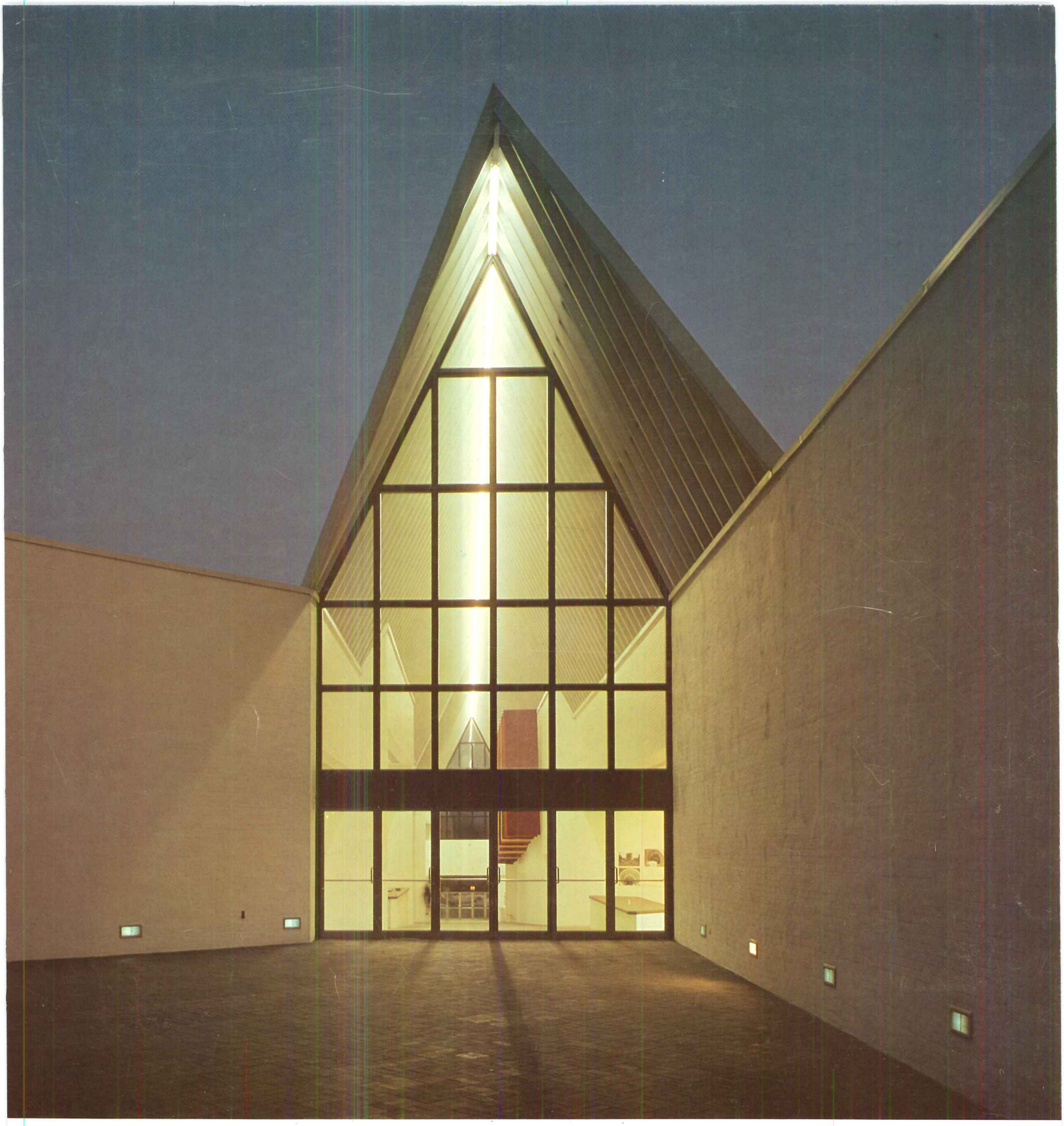


FINE ARTS CENTER, MUHLENBERG COLLEGE, BY JOHNSON/BURGEE, & WALLACE & WATSON

A PORTFOLIO OF RESIDENTIAL ADDITIONS
TWO OFFICE BUILDINGS CRAFTED TO THEIR SITES
"POSSIBILITIES IN ARCHITECTURE," BY ROBERT GEDDES
BUILDING TYPES STUDY: COLLEGE BUILDINGS
FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

NOVEMBER 1977 **11** A McGRAW-HILL PUBLICATION FIVE DOLLARS PER COPY


ROAD DESIGN MANUAL
BRIDGE DESIGN MANUAL

Why one of the big savers in this energy-saving building is an Armstrong Ceiling System.

The Gannett West building, shown here, was specifically designed to conserve maximum amounts of energy and provide spatial flexibility. It was completed early in 1976 as part of The Farley Gannett Engineering Center, headquarters complex of the Harrisburg, Pa., engineering firm of Gannett Fleming Corddry and Carpenter, Inc.

Gannett West is about four times more energy efficient than the company's Gannett East building, which was completed in 1968 when emphasis was on initial capital costs. With the new building's design emphasis shifted to life-cycle costing, the result was an average consumption of only 63,250 BTU per square foot during the first year of operation versus 242,905 for the older structure.

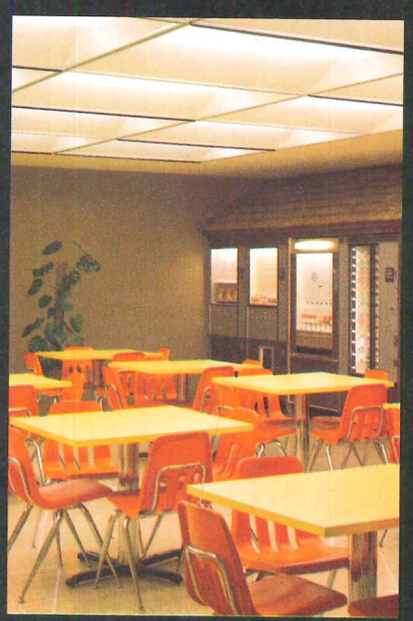
Everything that went into the new building was dictated by energy-reduction considerations—its shape, its placement relative to the sun, its window design, its construction materials, its mechanical equipment. And, of course, its lighting.

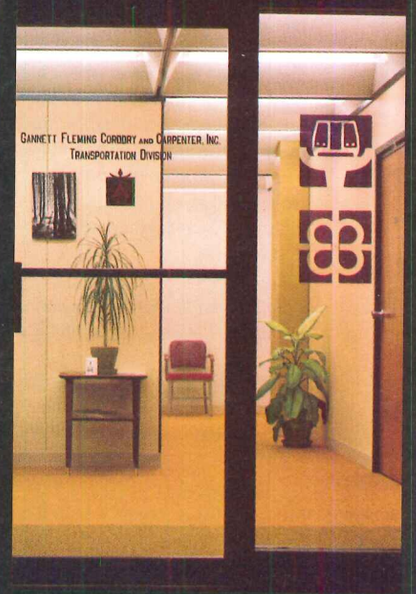
That's why the architect and engineers specified the C-Series Luminaire Ceiling System from Armstrong. This system's 60″-square vaulted module and tandem-wired single-tube lighting fixture produce virtually glare-free high-quality lighting with a building-wide energy consumption average of only 2.0 watts per square foot. They also provide interior design flexibility, high acoustical absorption, and the cost benefits of through wiring.

Air supply in the integrated system is through a bar concealed in the grid. Air return is through the fixture body to increase illumination levels and service life by cooling ballasts and lamps.

When you want a ceiling system that can reduce the need for energy, provide superior quality lighting, and allow optimum spatial flexibility, the name to remember is Armstrong. To learn more, write Armstrong, 4208 Rock Street, Lancaster, Pa. 17604.

Architects and Engineers: Lacy, Atherton and Davis, Harrisburg, Pa.
Engineers: Gannett Fleming Corddry and Carpenter, Inc., Harrisburg, Pa.





FROM THE ® INDOOR WORLD® OF Armstrong

For more data, circle 1 on inquiry card

Your interpretation of the Institute's posture on the license renewal/recertification issue and the action of the AIA Board of Directors and convention delegates (editorial, August 1977) could not be more inaccurate.

Clearly, the issue is a controversial one, and was hotly debated at the convention. You quoted language from the two resolutions which were in general opposition to the concept of mandatory continuing education, but you failed to mention that both were soundly defeated by the convention delegates.

At its pre-convention meeting, the Board of Directors approved this resolution: "That the Board of Directors approves the following policy which shall be the basis of the Institute's further development of the response to the license renewal/recertification issue:

- Establish proposed conditions for AIA membership on the basis of the Institute Professional Development Measuring System; and
- Support conditions for license renewal on the basis of the Institute's Professional Development Measuring System."

The AIA Convention delegates then approved a resolution which "affirms the action of the AIA Board of Directors. . . ."

The Institute, with the support of the membership, is moving forward aggressively to implement these positive resolutions. By going beyond license renewal with its minimum standards, and supporting the establishment of professional development requirements for membership, the Institute is demonstrating its commitment to serve and protect the public through professional standards which are higher and broader than minimum public standards.

For some time, the Institute has provided the leadership in addressing the license renewal/recertification issue:

In January 1976, a special task force was created to prepare the way for an appropriate Institute policy and program.

In September 1976, the Board enthusiastically approved a voluntary test of the Professional Development Measuring System (PDMS), created by the task force as a tool for self-evaluation by all architects, and as an effective, central element of any license renewal program. As its name implies, the PDMS is a mechanism by which professional development activity may be recorded, quantified, compared and assessed.

In March 1977, the Board committed itself to the establishment of a final position on license renewal/recertification, and of course, final action was taken this past June.

You incorrectly implied that AIA has not talked about the PDMS in public. The *AIA Journal* carried a full story and description of the PDMS as early as November 1976. The system has been described by AIA officials in countless public and professional settings. Well over 1,000 copies of the descriptive report on the PDMS have been sent to every corner of the land. And the system is being tested on a voluntary basis this year, in selected states.

In a number of states in which there has been active discussion of the license renewal issue, leaders of the profession and the registration boards, often in cooperation, have supported the basic objectives of the Professional Development Measuring System as satisfying their individual state needs in a productive, positive fashion.

The NCARB considers that its ADVP is more measurable than the PDMS—that testing provides the necessary element of verification. . . .[But] the NCARB system, with its unmonitored open-book testing, is open to possible abuse. Therefore, measurement or verification, other than in a strictly quantitative sense, cannot be seriously considered an advantage in the NCARB system.

It is a fact that neither a continuing education/professional development system nor a reading/testing system will provide an accurate measure of the continued competence of architects.

The AIA's PDMS, now being tested and subject to adjustment, is flexible—allowing for a range of professional development formats (which might include monographs and correspondence courses, accessible to architects in remote locations) and compensating for the different learning styles of individual architects.

The PDMS also allows for a greater production of meaningful course offerings by a variety of producers, including AIA, the schools of architecture, and others. AIA has never assumed it would be the sole producer, nor even a principal producer, on a continuing basis.

Most important, the PDMS serves to encourage the continued professional development and competence of architects through its focus on continuing education/professional development. This satisfies the purpose of license renewal legislation and the public interest better than tests of reading comprehension, which do not contribute as well to the establishment of good habits of lifelong learning.

The Institute is moving forward with the tests of its PDMS and the development of related materials, resources and procedures, while still seeking the involvement of NCARB as vital to preserving reciprocity.

John M. McGinty, FAIA President,
American Institute of Architects

Calendar

NOVEMBER

11-17 National Association of Realtors 70th annual convention, Miami Beach. Contact: Hal Schwartz, Media Director, National News Media Relations, 430 N. Michigan Ave., Chicago, Ill. 60611

14-15 Conference, "Lighting for Energy Consultants," sponsored by the General Electric Lighting Institute; Cleveland. Contact: J. H. Jensen, Manager, GE Lighting Institute, Nela Park, Cleveland, Ohio 44112.

14-18 Acoustical Modeling Workshop IV, sponsored by the Massachusetts Institute of Technology; Cambridge, Mass. Contact: M. Toscano, Acoustical Modeling Workshop IV, Rm. 3-366, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

16-25 The International Building and Construction Exhibition, "Interbuild," to be held in Britain's National Exhibition Center, Birmingham.

21-25 The Second International Conference of the Council on Tall Buildings and Urban Habitat, "2001: Urban Space for Life and Work," sponsored by UNESCO; Paris, France. Contact: Dr. L. S. Beedle, Director, Council on Tall Buildings and Urban Habitat, Fritz Engineering Laboratory #13, Lehigh University, Bethlehem, Pa. 18015.

22-December 10 Exhibit of finalists in design competition, "A Playground for All Children," sponsored by the City of New York; Cooper Union, New York.

30-December 2 Symposium, "Landscape," sponsored by the Office "Landscape" Users Group; Shoreham Hotel, Washington, D.C. Contact: Frank J. Carberry, Managing Director, Office "Landscape" Users Group, Box 11182, Philadelphia, Pa. 19136.

DECEMBER

5-7 Conference, "Strategies for Rural Action," comprising The Third National Conference on Rural America, the Third National Rural Housing Conference, and the National Rural Health Conference, sponsored by Rural America and co-sponsored by the Housing Assistance Council; Shoreham Americana Hotel, Washington, D.C. Contact: Rural America, 1346 Connecticut Ave., N.W., Washington, D.C. 20036.

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

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Quotations on reprints of articles available. Every possible effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 1221 Avenue of the Americas, New York, N.Y. 10020. Other Editorial Offices: 425 Battery Street, San Francisco, Cal. 94111.

PUBLICATION OFFICE: 1221 Avenue of the Americas, New York, New York 10020. Second-class postage paid at New York, New York 10001 and at additional mailing offices.

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THIS ISSUE is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western Section 36-1 through 32.2. POSTMASTER. PLEASE SEND FORM 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.

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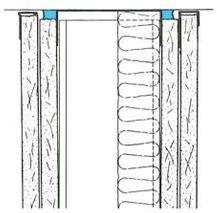

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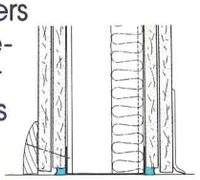

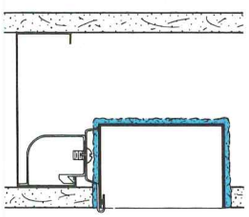

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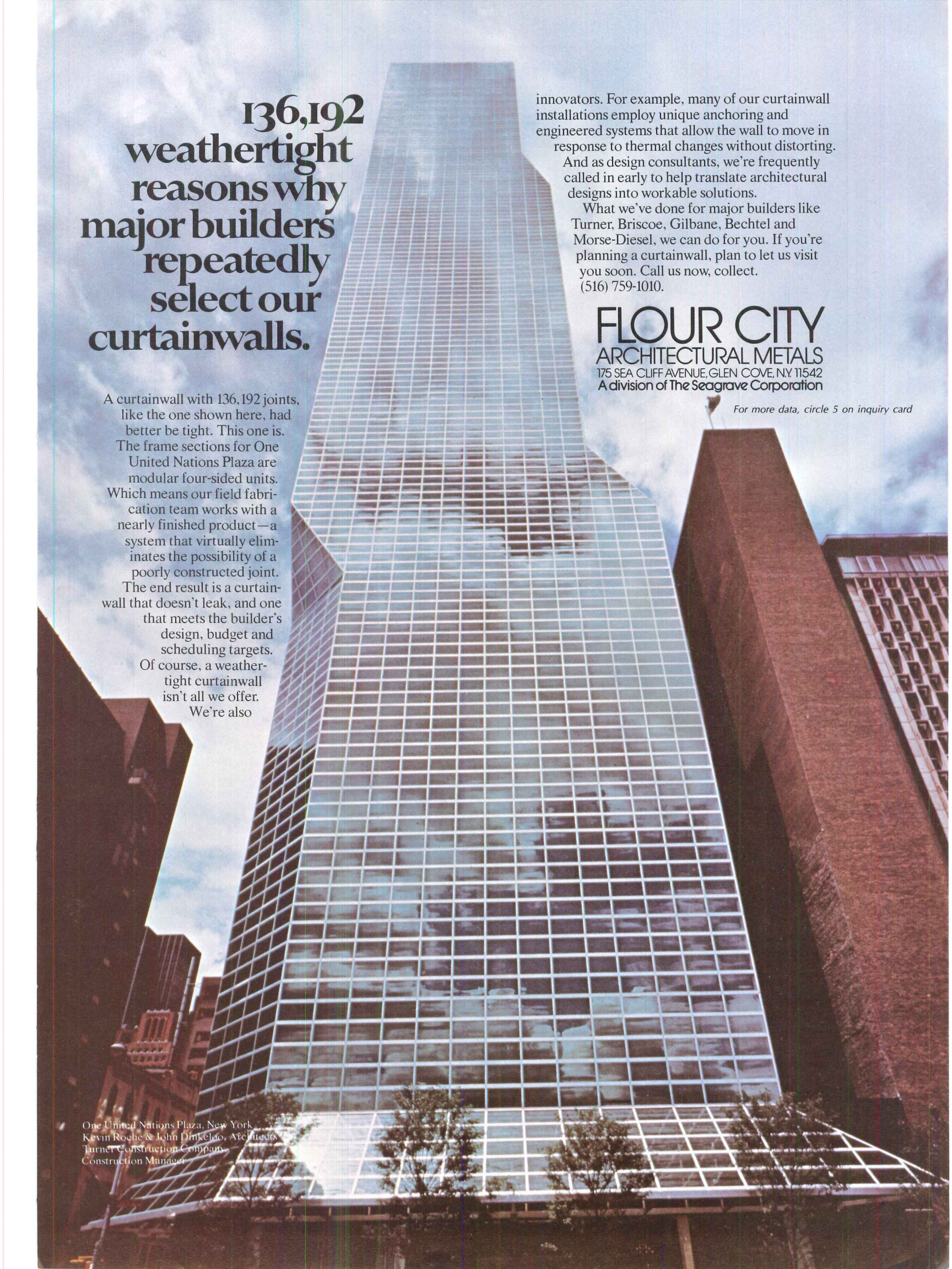

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One United Nations Plaza, New York
Kevin Roche & John Dinkeloo, Architects
Turner Construction Company,
Construction Manager

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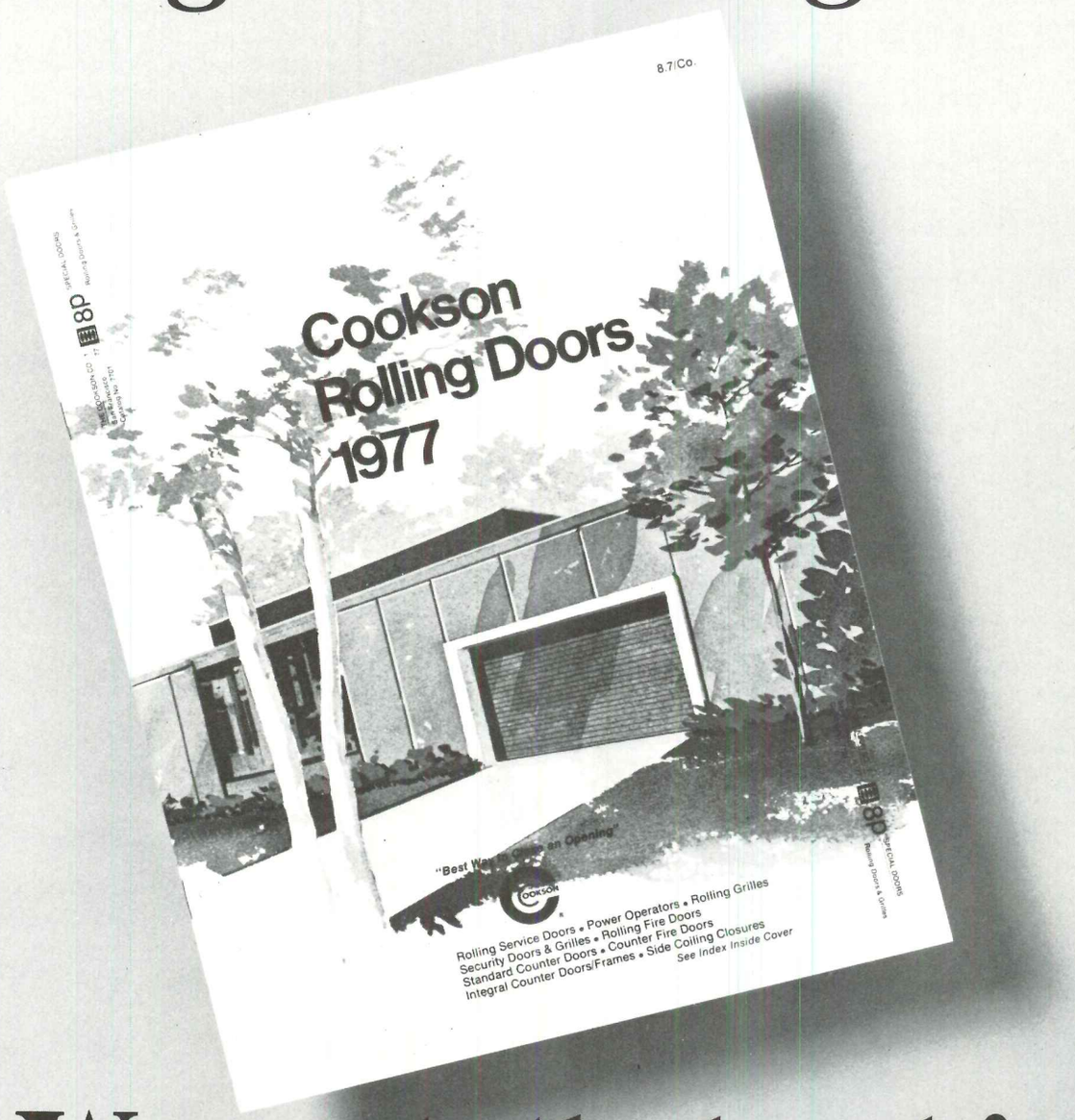

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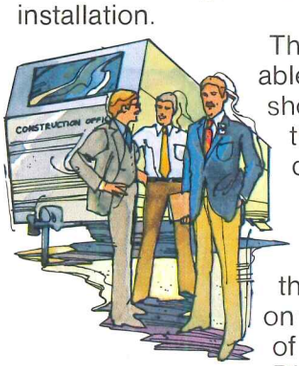

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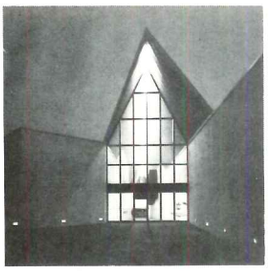

Fine Arts Center, Muhlenberg College
Allentown, Pennsylvania
Architects: Johnson/Burgee architects &
Wallace & Watson, associates
Photographer: Richard Payne

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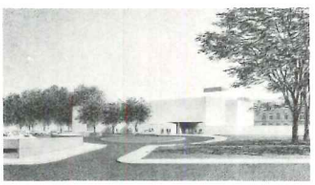

ARCHITECTURAL BUSINESS

FEATURES

BUILDING TYPES STUDY

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study:
The Case for Good Design In Today's Marketplace:
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Two messages from AIA President McGinty

The first message was in the form of a letter in response to my August 1977 editorial on recertification—a letter which troubled me a lot because Jack began by writing that "Your interpretation of the Institute's posture on the license renewal/recertification issue and the action of the AIA Board of Directors and convention delegates could not be more inaccurate." Now you have to know that ". . . could not be more inaccurate" has to be any editor's least favorite combination of words. Especially on so important an issue as recertification, and coming from as informed a man as Jack McGinty. So three responses herewith:

1. I would confess to not having understood how far along AIA was in developing a system for continuing education. After describing briefly NCARB's proposed Architect Development Vertification Program, I wrote that "AIA, while it hasn't talked about it in public, does have an alternate system in draft form." Jack's letter makes clear that AIA has been working on its Professional Development Measuring Program since January 1976, has discussed it at many professional meetings, and has a test of the system underway in several states.

2. Because of the importance of this issue (especially with the pressure on in several states for mandatory continuing education and recertification), most of Jack's letter is reproduced on the Letters page of this issue (page 2). It is a thorough analysis of AIA's proposal for meeting the possible threat of mandatory recertification in more states, and the AIA's disagreements with the developing NCARB proposal. Importantly. .

3. As Jack points out in his letter, "It is a fact that neither a continuing education/professional development system [the AIA's proposal] nor a reading/testing system [NCARB's proposal] will provide an accurate measure of the continued competence of architects." Further, it is surely true that any responsible architect undertakes continuing education on his own, as he feels the need. Thus, many architects (like other professionals) are opposed to the concept of *mandatory* education and/or recertification. But the truth remains that some state legislatures, prodded by the "consumer movement" and some kind of general distrust of professionalism, are moving in that direction. AIA's position is that *in the event* such requirements proliferate in the states, it wants to have in position a high-quality program of continuing education; its own "commitment to serve and protect the public through professional standards that are higher and broader than minimum public standards."

The question remains whether the states will buy that approach—or instead insist on a testing system approved at the state level. Thus:

4. To remake the point of my earlier editorial, I think it's awfully important for those involved with this problem in AIA and NCARB alike to continue to try and find the common ground in their attitudes and techniques and come up with a system that both think is right and both think will meet the demands of the states.

It could even be, that by such effort, the AIA and NCARB might be able to show the state legislatures that *mandatory* continuing education and/or recertification, with or without testing, is really not necessary—that one of the things professionals do because they are professionals and feel a responsibility to the public is to maintain their competence without any help or pressure from anyone. It's worth a try.

The second "message" is in the form of a speech McGinty made to the Producers' Council last month: "In this 'autumn of my year' as AIA president—during which I have spent a great deal of time speaking of and encouraging change in our profession—it might be useful to reflect on the one constant we as architects possess, and think about how it relates to change. That constant, as we all live and breathe, is design. That's our birthmark. It's why we are architects and they are contractors." My favorite excerpts from Jack's speech:

"Design is easy to say and spell, but it's hard to define and even harder to do. Yet we all know it when we see it. . . .

"[When architectural juries meet] it takes about 30 seconds per entry to separate design from non-design. It takes longer to separate good design and bad design (and even longer to write those jury comments!). But good design is instantly perceptible. It's the difference between music and noise.

"Few architects would disagree that design is in a state of flux. There's no official 'school.' There are debates within the profession between the inclusionists and the exclusionists, but the answer does not lie within the intellectual recesses of the profession. Rather it lies within society itself.

"Simply, like art and music, architecture reflects what is happening in society. And society is now in an historic transition. . . .

"As I have said before in speaking of change, there are those who see in change only a threat to their most cherished pre-suppositions and draw the wagons tighter in a defensive posture against the forces of change. And there are those who see in change an opportunity to create new roles in building a better future. . . .

"Most of the important problems of this new society are in our bailiwick—energy, cities, environment. Architecture, simply, is where it's at.

"The architect also has the key. It's design, the great synthesizing instrument. James Fitch called design a 'tool to intervene in man's favor.' Isn't this what we need today? A tool to help humanize the creations of this technical age?"

In concluding his speech, McGinty listed "some new architectural imperatives. . .

"Future design must be energy conscious. . . It must be conscious of limited materials and other resources. . . . It must be concerned as much with how a building fits in a neighborhood as with the building itself. . . In the process of design, the architect should insist on learning whether existing buildings can be recycled, before a client replaces them. . . . In the design process, the architect must listen more to building users. By bridging the gap between the client and the user, the architect can achieve a more personal, humanistic building. . .

