installation problems and needs? It simply illustrates that the capabilities that make Acrilan 2000+ a tough opponent for Grand Central are the same capabilities that allow it to meet the challenge of any installation... large or small.

Monsanto

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320 Interstate North Parkway
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TIME, TURF, ARCHITECTS AND PLANNERS

The city of Philadelphia, scene of this spring's AIA National Convention, has made itself a notable and controversial reputation as a cradle of mid-twentieth-century urban planning. A visit to the city now —almost thirty years after the 1947 "Better Philadelphia Exhibition" and fifteen years after the last AIA convention there—raises the question how well have the ambitious plans of yesteryear been vindicated. From his own point of view, Edmund N. Bacon, who was formerly director of Philadelphia's City Planning Commission, suggests some answers—which architects can compare with their own experiences of the city this May. . . .

In April of 1961 architects who had come to Philadelphia for the AIA National Convention were presented with a giant chalk talk at which Willo von Moltke, Vincent Kling, Roy Larson, Oskar Stonorov, Ieoh Ming Pei, Robert Geddes and the staff of the City Planning Commission illustrated the plans for future Philadelphia (RECORD, May 1961, pages 131-146). This event was preceded fourteen years earlier by the 1947 "Better Philadelphia Exhibition," previewing Philadelphia thirty years in the future. Now that those thirty years have almost elapsed, we may observe and experience what actually happened, and is happening, in relation to some very specific forecasts.

What has been done is a matter of facts. You may experience for yourself what was built and what is planned. I hope to show how the different parts relate to each other and to the whole (for, remarkably, there is a whole to relate to).

Why what was done was done is an elusive and subjective question, and the last thing I claim in this regard is objectivity; I do intend to present a highly personal perspective on the forces that translated these very large visions into reality.

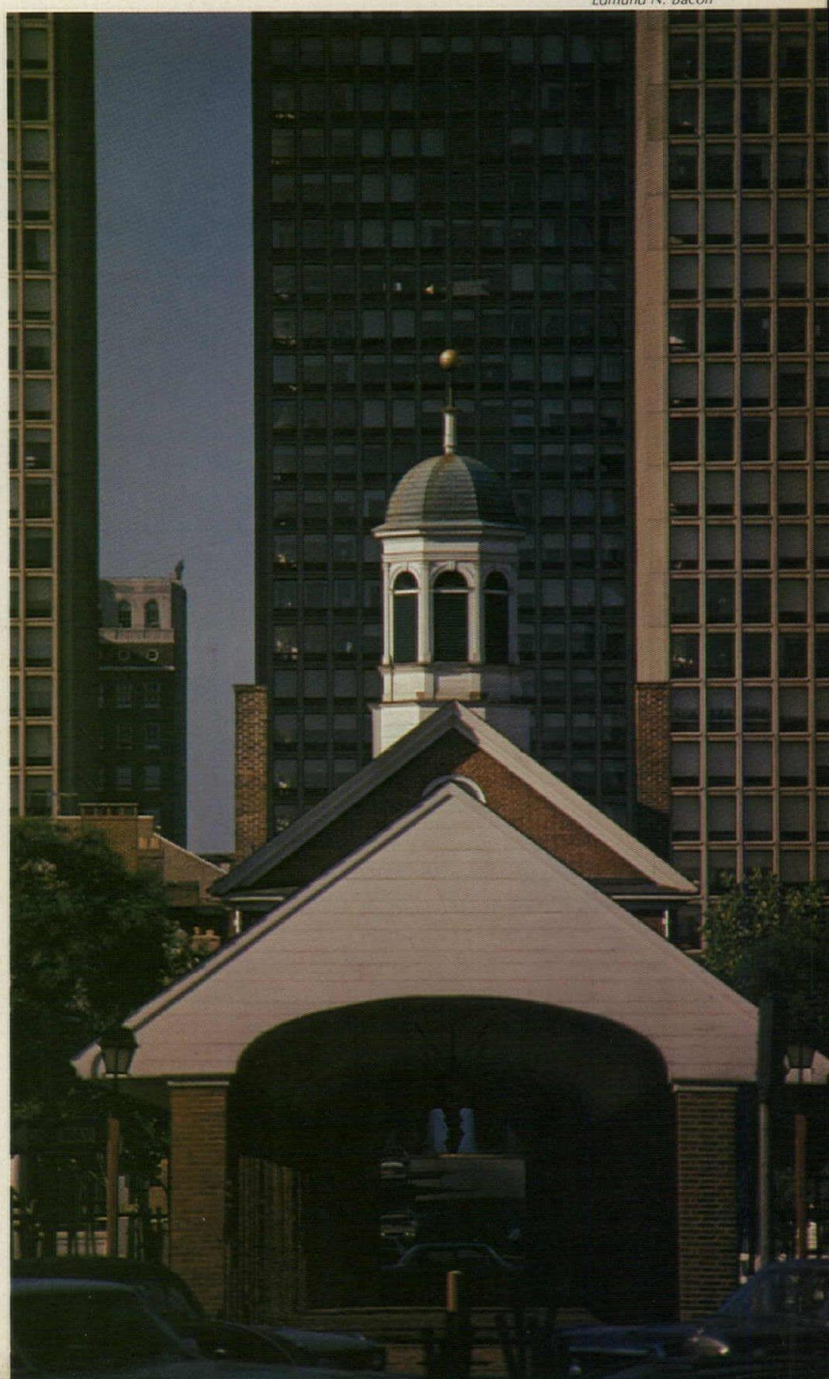
The most important single fact is that, starting in 1939, there has been a continuous, systematic and very determined effort by a group of people to hold the city together and to make it better. Although the initial impetus came from the city government (and the roots were for a long time in government), the basic activity was a two-legged one—one foot firmly planted in government, one in private practice.

I doubt whether the many participants in this effort would agree on a simple formulation of the concepts which underlay their work. Yet concepts there were, and, given this opportunity, I will state my views on what they were:

- Experience consists of a continuous flow of sensory responses over the course of time.
- *All* the city must be kept alive and enjoyable for *all* its citizens.
- Direct action, impelled by incisive communication, is necessary, both as a source of new ideas and as a means for carrying them out.

A design element had to be found that engaged a larger territory than that of a single building project and involved a much longer time span. This design underbase had to generate the civic action to translate it into reality, and it also had to be sufficiently potent to interrelate the work of many architects in a way that would produce a meaningful whole and still not impose severe restrictions on the individual designer's creativity. What was necessary was a faculty *in addition to,* not replacing, design ability.

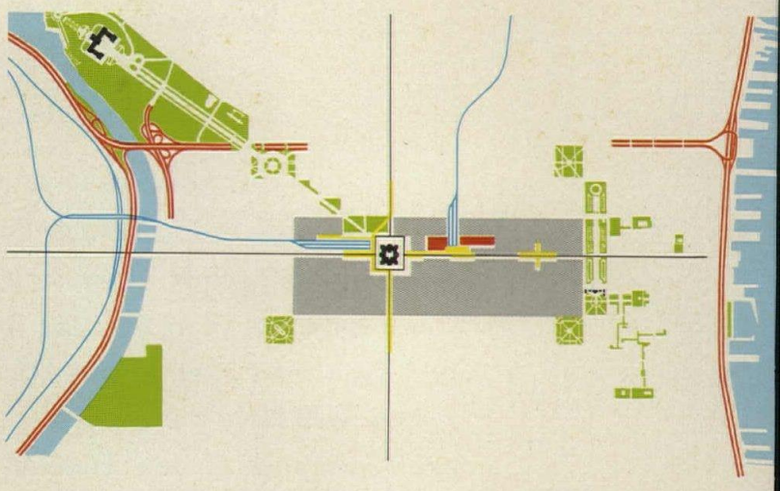
Edmund N. Bacon



Time's companion, change, is evident in central Philadelphia's emerging plan...

STRUCTURE

The urban design of Philadelphia is related to a clear, three-dimensional structure that interweaves automobile, rail and pedestrian movement systems, terminal facilities, parking garages, public and private open spaces, greenways, malls and buildings. The three diagrams on the right show how it has evolved. In **1947** the structure was barely hinted at; the Two River Expressways were conceived, the waterfront parks, Independence Mall and the connecting greenways through Society Hill. By **1961** the structure had matured. The two commuter railroad systems were proposed to be combined into a single system reinforcing the northern edge of the linear core. The classically balanced expressway system surrounding the central core fed directly into parking facilities adjacent to the spine. On the surface Chestnut Street was proposed as a transit mall, and the garden-punctuated lower level of Penn Center was proposed to be extended a half mile into Market East, tied in with an upper level pedestrian system linking the four department stores. In **1976** the Crosstown Expressway along the southern edge is abandoned, and the retail spine is extended from river to river; the Society Hill greenway system is planned to be extended to Penn's Landing by a landscaped cover over the Delaware Expressway.



In 1947 the "Better Philadelphia Exhibition" planted the seeds . . .

CONCEPT

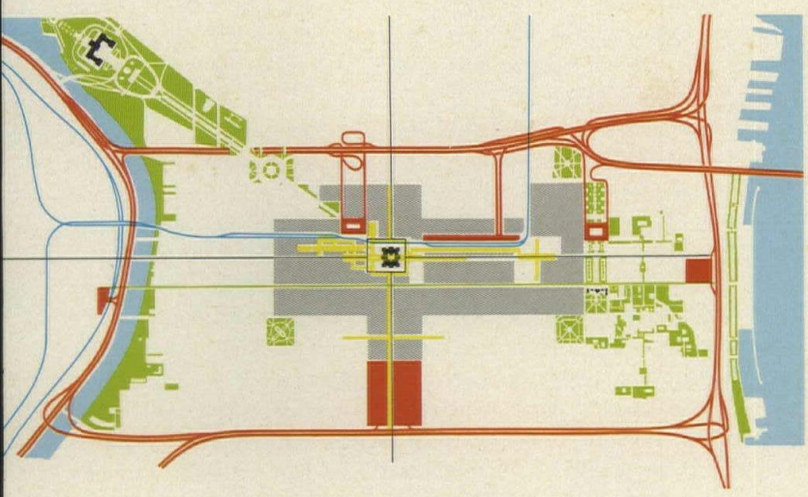
In **1947** the "Better Philadelphia Exhibition" imbued in the minds of the 385,000 Philadelphians who came to see it a vision of the city as a whole—very much more lively, attractive and enjoyable than it was then. The concept of public open spaces as generators of development was firmly established; Independence Mall, shown on the immediate right as it appeared in model form, connected with greenways threaded through Society Hill in substantially the same form as they were later built. By **1961** the concept of introducing light, air and gardens in subways and underground railroads was clearly formulated—as in the design opposite, for 15th and Market Streets, by Joseph T. Varello and Associates. The idea, which had originally been developed in 1947, was considered too radical for Penn Center in 1952, but by now it has become standard operating procedure. In **1976** the maturity of the concept is receiving expression in the four-level Rouse Company Mall now under construction (far right) between the Strawbridge & Clothier department store and the soon-to-be Gimbels store. The drawing on the right shows the advances that have been made in establishing the subway level as dominant—as compared with earlier work, which is based on the paradigm of a hole punched in the roof.

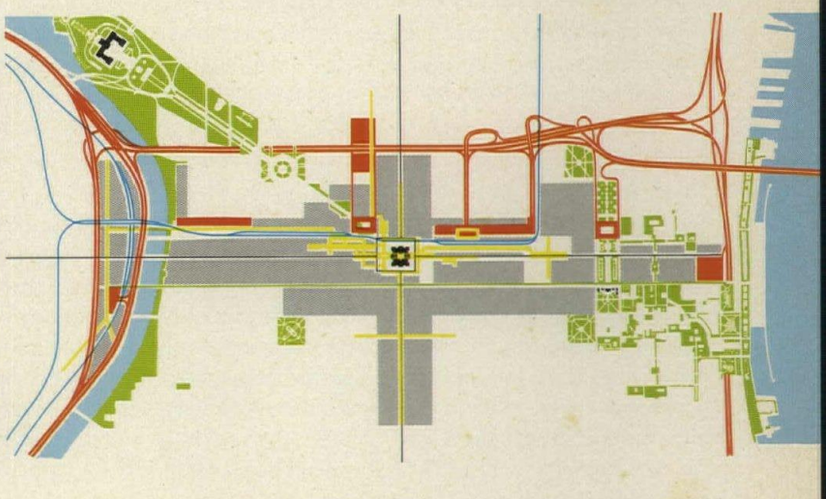
REALITY

In **1947** Philadelphia was a run-down city, the butt of vaudeville jokes, saddled with a corrupt political machine. Civic morale was low, and no new buildings had been built downtown since the great 1933 Howe and Lescaze Philadelphia Savings Fund Society. By **1961** there were signs of new stirrings everywhere. Penn Center was well underway, and, though a bare shadow of the planners' dream of it, it seized the imagination of the man in the street—and implanted the idea that Philadelphia could get things done after all. The Schuylkill Expressway was built, and the Delaware Expressway was under construction. The first block and a half of Independence Mall was built and the rest cleared. The first links of the Society Hill greenways were accomplished, and I.M. Pei's Society Hill Towers were started. In **1976** a vastly expanded Penn Center and Delworth Plaza west of City Hall are being completed. Chestnut Street has become a landscaped transitway, and Society Hill is nearing completion. Penn's Landing is graded and partly landscaped, and the beginnings of Market East are firmly established at both ends by 1234 Market Street, Gimbels and the Rouse Mall.

Skyphotos

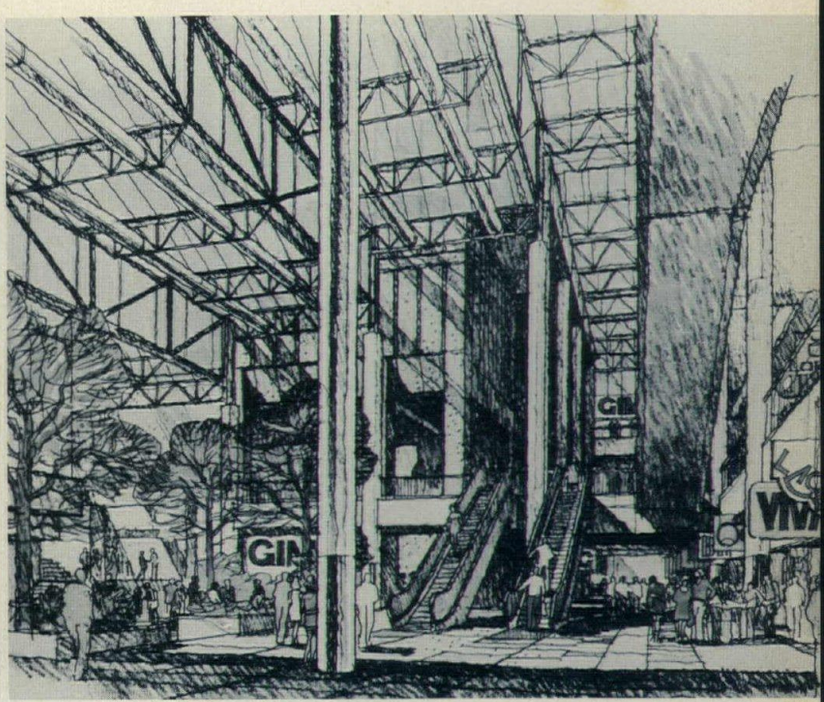
Alois Strobl, from *The Design of Cities*, by Edmund N. Bacon





which had grown into this by 1961 . . .

and matured even further by 1976.



How Philadelphia gets things done—or "great clienthood"

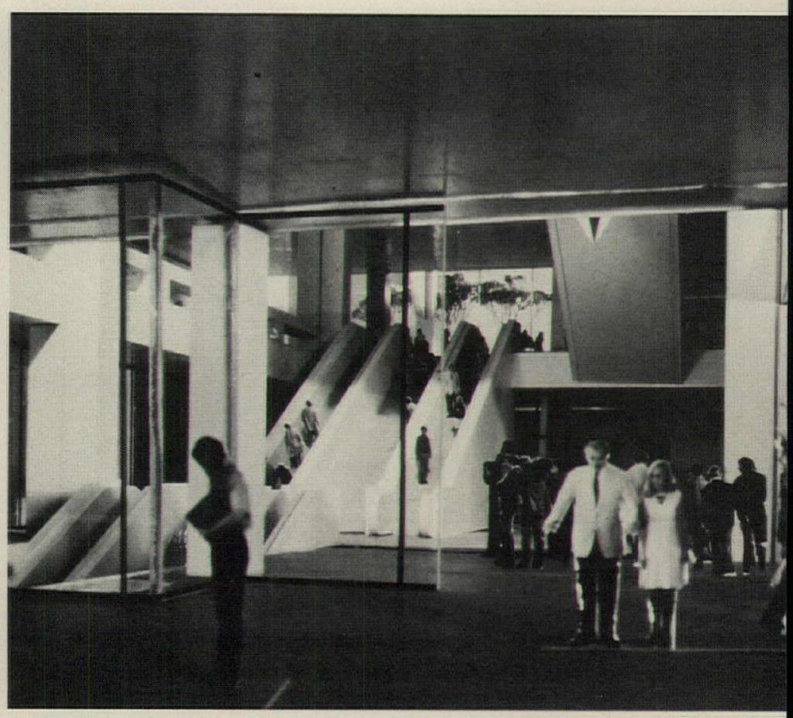
Rarely have the leaders of a city been faced with so inclusive a planning proposal—and rarely have they seized the opportunity and carried out coordinated projects on so large a scale. The range of people, interests and institutions involved has been remarkable; the seven buildings in the Penn Center area, all within sight of each other and all of coordinated design (by Vincent Kling), involve six different clients, one of which was the city government.

The city itself, and the regional agent SEPTA, have proved to be sensitive, imaginative and courageous clients. In addition to assigning to Kling the two open spaces connecting his buildings, the city also established him as co-designer, along with McCormick Taylor Associates, engineers, of the subway concourses underground—thus allowing him to deal with the total design of the system. The richness of building and plant materials, the underground fountain and the cascade from the subway all show a willingness on the part of a conservative city government to provide a fine experience for the thousands of people who pass through this area every day.

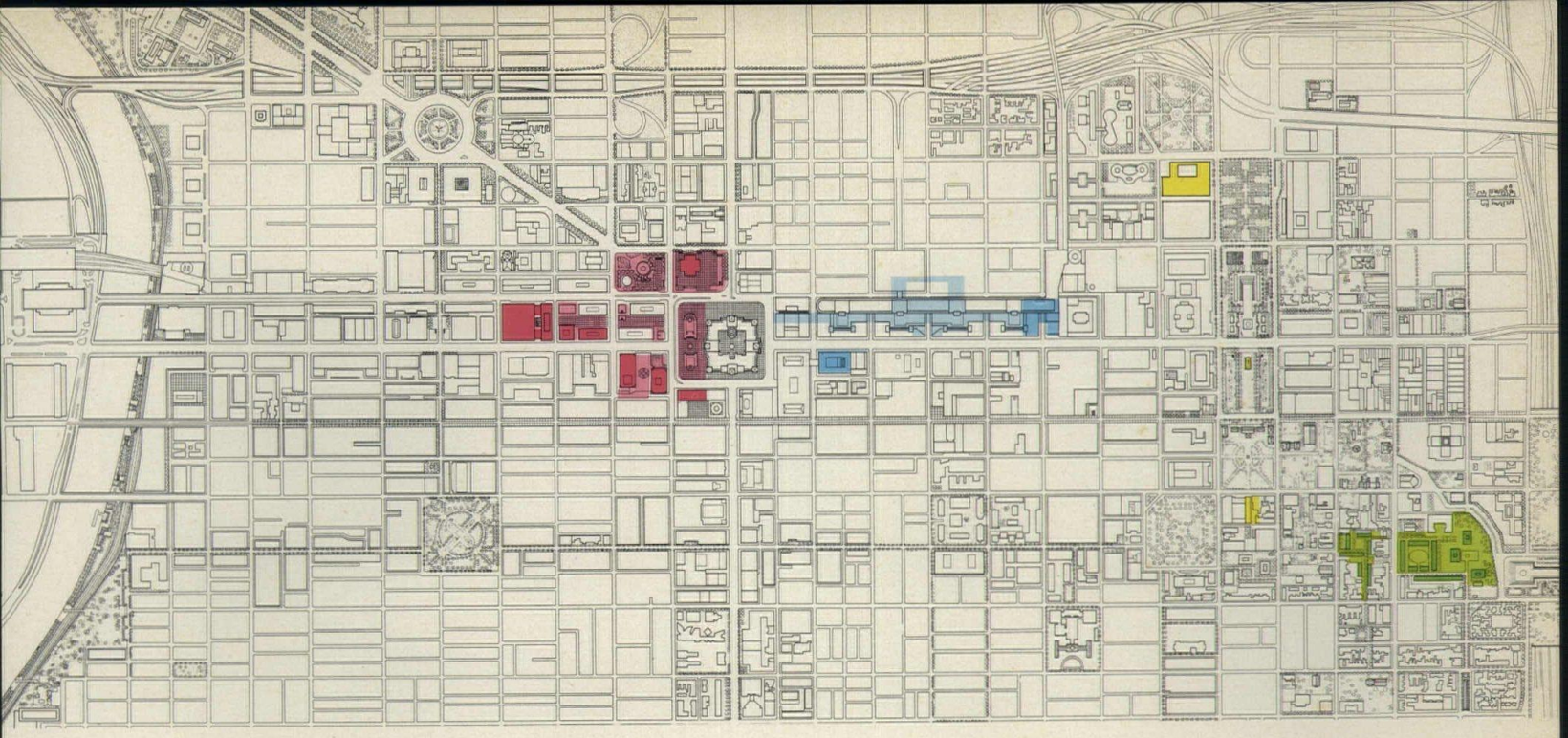
At the outset of the Market East discussions, it seemed as though the department stores would prevent the adoption of any over-all plan out of fear that it would give some advantage to one of their competitors. But the opposite happened. Wanamaker's and PSFS on their own initiative caused the development of 1234 Market Street (RECORD, December 1974, pages 88-89). Strawbridge & Clothier department store brought the Rouse Company in to build the four-level gallery between it and Gimbels at Tenth and Market Streets. The Penn Mutual Life Insurance Company, sensitive to its position at the end of Independence Mall, engaged Mitchell/Giurgola to design the extension of its older building (RECORD, December 1974, page 126), and the National Parks Service commissioned the same firm to design a new pavilion for the Liberty Bell—resulting in a remarkable civic design group.

The selection of Webb and Knapp as the developer for Society Hill was a joint decision by the city's leaders; they placed great weight on the superb design by I. M. Pei for the towers and townhouses—and their wisdom is confirmed by the built result.

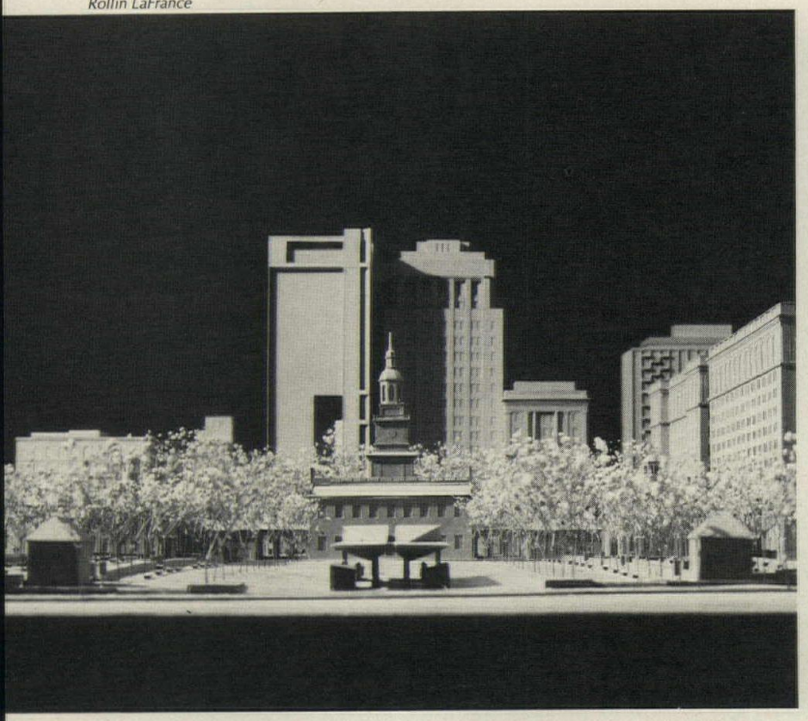
■ **VINCENT KLING** played a key role in initiating urban design as a viable force in Philadelphia. Through his work with the City Planning Commission, starting in 1950 with Penn Center, he had a deep understanding of the basic nature and objectives of the Penn Center idea. In the seven buildings he designed in this area (shown in red on the plan opposite page) he successfully convinced his various clients to tie together the public and private elements of the Penn Center development. As a member of the Pennsylvania Railroad's board of design (of which George Howe was chairman), he helped to establish principles for obtaining coherence in Penn Center, unity of materials and rhythms. As he moved into the role of architect for private clients he carried these principles forward into actual building projects—notably his Centre Square Galleria shown above. The influence of his work was enormously extended by his designs for the two significant connecting open spaces—Kennedy Plaza at the end of the parkway and Dilworth Plaza west of City Hall. His competence and understanding have achieved for him the many commissions that resulted in his total redesign of an environment on a scale not easily matched.



■ **JOHN BOWER,** schooled in the offices of the Planning Commission and, later, of Kling and Associates, emerged as the strongman in the area immediately east of City Hall (shown in blue on opposite page); in 1234 Market Street (above) and in the Rouse Company shopping mall (previous page) he has established the Market East idea at both its ends. The firm of Bower and Fradley was chosen by Wanamaker's and PSFS as their architect for the new development between their buildings—Wanamaker's by Daniel Burnham and PSFS by Howe and Lescaze—on the strength of their other work in downtown Philadelphia. John Bower proved to be so strong a designer and to display so deep an understanding of the relationship of his individual buildings to the design structure around them (particularly the subway) that he was chosen by the Redevelopment Authority on the recommendation of its advisory Old Philadelphia Development Corporation to carry the Market East work into its next phase. At 1234 Market Street you will see a model of all Market East and of the Rouse Mall; observe how, on every level and particularly at noontime, the people use these spaces, certainly one of the finest subway stations ever built.



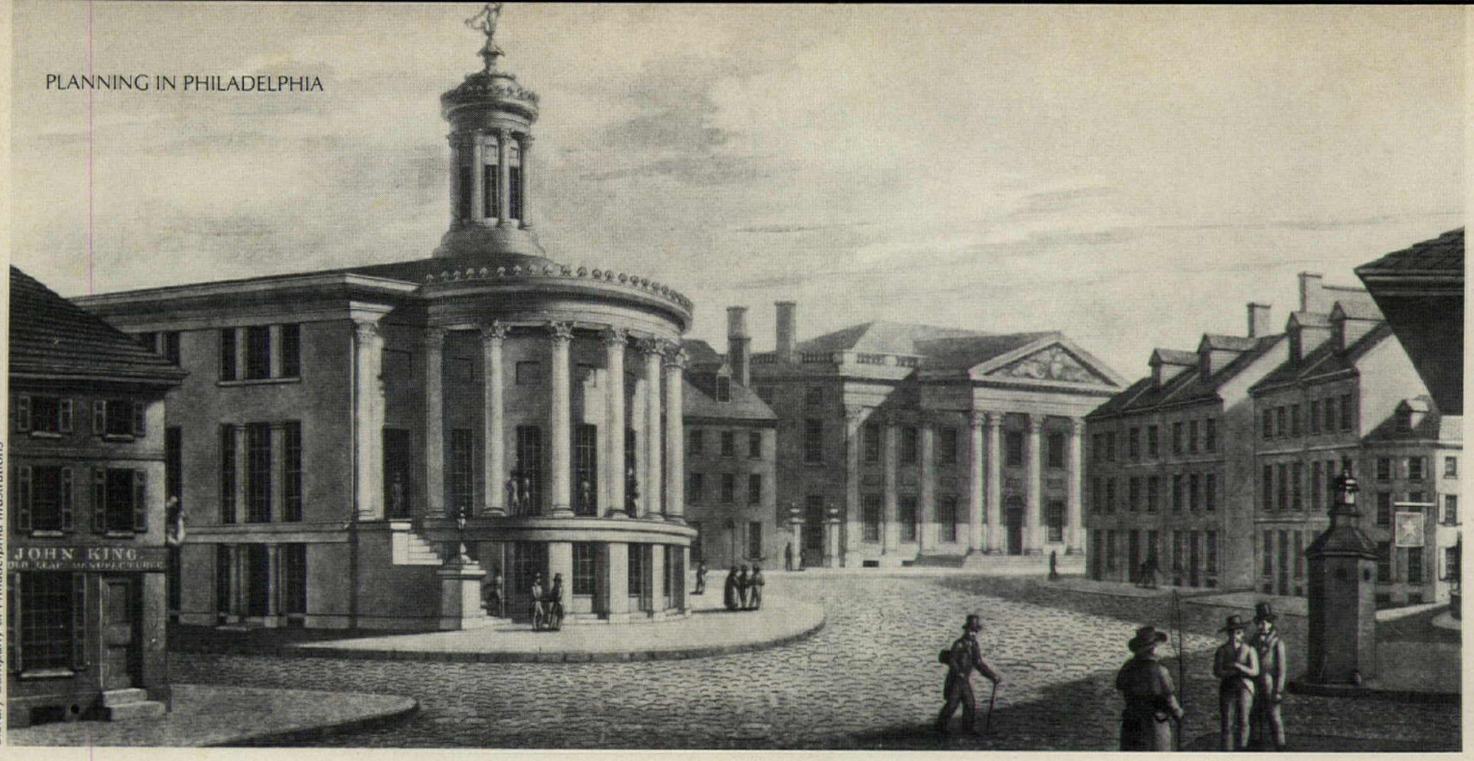
Rollin LaFrance



Robert Damora

ROMALDO GIURGOLA has established himself as an influence in Philadelphia because of the key locations of the buildings he has done (shown in yellow on the map above). The United Fund building at one end of the inner stretch of the Benjamin Franklin Parkway and the Insurance Company of North America building at the other give tremendous character to this monumental highway. The area in which he has made his most remarkable contribution is along Independence Mall. His three buildings—the Living History Center to the north, the pavilion for the Liberty Bell and the Penn Mutual extension on the south end of the Mall—set up a kind of three-note chord which reverberates along the design of the Mall itself, by Harbeson, Hough, Livingston and Larson and by Dan Kiley, consultant on the northern block. The Penn Mutual extension, perhaps the finest tower to be built in Philadelphia since the PSFS building, presents a very different aspect to each of its neighbors, and its outside elevators, unmatched as a direct expression of the extension of a public street, provide a kinetic experience of purposeful urban design (above). The building also preserves the 1838 facade of the Pennsylvania Fire Insurance Company.

I. M. PEI dominates the eastern part of the center city with his intricate structure of towers, townhouses and greenways (shown on the map in green). The three Society Hill towers, superbly placed in relation to Penn's street grid, the pattern of garden footpaths that weave between them and the sweep of the Delaware River are of a purity of design that enables them to relate visually with many eighteenth-century structures around them (above). The two courtyards with their townhouses to the west nail the towers down to the low-rise Society Hill, forming the bridge, the link between the past and the present. Pei worked to relate his designs to the entire sequence of the greenway system, starting at Independence Mall, moving down the mid-block garden between Fourth and Fifth Streets to the Locust Street colonial enclave. A ninety-degree turn places the towers in the background with the arched doorways of the Pei townhouses terminating the Locust Street vista. The greenway moves through the Delancey Street Park, then east on Pine Street to the Head House (shown on page 97) and open-air market on Second Street. So it moves back up Second Street to the three Pei towers for a final punctuation.



Library Company of Philadelphia illustrations

Things that were

One measure of a city's program for itself is the extent to which it bolsters and reinforces its underlying design traditions, and whether or not it continues and enriches the reverberations between buildings, old and new. The engraving above, based on a drawing by William Strickland and done in the early nineteenth century, shows the wonderfully dynamic relationship that once existed between the Merchant's Exchange on the left and the First Bank of the United States at the end of diagonal Dock Street. In 1840 the brick houses on the right that partly obscure the bank were replaced by the Penn Mutual Insurance Company building, one of the first and handsomest cast-iron facades ever made. Around the corner on Chestnut Street was the Jayne Building (shown in the engraving below), for many years the tallest building in the city. This in turn stood across the street from the office of Frank Furness, where Louis Sullivan, when he worked there, often looked out on it. In 1958 the National Parks Service tore these buildings down and turned the whole triangle into a parking lot as an extension of Independence National Historical Park. Later the Parks Service engaged Cambridge Seven to design a visitor's reception center for this crucial site. This is now completed, so you may see for yourself the extent to which the architect of today was sensitive to the design requirements of this important site. I urge you to stand in the exact spot where Strickland stood when he made his drawing 140 years ago—at the southeast corner of Walnut and Dock Streets. Take this drawing along with you so you may see what he saw; how firmly the Merchant's Exchange siezes its site and how magnificently it animates its surroundings, how splendidly the First Bank receives the thrust of the Dock Street diagonal, and how all three, the Exchange, the bank and the street, still sing forth their melody. You may also see what Strickland could not see—the architectural enframing that now replaces the old houses on the right—and perhaps this will make you think seriously about the nature of much of our modern architecture.

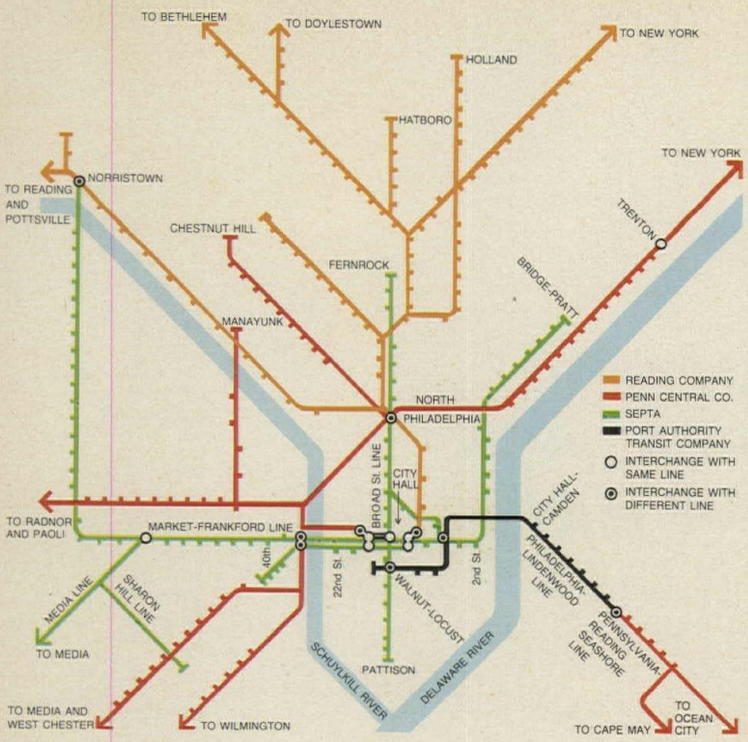
Things that will be

1947 was a moment of vision, 1961 was a moment of anticipation, 1976 is a time of promise. There are important indications of a growing spread of exciting things which deepen and enrich the primary structure of Philadelphia which has already been established. Venturi and Rauch's gem-like enclave at Franklin's house south of Market Street between Third and Fourth Streets tremendously enriches the greenway system. The Afro-American Museum is under construction at Seventh and Arch Streets. The garden in the subway at Nineteenth and Market Streets, with its cascade and movie theater (designed by Ewing Cole Architects) carries forward through private effort the concept of humanizing subway use. In all directions from Society Hill are springing up little restaurants, crafts shops, galleries, theaters and artists' studios—south along South Street and into Queen Village, north along Front Street to Arch and beyond, north of the Art Museum, south of Rittenhouse Square and deep into West Philadelphia, providing economic impetus for preserving nineteenth-century buildings, and adding immeasurably to the richness of urban life. The westward trend of business and retail stores in the central core, leaving a sea of blight in its wake, has been arrested and then reversed. Now the active central core is nailed down at the two rivers, and extends, taut, for the two-mile stretch along the transportation spine. All of the basic activities have been held together: shopping, business, theater, art, culture, recreation and housing, each intermixed with the other, the mixture spinning off an ever-growing melange of small supporting enterprises. Citizens from any part of the city or its suburbs can identify with any part of downtown Philadelphia. The historical remains which were threatened with extinction just a short time ago are now clearly to be preserved. So many people are now involved in and committed to the historical areas that any future threat undoubtedly will be summarily dealt with. A vast range of things remain to be done—the most important of which is to raise the quality of the environment in low-income neighborhoods. The next thirty years will see changes more drastic than those of the past thirty, just as they will present new sets of problems that are different and more challenging. But I am confident that history will prove that holding the center city together during the past thirty years will provide a strong springboard for the future.

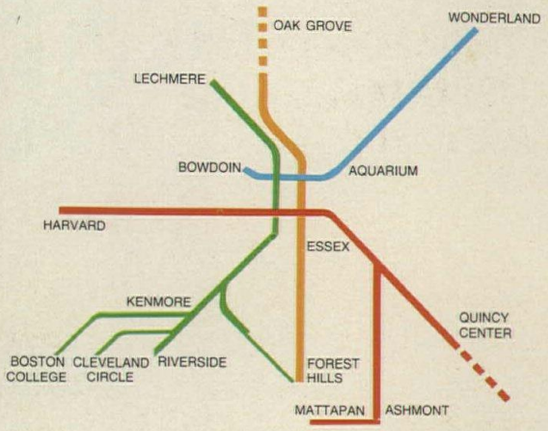
AN AMERICAN CITY
1976 IN PHILADELPHIA
THE MONTH OF MAY
AN AMERICAN CITY
1976 IN PHILADELPHIA
AIA NATIONAL CONVENTION 2-6 MAY

WOULDN'T IT BE APPROPRIATE IF ALL AMERICA'S ARCHITECTS GOT TOGETHER IN PHILADELPHIA IN MAY 1976?

"Yes!" is the enthusiastic reply of the organizers of this year's AIA National Convention in Philadelphia, a get-together that promises to be one of the most innovative and exciting in years. "An American City: The Architecture of Information" is the convention's double-barrel theme, and, according to chairman Richard Saul Wurman, it is meant to convey a double intention: in giving architects who attend the convention a surprising and wide variety of ways to learn about the city of Philadelphia they will also acquire, it is hoped, new ways for understanding any city, new techniques for "reading" the multiplicity of information that all cities offer to those who will perceive it. Many of the usual AIA National Convention events have been modified to accommodate the innovations of the Philadelphia organizers. Instead of a keynote speech there will be a "Keynote Fable" at the beginning of the convention. Called WHAT IF, COULD BE, it is designed to tell you "everything you wanted to know about the physical environment but couldn't find out even though you weren't afraid to ask"—and it introduces the themes of the various special events that will follow during the week. Among these are the opening of downtown movie theaters for an architectural film festival called "Cine City," and a program called "Tops of Tall," which will open the top floors of some of the city's tallest buildings as learning observatories and provide special vantage points. "Welcome Matters" is the name of another special project at the beginning of the week, where everyone who attends the convention will be personally met and greeted at the airport or train station. At the conclusion of the convention there will be a parade down the Chestnut Street Mall, with architects dressed as their favorite buildings, and, later, a special concert



UNDERSTANDING THE UNDERGROUND *is the subject of one of the AIA National Convention's theme seminars—designed to expand on the convention's general theme of "The Architecture of Information." The seminar will focus on the surprising fact that there seems to be no generally successful formula for the design of transit maps, particularly maps of rapid transit systems, which usually operate in tunnels without any reference to the familiar geographic world. Subway maps of London, Paris, Boston, New York, Philadelphia and San Francisco will be analyzed.*



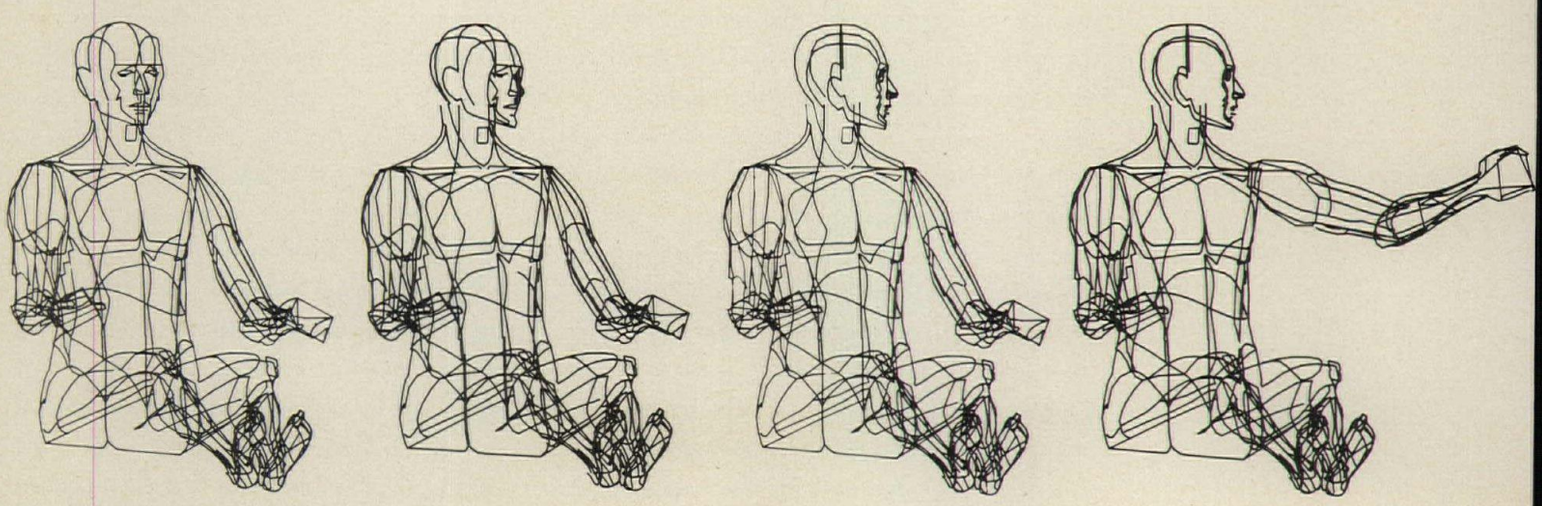
by the Philadelphia Orchestra conducted by Eugene Ormandy. But for Richard Saul Wurman, the Fable is the key event. "It encompasses all the events that will happen during the week, and I hope it gives a delightful reason for the events. The events themselves are like beads on a string. For some people, varying numbers of these beads when strung on a necklace will have a new meaning. For others, they will perhaps understand just one bead and at least get in touch with one thing they haven't touched before; that's not bad but I hope that there will be some who see the relevance of all these things to a single field of study: how we learn about, how we find out information about the world around us—and how we communicate it to other people in ways that they can understand as well."

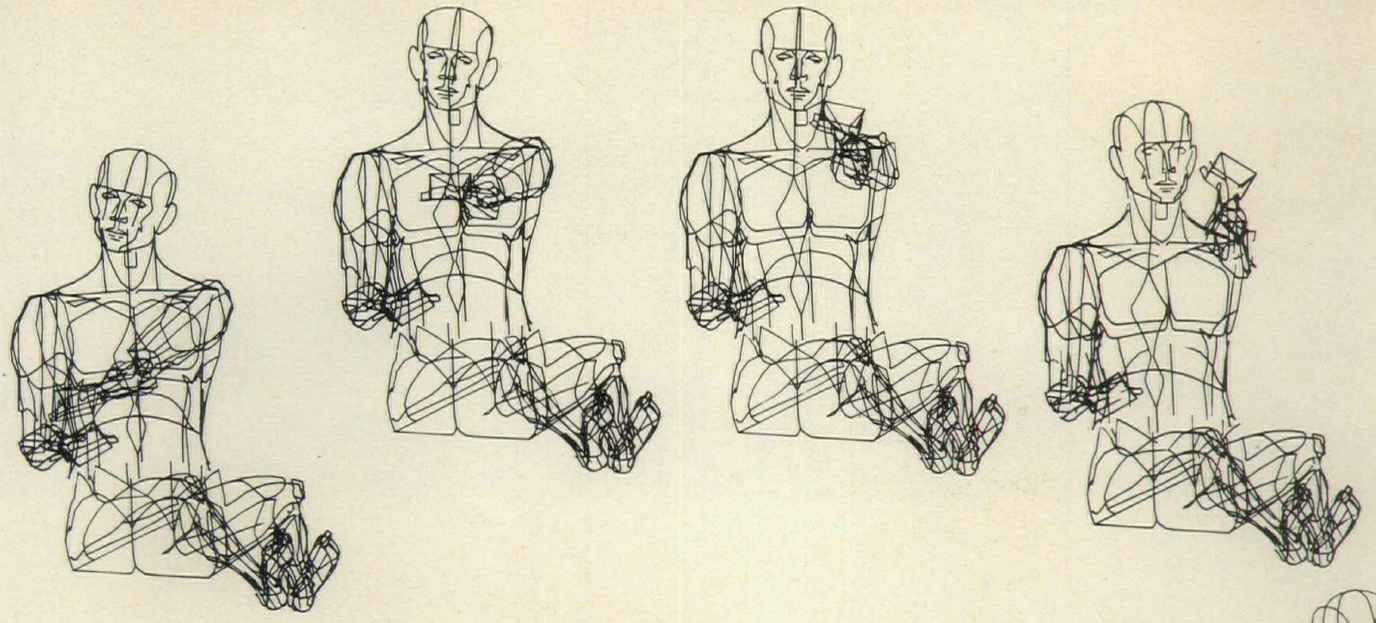
Other highlights

Many other special events are scheduled for May 2-6 in addition to the usual round of meetings and social gatherings:

- *An American City in Schools.* An exhibition in store windows showing how school children perceive their environment.
- *Ten Neighborhoods.* An informative survey of ten neighborhoods in Philadelphia, each chosen from one of the ten sections of the city organized by the City Planning Department.
- *200/200/200.* 200 awards to the 200 most significant ideas, events and legislation that have allowed access to understanding the man-made environment in the past 200 years.
- *Panorama of Civilization.* Exhibited in nine architecturally significant buildings in Philadelphia, material will depict the work of that building's architect, his contemporaries and the social institutions of the period during which the building was designed.
- *Chestnut Street Visited and Revisited.* Baxter's Panoramic View of Philadelphia as it existed a hundred years ago, new drawings depicting the same spaces as they exist today, and Theodore Hershberg's computer print-out of fantastically detailed information from the 1870s, '80s and '90s.
- *Energy Conscious Design Exhibition.* Mounted by the AIA Research Corporation.
- *America 200.* Material

COMPUTER GRAPHICS *are also a part of the "Architecture of Information" theme seminars. The computer-generated drawings here of a man reaching out to describe a large arc were conceived by William Fetter and produced under his direction at the Boeing Company. Fetter, who is the head of the computer graphics laboratory in the Department of Design at Southern Illinois University, writes that the drawings are meant to convey the idea that "computers, and indeed all technology, can and must be better related to human values."*





prepared by chapters throughout the country will show the comparative growth of America's cities at 50-year intervals.

▪ *Architects' Holiday.* Philadelphia architects will open up their offices to everyone attending the convention, showing what they are doing and arranging tours centered on their neighborhoods.

▪ *Meet the Biggies.* Groups of five or six people attending the convention will have informal box lunches with Philadelphia's civic, governmental, business, sports and cultural leaders.

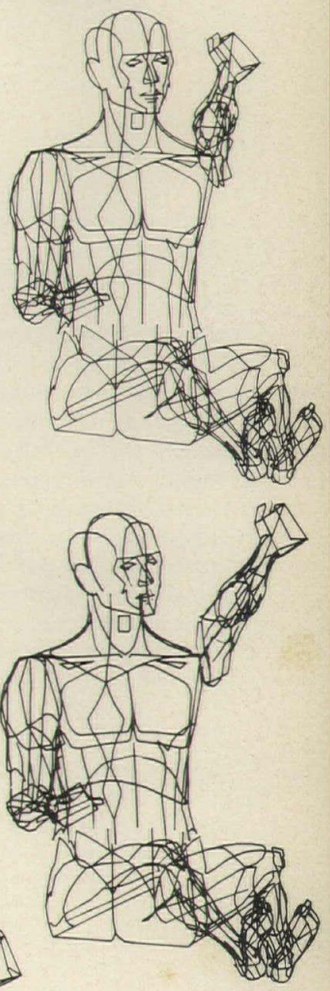
▪ *Theme seminars.* A series of nuts-and-bolts seminars run by professionals from a wide range of disciplines will explore methods, systems, approaches and techniques for accessing information—including Jonas Salk, Ivan Chermayeff, Jivan Tabibian, Joseph Passonneau, Doreen Nelson, Lawrence Halprin, Alan Levy, William Fetter and others.

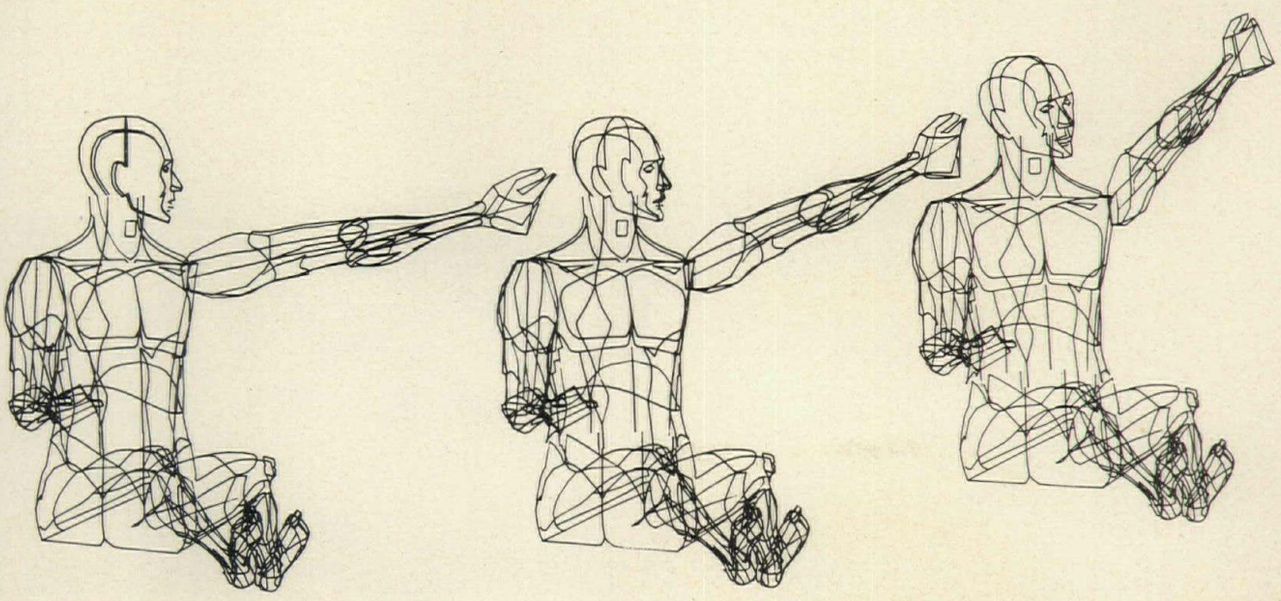
▪ *Town Hall 1976.* A give-and-take dialogue between neighborhood residents and builders, planners, politicians and bureaucrats who make decisions.

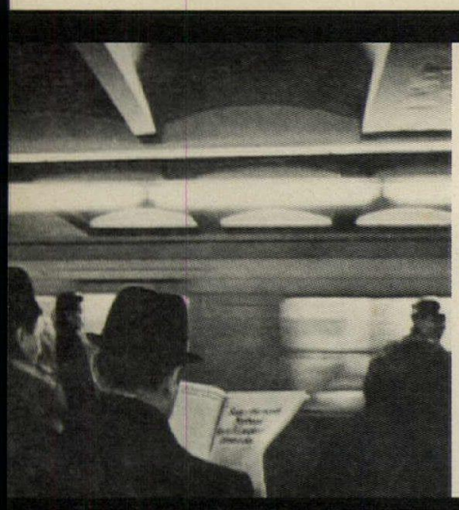
▪ *Citylights.* While all of the lights in central Philadelphia are turned on, the Citylights Beaux Arts Ball will make the finale to the convention.

The Architecture of Information

"The idea of 'The Architecture of Information'," says Richard Saul Wurman, "comes from asking a single question: What abilities do we have—not necessarily visual or verbal abilities—to make demands, constructive demands, for changes in the physical environment, whether it is a big decision about urban planning, or whether it is just about a building or a room? How can we ask for an up-







grading of things, or a better performance out of them?

"It seems that for centuries we have been able to use only one word, and that was *more*. And it worked; that's the extraordinary thing. When anything seemed to be missing or wrong or not as good as we wanted it to be, we could just employ the magic word: more dollars for more schools or more highways or more policemen. We could have more wars, more bullets, more of just about anything. More food seemed to solve people's hunger.

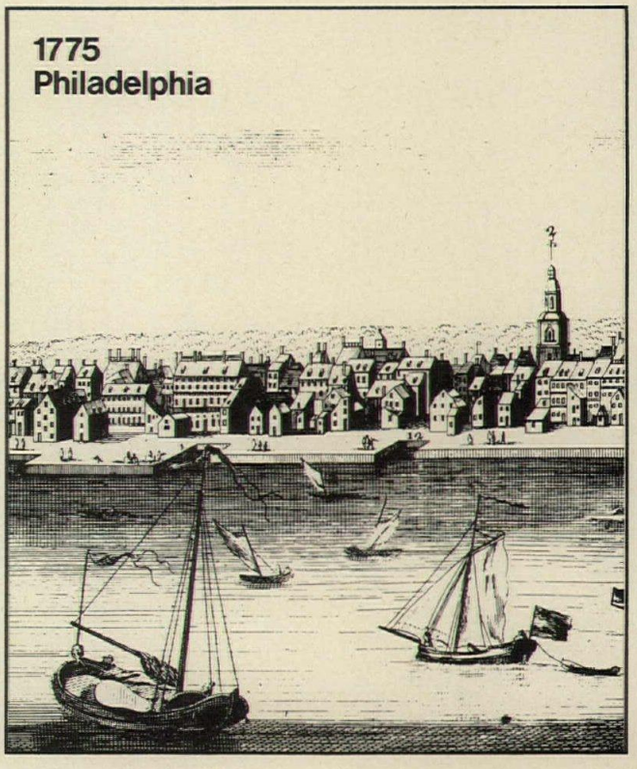
"In the last decade or so a second word came into use, and it got off to a shaky start, because it has all kinds or connotations through history of being a very 'out' and leftist or rightist or hippy or fringe-group word. This is the word *no*. But now 'no' has come into legitimacy. It started out with antics—smoking cigars in the Columbia University president's office, people burning themselves in Viet Nam; then came marches, and all kinds of splinter activities. It started out in the worst way, but all of a sudden people saw the value of it—and now you have hard-hats and tycoons and policemen and all manner of people saying 'no.'

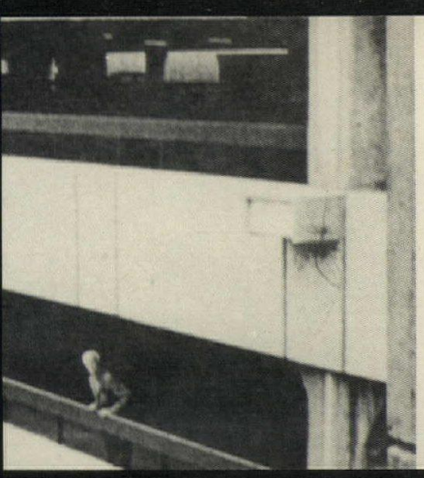
"But as more things started not to work, the word 'no' began to work in only a limited way—and sometimes it didn't work at all. First we found out that more highways didn't solve the traffic problem, and more schools did not necessarily solve the learning problem, and more policemen didn't always solve the safety problem. More light poles didn't give us a better quality of lighting, and more signs didn't allow us to understand where we were. More money didn't seem to quiet the masses—and strangely enough those who had a lot of money didn't seem so happy either.

"Then this other word 'no' stopped a lot of things that we can be happy about being stopped. But it also stopped a lot of things that should not have been stopped, so it doesn't seem a word that we should completely embrace either.

"The contrast between 'policeman' and 'safety,' between 'schools' and 'learning,' between 'highways' and 'traffic' is interesting; it is a contrast between products and performance—and it re-

AMERICA 200 *will be the first exhibition ever to show the comparative growth of cities at 50-year intervals from 1776-1976. Prepared by AIA chapters across the country, the exhibition will consist, for each city shown, of an historical map at 50-year intervals, and a diagrammatic growth chart of the city's urban development. This information will be shown starting on May 2 at the Art Alliance in Philadelphia.*






CINE CITY *carries the theme of "The Architecture of Information" into the realm of the movies—and into the movie theaters along Chestnut Street Mall, which will open their doors from 8:30 to 11:30 on the mornings of the convention. Billed as an "urban communications film festival," Cine City will feature films ranging from computer graphics to cartoons, from* King Kong *to* The Building of Gund Hall.

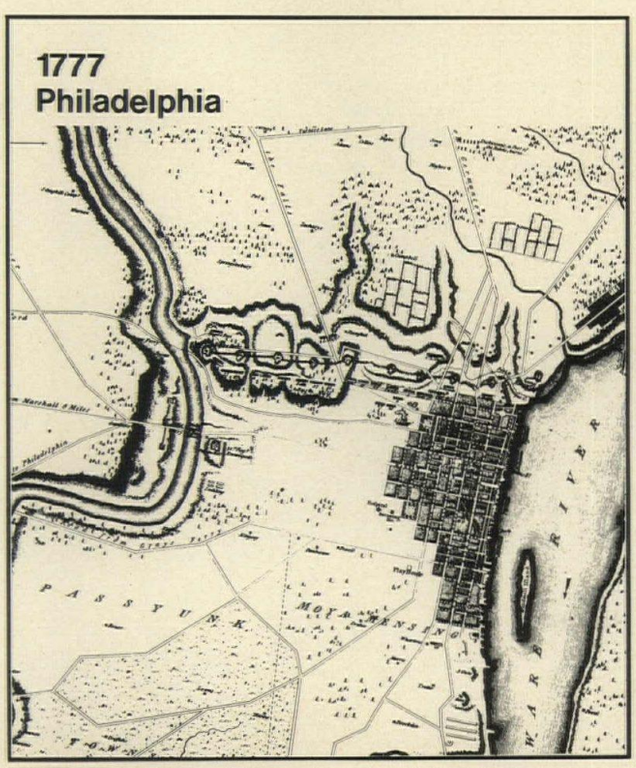
ally is the *performance* of safety and learning and traffic that people seem to be interested in, but have no ready means of achieving. And so the question, again, is this: how can we discover the informational tools that are available to us for making constructive demands about the performance of the environment?

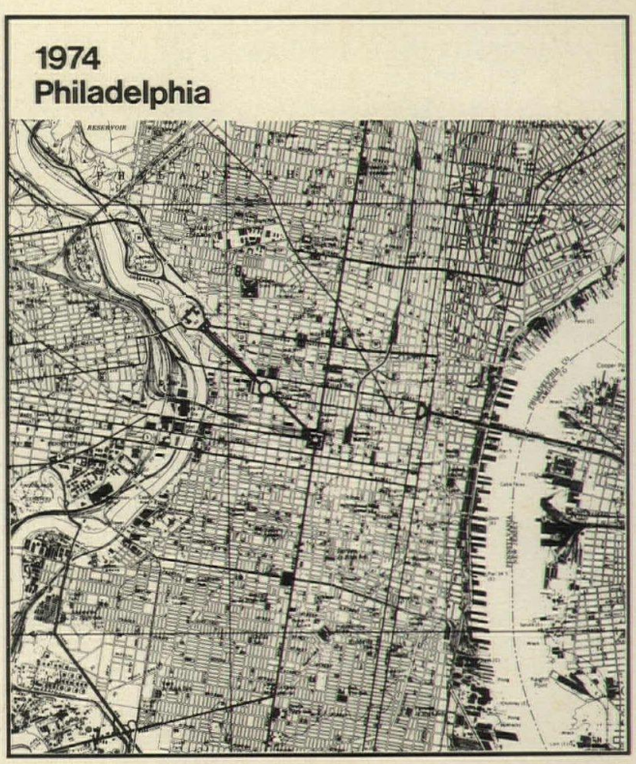
"We are at a point where the available means for solving a problem don't really seem to work very well. If this is really true, then we had better start discovering new ways. It is not really recognized that this is a field of study that should concern us.

"There are many ways of making information about the physical environment understandable—getting up in the top of tall buildings for a new vantage point, making maps at the same scale so they can be compared (there's no piece of information you can understand unless it is relative to some other piece you do understand). You can learn from computer graphics, from other ways of notating information systematically. Making a piece of information truly understandable is certainly what at least half of one's creative life is about in architecture. You have to understand information in order to come up with ideas and solutions to things, and then you have to make those ideas and solutions understandable back again. I liken all the ways of understanding information about a city to a guidebook, because a guidebook is the only format that relates to people's interest in understanding the physical environment. It is a standard access tool with which we evaluate things.

"'The Architecture of Information' is a two-pronged attack. One thrust is to allow people to discover that there are many ways of understanding the information we have at our fingertips but have never fully made use of. Very few people would realize that getting up on top of a tall building, or having a school program that uses the environment as a learning tool, or having a guidebook, or showing films about the city are all part of the same thing. But the point of the convention is that they *are*, that we can do all these things in order to understand the environment better.

"The second thrust is this:





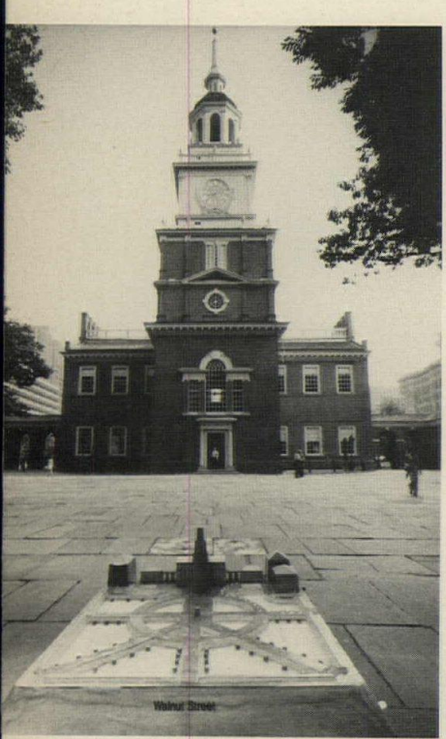
Alfred A. DeLardi

once we have the ability to understand information, how do we then acquire the ability to communicate demands for improved *performances* in the built environment? This is the hard part, and it is the part that, with luck, we will learn once we have learned to understand information itself.

"One of the things we are trying to do this year is to make the convention go public by involving the whole city of Philadelphia. Another thing we are trying to do is to make it go national with things like the *America 200* exhibition and the *200/200/200* awards program. These are national events, because they are developed by local chapters that rarely get involved in conventions.

"Finally, what we are really doing—what we are aiming for in this convention—is to ask people who come to ask themselves something other than what they already know about. If you go to a community and ask them what they want, they are only able to ask for what they already know about. They can only say 'I want a park.' They do not seem to have any way of saying, 'we want places for recreation.' A park is something they know, whereas that same area taken up in a safe green path that goes through the community might take up no more area than that. But it is not a park, and so people don't know about it and how to ask for it.

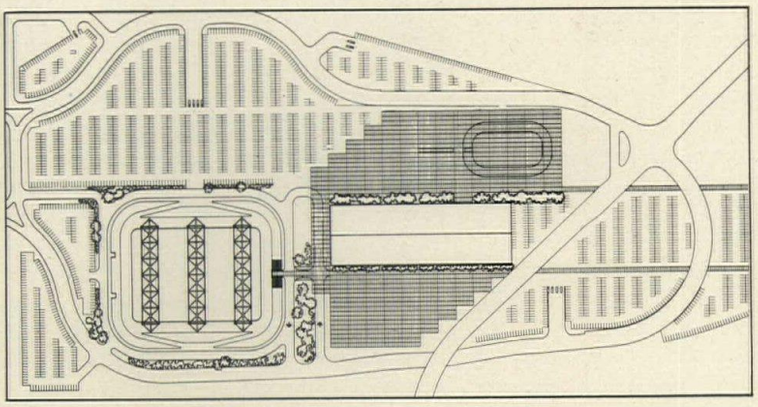
"So we hope people who come to the convention will ask themselves new questions, and discover new sources of information. Getting information personally is not a bad way either—which is why we have organized "Welcome Matters" to greet people, and to prove that welcome really matters. . . ."



INFORMATION *about Philadelphia itself is also being made ready—as in the braille map of Independence Mall shown on the left, or the model of the center city shown above. The model, originally on display at Gimbels and then for many years at the Museum of the Civic Center, is being updated for a new life in Philadelphia's renovated City Hall courtyard.*

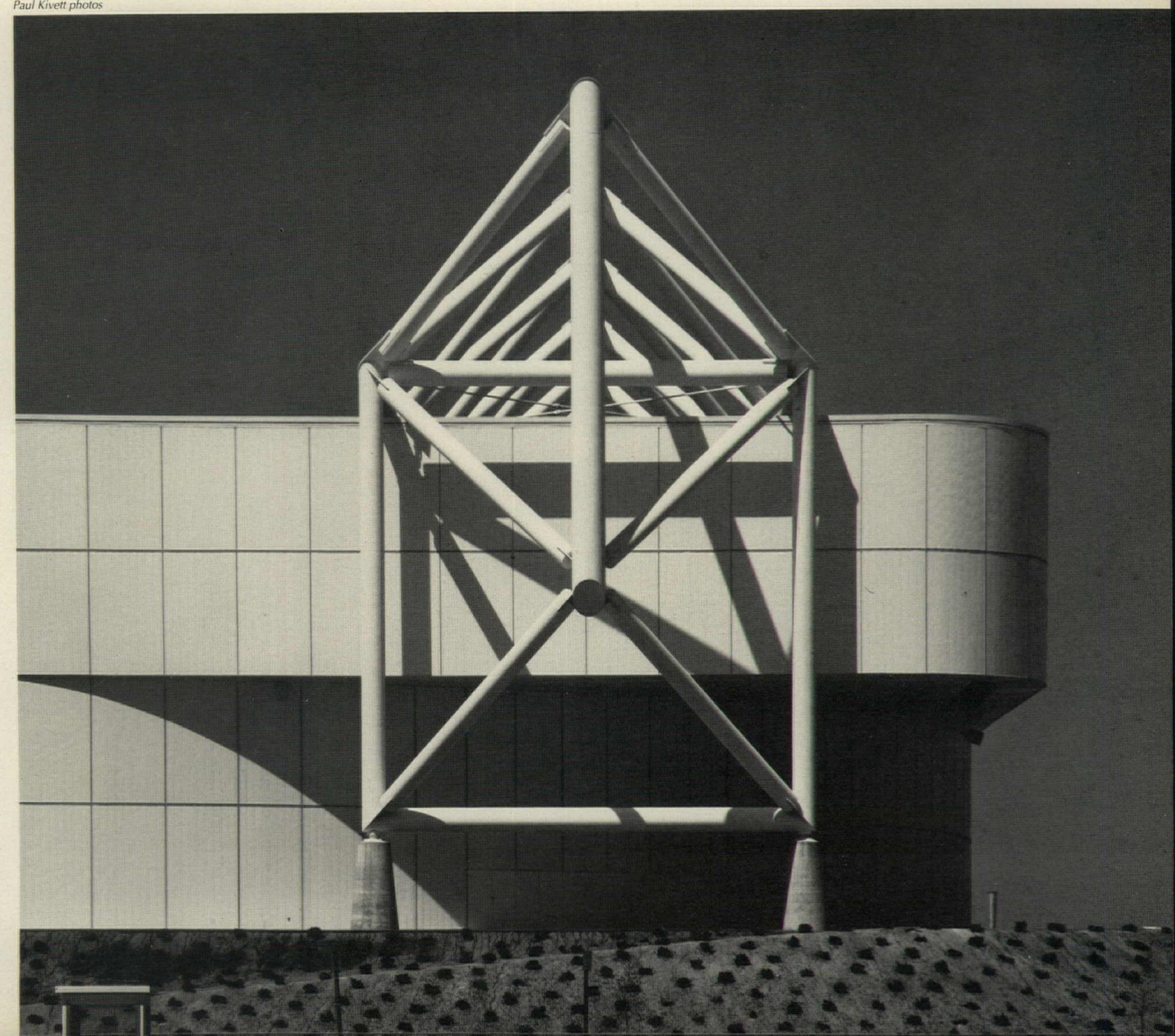
R. CROSBY KEMPER JR. MEMORIAL ARENA

C.F. Murphy Associates, Architects



When Republicans settle into Kemper Arena in Kansas City this summer to choose their Presidential candidate, the building will be thrust for a week into the general American consciousness by the national television exposure that such political spectacles inevitably produce. Before the klieg lights, the streamers and the media overload temporarily obscure it, RECORD's editors give readers a preview of this remarkable building with its monumental 324-foot clear span, its flexibility, and its almost awesome muscularity.

Paul Kivett photos

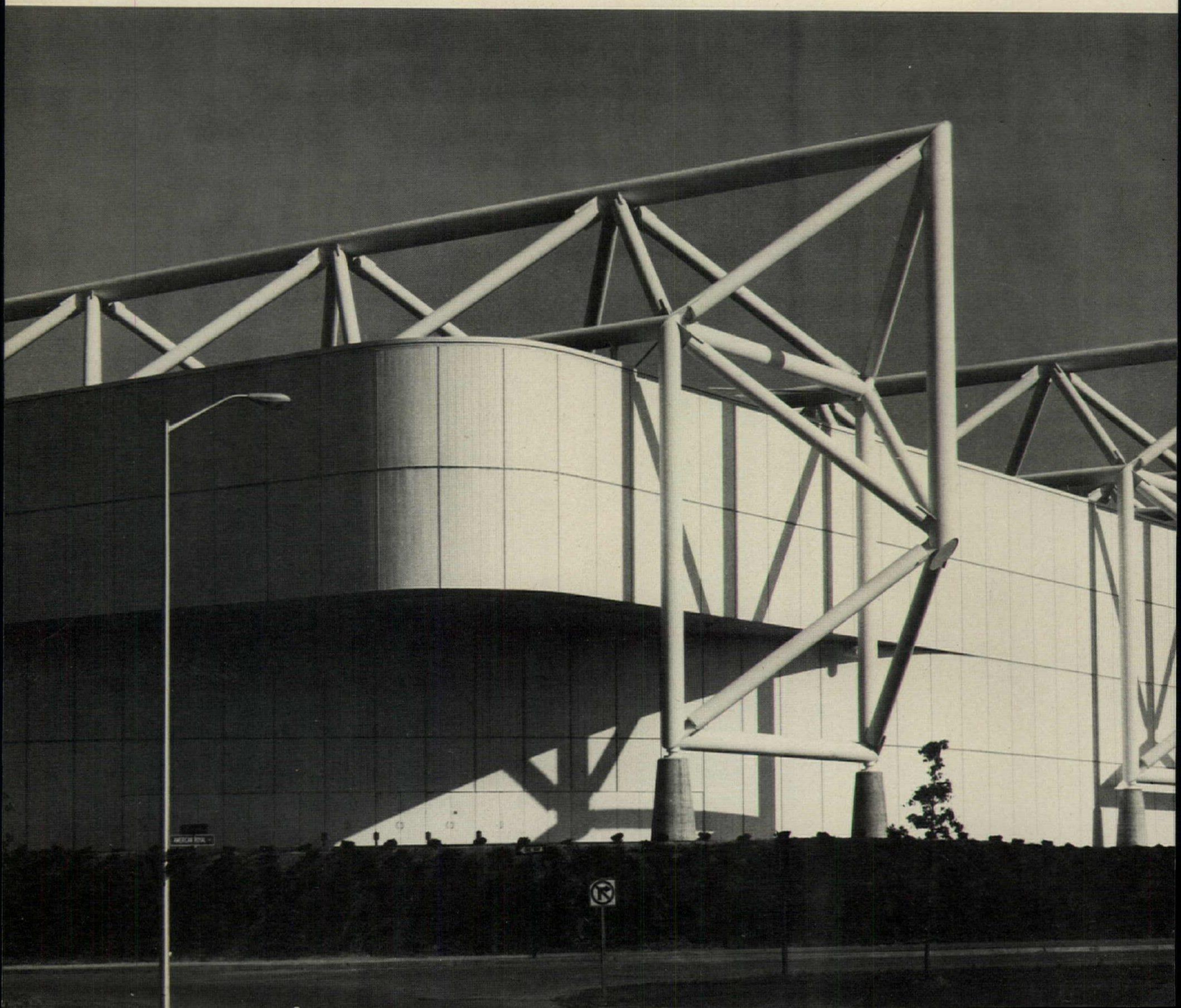


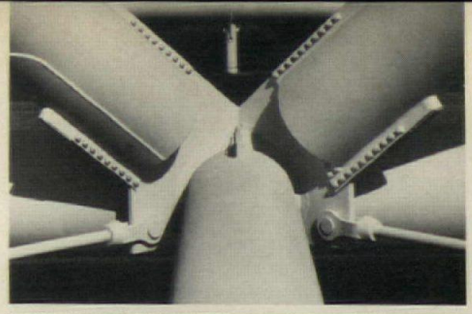
The arena's most salient design feature, of course, is the series of three exposed triangular roof trusses that are 27 feet deep and spaced at 153 feet on center. These massive structural elements are tubular sections with diameters that vary from 48 inches for the top chord, to 30 inches for web members, and 36 inches for bottom chords. Wall thicknesses for these sections range between ¼ inch and one inch. The weight of this structural system is 23½ psf and its cost (built before recent increases) was $8.22 per sq ft. After careful testing with models, the beautiful joinery shown in the photo and drawings at right was developed by the architects. The joint, designed to be watertight, is created by the intersection of stiffener plates, the largest having a thickness of 2 inches. The top chord of the truss has a strength of 46 ksi and an actual load, at any midpoint between two joints, of about 28 ksi.

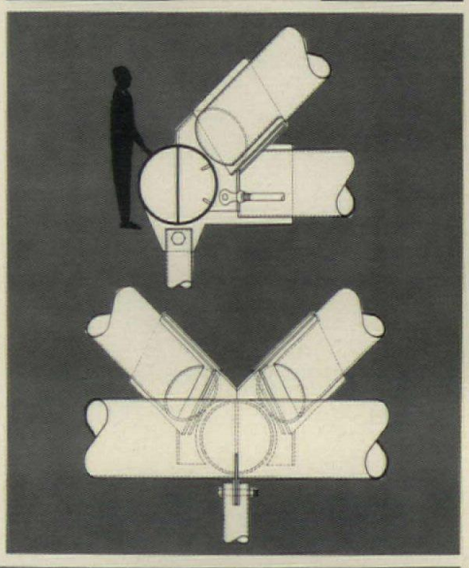
Supporting these sections and transferring their load to grade are concrete pilings driven 60 feet into the earth. These pilings were placed at a slight incline to resist the outward thrust of the trusses. The piling caps, visible in the photo below, are smoothly tapered above grade to provide an elegant base to receive the loads. Within this framework is the arena enclosure itself, a structure clad in metal panels mounted on steel mullions and girts spaced 18 feet and 15 feet on centers respectively. The panels, costing $3.50 per square foot, are a standard industrial product that includes both fiber glass insulation and an inner liner. The architects developed a special extrusion to accentuate the panel joints visually and, at the same time, to provide a means for thermal expansion.

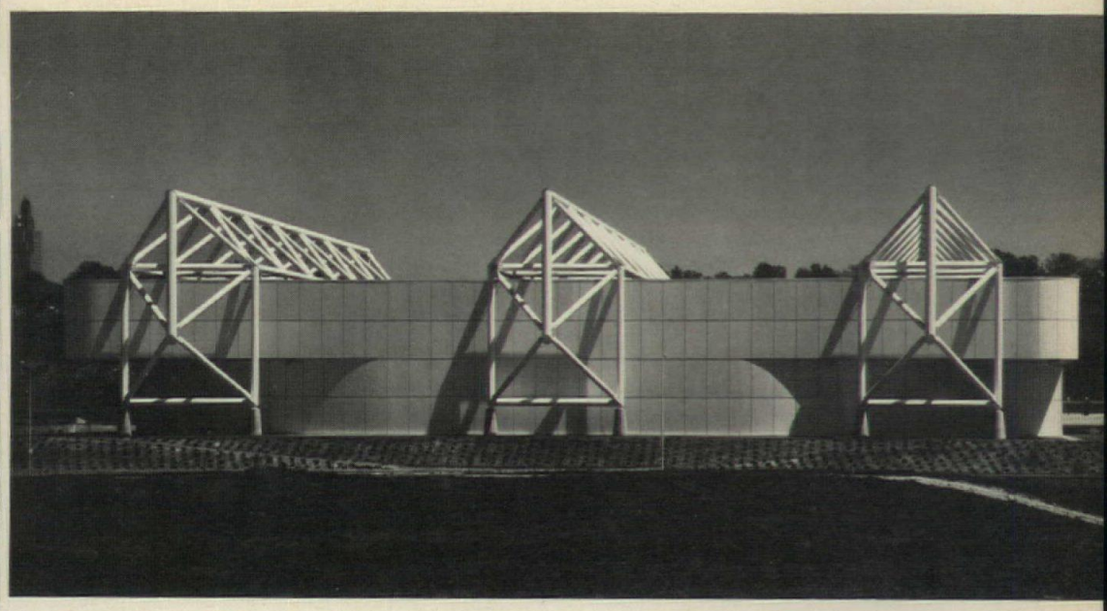
A secondary system of bar joists and trusses, visible in the sections, is suspended from the main superstructure and carries a standard metal deck. The section also reveals that the arena sits squarely on an earth berm created from dirt moved during excavation for the building's lowest level. Landscaped along its cleanly beveled edge, the berm provides a pedestrian way around the entire building at concourse level.

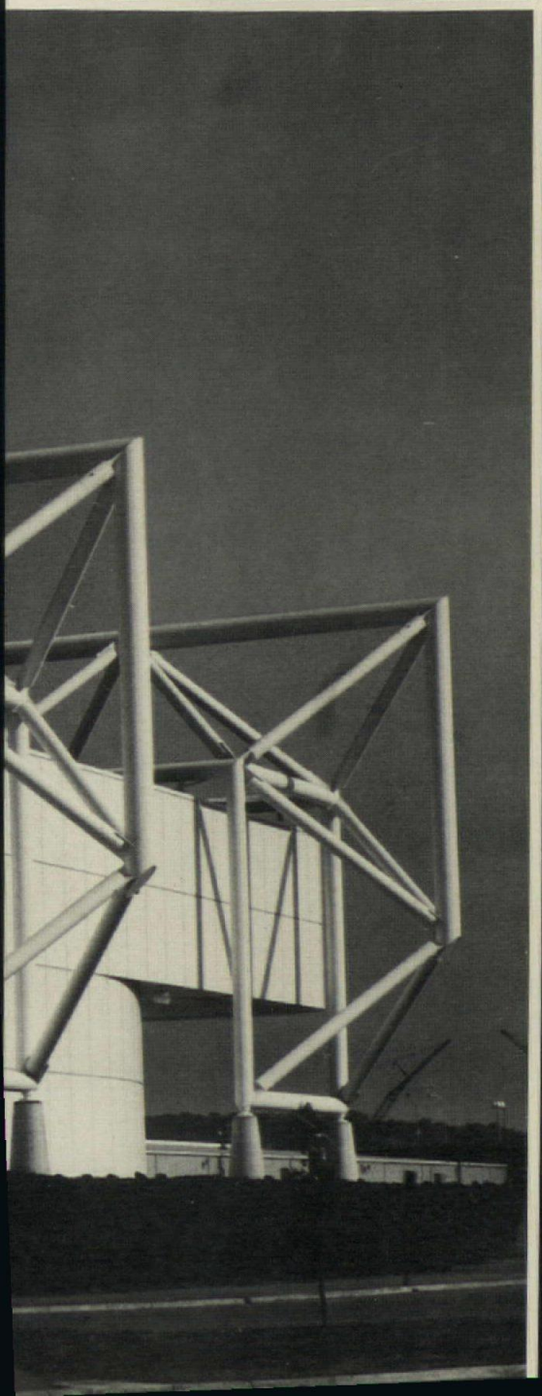
Like any contemporary sports facility, Kemper Arena is designed for flexibility. Though neither of its two professional teams—the NBA *Kansas City Kings* and NHL *Kansas City Scouts*—now draws to capacity, the Arena can accommodate up to 16,000 for hockey or 18,000 for basketball. The first few rows of seats are retractable and an insulated wood floor can be put down over the ice floor in three to four hours. Three feet of tanbark is required on the floor during the American Royal Horse and Livestock Show, which is presented here annually. Other uses to which the Arena will be put are track and field meets,

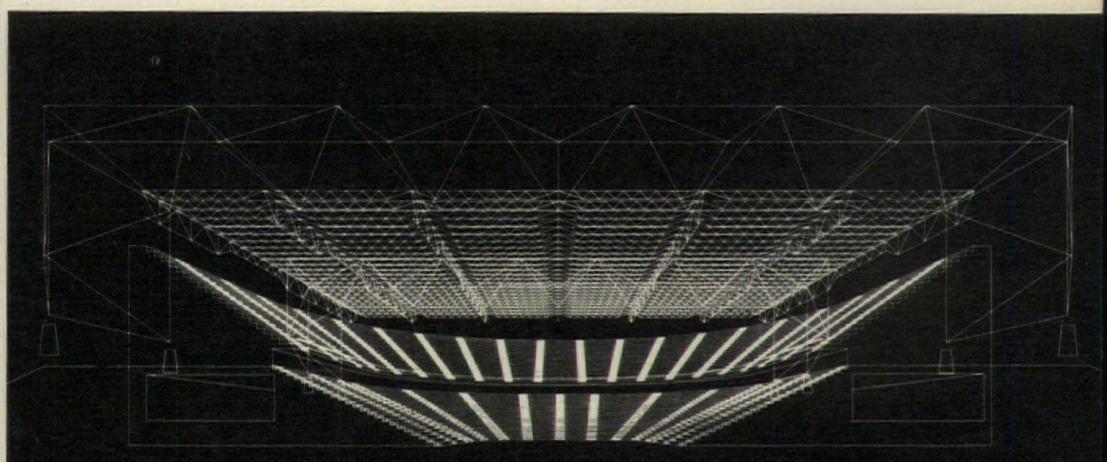




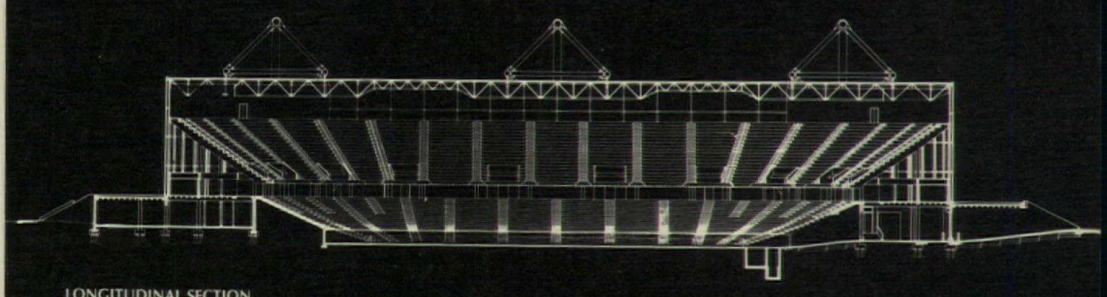




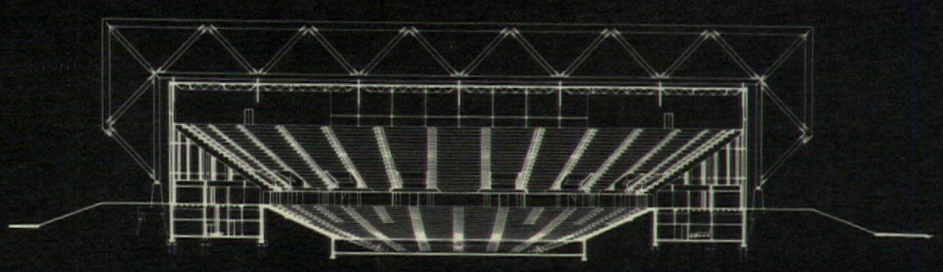




COMPUTER DRAWING



LONGITUDINAL SECTION



TRANSVERSE SECTION

music and trade shows as well as the upcoming National Republican Convention. Each of these events, with widely varying functional requirements, will test the Arena's flexibility to the utmost. Sightlines have been carefully worked out so that every spectator has an unobstructed view whether the focus of action be center ice or overhead in the sweeping arcs of aerial acts. The maximum distance from the most remote seat to the center of the Arena is 200 feet in the long axis, 150 feet in the short axis.

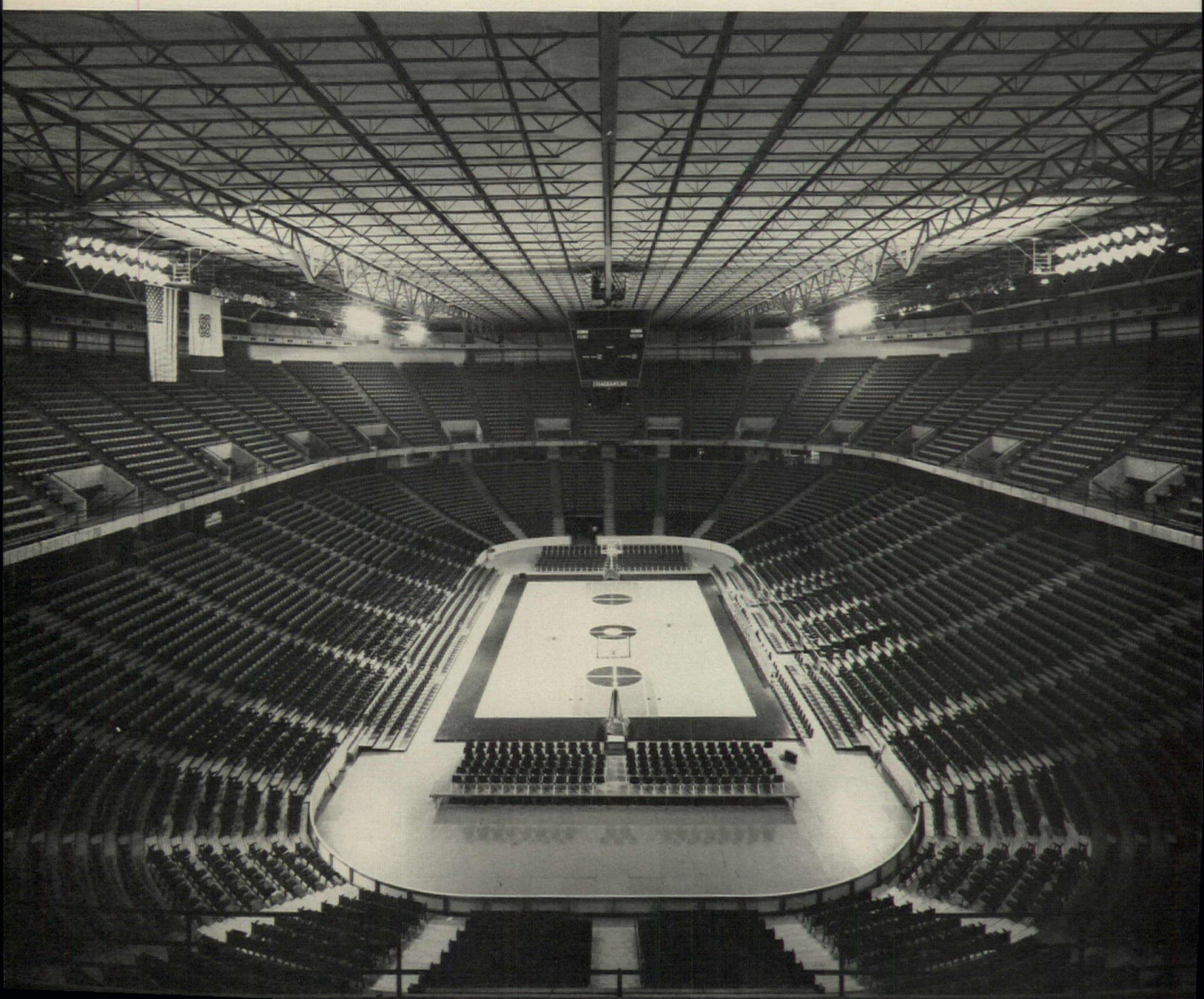
Inside, the building has a lively, hard-working character entirely appropriate to its recreational use. Partitions are mostly ground face block and floors are concrete. Mechanical and structural components are left exposed and painted yellow. The seating is painted a bright blue. A measure of acoustical control is achieved with a fiberboard ceiling suspended from the metal deck.

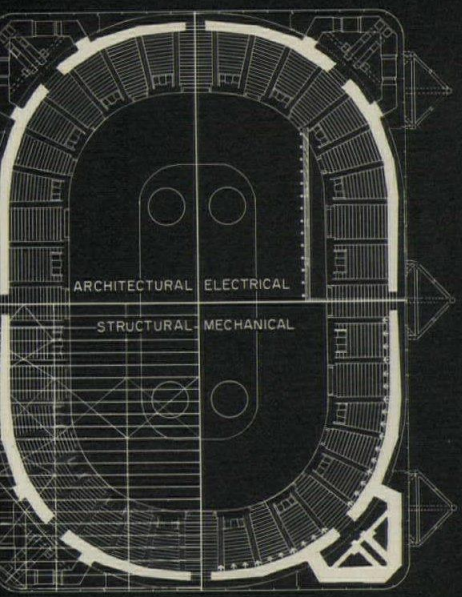
The architects' first instincts had inclined them toward a stainless steel exterior panel. When initial cost made this idea impractical, an important visual decision had to be made. The problem was whether to express the spidery structure as one element and the enclosure as another by painting each a different color. After careful study of several models, the architects decided to paint both elements white, a decision that softened the mechanistic character of the building considerably and came at no expense to its design clarity. The function of the massive trusses, after all, needed little underscoring.

Construction on the Kemper Arena began in late May of 1973. Owing to the compressed construction schedule, work had to proceed rapidly. The building was largely completed in November 1974 though it remained to add wind baffles at the exterior doors and special railings to control crowd surge. Not only was construction completed on schedule in spite of a two-month delay caused by strikes, the building came in at its budgeted $10.2 million. Changes, requested by the owners as the multi-use character of the building became more pronounced, added approximately $3.2 million in addition.

The constraints of budget and time notwithstanding, Kemper Arena looks thought-out both in its conception and in its detail. It is no less of interest for its structural elegance than it is as a background for the wide range of sporting entertainments that it was designed to house.

R. CROSBY KEMPER JR. MEMORIAL ARENA, Kansas City, Missouri. Architects and engineers: *C. F. Murphy Associates—Helmut Jahn, partner-in-charge; James Goettsch, project architect.* Landscape architects: *Parks and Recreation, Kansas City.* Consultants: *Coffeen, Gatley and Associates* (acoustical). Contractor: *J. E. Dunn Construction Company.*




ARCHITECTURAL
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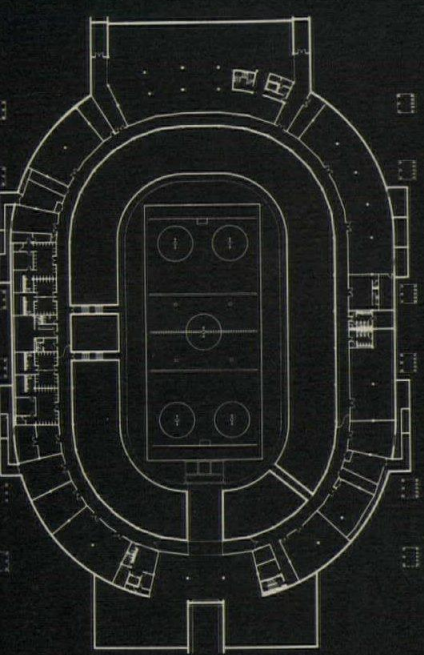
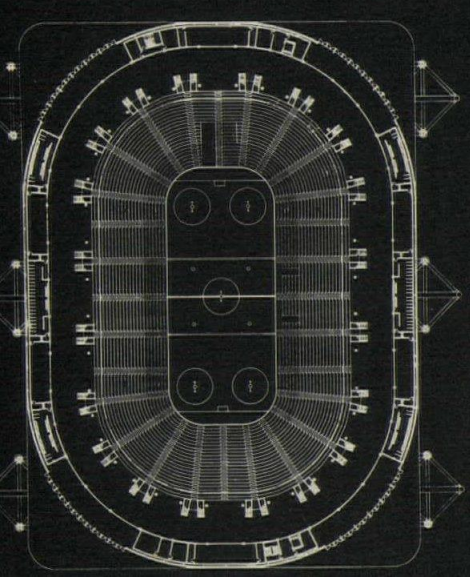




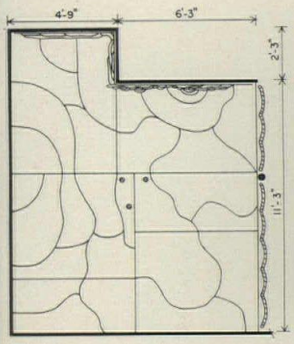

tickets
tickets

KEMPER ARENA

In an otherwise non-luxurious interior, special spectator suites, photo below, and an Arena Club add an uncertain note of elegance. The concourse level, photo left, provides general circulation and entry to the seating area at about mid-level. Graphics convey their information easily and colorfully. Throughout the interiors, the basic palette of colors remains consistent.