We must be open to the changes underway in the profession. Increased specialization and new design approaches are not a threat but a response. We must find a way to stand together as architect while respecting our great diversity. . . . Finally, design must succeed at more than the technological and the spectacular."

Using some of this year's Honor Awards—from great towers to small-scale renovations—Jack made the important point: "These buildings are full of questions, directions, issues, commitments. Above all, I think they are full of optimism.

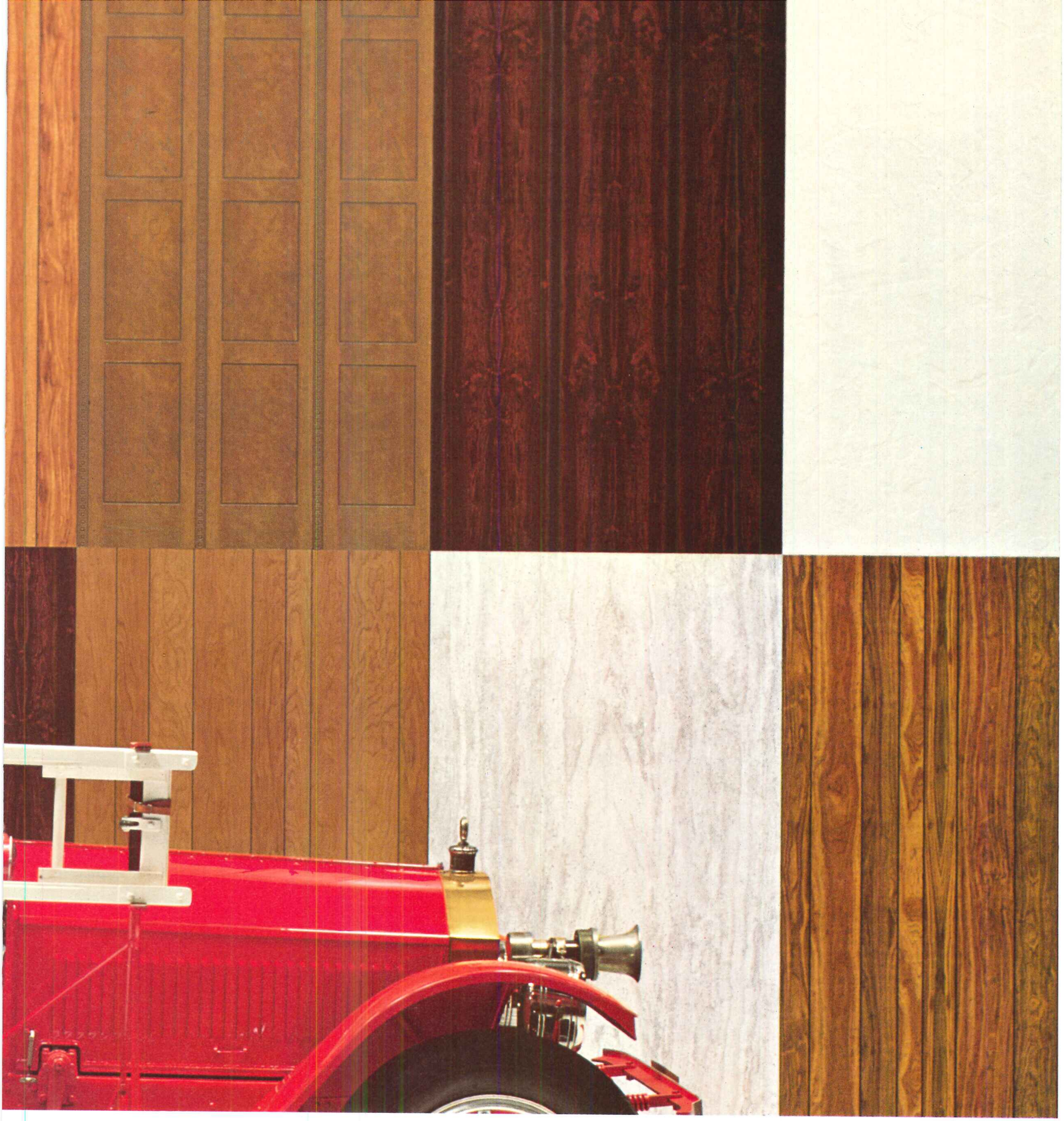
"A future of limited resources . . . should mean a beauty that comes from the natural harmony between the built and natural environment, between man and his natural origins. I believe that the response to this issue alone will be as significant an architectural design determinant as was the industrial revolution."

A thought worth pondering . . . and full of optimism. Which we need more of.

—Walter F. Wagner Jr.

High style has caught up with the code That's the beauty of Masonite

Brand



At last, 25 FSR* paneling with character. Six of our most popular hardboard designs are now available with an exclusive Flame Test™ formulation. Look for this Flame Test mark. You'll get authentic reproductions of rare woods, travertine, and stucco that are durable and economical. Write us for more details about Flame Test paneling. Masonite Corporation, 29 North Wacker Drive, Chicago, Illinois 60606.

flame test™

MASONITE® CORPORATION

For more data, circle 9 on inquiry card

Man-made finish on real Masonite brand hardboard.

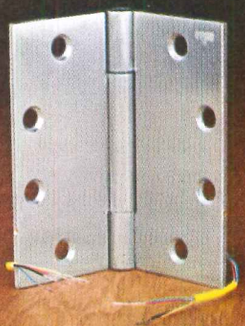
*Underwriters Laboratories Inc.® Classified Mineral and Fiber Board

Fire Hazard Classification (Based on 100 for untreated red oak)	Flame Spread	Fuel Contributed	Smoke Developed
	25	0	0

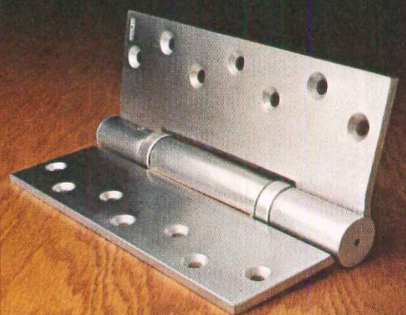
See UL-Classified Building Materials Index.

Your special building needs are met!

Stanley Spring Hinges, the original beauties! Meet building codes, have long life bearings, are adjustable up and down. Now in sizes 3½ x 3½, 4 x 4, 4½ x 4 and 4½ x 4½.



Stanley Electric Hinges have hidden wires and/or concealed switches for use in the most sophisticated security systems.



Stanley's extra heavy hinges swing lead lined doors, prison enclosures, or heavy gates up to 2,000 pounds.

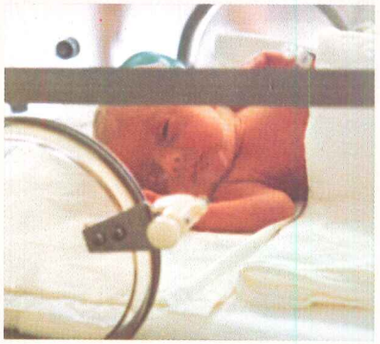
Rely on Stanley for quality hinges that do the unexpected. When you have special needs, call on Stanley for the help and service that make your job easier. Stanley Hardware, Division of The Stanley Works, New Britain, Conn. 06050. In Canada: The Stanley Works of Canada, Ltd.

See our catalog in Sweet's Architectural File.

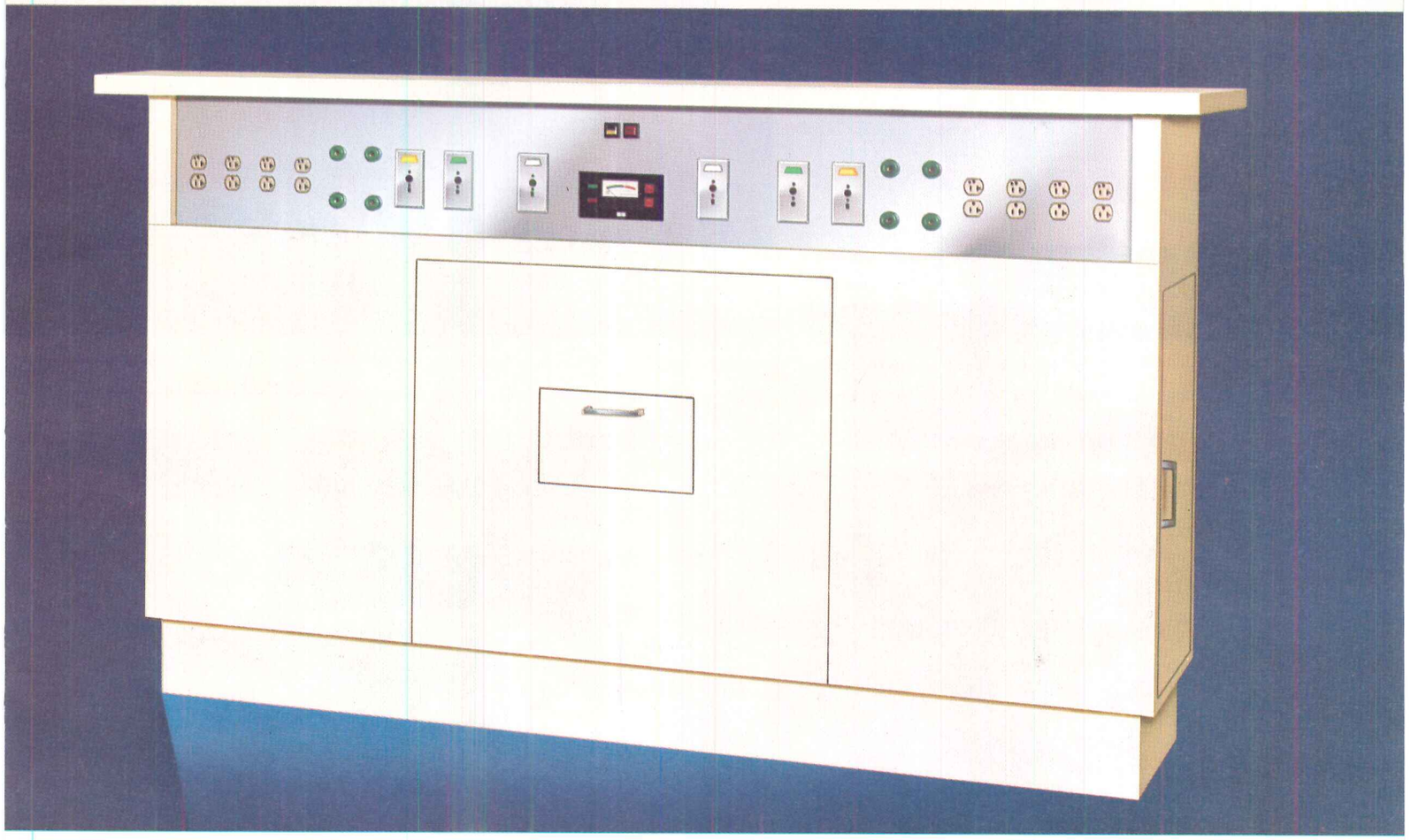
STANLEY®

helps you do things right

For more data, circle 10 on inquiry card



Neonatal intensive care in a single, efficient package



Neonatal modules from Square D Company bring modern efficiency to pediatric intensive care areas. Each module handles up to four isolettes depending on whether it is wall-mounted or freestanding. And modules can be supplied to accommodate any number of isolettes and equipped as necessary to meet the needs of the institution or application involved. All units are constructed to meet UL 1047 requirements.

Square D neonatal modules are available with non-isolated and isolated electrical systems (where required). Medical gas outlets and all manifolding can be provided for easy connection at the site. There's plenty of storage space in each unit for linens, dressings and special instrumentation. And units can be equipped with clocks, timing devices, circuit breaker distribution panelboards with QWIK-GARD® ground fault circuit interrupters and grounding jacks.

Let us show you how Square D neonatal modules can meet your custom requirements. Contact your nearby Square D field office, or write Square D Company, Dept. SA, 3300 Medalist Drive, Oshkosh, WI 54901. (414) 426-1330

SQUARE D COMPANY
Wherever Electricity is Distributed and Controlled

For more data, circle 11 on inquiry card

This simple ceiling helped GTE Sylvania save $40,800 on heating and cooling costs in a year

It's a fact: Inadequate ceiling and roof insulation is a major source of heat loss—*especially in one-story, flat-roof buildings.*

That's why GTE Sylvania Incorporated put one of our Energy Saving Ceilings in a Massachusetts lab.

Result: Comparing similar buildings, 1975 heating and cooling savings totaled $40,800. Savings on equipment needed for air conditioning: $100,000.

A quick payback

First-year energy savings were almost *five and a half times* the added cost of our insulated ceiling.

You can save energy with our Fiberglas* 3" Ceiling Panels. Or Film Faced Ceiling Boards with Sonobatt™ insulation. Both are easy to install on any standard exposed grid system.

Make old ceilings save, too

Just slip our Sonobatt insulation on top of your present ceiling. You'll increase thermal efficiency up to *731* percent, depending on thickness.

Find out how much energy *your* building can save—free. Any Owens-Corning sales office or ceiling contractor will analyze it in-depth using the most economical Energy Saving Ceiling for you. Write Mr. P.W. Meeks, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.

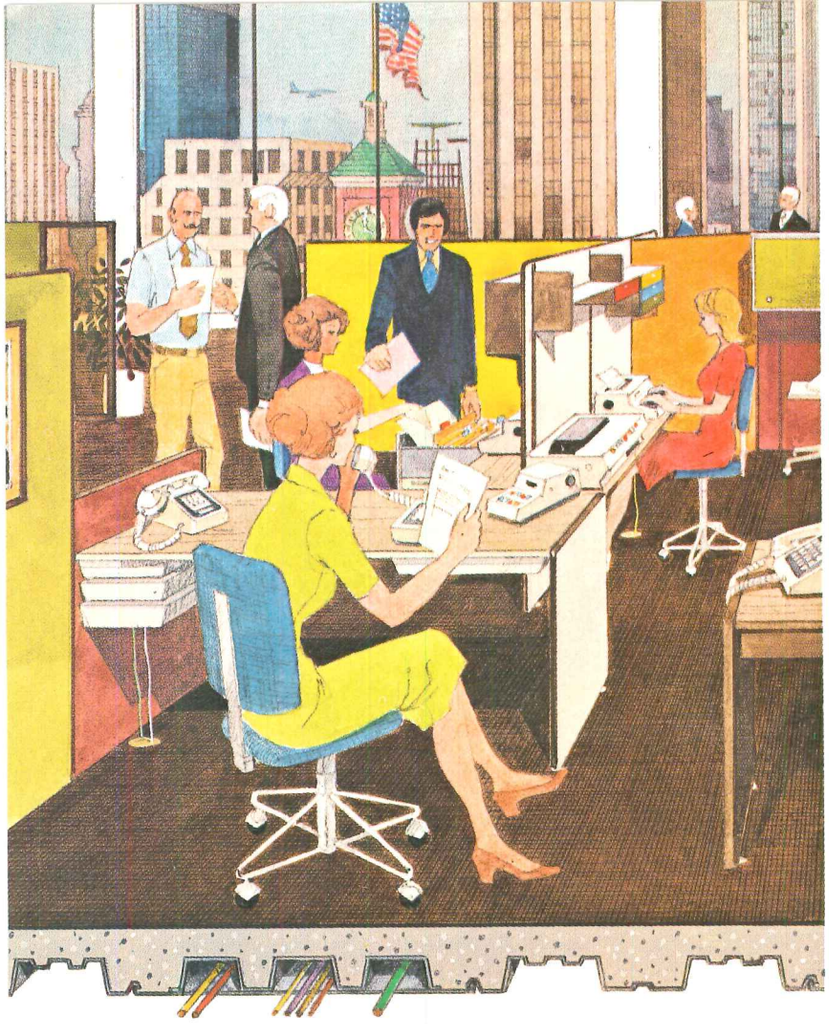
Or call us today. You'll put a ceiling on your energy costs tomorrow.

Owens-Corning is Fiberglas

OWENS/CORNING FIBERGLAS TRADEMARK ®

*T.M. Reg. O.-C.F. © 1977 O.-C.F.

For more data, circle 15 on inquiry card

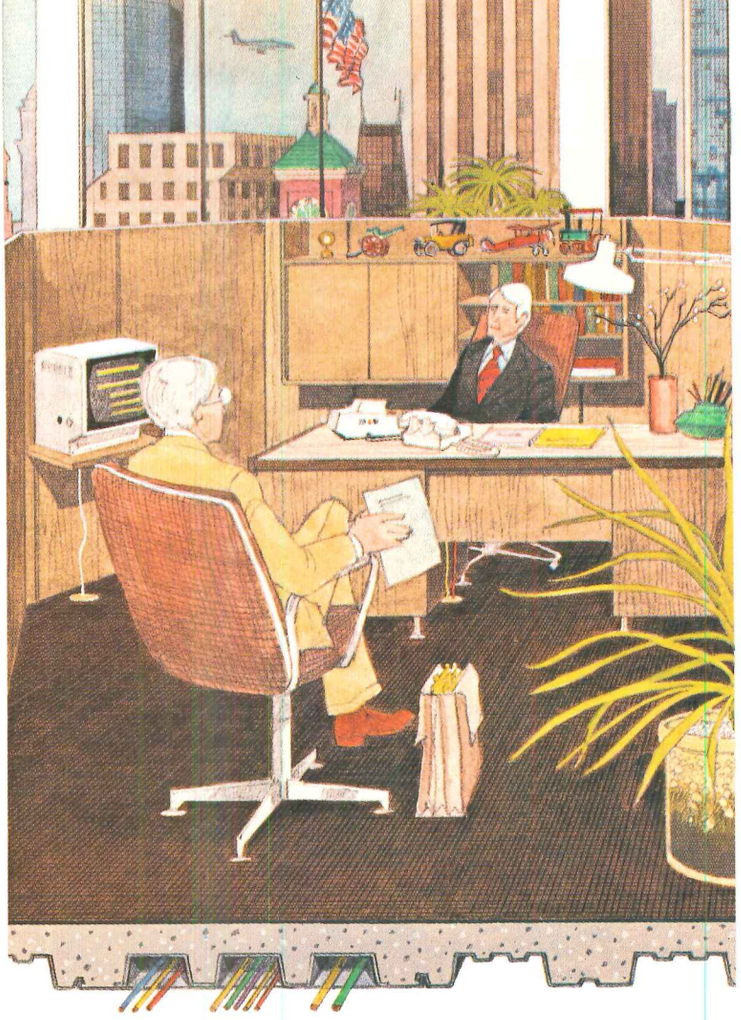


1977

Electrical flexibility, now.

N-R-G-Flor™ saves money right from the start, making available power and communications almost anywhere on an office floor, according to the architect's chosen module. For instance, presets placed on a 5′ x 5′ grid during construction make available 10 potential service locations in every 250 sq. ft. area. And at current costs, these *10 presets* can be placed in the slab for future use at no greater cost than the installation of a *single afterset* outlet. This means total flexibility at the least possible first cost.

Three types of fittings. All service fittings shouldn't look alike. Different functions require different styles: carpet-covered fittings for executive suites, surface access fittings for heavy use areas, and neat, unobtrusive fittings for general office use. Inryco has them all.

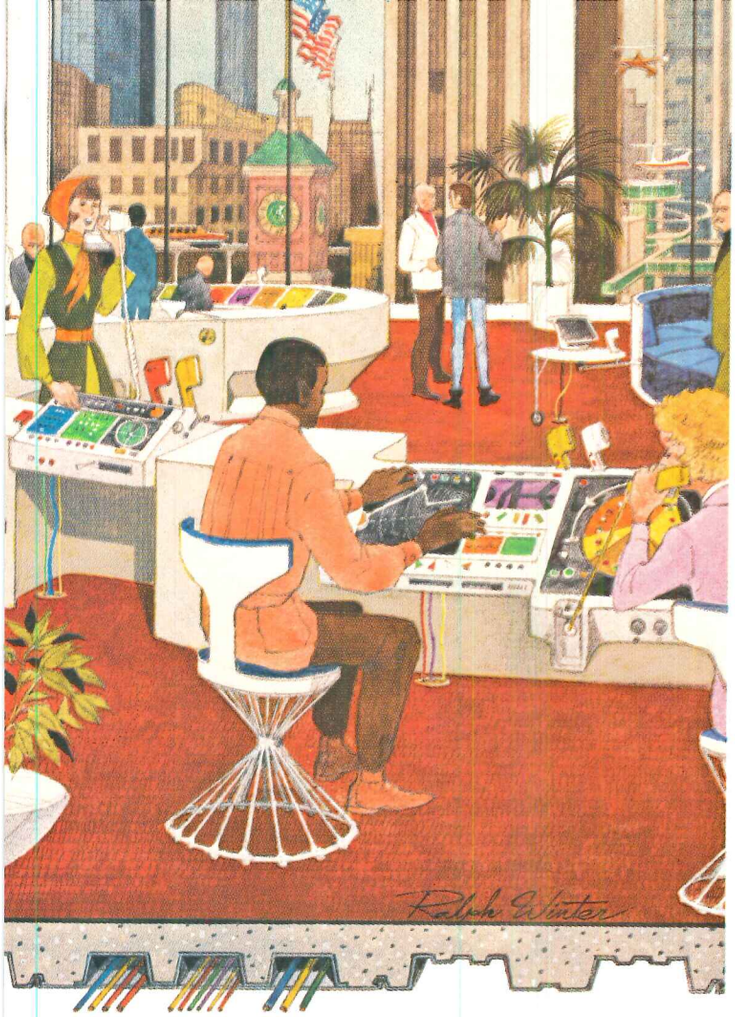


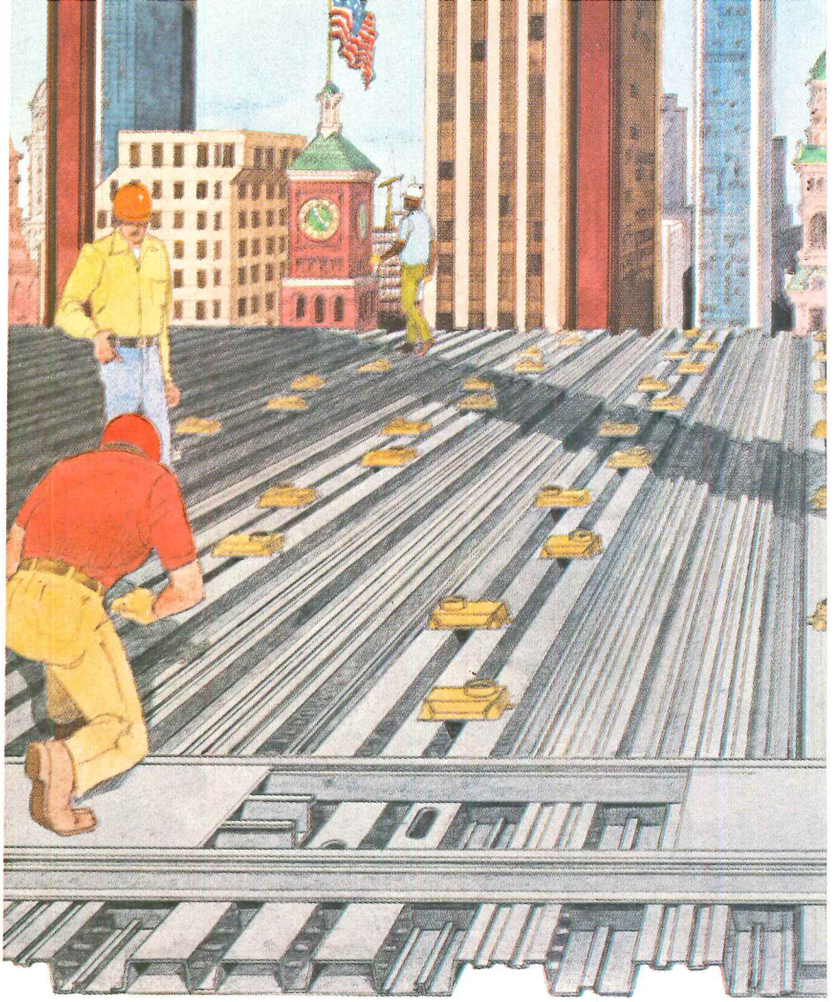
1979

Same office area, new use.

Many office layouts change in as short a time as two years. Sometimes it involves simple changes in work patterns. It might well be a major relocation resulting from departmental changes. Whatever the cause, telephone company statistics say that the average office phone is moved every 10 months.

N-R-G-Flor™ saves with every change. Traditional methods would have required coring and installation of additional aftersets for every new service location—at coring costs up to $70 each for power and communications. N-R-G-Bloc™ presets, on the other hand, initially installed in the slab on a modular grid, are already there—eliminating the need for coring. These direct savings to the owner mount significantly every year in a typical office building.





2002

Still changing, economically:

Organizations are living things. They constantly change their formations and ways of doing things. No one can accurately predict what the average office scene will be in 25 years, but one thing is certain:over that quarter of a century any given office space is going to see change. The average area could undergo dozens of changes in that length of time—some of them major. And every change will involve some revision in supply patterns for power and communications. Based on future escalation, the savings inherent in the N-R-G-Flor system will be many thousands of dollars, estimated conservatively.

We'd like to tell you more. There are many other ways N-R-G-Flor can benefit both owner and designer. For literature and the name of your nearest Inryco Sales Engineer, send the coupon today.

Inryco
an Inland Steel company

For more data, circle 16 on inquiry card

General Office: Melrose Park, Illinois
Formerly Inland-Ryerson Construction Products Company

INRYCO® N-R-G-FLOR™

In-floor electrical distribution.

Power and communications lines are carried through bottomless trench duct across Inryco Celluflor,® and through its cells to N-R-G-Bloc™ preset inserts placed on a predetermined grid module to serve the entire floor area.

Construction Savings. Because they are fire-rated, N-R-G-Bloc presets can save up to 1⅛" of fireproofing compared to untested presets (Full Underwriter's Laboratories test data available). But this is only one of the many savings the N-R-G-Flor system provides in design and construction.

INRYCO, Inc.
4033 W. Burnham St., Dept. L Milwaukee, Wisconsin 53201

Please send me more information on Inryco N-R-G-Flor.