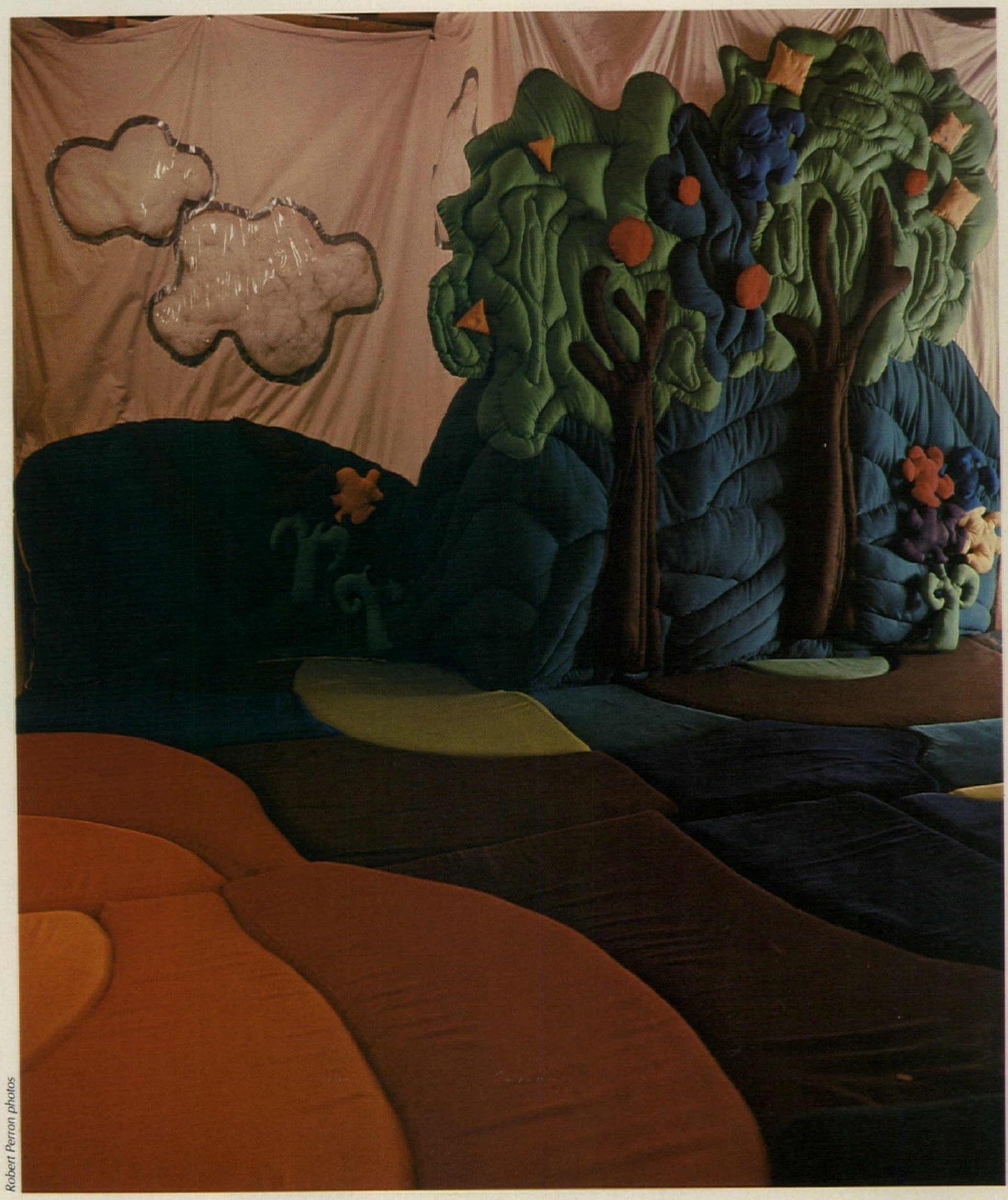
THREE SPECIALIZED INTERIORS FOR LIVING AND PLAY

A multi-colored padded floor and tapestry set the stage for children's play environment



A children's playroom was created in one end of a U-shaped basement of a house by use of a specially designed and constructed padded floor and tapestry. The floor—composed of 28 curvilinear pieces—fits together like a puzzle in a 10- by 14-foot area. Upholstered soft polyurethane foam pieces are of different heights, allowing the padded floor to slope from a 12-inch depth at the wall opposite the entrance to a 4-inch depth at the entrance. A 14-foot-long hanging tapestry, constructed of layers of fabric stuffed with Dacron (12 inches at its thickest point), completes the room's enclosure, and affords a safe, flexible backdrop for play activities. An outdoor scene is depicted in trees and clouds of tapestry, but the floor colors abstractly represent other natural elements—blue for a river; yellow, orange and red as reflection of rising sun. Designed for active as well as quiet activities, a rope grid crossing the entrance is used for climbing along with three ropes hung from the rafters. Hanging velcro-backed objects aid play.

CHILDREN'S PLAYROOM, Hamden, Connecticut. Owners: *Dan and Sandy Feldman*. Designer: *Joy Wulke*.

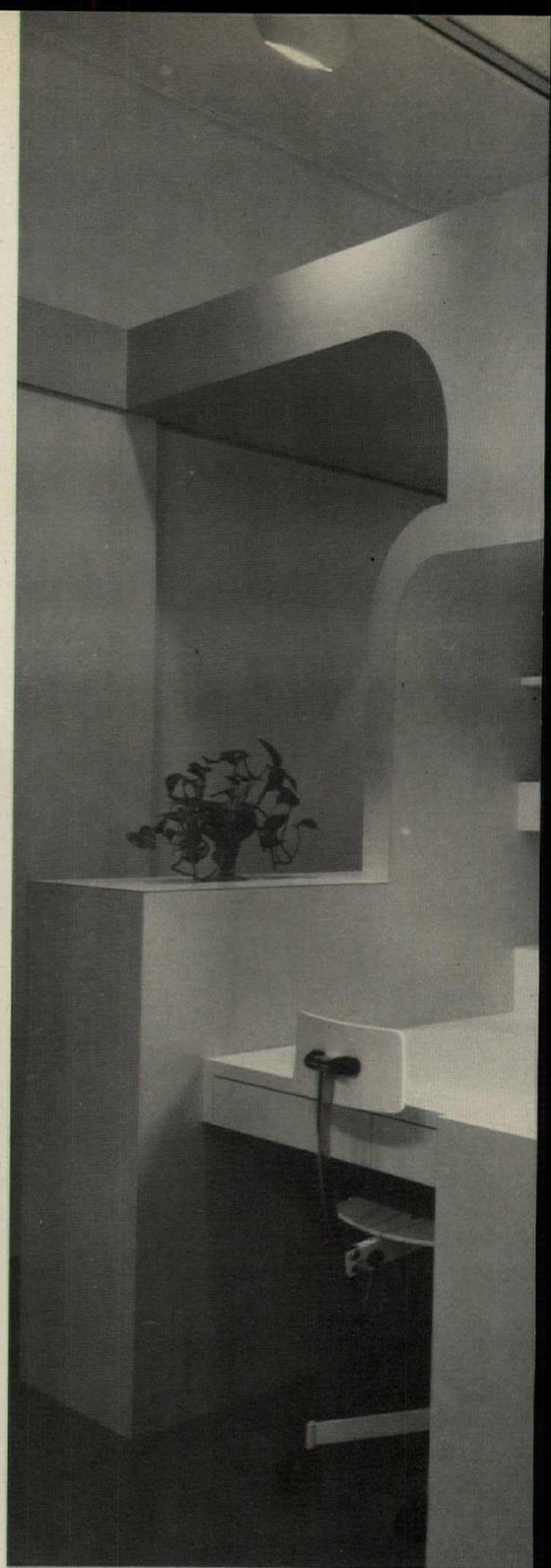


Robert Perron photos

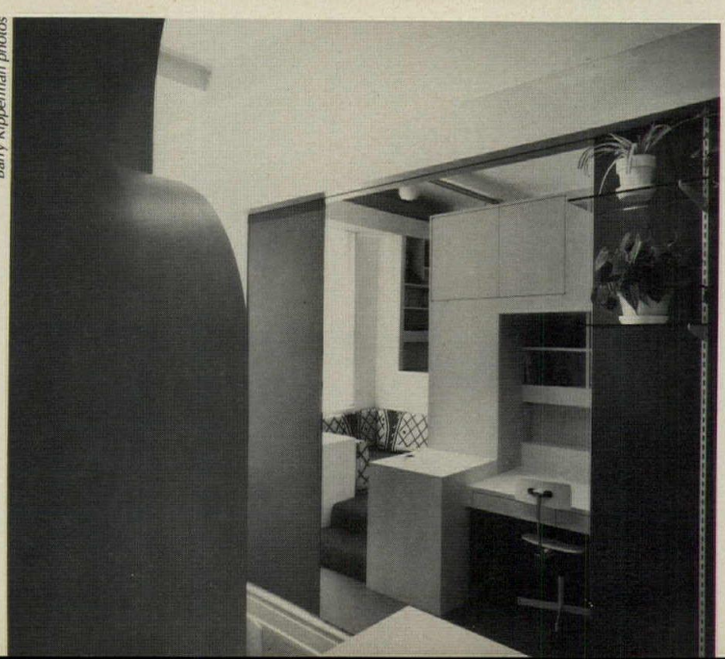
Children's room organized for variety of activities through design of built-in furniture

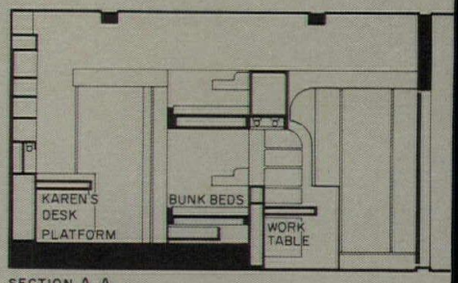
In a New York City condominium, a room for two young sisters was designed with built-in furniture that defines and organizes the space. While there was a need for two furniture pieces of almost every kind (desks, beds, chests) in the small room, a 9-foot, 6-inch-high ceiling permitted stacking of the elements, thereby providing ample storage space and room for a play area. The desire that each child should have a sense of individual space in work areas was achieved by placing the desks on separate levels and, in particular, visually separating them. The raised floor level in one corner also adds diversity, and brings the play area nearer to the window and views of tree tops. A large work table is set apart visually by its placement near the door. To avoid what could be an oppressive massiveness of furniture, space was opened up through the bunk beds, permitting a view from work table to window. Large blocks of colors on tack boards and arch enliven the white walls and furniture. All surfaces are covered with a plastic laminate so they can be easily maintained. Built-in lighting in desk and bed areas, and track lighting on the ceiling pinpoint light where needed. Desk tops can be raised as the children grow.

CHILDREN'S ROOM, New York, New York. Owners: *Mr. & Mrs. Arthur Handler.* Architect: *Rosemary Songer.*

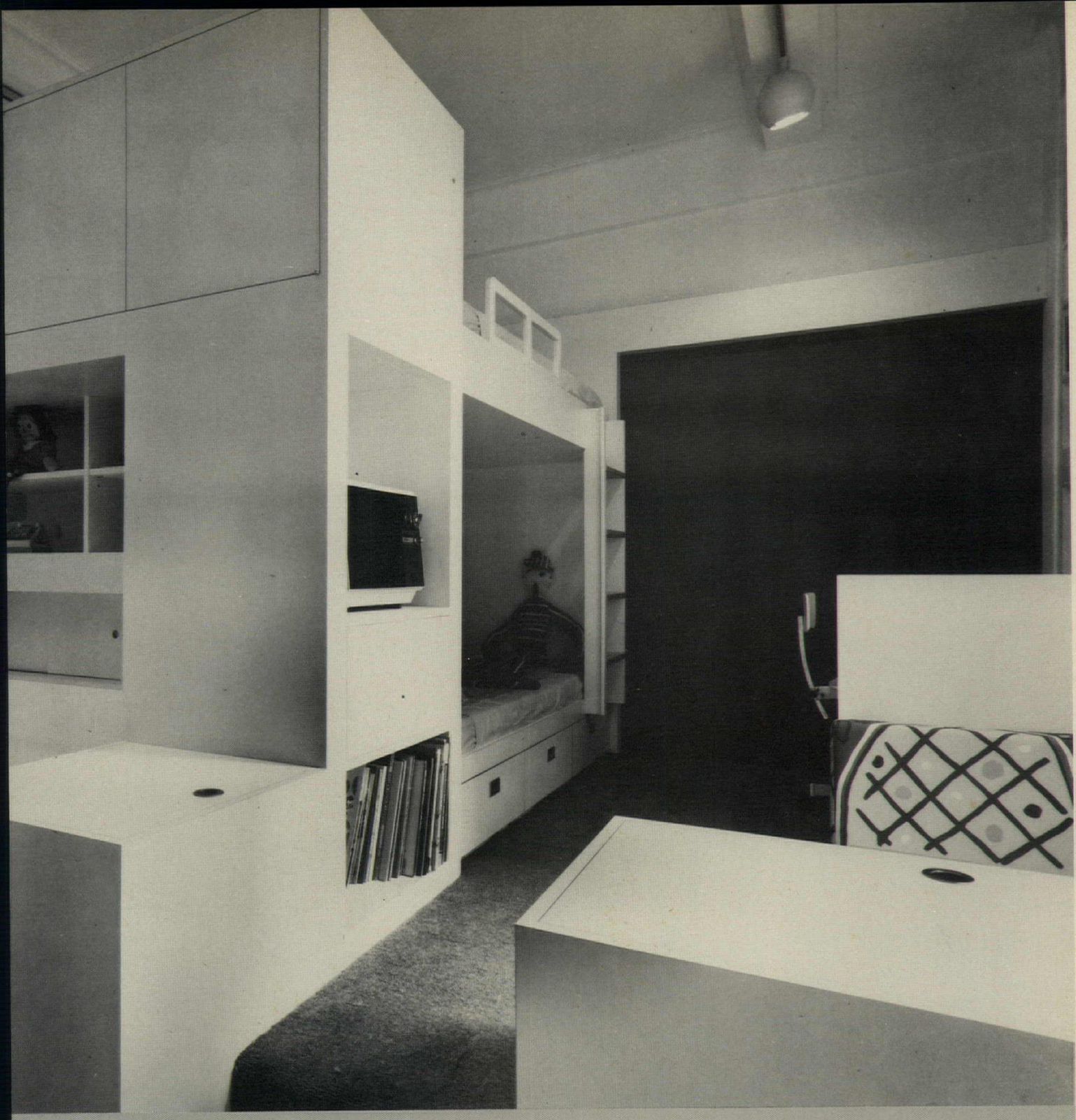


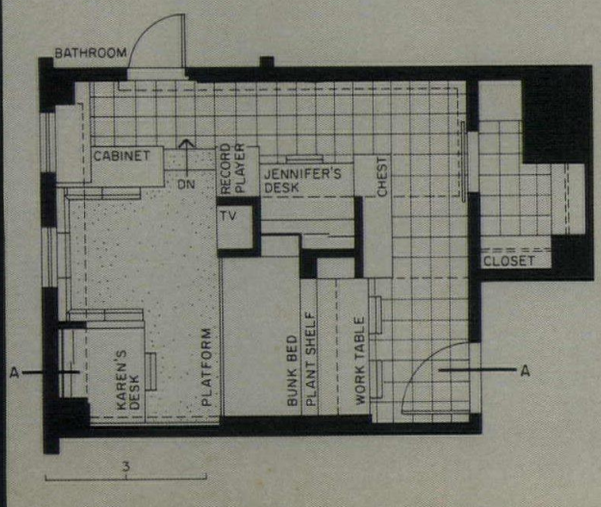
Barry Kipperman photos

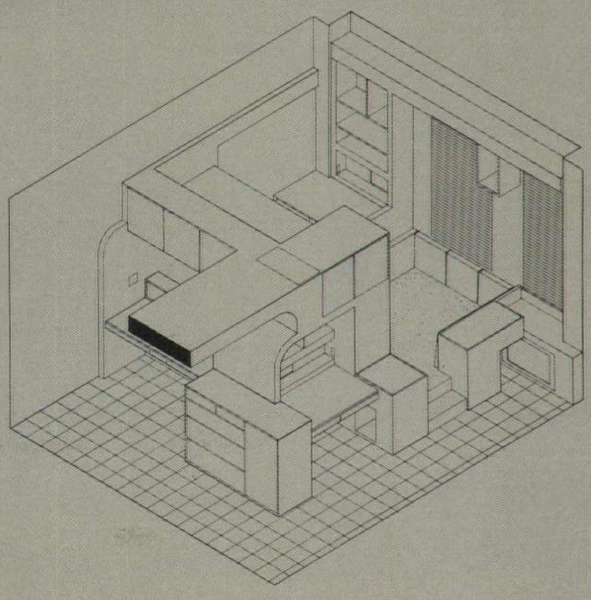


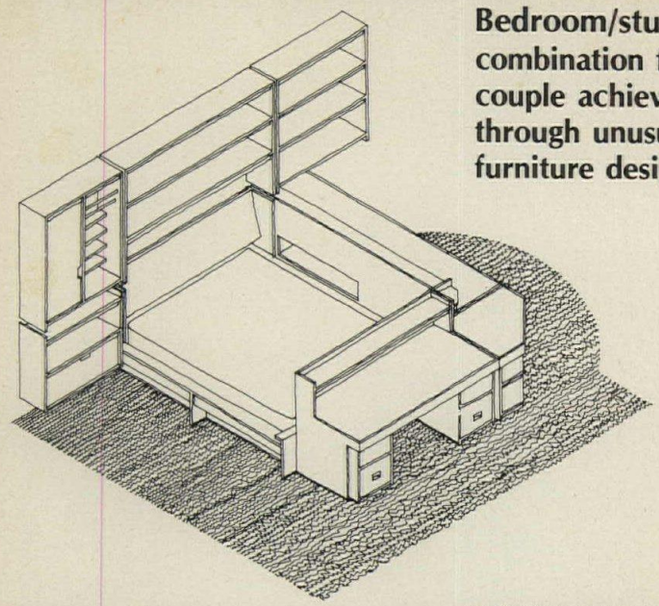


SECTION A-A




BATHROOM
CABINET
DN
RECORD PLAYER
JENNIFER'S DESK
CHEST
TV
CLOSET
KAREN'S DESK
PLATFORM
BUNK BED
PLANT SHELF
WORK TABLE
A
A
3





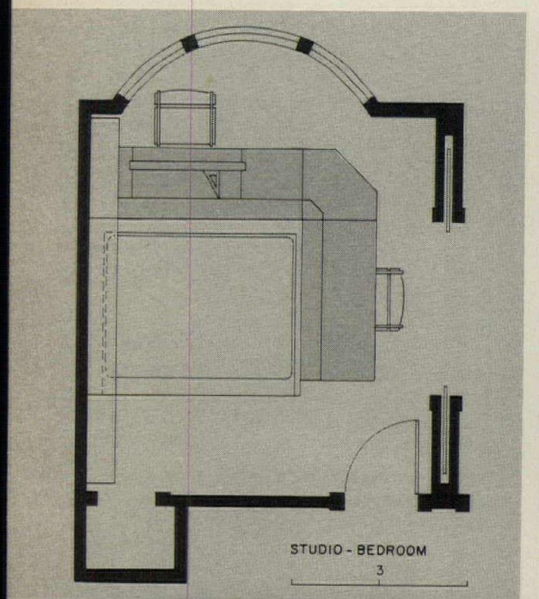
Bedroom/studio combination for couple achieved through unusual furniture design

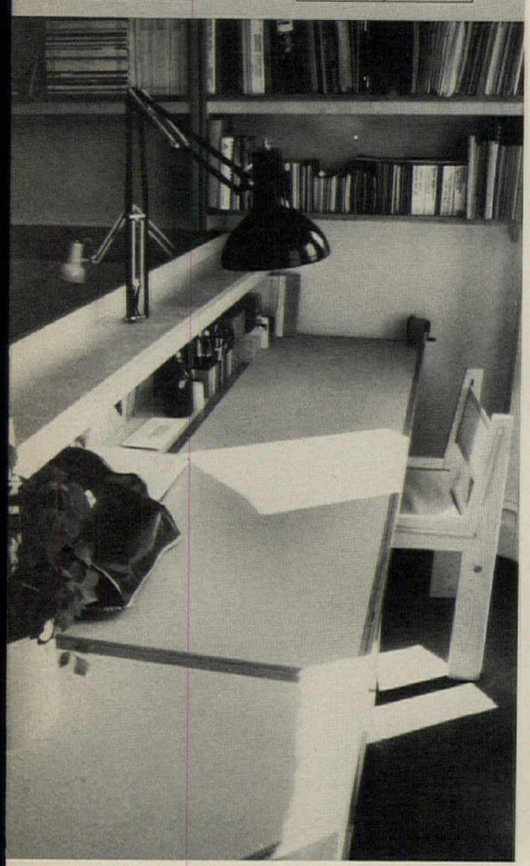
In one room of a San Francisco Russian Hill apartment, a combination bedroom/studio was designed through the unusual approach of creating one piece of furniture. A straightforward solution solves all the owners' needs and gives them a unit that can be dismantled and moved, and can be rearranged in a limited number of patterns. Fourteen sections bolt together to form the unit, which nearly fills a 12- by 13-foot room.

To deal with problems of noise and light in this location, each section's position was important. The desks were placed on the perimeter, allowing natural light to fall on the desk tops. The backs of the desks form two sides of a semi-enclosed bed, which the owners preferred, and act as a buffer to street noise, including the sounds of cable cars. A closet was placed near the bed, forming a small dressing area, away from the window. Of primary concern was storage space for clothes, working materials and books, so all available space below the bed and desks was utilized, and a bookcase was made the tallest element. Birch plywood was left natural and color is achieved through open displays of clothes and objects. Desk tops are covered with linoleum, forming a resilient backing for drafting.

BEDROOM/STUDIO, San Francisco, California. Owners: *Tito and Bobby Patri.* Architects: *Jennifer Clements and Robert Herman Associates.*

Jennifer Clements photos



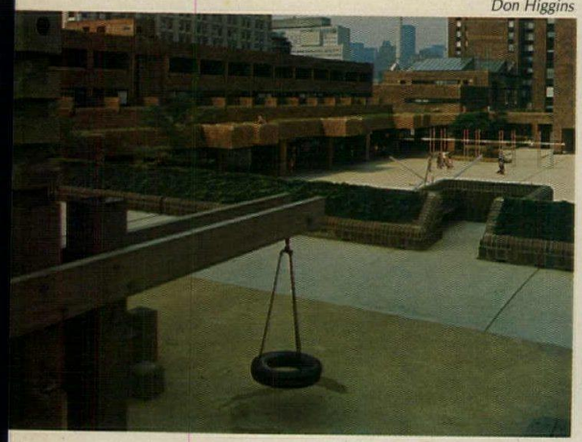


WATERSIDE

The first step in a plan to expand New York City's use of its waterfront, these apartment buildings bring their residents—and a previously cutoff nearby community—to the East River's edge. Like many good things, the realization has not been easy, and the process reveals many pointers for such future development on "found" building sites that could be the best resources for preservation of existing cities.—C.K.H.

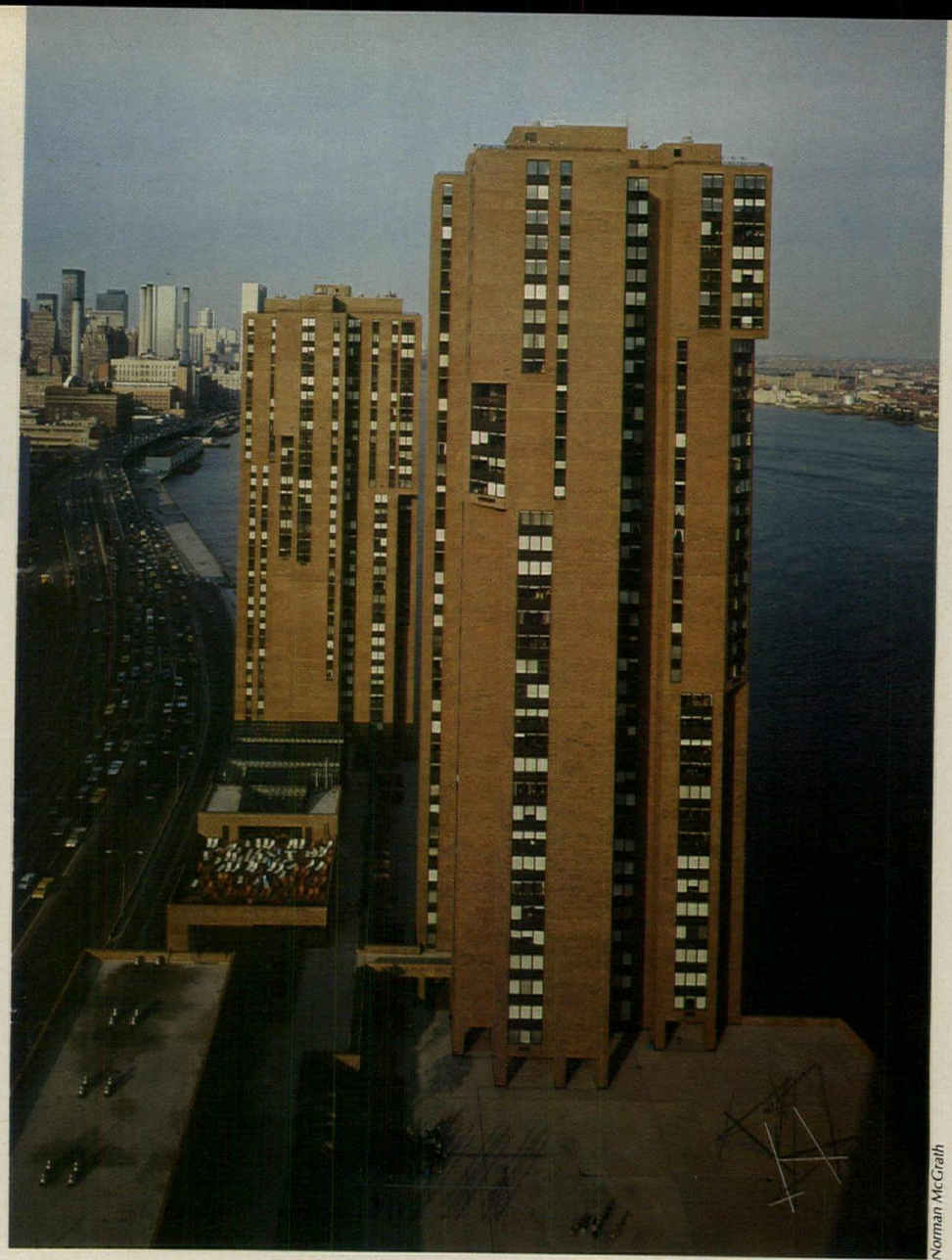
Robert Gray

Don Higgins

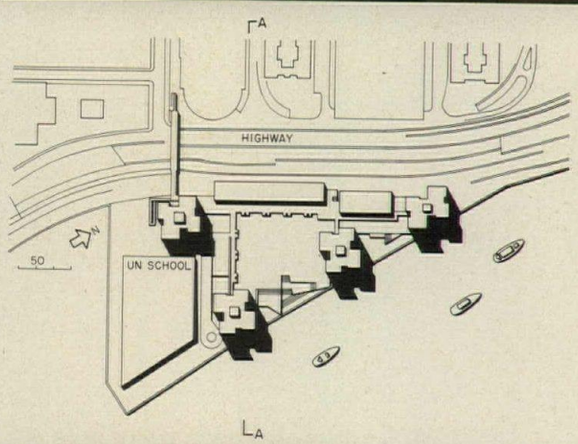


"Waterside" is really a misnomer, because the project's 1,440 housing units, 50,000 square feet of commercial space and 900-car garage are actually built *over* the water—on 2,200 specially designed piles. The suspended six-acre site is the first step in a master plan, prepared in the late 1960s by its architects, Davis, Brody & Associates, to claim a 13-block-long area (beginning lower right in aerial photo, opposite page) for an existing adjacent community and a new one along New York City's East River. The new area would occupy a recess in the shoreline currently defined by the major highway that still isolates all but the most intrepid from the greater part of the water's edge. Similar groups of buildings at both ends of the future park would provide not only badly needed housing but 24-hour activity. Whether or not the rest of the plan is ever carried through, Waterside, as it exists, provides four acres of plazas (photo above) and river-edge promenade, all linked to the older community by a pedestrian bridge. The main public plaza is surrounded by a higher level of plazas, which are the only areas reserved for strictly tenant use. Constantly programmed activities, such as concerts and exhibits, assure a large public presence.

But as salubrious as the Waterside concept may be to the city, controversy over even this phase of construction (described later) almost kept the project from being built. And a large part of that controversy involved what kind of people would live there. Waterside's tenants have a mix of limited-income levels, controlled by the nature of the project's partially public financing. The 360-unit north tower (uppermost in aerial photo) was financed by the FHA 236 program for lower-income tenants, and the apartments in this 34-story building are conformingly small in room areas. The controversy centered around the other three 40-story towers, which the private developer financed through a low-interest (approximately seven per cent) mortgage from the city and tax abatements designed to place them within reach of middle-income tenants. These units are only somewhat larger, but all are compensated by spectacular views. There are approximately 2 efficiencies for each 4 one-bedroom, 3.5 two-bedroom and 1 three-bedroom apartments. A row of "townhouses" is placed above the retail building (photo above and left in aerial view) and together the two uses provide a low-scale element and plaza buffer to the highway on the other side.



Norman McGrath



Located at one end of a U-shaped recess in the Manhattan shorline, Waterside's site includes the United Nations School by architects Harrison & Abramovitz (low white building, opposite page). Some of the apartments were originally intended as a relocation resource to make way for planned development around the United Nations (visible in the upper left-hand corner of aerial view, across from Roosevelt Island). Waterside is immediately outboard of the Bellevue Hospital buildings. The swimming pool is located in the low glass-roofed building (above).

Don Higgins

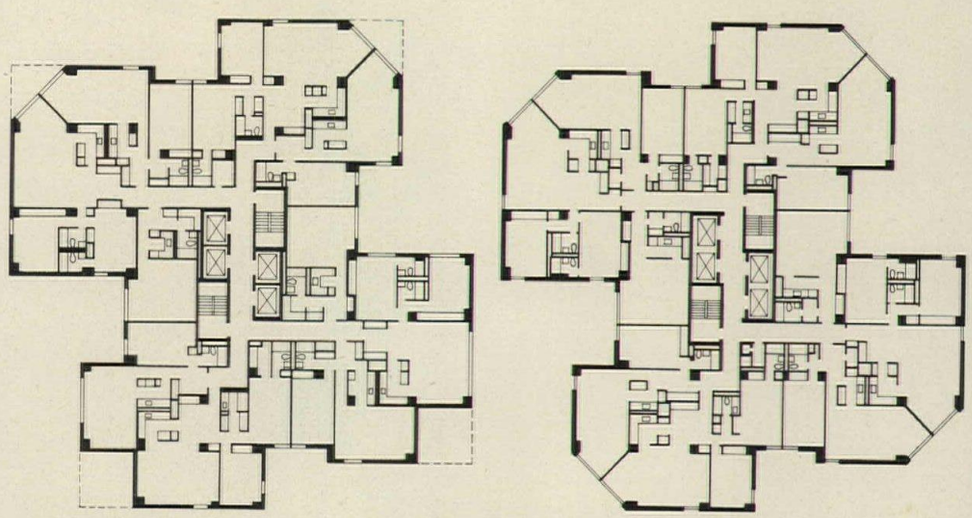
Norman McGrath

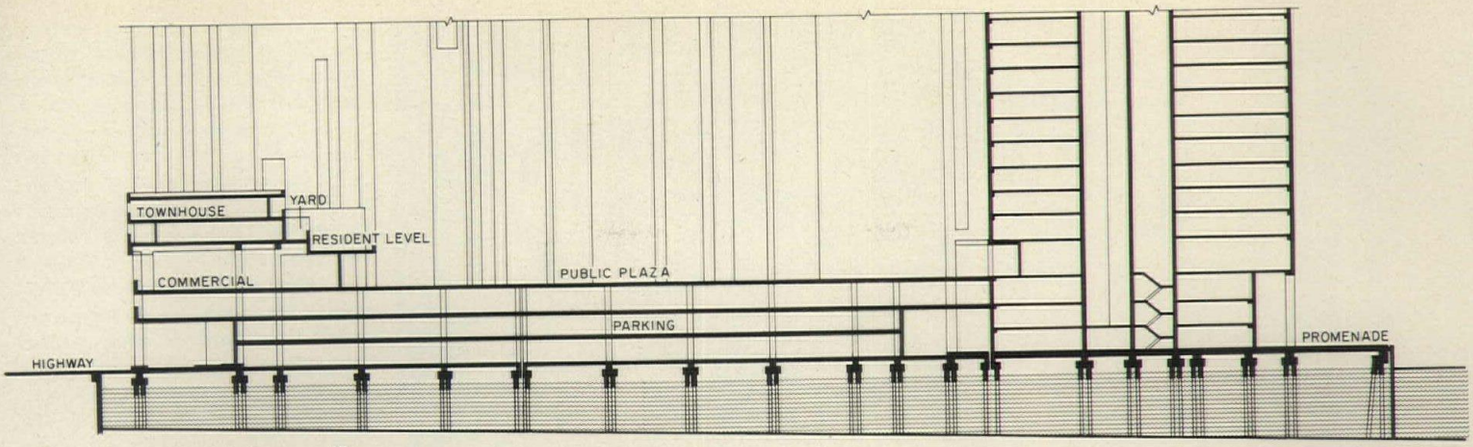
Norman McGrath

The ways in which the various levels are organized can be seen in the section, opposite. The river-edge promenade (photo, right) is intended to be continuous with planned future development to the south, and is reached from the public plaza (left in photo) by broad flights of steps. Here boats may dock, and the activity to be generated includes that of a restaurant projecting over the promenade and having spectacular views both up and down the river. Semi-private outdoor areas for the tenants (photos, opposite) connect the four towers and ring the large expanse of public plaza (opposite center), where both the public and residents are encouraged to patronize shops on the space's east side. The townhouses above the shops have their own private yards, which are one-half level above the general resident spaces. Despite the encouraged public presence, the controlled access to the project (as well as to the individual buildings) offers security through easy surveillance; and it heightens a sense of community. This sense is further encouraged by the presence of many of the needs for self-sufficiency, including office space.

Developer Richard Ravitch readily states that the separate towers were not as economical as fewer, more massive buildings would have been—but that they were necessary to avoid building a wall on the river for the buildings behind. To gain maximum views for the relatively low older buildings, to place a maximum number of the new residents near the most spectacular views and to give the towers a visual "cap," floor areas increase successively as they get higher, so that four apartments gain an extra bedroom on each of the top floors (see plans). Ravitch attributed a "minuscule" cost for the resulting cantilevered floor space.

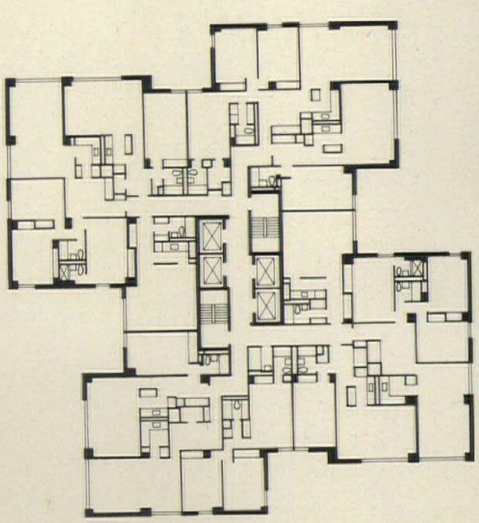
Waterside's buildings are built with conventional poured-concrete, flat-slab construction on top of ganged piles. The sheathing of "oversized" brown brick accounted for fast placement and the ability to turn corners without special sizes. The sections of pivoting, double-glazed (because of electric heat) windows and metal curtain walls were placed first and the brick set to them. The composite piles were the major innovation, as they were driven without caissons; they are steel H sections (in the non-oxidizing layer of sludge between the river's bottom and rock) with concrete above, which could be poured at low tide. Ravitch estimated the substructures' costs to be about $20 per square foot within the over-all project cost of about $55 million.





SECTION A-A 10

J. Alexander photos



TYPICAL UPPER FLOOR

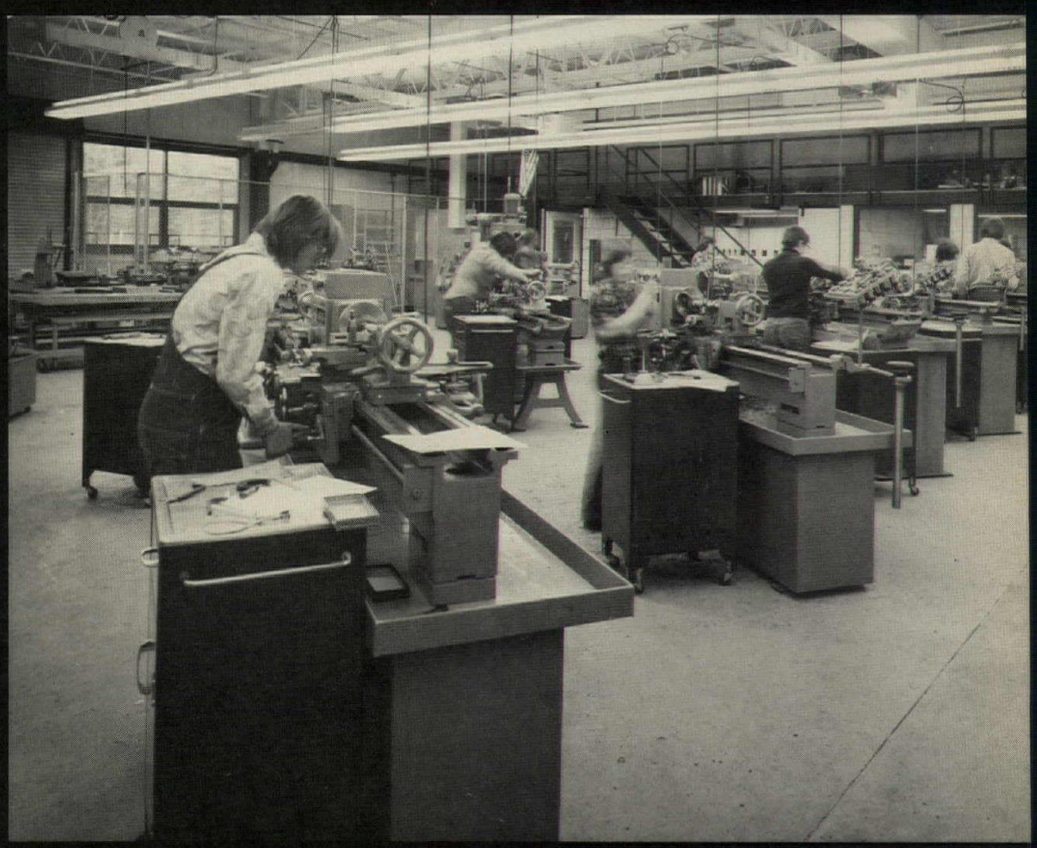
Norman McGrath photos

As an example of the unusual amenity here, carefully detailed brick parapet walls, separating the various levels, were estimated to cost over $300,000 more than metal railings, but were determined to be necessary to both the visual success of the plazas and privacy. Community rooms offer a constant range of activities from lectures to crafts, and the extensive facilities of the swimming pool are available to all tenants for a modest yearly fee—as are the covered parking spaces. These three photos show the stores on the main plaza's landward side and under the tenant plaza and townhouses. The top view is toward the northern tower and the swimming-pool building.

That Waterside was ever built is a tribute to the determination of both the developer and the architect, and—considering the difficult 12 years of fighting countless bureaucracies, political opposition and consequent soaring costs—it is a wonder that both parties continue to enjoy the personal friendship with which they began. Planning for the innovative project began in 1963 and stretched through several city administrations with changing attitudes. According to a *New York Times* editorial in 1967, "the local pattern for mediocrity is immutable"; given the difficulties involved here, the distinction of the project would seem heroic. Waterside was to have been built originally by purely private financing. But air rights for the "land" were to be leased from the City, which had to first wrestle control from the Department of Marine and Aviation. No bank would then finance the project, which according to a 19th-century law, could have been confiscated for interference with Federal shoreline defense. An act of Congress was required, and—due to delays—rising estimates of cost required the promise of tax abatement and limited-income financing by the City. During this period, extensive neighborhood input was encouraged to assure local interests while a group called Planners for Equal Opportunity emerged to assert that tax abatement constituted subsidy for the rich—despite the land rental income (now $500,000 per year) which the city would have never otherwise realized. Accordingly, the final city approval in 1967 was passed by only the personal intervention of then Mayor John Lindsay. But another three years elapsed before the city financing could be approved and the project could get started. By this time, both costs and rents had nearly doubled from the original estimates. Still, high demand has caused better than a 95-per-cent-occupancy rate at rents of over $100 per room. And—because of solutions to many problems here, Waterside has helped pave the way for such water-front developments everywhere—which offer choice location without relocation and are still assets to inland communities.

WATERSIDE, New York City. Owner: *Waterside Redevelopment Company.* Architects: *Davis, Brody & Associates—associate: John Lebduska; project architect: Herbert Levine; project designer: Ian Ferguson; design team: Frank Frost, Jerry Lee, Edward Montano.* Engineers: *Robert Rosenwasser* (structural/soils); *Cosentini Associates* (mechanical/electrical). Consultants: *Herbert Levine, Howard Brandston* (lighting); *Chermayeff & Geismar Associates* (graphics). General contractor: *HRH Construction Corp.*

VOCATIONAL SCHOOLS



Phokian Karas

A progress report

When vocational schools were last the subject of a Building Types Study (RECORD, February 1973, pages 125-140), we reported two important phenomena. The first was a general and growing awareness on the part of educators of the importance of vocational schools in the overall educational system—not as make-do surrogates for a "real" education, something meant for the "other guy's kids," but as an integral part of the national pedagogy, valid in itself, and essential to the successful careers of a sizable part of the American student population. The second phenomenon we reported was the development of new teaching techniques to foster better vocational education—techniques like "Clustered Team Teaching," or the "Learning Activities Package," which assumes that all complex skills can be broken down into simpler component skills common to a broad range of complex skills; thus the student who wants to take apart automobile engines and the one who wants to design a piece of furniture must both know about fractions—and a simple "fractions learning package" can be put together for use by each.

All these developments had led to significant commitments on the part of national, state and local governments to vocational education, and, from that, to innovative architectural programs and then buildings to house them. Enrollment in vocational schools was on the up, and promised to remain so.

These trends have continued. In 1974 some 13.5 million students were enrolled in vocational education programs, and about half of this number were in secondary schools, the other half in post-secondary schools or colleges. In that same year more than $198 million was spent on construction of these facili-

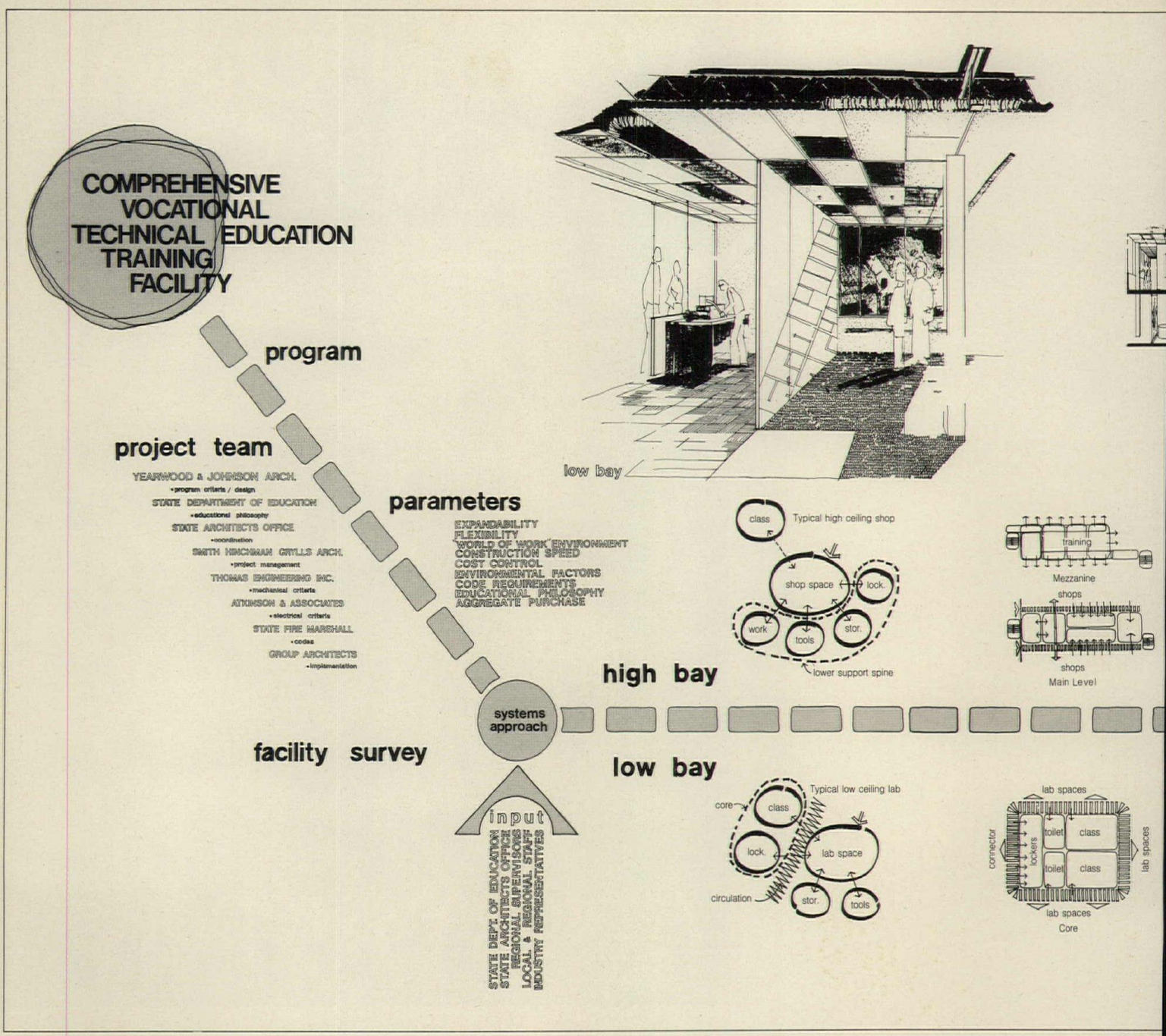


Diagram showing the organization of design and construction process for the Tennessee Vocational School program

ties. The American Vocational Association indicates that enrollments have been and are increasing at a rate of about ten per cent a year.

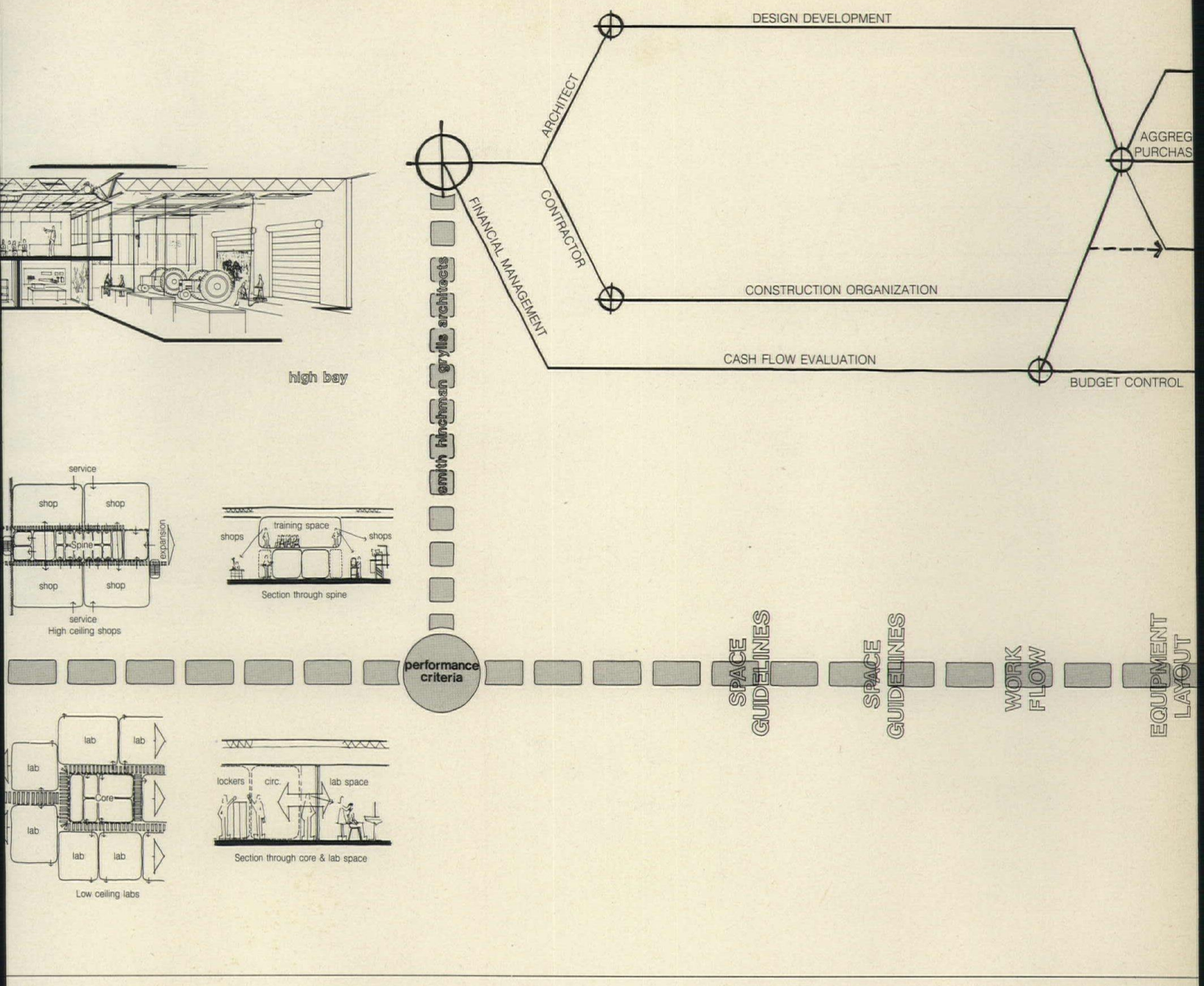
All this activity has given new vocational teaching techniques the chance to be realized in built buildings. For instance, the Minuteman Regional Vocational Technical School in Lexington, Massachusetts (which uses "Clustered Team Teaching"), and the Greater Lowell Regional Vocational Technical School in Tyngsboro, Massachusetts (which uses the system of "Learning Activities Packages"), were shown as projects in our last Building Types Study; on the following pages they are shown as built buildings. Equally worthy of note is the *reaction* to these kinds of vocational schools on the part of some educators in the Commonwealth of Massachusetts, who argue that really elaborate innovations in vocational schools result in too expensive an education for too few students—and they propose as an alternative simpler and more straightforward designs, like, perhaps, the Old Colony Regional Vocational Technical High School in Rochester, Massachusetts, which is also shown on the following pages.