Name_____

Title_____

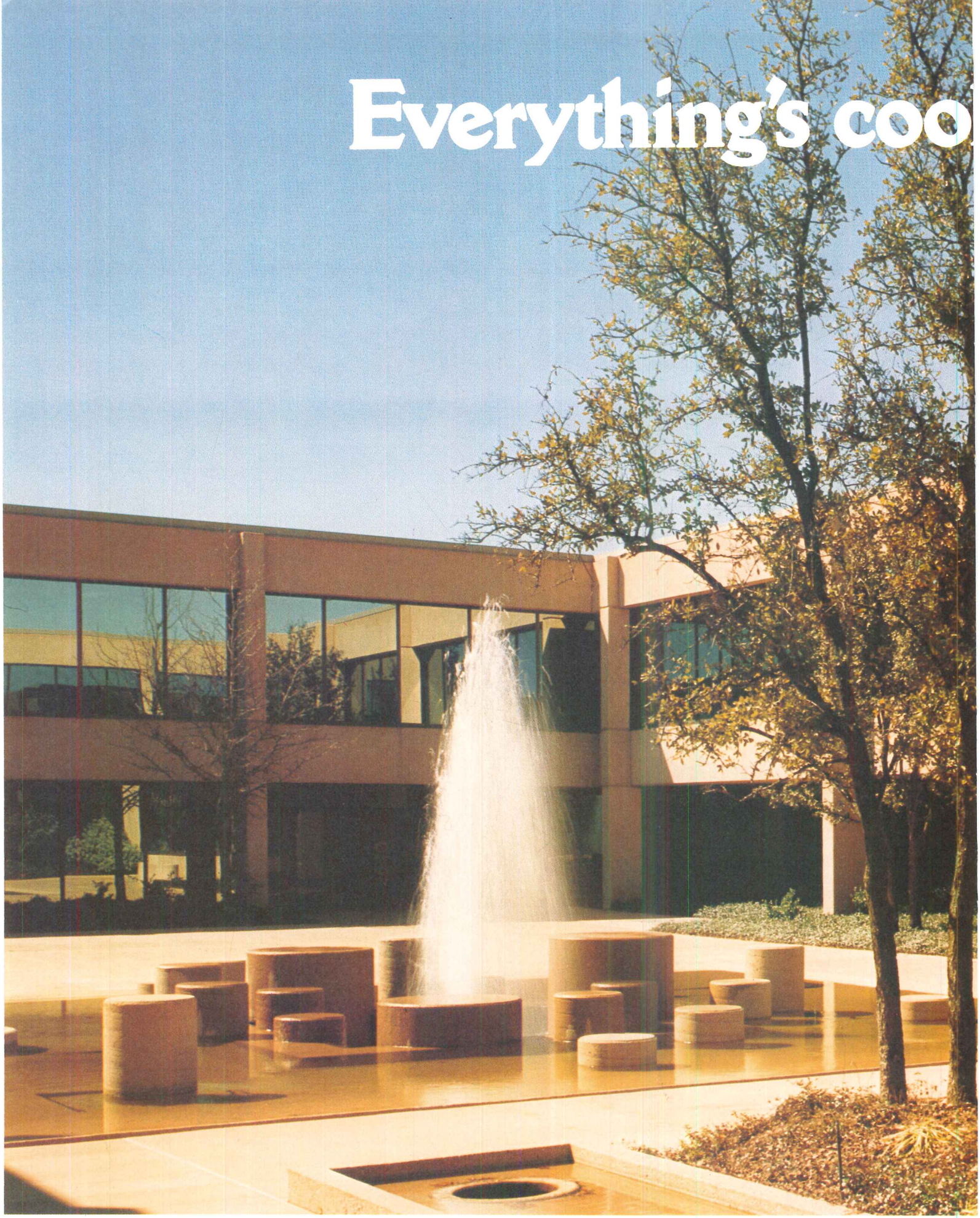
Firm_____

Address_____

City_____ State_____ Zip_____

A7-21-1

Everything's coo



Owner: Vantage Companies, Dallas, Texas/Architect: Ralph Kelman AIA, Dallas, Texas
General Contractor: Hyatt Cheek Builders Engineers, Dallas, Texas
Curtain Wall Manufacturer: Alenco, Division of Redman Building Products, Inc., Bryan, Texas
Curtain Wall & Glazing Contractor: Binswanger Glass Company, Dallas, Texas

at Southgate Plaza.

With a hot summer sun driving temperatures into the 90's, Dallas' Southgate Plaza stays cool and comfortable inside.

One reason is the glass: LOF Vari-Tran® coated glass in Thermopane® insulating units.

An integral part of Southgate's total systems approach, Vari-Tran helps the building's zoned heating and cooling controls maintain even temperatures without sky-high air conditioning costs.

There's a good chance Vari-Tran will fit in with a building you have in the works. It's available in a wide range of colors and shading coefficients.

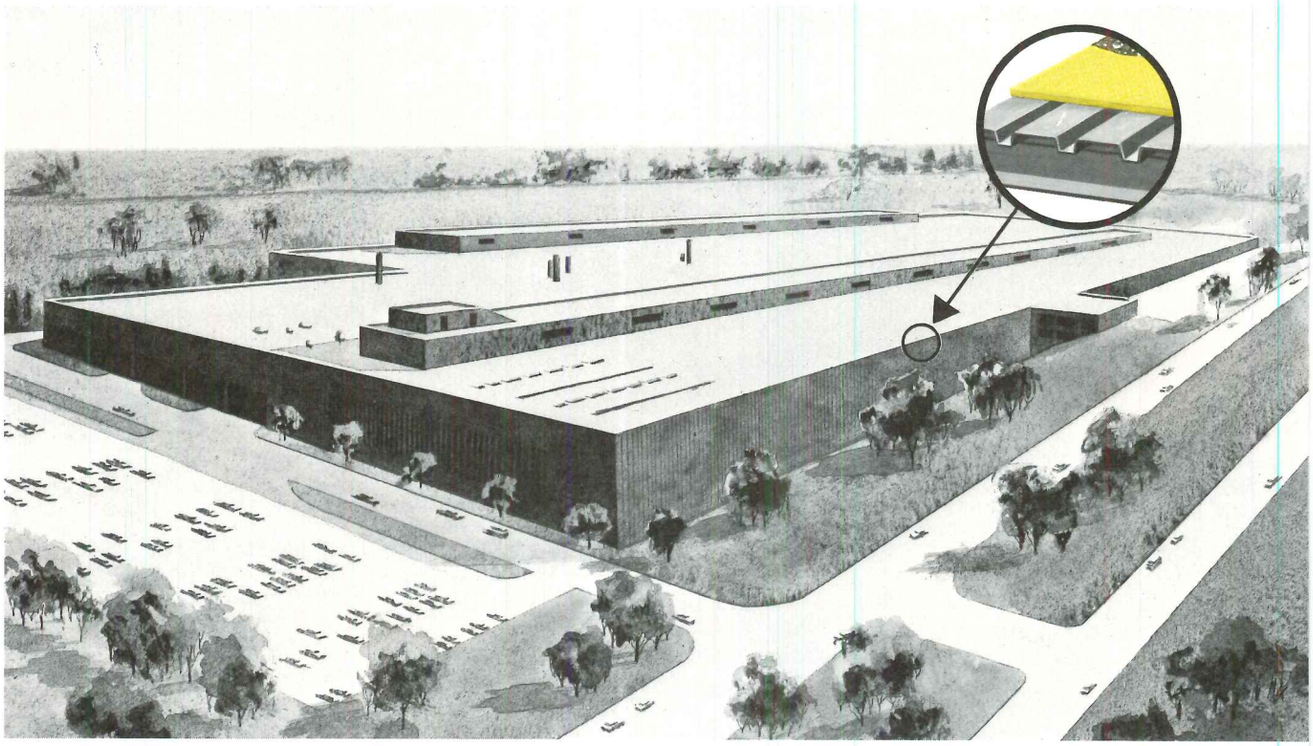
If you'd like to find out what it can save you, get in touch with an LOF architectural representative. He'll put our computer to work on a cost analysis to show what Vari-Tran products can mean in initial construction and annual energy consumption savings.

For detailed information, refer to our LOF Sweet's Catalog, "Glass for Construction," or write to Paul Corrad at Libbey-Owens-Ford Company, 811 Madison Ave., Toledo, Ohio 43695.

LOF

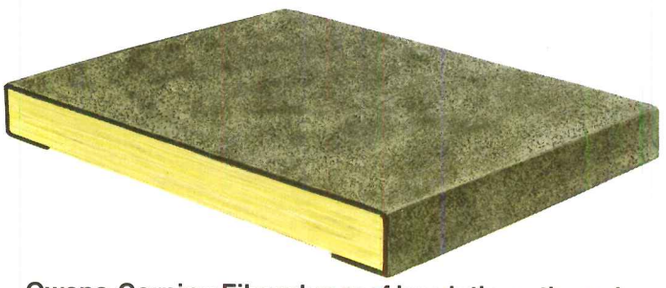
For more data, circle 17 on inquiry card

Insulation is



Projected cost to heat and cool the million-square-foot
Deere & Company plant for 20 years with only 15/16-inch (C=27) Fiberglas roof insulation:

$1,902,570



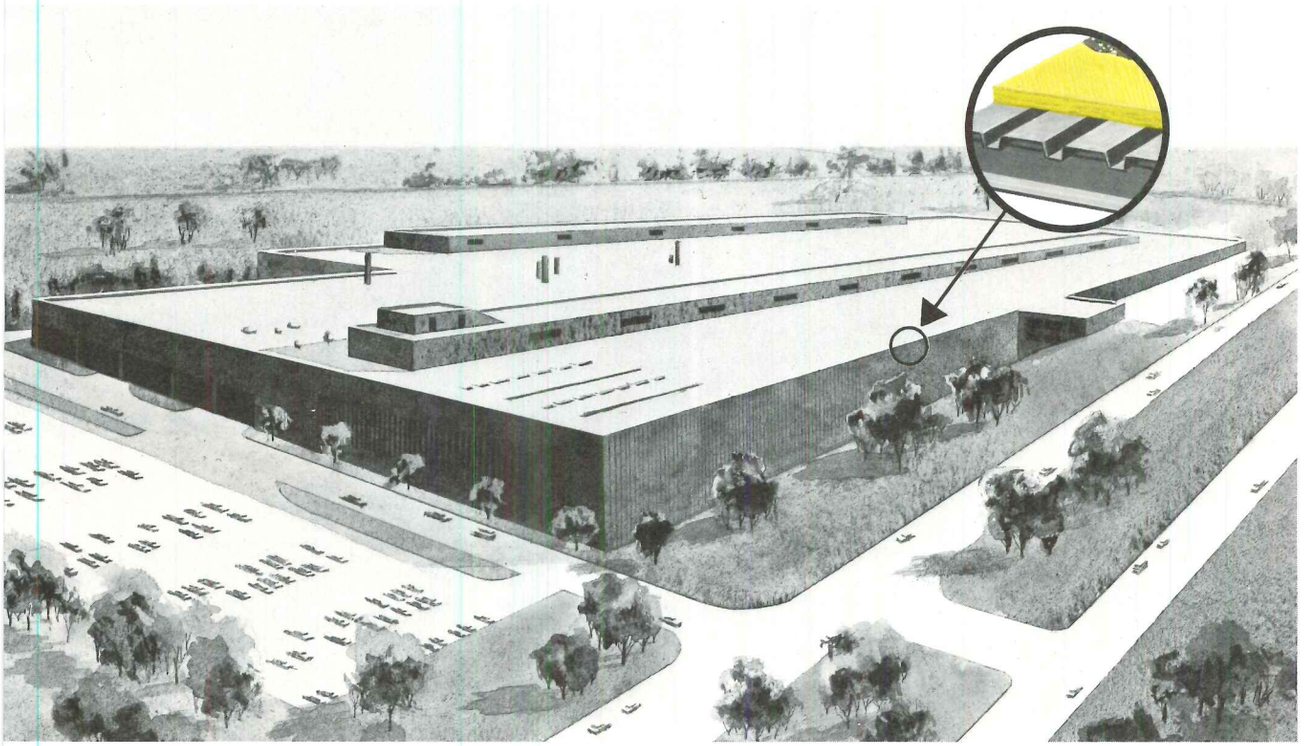
Owens-Corning Fiberglas roof insulation—the only glass fiber roof insulation on the market. Dimensionally stable. Retains thermal value. Easier to apply than organic/mineral boards. For over 30 years the *best* base for built-up roof-decks.

A saving of $845,587!
With it, the engineers of Deer & Company and the staff of th Detroit firm of Smith, Hinchman Grylls Associates Incorporatec co-designers of the huge Deer engine plant at Waterloo, Iowa, ar helping to point the way for arch tects of schools, offices, stores and other commercial building everywhere.

Use of 2 1/16-inch Fiberglas roof insulation versus a thinne layer saves money two ways:

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

cheaper than oil



Projected cost to heat and cool the million-square-foot Deere & Company plant for 20 years with thicker 2 1/16-inch (C=11) Fiberglas roof insulation (*after* allowing for the cost of thicker insulation!):

$1,056,983

1. It saves on energy costs. The experts on Deere & Company's engineering staff estimate that savings per year, based on cooling and electric heating in the Waterloo, Iowa, area, should amount to $42,279. That's a remarkable total energy savings of $845,587 every 20 years.

Saves on first cost, too

2. It also saves on construction costs. The first cost of this energy-tight plant is actually *lower* than if a less efficient version had been built! Reason: the improved thermal performance of the roof permits use of smaller-capacity, *less costly* heating and cooling equipment. Amazingly, the savings are large enough to cover the added cost of the thicker roof insulation *twice* over.

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

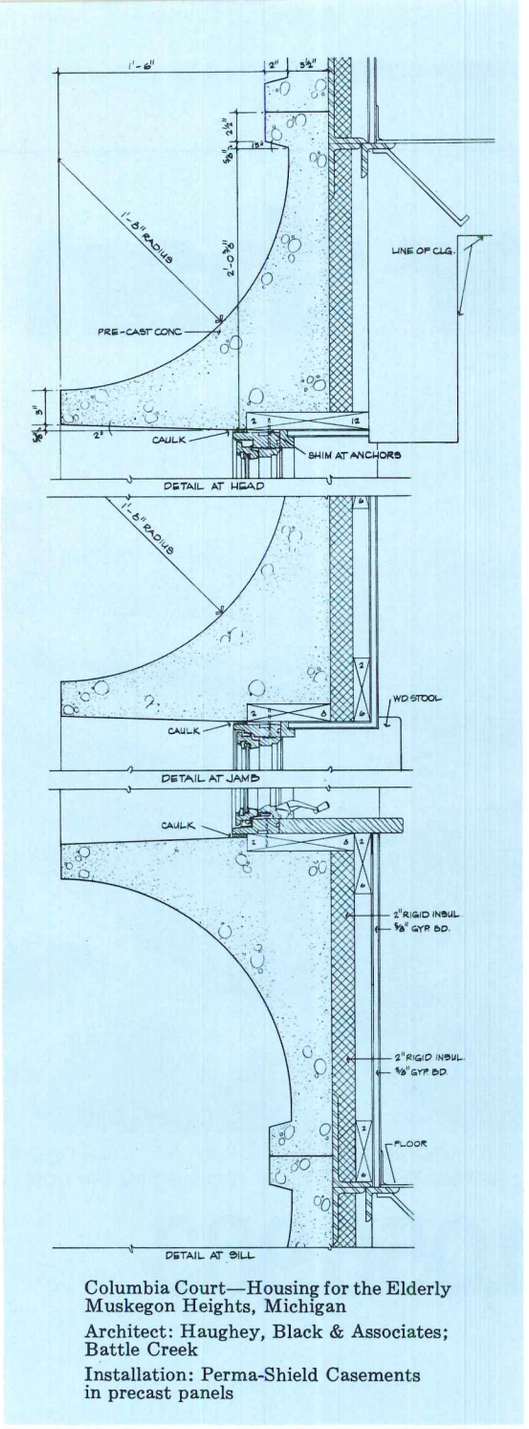
Ask our "talking" computer

Our EMS computer can give you savings on your next roofing job—by phone! *And* help you determine the most economical thickness of insulation to *specify*. You'll get projected energy and equipment savings, plus payback period. (Actual savings may vary.) For details, write: L. Q. Meeks, Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas

OWENS/CORNING FIBERGLAS TRADEMARK®

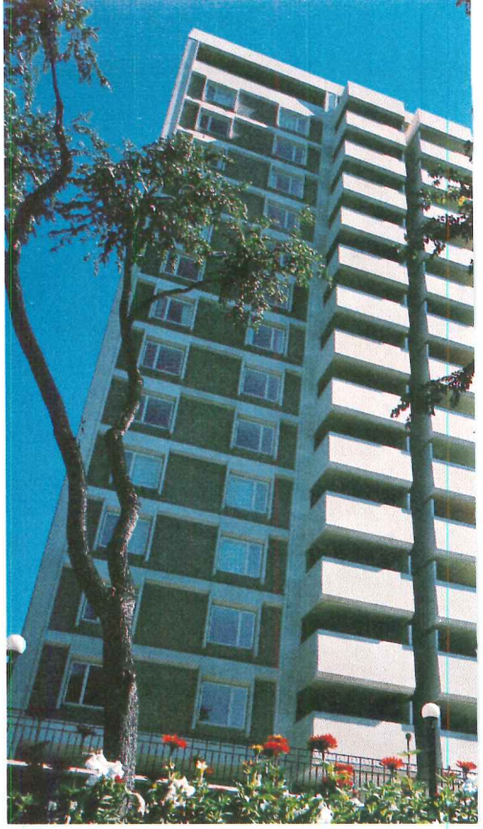
For more data, circle 18 on inquiry card



Columbia Court—Housing for the Elderly
Muskegon Heights, Michigan

Architect: Haughey, Black & Associates; Battle Creek

Installation: Perma-Shield Casements in precast panels

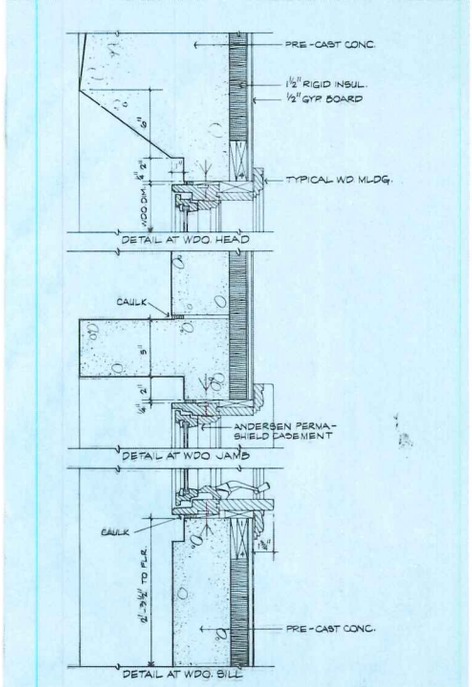


Concrete evidence

Structural harmony was only one of the beautiful reasons why these project architects chose Andersen® Perma-Shield® Windows.

They also knew Perma-Shield Windows have many of the same long-lasting qualities as their concrete surroundings. Because their tough, protective sheath of long-life, low-maintenance rigid vinyl is designed not to rust, pit or corrode. Not to chip, flake, peel or blister.

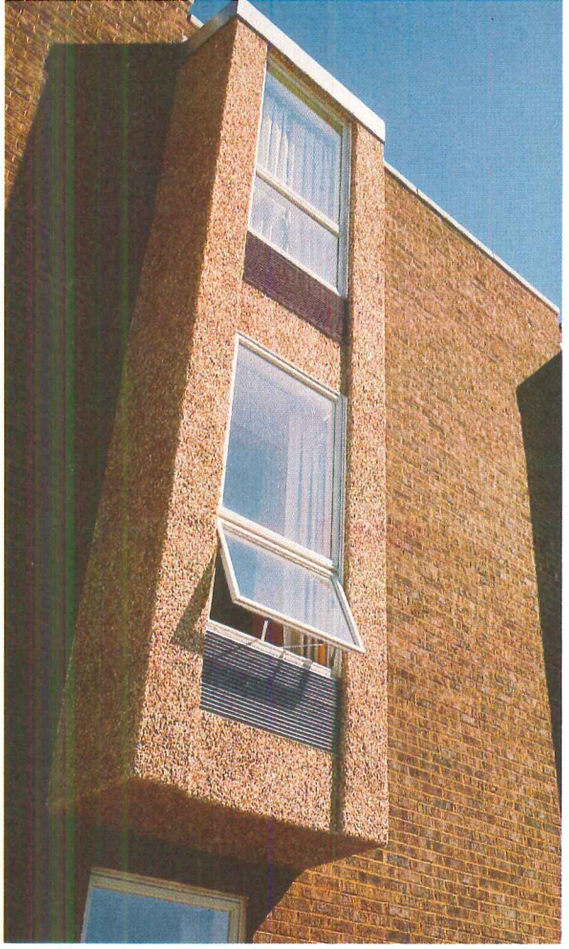
The architects also liked how easily Perma-Shield Windows install into concrete and masonry. And how they keep occupants comfortable while keeping fuel and maintenance costs down. That's because Andersen Perma-Shield Windows are made of treated wood—one of nature's best insulators—then built two times more weathertight than industry air-infiltration standards to help seal out dust and drafts. Help seal in comfort.

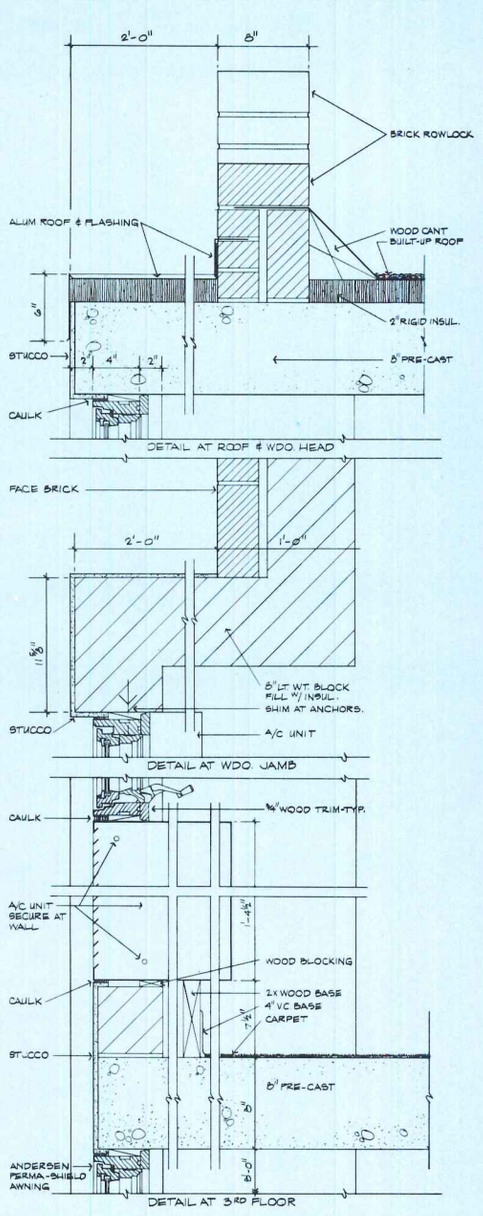


Cheesman Garden Apartments,
Denver, Colorado

Architect: Slater, Small & Spenst; Denver

Installation: Perma-Shield Casement operating and fixed units in precast frames





Shenandoah College Residence Hall
Winchester, Virginia

Architect: Keith Williams & Associates; Winchester

Installation: Perma-Shield Awning Windows in masonry frame, with stucco facing.

# of Andersen beauty.

And with optional double-pane insulating glass, Perma-Shield Windows can reduce conducted heat loss through the glass area by at least 47% (compared to single-glazed units without storms).

Why not cast your next concrete or masonry design around any of the six Perma-Shield Window and Gliding Door styles? They're all strong evidence of Andersen beauty, comfort, low-maintenance and fuel-savings.

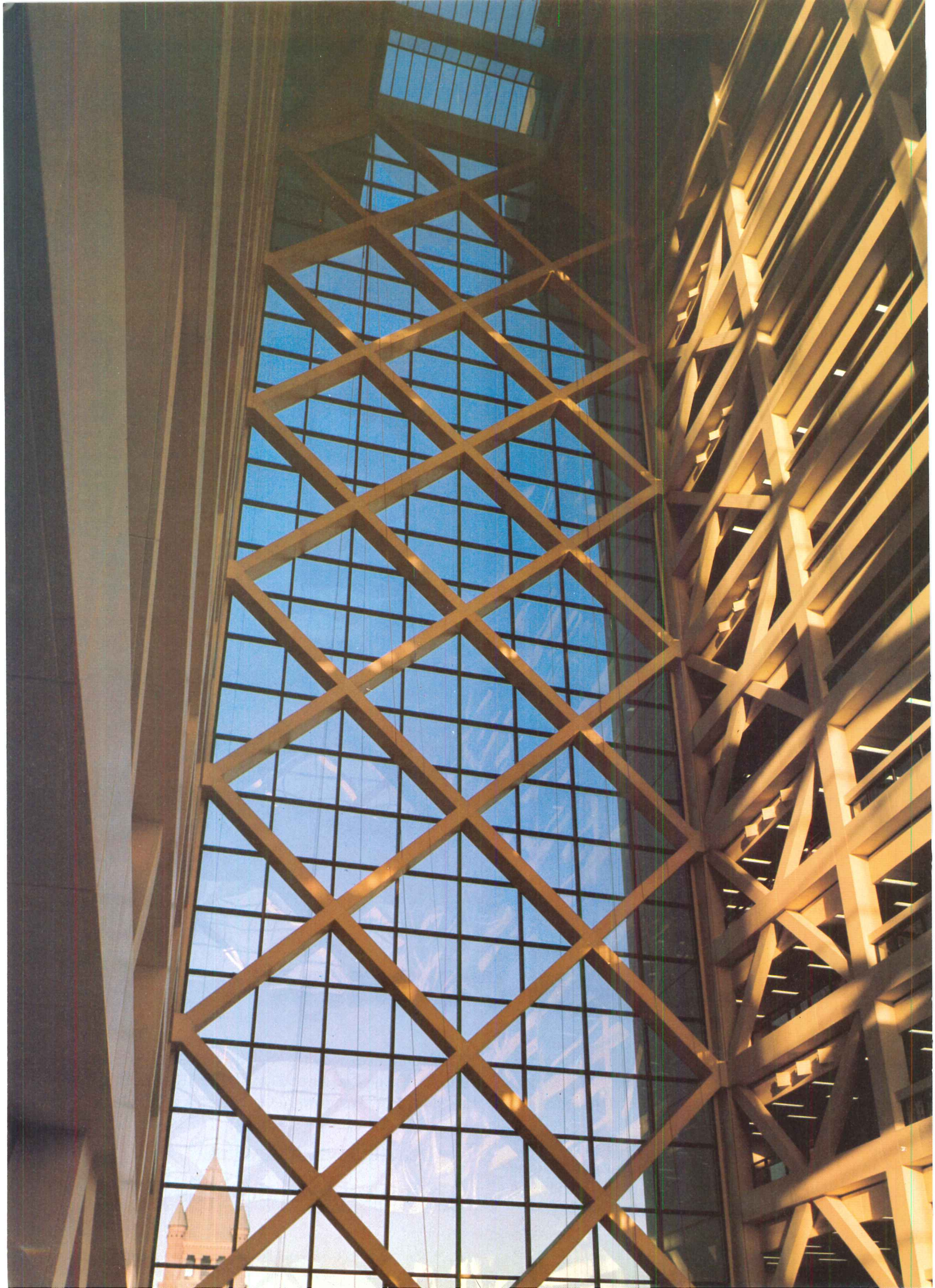
Need more evidence? See Sweet's, File 8P. And call your Andersen Dealer or Distributor. He's in the Yellow Pages under "Windows." Or write us direct.

The beautiful way to save fuel™

Andersen® Windowalls®

ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003

For more data, circle 19 on inquiry card



STRUCTURAL STEEL:

A BOLD EXPRESSION FOR HENNEPIN CENTER.

Owner: Hennepin County Board of Commissioners.
Architect: John Carl Warnecke & Associates; San Francisco, California.
Associate Architect: Peterson, Clark and Associates; Minneapolis, Minn.
Engineer: Ketchum-Konkel-Barrett Nickel-Austin; Denver, Colorado
General Contractor: Knutson Construction Co., Minneapolis, Minn.
Fabricators: Paper Calmenson & Company
St. Paul Structural Steel Company
The Maxson Corporation
All of St. Paul, Minnesota.

The new 50 million dollar Hennepin County Government Center in Minneapolis, Minnesota is a magnificent example of the imaginative use of structural steel.