In 1974 the State of Tennessee committed itself to a $197 million Vocational/Technical School program, consisting of the construction of 60 new schools throughout the state and additions to approximately 60 existing high schools or area vocational/technical schools. The entire program was scheduled for completion within three years, and it has been designed for use by students in grades 9-14, with an evening program of adult classes.

The Tennessee vocational school program is remarkable not so much for its educational inventiveness or its architectural solutions as it is for the extraordinary organizational skills that have allowed the programming, design and construction of so massive a project to proceed, so far, on time and on budget. The outlines of this process are shown in the chart above and on the following page.

For the 60 new schools the state hired 17 Tennessee architectural firms, but the Nashville firm of Yearwood & Johnson was first commissioned to establish uniform programming, design criteria and space layouts, including equipment layouts for each of the curricula to be taught. This assignment, according to the architects, was meant to lead "not to a specific building, but a framework for performance and quality."

Yearwood & Johnson's work began with a survey of existing vocational schools across the country, leading to a "guideline program." Next they developed conceptual prototypes, and, after that, detailed layouts, performance



criteria and systems designs. They were aiming for three particular goals:

▪ *Flexibility and expandability.* Research indicated that vocational school programs changed frequently—sometimes during the actual construction of a building. So a kind of building that would accommodate these changes had to be developed.

▪ *Work environment.* A "real world" environment seemed called for—sophisticated enough for adults, not a toy for children. Noise levels, comfort levels and lighting levels that would exist in industry had to be approximated, so that the educational experience would not be just academic.

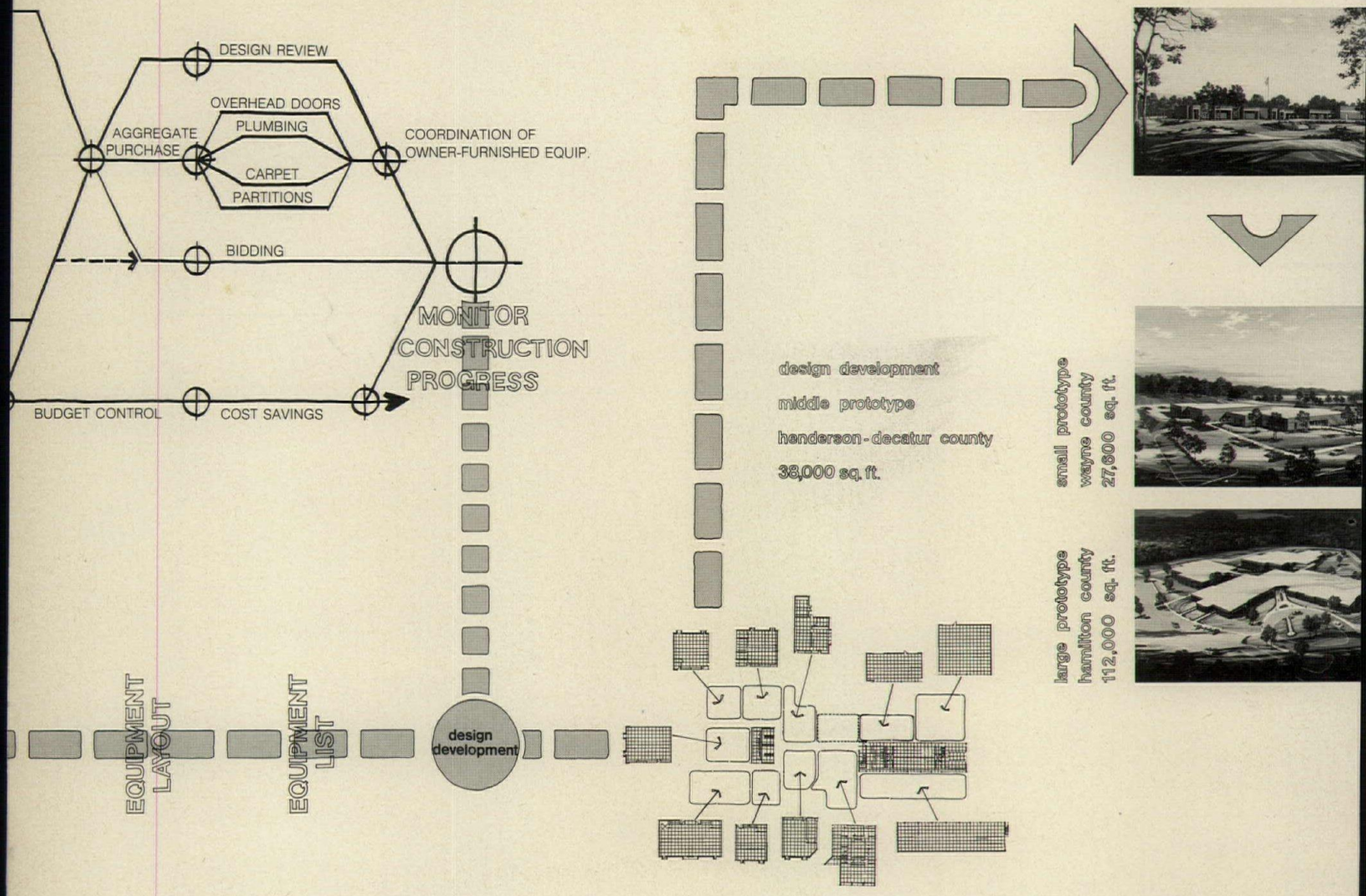
▪ *Speed and cost control.* What was needed were buildings that were economical and efficient and also of high quality. The intent was not to "gold plate," but to provide an efficient, organized system.

In the development of the conceptual prototypes, Yearwood & Johnson used two basic kinds of spaces—the "high bay space" and the "low bay space." The former are spaces for noisy activities like shops for general building and metal trades. The latter are for quiet activities, general academic and laboratory space. Another important concept was clustered teaching, where all the instructors could be in a common work area, rather than each one being in an individual classroom. Classrooms could then become multi-purpose, and shared.

The corridors that connected the various spaces in the prototypes were designed to have windows into each of the learning spaces—the idea being that these spaces which had to be there for circulation could also be used for visual interaction, making the whole building come alive with the sense of all the activities going on in it.

▪ *High bay spaces.* Each prototype has a common shop space, and to it are connected ancillary classrooms and support facilities: work rooms, tool rooms, storage rooms, toilets and lockers. These support facilities are organized on one level in a linear spine. On the level above are classroom spaces and teacher work areas—all opening into the adjacent high bay. These spines, and the high bay shops next to them, can be expanded in two directions. All mechanical and electrical services are from overhead, allowing for easy rearrangement of the spaces as programs change.

▪ *Low-bay spaces.* Each prototype also has common lab spaces with ancillary classrooms and support facilities: storage rooms, tool rooms, toilets and lockers. In the low bay spaces the classrooms and support facilities are organized into a core with adjacent lab spaces, and, again, the core is expandable.



The Detroit firm of Smith, Hinchman & Grylls Associates, Inc. was hired by the State of Tennessee to provide Management Services for the construction of the 60 new schools along the lines developed in Yearwood & Johnson's prototypes. Their job was to develop design and construction schedules and budgets, and to monitor these activities.

By realistically scheduling the program and by notifying each member of the design-build team of his responsibilities, the front-end process has been reduced by SH&G from an average on similar projects of 24 months to 9 to 12 months. According to SH&G, approximately 15 per cent of the schools are being bid ahead of the schedule, and the architects' estimates show that the schools should come in at at least three per cent under budget.

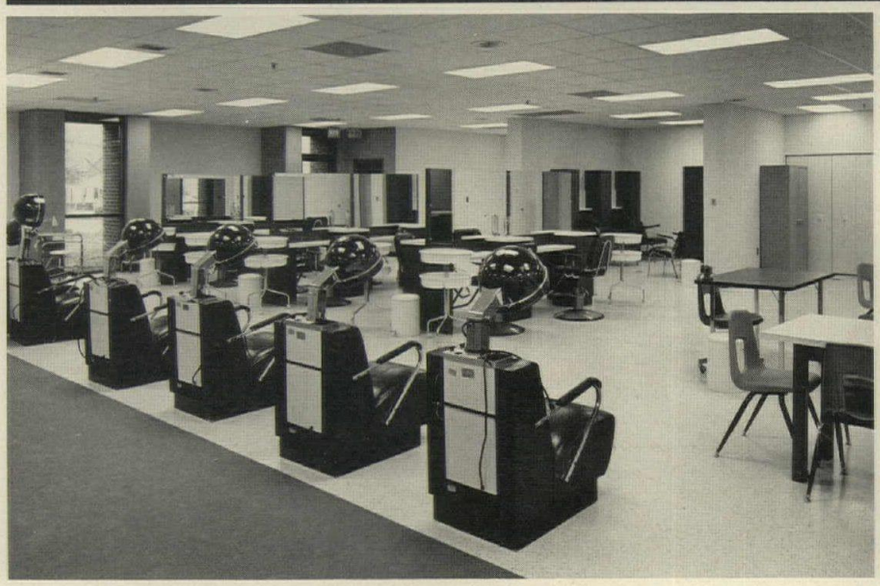
In establishing these budgets, a wide diversity of needs had to be considered. The geographical locations of the schools had an important effect, as did varying soil conditions across the state. In addition, the size of each of the 60 schools not only affected its construction schedule, but also the escalation rate necessary for it. In many cases, varying labor markets had also to be considered.

Contractors set up a sub-committee to work with SH&G and the state on a plan of action for the program. Bid dates and construction processes were set, and other problems were resolved—ranging from the processing of pay requests through the state, to local labor forces and material availabilities in different regions.

Initially it was assumed that Construction Management would be the system under which all the schools would be built, with a series of prime contractors working on each building.. But after careful study of the Tennessee design and construction industry, it was decided that in all but several cases the schools would be released on a single-contract bid. Five aggregate purchases, however, were items to be issued by the owner. Three of these were for materials delivered to the job site and installed by the general contractor: plumbing fixtures, light fixtures, and overhead doors. Two items are owner-furnished and -installed: demountable partitions and carpeting.

A series of long-lead and aggregate purchase items were considered at the beginning of the project, but it was finally decided that none of them were necessary except the five above, bought in the interest of saving money for the owner.

Two of the new Tennessee vocational schools (built versions of two of Yearwood & Johnson's original prototypes) are shown on the following pages.—*Gerald Allen*

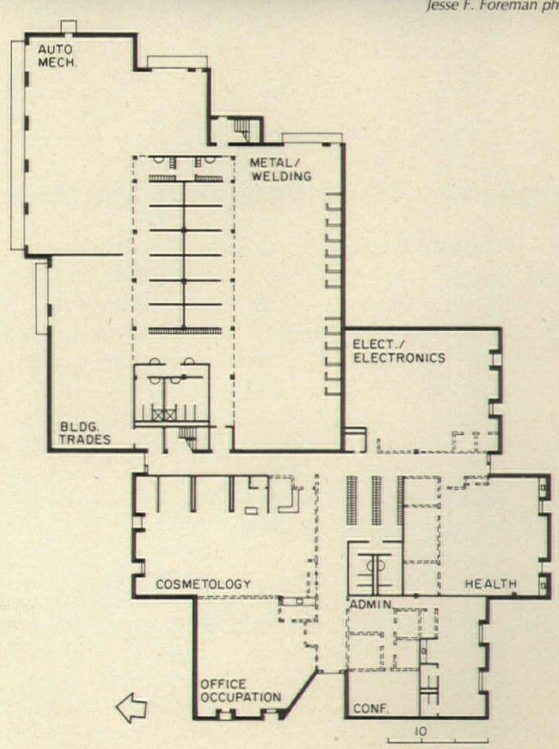


Jesse F. Foreman photos

Wayne County Vocational Center

The newly-completed Wayne County Vocational Center represents the smallest of the three prototype vocational schools developed by the Nashville firm of Yearwood & Johnson (and described on the previous pages). The photographs above show the altogether straightforward, no-nonsense style of the design, and the plan on the right shows one of the possible realizations of Yearwood & Johnson's schematic designs. At the bottom of the plan are the entrance and a series of "low bay" spaces—in this case, teaching areas for cosmetology, office occupations, health services and electricity and electronics. All of these surround a central service core. At the top of the plan are the "high bay" spaces—auto mechanics, general building trades and general metal trades—large shop areas, which flank a linear spine containing support facilities.

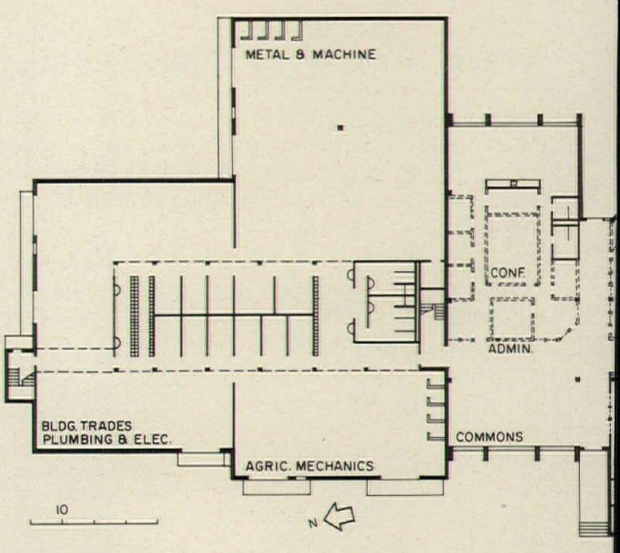
WAYNE COUNTY VOCATIONAL CENTER, Waynesboro, Tennessee. Architects: *Yearwood & Johnson—project architect: J. Michael Gould.* Engineers: *Yearwood & Johnson—project engineer: John Carpenter* (structural); *Thomas Engineering, Inc.* (mechanical); *Atkinson & Associates* (electrical). General contractor: *Parks-Richardson Company.*

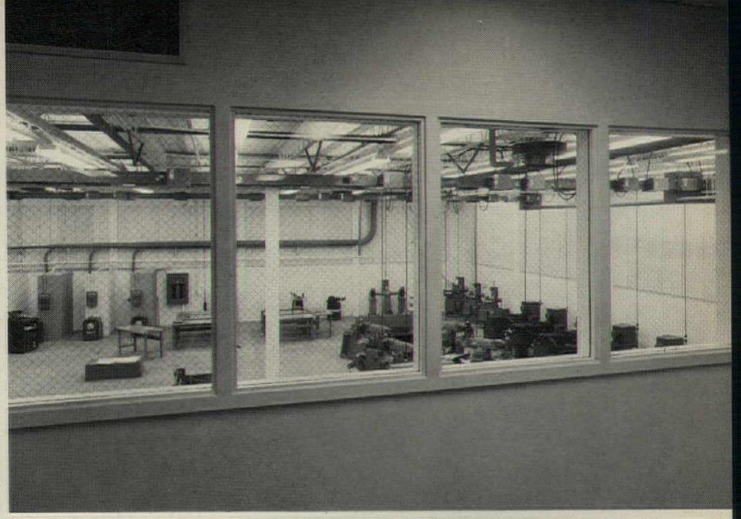


Henderson/Decatur County Vocational Center

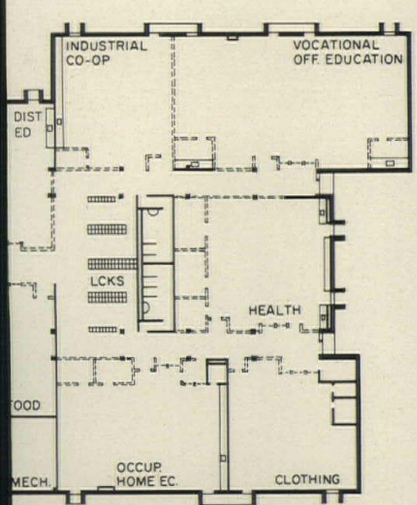
The Henderson/Decatur Vocational Center is the medium-size of Yearwood & Johnson's three prototypical designs for the State of Tennessee (see pages 125-128). The plan (opposite) divides into two main parts; on the right-hand side are a series of "low bay" teaching areas—distributive education, food management, home economics, clothing, health and office occupations—loosely arranged around a central core containing toilets, lockers and storage areas. On the left-hand side are "high bay" shops—agricultural mechanics, general metal trades and general building trades. The photographs on the opposite page show how the linear spine for these high bay spaces is organized on two levels, with lockers, tool storage and toilets on the main level and teaching areas on the mezzanine above, overlooking the shops (top photo, opposite).

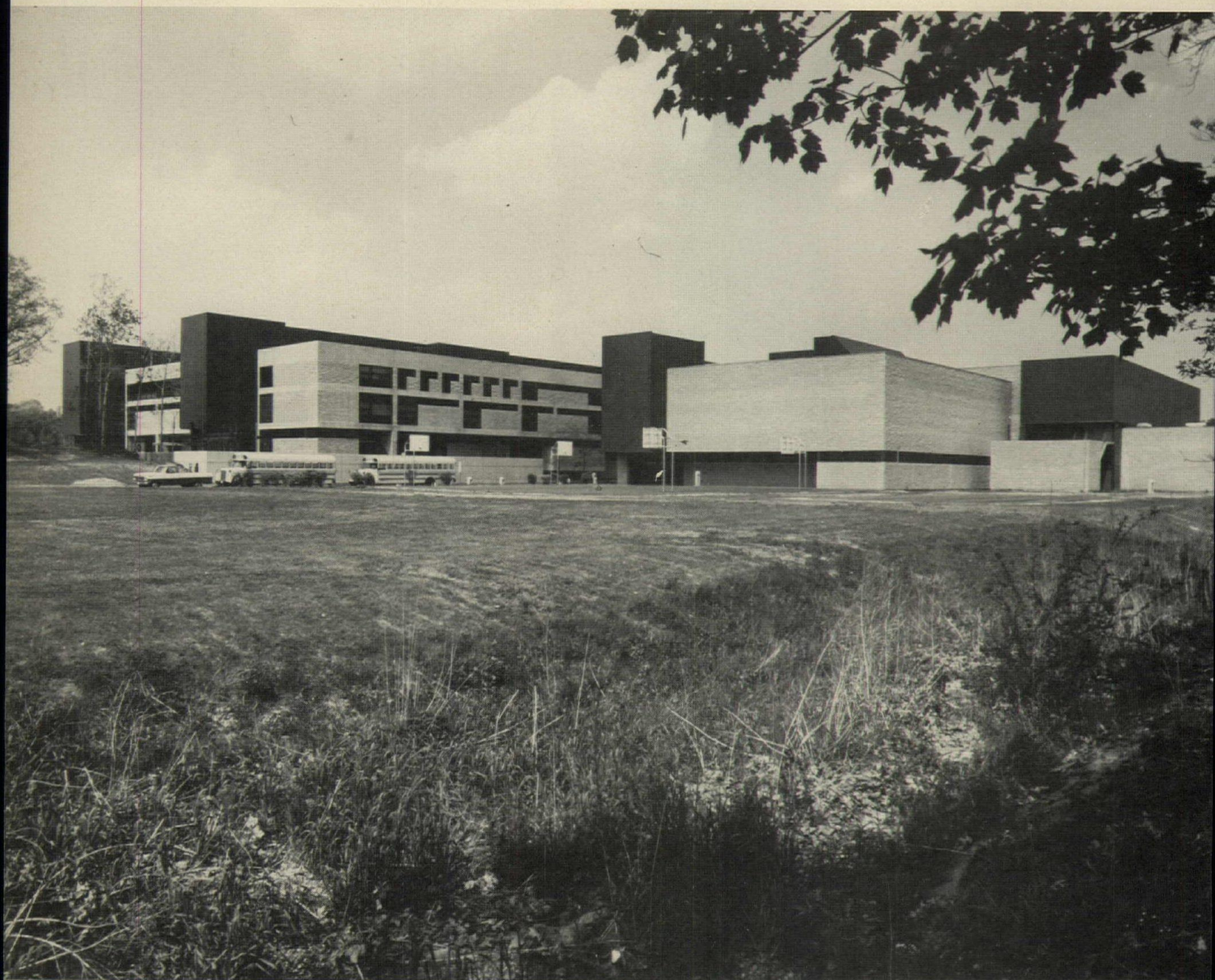
HENDERSON/DECATUR COUNTY VOCATIONAL CENTER, Lexington, Tennessee. Architects: *Yearwood & Johnson—project architect: J. Michael Gould.* Engineers: *Yearwood & Johnson—project engineer: John Carpenter* (structural); *Thomas Engineering. Inc.* (mechanical); *Atkinson & Associates* (electrical). General contractor: *Management Construction, Inc.*





Jesse F. Foreman photos

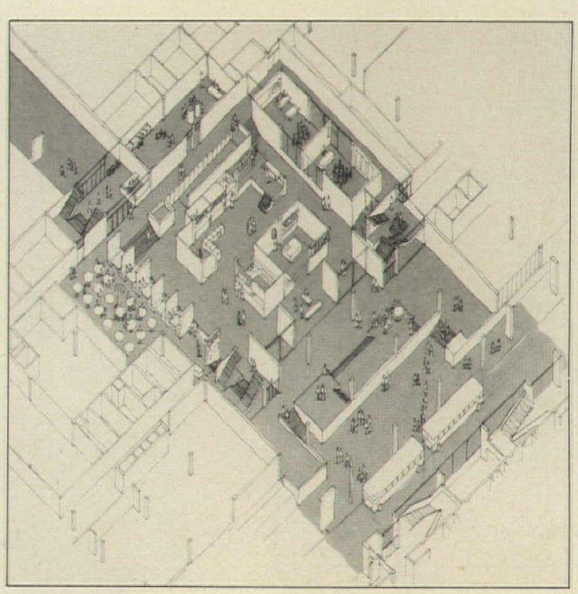


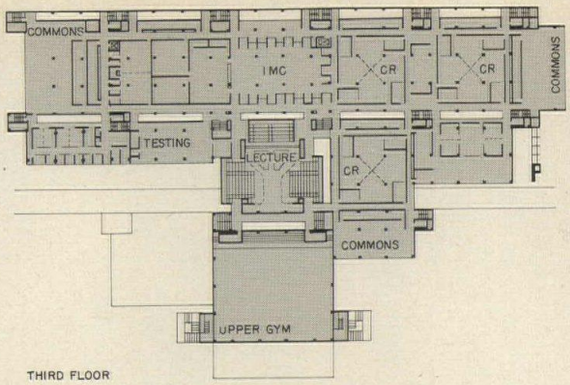


Greater Lowell Regional Vocational Technical School

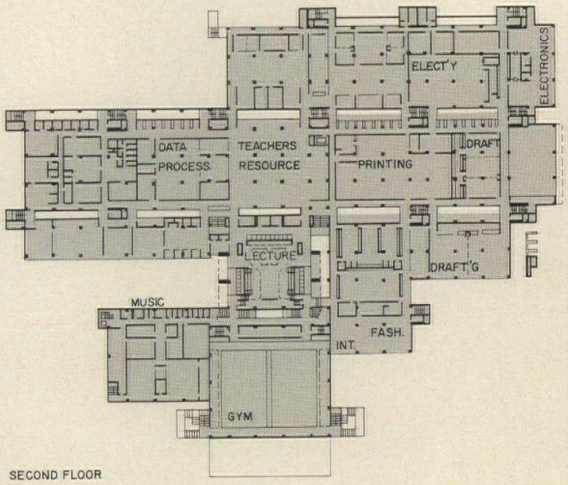
This 3000 student school covers 11 acres of land on its rural site and is one of the largest vocational schools in the nation. Its educational program, according to former Superintendent-Director Robert R. Reeder, is organized around 15 "career clusters" and towards the goal of individualized career development for each of the students—relying heavily on computers to develop and monitor the progress of special programs for individual students. Three east-west service streets (see plans and bottom right photo, opposite) provide delivery access to the shops on the first floor, and they also function as the major pedestrian circulation within the building.

GREATER LOWELL REGIONAL VOCATIONAL TECHNICAL SCHOOL, Tyngsboro, Massachusetts. Architects: *Drummey Rosane Anderson, Inc.—partner-in-charge: David W. Anderson; designer: Terrence A. McCormick; project architects: Alan W. Strassler, Penelope P. Beye.* Engineers: *Thomas Rona Associates* (structural); *Golder Gass Associates* (soils); *Greenleaf Engineers* (mechanical/electrical). Consultants: *Cambridge Acoustical Associates* (acoustical); *John G. Crowe* (landscape); *Arthur D. Little Corp.* (educational). General contractor: *White Construction Co.*

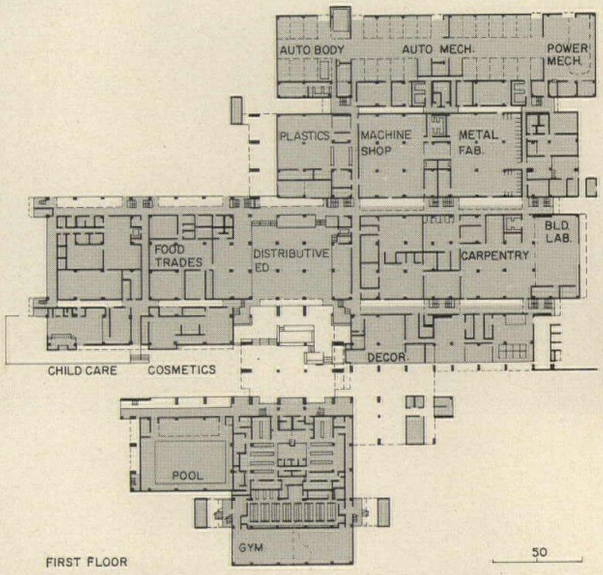




THIRD FLOOR

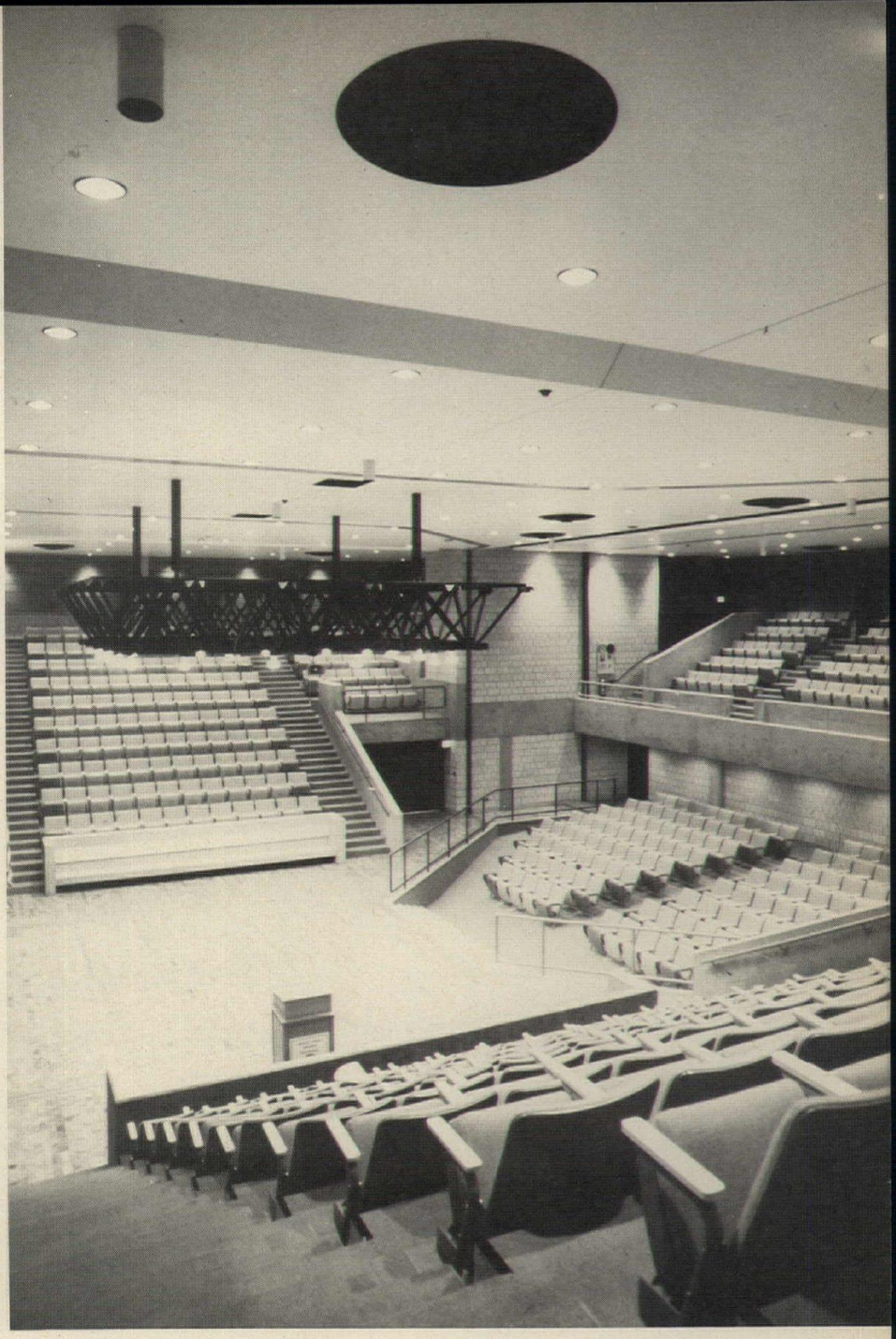


SECOND FLOOR

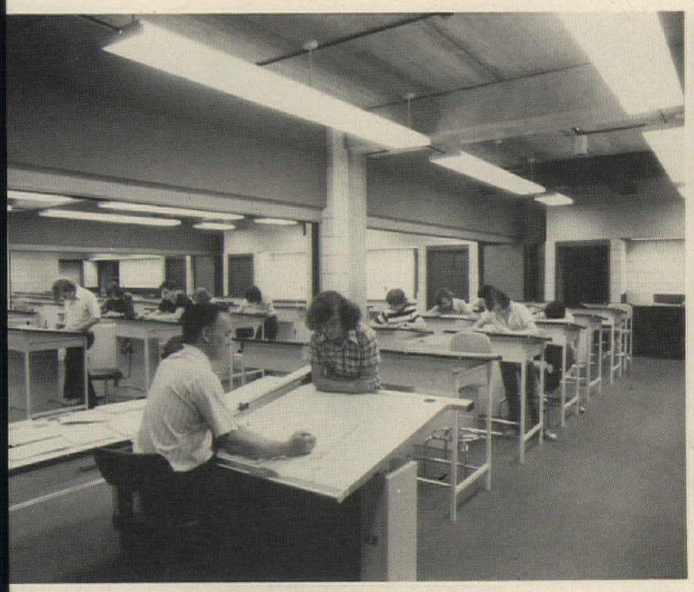


FIRST FLOOR

50



Wayne Soverns photos

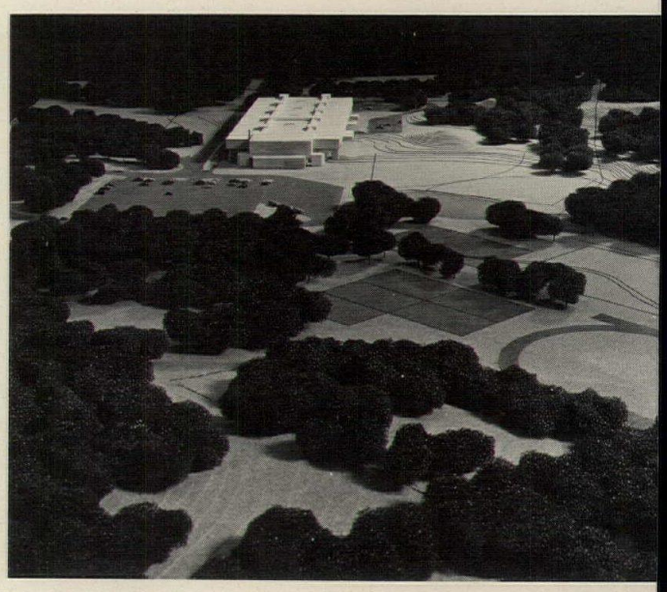


Minuteman
Regional Vocational Technical School

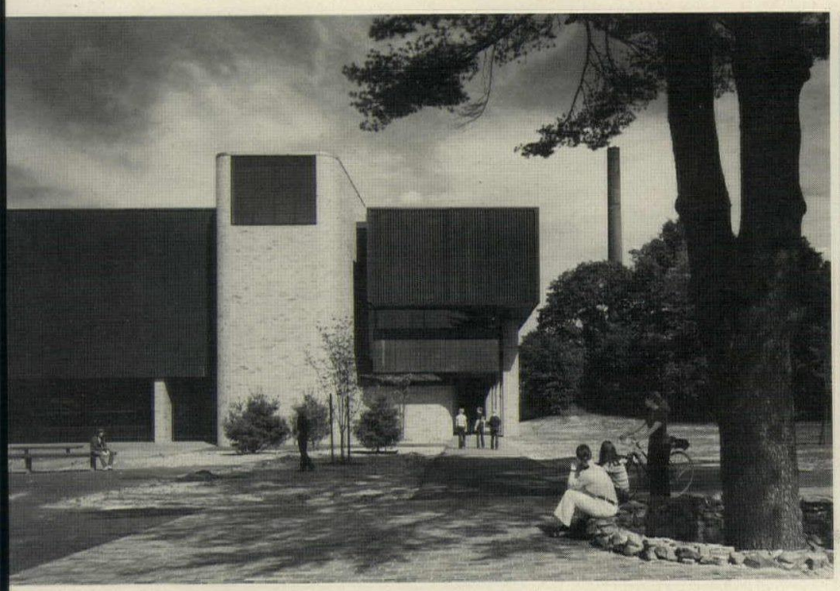
This vocational school serves 12 relatively affluent suburbs of Boston and is designed towards one central goal; the students' education is meant to be founded not within a single discipline, but instead on the full score of possibilities offered in the school. Thus the building—which is a 310,000-square-foot-structure framed in steel, and clad in brick and weathering steel—provides the individual student with a variety of learning experiences that cannot be offered in any one laboratory operated in the traditional way. It shares learning stations common to many programs, instead of duplicating them in several locations, so that skills common to a wide range of careers are learned by groups of students in a common environment.

All of the major spaces are located in the central core of the building: a trades hall, cafeteria, swimming pool, mall, gymnasium, Instructional Resource Center, and a science and technology area. Around these major spaces are the medium-size, more isolated and specialized areas and the interchangeable classroom clusters.

Providing transitions between these two broad classes of interior

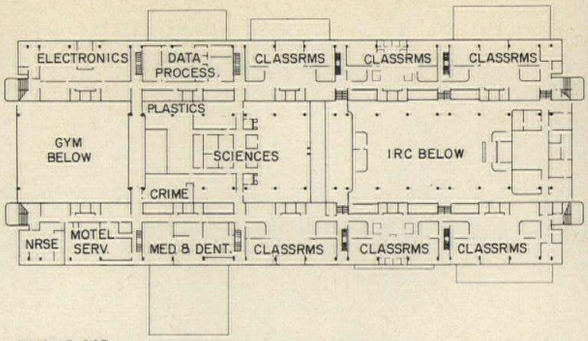


Wayne Soverns photos

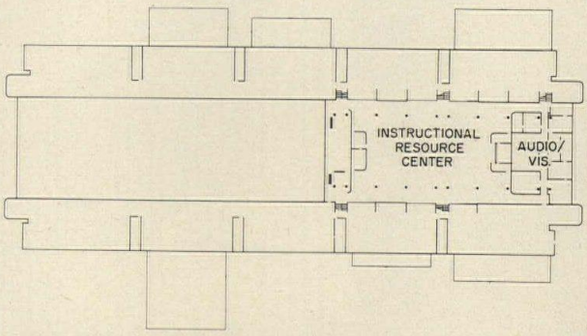


spaces are two skylit spines that contain the cores for all mechanical services, elevators, washrooms, lockers and clusters of study carrels (photo above). The key to the building is the interior mall (see plans, opposite). Here distributive education is taught and practiced from freestanding mini-stores, where products made in the school are sold. The mall is a half level up from the main entrance to the school, and everyone must pass through it before ascending another half level to the administrative offices. From the mall, the visitor has a view into the cafeteria (center photo, opposite) and, beyond that, the swimming pool (top photo); looking from the mall in the other direction, there is a view down into the trades hall (shown in the bottom photo on the opposite page).

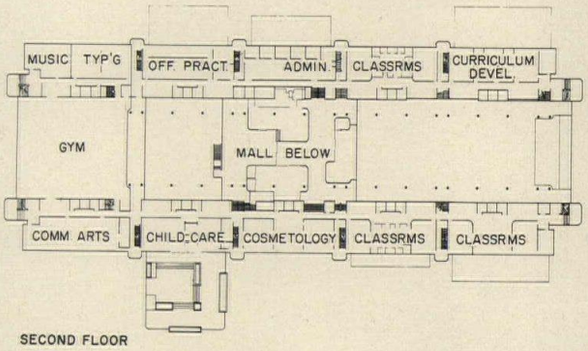
MINUTEMAN REGIONAL VOCATIONAL TECHNICAL SCHOOL, Lexington, Massachusetts. Architects: *Drummey Rosane Anderson, Inc.—principal-in-charge: David W. Anderson; designer: Glen Bradford; project architects: Alan W. Strassler, Penelope P. Beye.* Engineers: *LeMessurier Associates* (structural); *Golder Gass Associates* (soils); *Greenleaf Engineers* (mechanical and electrical). Consultants: *Bolt Beranek & Newman, Inc.* (acoustical); *Moriece & Gary, Inc.* (landscape); *Clark Slater Associates, Inc.* (cost). General contractor: *White Construction Co.*



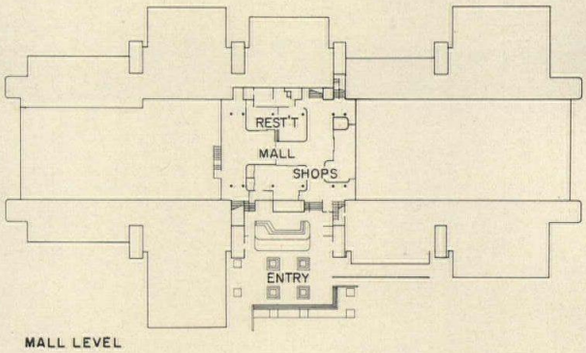
THIRD FLOOR



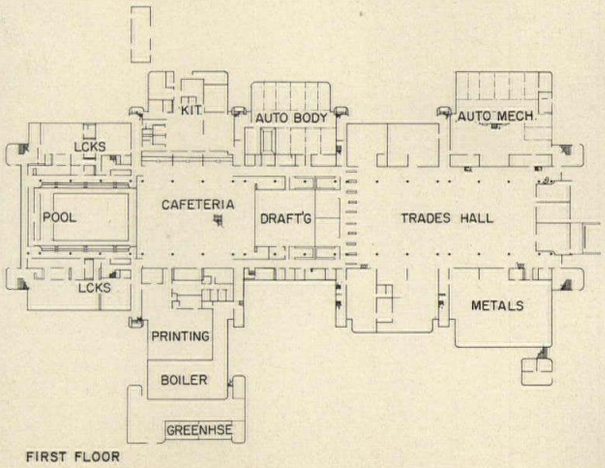
INSTRUCTIONAL RESOURCE CENTER LEVEL



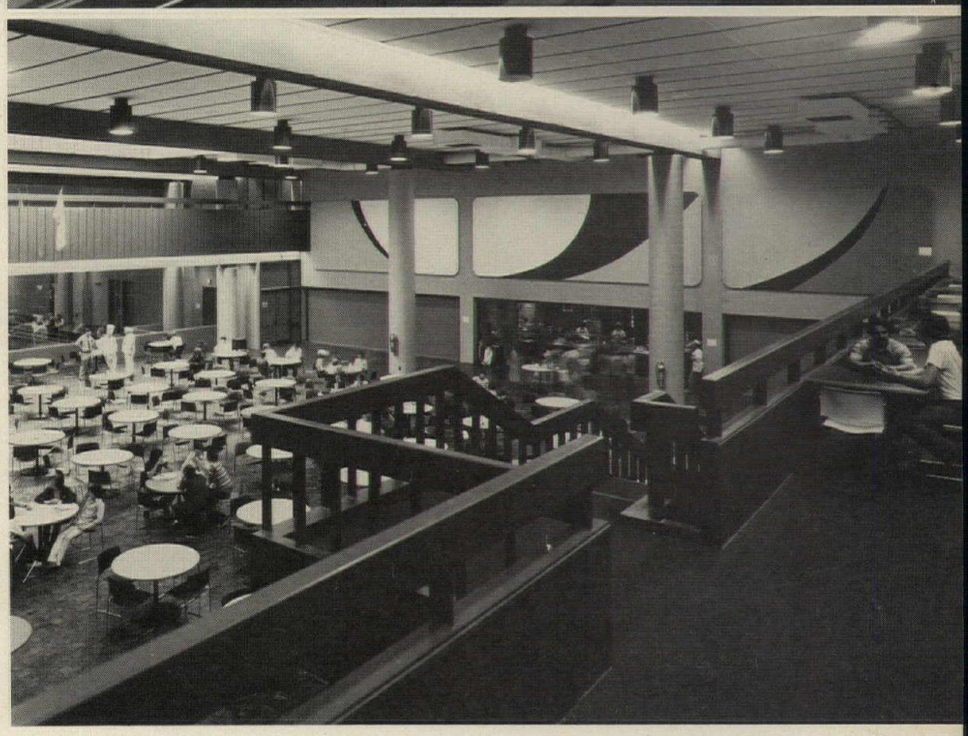
SECOND FLOOR



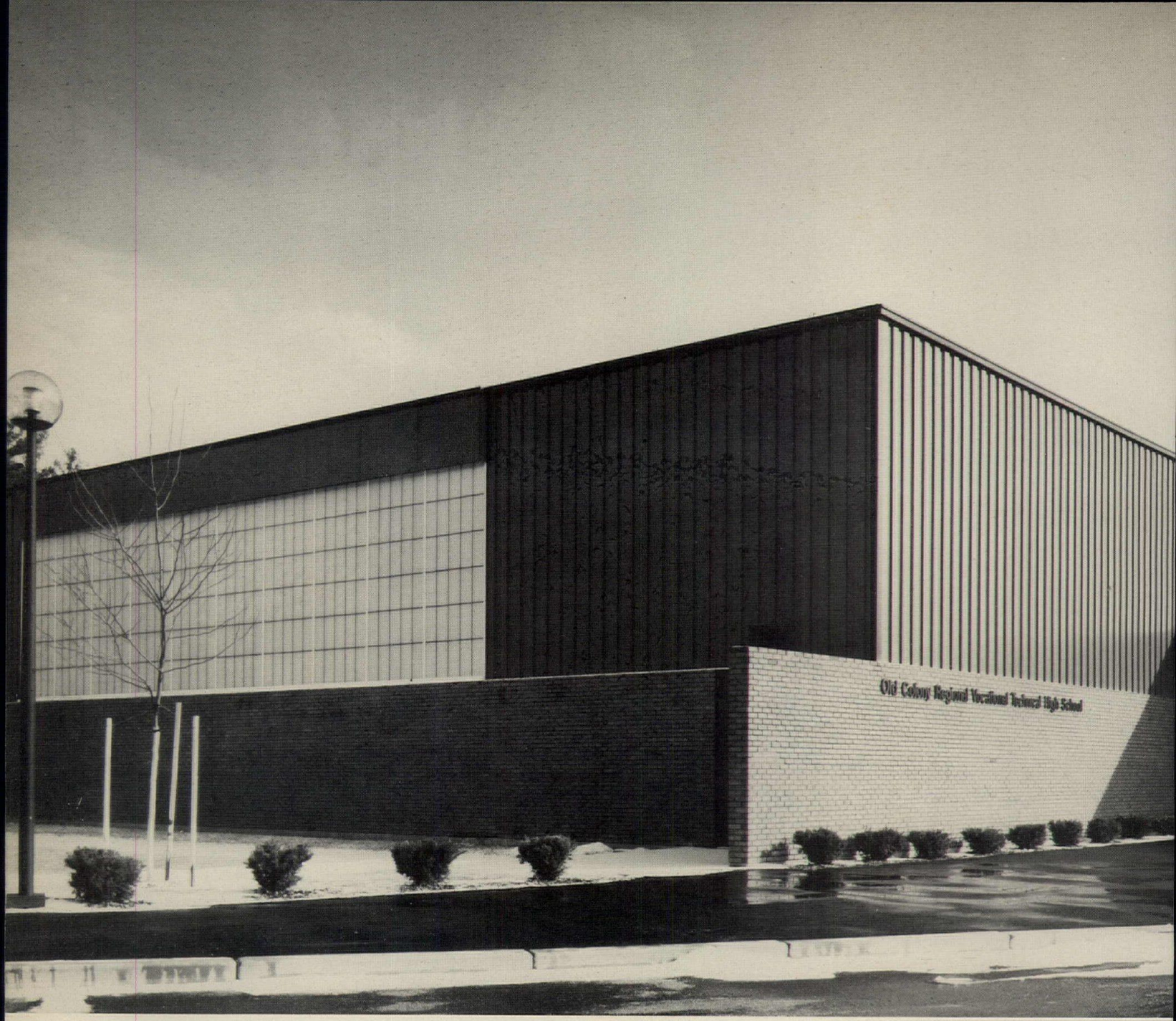
MALL LEVEL



FIRST FLOOR



Wayne Soverns photos

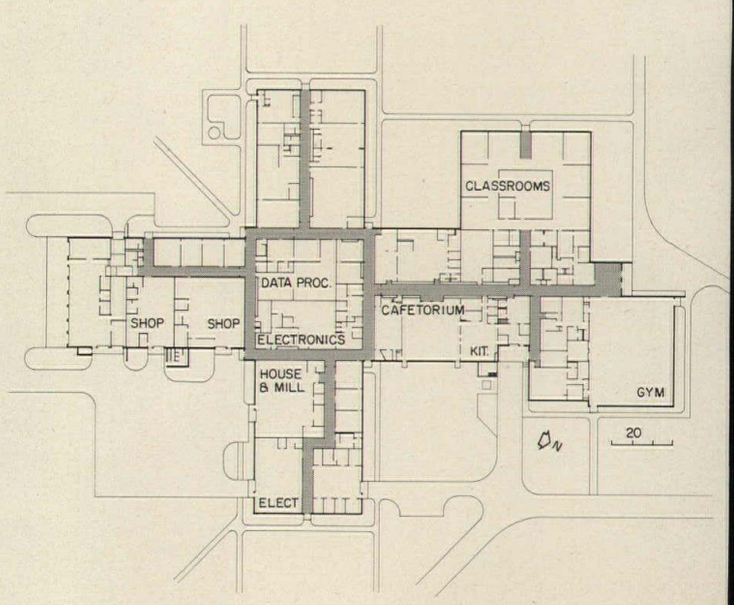


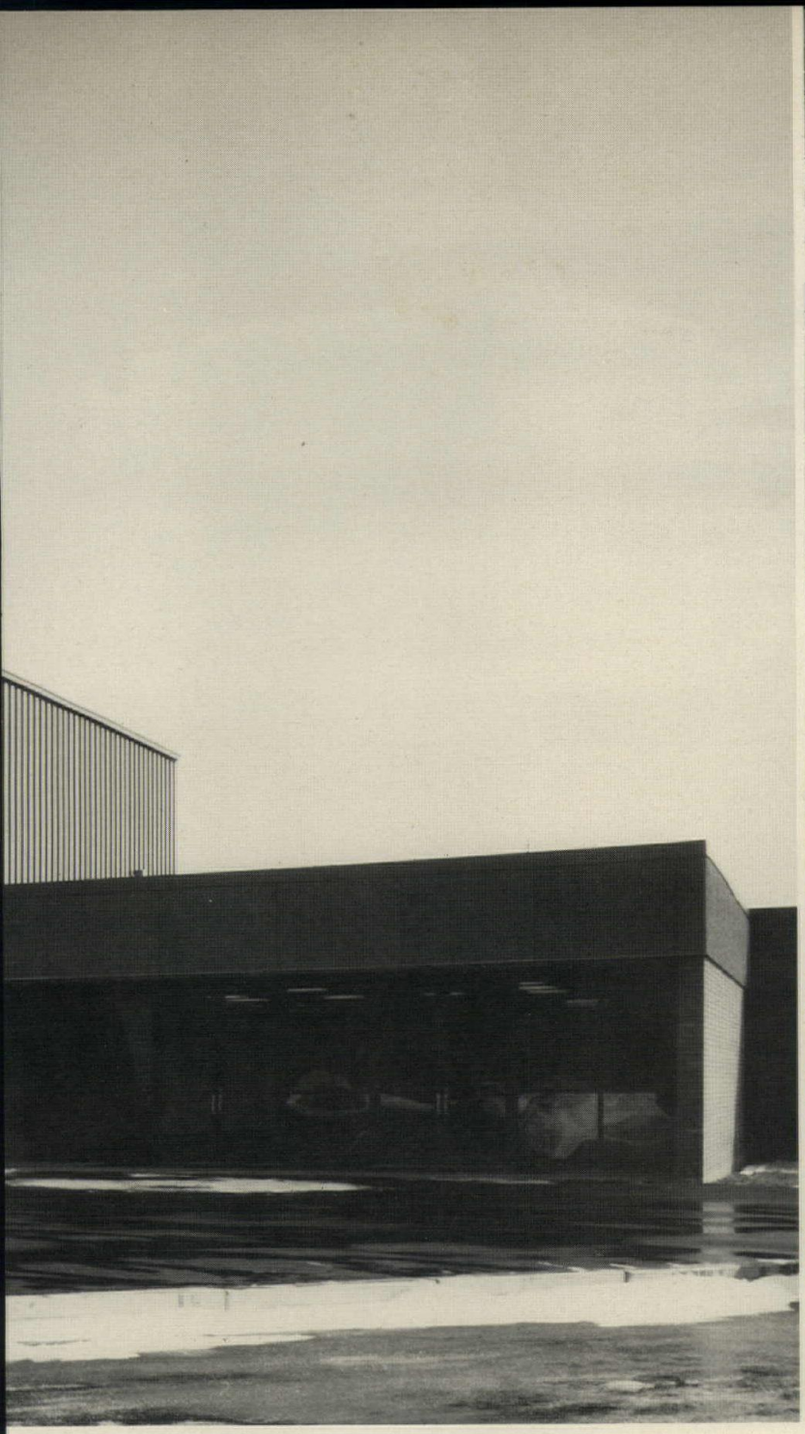
Old Colony Regional Vocational Technical School

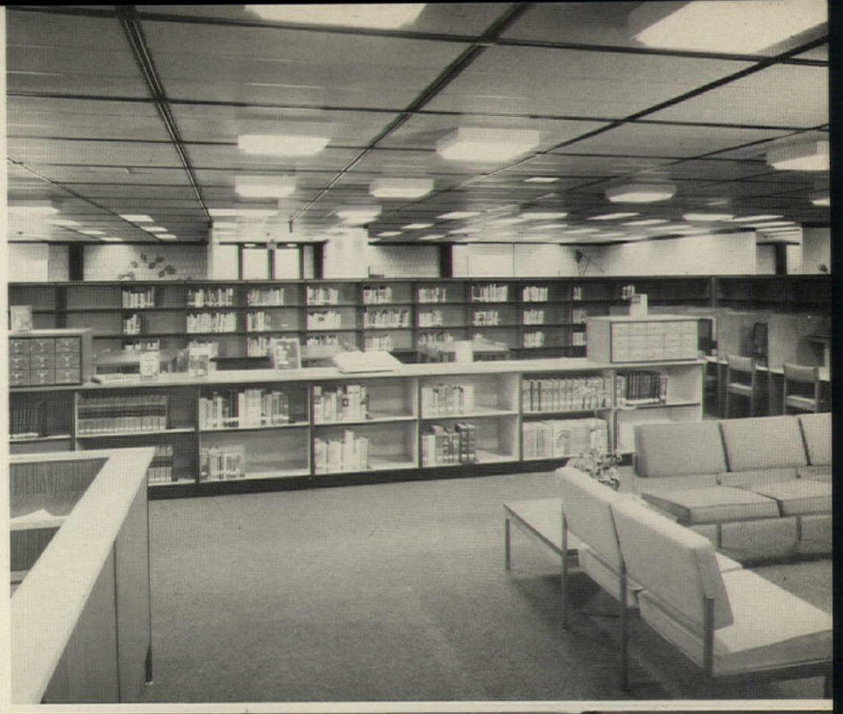
This vocational school is built on a rural site at the edge of Cape Cod and central to the four member towns of its region. The goal of the design was to provide a realistic atmosphere in this industry-oriented secondary school, and to do it within a very minimal pre-established budget. The architects developed a structural system that uses a space frame for classroom and office areas of the building. For the shop areas, where greater height was required, they used a standard pre-engineered package with long-span joists.

All four of the principal parts of the plan—gymnasium, academic, East shop and West shop wings (see plans right)—are designed for easy expansion, and the architects report that early expansion of all these parts is expected because of increasing enrollment in the region.

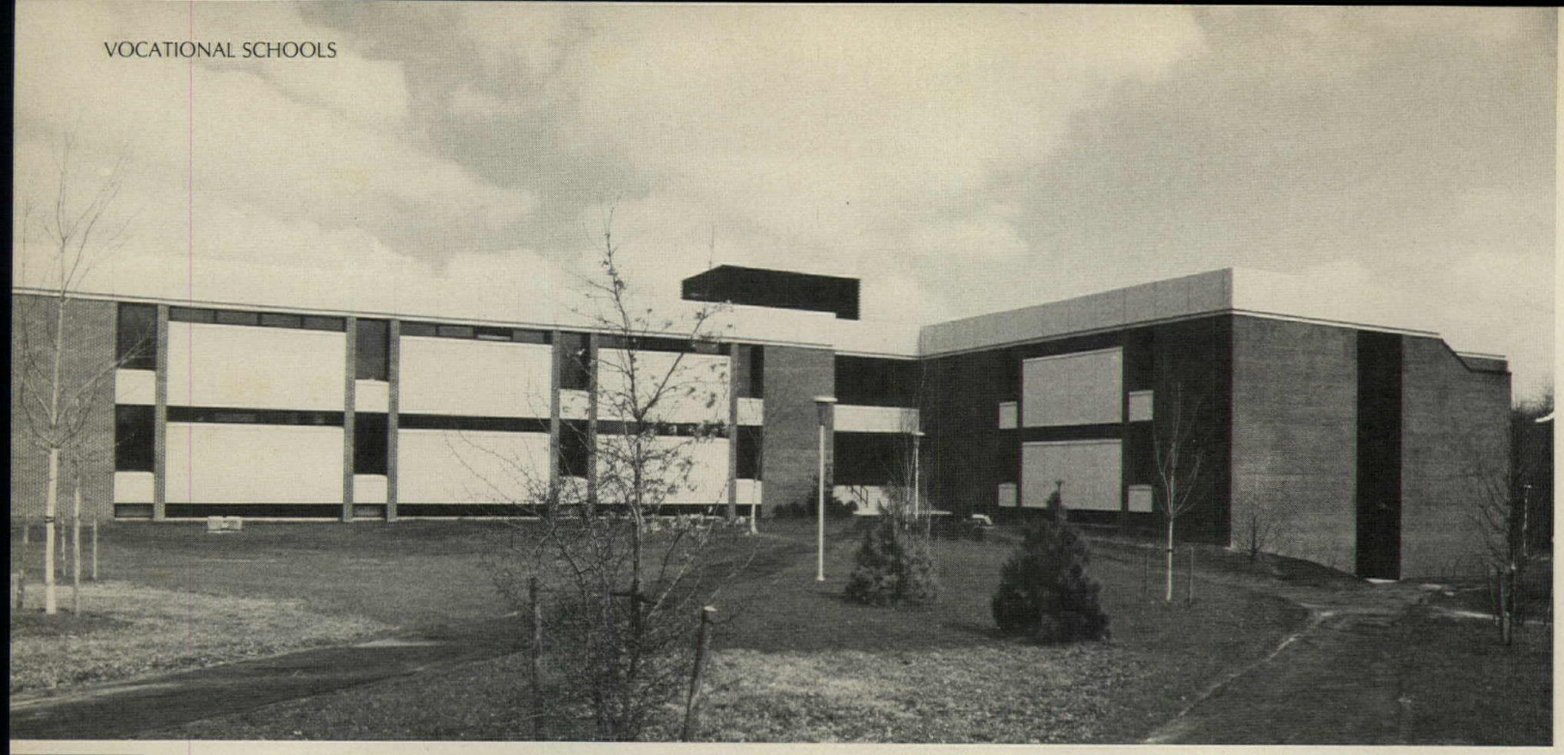
OLD COLONY REGIONAL VOCATIONAL SCHOOL, Rochester, Massachusetts. Architects: *David M. Crawley Associates, Inc.—project manager: Paul F. Blanchard.* Engineers: *Steco Engineering Corp.* (soils/structural); *C. A. Crowley Engineering, Inc.* (mechanical/electrical). Consultant: *Shepherd Williams* (landscape). General contractor: *New England Constructors, Inc.*

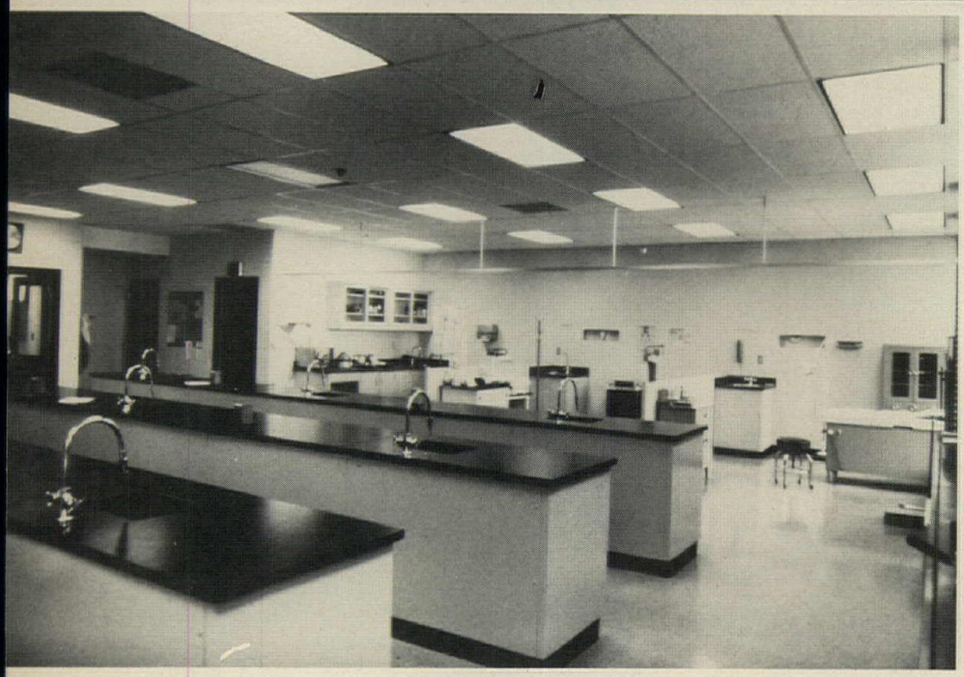


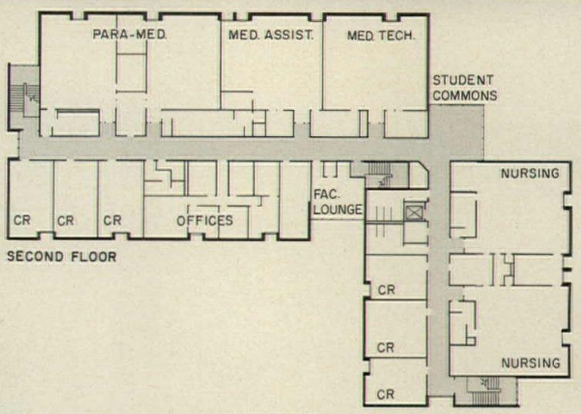


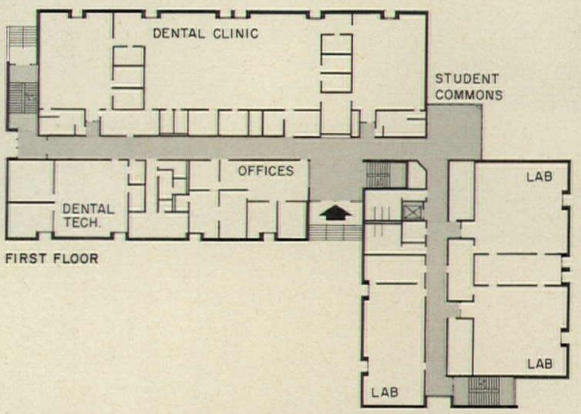


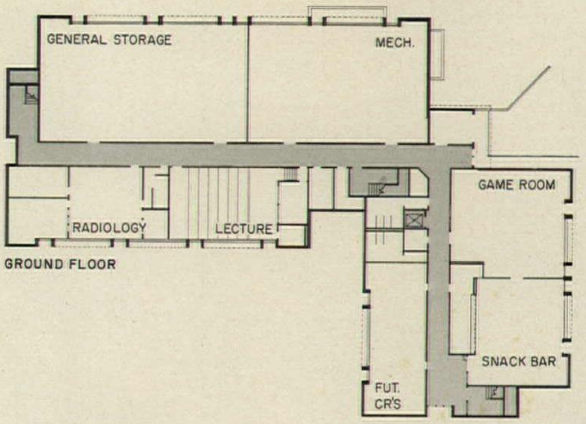
Phokian Karas photos











Health Technologies Building, Union County Technical Institute

The building shown on this page is a maverick in our collection of vocational schools, since it is only one part of a larger technical college that provides post-secondary training. The health technologies building is a 67,000-square-foot building that contains all of the health-related programs of New Jersey's Union County Technical Institute, as well as spaces for a snack bar and other general student activities; and in the evenings it provides space for continuing adult education classes. Health-related professions are clustered into broad-based core curricula, which students follow during the first of their two years of study. In the second year, they move into one of the many health specialties which are also housed in the building.

HEALTH TECHNOLOGIES BUILDING, Union County Technical Institute, Scotch Plains, New Jersey. Architects: *Philips-Kaufman Associates, P.A.—partner-in-charge: Brooks D. Kaufman; project architect: Martin M. Feitlowitz.* Engineers: *Shaw & Ganster* (soil/structural); *Barnickel Engineering Corporation* (mechanical/electrical). Consultants: *John F. Kennedy Associates, Inc.* (landscape); *Raymond/Raymond Associates* (food service). General contractor: *Melvin P. Windsor, Inc.*

N. Y. STATE TAKES A BROAD LOOK AT ENERGY-CONSERVATION INCENTIVES

In a search for methods, other than code mandates, that would expedite energy-conserving techniques, New York State held a round table last November in New York City on "Making Energy Conservation Cost Effective," and then on January 14 presented the results at an Albany conference to a group of state agency, municipal and school district officials, trade union officers, and industry and public utility executives. The stated objective of the effort is to provide Governor Carey and legislative leaders with recommendations and proposals in the categories of new tax proposals, changes in utility price structures, public sector demonstration projects, educational programs for operators of state-owned buildings, realty reassessments, etc.

The New York City meeting, held with the assistance of RECORD, and co-sponsored by the State University of New York at Albany and the Office of the Governor, under a grant from the Center of Building Technology of the National Bureau of Standards, developed the following four general conclusions: 1) little sense of urgency is felt now among builders, owners, designers and occupants in the private sector; 2) major emphasis needs to be placed upon conservation that can be inexpensively achieved through retrofitting and improved operational procedures; 3) life-cycle costing has less attraction in the private than in the public sector; 4) the promulgation of energy codes is viewed with suspicion vis-à-vis efficacy and the problems of administration.

Other elements of the state conservation activity include: 1) monitoring energy use in the state's 7,500 buildings, 2) development of a statewide series of training sessions for the building professions, 3) an exhaustive survey of energy use in single-family dwellings, and 4) development of building operation analysis methods for local school districts.

THERMAL STORAGE TANKS REDUCE ENERGY COSTS

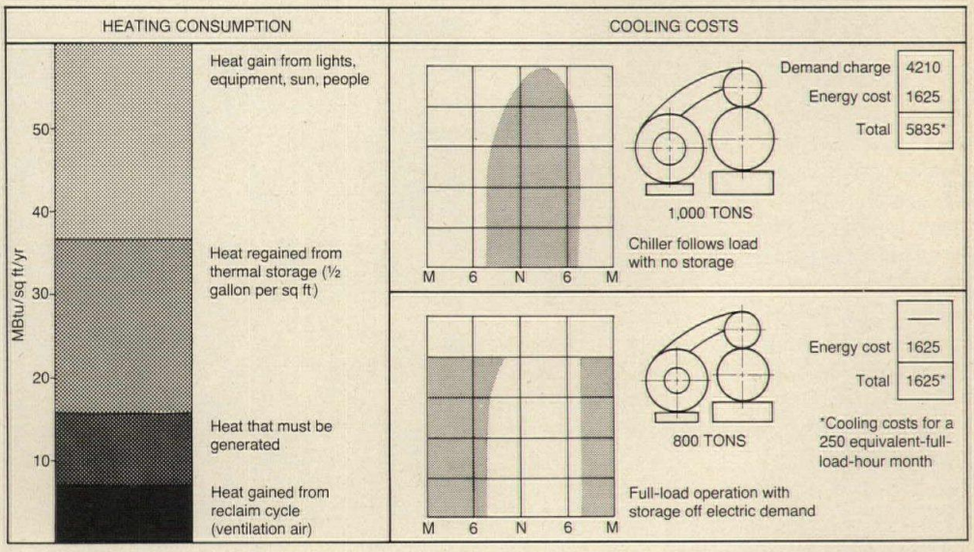
A promising technique for saving energy and also for reducing cooling costs by avoiding peak demand periods is provision of water storage tanks in buildings. Consulting engineer R. T. Tamblyn of Toronto's Engineering Interface Limited has been investigating this field for 10 years with model and computer studies, and now has designed a 300,000 gallon storage tank system for a 600,000-sq-ft Federal office building under construction in Toronto.

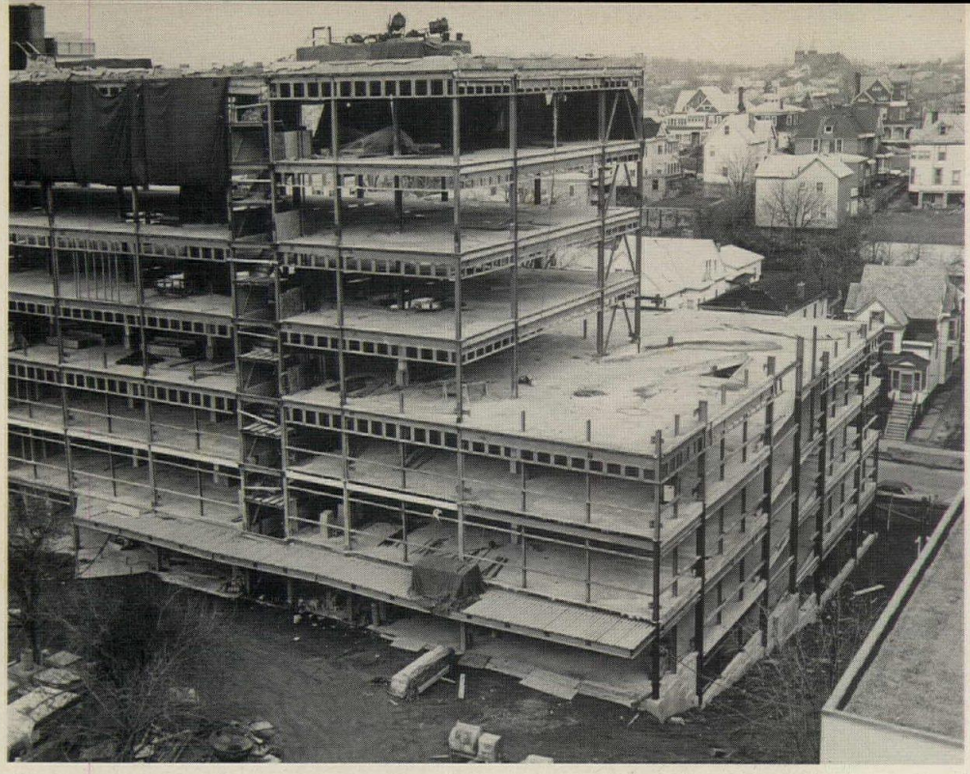
In winter, heat removed from spaces requiring cooling can be stored in the water tank for use wherever and whenever heating is required. The potential for storage in relation to other factors such as heat reclaim for exhaust air, etc., is shown in excerpted illustrations from a computer-analyzed buiding study at right.

In summer, water storage allows chillers to be run during off-peak periods, which both minimizes demand charges and allows a reduction in refrigeration capacity over a system designed to "follow the load."

While there have been some installations in North America, one of the problems has been the mixing of return and stored water used for cooling, raising the temperature of the stored water too high to be suitable for latent cooling (i.e., humidity control). The Japanese, with over 1,000 applications in commercial buildings have, according to Tamblyn, used a labyrinth design for storage tanks to prevent this. Engineering Interface has developed a "simple floating membrane system" to accomplish similar results.

The chart above shows how cooling storage can capitalize on demand-sensitive rates to reduce operating costs in commercial buildings. Costs are based upon the Toronto Hydro rate for a 250 equivalent-full-load-hour month.

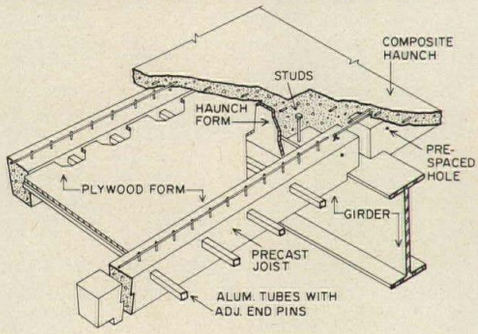




PRECAST JOISTS SPEED FORMING OF CONCRETE SLABS

A patented concrete joist, composite construction system used with a structural-steel frame has found a good market in the parking garage field because of its material- and time-saving advantages. The application in the photo, for which the system was used throughout, is a combined three-story office building and five-level parking garage for doctors at St. Joseph's Hospital Health Center in Syracuse, New York, designed by Health Systems, Inc.

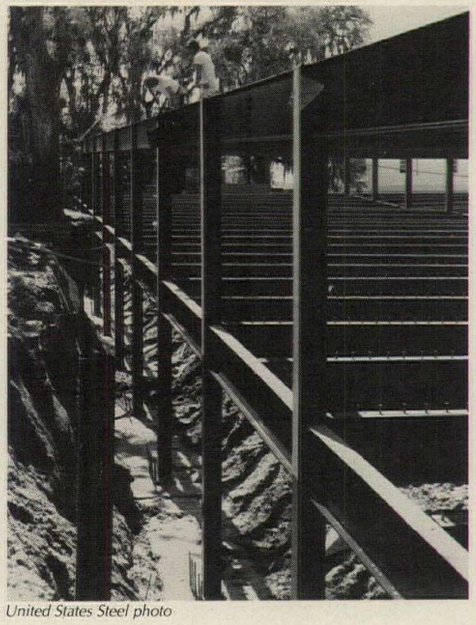
The system, developed by Composite Construction Systems, Inc., of New York City consists of a precast joist having holes on each face near the top for inserting the end pins of aluminum struts that support the plywood forms. The pins are locked in place during construction and released for decentering.



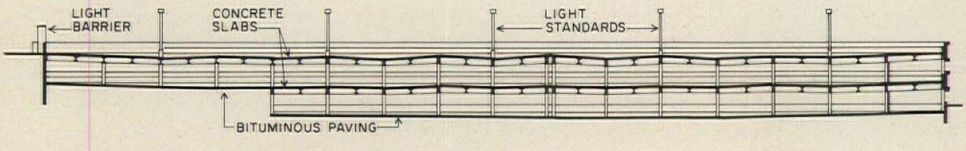
EXPOSED STEEL GAINS IN PARKING GARAGE USE

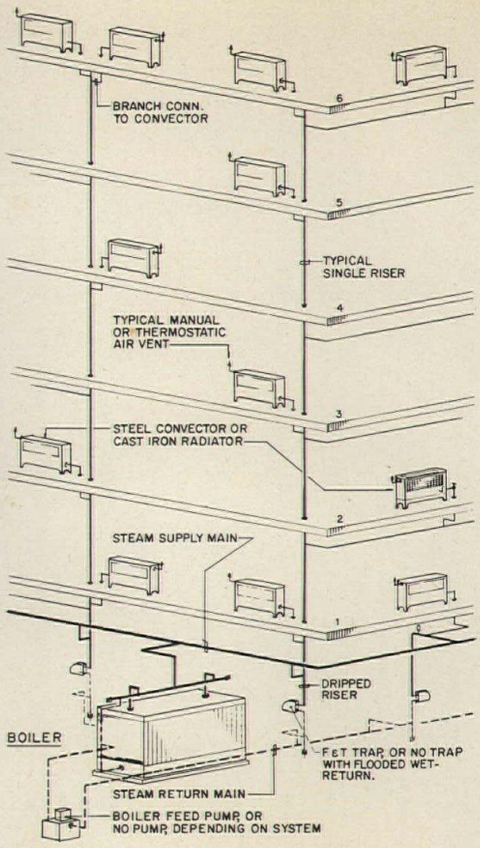
Since the Scranton Auto Burnout several years ago, when the American Iron and Steel Institute sponsored a test in which an auto was set afire in a multilevel parking garage during normal daytime operation to prove that exposed steel parking garages are safe, a number of codes have been revised to permit them, and many such garages have been built. An example is the five-garage parking facility for state employees in Tallahassee. Cost per car was reported to be about $2,375, and 56 cents less per sq ft than the alternative precast prestressed system.

The five facilities were based on a 55- by 20-ft bay and a 10-ft floor-to-floor height. Planning, design and construction were a joint venture of Barrett, Daffin and Figg; De Leuw, Cather Associates; and Schweizer Associates.



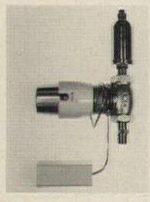
United States Steel photo





ONE-PIPE STEAM SYSTEM MAKES SENSE FOR REHAB

A major element in the rehabilitation of tenement dwellings in cities is the heating system, which needs to be low in cost, easy and economical to maintain, and able to withstand physical abuse. The "old-fashioned" one-pipe steam heating system using steel pipe and convectors meets these requirements and more, says Charles C. Copeland, P.E., an associate of Goldman & Sokolow, New York City consulting engineers. The system is one of the simplest to install, which is important for programs such as New York City's Sweat Equity which encourages prospective owner-tenants, themselves, to renovate buildings, many of whom have never even used a pipe wrench. The one-pipe steam system can be up-dated for greater efficiency and comfort by providing an outdoor-indoor controller for automatically cycling the boiler with respect to outdoor temperature and for night set-back. And now, individual radiators or convectors can be thermostatically controlled with recently developed units (photo) that automatically vary venting, and, hence, temperature.



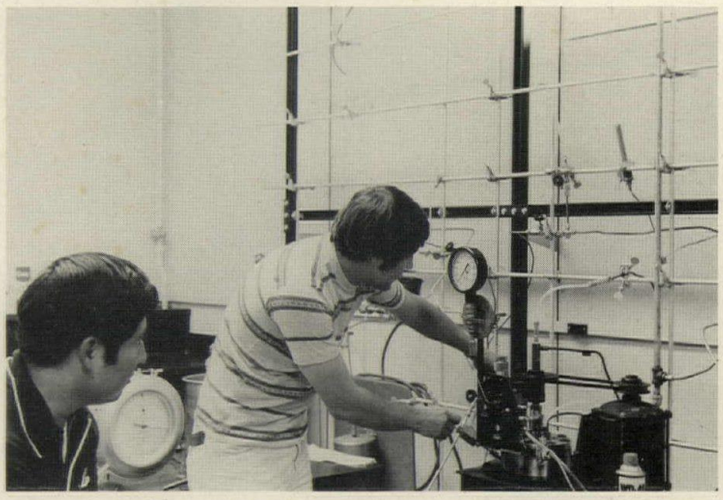
While the engineering design of one-pipe steam systems is not complicated, designers unfamiliar with the system, says Copeland, can make serious errors. For example, mixing elements of mechanical returns with a gravity system, and vice versa, can cause erratic steam problems. Furthermore, if apartments are added in basements where there were none, design must prevent the flooding of radiators located below the gravity return water line of the boiler.

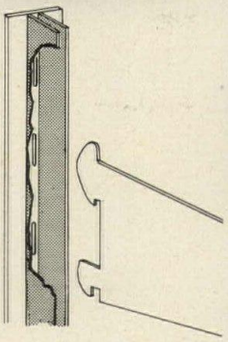
STUD/BRACKET SYSTEM PROVIDES LAB FLEXIBILITY

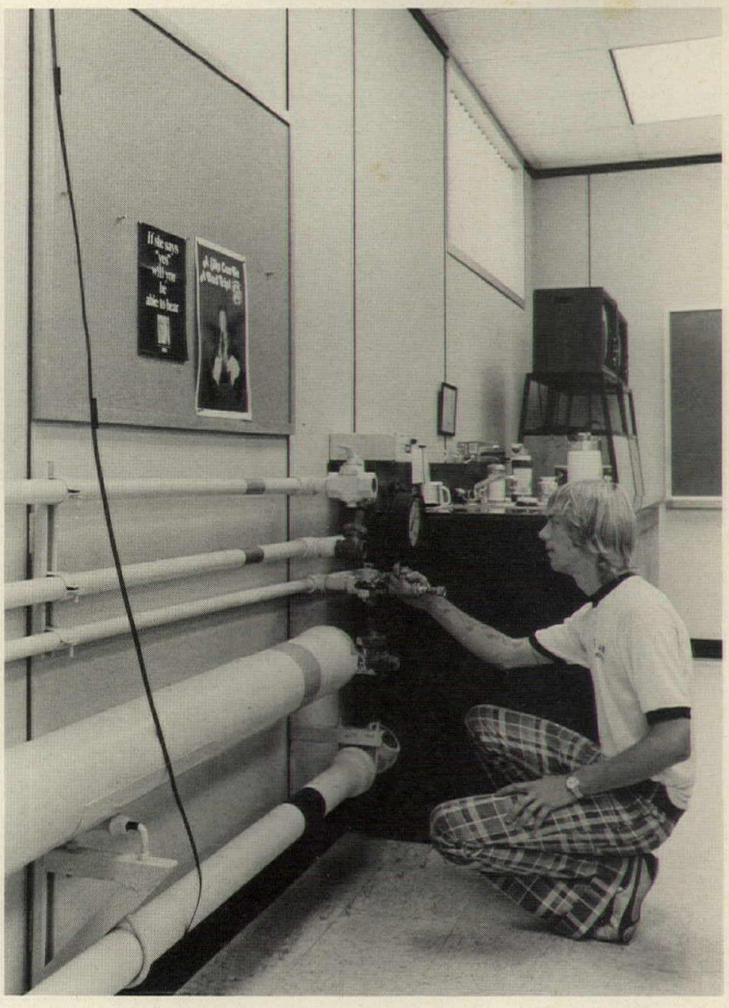
The architect for Texas A & M University's Zachry Engineering Center, William E. Nash, provided virtually unlimited wall-support flexibility for racks, shelves and hangers by specifying a special stud-and-bracket system that is incorporated into the dry-wall construction. The system, which is frequently used in stores for off-the-floor racks and shelves, was adapted for use in the engineering center to support everything from chalkboards to laboratory piping. Manufactured by Garcy Corporation of Chicago, it consists of a slotted standard within a light-gage stud to which brackets of various sizes, shapes and strengths can be attached. The standards are easily leveled before being anchored to studs with self-tapping screws.

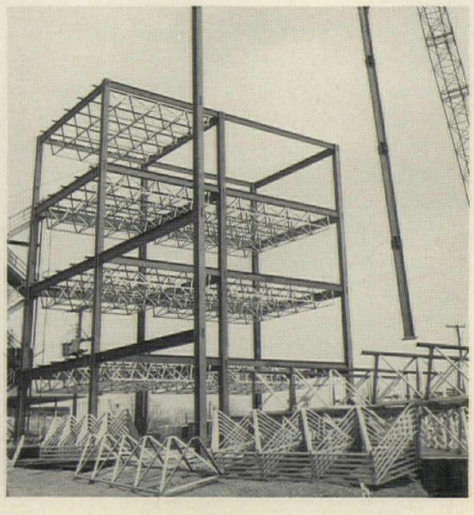
Every third stud is a special one, so bracket support is available on 4-ft centers. The standard has integral trim angles for butting gypsum board, providing a narrow opening for insertion of brackets. Altogether, about 2,000 special studs were used, with standards on either one or both sides.

In the laboratories the brackets were used for piping and special plumbing fixtures, laboratory equipment, instruments, and multiple-plug electrical strip outlets. In the more usual type of applications, the brackets support bookshelves in offices and chalkboards in classrooms. But they also were put in to hold other unexpected items, such as clocks, flower-pot hangers and fire extinguishers.





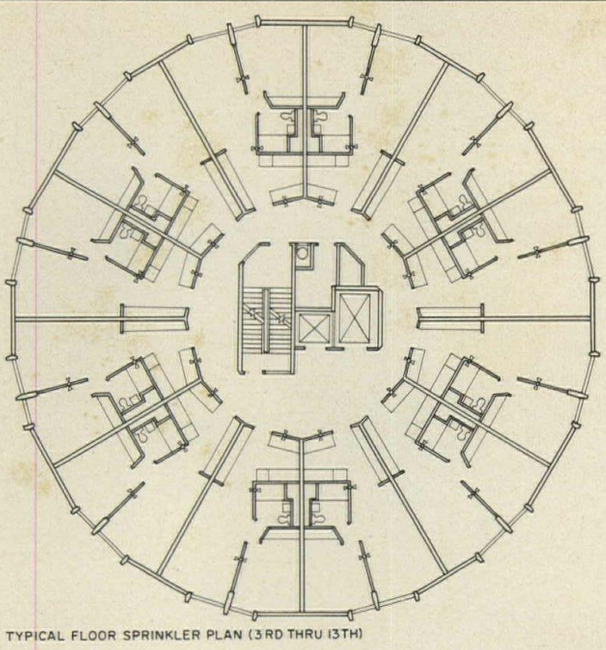




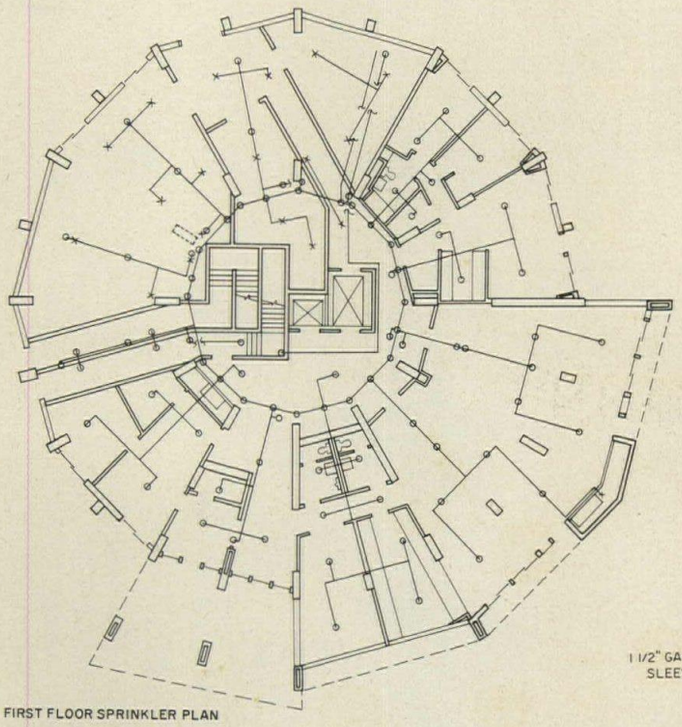
OFFICE BUILDING GOES UP FAST WITH SPACE TRUSSES

In the early '60's, Butler Manufacturing Company developed an open-grid roof structural system in response to the California School Construction System Development program. While they did not get the award for this program, though they were finalists, many schools around the country did use the system. At that time it was designed as a long-span system for roof loads only. Then, in 1970, New Haven architects Carlin & Pozzi were in design for the $7-million Branford Middle School, and the chance came to employ the system for floor-support application. Earl Carlin wanted to use the Space Grid system to provide a three-dimensional ceiling and service space for utilities, while also supporting a number of classroom mezzanines surrounding a large, two-story-high resource center. Butler agreed to beef up Space Grid for floor loads and designed the system for primary spans up to 50 ft in length in 5-ft increments, and secondary bays up to 40 ft in the same increments. Optimum design was based upon secondary bays of 30 ft, capable of carrying 140 lb per sq ft live and dead load.

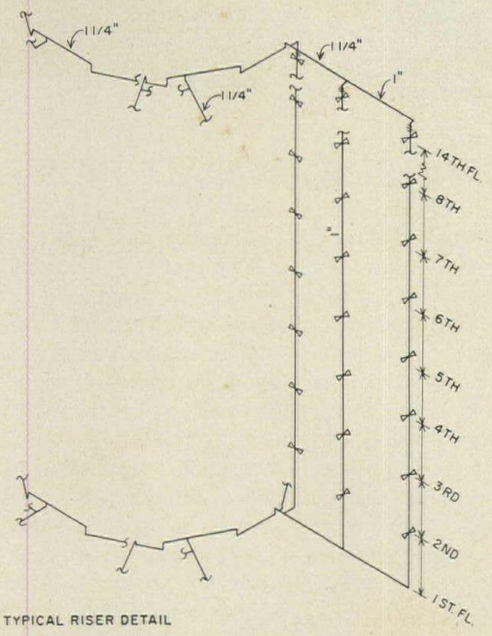
Since then the floor system has been used in a large number of multistory buildings, including this four-story, 30,000-sq-ft office building in Roanoke, Virginia. The structural steel was set in place in only four-and-one-half days; thus speed has been a big selling point for the system.



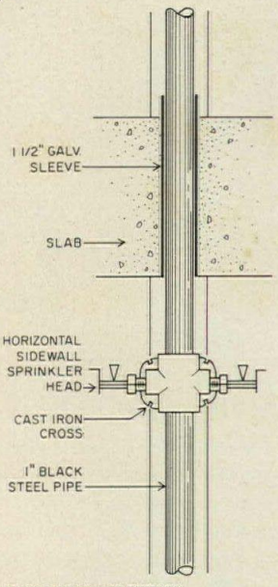
TYPICAL FLOOR SPRINKLER PLAN (3RD THRU 13TH)



FIRST FLOOR SPRINKLER PLAN



TYPICAL RISER DETAIL



SECTION THRU PARTITION AT TYPICAL 1" RISER

The only sprinkler mains for this 14-story apartment building are in the suspended ceilings of the 1st and 14th floors. These loop mains feed risers in groups of three concealed in drywall partitions. Sidewall sprinkler heads attach directly to risers.

NOVEL SPRINKLER PIPING CUTS HOUSING COST

The automatic sprinkler system in a 14-story apartment building for the elderly in Rockford, Illinois, saved pipe, labor and time in a novel "birdcage" distribution that eliminated branch piping on typical floors.

The birdcage system consists of a circular loop of 1¼-in. black steel pipe at the bottom floor, a similar loop at the top floor, and a connecting cage of 36 continuous 1-in. black steel pipe risers. The system's designer, Walter A. Damon, manager of the sprinkler department for Schirmer Engineering Corporation of Niles, Illinois, borrowed the term "birdcage" from racing car jargon—the network of tubes used for structural reinforcement of the body.

The loop mains are located in the suspended ceilings at the first and 14th floors, as is branch piping on these floors. Sidewall-type sprinkler heads for apartments on typical floors, however, are tapped directly off the risers, which are concealed within non-load-bearing partitions. Each riser supplies two wall-mounted sprinkler heads for a total of six per apartment. (Five are located in each apartment, and one in the corridor.)

In the initial planning for the sprinkler system, the architect, the mechanical contractor, and the fire protection engineer considered prefabricating steel pipe assemblies and embedding them in the concrete floor slabs. (Architect was James Knothe of Hackner Schroeder Roslansky & Associates, Inc., and the mechanical contractor was Althoff's, Inc. Madsen Development Company was both developer and general contractor.) The embedment idea was discarded because it was felt that it would slow down construction. With the riser system, on the other hand, the builder merely inserted 1½-in. galvanized steel pipe sleeves in the 7½-in. slab wherever the risers were to occur.

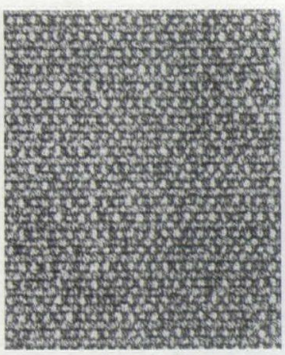
The design of the Rockford apartment project neatly meshed with the birdcage concept. The poured-in-place concrete building has radial load-bearing walls that divide each typical floor into 12 apartments. Drywall partitions further divide the apartments. The 2⅝-in. thick partitions consist of two ½-in. sheets of gypsum board over steel studs, leaving a 1⅝-in. space for the 1-in. risers.

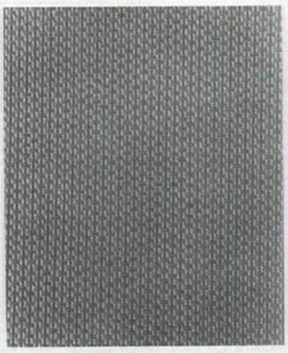
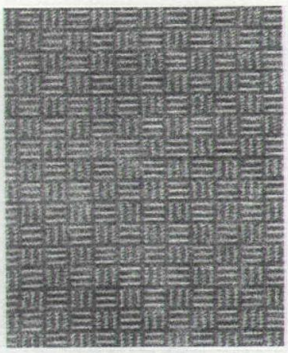
With the reduction in over-all footage of pipe, and the small sizes thus possible because of less friction loss, the cost was only 40 cents per sq ft, according to Damon, as compared with 65 cents per sq ft for a conventional system. Total savings were $62,000.

Although the system was innovative, Damon persuaded local officials that the birdcage system did not deviate from regulations based on National Fire Protection Standards.

While it was not possible to provide flow-valve alarm for individual apartments because of the absence of branch lines, a fire in any apartment would be sensed by smoke detectors. (A flow valve on a riser could only indicate sector in which a fire occurred—not floor.) Furthermore, the architect provided panic buttons in bathrooms for occupants who might need medical aid.

For more information, circle item number on Reader Service Inquiry Card, pages 215-216.



Texture and color characterize new carpet offerings for 1976

Bulky loops in a multi-level "hobnail" effect provide a handcrafted look to this heavy-duty commercial grade carpet, a mix of wool Berber tones with colored yarns in 15 tweed colorations. "New Functions" is recommended for prestige offices and public spaces. ▪ Karastan Rug Mills, New York City.

Circle 300 on inquiry card

Gulistan's 1976 line includes "Ridgefield," a nubby-textured contract carpet made of cabled ZK-3 yarns by Dow Badische, 69 per cent acrylic, 30 per cent modacrylic, and 1 per cent static control yarn. Eleven heather tones range from sand and gray to deep brown, and three stripes in brown and gray combinations are also offered. ▪ J.P. Stevens & Co., Inc., New York City.

Circle 301 on inquiry card

"Dunbar" is a small box pattern in a two-tone and tone-on-tone level loop heavy cabled yarn. It is offered in 12 colorations from natural to bright. Constructed of *Anso* continuous filament nylon, it carries a five-year wear guarantee. Jute backing is featured. ▪ Colonnade Carpets, New York City.

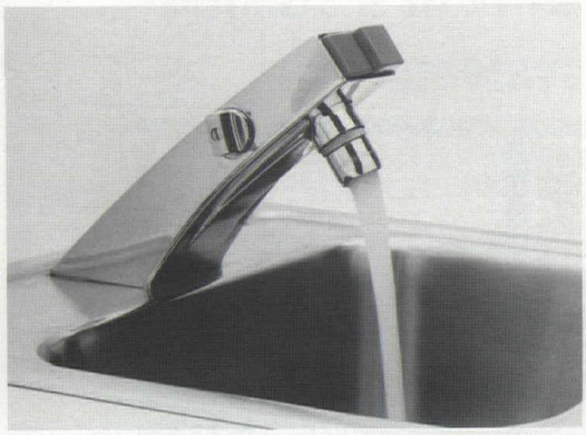
Circle 302 on inquiry card

"Cannonade's" small scale design of glossy loop ribs broken into dashes by dots of cut pile is the company's recommended style for banks, institutions and universities. Made of *Antron III* nylon, the carpet has through-the-back pattern for true tuft bind, and the 100 per cent synthetic backing is said to resist bacteria, moisture, mildew, and shrinkage. ▪ Mohawk Carpet, Amsterdam, N.Y.

Circle 303 on inquiry card

"Architecturale" is a heavy-duty commercial carpet, with small-scale textured pattern woven into the dense cut and looped surface of *Antron* nylon. Static control yarns are part of the construction. Geometrics, checks, cane motifs and damasks are available in 16 colors. ▪ Karastan Rug Mills, New York City.

Circle 304 on inquiry card



Push-button faucet from Europe

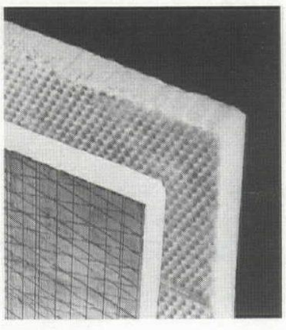
Imported from Europe, this faucet is recommended for standard installation. Red and blue buttons control hot and cold water. The unit is equipped with a ball-joint aerator and mixer for modulating water flow, and an integral drain control. ▪ 2001 Products, New York City.

Circle 305 on inquiry card

Acoustical and thermal control insulation.

The company's "800 Series Spin-Glas" insulations are designed for lining structural walls, cavities and curtainwalls, and feature low moisture absorption, high resistance to corrosion, and fire safety. In addition, insulations include a vapor barrier facing. These products are semi-rigid board materials made from glass fibers and organic binder. ▪ Johns-Manville, Denver, Colo.