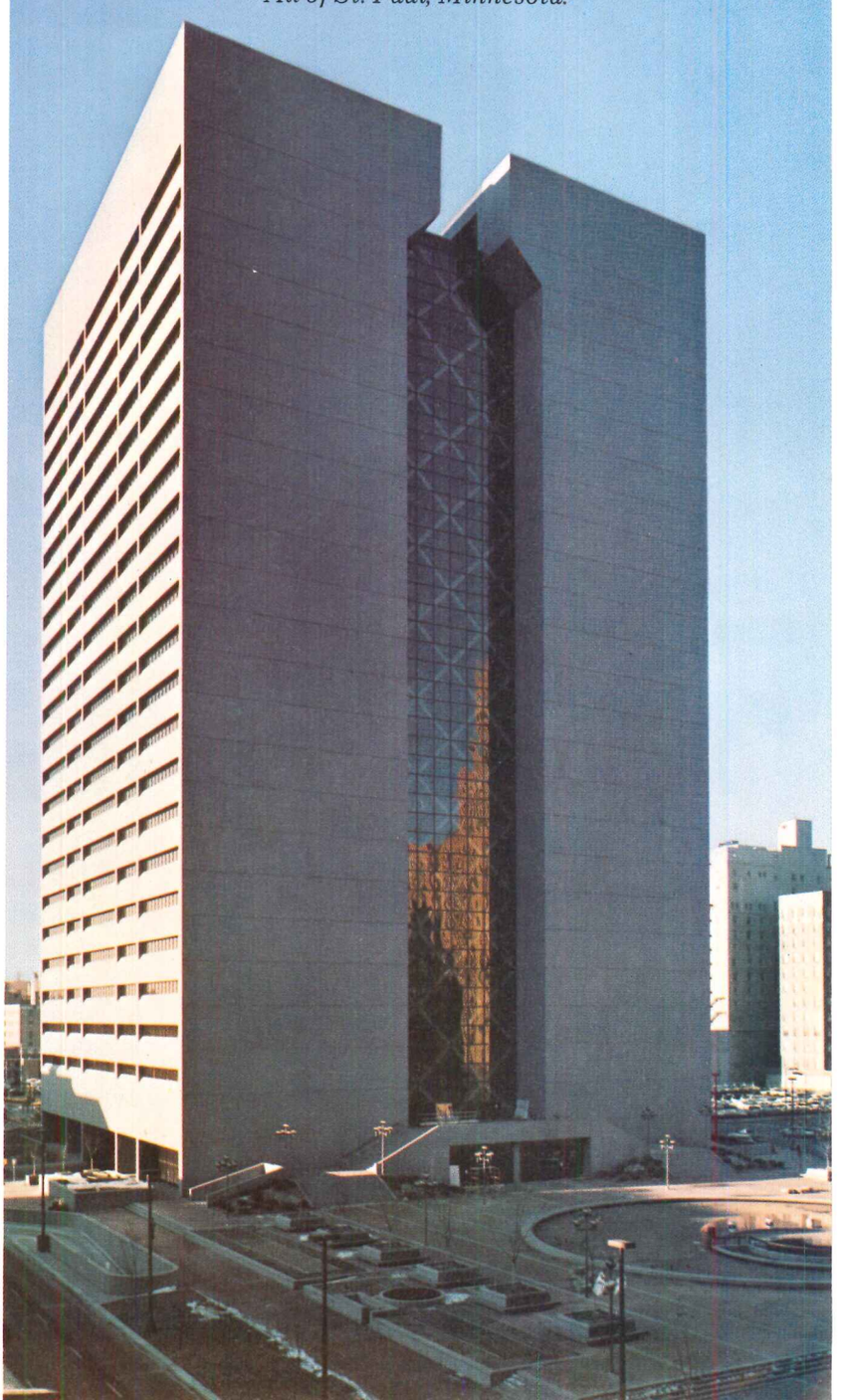
The outstanding feature of this twin-tower structure is a 350′ high atrium. A large skylight allows sunlight to flood the interior space and give an outdoor feeling to the public concourse. The atrium creates an unusual and exciting indoor environment and physically separates the two functions of county government. One entire tower is used for courts; the other is used for administrative offices.

The steel-framed, 400′ high granite-clad towers are coupled to the atrium space frame, which serves as shear walls and resists lateral loads in both directions. The space frame also minimized the building's drift and allowed maximum design flexibility resulting in 85% usable floor space in the towers. The use of this unique design was estimated to have saved a quarter million dollars when compared to a conventional frame and resulted in a structural steel frame weighing only 15.5 pounds per square square foot.

Hennepin Center is another example of the design flexibility and practical economy of using structural steel.

For more information regarding structural steel applications, contact a USS Construction Representative through your nearest USS Sales Office or write to P.O. Box 86, (C699), Pittsburgh, Pennsylvania 15230.

USS TRADEMARK **United States Steel**



"General Electric's Weathertron® is the No. 1 selling heat pump in new construction."

"That should pop Aunt Sadie's beaded umbrella."

Rowan and Martin tell the GE Weathertron story on TV.

It took a lot of good reasons to make the GE Weathertron® heat pump number one among specifiers and architects. Here are the most important.

First is the Climatuff™ Compressor with its record of dependability in over a million and a half installations.

Spine Fin™ condenser coils eliminate many brazed connections where leaks can occur.

You can choose from 18 different Weathertron models—18,000 to 240,000 BTUH—for residential and commercial applications, plus a complete line of other heating & cooling equipment.

And you can offer the General Electric National Service Contract on the residential heat pump.

All this from GE, the company that pioneered the heat pump back in 1935.

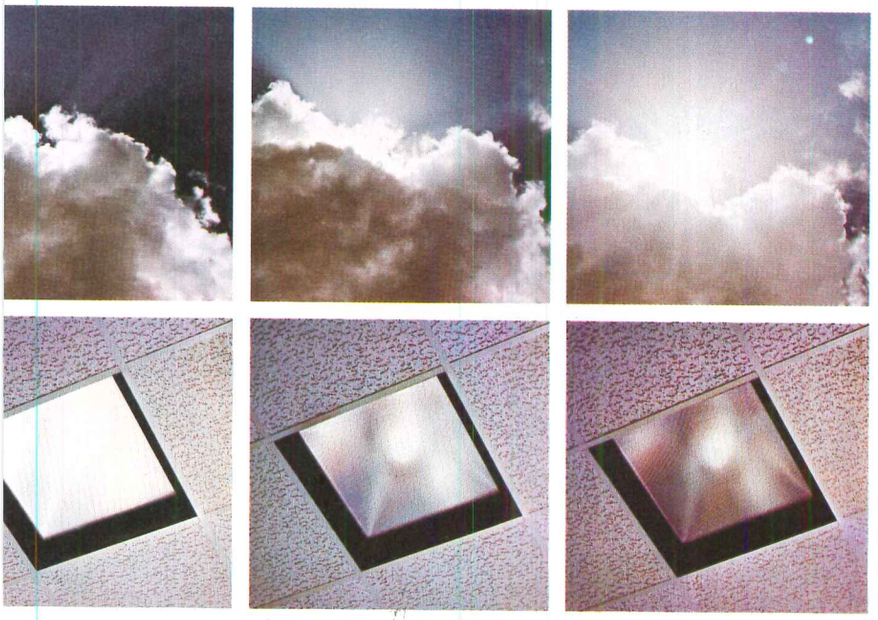
If you're contemplating an air conditioning installation, get in touch with a General Electric Central Air Conditioning dealer. He's in the Yellow Pages under "Air Conditioning Equipment and Systems."

The General Electric Weathertron®... America's #1 Selling Heat Pump.

GENERAL ELECTRIC

For more data, circle 20 on inquiry card

HERE COMES THE SUN. THERE GO THE LIGHTS.



AEC FROM WIDE-LITE LETS YOU TAKE ADVANTAGE OF SUNLIGHT, AND CONSTANTLY ALLOWS FOR OTHER LIGHTING FACTORS. AUTOMATICALLY.

Finally, lighting has come out of the dark ages. Thanks to AEC (Automatic Energy Control) exclusively from Wide-Lite, a Dimming system that does a whole lot more.

Like in Alexander City, Alabama, where it's currently dimming HID lamps both automatically and manually. Compensating for sunlight, lamp depreciation, work requirements and other factors in Russell Corporation's vast new textile facility. And shaving an estimated $7,000 per year off the utility bills in the bargain.

THE DAWN OF THE "LUMEN-STAT."

Wide-Lite's AEC controls the level of illumination in much the same way as a thermostat controls the level of heat. How? By starting with our advanced dimming capability and then going one better—adding ceiling-mounted photocell sensors. These "read" the level of illumination and operate the dimming controls quietly by solidstate circuitry.

All you do is set the system at the desired footcandle level. As room or outdoor area illumination levels fall from lamp and dirt depreciation effects, lamp power is automatically increased. If sunlight supplements artificial lighting, lamp power is reduced.

Control can be by programmed timers, by computer interface, or by manual override.

AEC compensates automatically for initial system "over-design" and anything else that effects illumination levels.

And never do you pay for more energy than what's necessary to maintain optimum illumination.

Taken one step further, AEC even allows you the flexibility of designing your own wattage lamps. Because by setting the footcandle level where you want it, you also get precisely the wattage you need to fit any given application.

IT'S SO AUTOMATIC, IT EVEN *PAYS* FOR ITSELF.

As if that weren't enough, Wide-Lite's AEC gives you another bonus after two to three years of use. Because at current electricity rates, that's when the AEC Dimming System typically finishes paying for itself by saving up to 25% in power costs. Of course, the higher the rates, the greater the return on your investment.

And only Wide-Lite offers the range of dimming, the automatic operation, and the kind of equipment that extends lamp life and improves lumen depreciation. All Wide-Lite equipment is covered by our published three-year limited warranty, too.

Next time the sun goes down, AEC will be improving lighting efficiency somewhere. Indoors or out. Commercial or industrial. Haven't power costs increased enough to make you start looking for ways to save?

Wide-Lite

P. O. Box 606, San Marcos, Texas 78666
Wide-Lite® products also manufactured in Australia, Belgium (for Europe), Canada, Mexico, Great Britain, Venezuela and South Africa.
A company of the Esquire Lighting Group

For more data, circle 21 on inquiry card

A Steelcraft® door with the warmth of wood ...and then some.

The durable finish is printed right on the steel.

We don't apply vinyl skin because it tears. We don't apply veneers or laminates because they gouge and chip.

We print the wood grain finish right on the steel because nothing performs like steel. Then we cover it with a coat of lacquer to make it even tougher.

And you can have it any way you want it. Sound rated. Fire rated or labeled. Interior or exterior.

Specify "American Walnut" by Steelcraft. There's nothing else like it. By anybody.

Write for details today. 9017 Blue Ash Road. Cincinnati, Ohio 45242.

Steelcraft® An **American-Standard** Company

For more data, circle 22 on inquiry card

The construction outlook for 1978 promises a tidy increase in commercial and industrial building, with some slackening in homebuilding, predicts George A. Christie, chief economist of the F. W. Dodge Division, McGraw-Hill Information Systems Company. Housing is expected to maintain its present rate of 2 million units per year in the first quarter, declining to a still brisk 1.8 million by the end of 1978. In nonresidential building, Mr. Christie sees commercial and industrial construction improving by perhaps as much as 20 per cent, but gains in institutional building will be modest at best. Nonbuilding construction should rise by about 9 per cent. Details on page 55.

Massachusetts has published a schedule of maximum allowable lighting loads for nonresidential buildings in the last of a series of energy conservation standards mandated by the state. Details on page 34.

"August was the best month since before the recession for nonresidential building," says George A. Christie, vice president and chief economist of the F. W. Dodge Division, McGraw-Hill Information Systems Company. Nonresidential building, at $3.8 billion, posted a 52 per cent gain over last August, with commercial and industrial projects increasing 75 per cent. Residential contracts totalled $6.1 billion, 46 per cent more than a year ago, while apartment starts moved above the 500,000 rate. Nonbuilding construction was up 41 per cent.

OSHA cannot cite architects conducting on-site inspection for violation of construction safety standards, according to a recent decision of OSHA's Review Commission. The question arose when Skidmore, Owings & Merrill, Chicago, was issued several citations for exposing its employees to such hazards as open-sided floors in the inspection of Sears Tower, Chicago. The Commission ruled that architects are not in the circumstances engaged in construction.

Projects for a hotel, housing, and a Canadian chancery promise action in the Pennsylvania Avenue development, 16 years after President Kennedy's determination to redevelop the Washington thoroughfare. Details on page 34.

In a suggested policy for Federal procurement, the OMB would ban turnkey contracts for the government on the ground that "the award of related architect-engineering and construction contracts to the same contractor can result in self-inspection of construction work and permit biased decisions."

The newly formed Association of Energy Engineers hopes to attract 2,000 architect and engineer members within the year. The nonprofit organization aims to foster technological developments in energy conservation and new energy resources. Details on page 35.

On the cast iron front: the iron facade of the Fava Fruit Co. in Baltimore will be disassembled and saved for re-erection. Taking a lesson from New York City's unfortunate experience with the cast-iron Bogardus Building, which was stolen, the Fava will be stored under maximum security.

Pratt Institute has received $625,000 in challenge grants for the renovation of its School of Architecture—$100,000 from the Kresge Foundation and $25,000 from the Charles Hayden Foundation, as well as $500,000 from the National Endowment of the Arts towards the acquisition of audio-visual equipment. The proposed research and resource center, which will incorporate facilities for two- and three-dimensional visual materials "commensurate with the research needs of the architecture curriculum," was designed by the school's students and faculty.

FEA has commissioned a study to develop a system for rating, certifying and labeling solar collectors. Under its contract, the Solar Energy Research and Education Foundation (SEREF) will develop safety tests and standards to measure thermal performance, dependability and reliability for solar equipment, and will design an accreditation program for laboratories to ensure accurate testing.

The National Association of Home Builders has adopted a set of voluntary energy guidelines for home construction. The guidelines are based on a group of energy index numbers calculated from local weather conditions, fuel costs and type of heating and cooling system, then matched to bar graphs representing 19 items of energy concern, such as ceiling insulation and walls, to determine the cost-effectiveness of energy-conserving features. NAHB plans a series of seminars across the country for builders, architects and engineers on energy-conserving houses, at which it will present its Thermal Performance Guidelines.

The American Plywood Association invites entries in its 1978 design awards program. The program, honoring outstanding esthetic and structural applications of softwood plywood, awards a prize of $1,000 in each of four categories: single-family residences, multifamily housing, commercial or industrial buildings, and vacation houses. Entries must have been built between December 1, 1975, and December 1, 1977. Deadline is December 1, 1977. For information: Linda Carlson, American Plywood Association, P.O. Box 2277, Tacoma, Washington 98401.

New Massachusetts energy standard sets limits on lighting loads in both new and old buildings

The Massachusetts Building Code Commission has established maximum lighting loads (connected W/sq ft) for nonresidential buildings and hotels, in the last of a series of energy conservation standards mandated by the state.

The new standard in effect establishes a total lighting budget. Designers may adhere to lighting loads by areas as set forth in the code, or they may manipulate lighting, so long as they do not exceed the total allowable load.

Both old and new buildings will be required to comply with the following limits:

- 3W/sq ft in classrooms, offices, retail spaces and industrial spaces;
- 1W/sq ft in auditoriums, restrooms, dining areas, hospital bedrooms, hotel and motel rooms and refined storage areas;
- 0.5W/sq ft in corridors, lobbies, stairways and elevators, bulk manufacturing areas and dead storage areas;
- 0.25W/sq ft for indoor parking.
- 0.5W/linear ft for facades and at building perimeter;
- 0.05W/sq ft for outdoor parking.

In unpartitioned office landscapes, the standard specifies that 25 per cent of the area will be counted as corridor space.

The standards become effective January 1, 1978, as do others affecting insulation, weatherstripping and glazing in all new construction.

The Massachusetts Building Code Commission developed the new lighting standards after it rejected the lighting sections included in ASHRAE 90-75, the model code for energy conservation in buildings devised by the American Society of Heating, Refrigerating and Air-Conditioning Engineers. In July the Commission appointed a 16-member Lighting Standards Advisory Committee composed of three members representing lighting equipment manufacturers and suppliers, four representing lighting designers, engineers and architects, five representing building owners and commercial users, and four representing state energy and building code bodies.

Opponents of the ASHRAE standard had argued that its lighting section—which, they say, requires an initial identification of task to be performed within a given area, assignment of illumination level for each task, and determination of lamp efficacy—would require unnecessarily complicated calculations. Moreover, they said, the system relied too heavily on designers' assumptions about task difficulty to ensure real energy conservation.

Two classes of lighting equipment are excluded from the over-all budget: 1) local task lighting fixtures with switching under the user's immediate control—such as a portable desk lamp, a work light on a machine, or a hospital examination light; and 2) lighting for theatrical performances and spectator sports. (The new code also requires the installation of a 5W nightlight in hotel bathrooms to forestall what the committee perceived, after a survey of its own members, as a fairly common habit among travelers of leaving bathroom lights on overnight.)

The new rules require that switching be available in individual rooms, that it control areas of limited size, and that it be accessible. Lighting systems must also permit reduction of half the load in large rooms and in areas receiving adequate natural illumination. Exterior lighting fixtures must be automatically switched off when daylight is sufficient.

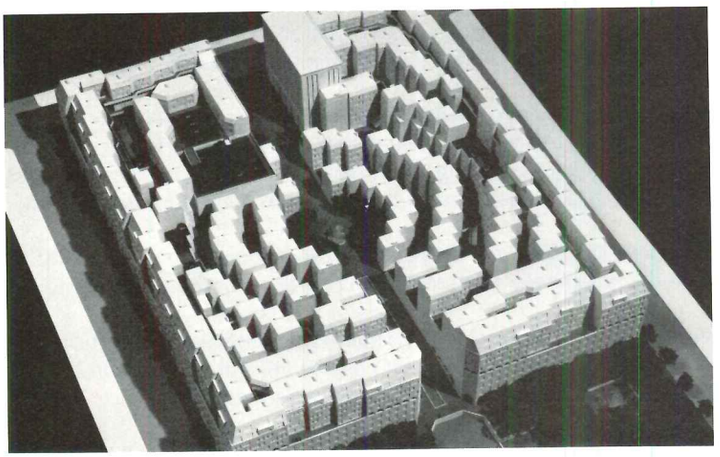
Washington's plans for the development of Pennsylvania Avenue begin to show signs of real action

When President John F. Kennedy drove down Pennsylvania Avenue to his Inauguration, he noted disapprovingly the shabby condition of that Washington thoroughfare, and subsequently established a Federal agency to redevelop the area. Sixteen years later, the Pennsylvania Avenue Development Corporation is about ready to produce results:

- Atlanta architect-developer John C. Portman, Jr., and the National Press Club have received preliminary approval to continue planning for a $100-million hotel and media center, overlooking the avenue at 14th Street.
- The PADC's staff has been ordered to acquire a "superblock" adjacent to the FBI building for the development of 750 units of in-town housing.
- Negotiations are underway with the District of Columbia government and the government of Canada, which wants to build a chancery on the avenue's east end, near Capitol Hill.
- Corporation lawyers are working with the Justice Department to expedite acquisition of the historic Willard Hotel so that it can be refurbished and reopened.
- Contracts will be signed shortly with two landscape architectural firms for the design of two plazas, one of which will offer a vista to the White House, the western end of the corporation's area of responsibility.
- A consulting engineer will soon be hired to perform a utility relocation plan for the entire north side of the 15-block redevelopment area.

Also, the PADC board of directors has hired a new executive director, William Anderson Barnes, to replace William Woodbridge, a San Francisco architect who has returned to his home city to open an architectural and planning practice.

Mr. Barnes, 33, was previously senior development director of the Rouse Co. with responsibilities for the new town of Columbia, Maryland. Mr. Woodbridge had suggested that the corporation hire a developer for the chief executive post now that plans have been essentially completed.



The Portman-NPC deal is still in the planning stage, but the PADC board of directors has authorized its staff to undertake an appraisal of property on the block that could become the site of a 1,000-room hotel and offices for national newspapers, magazines and networks. The corporation has powers of condemnation.

The Press Club now owns the largest site on the block where its 50-year-old, 14-story building is located. Also on the block is the aging National Theatre, which must now compete with Kennedy Center for audiences and productions.

At a previous meeting, the PADC authorized Quadrangle Development Corp. to build an office building at the corner of 13th and E Streets, and only this small parcel is outside the planned Portman-NPC development plan.

The superblock for housing, called the Market Square development by PADC officials, is actually four blocks between 7th, 9th and E Streets and the National Portrait Gallery. The plan, which was refined by Mr. Woodbridge, calls for a townhouse complex which corporation officials compare to an Italian hill village (see model). The townhouses would step down on different levels toward a central plaza.

A triangular park is planned for the southern edge of the complex. Included in the Market Square development plan are restaurants, exhibition areas and an open air market. PADC plans to buy the tract and lease it back to a developer who will build the complex to specifications developed with PADC staff designers.

The property selected by the Canadians for their chancery is now owned by the District of Columbia government, which must first deed it to the PADC for eventual transfer to the Canadian government. PADC is particularly eager to move on the transaction because the Canadian government's appropriations authority for the site and structure expires in March.

The corporation also thinks the chancery is important because the eastern end of the avenue is generally considered less attractive for development than the western end. Officials expect, however, that Canada's development could make the east end more desirable.

In approving a $29-million appropriation for PADC early this year, Congress made it clear that it expected the Willard Hotel work to have a high priority. But unless the Justice Department is able to negotiate a deal with the building's owners, litigation taking a year or more will delay the refurbishing work. A negotiated deal could be concluded by Christmas, PADC says.

Both the plazas set for immediate design work are on the avenue's western end. Architects for the Franklin Square Plaza will be Venturi & Rauch in joint venture with landscape architect George Patton; both are Philadelphia firms. The other space, now designated as Western Plaza, will be designed by Friedberg & Associates of New York City.

The Pennsylvania Avenue redevelopment that John Kennedy called for has moved slowly from the very beginning. Kennedy first asked Arthur Goldberg, then Labor Secretary and later Supreme Court Justice, and Daniel P. Moynihan, then a Labor Assistant Secretary and now Democratic Senator from New York, to look into redevelopment plans. This work resulted in the selection of Nathaniel Owings of Skidmore, Owings and Merrill for the over-all design.

After Kennedy's death, the plan lay dormant until 1968, when Lyndon B. Johnson as President ordered its resumption. But it was not until 1972 that the PADC was finally established. Its design was published for the first time two years later, but the first redevelopment appropriation was not forthcoming until this year.

Under the corporation's Federal charter, it is to carry out the development plan through a combination of public improvements with stimulation of private investment, and it is to ensure development, maintenance, and use of the area compatible with its historic and ceremonial importance.—*William Hickman, World News, Washington.*

Shingle & Shake awards go to three architects

Three first awards have been announced in the 1977 Red Cedar Shingle & Handsplit Shake Bureau/ American Institute of Architects architectural awards program. The competition, conducted biennially, honors design excellence and significant functional or esthetic use of red cedar shingles and shakes.

The projects distinguished:

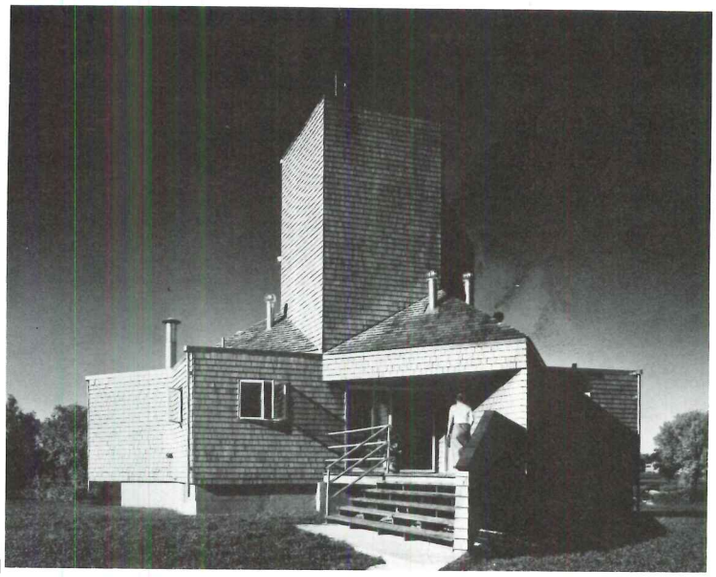
1. The William Adams residence, Roseau, Minnesota, designed by Thomas H. Larson, F.A.A.R., of Chestnut Hill, Massachusetts. The jury called the house "a beautifully detailed structure, with all elements composed in a very interesting, sculptured manner." (See RECORD, mid-May 1974, pages 76-77.)

2. Oakes College at the University of California at Santa Cruz, designed by MBT Associates, San Francisco. The jury cited the building for "its handsome scale, and for the homelike warmth of the residential units."

3. Embarcadero Condominiums, Newport, Oregon, designed by Campbell-Yost-Grube P.C., Portland, Oregon. The jury commended "the beautiful siting, excellent plans, and [maintenance of] privacy in a complex of relative density." (See RECORD, mid-May 1977, pages 114-115.)

Members of the jury were chairman Alfredo DeVido, AIA, New York City; Rodney Wright, AIA, Chicago; and Jane Hastings, AIA, and Al Bumgardner, FAIA, both of Seattle.

The awards program in addition honored six architects with merit awards: Design Building Architects, Lawrence, Kansas, for the remodeled Gould residence in Lawrence; Robert Billsbrough Price, FAIA, Tacoma, for the interior design of his own offices; Cassway/Albert & Associates, Philadelphia, for Royal Grant, multifamily residences in Dover, Delaware; Jeter, Cook & Jepson Architects, P.C., Hartford, Connecticut, for Noble Horizons housing for the elderly in Hartford; The Richardson Associates, Seattle, for Northwest Trek park shelters in Eatonville, Washington; and Lawrence Simons & Associates, Santa Rosa, California, for the Simons residence in Santa Rosa.



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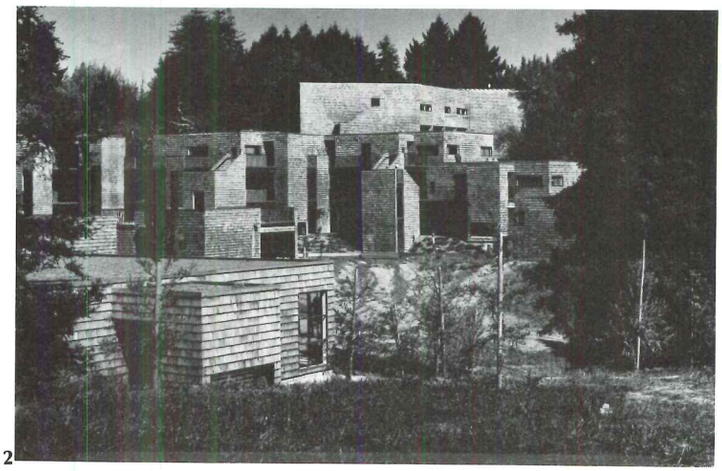

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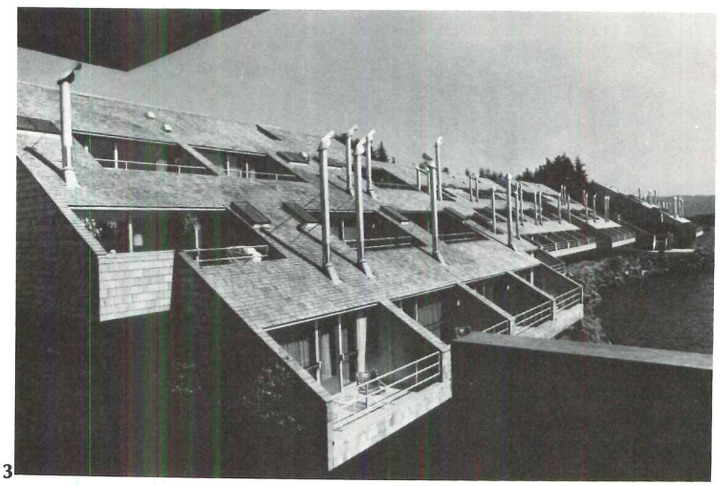

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AIA asks Carter for board on Federal design quality

The American Institute of Architects is urging President Carter to appoint a special Presidential board for design quality in Federal architecture. Greater attention to architecture, the Institute believes, will mean improved public access and utilization of government buildings, energy savings, and a "legacy of design excellence."

AIA President John M. McGinty says, "The Institute feels deeply that Federal construction should exemplify both technological and architectural excellence."

The Board of Directors of the AIA also suggests that:

- procedures for selecting the architect for each government facility should be given more careful attention;
- more design-oriented registered architects should be hired by the Federal government;
- a design awards program should be set up for all Federal architecture;
- seminars and educational programs should be provided for Federal officials charged with the selection of architects and the implementation of construction programs;
- the Federal government should coordinate and simplify the regulations and the bureaucratic paperwork within Federal design and construction processes.

The Federal government constructs more than $15 billion in facilities annually.—*William Hickman, World News, Washington.*

ACEC will tighten discipline to fight corruption scandals

The American Consulting Engineers Council plans to take the offensive against corrupt members in an effort to halt the spread of procurement laws that require competitive price bids for professional design services.

The organization feels it cannot ward off the spread of these laws as long as the public's perception of designers is developed through news stories and trials involving designers involved in illegal acts such as bribery, kickbacks and complicity in extortion.

As an earnest for its get-tough policy against wayward members, the Council's board of directors, meeting at Nashville in September, set in motion organizational changes that will give the national organization responsibility for expulsion or other penalties for illegal acts. This responsibility is now held by the state organizations that make up the national federation. But the state groups, the board members feel, have been slow to act on corruption charges because friendships are often involved.

The new disciplinary rules are expected to include provisions for sanctions prior to legal resolution of charges, plus public disclosure of ACEC actions.

The proposal for the changes came from a special committee established early this year to monitor the

continued on page 37

New Association of Energy Engineers undertakes a membership drive

A new association aimed at combining into one group the various technical disciplines involved in energy conservation and development of energy resources has launched a membership drive with a goal of 2,000 members within a year.

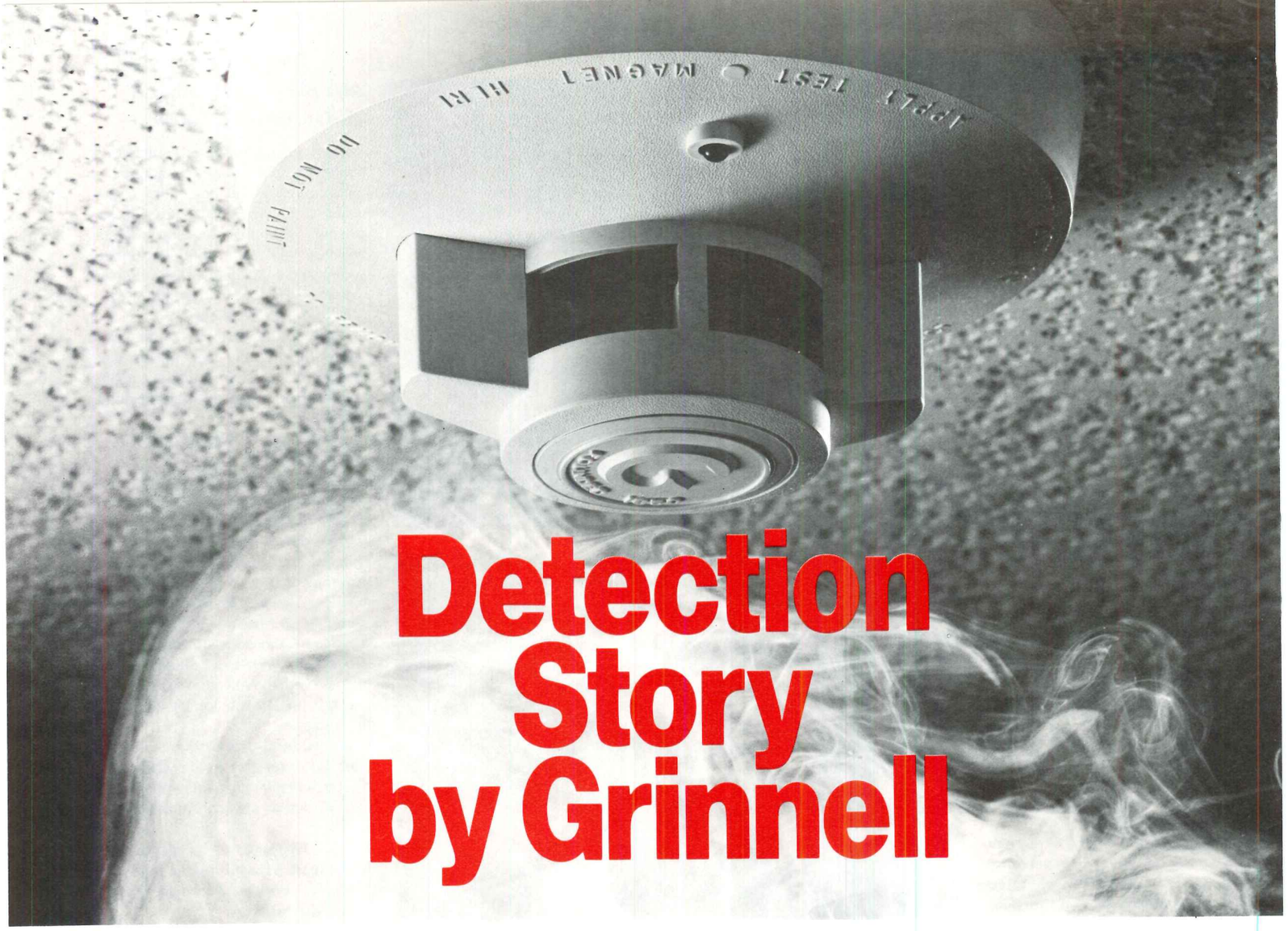
The Association of Energy Engineers, incorporated earlier this year in Georgia, is something of a descendant of the Energy Conservation Council of 1973-74, says AEE executive director Albert Thumann, who describes the earlier council as "ahead of its time."

Mr. Thumann, who is on leave from Bechtel, says that the new association has a potential membership of 30,000 to 40,000 engineers, based upon a study of engineers involved in energy conducted by the National Science Foundation.

Full membership is open to registered architects and engineers and to engineering graduates. In addition to the current membership drive, Mr. Thumann says, the organization also seeks to secure the participation of businesses as sustaining members on the basis of potential benefits to business and industry through greater coordination in energy resource management and development.

Mr. Thumann, who is registered in both the electrical and mechanical fields, says the association is developing an array of services for its members, including continuing education, publications, technical conferences, and a directory of energy engineers.

Inquiries may be directed to the Association of Energy Engineers, 464 Armour Circle, N.W., Atlanta, Georgia 30324.—*Stanley Fisher, World News, Atlanta.*



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The first name in fire protection is fast becoming the first name in fire detection. Grinnell, the company that wrote the book on fire protection, now offers a complete line of alarm and detection products covering the full range of fire detection needs.

These include a wide selection of ionization and photoelectric detectors, ultraviolet and infrared flame detectors, duct detectors, plus a complete range of rate-of-rise and fixed temperature heat detectors.

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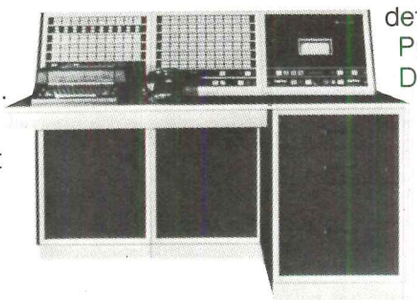

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American Bar Association's development of a model procurement code for local governments. In draft form, ABA's suggestions include alternative A-E selection procedures, one of which calls for price competition among "short listed" firms (finalists).

ACEC favors a selection procedure in which qualification constitutes the sole criterion, with the fee negotiable after selection. (The ABA code offers such a procedure as a secondary option.)

The chairman of the ACEC model code committee, Philip M. Hampton, of Spalding, DeDecker & Associates, Inc., Madison Heights, Michigan, says ACEC must take the offensive in the corruption battle or the "media will crucify us . . . in this post-Watergate sunshine era." Price bidding, Mr. Hampton says, will not solve the corruption problem, but ACEC cannot easily protest its adoption "without an acceptable program of correction" aimed at wayward members.

The 48 member organizations in ACEC now handle disciplinary questions and jealously guard their "state's rights." ACEC president William Clevenger, who supports the move to nationalize the disciplinary machinery, says state groups are reluctant to "come down" on member firms because close friends are often involved. He thinks the national organization will be less reluctant to do so.

Last week's action means that the ACEC by-laws committee will develop a plan for the national take-over and the appropriate means for public disclosure. Details are being worked out. Mr. Hampton says he favors immediate announcement of ACEC intention to discipline a member if charges by prosecutors or in news stories are proven correct. Mr. Clevenger favors disciplinary action whenever legal documents—say a deposition—show admission or proof of guilt, whether or not the admission or proof results in a court's formal finding of guilt.

The formal version of the new plan will be acted on by the board at a meeting in May 1978.

In another move, the board members again turned down a leadership-supported move to open membership to non-engineer design professionals. Mr. Clevenger and other officers want to expand membership to increase dues income to pay for a more vigorous government affairs program. Board members, however, soundly defeated a proposal to permit membership by architects or other design professionals affiliated with consulting engineering firms.—*William Hickman, World News, Washington.*

Supreme Court will hear NSPE antitrust appeal

The Supreme Court has agreed to hear arguments in the Justice Department's antitrust suit against the National Society of Professional Engineers, raising NSPE hopes that it can maintain what it sees as the professionalism afforded by a code of ethics that prohibits competitive price bidding.

The hearing is scheduled for January. Two years ago, the High Court refused to grant a hearing of the case, but ordered it remanded back to a District Court for reconsideration in light of a ruling that involved fee-fixing by lawyers in Virginia. The lower court reaffirmed its initial finding that the NSPE code of ethics ban on competitive price bidding was unlawful and in violation of the Sherman Antitrust Act.

NSPE has defended the case for five years. The American Institute of Architects, in the face of a Justice Department threat to prosecute, agreed to modify its code of ethics to drop the outright prohibition on price bidding.—*William Hickman, World News, Washington.*

Virginia attorney general queries design-build practice

The legality of a lump-sum design-build procedure much favored by Fairfax County, Virginia, for school construction has been questioned by the state's attorney general, Anthony F. Troy.

In answer to a request for his opinion sought by general contractors in the state, Mr. Troy cited Virginia law covering competitive bidding and low-bid procedures for construction contracts.

Confronted with increasing difficulty in obtaining bond-issue approvals from voters and trying to include construction within its operations budget, the school district adopted the design-build procedure to combat inflation in building costs. So far, Fairfax County has used the technique for two small elementary schools in the western part of the county, and had planned to use it for a $1.6-million facility for handicapped pupils.

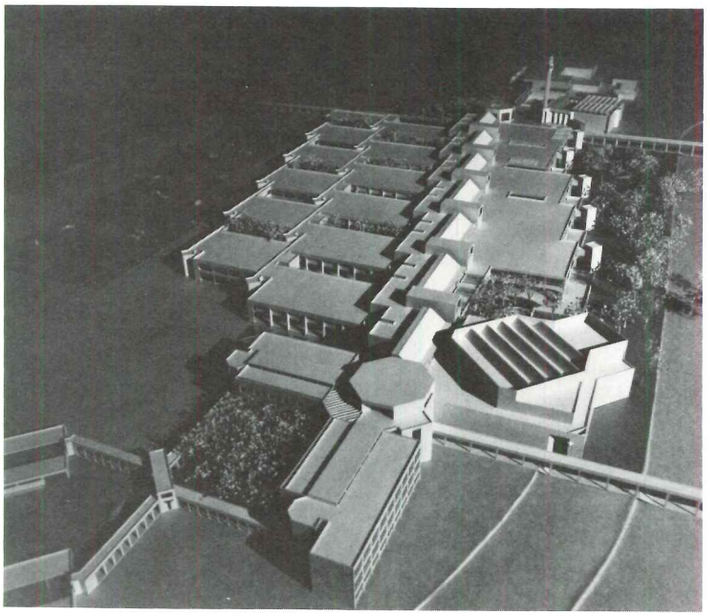
In the Fairfax program, architect-contractor teams submit firm contract proposals with a pre-established maximum price.

School and county officials have been delighted with the results, according to John Krytusa, director of school managements.

Architects' objections to the procedure have not loomed large. According to the American Institute of Architects' ethical code its members may participate in construction contracting when only the contractor half of a design-build team signs the construction contract.

Fairfax County, in the affluent suburbs of Washington, D.C., has a population of more than 600,000, and its county governmental practices are often copied by other jurisdictions. The general contractors asked the attorney general's opinion apparently out of fear that the untraditional practice could spread.

Although Mr. Troy's opinion is not legally binding, it carries considerable weight. Fairfax County officials have not decided whether to ask for reconsideration or relief from the state legislature.—*William Hickman, World News, Washington.*



New college in Riyadh will train teachers and scientists

The Saudi Arabian government has made education one of the cardinal targets for investment of its oil wealth, and a multidisciplinary academic complex planned for Riyadh has been described as the completion of the "educational loop" within the program.

Designed by James M. Sink Associates, Houston architects, the complex will combine facilities for an accelerated three-year baccalaureate program in science and technology, intended to reduce Saudi dependence on foreign professional and technical personnel, and for a two-year junior college that will grant certificates to elementary and secondary schoolteachers.

Initially the Sink firm was retained to conduct studies for the development of five science and mathematics centers to be built in various parts of the nation. In the course of planning these centers, however, it became apparent that there was also a basic need for teacher training. The curriculum was designed by a team from the University of Southern California headed by Dr. John Hubbard, president of the university.

In the first phase of construction, the complex will include six academic elements connected by a long skylit pedestrian concourse (see rendering below). Classrooms and laboratories will branch off one side of the central spine, offices and departmental libraries off the other. The classroom wings will enclose outdoor courtyards to foster the informal conversation traditional in the Arab pursuit of scholarship.

Ancillary facilities will include the main library, housing 125,000 volumes, a mosque and minaret, and a 950-seat auditorium.

Off-campus, but within easy walking distance, housing is planned for single and married students and for the faculty. Housing for single students will occupy three neighborhoods, each containing a commons and seven halls, each of which will accommodate 72 students. Married students will be housed in 12 neighborhoods, each containing 28 to 50 units of one- and two-bedroom apartments. Faculty housing, which will encompass one-, two- and three-bedroom apartments, has been designed to meet the cultural needs of residents from both the East and the West.

Construction will be limestone concrete, and the entire complex will be air conditioned by a central chilled water system. A waste water treatment plant will provide irrigation water for landscaped courtyards, walkways and recreational area.

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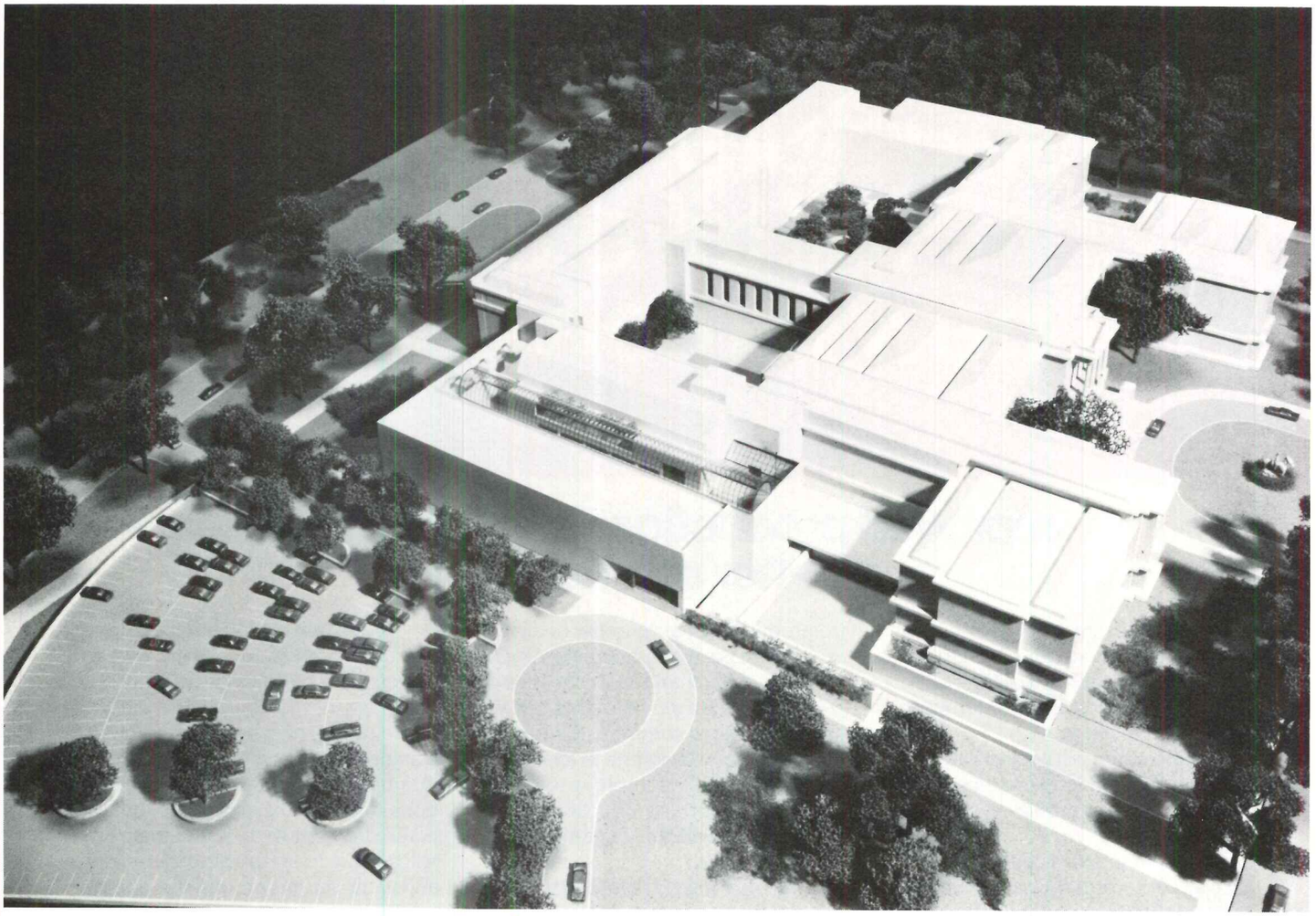
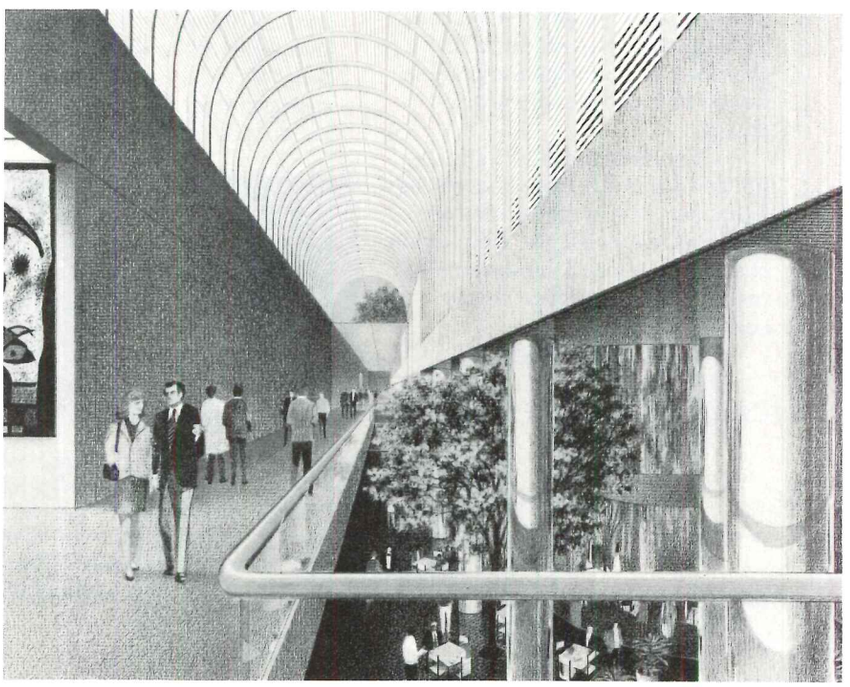


Pei designs a new wing for Boston's museum

Boston's Museum of Fine Arts has undertaken a $19.5-million program of renovation and new building that will involve the installation of modern climate control and a new wing designed by I. M. Pei & Partners. The new temperature and humidity controls, says the Museum, are essential to the maintenance of its collected works of art, but the administration sees the new wing as the key to the Museum's future. It will house an 11,000-sq-ft gallery for special exhibitions, the 400-seat Remis auditorium, dining facilities, an enlarged Museum shop, a contemporary gallery and "function" rooms, as well as a new entrance and parking lot. Like other museums, Boston's finds itself caught in a bind of rising costs and contending responsibilities—on the one hand, a need to reach out to a broader public; on the other, a duty to preserve and exhibit its collections in scholarly fashion. The Boston museum frankly admits that the new wing is intended, at least partly, to make money. Operating independently of the Museum proper, it can be opened in the evening to admit audiences for special exhibitions and for programs in the auditorium. The addition will also allow the Museum to display its collection of rare musical instruments, now inaccessible to the public, and its expanding collection of primitive art.



On September 1, 1978, our wide-flange and H-pile structural shapes will take on new dimensions

improved production scheduling for us ...better service to you

The new dimensions will conform to the new standards of the American Society for Testing and Materials and the American National Standards Institute.

Bethlehem will begin rolling all its wide-flange and H-pile shapes to the new series of profiles effective September 1, 1978.

The changeover will affect virtually all of our presently available W and HP Series structural sections. The new wide-flange series will have 11 fewer sizes than are currently available. The number and nominal weight of H-pile sections will not change.

The new series will continue to provide the same range of capacities as are available in the currently produced series. In fact, the dimensional changes in some of the sections will result in small improvements in certain properties.

Why the change?

The primary reason for the change is to enable our rolling mills to produce a larger number of different weight beams without interrupting production to change rolls. In other words, the changeover makes certain key dimensions common to more sections. Less downtime to change rolls will allow us to improve rolling cycle time and our production scheduling...**and that means better service to you.**

A one-step transition

In the best interest of our customers, Bethlehem's changeover to the new series will be accomplished at one time. We will redress the mill rolls for nearly 200 profiles in time to begin production on September 1, 1978.

We're trying to make this transition as smooth as possible for our customers. That's why we're making this announcement well in advance of the changeover date. By doing so, we hope that many applications requiring the currently produced sections can either be ordered and rolled before September 1, or that there will be time to anticipate, schedule, and work designs around the change.

But we recognize the transition will cause some problems... and here's how we can help.

We have a variety of interim design and engineering aids and tables prepared specifically to help you during the changeover period. Our Sales Engineers will be in a position to furnish you with copies of this material, or answer questions you may have regarding the new profile series. You can get in touch with a Bethlehem Sales Engineer through the Bethlehem sales office nearest you. Bethlehem Steel Corporation, Bethlehem, PA 18016.

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An emerging theory

ALL THEIR OWN: PEOPLE AND THE PLACES THEY BUILD, *by Jan Wampler. John Wiley & Sons, $19.95.*

Reviewed by Robert Campbell

"We hate the palpable design upon us," said John Keats, thus defining as well as anyone the distress some people might feel as inhabitants of the best modern houses by the best architects. Jan Wampler's book is about such people, people whose low tolerance for being props in other people's sets has moved them to create their own idiosyncratic worlds.

On a Wheelwright Fellowship from Harvard, Wampler toured the U.S. in a VW camper, hunting for the kind of oddballs and loners who spend twenty years piecing together a house out of sea shells or windshields or rolled-up newspapers. *All Their Own* presents the results of this odyssey.

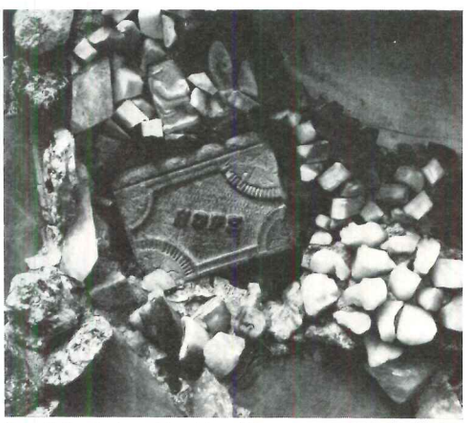
Some of Wampler's discoveries are astonishing. In British Columbia, David Brown retires from the undertaking business, collects half a million used embalming-fluid bottles from his friends, and piles them up into a house, garden walls, and even bridges. The bottles are mortared like bricks, in the manner of the ill-fated Heineken-bottle experiment of some years ago. In Seattle, Boyce Gulley, in bad health, leaves his family in 1927, goes to Arizona and builds his daughter an 18-room multi-level castle. The windows are glass refrigerator trays; mortar is mixed with goat's milk. His daughter, who never sees the castle until after her father's death in 1945, lives there today. In Fresno, California, Baldasare Forestiere tunnels out a 90-room underground house and dies while digging a 5,000-square-foot addition intended as a restaurant. One sunken room is roofed by an aquarium.

Wampler's builders are ordinary people. Maude Meagher and Carolyn Smiley are typical. Middle-aged editors from Boston, knowing nothing of construction, they built in the 1940s an 18-room house near San Francisco. They began by reinventing the adobe brick through experiments with different mixes dried in the sun. Windows, made from junked automobile windshields, exploded at first because the women didn't know about thermal expansion. Yet they went on to install, finally, 3,000 panes, build nine fireplaces—all with different patterns of inlaid tile—and span their major rooms with hand-made trusses, while simultaneously running a magazine and growing their own food.

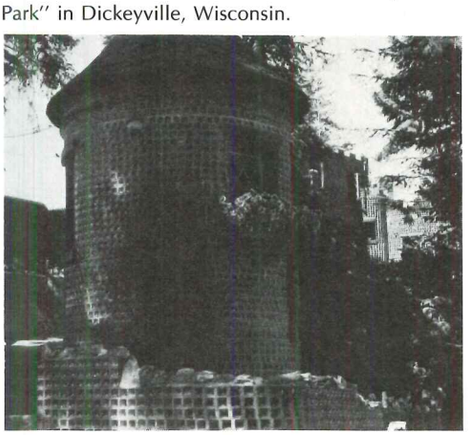
Robert Campbell is an architect who practices in Boston and is the architecture critic for the *Boston Globe*.

None of these builders was aware of the others, and no one knows how many more there may be. They made many discoveries in common, one being the use of discarded automobile springs as centering for arches. Some of the buildings are lovingly maintained, by the builder or family or sympathetic later owners, but many others are deteriorating, and a few are threatened with being demolished as eyesores.