Circle 306 on inquiry card



Desktop calculator can be business, design aid

A prompting programmable calculator featuring a display that communicates with the user includes a printer, magnetic card reader and 95 individual function keys. The "SR-60" can run alphanumeric programs which request information through the 20-character display at successive stages in a problem. The calculator then waits for a response before continuing with problem solving. This "dialogue" allows even a novice to work complicated problems immediately, using this moderately priced machine. Recommended for business uses such as financial analysis and payroll, the calculator is also offered with several software library "paks," one of which—the surveying pak—contains volumes and areas, vertical and horizontal measures, distance measuring calculations, etc. ▪ Texas Instruments Inc., Dallas, Tex.

Circle 307 on inquiry card

More products on page 148D

Economical steel joists provided flexibility in installing mechanical, electrical and telephone systems for Mission State Bank.

For the Mission State Bank, Mission, Kansas, economy and flexibility were just two of many good reasons for selecting steel joists. Steel joists also facilitated installation of the bank's versatile bronze glass curtain wall. Erection during the winter months was made easier by the use of steel joists.

The attractive five-story bank used H-Series joists, mostly 16 and 18 inches deep. The general contractor was John M. Fogel Construction Company. The Architect was William M. Conrad, A.I.A., of Team 1—Architects, Engineers, Planners. The steel fabricator was The Bratton Corporation.

Aside from economy, flexibility and ease of installation, steel joists aid fast occupancy and design flexibility in construction.

Send for Specifications and Load Tables for Open Web Steel Joists, Longspan Joists and Deep Longspan Joists.

STEEL JOIST INSTITUTE
2001 Jefferson Davis Hwy.
Arlington, Virginia 22202

Mail to:
STEEL JOIST INSTITUTE
7th Floor, 2001 Jefferson Davis Hwy.
Arlington, Va. 22202

Please send me your new copy of Specifications and Load Tables.

NAME_____
TITLE_____
FIRM_____
ADDRESS_____
CITY_____ STATE_____ ZIP_____

75005

For more data, circle 70 on inquiry card

For more information, circle item numbers on Reader Service Inquiry Card, pages 215-216.

CHAIN LINK FENCING / An illustrated fact sheet describes aluminized chain link fence fabric available in three gauges suitable for security or boundary fencing, tennis court enclosures, or other residential applications. ▪ American Chain & Cable Co., Inc., Bridgeport, Conn.

Circle 400 on inquiry card

VINYL FLOORING / A full-color catalog presents the 1976 line of solid vinyl floor products for commercial installations. Included is *Conductile* static-conductive flooring, as well as a new wood-grain cove base. ▪ Vinyl Plastics Inc., Sheboygan, Wis.

Circle 401 on inquiry card

FENCE BRACKETS / Designed for framing wood fences, these brackets are said to permit easy removal of entire fence sections or rails for cleaning, painting, etc. A specification sheet is available listing sizes and installation methods. ▪ TECO, Washington, D.C.

Circle 402 on inquiry card

METRIC GUIDEBOOK / The National Bureau of Standards has commissioned these official guidelines for use of the metric system, recently published by the editors of the *American Metric Journal*. There is also a chapter on everyday metric conversions and use. The handbook, B2.1, is available for $2.95 plus .35 postage from AMJ Publishing Co., Box 847, Tarzana, Calif. 91356.

DECORATIVE VINYL COVERING / A ready-to-use line of pressure-sensitive vinyl trim and surface coverings is described in a four-page bulletin. *MAC-clad* comes in either woodgrain or decorative vinyl patterns, many with embossing or textures. ▪ Morgan Adhesives Co., Stow, Ohio.

Circle 403 on inquiry card

PARTITION SYSTEM / A full-color 12-page brochure describes the *"Actionwall,* a demountable partition system that uses a clip device to fasten gypsum board panels to metal studs. Installation methods, sound control and fire rating data, and detail drawings are included in the literature. ▪ Kaiser Cement & Gypsum Corp., Oakland, Calif.

Circle 404 on inquiry card

ACCESS DOORS / Roof scuttles, fire vents, interior and exterior doors, as well as floor and ceiling access doors, are covered in this 1976 catalog. ▪ The Bilco Co., New Haven, Conn.

Circle 405 on inquiry card

CALCULATOR SOFTWARE / A new application summary folder describes the desktop calculator software package available for use in construction engineering, HVAC design, structural engineering, etc. Engineering programs outlined include 3-D beam analysis, pipe network balancing, and modified and multi-story moment distribution. General administrative programs are also summarized. ▪ Hewlett-Packard Co., Palo Alto, Calif.

Circle 406 on inquiry card

PRE-ENGINEERED HEALTH CARE / Pre-engineered fully equipped, turnkey systems for special care and outpatient surgery are described in an eight-page brochure. Included are all phases of planning, engineering, construction, equipment procurement, installation, and start-up. The facility features fully-furnished patient rooms, observation areas, and support facilities as well as all life-support and monitoring systems. ▪ American Sterilizer Co., Erie, Pa.

Circle 407 on inquiry card

RE-ROOFING BASE / *Permalite* is a fiber-reinforced perlite concrete which can be applied over existing graveled built-up roofs without removing the old surface. An illustrated catalog shows how the product can fill low spots, create drainage slopes, and add insulation. ▪ Grefco, Inc., Los Angeles, Calif.

Circle 408 on inquiry card

INDUSTRIAL DOORS / Wood, steel and fiber glass doors for commercial and industrial installation are detailed in a 20-page illustrated catalog. Specification and feature charts are given for each type of door, and a section on door lifts and electric operators is included. ▪ Frantz Mfg. Co., Sterling, Ill.

Circle 409 on inquiry card

SHEET RUBBER FLOORING / The advantages claimed for sheet rubber as gymnasium flooring—low cost, simple maintenance, choice of colors and versatility of use—are outlined in an illustrated fact sheet. ▪ The R.C.A. Rubber Co., Akron, Ohio.

Circle 410 on inquiry card

WASHROOM ACCESSORIES / The firm's complete 1976 line of washroom accessories is illustrated in a 32-page catalog. Towel dispensers, mirrors, grab bars and other items are presented in photos, dimensional tables and drawings. There is also a section on accessories designed for use in hospitals and by the handicapped. ▪ Bradley Corp., Moorestown, N.J.

Circle 411 on inquiry card

STANDARDS CROSS-REFERENCE / A recently published "Cross-Reference List of Standards" should help the professional locate a voluntary standard, issued by one agency, that has been adopted by another association and given a new designation. Such standard formulating groups as NEMA and ASME are included in the listing. Priced at $4 per copy, the cross-reference is available from MTS Systems Corp., Research Library, P.O. Box 24012, Minneapolis, Minn. 55424.

STEEL DOORS / A 12-page bulletin describes steel doors and frames, knocked-down frame profiles and drywall frames, as well as stick assemblies and labeled fire doors. Charts and drawings are included. ▪ Republic Builders Products Corp., Atlanta, Ga.

Circle 412 on inquiry card

HARDBOARD PANELING / A four-page brochure presents the 1976 line of 4- by 8-ft, ⅛-in.-thick prefinished hardboard panels—18 patterns in all. Also illustrated are coordinating vinyl-covered aluminum moldings. ▪ Marlite Brand Paneling, Dover, Ohio.

Circle 413 on inquiry card

OPEN PLAN FURNISHINGS / A 20-page, full-color brochure with concept drawings and photos of on-site installations presents the "Emetric" office furniture system. Work surfaces, storage and filing units, and built-in lighting fixtures are shown in a variety of combinations producing flexible, customized work stations in an open plan office environment. ▪ Eppinger Furniture Inc., Elmsford, N.Y.

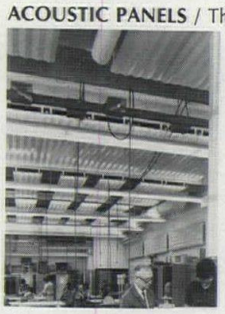
Circle 414 on inquiry card

PROJECTION SCREENS / A detailed four-page bulletin offers suggestions on selecting the proper screen size and surface for individual rear-projection requirements. Prices, installation instructions and complete specifications are listed for each model. ▪ Da-Lite Screen Co., Inc., Warsaw, Ind.

Circle 415 on inquiry card

More literature on page 159

ACOUSTIC PANELS / These sound absorptive insulated steel panels are said to provide economical methods for improving the acoustic environment in almost any type of facility. The *Eckoustic* panel helps meet OSHA requirements in factories and machine shops. A line of aluminum panels comes with a weatherproof poly or fiber glass wrap, permitting their use in exterior noise reduction applications. Average sound absorption is .95+NRC; the panels are available in colors, and may be painted with no loss of absorptive properties. ▪ Eckel Industries, Inc., Cambridge, Mass.



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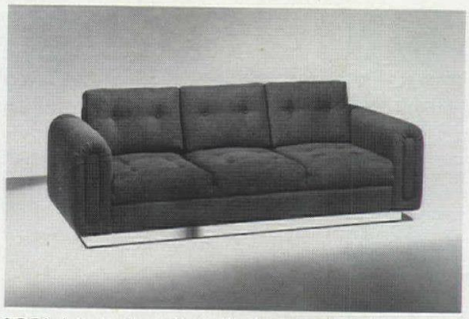


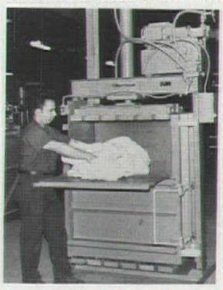
SOFA / A single welt on the buttoned cushions, and corners that are deliberately crushed to look comfortable characterize this seating by Dick Tremulis. A chair and loveseat size are also offered. Wood base is optional. ▪ Marden Mfg. Inc., Chicago, Ill.

Circle 309 on inquiry card

MEDICAL LIGHTING / The *Examatron* is a color-corrected light designed for medical use; the tungsten-halogen lamp produces 2000 footcandle illumination at 24 in. The light's adjustable support arm permits precise positioning of the lamp head. The examination light is available in models for wall, ceiling or mobile floor-stand mounting; the lamps are heat-filtered. ▪ Keene Lighting, Union, N.J.

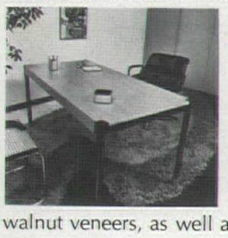
Circle 310 on inquiry card

WASTE BALER / The firm's model "STDS" self-contained baler is now available with 115-volt control circuits, said to meet Federal and local safety codes. Optional features offered include two-hand, push button control; automatic cycling control to permit remote operation of the baler; and loading doors that form a hopper for overhead loading of paper, rags, plastics, etc. ▪ Consolidated Baling Machine Co., Brooklyn, N.Y.



Circle 311 on inquiry card

FOLDING TABLE / Designed by Jens Risom and Alan Burr, this series of rectangular tables has folding legs locked in position by lever-controlled eccentric cams. The legs are tubular steel; the slab tops are available finished in red oak or American walnut veneers, as well as a choice of plastic laminates. Dimensions range up to 96-in. long and 36-in. wide; height is 28¾-in. ▪ Howe Furniture Corp., New York City.



Circle 312 on inquiry card

DESK CHAIRS / The "Coronado" chair is available in three heights: 31, 36 and 42½ in. Bases may be ordered in antique bronze, polished chrome, walnut or oak; the chairs shown are upholstered in leather. Individual back cushions are designed for lumbar support. ▪ Brayton International, High Point, N.C.

Circle 313 on inquiry card

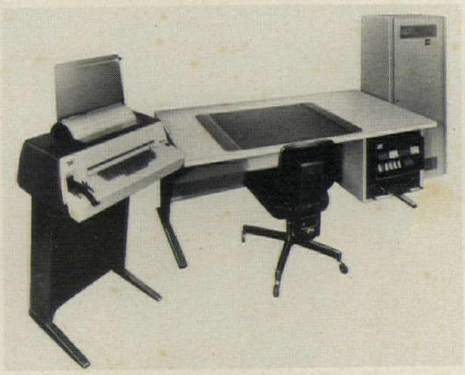
FIBER GLASS DOORS / These fiber glass insulated entry doors are said to resemble wood, but will eliminate warping, splitting, etc. The "Fiber-Classic" door has a steel reinforced frame and polyurethane core completely sealed in marine-type polyester resin. The doors have an "R" factor of 11.0 and are offered as a complete prehung unit: primed wood frame, magnetic weather stripping, thermal sill and adjustable door bottom. Three styles are available, in a stained texture; they may be restained or painted. ▪ Lake Shore Industries, Toledo, Ohio.

Circle 314 on inquiry card

More products on page 149

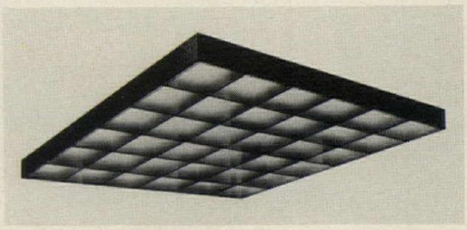
ANTIQUE GLASS / Suited for specialty areas in malls, boutiques, lobbies, restaurants, and cocktail lounges, the glass combines a mirrored surface with acoustical properties and fire resistance. The new 12-by 12-in. tile will provide the specifier with a solution for an effect previously available only by the use of heavy mirrors or glass. ▪ Armstrong Cork Co., Lancaster, Pa.

Circle 315 on inquiry card



ENERGY CONTROL / An off-the-shelf system, the "Series 3000 Power/Perfect Package" automatically controls energy consumption at levels dictated by weather and occupancy demands, according to the company. A seven-day program incorporated into the system permits each installation to program daily start-up and shut-down based on occupancy schedules. The system can be installed in buildings of various sizes and be on-line in 60 days. It can also be expanded to accommodate fire-safety monitoring and control, building security and control of all electrical and mechanical equipment in the building. ▪ Johnson Controls, Inc. Milwaukee, Wis.

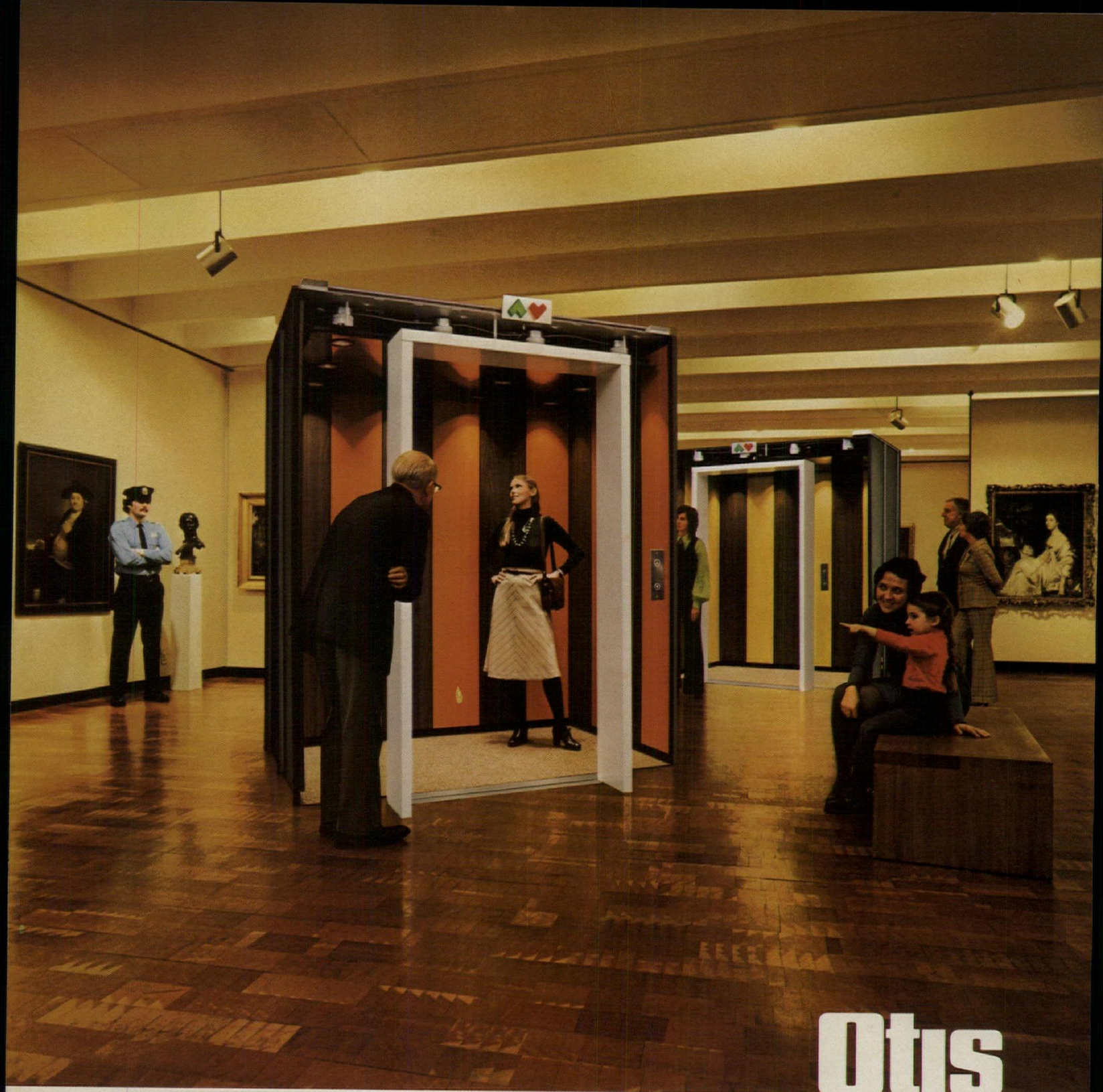
Circle 316 on inquiry card



SKYLIGHT / The product provides the proper quantity and quality of admitted solar radiation and insulates against heat-gain and heat-loss, according to the maker. The product has a "sandwich" grid-core construction, with two flat fiberglass-reinforced acrylic-polyester sheets separated by a ⅜-in.-thick dead-air insulation space. The "U" value of the panel is .425 Btu/hr/sq ft, and light transmitted through the unit is diffused over approximately an 160-degree range. Units are curb-mounted like conventional plastic skylights, and are available in a selection of standard stock sizes. ▪ Solartron Corp., San Francisco, Calif.

Circle 317 on inquiry card

More products on page 151



Otis
Elevator Company

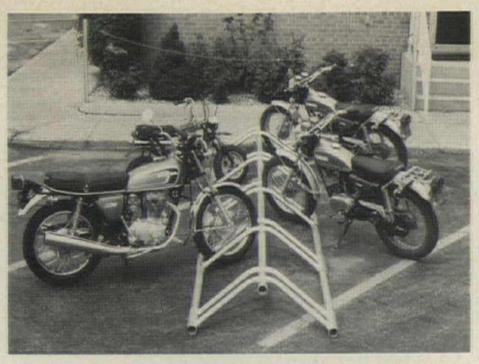
An artist's idea must be executed before it is reality. We're realists at Otis.

A beautiful and creative design is worthy of the most dedicated craftsmanship to turn it into a lasting work of art. That's why Otis has its own skilled artisans to reproduce designs in wood, plastic laminates, bronze, stainless steel, aluminum or any other architectural material.

When you have created a unique lobby, elevator cab or entrance door, Otis will give your sketches dimension, life and reality. Or, you may want to use one of the hundreds of designs we've already created for our line of pre-engineered elevators.

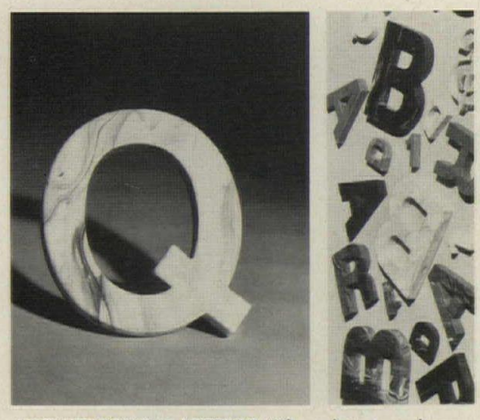
Our knowledge of materials and our ability to faithfully execute the smallest detail, have made Otis Architectural Products almost unique. So unique, that many sculptors use us to cast their masterpieces. And when architects, builders and owners design a monument, they use us to bring life to their creations.

If you would like to know more about the Architectural Products capability of Otis, give us a call. You'll find we're the right people to do business with and that we're realistic about prices and delivery dates as well as about our products.



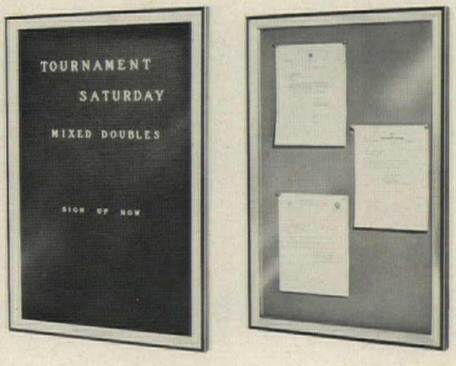
MOTORCYCLE PARKING RACK / This unit features main frame rail construction of 2⅜ in. galvanized pipe with individual cycle stalls of preassembled, welded 1⅝ in. O.D. galvanized pipe. The cycle parking rack includes heavy-duty galvanized steel anchor straps on all four corners to facilitate placement in concrete footings. ▪ Quality Industries, Inc., Hillsdale, Mich.

Circle 318 on inquiry card



ARCHITECTURAL LETTERS / These letters and numbers are available in several marble patterns, in Helvetica style 2, 4, and 6 in. high. Thickness varies from ½ to ¾ in., with fascias hand polished to a high luster contrasting with the matte texture of the sides. ▪ Building Research and Development Corp., Westville, N.J.

Circle 319 on inquiry card



DIRECTORIES, TACKBOARDS / Directories and tackboards with color insert door frames in standard sizes up to 36 in. wide by 48 in. high, are framed in textured anodized aluminum with a contrasting feature strip. Each door is fitted with shatterproof clear plastic, a side-mounted pin tumbler lock and a concealed piano hinge. Changeable letter directory boards are furnished with grooved felt of *Koroseal* in several colors. Tackboards are furnished with vinyl colored cork in 23 colors or natural tan cork. ▪ A-1 School Equipment Inc., Santa Fe Springs, Calif.

Circle 320 on inquiry card

More products on page 153

Delta Scald-Guard.
With a new safety feature at your finger tip.

It's the exclusive HOT-STOP BUTTON.™ The latest safety innovation for Delta's patented Scald-Guard bath valves. Here's how it works.

As with all Scald-Guard faucets, you can't turn on hot water without first turning on cold. And when you rotate the handle into a position that delivers about one-half hot, the HOT-STOP BUTTON prevents you from going further. If hotter water is desired, the button must be fully depressed before the handle will rotate into higher temperature areas.

This means greater protection against accidental discharge of extremely hot water.

An optional pressure balance mechanism maintains constant temperature even when simultaneous use of other water appliances causes sudden pressure changes. It simply senses the change and adjusts to maintain the mix of hot and cold water the user originally set.

As with all Scald-Guard, our newest models are available with a special "reserve valve" for safe back-to-back installation. This saves time and money by eliminating costly, cumbersome cross-piping.

Write for our free catalog. And watch for our commercials on TV, preselling prospects today who will be customers tomorrow.

You Can Believe In Delta & Delex Washerless Faucets

Delta Faucet Company, Dept. AR, Greensburg, Indiana 47240. A Division of Masco Corporation of Indiana. © 1976 Copyright. Masco Corporation of Indiana.

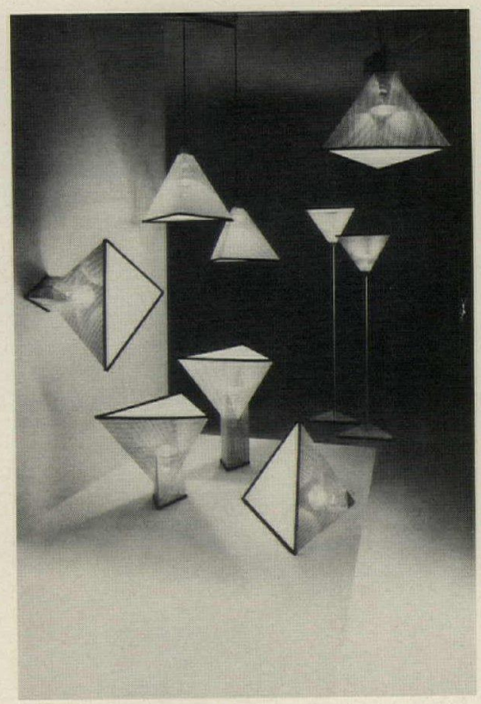
For more data, circle 75 on inquiry card

OFFICE CHAIRS / Designed by Eberle, the series consists of 12 chairs including four guest chairs in two back sizes, six swivel chairs offered in three back sizes, in uni-tilt or posture backs and two clerical chairs. The tubular base with matching arm supports combines with a protective rubber bumper around the seat and back. A selection of upholstery materials and vinyls in plain, button down or channel button seats and backs is available. ▪ Cramer Industries, Kansas City, Kan.

Circle 321 on inquiry card

PICNIC TABLE / The "Bench-table" is constructed of 2⅜-in. O.D. galvanized steel pipe welded to the table supports. Slats for the top, seats, and back rests are heavy-duty anodized aluminum. All slats include aluminum end caps. The tables are available in 6- and 8-ft models. ▪ Quality Industries, Inc., Hillsdale, Mich.

Circle 322 on inquiry card



LIGHTING SYSTEM / These fixtures, available in floor or wall, ceiling or table models are made of perforated and colorful baked metal sheeting. All exposed edges are trimmed with black rubber. ▪ Koch + Lowy, New York City.

Circle 323 on inquiry card

More products on page 155

WHY IS EGP THE BEST "ENERGY SAVING" GLASS?

Lanham office building

Product . . . GOLD INSULATING GLASS

Environmental Glass Products uses ***REAL GOLD*** in its reflective glass. ***REAL GOLD*** stops radiant heat gain and conductive heat gain and loss, better than other metals applied to glass.

U-VALUE .30 ***SHADING COEFFICIENT .11***

Environmental Glass Products

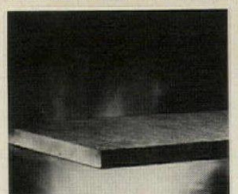
ARCHITECTURAL DIVISION, *Shatterproof* GLASS CORPORATION

4815 CABOT AVENUE DETROIT, MICHIGAN 48210

For more data, circle 77 on inquiry card

Look for us in Sweets, section 8.26/Sh. Contact us for your local Environmental Glass representative . . . 313-582-6200

FIRE RETARDANT FIBER BOARD / Treating *Homasote* board with alumina trihydrate (a by-product of aluminum refining developed with Aluminum Company of America) results in a product with a flame spread rating of 10, fuel contribution of 5, and a smoke development rating of zero. According to the manufacturer this class A rating, granted by both the ASTM and Underwriters' Laboratories, applies also to decorative interior panels of *Homasote, N.C.F.R.* substrate covered with burlap, cork or vinyl. ▪ Homasote Co., West Trenton, N.J.



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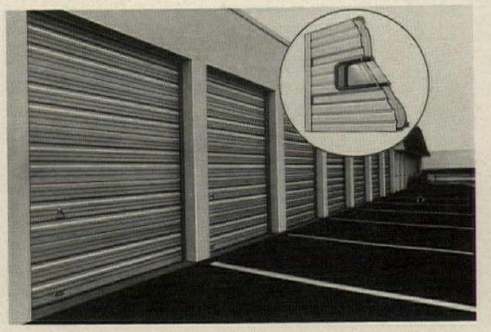


SECTIONAL DOORS / These new overhead doors for industrial and residential use are fiber glass insulated, with a K-factor rating of .24. Said to be highly impact-resistant, the shiplapped door sections are clad with 20- or 24-gauge rolled sheet steel, reinforced on top and bottom rails with spot-welded angles. ▪ Clopay Corp., Cincinnati, Ohio.

Circle 325 on inquiry card

ACRYLIC BATHTUB / The newly introduced *Dura-Bath* is 5 ft long, 15⅜ in. high, and weighs 70 pounds; the unit is available in five colors. The extra weight is said to provide greater strength and rigidity, but the tub can still be handled by one worker. ▪ Voplex Corp., Rochester, N.Y.

Circle 326 on inquiry card

SIGNAGE / *Colorseal* is a process by which colored images, logos, etc. are transferred onto anodized aluminum. The design is sealed under a hard anodic layer, which protects it from stains and corrosion. A variety of colors is available. ▪ Metalphoto Corp., Cleveland, Ohio.

Circle 327 on inquiry card

More products on page 157

Specify Trus Joist. We've got our system down to a science.

The best joist for your job demands a total support team. We've got it: an unequalled system of specification, consultation, joist fabrication and on-time delivery. Nationwide field consultants that speak your language. An advanced computer system that profiles each joist down to the last fastener.

You get the best engineering support possible. Ingenuity that knows no bounds. We've come up with all kinds of applications for our exclusive new MICRO=LAM, called the most important new wood product since plywood. It's become a part of our newest joist series.

Worried about cost? Cost efficiency is the name of our game. Delivery? Usually within three weeks of approval of shop drawings, and, if necessary, often a lot sooner.

Get your local Trus Joist consultant on the phone today. He's a man who can take a load off your mind.

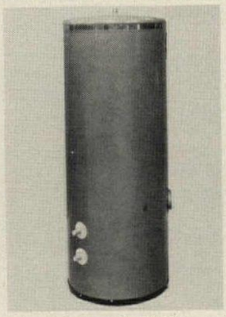
TRUS JOIST CORPORATION

Boise, Idaho 83707

VINYL FLOORING / "Quiet Zone II" is said to meet all Hill-Burton limits for smoke generation and flame spread, permitting its use in hospitals and nursing homes. The .160-in.-gauge sheets are also held to be very effective in reducing impact noise. This flooring can be installed over concrete and terrazzo at all grade levels, as well as suspended subfloors of plywood, double strip wood and hardboard; or directly over old firmly bonded resilient flooring. It is available in three patterns ("Random Texture" is illustrated) and 13 colors. ▪ Armstrong Cork Co., Lancaster, Pa.

Circle 328 on inquiry card

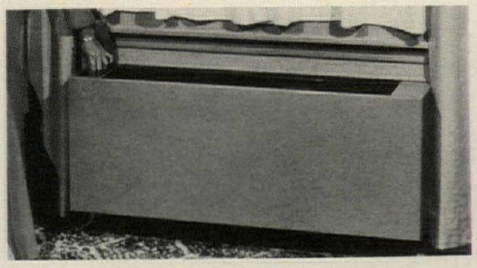
HOT WATER STORAGE / The *Storex* is a 120-gal. tank specifically designed for the storage of solar-heated hot water. The unit has an integral 10-sq-ft heat exchanger through which solar-heated fluid is pumped to raise the temperature of the tank water. There is also an electric heating element available for use when solar energy is not sufficient. ▪ Heliotrope General, El Cajon, Calif.



Circle 329 on inquiry card

FAUCETS / The "Exquisite 20.180" lavatory or bath faucet, available in either heavy chrome or *Aurodur* (gold) plated finish over solid brass, is said to save water by minimizing splash. The slow-closing valves have non-rotating washers and $^{15}/_{32}$-in. renewable seats. Handles may be ordered in acrylic or semi-precious stones such as onyx. ▪ Grohe, Elk Grove Village, Ill.

Circle 330 on inquiry card



AIR CONDITIONER / Model "JK-18" is a through-wall packaged terminal air conditioner with a cooling capacity of 17,500 Btu/hr. The unit offers a choice of electric, hot water or steam heating modes. The chassis and cabinet are combined as a slide-in component installed in the wall sleeve after construction, which is said to prevent damage that may occur where the cabinet is a part of the sleeve itself. ▪ Slant/Fin Corp., Greenvale, N.Y.

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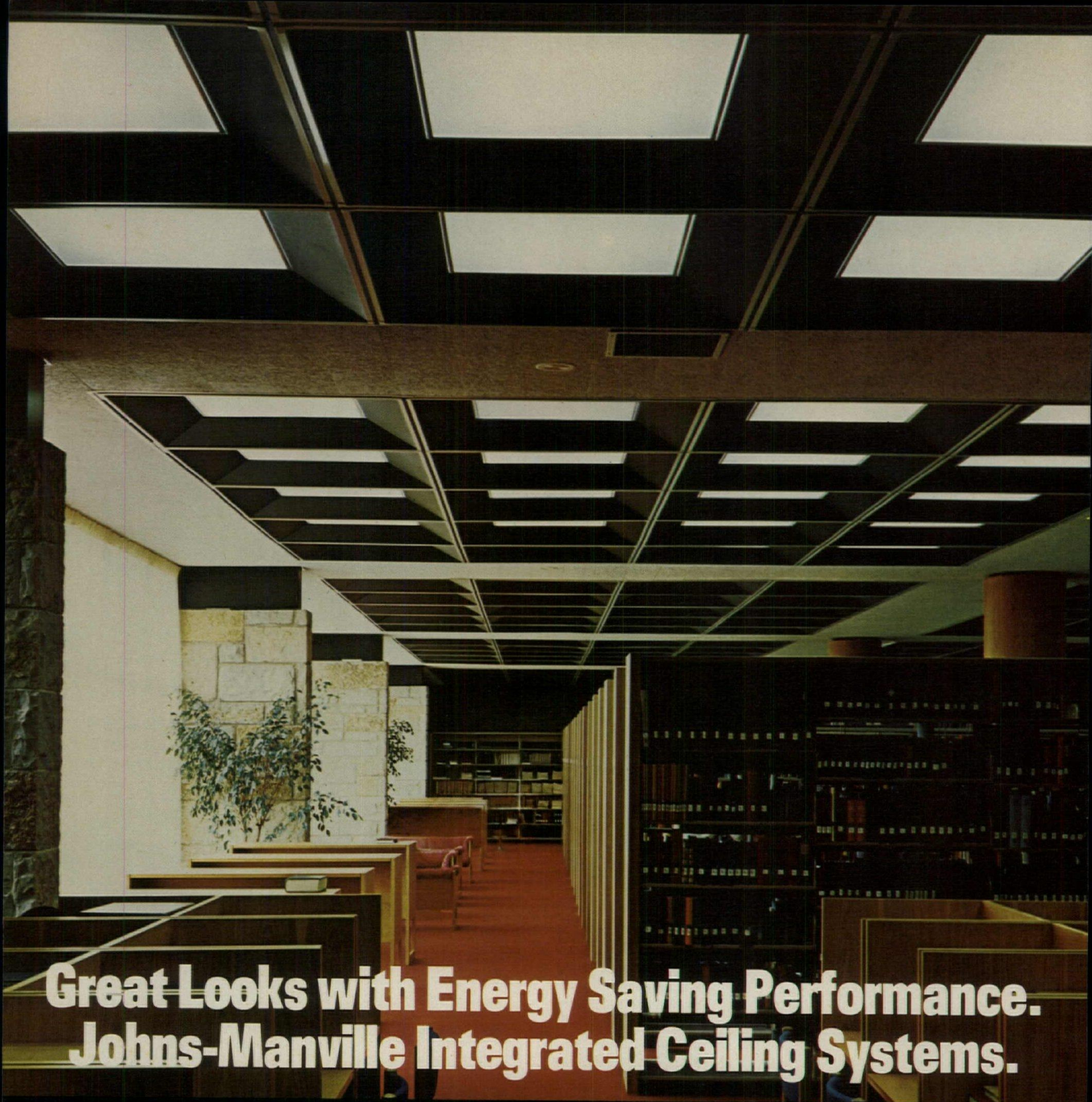

Great Looks with Energy Saving Performance. Johns-Manville Integrated Ceiling Systems.

James E. Rolfing Memorial Library, Trinity Evangelical Divinity School, Deerfield, Illinois Architect: Walter C. Carlson, Elk Grove Village, Illinois

Our integrated ceiling systems give you everything. Energy saving lighting systems by Holophane®, J-M acoustical panels and grid and high performance air handling equipment. All are pre-engineered and factory built to go up quickly and easily and to work together for years.

And all are achieved with a single, simple specification that insures you the added benefit of single source material responsibility.

No matter how bold or innovative the configuration, no matter what your ideas call for in lighting, acoustical control, air distribution and budget, J-M can provide the entire system in virtually any module size up to 6'x 6'.

For assistance call your local J-M sales office or John Busch, Johns-Manville Sales Corp., Holophane Division, Greenwood Plaza, Denver, Colorado 80217. Phone 303/770-1000 ext. 2521.

JM

Johns-Manville

OFFICE LITERATURE *continued from page 148C*

GRAPHICS COMPUTER / "ARK-2" is an integrated system of eight program packages, designed to assist the architect and plant engineer. The basic capabilities include: program inventory and report generation; schematic planning and design; area take-off and checks; perspective drawing; site analysis; project control; and specification generation, editing and production. A brochure has been prepared on the system. ▪ Decision Graphics, Southboro, Mass.

Circle 416 on inquiry card

CONCRETE BRICK VENEERS / A four-color publication issued by the Portland Cement Association describes manufacturing, sizes, type, colors of concrete brick veneers and gives specifications and semi-technical information. It is illustrated with color photographs showing single- and multi-residential uses. ▪ Portland Cement Assn., Skokie, Ill.

Circle 417 on inquiry card

WORLD STEEL STANDARDS / A "Handbook of Comparative World Steel Standards" published recently in Tokyo has just been released for international distribution. Written in both English and Japanese, the 446-page volume contains steel standards of six major producing nations, arranged by type, use and chemical composition. Designed for easy cross-reference, the first of two indices covers countries, standards, and grades. The second index is alphabetical. The countries and standards covered are: the United States (ASTM); the Soviet Union (GOST); Japan (JIS); West Germany (DIN); the United Kingdom (BS); and France (NF). ▪ International Technical Information Institute, Tokyo, Japan.

Circle 418 on inquiry card

SLIM SLAT BLINDS / "Why be blind about blind color?" is the title of a brochure on slim-slat blinds with cord type "tapes." Twenty-eight color possibilities are pictured in full color, with color chips shown from which original combinations can be created. ▪ Marathon Carey-McFall Co., Philadelphia, Pa.

Circle 419 on inquiry card

DOUBLE-ACTING DOORS / An eight-page catalog describing a line of double acting doors with panels of transparent plastic, aluminum, colorful plastic, and rubber states that four different types of hinges are available. Specifications, drawings and photos are included. The doors are designed for heavy or light duty use in industrial plants, hospitals and institutions as well as food processing plants and cold storage facilities. A selection chart provides guidance for selecting the door best suited to the various traffic and other conditions involved in each installation. ▪ Clark Door Co., Inc., Cranford, N.J.

Circle 420 on inquiry card

POLYCARBONATE SIGNS / A brochure describing LEXAN S-400 sheet for signs describes how the material has "better impact resistance and weatherability than any other pigmented polycarbonate sign material on the market today." It can easily be formed and fabricated; and, panel messages can be changed without affecting weather resistance, according to the company. ▪ General Electric Co., Pittsfield, Mass.

Circle 421 on inquiry card

LAB WASHER / Described in the eight-page catalog are three different utensil washers, a portable flask washer, a hospital cart washer and a glassware washer and dryer, each designed to satisfy the needs of a particular health-care operation. Design, construction and installation features of each of these washers are described. ▪ AMSCO/American Sterilizer Co., Erie, Pa.

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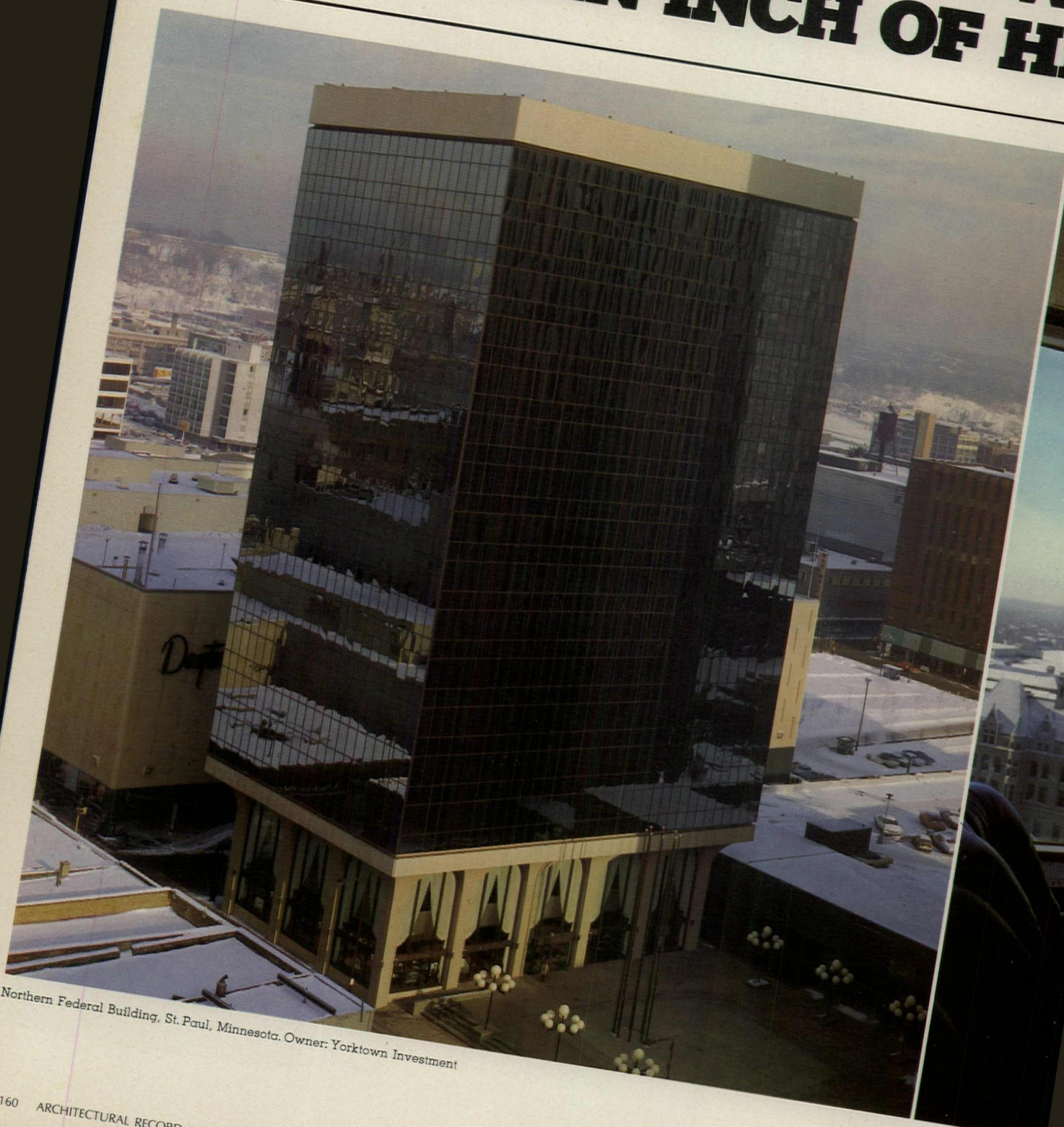
For more data, circle 83 on inquiry card

WHEN YOU'RE
34° BELOW
MAKE IT AN INCH OF H



Northern Federal Building, St. Paul, Minnesota. Owner: Yorktown Investment

INCH AWAY FROM 98° ABOVE, -PERFORMANCE GLASS.

THE GLASS FOR ALL SEASONS.
VARI-TRAN®–THERMOPANE®

While extremes may not be the norm, the people of St. Paul, Minnesota, have stepped very quickly through −34° winter mornings, and sweltered through long 98° summer days. Under these extreme conditions, architects and owners select building materials very wisely. At the Northern Federal Building in St. Paul, wise meant selecting LOF reflective Vari-Tran® coated glass in Thermopane® insulating units for the tower.

SAVINGS ON ELECTRIC ENERGY TO HEAT BUILDINGS.

In the 14-story tower portion of the building glazed with LOF high-performance glass, the amount of energy required for heating at a peak load is just over 2,800,000 BTUH. Had it been glazed in single-pane clear glass, the peak load requirements would have been 4,700,000 BTUH. The 1,900,000 BTUH difference reduces peak load system input by 559 kilowatts—amounting to a considerable savings in electrical heating cost.

OVER $164,000 SAVED IN INITIAL A/C COSTS.

The total building cooling requirements were also reduced from over 900 tons to 736 tons. Over $164,000 savings in initial costs resulted. In fact, Vari-Tran 1-114's ability to cut solar heat gain has made the walls so efficient that during most of the summer only one of the two 368-ton A/C units installed is used.

THE WORKING GLASS FROM LOF.

LOF makes a wide variety of high-performance, hard-working glasses. Their versatility to meet the requirements of extreme conditions has been widely proven. If you would like to know how the right glass can save you building and energy dollars, our highly qualified architectural representatives will be glad to help you. Or write LOF, 811 Madison Avenue, Toledo, Ohio 43695.

LOF

For more data, circle 85 on inquiry card

up front or out back....

there's a KINNEAR Rolling Door & Grille to do the job!

There are Kinnear closures that let you secure a loading dock, block a fire or turn an entire store or lobby into an intrusion-proof 24 hour-a-day showcase.

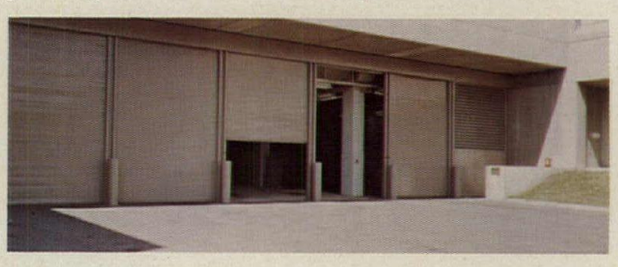
Kinnear Rolling Grilles provide an impenetrable barrier to people and even very small objects. There is no hindrance to the passage of air or blockage of sight. In sheltered areas, such as shopping malls, the grilles may be used in place of regular store-front walls or display windows. In exterior installations they provide unrestricted vision as well as protection when installed outside regular windows. (For fullest protection possible, Kinnear Rolling Doors may be used in conjunction with the grilles.)

When not in use, Kinnear Grilles, like Kinnear Doors, retract out of sight above the opening.

Available in three attractive designs, Kinnear Rolling Grilles also are ideal for restricting entry into "off-limit" areas in commercial buildings, or anywhere it might be desirable to screen off selected areas from time to time. They do not hamper airflow or lighting.

Meanwhile . . . back on the loading dock, time-tested and proven Kinnear Rolling Doors provide the most efficient closure available. Tough, rugged, designed for constant commercial-level use, they operate vertically, requiring no valuable floor space to allow for swing. And they can handle an opening of practically any width and height.

Both grilles and doors are available for manual or power operation. Power units may be remote-controlled.



Write today for up-to-date catalogs on Kinnear Rolling Grilles and Doors.

KINNEAR® ROLLING DOORS
Saving Ways in Doorways Since 1895

A DIVISION OF Harsco

1860 Fields Avenue, Columbus OH 43216

Factories: Columbus OH 43216 • San Francisco CA 94124
Centralia WA 98531 • Toronto, Ontario, Canada

For more data, circle 86 on inquiry card

We've improved Zonolite® Thermo-Stud® to make it quicker and easier than ever to install. It's the most economical method of wall construction when insulation and interior drywall are required.

Talk about speed! Now each foam board is factory pre-grooved to make locating and imbedding of metal furring channels a snap. In addition, the furring channels are pre-set in the boards, can be easily removed and reset for difficult areas like those around windows and doors. The system is mechanically fastened to the substrate wall with a pneumatic nailer.

That means there are no adhesives to delay construction because of temperature, weather or wall surface conditions. Drywall can be applied immediately with standard drywall screws through the metal furring channels.

And talk about insulation! The Thermo-Stud system provides a continuous and uninterrupted insulation envelope.

The thermal shorts and shadowing associated with conventional furring strips or Z-channels are eliminated. The Thermo-Stud system provides outstanding insulation values with minimum thickness, which means more usable space inside the building. What's more, the Thermo-Stud system meets or exceeds new local and FHA minimum insulation standards for masonry walls.