What can an architect learn from the efforts of these untutored, solipsistic creators? One lesson, surely, is the immense amount of energy that can be released in people who discover that they can make their own environment. Such energy is untapped, obviously, by a society that believes in central planning, financing, and delivery of housing. A second lesson is the great richness of surface that these people, left to themselves and free from peer pressure, seem to desire. Like Christopher Alexander's "thick walls," surfaces everywhere here are crusted and thick with meaning. Memories of the past, gathered treasures, symbolic objects and markings of all kinds are woven and printed into them.



Detail in Father Matthias Wernerus's "Holy Ghost Park" in Dickeyville, Wisconsin.



David Brown's house in Boswell, British Columbia.

William Preston's house in Shawsville, Virginia.

For Jan Wampler, the marks people make on the world are talismanic. Nothing can ever be wrong or in bad taste. A professor of architecture at MIT, Wampler is one of a group there, past and present, who together make up a school of thought that has emphasized the importance of non-architects in the creation of architectural experience—non-architects as inhabitors and perceivers, as in the writings of Donlyn Lyndon. The movement can be traced to the anti-architecture of the late sixties when MIT was a hotbed of social awareness and participatory projects. Other members include: John Habraken, the current architecture chairman, who contributes an introduction to this book, Lyndon, and the authors of *Freedom to Build*. Wampler himself has won awards for unbuilt self-help projects in Puerto Rico and Boston and has designed a kind of elaborate *Lego* set to help teach non-architects to design.

All Their Own has faults. Wampler tends to idealize his people and accord them the Noble Savage status they often seem to be seeking. As a result he's too modest, telling his story mostly through mute photos and the taped or published comments of the builders. One wants to know much more about them and about Wampler's own quest, how he found his subjects, his relationship to them, why he thinks they matter. Photos are profuse but poorly reproduced and repetitive, emphasizing close-ups at the expense of general views or context. And it's annoying not to have an index or table of contents.

Nevertheless, *All Their Own* is a priceless record of unique and wonderful achievements. Perhaps it will create enough attention to save some of them.

Beyond that, the book, like *The Oregon Experiment, A Pattern Language, The Place of Houses* and others, is a contribution to an emerging and still nameless theory of architecture which views the built environment as a kind of loose social collaboration among many diverse private initiatives—the very opposite of that other emerging theory one reads about in *Oppositions*, in which the architect-as-artist/expert retains the upper hand.

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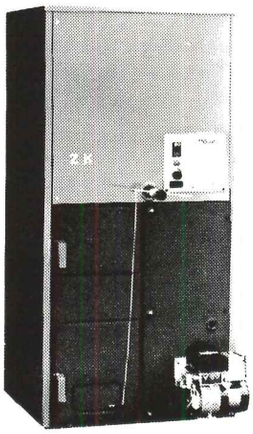

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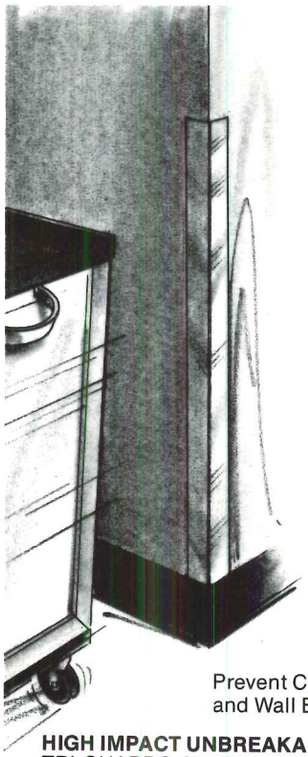

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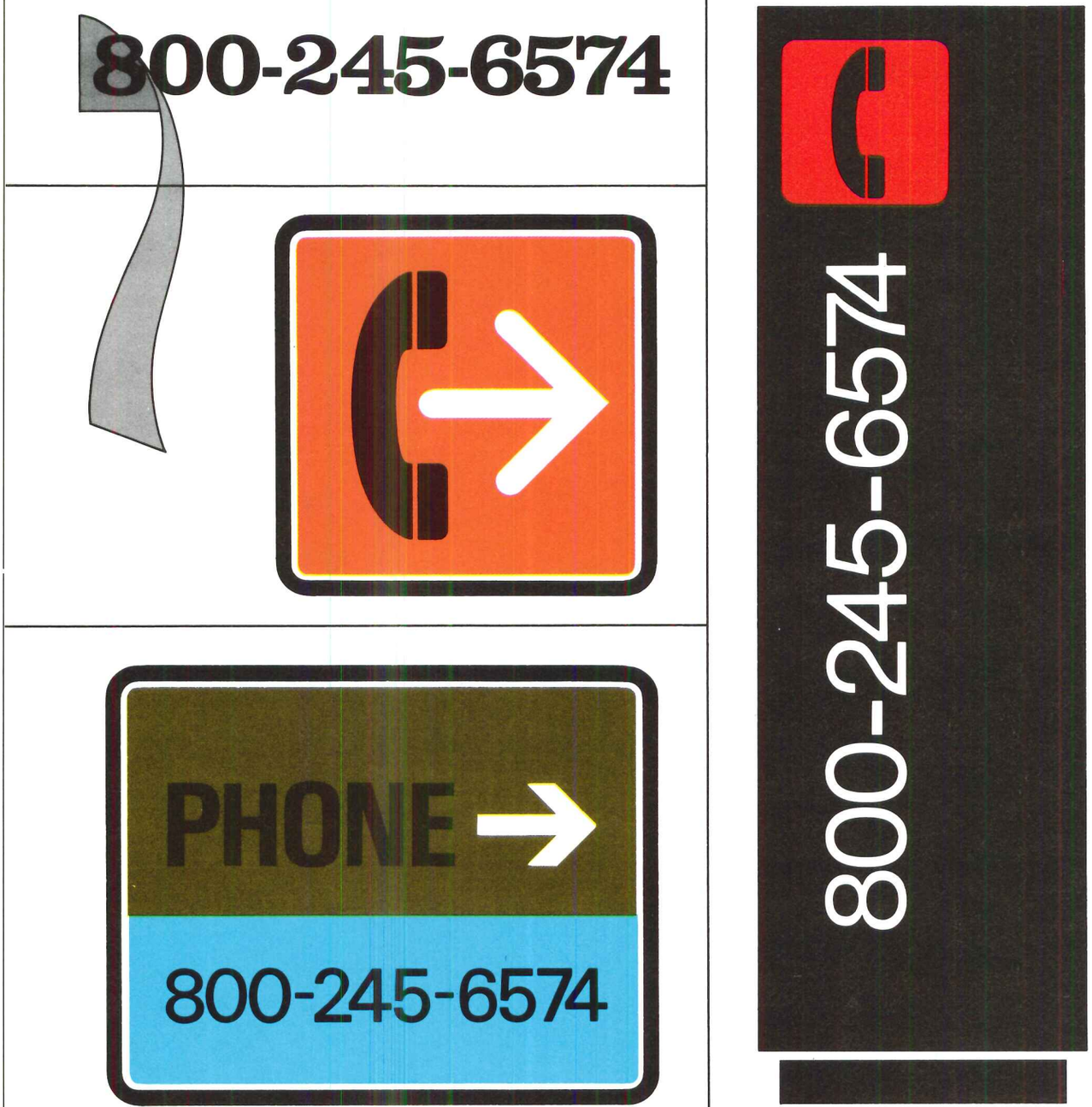

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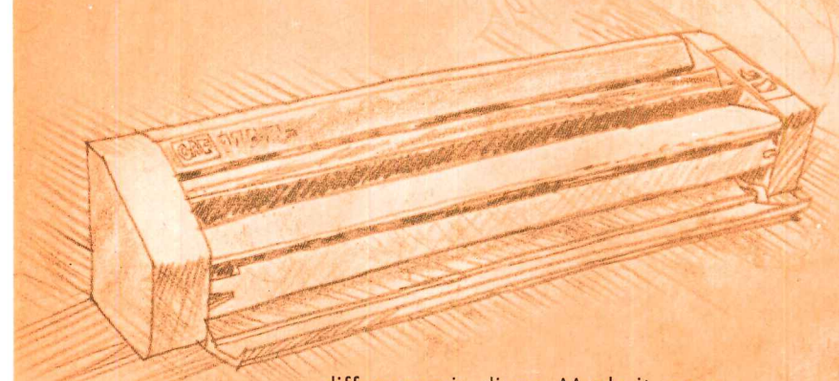

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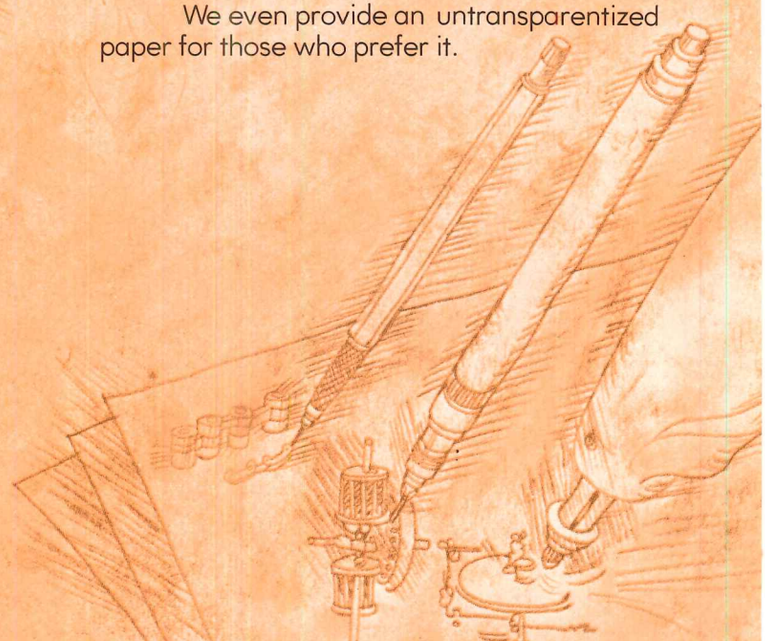

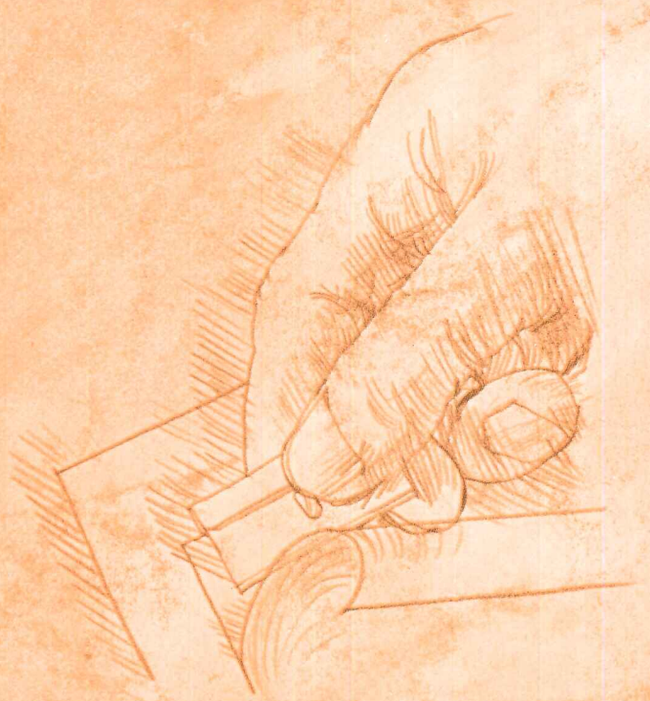

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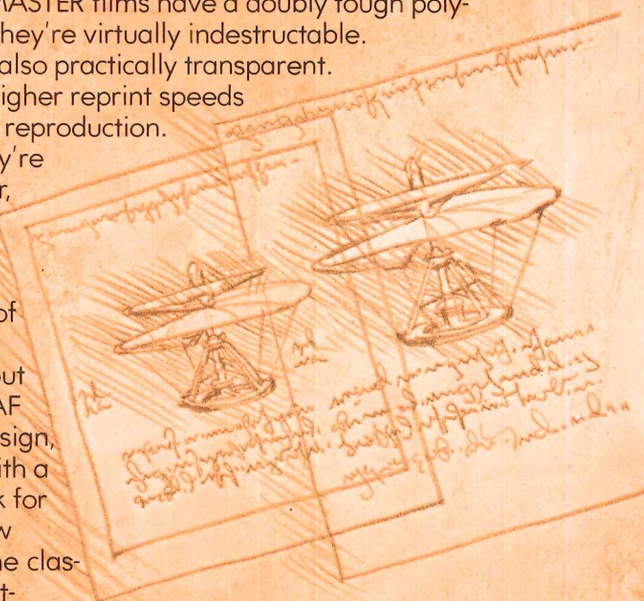

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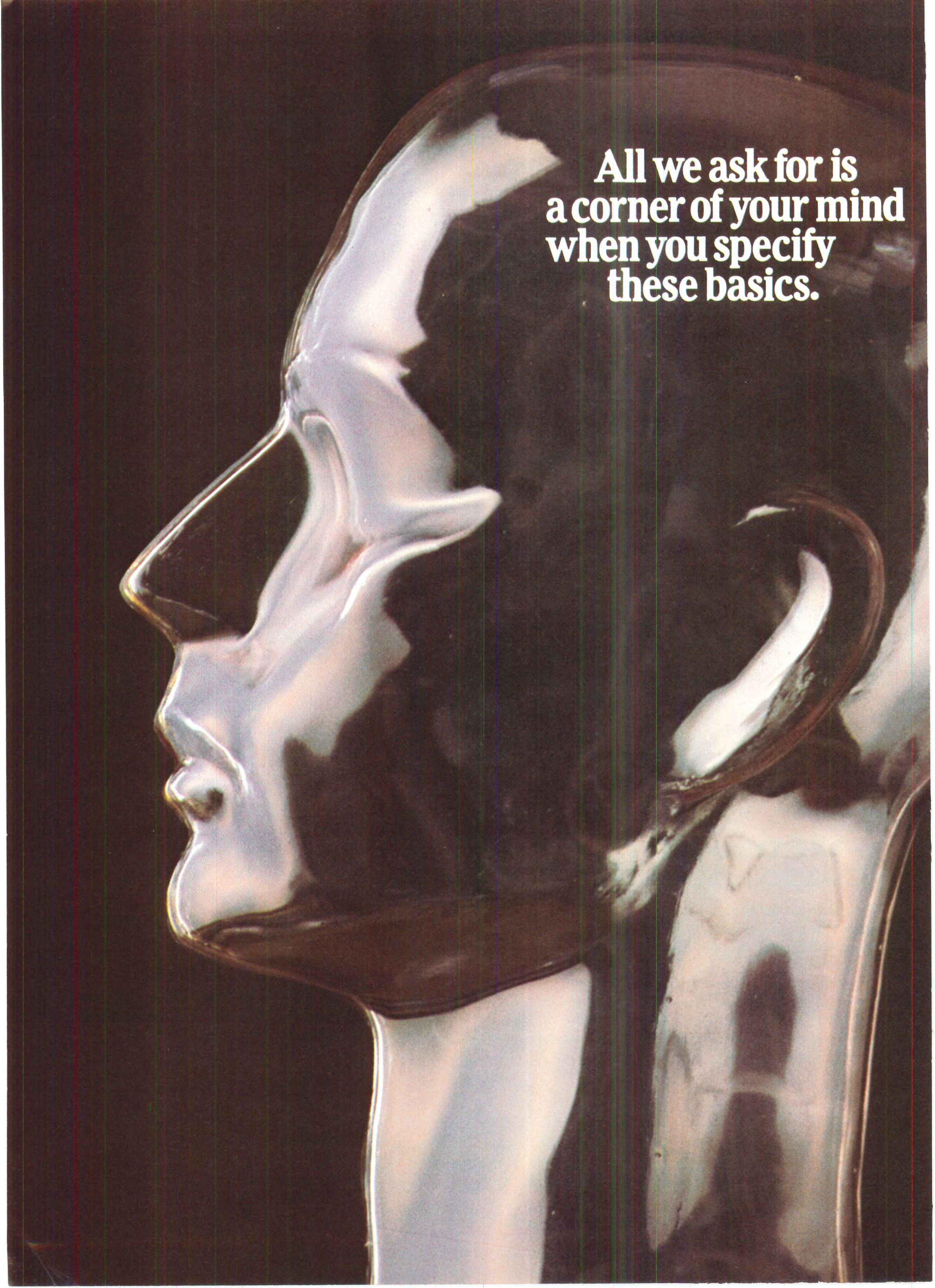
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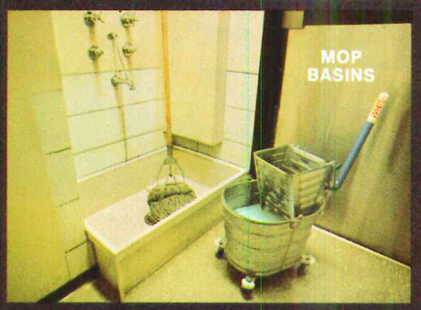

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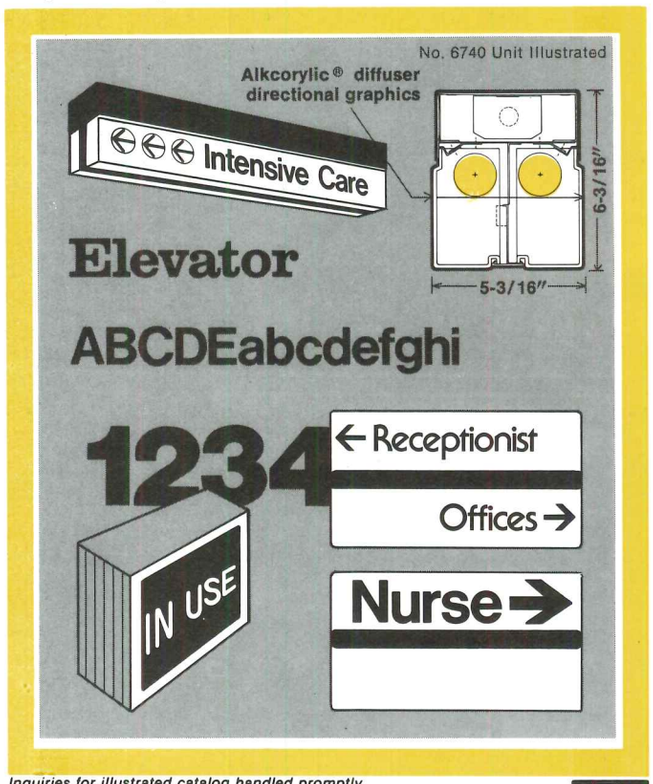

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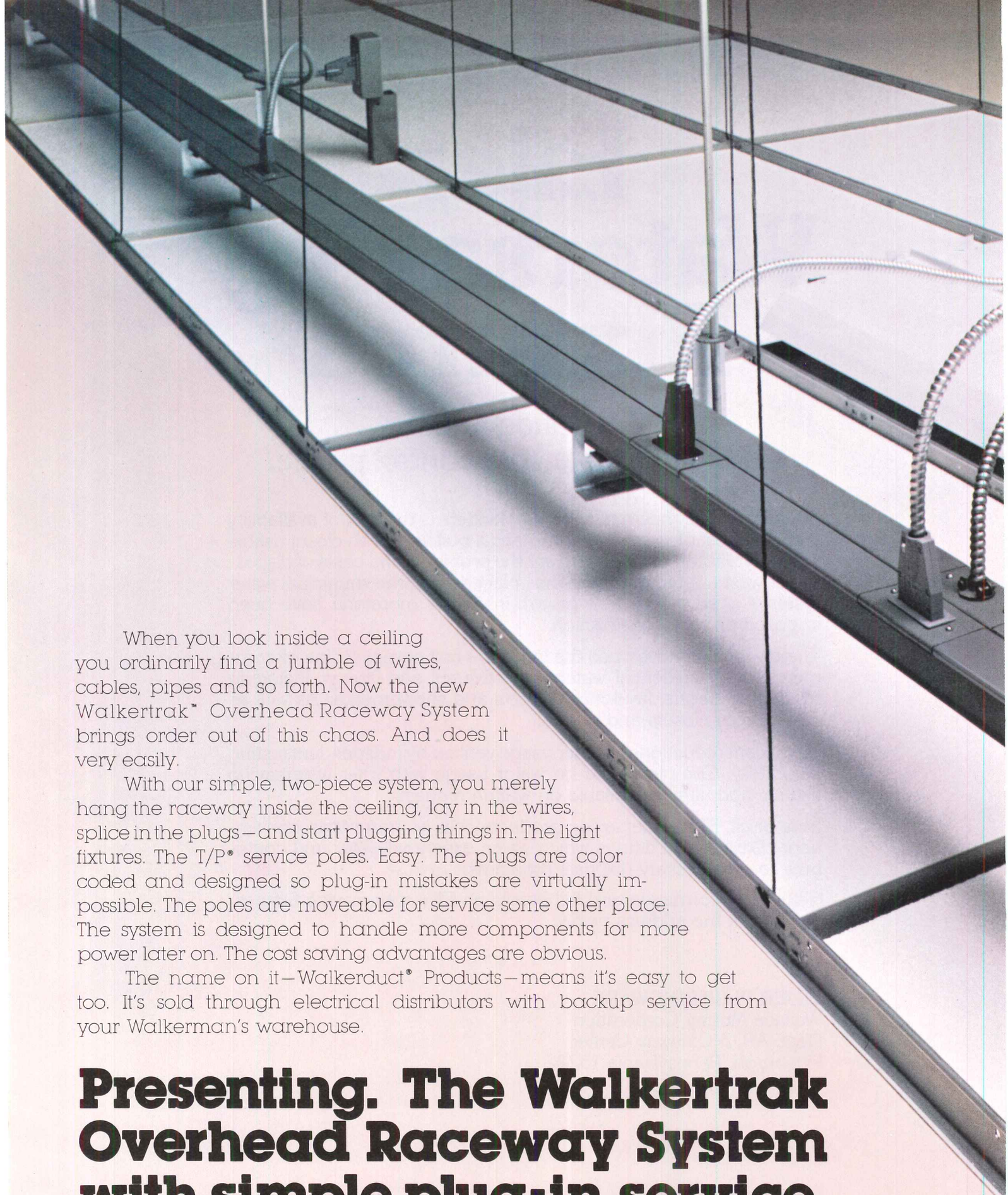

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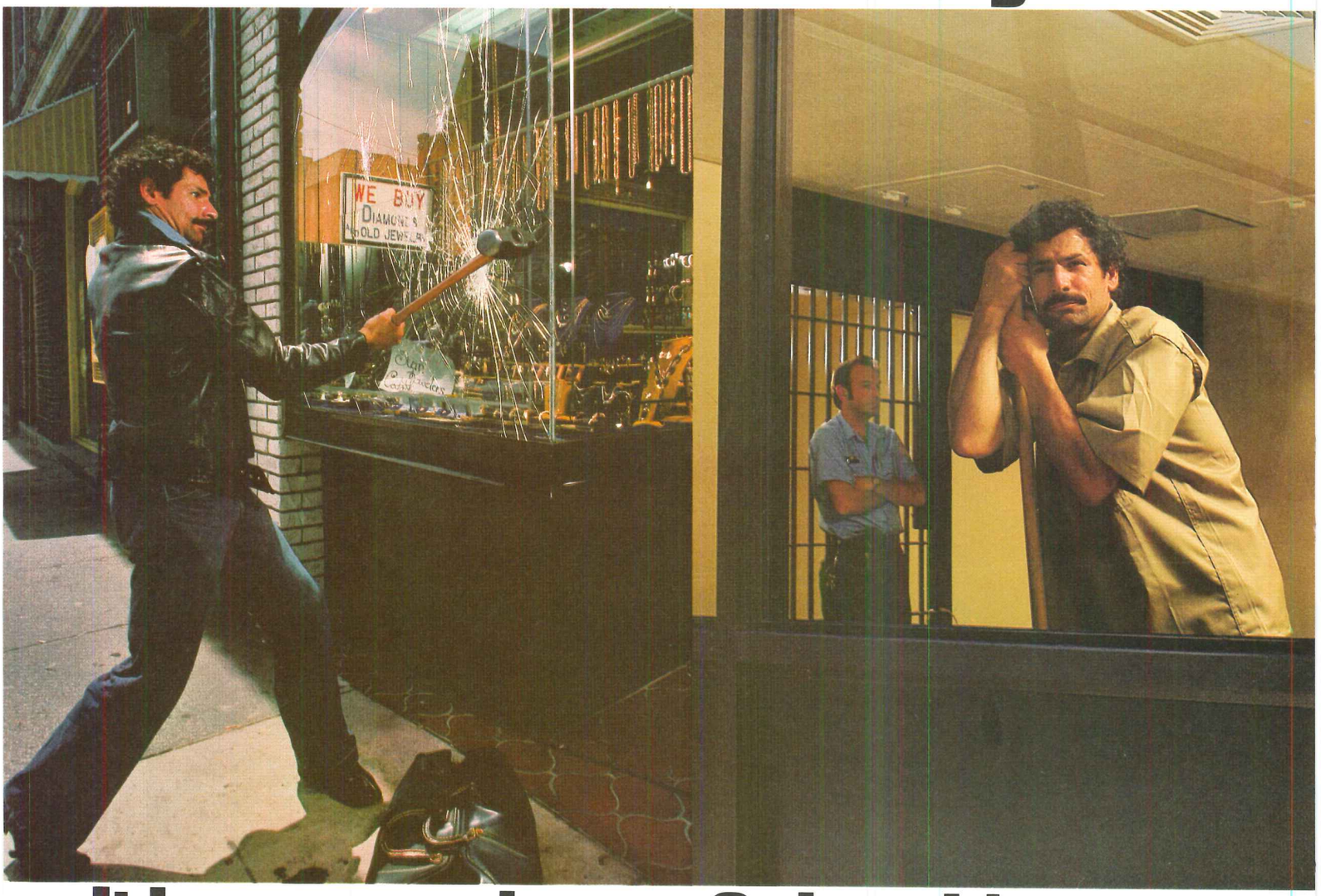

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Dodge/Sweet's Construction Outlook: 1978
The fuller development of nonresidential markets is expected

The building cycle is presently finishing the third year of the expansion that began with a housing recovery early in 1975, and was reinforced a year later by an upturn in nonresidential building. 1978 will bring the fuller development of nonresidential building demand as housing reaches its limit and begins to recede. The potential for a further increase in total construction contract value of 8 per cent next year follows gains of 24 per cent in 1977 and 19 per cent in 1976. However, the reader should be aware of some of the vulnerabilities of 1978 construction markets: 1) If credit restraint becomes excessive, disintermediation could precipitate a collapse of the housing market in 1978, instead of the orderly slowdown anticipated; 2) Businessmen are prepared to stretch out, or even cancel, their 1978 commercial and industrial building plans if signs of a serious economic slowdown appear; and 3) A few huge electric generating projects, involving several billions of dollars, could be postponed. These are *not* probabilities; they are only contingencies. Given responsible monetary policy by the Federal Reserve, and aggressive fiscal policy by the Carter Administration, construction markets are capable of developing along the path indicated throughout this outlook.

Prepared October 1977 by the Economics Department, McGraw-Hill Information Systems Company; George A. Christie, vice president and chief economist.

The building cycle is about to move into Phase III, and it's time to get ready for the change. But what is Phase III, and how will it be different from Phases I and II?

For the last couple of years we've been stressing the importance of how the building cycle advances (and recedes) in phases. This concept of a multi-phased cycle is the result of a quite dependable one-year lead/lag relationship between the two sub-cycles in residential building (the leader) and nonresidential building. The standard pattern is based on the analysis of several past cycles; and the fact that the current cycle, which began back in 1975, is behaving according to form has been a big plus in the reliability of forecasting for the past couple of years. It works this way:

Phase I covered most of 1975. In the opening quarter of that year, housing began a strong cyclical advance that is still running. Due to the normal lag, however, nonresidential building continued to decline through all of that year. The result of this tug-of-war was a net decline of 4 per cent in total construction contract value during Phase I.

Phase II took over early in 1976 when nonresidential building turned up, reinforcing rather than cancelling the housing cycle. With both sub-cycles expanding together, the really big gains began to come through. The scorecard on Phase II of the construction industry's recovery from its worst recession in a generation makes pleasant reading.

In contrast to the long-term average annual gain of 7-8 per cent (in current dollars), contract value jumped 19 per cent in 1976, and is headed for a further increase of more than 20 per cent in 1977. In the two-year span of Phase II, contract value of new construction will have advanced by more than 45 per cent, exceeding the pre-recession peak even after adjustment for inflation, and sending annual expenditures for construction put in place up by about $38 billion. Roughly half of this expenditure represents the sale of building products of one kind or another.

So far, a very large part of the expansion of total construction demand has been concentrated in housing. Over the course of Phases I and II, the seasonally-adjusted rate of housing starts more than doubled—from less than a million units back in the first quarter of 1975 when it all started, to the current two-million-unit rate of building. While this was happening, nonresidential building still had to decline for a year (Phase I) before making its tenuous recovery (Phase II). As a consequence, residential building presently accounts for 70 per cent of the total combined square footage of residential and nonresidential building.

Past performance shows that this 70/30 proportion is about as far apart as the two building markets ever get. That's because at this point most of the potential for further gain rests with nonresidential building. One of the features of Phase III of the recovery is that continued expansion of nonresidential building and the slowing (or decline) of housing brings the two markets closer to their more normal 60/40 relationship. All four regions of the nation got a piece of the construction recovery during Phase II, but the pieces weren't equal.

The Midwest, as usual, was right on the national average with a 48 per cent gain over the two-year period.

The largest gain to be found during Phase II took place in the South—just where it was to be found in the pre-recession boom of the early 1970's. Housing and electric power plants dominated the Southern region's recovery, with only a small improvement so far in nonresidential building.

The contrast between the remaining two regions is especially vivid. The Northeast, hardest-hit by the 1974-75 recession, predictably staged the weakest recovery during 1976 and 1977. Going into 1978, this region has barely regained its pre-recession level of contracting—something the three other regions accomplished at least a year earlier. The Western construction market (with the help of the Alaskan pipeline boom) was the least affected of the four regions by recession. It was the only region to show uninterrupted yearly gains in total construction contract value thorughout the entire recession/recovery period.

As productive as Phase II has been, its pace can hardly be sustained for much longer. Circumstances are already leading the recovery of construction markets into Phase III thus:

- As housing, the leading sub-cycle, passes its peak, the thrust of expansion must come from another source—nonresidential building.
- With residential building fading, the overall rate of expansion will settle back from the exceptional 20 per cent annual gains of the past two years.
- And eventually, as housing goes into a cyclical decline, the losses in housing will finally cancel the gains in nonresidential building, bringing the expansion to its conclusion. That's Phase IV, and it lies somewhere beyond 1978.

The 1978 forecast depends in part on the outside influences on construction

Before it becomes necessary to worry about Phase IV, there are some questions about Phase III that need answers. How much will the over-all rate of construction slow in 1978? How will the "mix" of residential and nonresidential building be changing? Will the housing market collapse? What is the potential for expansion of nonresidential building? Which regions will do best? Where are we likely to go wrong? These are the issues that the 1978 Outlook must deal with.

Continued on page 57

"Otis performed miracles to finish their work on time..."

The $337 million Renaissance Center in Detroit is one of the largest privately financed projects ever built in the U.S. The four, 39-story office towers contain 2.2 million square feet of rentable space, and the 73-story Western International Detroit Plaza Hotel has 1,400 rooms plus 100,000 square feet of meeting space.

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Two kinds of problems—one not entirely independent of the other—continued to frustrate economic policymakers as 1978 approaches. One is the diminishing rate of progress of the recovery as it nears its third anniversary. The other is the dogged persistence of excessive inflation which, rightly or wrongly, has limited the Federal Reserve's use of monetary measures to stimulate faster growth. Both problems will be holding the economy's expansion to less than an optimum rate in 1978.

It isn't unusual for a recovery to lose momentum as it ages. The trouble with this one is that, except for a few short bursts of activity, it hasn't shown much promise right from the start. And by now the consumer, who carried the burden of the recovery through its first two years, has reached a temporary saturation point.

Next year's Federal budget, with its roughly $60 billion deficit, will be more stimulative to the economy. And if even more thrust is needed to get the recovery moving faster, President Carter has another option. A "quickie" tax cut or rebate might be offered early next year to tide us over the period it will take Congress to debate his broader proposals for general tax reform which are expected to provide incentives to both consumers and business. However, big deficits are in direct conflict with the Carter Administration's ambitious goal of achieving budgetary balance by 1981.

While government fiscal policy can, and should, prop the economy when it falters, no recovery can get far without the support of a surge of business capital spending. Investment in new plant and equipment has been the weakest aspect of the current recovery, and although capital spending finally began to hit stride in 1977, plans for 1978 outlays remain cautious.

Finally, with inflation still pushing 6 per cent, it would be unrealistic to expect a significant relaxation of the Fed's restrictive monetary growth goals and high interest rates even after Chairman Burns' term expires early next year. And that prospect sets another limit on the economy's potential for expansion in 1978.

As a result of these conflicts and constraints, the prospect for further growth of the economy next year shapes up as only about 4½ per cent in real GNP terms—better than the long-term trend rate, but not much better. And at this stage of the recovery it should be a lot better.

After two years of expansion, the housing cycle has reached maturity

Residential building, a major source of support to the economy's recovery during 1975 and 1976, now has little potential left for further expansion. Although inflation keeps pushing up the cost of new homes and apartments, the cyclical upswing in the number of dwelling units appears to have leveled off at a two million rate early in 1977. After six months on this lofty plateau, the housing market is ready for change, but it is our expectation that the next change will be more of a change in composition than in total volume.

The possibility of a renewed surge of expansion beyond the current two-million-unit barrier—though unlikely—cannot be dismissed entirely. This prospect would require a strong rise in multi-family building next year as well as continued high single-family demand.

The only time that housing production ever significantly exceeded two million units (1972) was at the peak of the problem-ridden 235/236 housing subsidy program. Not only has that program been largely discontinued in favor of the Section 8 approach (which offers the option of subsidizing the occupancy of existing units as an alternative to new construction), but it is doubtful that it would even be desirable for HUD to stimulate total housing production beyond the two million level by any combination of programs. The demography of the second half of the 1970's strongly indicates that the sustainable demand for new housing is no greater than it was in the first half of the decade. A yearly average of between 1.8 and 1.9 million units is as much as the market can absorb on a continuing basis.

Another possibility is that the housing cycle, having topped out, will soon go into a sharp decline, as it has often done in the past (and especially as it did in 1973-74—the last time that building markets were in Phase III). But none of the conditions that led to past collapses of the housing cycle—extensive overbuilding; disintermediation in credit markets; the sudden shutdown of subsidy programs—seems to pose an immediate threat at the end of 1977.

For 1978, residential starts will be virtually unchanged: 1.9 units

From a rate of housing starts still above two million units in 1978's first quarter, we anticipate a gradual decline over the year to a rate of

1977 National Estimates of Dodge Construction Potentials

Nonresidential Buildings	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Contract Value (millions of dollars)				
Office Buildings	$ 4,122	$ 4,875	$ 5,600	+15
Stores & Other Commercial	6,315	8,050	9,400	+17
Manufacturing Buildings	4,058	4,900	6,350	+30
Total Commercial & Manufacturing	$14,495	$17,825	$21,350	+20
Educational	$ 4,980	$ 4,975	$ 5,325	+ 7
Hospital & Health	4,590	4,425	4,925	+11
Other Nonresidential Buildings	5,980	6,150	6,900	+12
Total Institutional & Other	$15,550	$15,550	$17,150	+10
Total Nonresidential Buildings	$30,045	$33,375	$38,500	+15
Floor Area (millions of square feet)				
Office Buildings	108	125	135	+ 8
Stores & Other Commercial	343	405	445	+10
Manufacturing Buildings	151	175	210	+20
Total Commercial & Manufacturing	602	705	790	+12
Educational	120	110	112	+ 2
Hospital & Health	74	65	68	+ 5
Other Nonresidential Buildings	173	170	180	+ 6
Total Institutional & Other	367	345	360	+ 4
Total Nonresidential Buildings	969	1,050	1,150	+10

*Eight months actual; four months estimated.

Residential Buildings	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Contract Value (millions of dollars)				
1- & 2-Family Homes	$36,547	$48,800	$48,600	—
Apartments	6,550	9,775	11,750	+20
Nonhousekeeping Residential	1,142	1,150	1,250	+ 9
Total Residential Buildings	$44,239	$59,725	$61,600	+ 3
Floor Area (millions of square feet)				
1- & 2-Family Homes	1,531	1,880	1,750	— 7
Apartments	307	435	500	+15
Nonhousekeeping Residential	34	35	40	+14
Total Residential Buildings	1,872	2,350	2,290	— 3
Dwelling Units (thousands of units)**				
1- & 2-Family Homes	1,092	1,335	1,250	— 6
Apartments	335	475	550	+16
Total Housekeeping Residential	1,427	1,810	1,800	— 1
Nonbuilding Construction				
Contract Value (millions of dollars)				
Highways & Bridges	$ 7,884	$ 9,500	$10,500	+11
Utilities	17,850	22,000	24,000	+ 9
Sewer & Water	6,159	7,100	8,000	+13
Other Nonbuilding Construction	3,811	4,400	4,400	—
Total Nonbuilding Construction	$35,704	$43,000	$46,900	+ 9
All Construction				
Contract Value (millions of dollars)				
Total Construction	$109,988	$136,100	$147,000	+ 8
Dodge Index (1967 = 100)	199	247	266	

*Eight months actual; four months estimated.
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1.8 million in the final quarter. This would leave next year's total at 1.9 million units, vitually unchanged from the estimated 1977 volume except in two important ways: The *direction* in 1978 will be downward, and the *composition* of the next year's total will shift, consisting of about 100,000 fewer one-family homes and that many more apartment units. The dollar value of 1978's 1.9 million housing units will be about 3 per cent higher.

Regionally, next year's trade-off of some 100,000 dwelling units from one-family homes to apartments should benefit the Northeast and Midwest, partly because Federal housing policy will be directing more community development funds to these heavily urbanized areas under a revised formula which gives greater weight to the age of the housing stock and to lagging growth—problems plaguing the cities of these regions.

Still on a recovery path, nonresidential building is more promising

It seems as though the recovery of the nonresidential building market from its 1974-75 crash is taking an inordinately long time to gather momentum. Nevertheless, a match-up with the early progress of the recovery from the 1970 recession shows that there is little, if anything, unusual about the recently sluggish behavior of this market.

Nonresidential building is now seven quarters into its recovery—a recovery that didn't even begin until the opening quarter of 1976. At this point the seasonally-adjusted rate of contracting shows only a 30 per cent improvement over the recession low. Yet, this modest rate of expansion puts the current recovery right on a par with the rebound from the 1970 recession, a path that eventually led to the boom of 1973 and early 1974. In both recoveries, early progress was not only slow but subject to occasional setbacks. More important, though: after seven quarters of recovery, the current nonresidential cycle—unlike the mature housing cycle—is still in its adolescence. At this point last time around, nonresidential building continued to expand for another eight quarters.

To assess the remaining potential of the current cycle, we'll examine separately the two quite different sub-markets in the nonresidential building group.

Stores look strong; offices and factories will be moderately active

The usually reliable cause-and-effect relationship between homebuilding and contracting for stores and other retailing facilities has been holding up well for the past two years, and indicates a prospect for further gains in 1978. The demand for retail buildings responded quickly to the stimulus of rising homebuilding in 1975, but the extraordinary three-year surge of housing starts by now has far outpaced contracting for retail buildings. Even allowing for the likelihood that the rate of homebuilding will be declining in 1978, store and shopping center construction has at least another year of expansion ahead.

Office building is now moving ahead in all four regions—even in the struggling Northeast—although the South and West, as might be expected, are in the lead. Total office volume, at 125 million square feet in 1977, is still far below the 1973 boom rate of nearly 200 million, and probably won't regain that level until 1980. The large office building projects that dominated the pre-recession boom are still conspicuously absent from the recovery.

The demand for new manufacturing capacity is heavily influenced by the amount of surplus capacity in existence at any time, and much of the recent sluggishness in the recovery of contracting for manufacturing buildings can be explained in these terms.

- When capacity in use falls below 80 per cent (as it did in 1970-71 and again in 1974-75-76), contracting for new factory buildings falls to a minimum level of about 150 million square feet—a volume reflecting relocation and/or replacement of obsolete facilities, but no expansion.
- At the optimum rate of capacity utilization—between 80 and 85 per cent (as in 1970, 1972 and 1974)—the appropriate rate of contracting for new manufacturing buildings (to allow for expanded output as well as for relocation and replacement) appears to be in the range of 200 to 250 million square feet per year.
- When boom conditions send the operating rate above 85 per cent (as they did in 1969, 1973 and early 1974), a bottleneck situation occurs that triggers peak rates of contracting of 300 million square feet or more.

In the spring of 1975, the recession's low point, manufacturers were using only 71 per cent of existing capacity and it took until the middle of the following year before rising

1977 Regional Estimates of Dodge Construction Potentials

Northeast

Connecticut, District of Columbia, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Eastern Pennsylvania, Rhode Island, Virginia, Vermont

Contract Value (millions of dollars)	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Nonresidential Buildings				
Commercial & Manufacturing	$ 2,213	$ 2,700	$ 3,200	+19
Institutional & Other	3,564	3,200	3,750	+17
Total	$ 5,777	$ 5,900	$ 6,950	+18
Residential Buildings				
1- & 2-Family Homes	$ 4,911	$ 6,400	$ 6,500	+ 2
Apartments	1,346	1,725	2,250	+30
Nonhousekeeping Residential	168	175	200	+14
Total	$ 6,425	$ 8,300	$ 8,950	+ 8
Nonbuilding Construction				
Highways & Bridges	$ 1,392	$ 1,925	$ 2,200	+14
Utilities	2,420	4,300	4,100	− 5
Other Nonbuilding Construction	2,671	3,100	3,300	+ 6
Total	$ 6,483	$ 9,325	$ 9,600	+ 3
Total Construction	$18,685	$23,525	$25,500	+ 8

Midwest

Northern Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, North Dakota, Ohio, Western Pennsylvania, South Dakota, Wisconsin, West Virginia

Contract Value (millions of dollars)	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Nonresidential Buildings				
Commercial & Manufacturing	$ 3,848	$ 4,600	$ 5,550	+21
Institutional & Other	4,025	4,200	4,650	+11
Total	$ 7,873	$ 8,800	$10,200	+16
Residential Buildings				
1- & 2-Family Homes	$ 8,466	$11,300	$11,500	+ 2
Apartments	1,677	2,300	3,000	+30
Nonhousekeeping Residential	291	225	250	+11
Total	$10,434	$13,825	$14,750	+ 7
Nonbuilding Construction				
Highways & Bridges	$ 2,206	$ 2,550	$ 2,900	+14
Utilities	4,140	4,100	6,000	+46
Other Nonbuilding Construction	2,307	2,600	2,850	+10
Total	$ 8,653	$ 9,250	$11,750	+27
Total Construction	$26,960	$31,875	$36,700	+15

*Eight months actual; four months estimated.

South

Alabama, Arkansas, Florida, Georgia, Southern Illinois, Kansas, Louisiana, Mississippi, Missouri, North Carolina, Nebraska, Oklahoma, South Carolina, Tennessee, Texas

Contract Value (millions of dollars)	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Nonresidential Buildings				
Commercial & Manufacturing	$ 5,213	$ 5,900	$ 7,250	+23
Institutional & Other	4,903	5,200	5,500	+ 6
Total	$10,116	$11,100	$12,750	+15
Residential Buildings				
1- & 2-Family Homes	$13,294	$17,800	$17,800	—
Apartments	1,464	2,475	2,900	+17
Nonhousekeeping Residential	316	350	400	+14
Total	$15,074	$20,625	$21,100	+ 2
Nonbuilding Construction				
Highways & Bridges	$ 3,022	$ 3,275	$ 3,550	+ 8
Utilities	6,727	10,800	9,600	−11
Other Nonbuilding Construction	3,142	3,500	3,700	+ 6
Total	$12,891	$17,575	$16,850	− 4
Total Construction	$38,081	$49,300	$50,700	+ 3

West

Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Contract Value (millions of dollars)	1976 Actual	1977 Preliminary*	1978 Forecast	Per Cent Change 1978/77
Nonresidential Buildings				
Commercial & Manufacturing	$ 3,221	$ 4,625	$ 5,350	+16
Institutional & Other	3,058	2,950	3,250	+10
Total	$ 6,279	$ 7,575	$ 8,600	+14
Residential Buildings				
1- & 2-Family Homes	$ 9,876	$13,300	$12,800	− 4
Apartments	2,063	3,275	3,600	+10
Nonhousekeeping Residential	367	400	400	—
Total	$12,306	$16,975	$16,800	− 1
Nonbuilding Construction				
Highways & Bridges	$ 1,264	$ 1,750	$ 1,850	+ 6
Utilities	4,563	2,800	4,300	+54
Other Nonbuilding Construction	1,850	2,300	2,550	+11
Total	$ 7,677	$ 6,850	$ 8,700	+27
Total Construction	$26,262	$31,400	$34,100	+ 9

*Eight months actual; four months estimated.

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production brought the utilization rate through the 80 per cent threshold. This meant that after more than a year at the "relocation/replacement" level of building, manufacturers were ready to move up to the "optimum" range. But they didn't—at least not right away.

The best explanation for this lack of immediate response lies in the so-called "pause" in the economy's recovery that set in during the summer of 1976, dampening corporate enthusiasm for investment spending. It took the strong early 1977 rebound of business to restore confidence. Contracting for manufacturing building finally began to advance in the opening quarter of 1977, reaching the low end of the "optimum" range in the second half of the year. Further expansion of industrial production (though at a slower rate for the next couple of quarters) should keep the utilization rate comfortably within the 80-85 per cent "optimum" range without danger of general shortages or bottlenecks. This suggests another gain of up to 20 per cent in square footage of manufacturing buildings contracted next year.

Passage by Congress of either or both of the Carter proposals to encourage business capital spending through tax reform—increasing the Investment Tax Credit from 10 to 12 per cent and broadening the coverage of the Investment Tax Credit to include buildings as well as equipment—would lend additional support to a more favorable outlook for commercial and industrial building.

Institutional and other nonresidential buildings are committed to renovation

Construction's "no-grow" market—the institutional group consisting of school, hospital, public administration, religious, and recreational buildings—is experiencing the onslaught of a whole series of negative influences. Some of these problems, like shrinking enrollments and overcapacity in health care facilities, are intrinsic and will be around for a long time; others, like inflation and recession, are external and temporary. Together, the eroding effect of these forces over the 1970's has reduced the annual volume of construction by 100 million square feet from what it was at the end of the 1960's.

The diminished need for educational facilities due to adverse demographic trends has been recognized for many years, but the current surplus of hospital beds is a more recent development. In both markets, roughly half of the available construction dollars are now being used for additions and alterations to existing facilities instead of construction of new buildings.

Inflation and recession simply aggravate the effects of these inherent constraints on growth, of course. While the demand for schools and hospitals is not directly sensitive to business conditions (in the way that commercial and industrial buildings are), there was nevertheless a noticeable drop in contracting for institutional buildings during both the 1970 and 1975 recessions—probably reflecting the reduced capacity of states and municipalities to finance construction in times of budgetary stress. Since contracting rebounded somewhat in the years between the two recessions (but never regained its pre-1970 volume), it seems reasonable to expect that the lingering effects of the 1975 recession will diminish in 1978. It's too bad this statement doesn't apply equally to inflation.

Along with all the negative influences on institutional building in the 1970's, there are a few positive ones as well. Revenue sharing, the yearly transfer of $6 billion-plus of Federal tax revenue to communities, provides a steady budgetary base regardless of economic conditions. More recently, the Public Works Employment Act provided for a special appropriation of $6 billion to be used during 1977 and 1978 to create construction jobs in high unemployment areas. Some of the first $2 billion (Round I) was designated for public institutional buildings, but so far there's little evidence that it stimulated any additional construction. Round II—the remaining $4 billion—is now being committed and its impact on 1978 institutional construction may be more visible.

So . . . in 1978, commercial and industrial building will be providing the thrust that's been lacking . . . in nonresidential building up to now. With the long-awaited expansion of business capital spending finally taking hold, contracting for commercial and industrial building could jump as much as 20 per cent in 1978, provided that the economy itself remains reasonably buoyant. The bonus of a modest reversal of the long decline of institutional building can also be hoped for, but shouldn't be depended upon.

The Public Works Employment Act assures more highways, sewers and water facilities

Nonbuilding construction is often a pretty good barometer of what this nation considers to be its top priority issues—at least as far as they are solvable by construction. For examples:

- Ecology became a serious concern around 1970. Before that year we were spending only $1.5 billion annually on sewer and waste disposal systems; the amount is now well over $5 billion a year, and rising sharply.
- Energy changed from a problem to an issue during the cold, dark winter of 1974-5. Prior to that, the electric utilities were contracting for $5 billion of generating facilities annually; the amount is now approaching $20 billion.
- Structural unemployment displaced inflation on the national priority scale during the Presidential campaign of 1976. One result: a reversal from holding back on Federal construction funds (impounding) to providing a special $6 billion appropriation to create jobs through public works.

It also works the other way. Development of an interstate network of superhighways enjoyed high priority in the 1950's and 1960's. Since 1970, however, construction of highways has grown by only 3 per cent per year—a significant decline after adjustment for inflation—as priorities shifted in favor of mass transit.

In 1978 the emphasis on these issues will remain much as it was in 1977, with energy and unemployment heading the list of national problems that can be relieved through construction.

The consequence of Round I—the disbursement of the first $2 billion under the Public Works Employment Act—can be clearly seen in the currently high rates of contracting for highways and sewer/water facilities (in contrast to the situation in schools, hospitals, and other public nonresidential buildings where no sharp change is evident).

The impact on roadbuilding was immediate and strong. It took a little longer to put these special funds to work in sewer and water projects (probably because Environmental Protection Agency approval causes some necessary delay), but the result has been similar to the step-up in highway work. Beginning with 1977's first quarter, sewer and water contracting has averaged 15 per cent higher than before Round I.

There is apt to be a brief setback of public works contracting in the fall of 1977 before Round II—for which the Economic Development Administration entertained requests during August and September—sets off a secondary wave of as many as 7,000 to 8,000 more projects. The major impact of Round II's $4 billion should begin late in 1977, with a large spillover into 1978. As with Round I, the economically blighted Northeast and Midwest regions will receive special consideration.

Conservation, as emphasized by President Carter's national energy program, will undoubtedly slow the growth of over-all demand for energy, but over the next decade or two an even larger share of the nation's energy supply will have to be met by electricity. Allowing for the long lead time that is typical of utility construction, the minimum capacity requirements to serve the nation's industrial, commercial and residential needs for electricity in the 1990's can be translated into estimates of new generating facilities that must be started between 1978 and 1982 in order to meet demands of nearly a decade hence. Depending on the degree of inflation in construction labor and materials over this span, contract value will easily reach—and probably exceed—$35 billion annually by 1982. It is by this route that we have "backed into" an estimate of $24 billion for 1978 (up from $22 billion in 1977).

Finally, there's another huge pipeline project in the offing. The Alcan natural gas line, which will originate on Alaska's north slope and stretch some 3,600 miles through Alaska, Canada, and the continental U.S., with branches terminating in Chicago and San Francisco, is tentatively pegged at $14 billion. (The $9 billion trans-Alaska oil pipeline was originally quoted as a $3 billion project.) Completion is targeted for 1983 or 1984, which means that work must begin soon. But even though the two governments recently signed the necessary agreements, the probability of the start of construction in 1978 isn't very high.

Round II of the Public Works Employment Act virtually assures an even high level of contracting for highways and for local sewer and water facilities in 1978, but against this support must be balanced the Carter Administration's firm stand on budgetary restraint when it comes to funding Federal water resource programs and urban mass transit projects.

With these reservations, our forecast for the volatile category of nonbuilding construction is a further gain of 9 per cent next year.

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OSHA and the architect: a recent case lessens designer liability

Since the enactment of the Occupational Safety and Health Act in 1970, there has been a great deal of uncertainty about how it applies to architects and other design professionals. Although OSHA clearly covers architects as employers, and OSHA standards directly affect project designs, the statutory responsibilities of architects for construction site safety under OSHA have not been well defined. Early cases appeared to hold professionals liable for OSHA violations, even though they had no direct responsibility for construction site safety programs. A very recent OSHA decision, however, has shed new light on this issue, and it now appears that architects may not be subject to the harsh liability imposed by the earlier rulings.

by Arthur T. Kornblut, Esq.

OSHA, as a generic term for describing all of the occupational safety and health regulations and standards adopted by the U.S. Department of Labor pursuant to its statutory authority, encompasses a wide variety of administrative laws. For most employers, "OSHA" means the regulations included in 29 CFR S1910, commonly referred to as the General Industry Standards or the Part 1910 standards. The Part 1910 standards normally apply to an architect as an employer and affect most project designs because of their future applicability to the clients' usage, as employers, of the completed projects.

For the construction industry, however, the Part 1910, or General Industry, standards make reference to an entirely different set of standards. These are known as the Part 1926, or Construction Safety, standards.

Given the statements contained in Section 1910.12 and Part 1926 (Subpart B) about the applicability of Part 1926 to "construction work" and contracts related thereto, it is difficult to see how an architect rendering professional services could be subject to citations for violations of those standards. Design professionals generally do not engage in "construction work," the early cases seemed to indicate that architects could be liable for violations.

OSHA has found construction managers responsible for site safety. . .

In a pair of cases decided in 1976, the Occupational Safety and Health Review Commission held construction managers liable for violations of the Construction Safety Standards. In March of that year, in *Secretary of Labor* v. *Bechtel Power Corp.*, the review commission found that Bechtel was a construction manager for a power plant project, and had responsibility for administering and coordinating construction and for conducting daily inspections; but it had no craft labor and did no actual construction work. The construction manager, however, did have two safety representatives who policed the site and reported hazardous conditions to the various contractors. Following an OSHA inspection, the construction manager was cited for various violations of the Part 1926 standards. As a construction manager, the review commission felt that Bechtel was empowered to organize, plan and manage the construction program, and it had the power "to protect its employees and other employees against violation, committed by the various prime and lower tier contractors."

A few months after the review commission imposed liability for Construction Safety Standards violations on Bechtel as a construction manager, it did likewise to an architect. In *Secretary of Labor* v. *Goldberg*, the review commission was faced with a situation in which an architect had been cited for his employees' exposure to certain violations of the Part 1926 Standards. The architect contested the citations on the basis that Part 1926 did not apply to him. An administrative law judge agreed, determining that the architect and his employees performed no construction work and supplied no construction material. In vacating the citations against the architect, the judge would not apply the Construction Safety Standards to anyone other than contractors and subcontractors engaged in construction work.