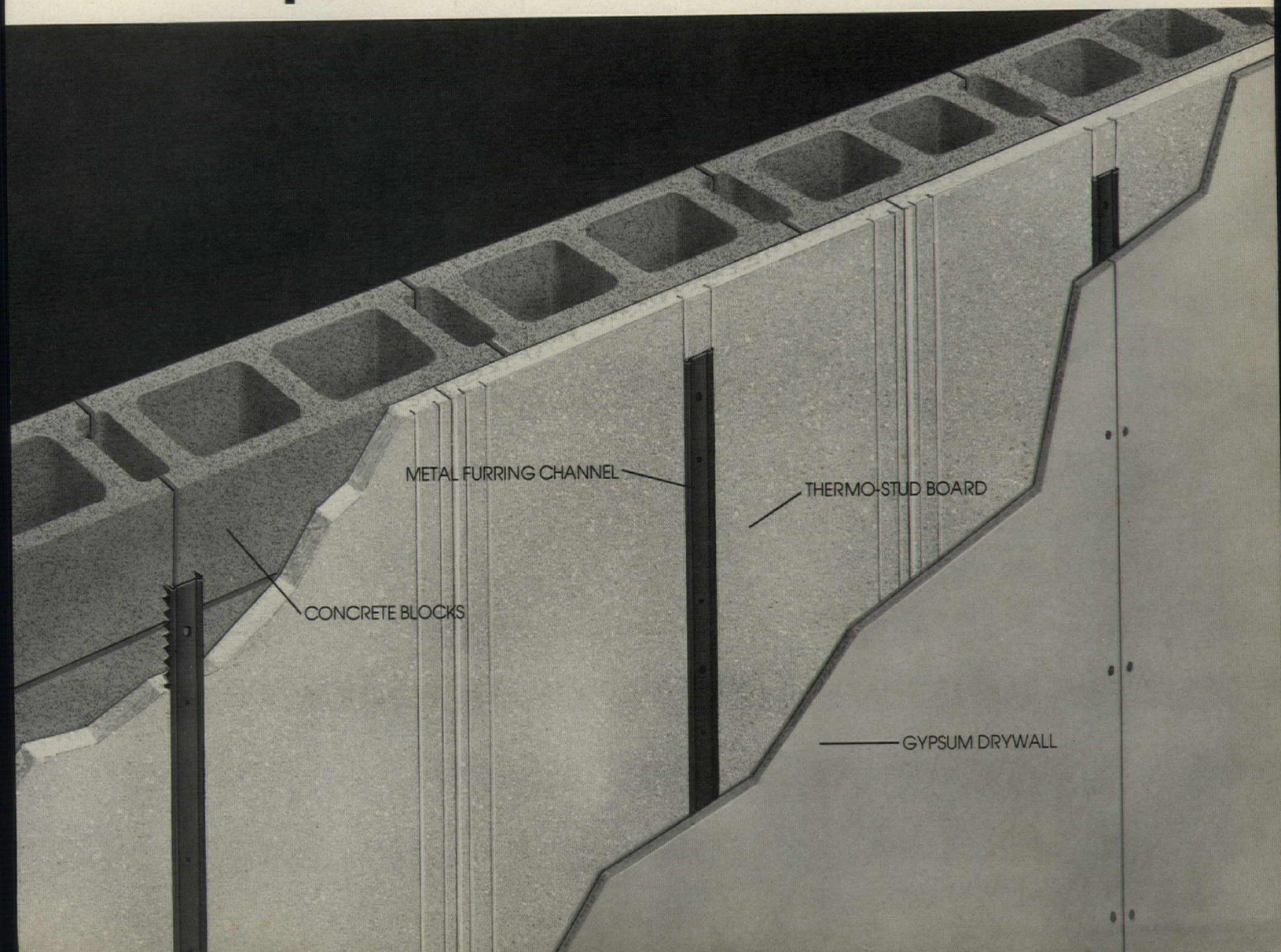
Add up the benefits. Total insulation that reduces fuel and energy costs. Fast, easy installation that speeds construction and cuts construction costs.

Ask your Zonolite representative to give you all the details about the improved Thermo-Stud insulation system, or write, W. R. Grace & Co., 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada, 66 Hymus Road, Scarborough, Ontario M1L 2C8.

GRACE

For more data, circle 87 on inquiry card

Improved Zonolite® Thermo-Stud® insulation cuts costs, speeds construction.



Without a little soft soap,

Halsey Taylor never would have made it.

Just about 62 years ago, a man named Halsey Taylor called on the U.S. Surgeon General with sketches for an altogether new type of water fountain projector. When the Surgeon General insisted on an actual model, Halsey Taylor bought a bar of soap, sat down on a Washington park bench and carved out the first—and now famous—twin-stream projector.

Thus, the Halsey Taylor Company was launched—on a bar of soap.

Today, we manufacture the widest selection of water coolers in the industry. And every one of them is built with high quality, heavy-duty components to deliver years of service with minimum maintenance. For example, we use corrosion-resistant regulator valves, positive start capacitors, long-life fan motors, dual temperature controls that counteract freeze-up, and overload protectors that prevent overheating.

Each of our welded unitized cabinets is topped by a polished stainless steel receptor. And any cabinet can be finished in any of eight different Polychrome colors or your choice of our vinyl clad steels. Stainless steel and PATINA bronze-tone stainless are available on selected models.

Halsey Taylor water coolers. Products you can honestly rely on. And that's no soft soap. Write for a copy of our catalog to Halsey Taylor Division, Dept. 176, 1554 Thomas Road, Warren, OH 44481.

Halsey Taylor®

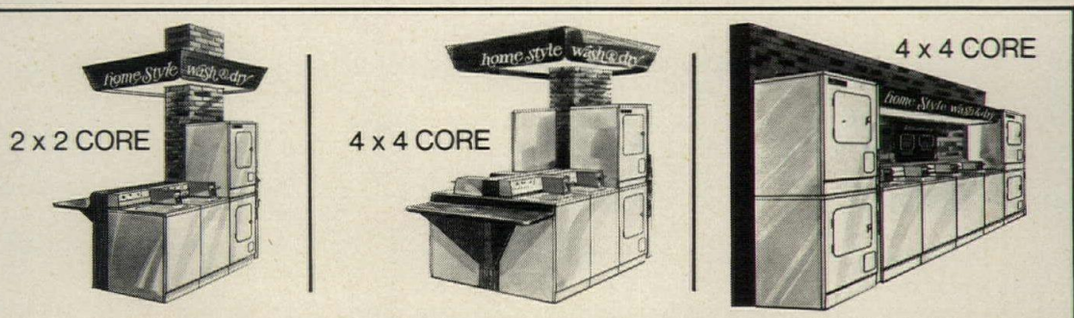
KING-SEELEY KST THERMOS CO.

For more data, circle 88 on inquiry card

New Maytag-equipped *home style* Laundry. It can cut your costs, while giving tenants homelike comfort and convenience.

Everything's grouped in a functional cluster, like in a home laundry room.

Save as much as 40% to 50% on gas with the new Maytag D21 Dryer, compared to regular 30-lb. dryers.



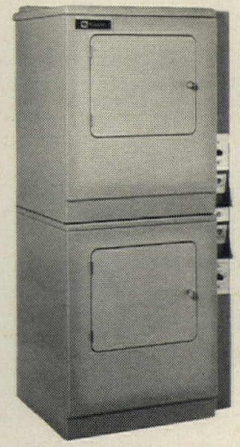
Flexibility is the keynote. Washers and dryers can be arranged in a variety of configurations to fit your needs.

Another "first" from the dependability people, this Maytag breakthrough can help you cope with the space, money, and energy crunch.

In small space, with a small investment, the exclusive Maytag-equipped Home Style Laundry lets you provide tenants with a totally unique laundry with homelike atmosphere and step-saving convenience, plus equipment for optimum care of all fabrics.

And look at the possible advantages for you compared to traditional laundry rooms: Lets you use areas never before practical. Smaller space needed. Smaller initial investment. Lower operating cost. More profit per square foot. All-Maytag equipment for dependability and tenant satisfaction.

Mail card now for free facts. No postage needed.



Two separate dryers in half the space of one large dryer.

Made possible by the energy-saving new Maytag D21 Dial-A-Fabric™ Dryer.

- It's actually two single-load dryers stacked one on top of the other. Each is functionally independent.
- It can save you 40% to 50% on gas compared to regular 30-lb. dryers. Or 20% to 30% compared to 30-lb. dryers with electric ignition, factory-built heat reclaimers, and lowered Btu input. Electric model uses half as much electricity as 30-lb. electric dryers.
- Choice of coin or exclusive ticket-operated models which use an electronic ticket, helping avoid coin-box problems and improving security.

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THE ROOF: PART ONE

CELOTEX ANSWERS ROOFING QUESTIONS ASKED BY ARCHITECTS.

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

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

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

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

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

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

A. There is a system that has been the mainstay of the industry for many years and has successfully waterproofed millions of squares of roofing in every area of the country. It is our Series 300 roofing system.

It utilizes a Vaporbar®coated base sheet and three plies of perforated asphalt felt, applied with hot asphalt. Result: a total of four waterproofing layers of hot asphalt gives the building maximum protection from the elements, while the four plies of felt material give the system maximum strength for resisting external stresses and forces that so often damage roofs. It must be recognized, however, that numerous two-ply coated felt systems have also performed well.

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

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

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

Q. When are expansion joints required?

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

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

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

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

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

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Home buyers are decorator conscious... are you? Discriminating home buyers everywhere are choosing Caradco's Interior Sculptured Door. It fills that decorator need at an affordable price and performs better than panel doors.

The Caradco Door adds that look of elegance, truly a classic sculptured appearance... a compliment to the home buyers buying furniture. Deep, clean carved panels are fashioned from one-piece, wood grained molded faces that won't split, check, shrink or show paint lines.

Caradco's "total" manufacturing process provides factory-prime on all of our doors for ease of finishing, ready for the final finish of your choice to produce predictable results ...a truly decorator door.

Ask your Caradco distributor about his complete line. Great closers that open up more sales opportunities for you.

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Saves energy naturally

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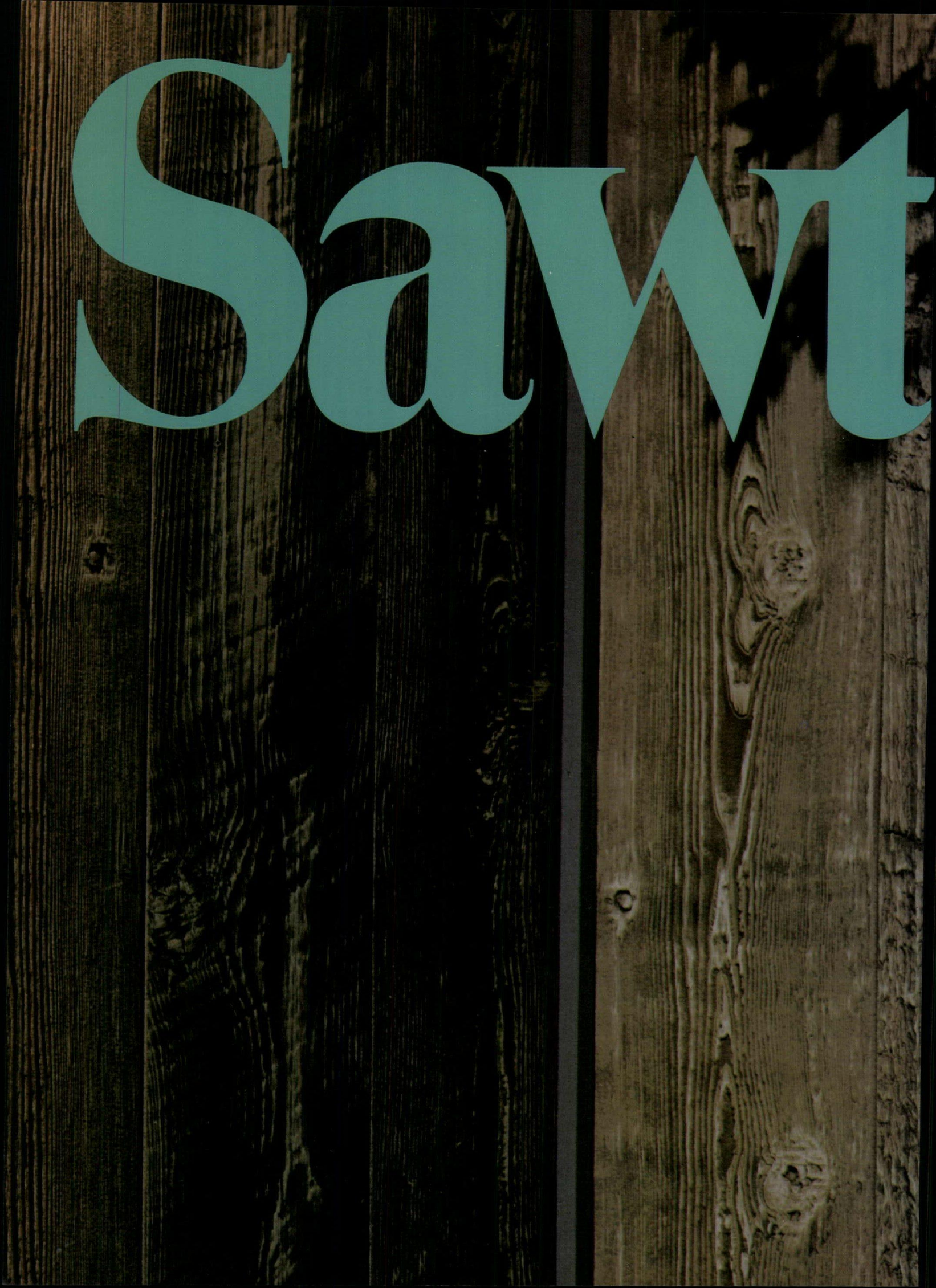
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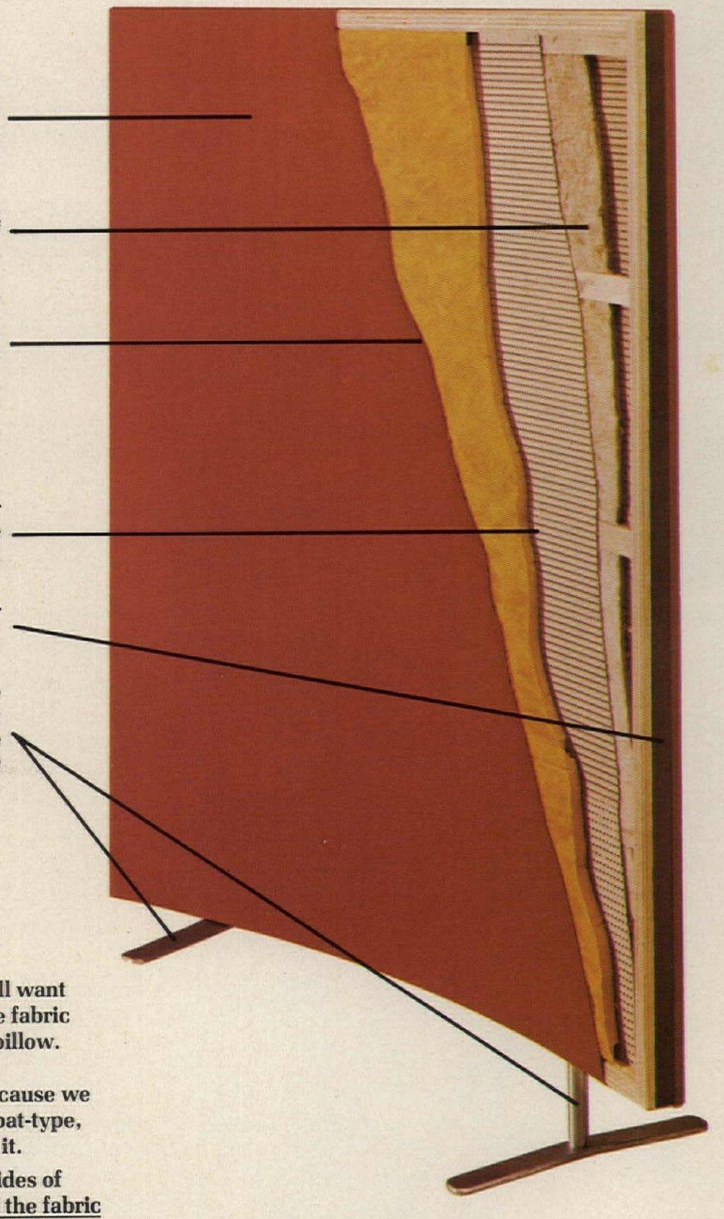
Pleases the eye, soothes the ear.



The Rosemount/85 screen has 7 layers of acoustical materials. Covering is 100% modacrylic fabric woven with irregular yarn to create a homespun look.

The center of the core is ¾" thick fiberglass, sandwiched between two sheets of perforated hardboard.

No problems with sagging or pillowing! The fiberglass behind the face fabric is rigid, not bat-type — and, on all inside curves, the fabric is bonded to the fiberglass.

Flat or curved. For standard heights and sizes, see chart, below.

Inch-thick rigid fiberglass is placed over the perforated hardboard on both sides of the Rosemount/85 screen.

Choice of edge trims: Oak, Walnut, or Fabric — or your choice (optional).

Legs may be easily adjusted to compensate for unlevel or unequal floors. Floor opening may be varied from 0" to 7". (Base closure optional.)

Here's a new panel to use in your job of helping people enjoy their work.

The Rosemount/85 is a free-standing, furniture-quality screen with an NRC rating of 0.85 (hence, its name).

ROSEMOUNT/85	FLAT	CURVED (96" Radius)
WIDTHS:	48,* 60"	48,* 60"
HEIGHTS:	56," 66," 72"*	56," 66," 72"*
OPTIONS:	Closed base, satin chrome legs, special edge trim.	

*Specials Available

Named for its NRC: The "85"

But you'll likely want to know a lot more if you're shopping carefully for the components for your open office plan.

For example, you'll want to be sure the face fabric will never sag or pillow. It won't on the Rosemount/85 because we use a rigid, not a bat-type, fiberglass behind it.

Then—on the insides of curves—we bond the fabric to the fiberglass.

Call 800-328-8402

Sometimes a reader service card takes 2 or 3 weeks. But you can call our toll-free number and have us rush your Rosemount/85 literature to you.

Or write: Rosemount Partitions, Inc., Box D, Airlake Industrial Park, Lakeville, MN 55044.

Rosemount

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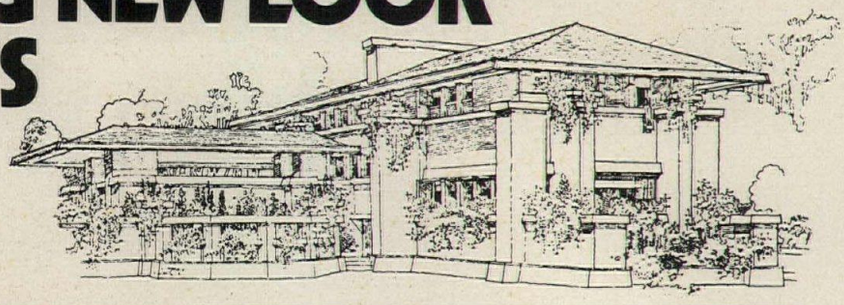
AN INSPIRING NEW LOOK AT AMERICA'S GREATEST ARCHITECT



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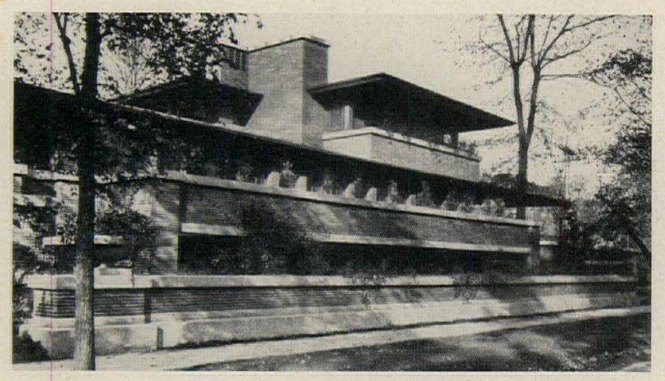
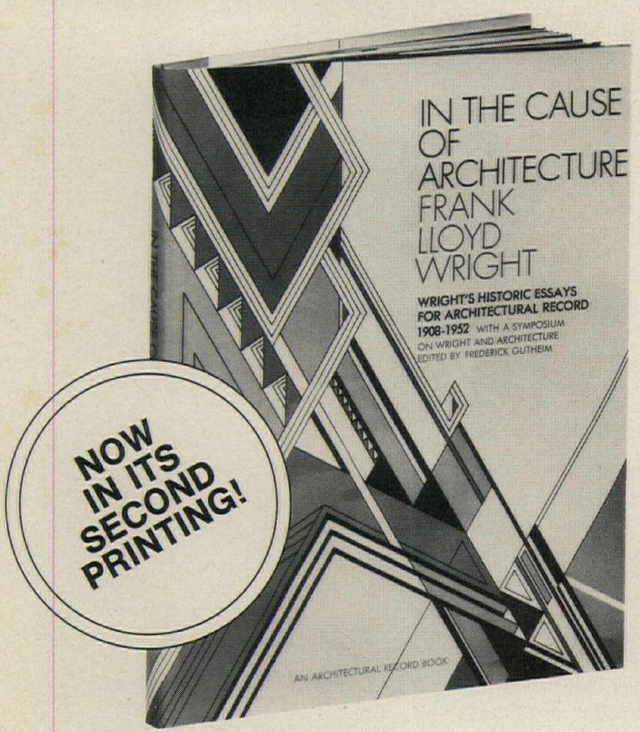
—Phoenix Gazette



IN THE CAUSE OF ARCHITECTURE: FRANK LLOYD WRIGHT



A sampling of the critical acclaim that greeted the publication of this important collection of Frank Lloyd Wright's complete writings for *Architectural Record:*

"A **splendid** retrospective . . . a **luminous** as well as **instructive** experience . . . **eloquently conveyed** in several hundred photographs . . . **excitingly visual.**"
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"These *Architectural Record* texts are now **part of history.** To see them published in one binding is **illuminating.**"
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Even now, more than 15 years after his death, the genius of Frank Lloyd Wright still lives . . . in his writings and designs . . . in the inspiration he gave to those who lived and worked with him.

What is the significance of this legacy for today's architect? Was the "cause" for which Wright crusaded a vain Romantic dream? Or was it architecture's purest expression of the democratic ideal? Architectural Record Books is proud to introduce you to an exciting new work that speaks directly to these timely questions.

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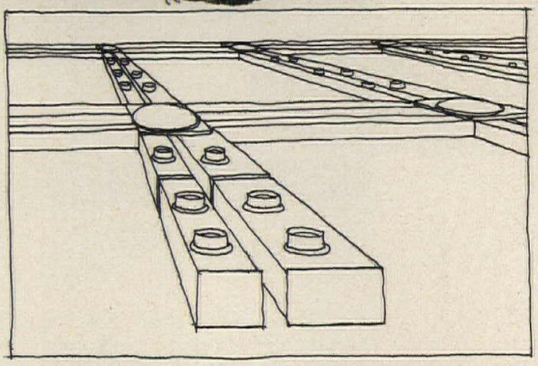

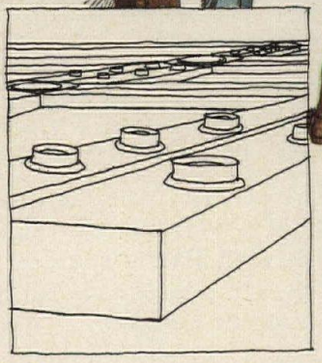

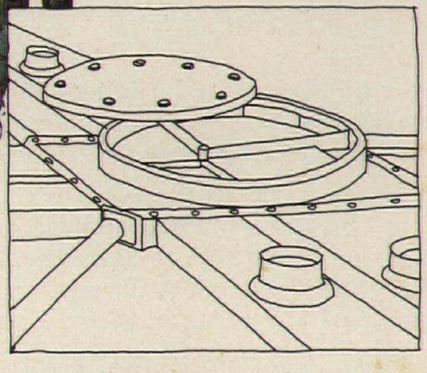

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True, he can't rent it. But he certainly can use it. Like when tenants start adding phones or moving them. And what about all the new sophisticated equipment coming?

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Galvanized rebar protects the health and beauty of this health center

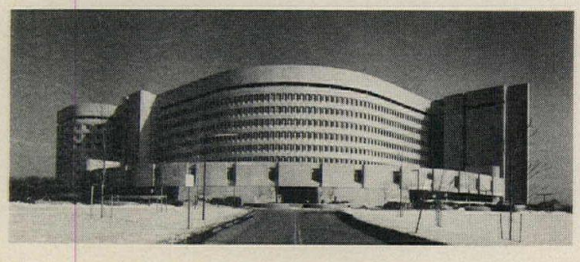
PHOTO BY LAWRENCE S. WILLIAMS, INC.

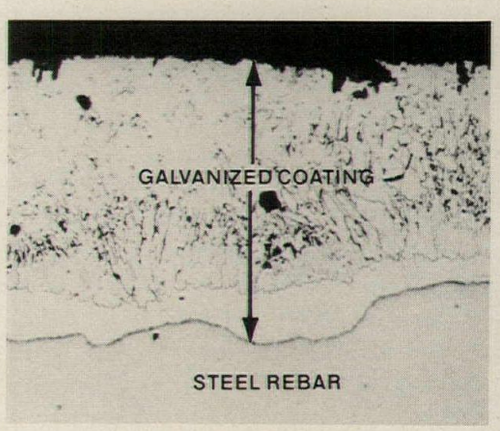
The Kling Partnership of Philadelphia prescribed galvanized rebar as "preventive medicine" against subsurface rust when they designed the University of Connecticut Health Center in Farmington, Conn.

The precast concrete panels which make up the beautiful, buff-colored, curvilinear facade all have hot dip galvanized reinforcing steel beneath their surface. In addition, The Kling Partnership specified galvanizing for tie wire, inserts and reglets that were required for the fabrication, transportation and erection of the panels.

By specifying galvanized steel, the architect has provided this building with the best proven protection against concrete cracking, spalling and staining caused by subsurface rust expansion. Proof of galvanizing's long-lasting protection is shown in the photo-micrograph of a rebar sample taken from the deck of the Longbird Bridge in Bermuda. After 22 years in this salty, moist environment, more than one-half of the zinc coating still remains to protect the steel against corrosion. **No other rebar protection has been time-proven like this.**

For more information on galvanizing, write on your letterhead for our "Galvanizing Booklets."





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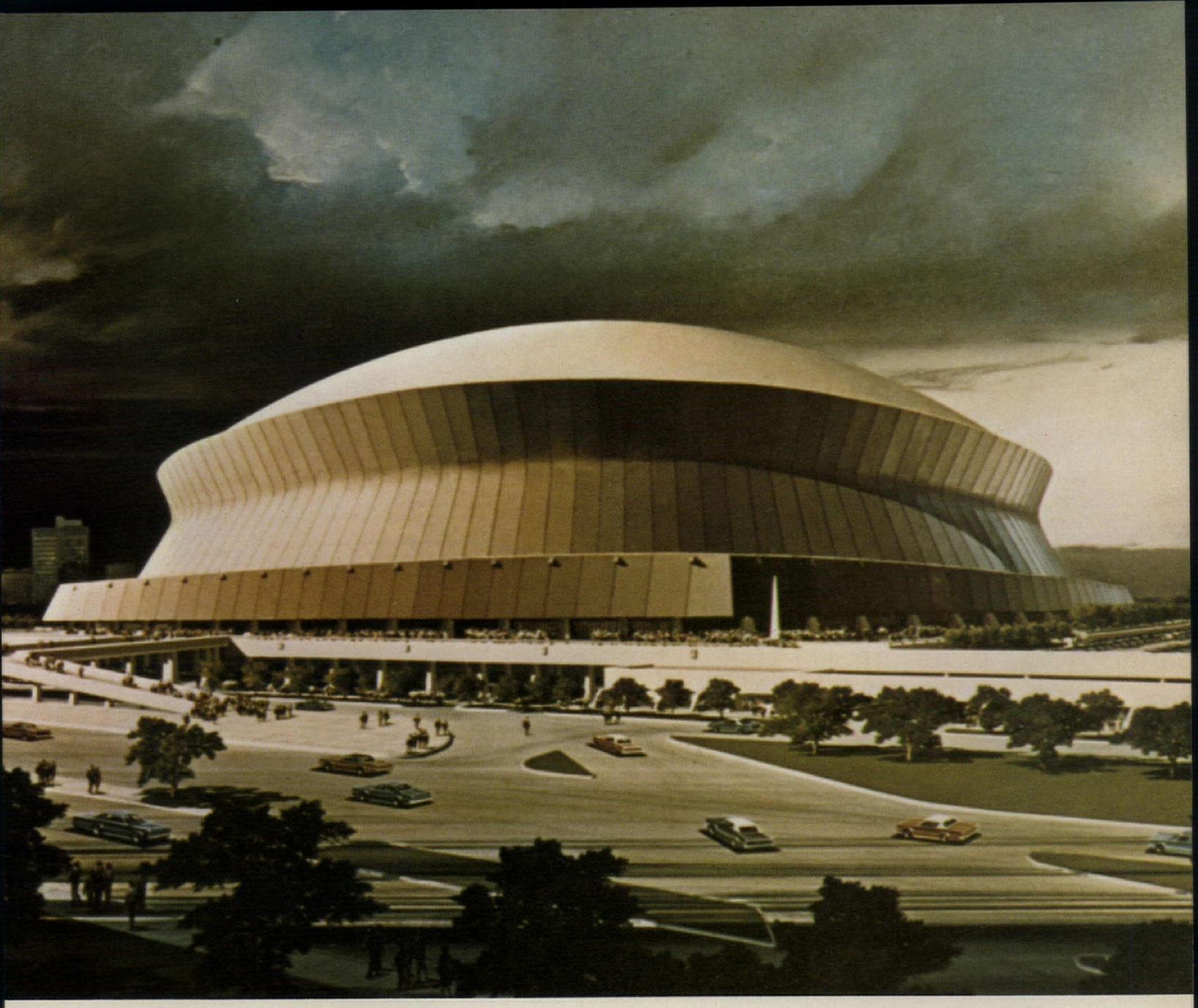

Washing 200,000 Hands. A super problem.

Washing hands is a big order in a big building, like the New Orleans Superdome. A big order handled without big installation costs. Without big demands on water, or water heating energy. A big problem solved with just sixty 54" circular Bradley Washfountains.

Check these cost saving facts. It takes eight lavatories to serve eight people. Or just one Bradley Washfountain. The difference adds up to around $1,400, (including all materials). Now add floor space savings of up to 25% and you see why Washfountains belong in all kinds of buildings.

The same Washfountains save up to 80% on water consumption and water heating energy. And each Washfountain eliminates seven sets of plumbing connections. At the Superdome elimination of double wall construction and pipe chases was vital. Maintenance?

Just think what happens when you cut the number of bowls by 86%. Non-liming spray heads and self-closing valves without gimmicks keep Washfountain operating costs low. For the Superdome we even incorporated special towel dispensers on each Washfountain.

If you've got to clean a lot of hands, remember the Superdome. Contact your local Bradley representative, or write Bradley Corporation, 9107 Fountain Boulevard, Menomonee Falls, WI 53051.

Bradley BRADLEY **Super problems solved with savings.**

Architects: Curtis and Davis Associated Architects, Inc., Edward B. Silverstein and Associates, Nolan, Norman and Nolan, Sverdrup, Parcel and Associates, Inc. **Mechanical Contractor:** Limbach Company. **Wholesaler:** American Plumbing Supply, Inc.

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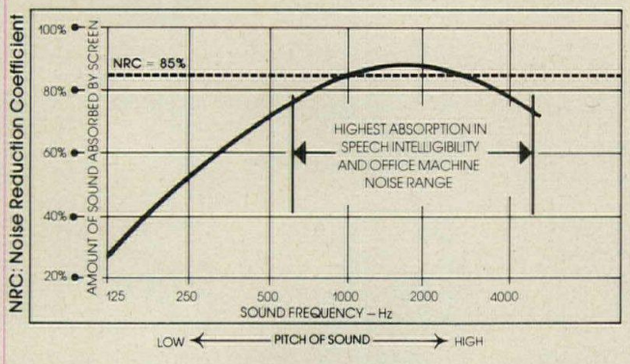
Some People Buy Our Screens Because They're BEAUTIFUL.

They're attracted by the rich-looking, heavy nylon velvet coverings (available in 14 colors) and mirror stainless or elegant wood grain trim. While they *are* good looking, the real reasons for choosing one of our PLANSCAPE™ Screens are the things you can't see: A superb sound absorbing quality that meets or surpasses State and Federal requirements (.85 NRC), and a rigid, long lasting construction.

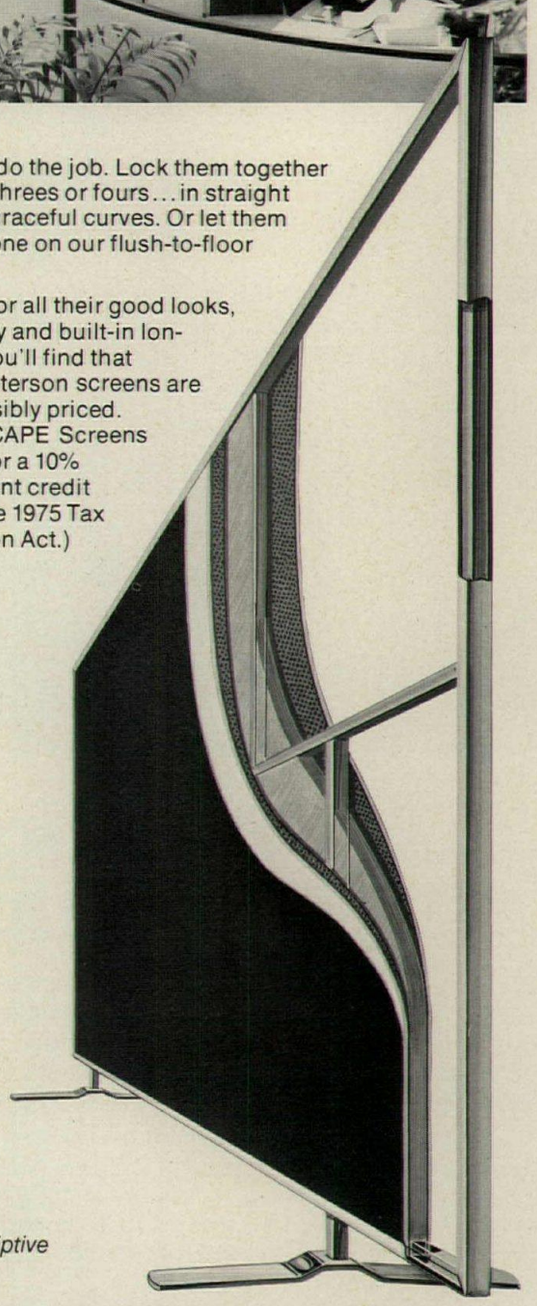


We build our screens on a welded, tubular steel frame. It's strong, yet light weight, and will never get loose and wobbly, no matter how many times you move it. The core is filled with a high-density fiberglass sponge that traps and smothers sound. A perforated hardboard sheet over the core allows maximum passage of sound waves into the fiberglass, yet provides firm support for the outer cover. We laminate a porous foam sheet on the hardboard to give the nylon cover its padded look and feel. The cover (besides looking great) is itself an excellent acoustical material.

Technical and appearance considerations aside, you might want to choose a PLANSCAPE Screen for its versatility. Whether you're defining a traffic pattern or screening a conference area, you'll find a height and width to do the job. Lock them together in twos, threes or fours... in straight lines or graceful curves. Or let them stand alone on our flush-to-floor bases.

Finally, for all their good looks, versatility and built-in longevity, you'll find that Vogel-Peterson screens are very sensibly priced. (PLANSCAPE Screens qualify for a 10% investment credit under the 1975 Tax Reduction Act.)

Screens are easily and positively coupled together with square or triangular steel posts.



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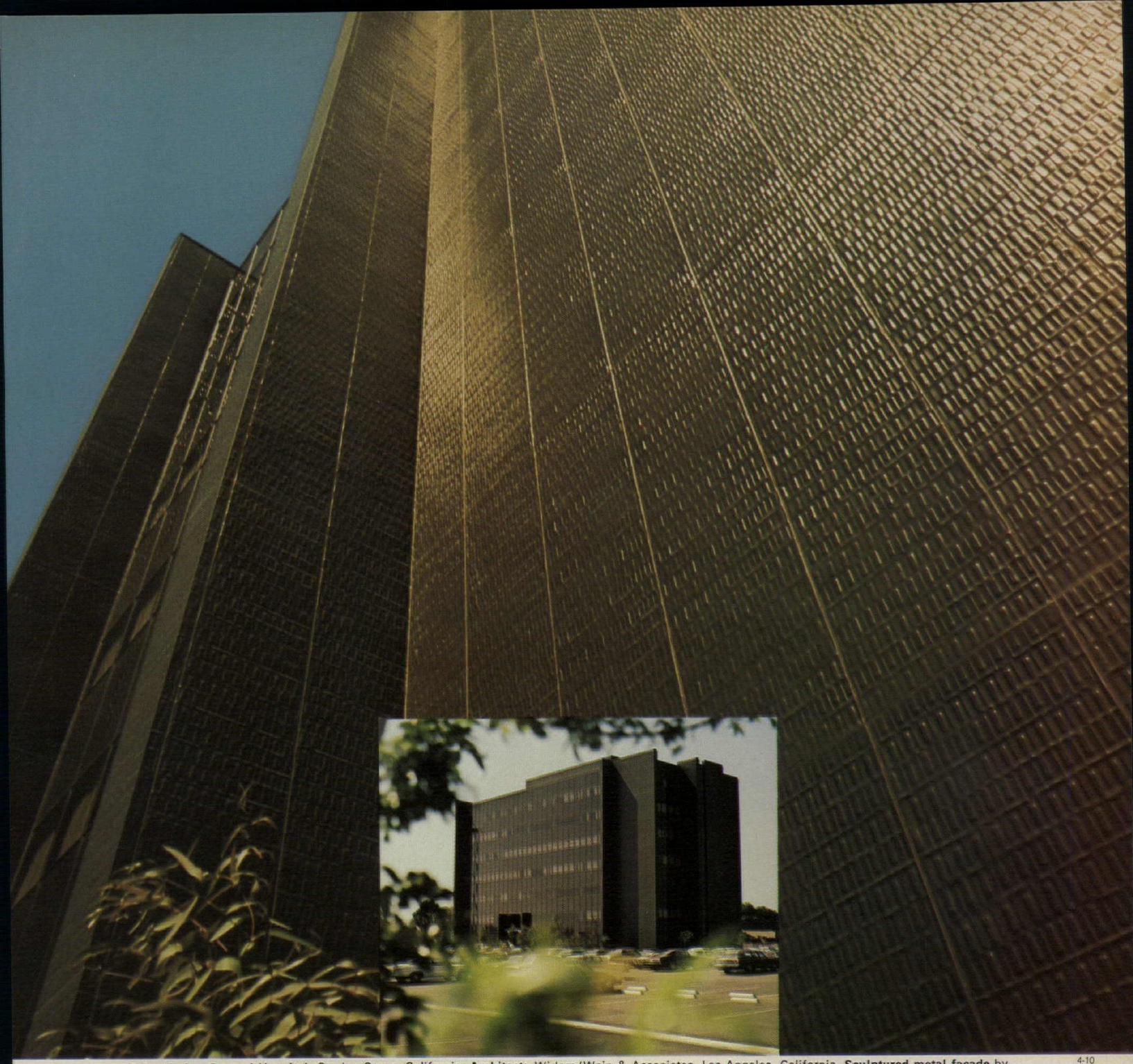

Palm Harbor General Hospital, Garden Grove, California. **Architect:** Widom/Wein & Associates, Los Angeles, California. **Sculptured metal facade** by Warnel Corporation, South El Monte, California. **Coil Coater:** California Finished Metals, Inc., Cucamonga, California.

4-10

Just what the doctors' architect ordered: DURANAR 200® coatings from PPG.

The Palm Harbor General Hospital in Garden Grove, California, got a beautiful, durable exterior and still stayed within the budget. How? By incorporating a sculptured metal facade by Warnel Corporation, prefinished with a DURANAR 200 fluoropolymer coating from PPG.

Sculptured metal facades provide a fantastic array of truly beautiful textures and effects, while reducing the weight of exterior walls with commensurate savings in framing. And DURANAR 200 coatings give the metal the minimal-maintenance beauty and extended durability characteristic of other, more expensive fluoropolymer finishes.

The secret of DURANAR 200 coatings lies in PPG's patented combination of remarkably durable resins, together with pigmentation techniques that assure maximum color durability. It can give your medical center—or any building—a very healthy skin.

For information on DURANAR 200 coatings, see Sweet's Architectural or Industrial Construction Files 9.10/PPG or contact: Market Manager, Coil Coatings, PPG Industries, Inc., , One Gateway Center, Pittsburgh, PA 15222.

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- The day Sir Christopher Wren was fired
- The day the Eiffel Tower was topped out
- The day Stanford White was shot by his mistress's jealous husband
- The day Marie Antoinette's architect got the axe
- The day "Galloping Gertie" collapsed
- The day H. H. Richardson limited his staff to 1-hr. lunches

. . . these and hundreds of other bits of history make the 1976 Architectural Calendar a valuable source of architectural knowledge and a true collector's item.

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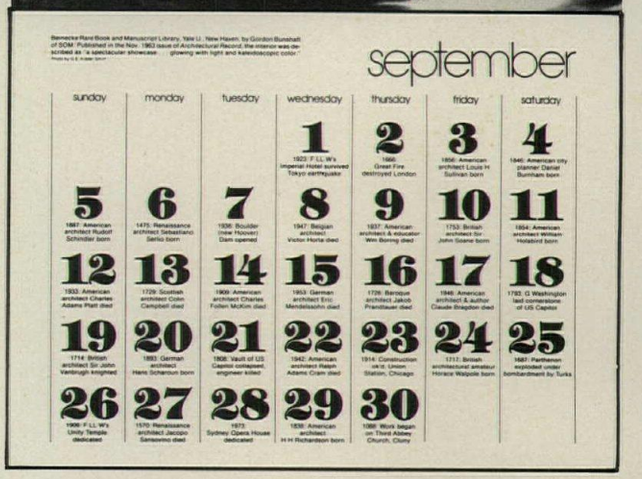
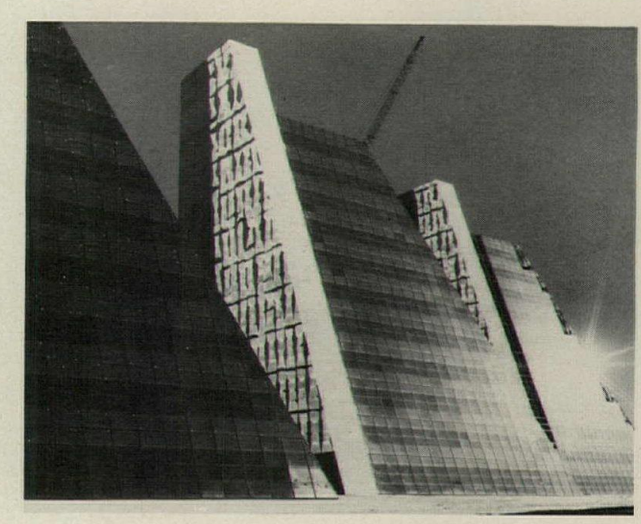
Strikingly designed in an oversized, 9x12″ format, only a limited number are being printed, so place your order NOW!





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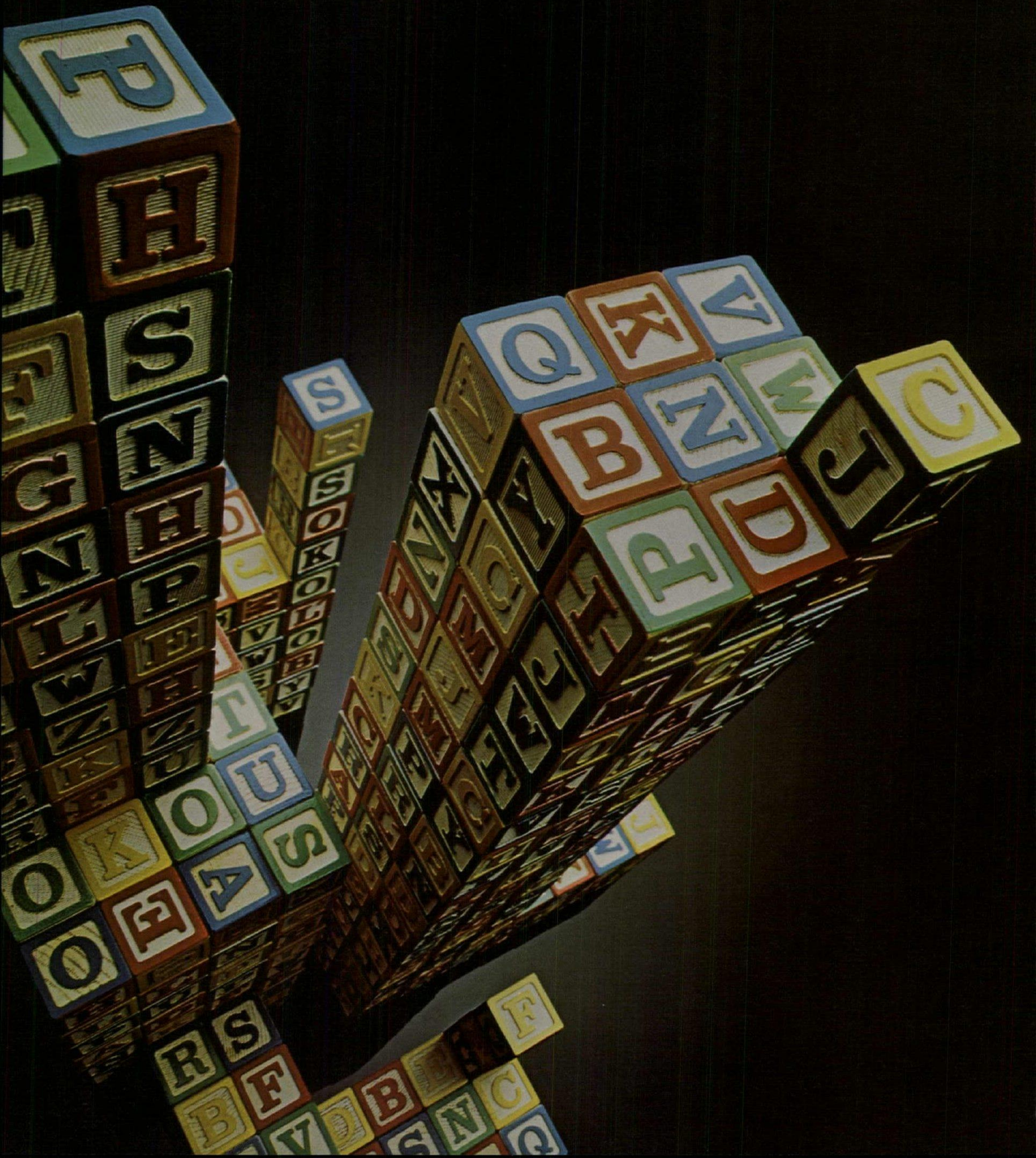

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Terra Cotta. With the warm, natural look of fired earth. And the sculptured beauty of that ancient art medium. Terra Cotta is the newest color of Primitive® ceramic tile from American Olean.

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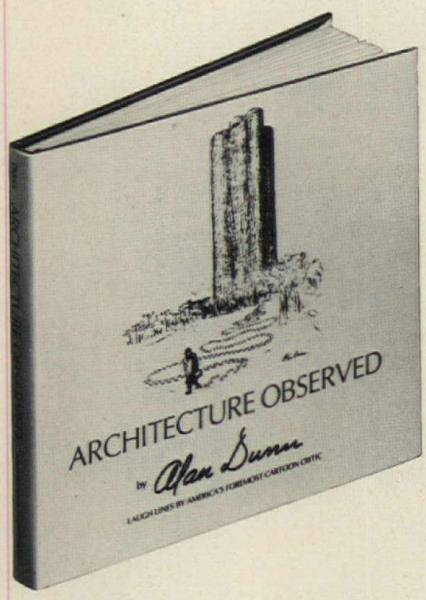

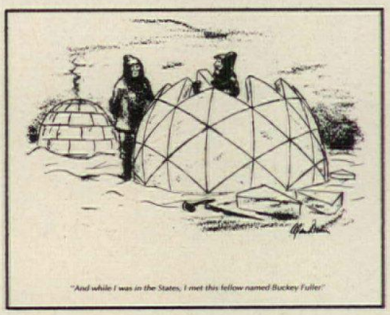

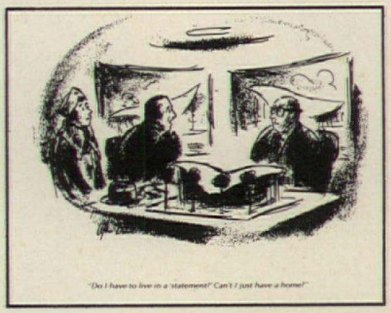

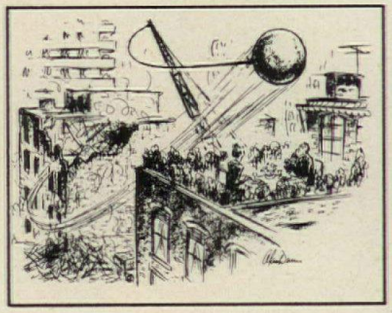

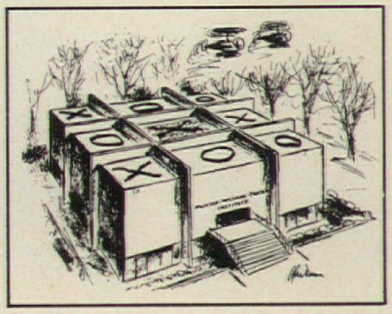

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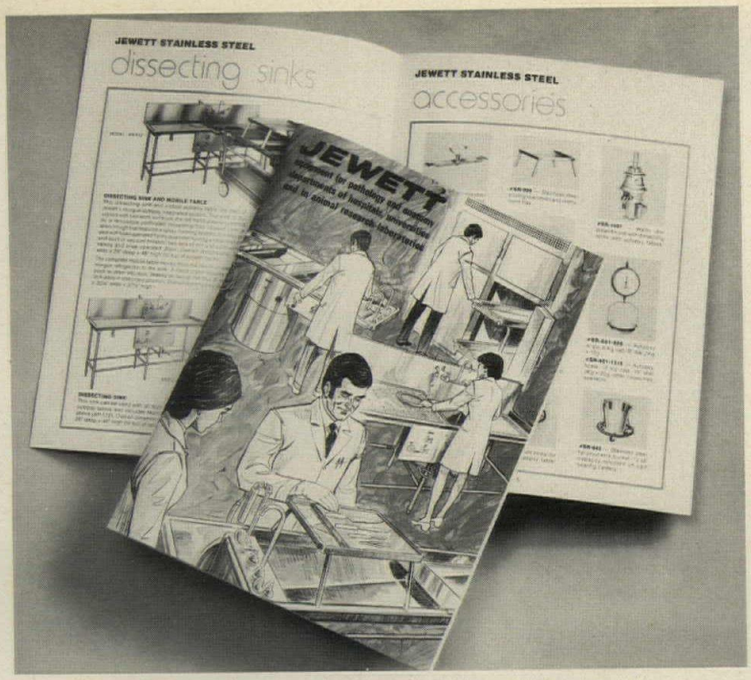

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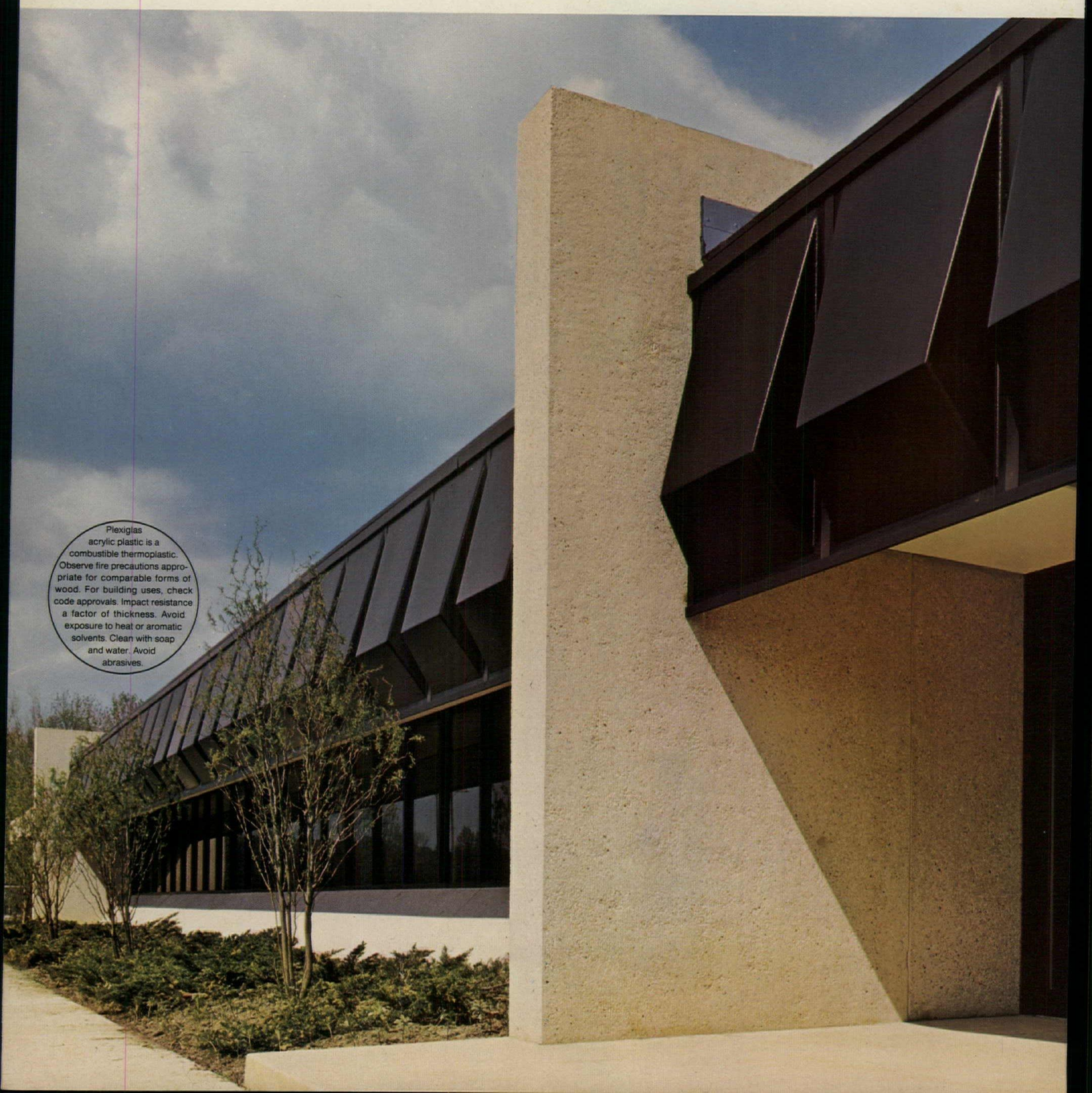

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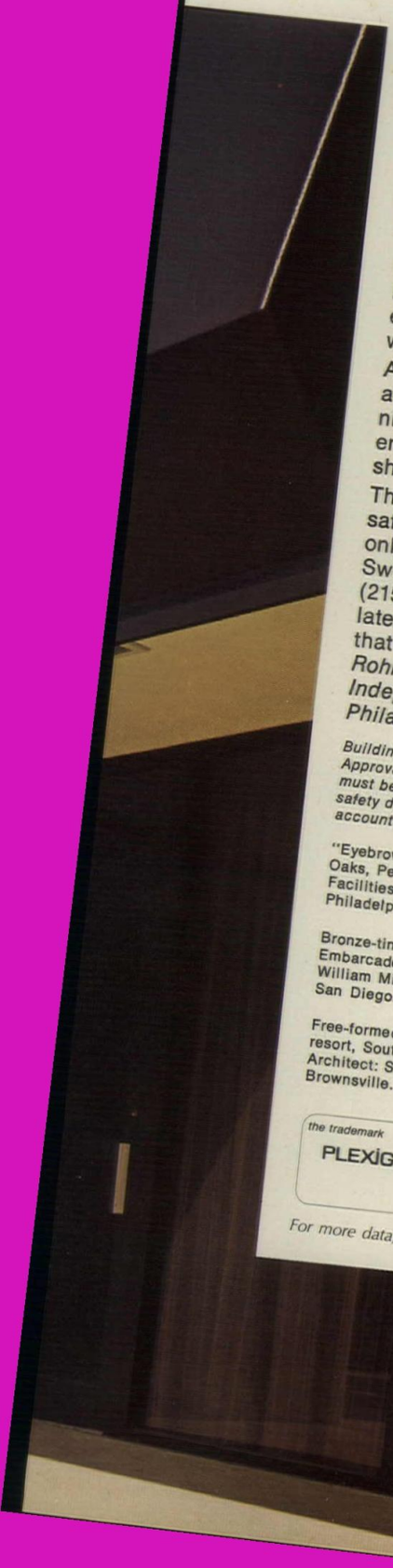

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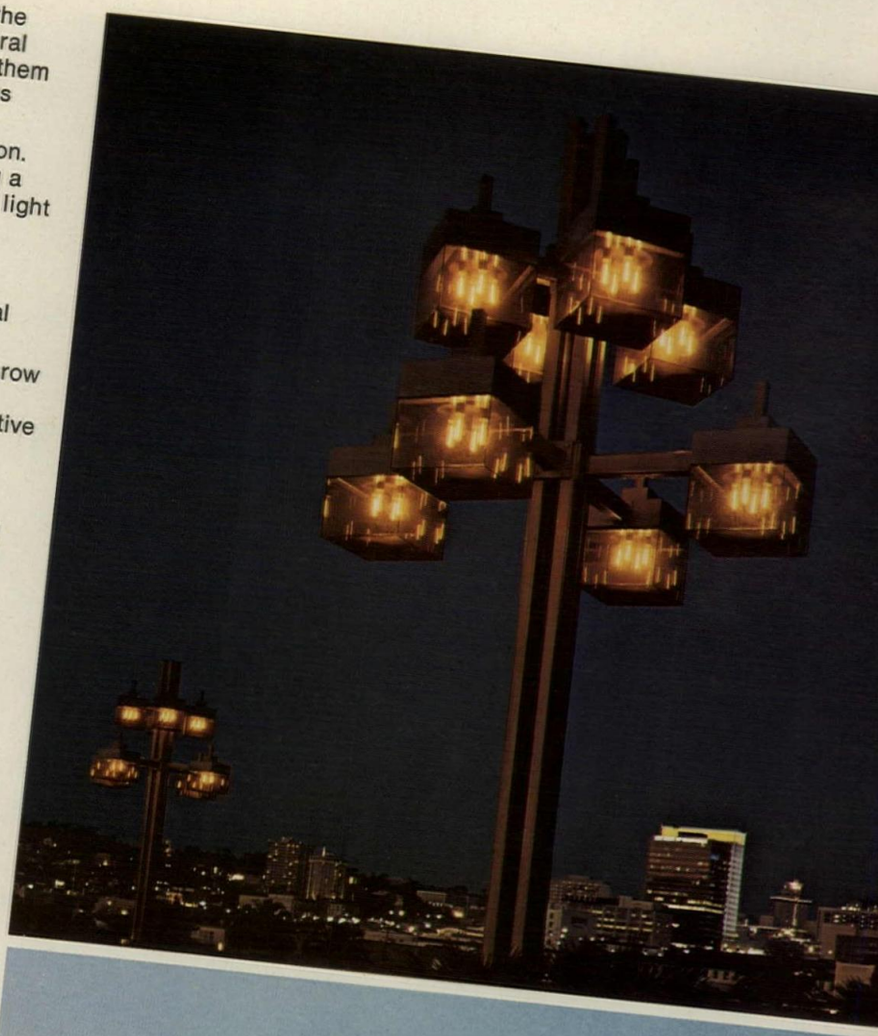

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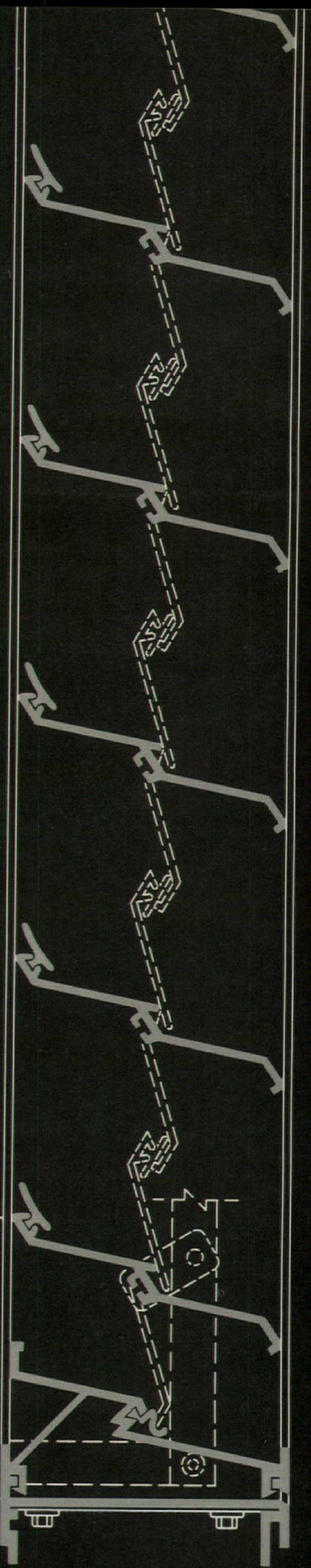

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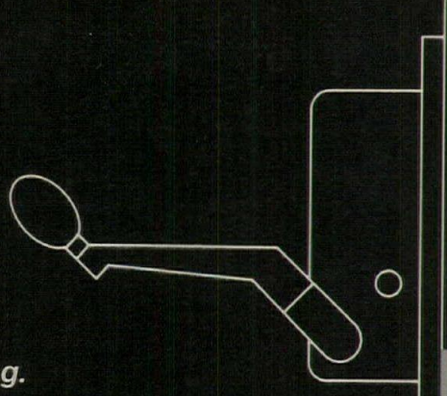

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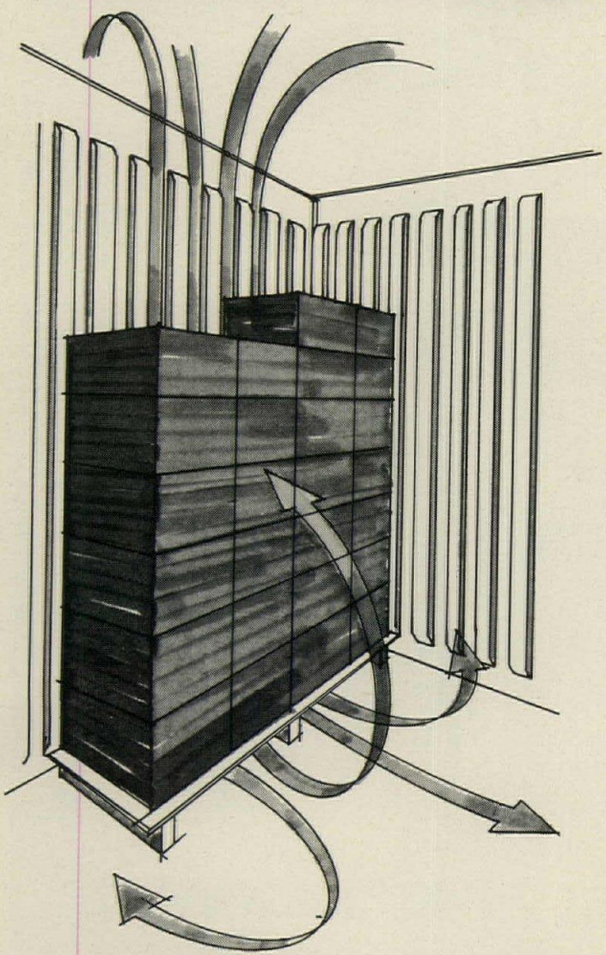

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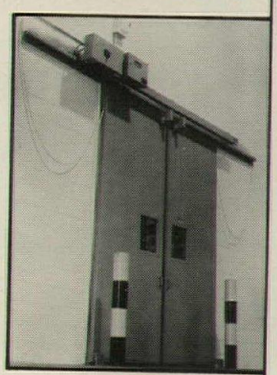

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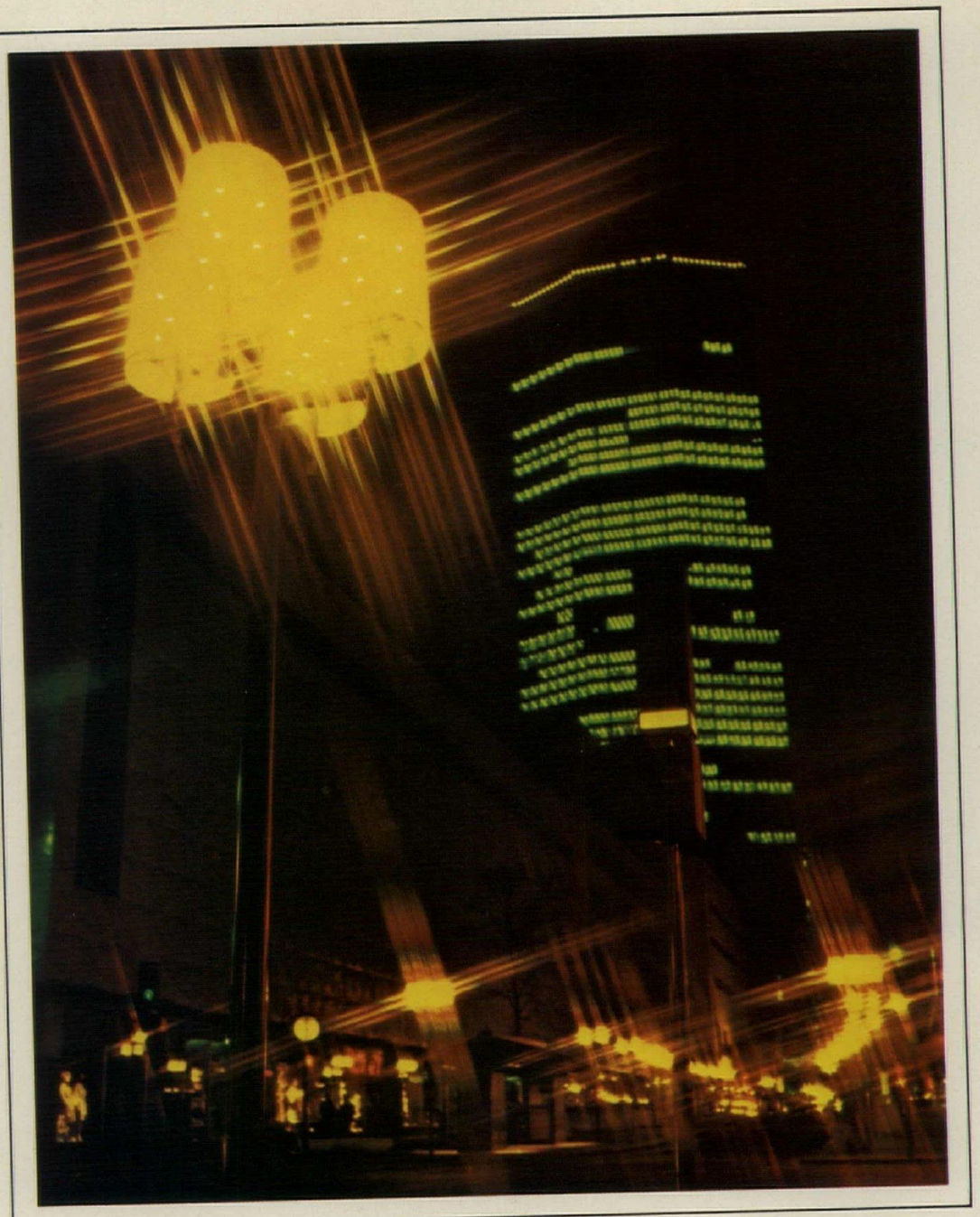

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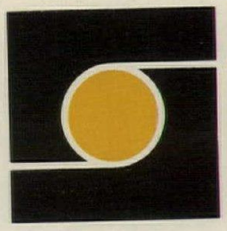

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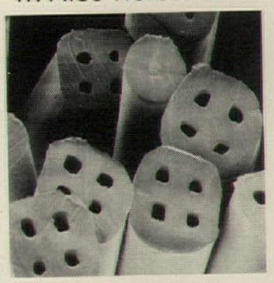

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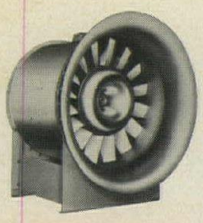

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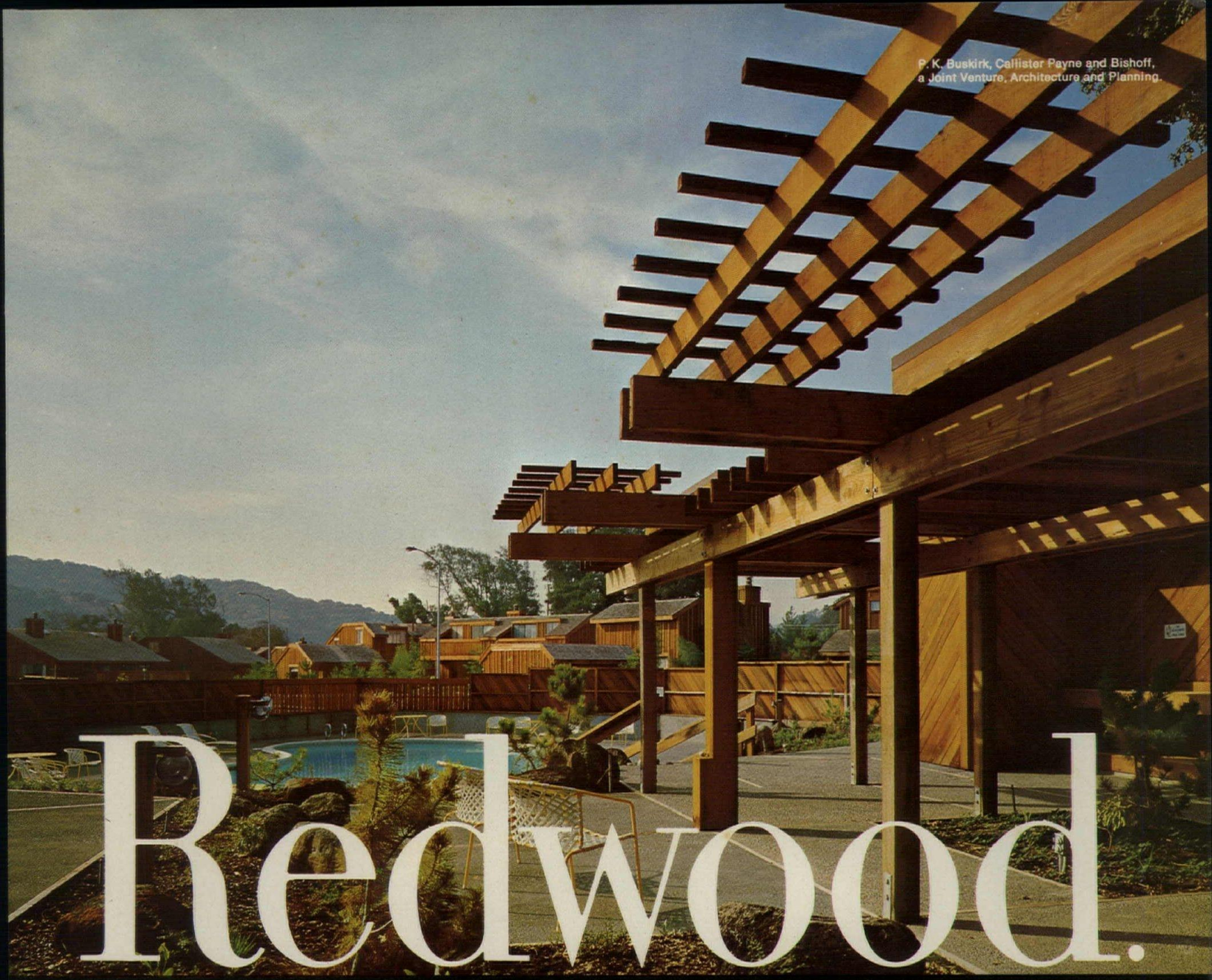

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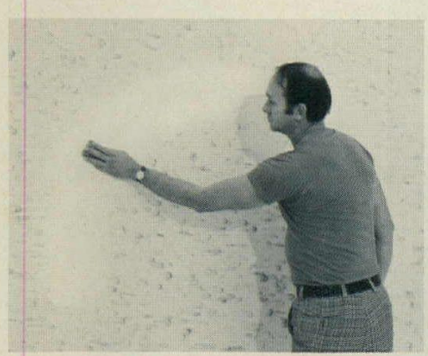

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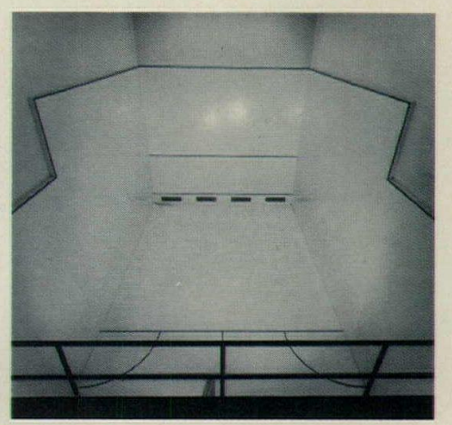

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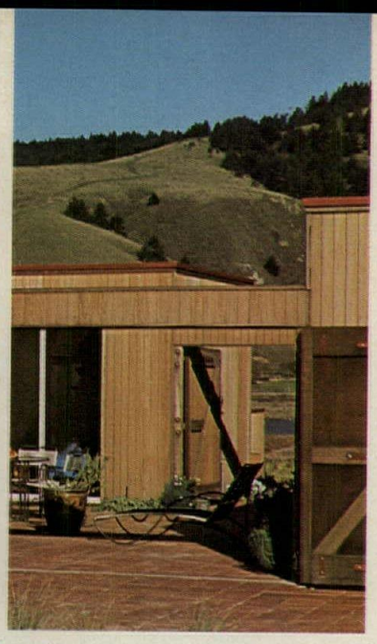

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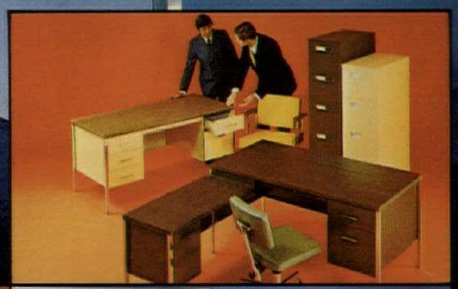

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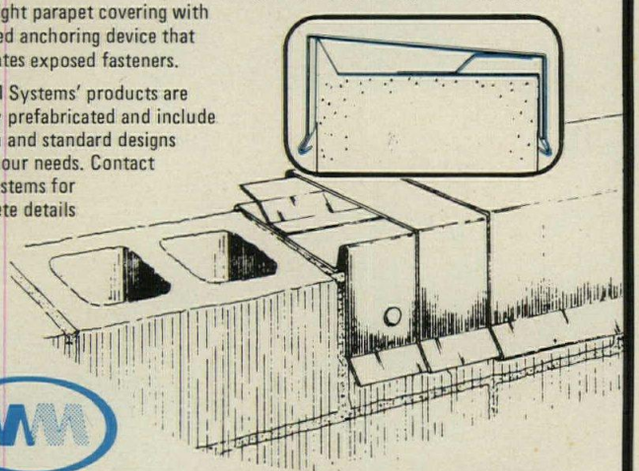

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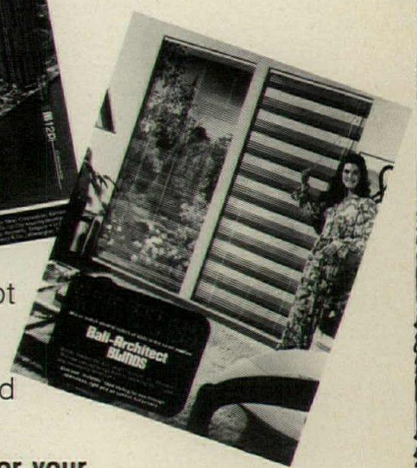
Copy of Sweet's insert (Architectural, Interior Design files) fully detailed



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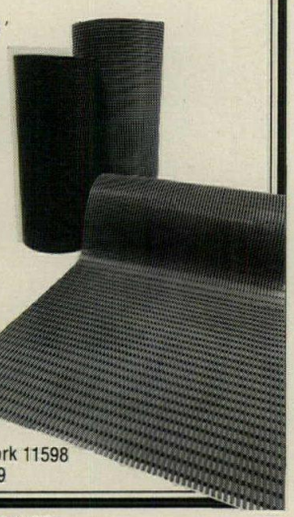

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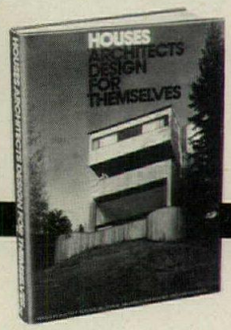

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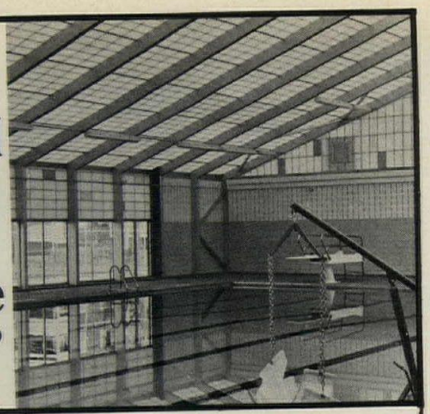

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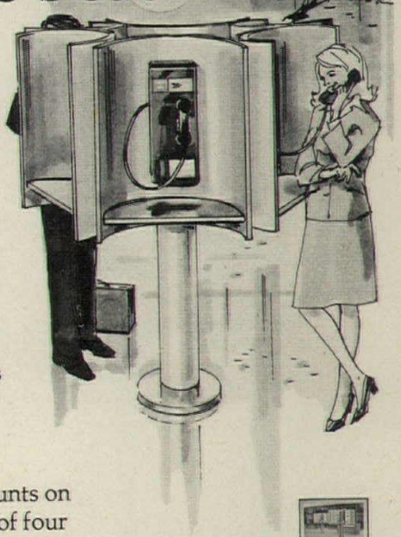

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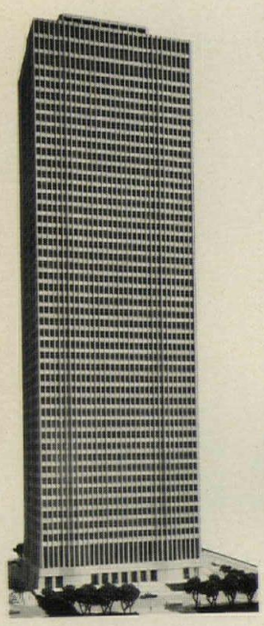

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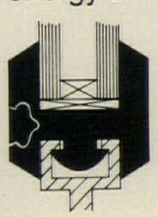

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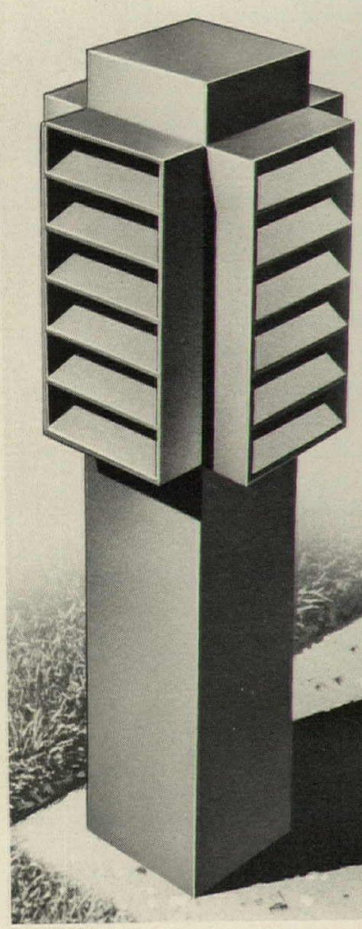

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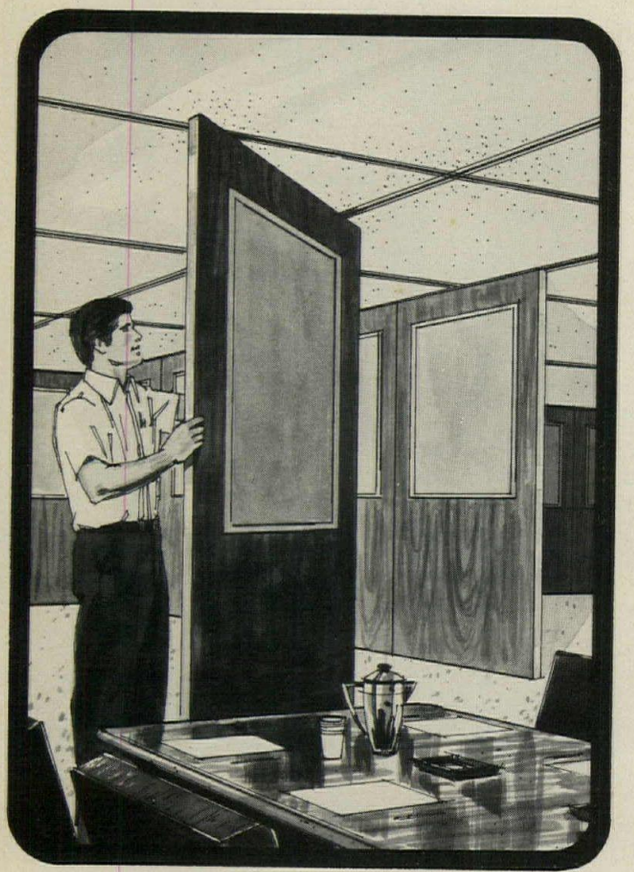

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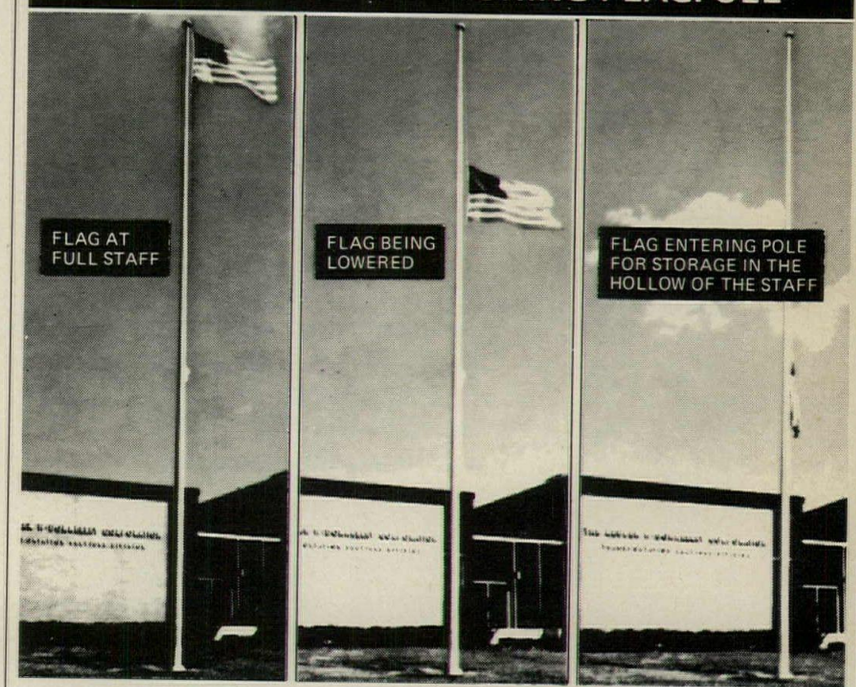

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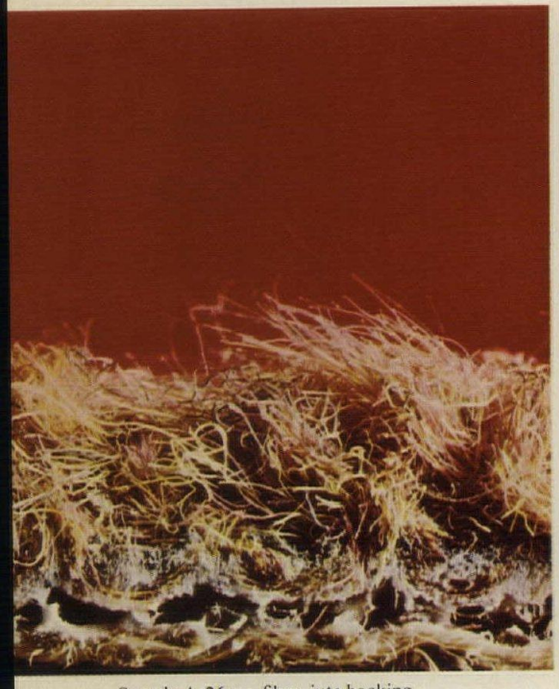
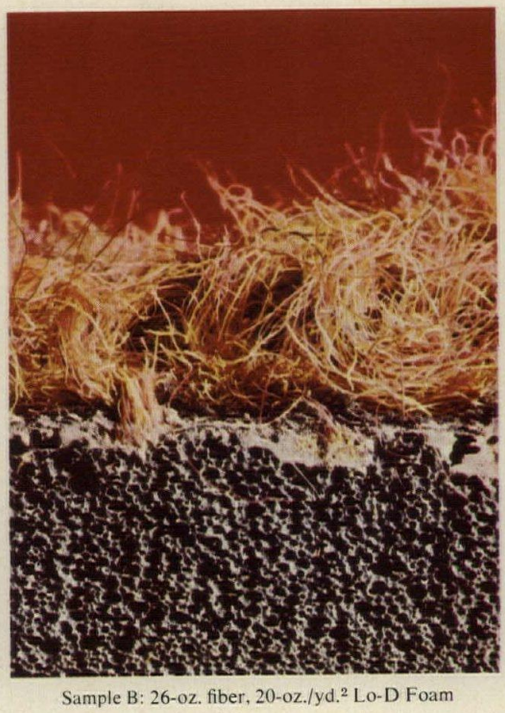


Sample A: 26-oz. fiber, jute backing



Sample B: 26-oz. fiber, 20-oz./yd.² Lo-D Foam

Sample C: 26-oz. fiber, 38-oz./yd.² Hi-D Foam

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OFFICE NOTES

New offices, office changes

Robert H. Levine, architect and planner has opened his new office at 3 Brentwood Avenue, White Plains, N.Y.

Karlsberger and Associates, Architects Inc. have moved to new offices at 180 East Broad Street, Columbus, Ohio.

The Alameda office of Goetz, Hallenbeck & Goetze have announced the change of their name to **Hallenbeck, Chamorro & Lin,** located at Mariner Square, 2415 Webster Street, Alameda, Calif.

Edwin O. Meyer, Jr., ASID, and John L. Jacobsen, ASID have formed **Interior Associates, Inc.,** with offices in Brookfield, Richmond, Va.

Kirby L. Estes has opened his office for the practice of architecture at 32 East Center Street, Suite 222, Fayetteville, Ark.

G. Kent Hawks/Architect has announced the relocation of his office to 99 Lafayette Avenue, White Plains, N.Y.

Arnott MacPhail Johnstone & Associates Ltd. have moved to new offices at 2275 Albert Street, Regina, Saskatchewan S4P 2V5, Canada.

Henningson, Durham & Richardson, Omaha-based architectural-engineering firm, have formed a new affiliate in New Orleans, La., specializing in the design of criminal corrections facilities. Sidney J. Folse has been named president of the new affiliate, **Folse/Henningson, Durham & Richardson.**

Matthew Goodwin AIA, Leon Ruderman and John Kilbane have formed the architectural/planning office of **Goodwin/Ruderman/Kilbane,** 1801 Avenue of the Stars, Suite 404, Century City, Los Angeles, Calif.

Theodore Kessler, Architect has announced the opening of his office for the practice of architecture/planning/interiors at 481 Park Avenue, Leonia, N.J.

New partners, associates

Harutun Vaporciyan, AIA, has joined Giffels Associates, Inc., as the assistant director of architecture.

Charles Hyun, AIA, has been appointed director of design for Haines Lundberg & Waehler.

William S. Wittkamper has been named a partner of the firm of Richmond Manhoff Marsh, Inc., a Chicago space planning/interior design firm.

Bernard Johnson Incorporated, engineers, architects, planners of Houston, have announced the promotion of **James A. Saylors** to vice president.

Ellery H. Davis, president of Davis Fenton Strange Darling, Lincoln, Neb., has been elected to a newly created position of chairman of the board.

Erratum

In Herbert McLaughlin's essay "Density: The architect's urban choices and attitudes" (RECORD, February, 1976) the first figure in column "b" on page 95 was, because of a typographical error, printed as .6. The correct figure is 1.6.

ADVERTISING INDEX

Prefiled catalogs of the manufacturers listed below are available in the 1976 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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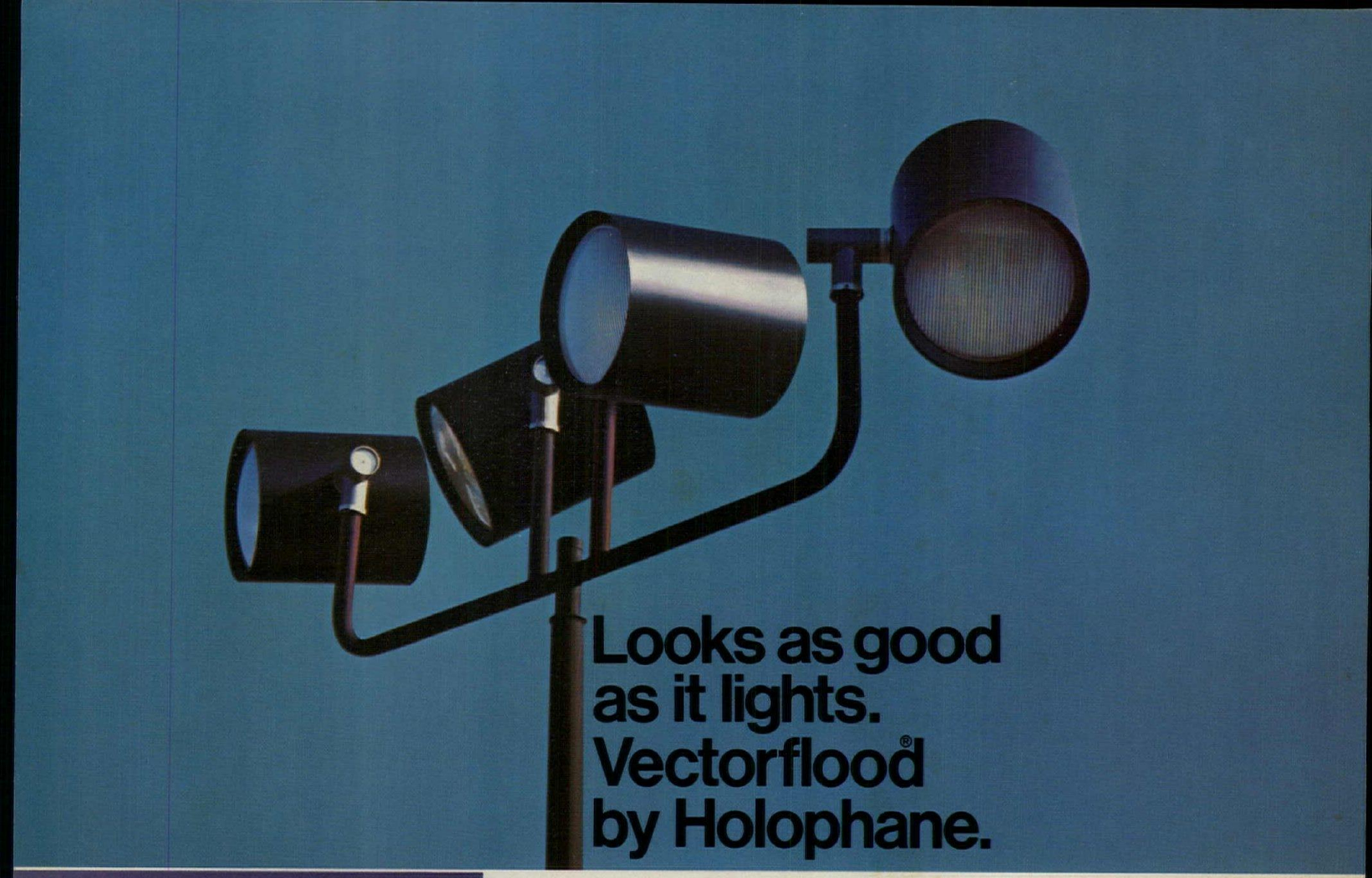
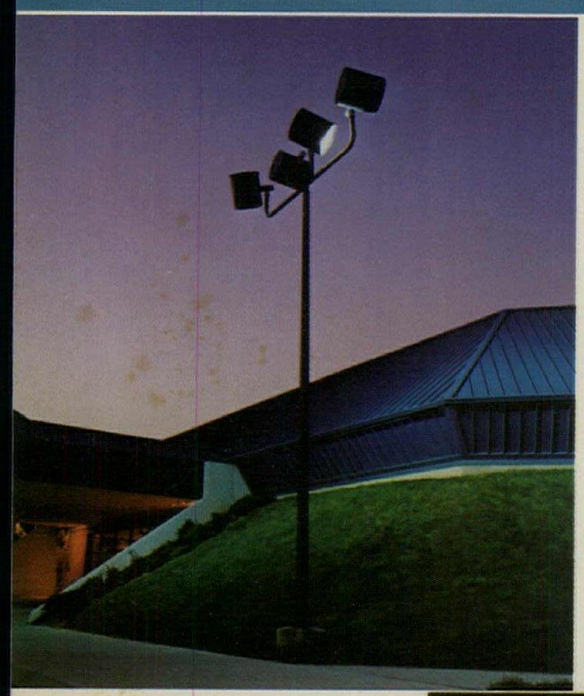
Paris
17, rue Georges Bizet, 75 Paris 16e, France

Tokyo
2-5, 3-chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan



Looks as good as it lights. Vectorflood® by Holophane.



Now there's a floodlight system you can use as an integral design element, with both clean architectural styling and outstanding performance. Vectorflood by Holophane.

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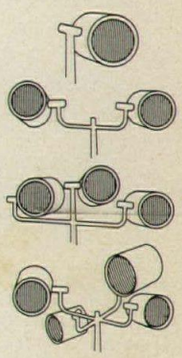
Let Vectorflood challenge your imagination. Find out how from your local Holophane sales engineer. Or write Holophane, Dept. AR–3 Greenwood Plaza, Denver, Colorado 80217.



Design with cylinders: singles, doubles, triples, or quads.

Johns-Manville JM

For more data, circle 134 on inquiry card

CREDITS

The Front Row Theatre,
Highland Heights, Ohio

Architect:
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Structural Engineer:
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Electrical Engineer:
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Electrical Contractor:
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All firms located in
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