Ignoring the logic of the judge's decision and the express terms of the architect's contract, in which it stated that the architect would "Not be responsible for construction means, methods, techniques, sequences of procedures, or for safety precautions and programs in connection with the work," the review commission reversed the law judge's decision. With the architect serving as both architect and construction manager for the project, the review commission came to the incredible conclusion that his position was "more akin to that of a general contractor" because he had the responsibility for seeing that the "builders complied with the terms of their contracts, which included matters of safety."

. . . . but OSHA now excuses architects on the basis of their non-building role

With this as background, the review commission recently was required to decide the validity of citations for violations of Part 1926 issued to Skidmore, Owings & Merrill, as the architect rendering construction phase services on the Sears Tower project in Chicago. Once again, the architect's basis for contesting the citation was that it did no construction work. As with the contract in the *Goldberg* case, SOM's contract disclaimed responsibility for construction site safety. The type and scope of services rendered by the architects in the two cases was quite similar, although SOM was not labeled a construction manager.

In an unexpected but welcome decision, the review commission vacated the SOM citations for violations of the Part 1926 standards. It acknowledged the existence of its holdings in the *Bechtel* and *Goldberg* cases, and while not overruling them, it did state that they should not be read more broadly than their facts permit. Once again focusing on the fact that those cases involved construction managers, the review commission contrasted the functions of a construction manager ("functions similar to those of a general contractor") and those of an architect (with "more limited functions and authority over the work"). The review commission then gave this guidance to the construction industry: "We distill our decisions as indicating that to be within section 1910.12 [i.e. to be subject to the Construction Safety Standards] an employer must perform actual construction work or exercise substantial supervision over actual construction. Although SOM exercises some supervision over construction we would not characterize it as substantial in the sense that supervision by a construction manager is substantial."

While welcoming this decision for its refusal to subject an architect to OSHA liability for violations of the Construction Safety Standards, architects and the construction industry will have to wait for future decisions to see how the difference between substantial and insubstantial supervision is determined.

Mr. Kornblut is a registered architect and practicing attorney in Washington, D.C.

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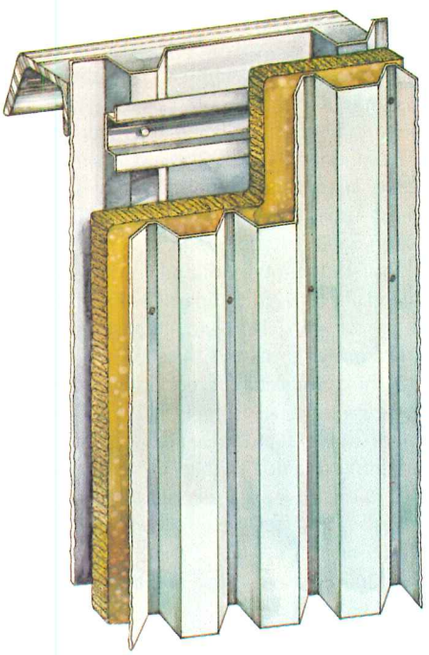

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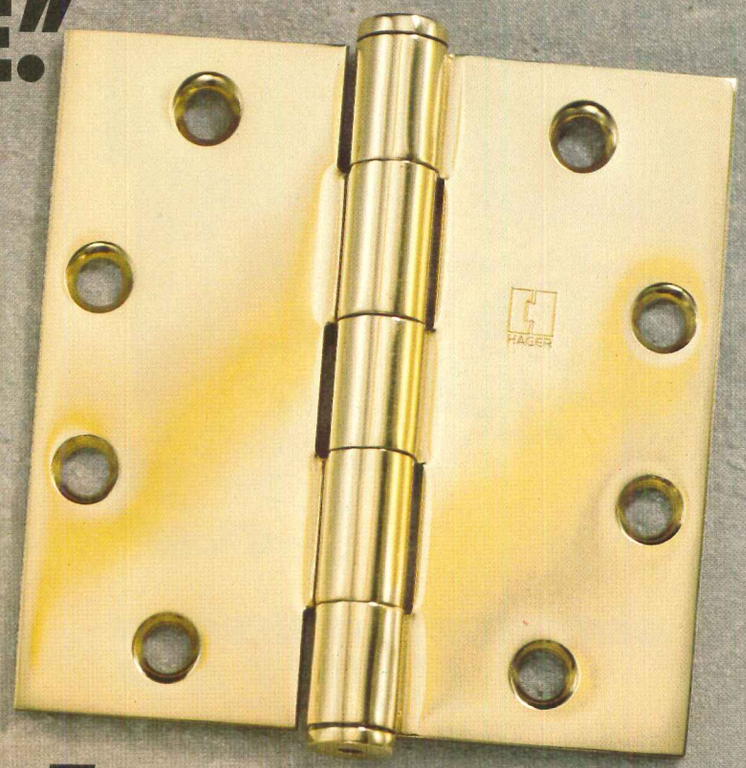

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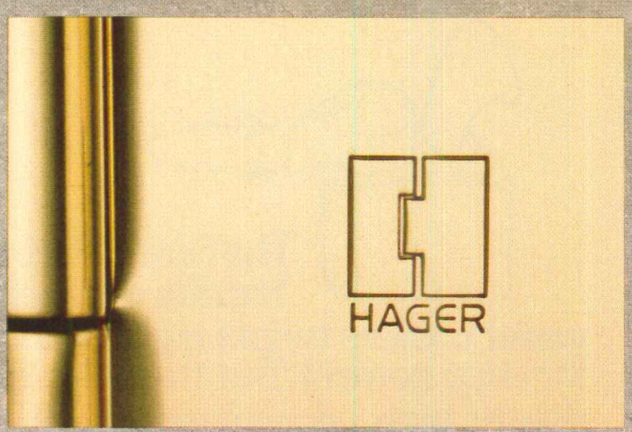

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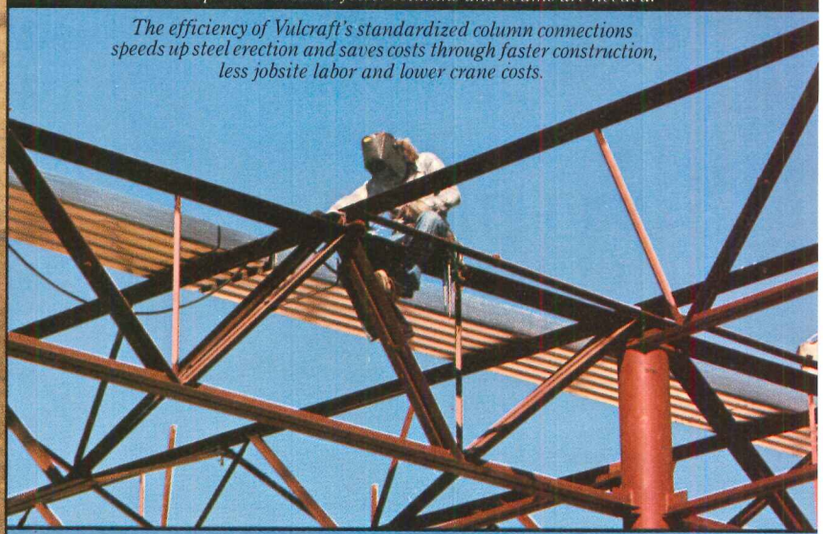

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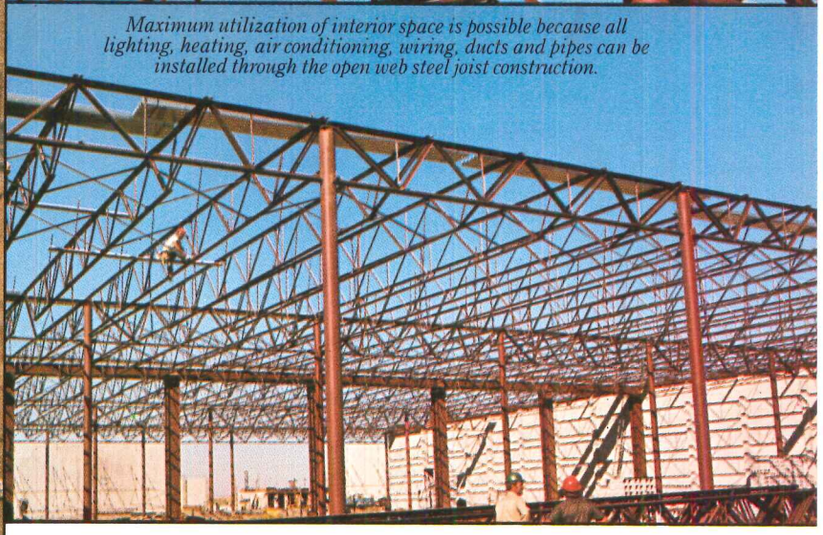

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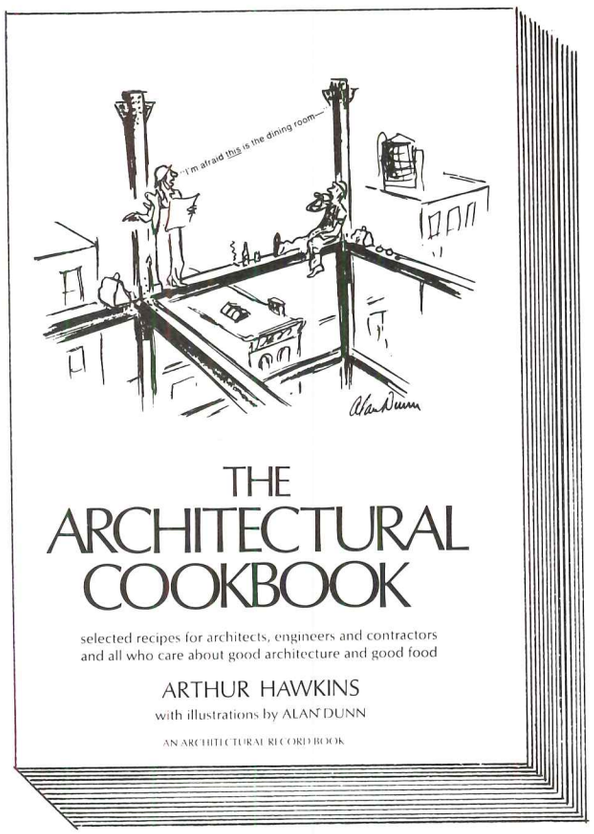

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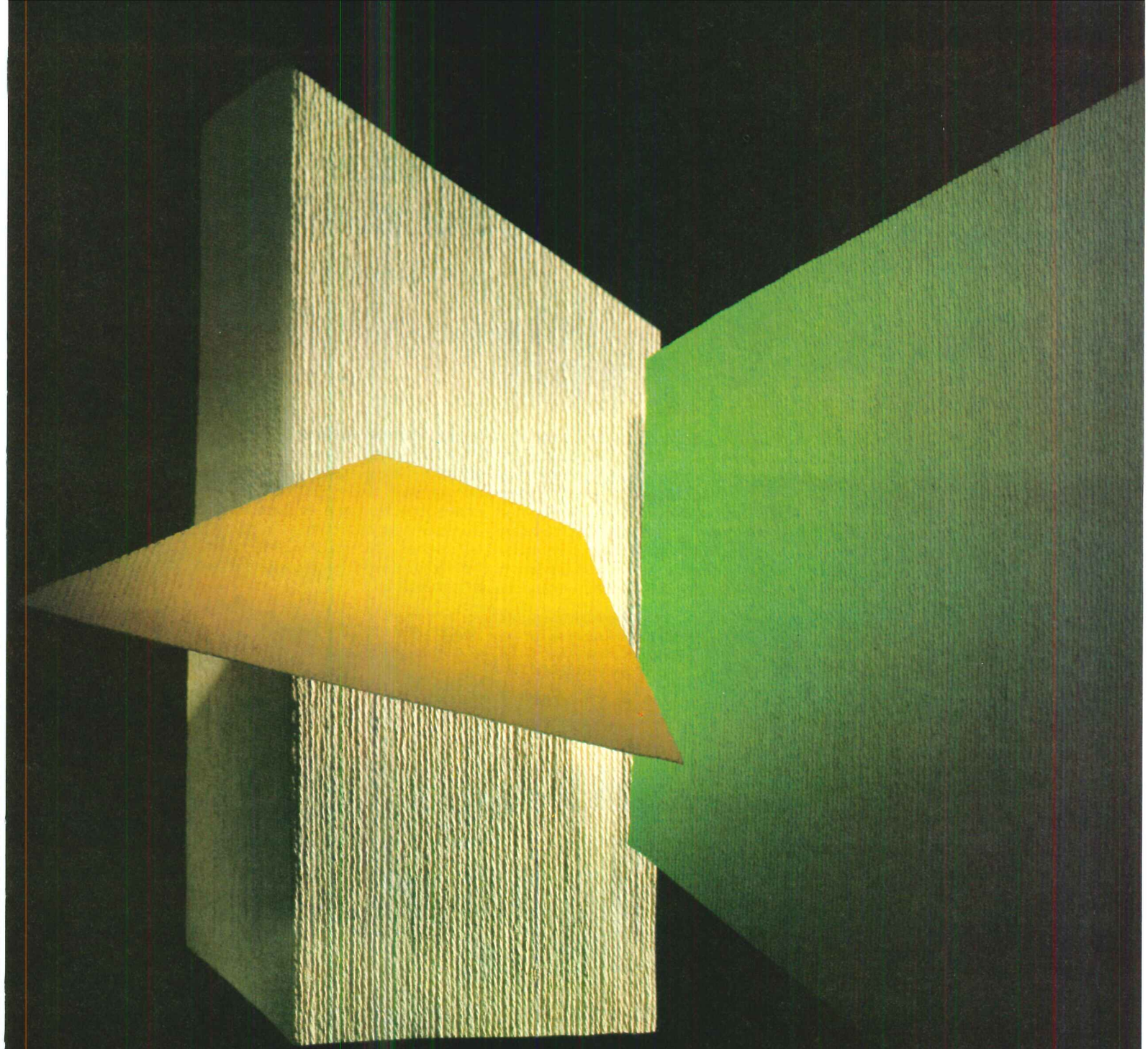

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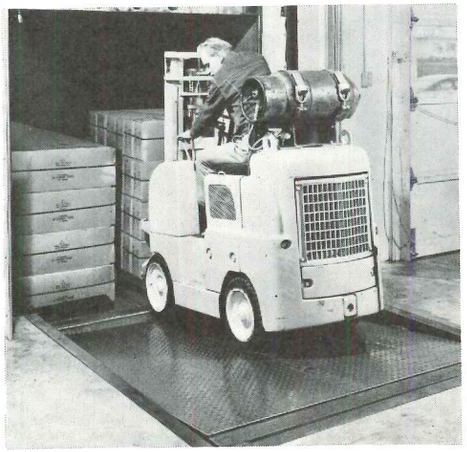

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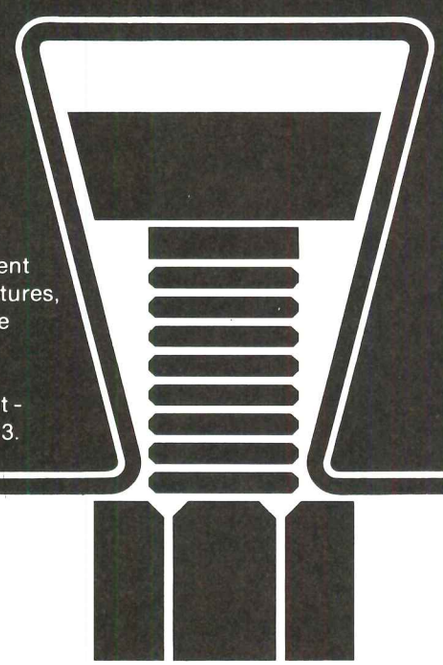

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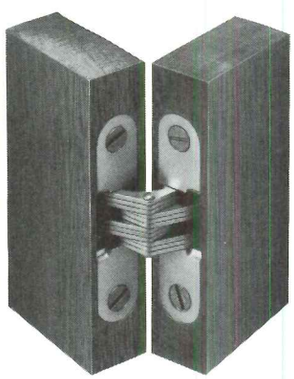

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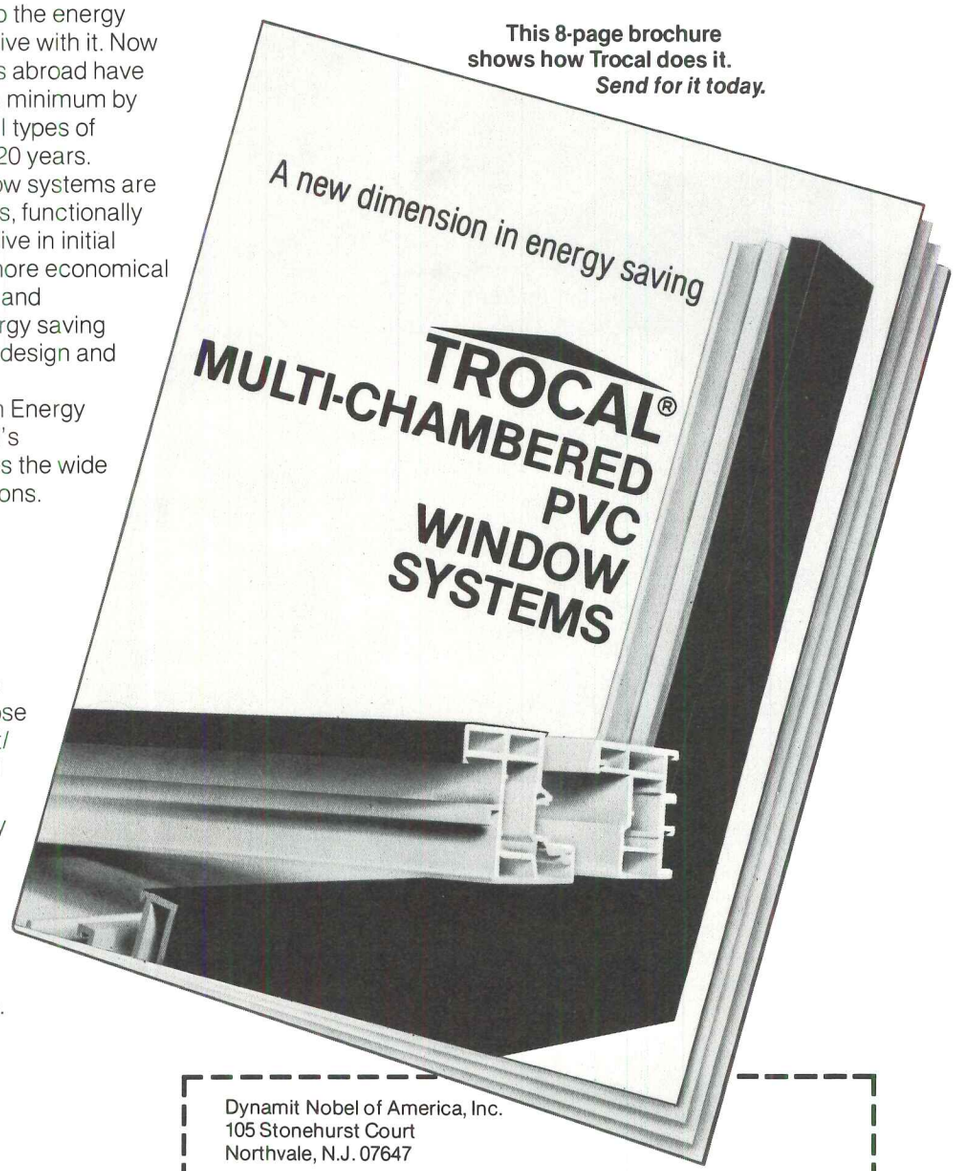

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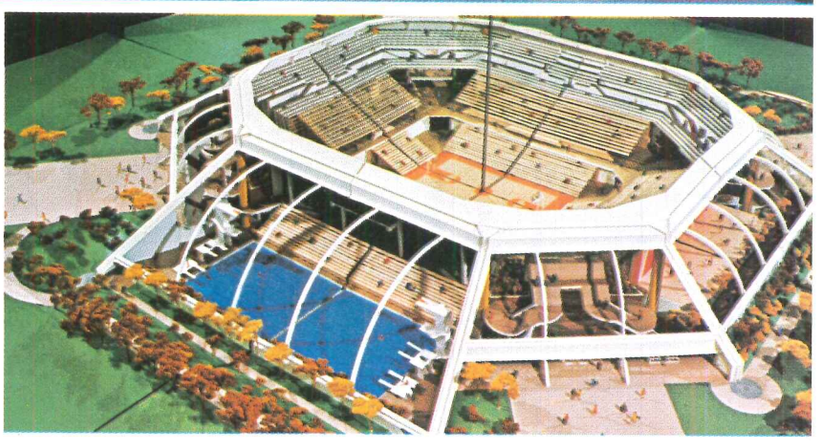

Model of proposed student activities center, University of Florida, Gainesville, Florida.
Architects: Caudill Rowlett Scott, Houston, Texas; Moore, May & Harrington, Gainesville, Florida.
Engineers: Geiger-Berger Associates, P.C., New York City.

Permanent fabric exterior removed from model to illustrate column-free interior.

The University of Florida at Gainesville needed a new student activities building. They wanted a basketball court, olympic-size swimming pool, high diving area, indoor track, court sports and gymnastic area, locker rooms and administrative offices. They wanted an attractive permanent building...not a temporary structure. And, they had the inevitable limitations of a budget.

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Complicated framing problem?

That's what the designers of Columbus County Hospital did. And it paid dividends in reduced construction time and foundation costs.

Columbus County hospital is a 166-bed (all private) acute care general hospital in Whiteville, N.C. The hospital planners conducted a study to determine the most compact nursing unit possible, using 40 to 50 beds as the optimum size.

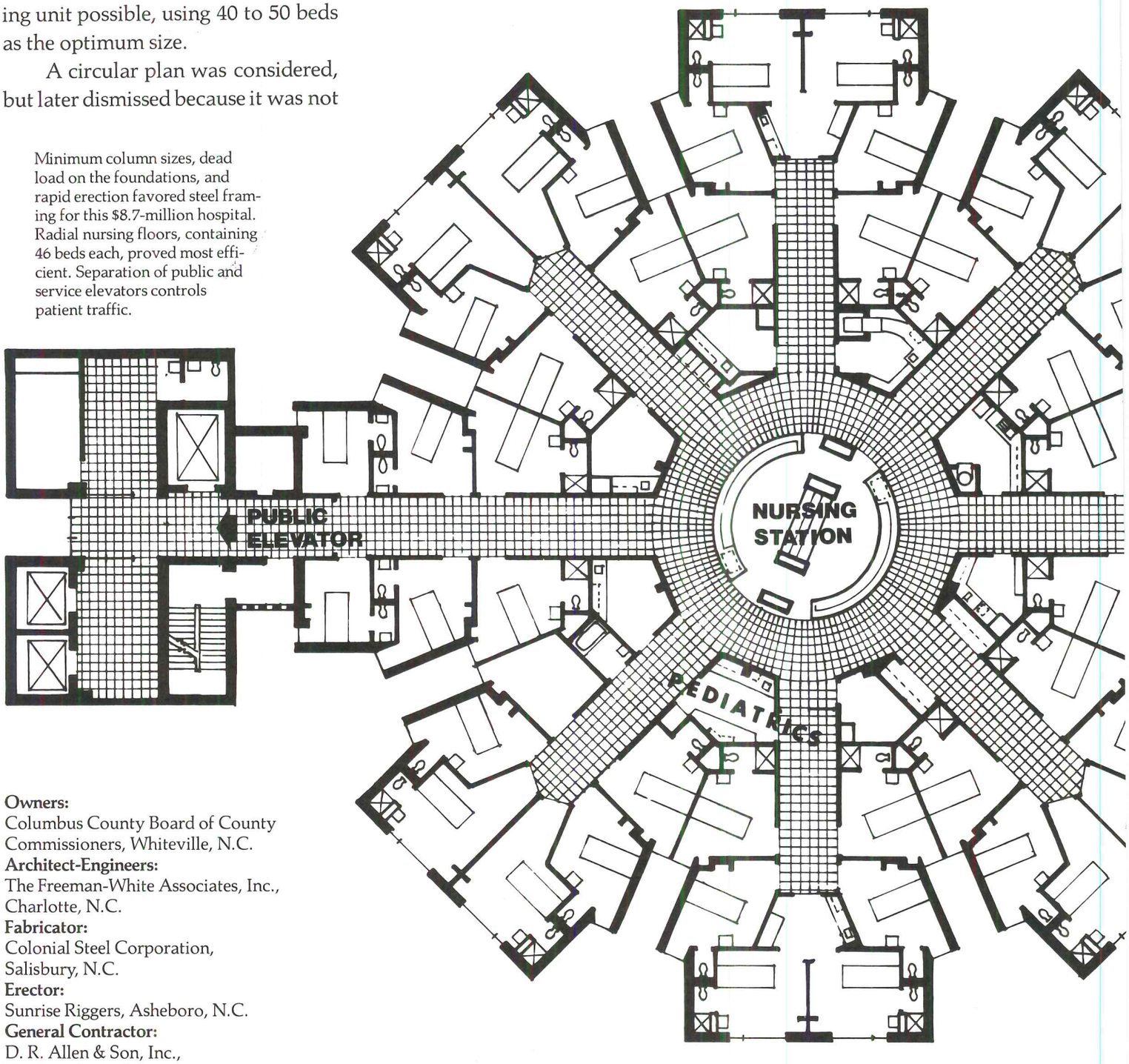
A circular plan was considered, but later dismissed because it was not space efficient. Too much space was created for support functions in the center portion of the circle for the number of beds desired.

Radial plan selected

By compressing the arrangement of patient rooms around a central nurses' station, the radial plan succeeded where the circular plan failed. Distance from nursing personnel is greatly reduced. It's only 38 ft from the nurses' station to the most remote patient bedroom.

Furthermore, the undulating exterior walls make it possible to provide windows for all patient rooms,

Minimum column sizes, dead load on the foundations, and rapid erection favored steel framing for this $8.7-million hospital. Radial nursing floors, containing 46 beds each, proved most efficient. Separation of public and service elevators controls patient traffic.



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even those located on the interior of the circle.

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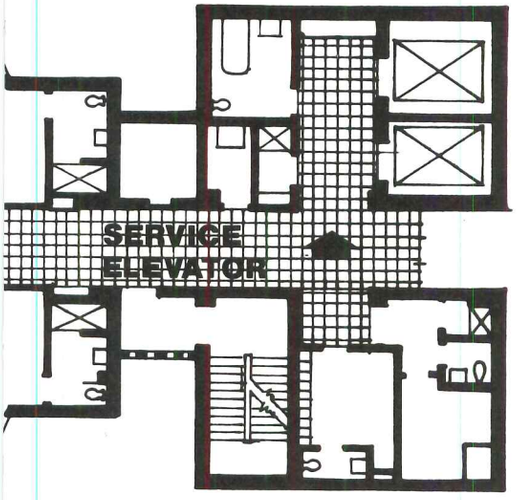
The architects first investigated a concrete framing system, but found it wasn't feasible because of the awkward convergence of beams and large, erratic bay sizes. And because of the configuration of the plan, column locations did not permit the use of a continuous concrete frame. They also found that concrete column sizes were too large for the limited column space available in the radial plan.

John H. Bennett, A.I.A., Freeman-White Associates commented, "Due to the nature of the radial plan, steel framing proved to be more advantageous than concrete. It resulted in reduced column sizes, as well as substantial dead load reduction for the foundation."



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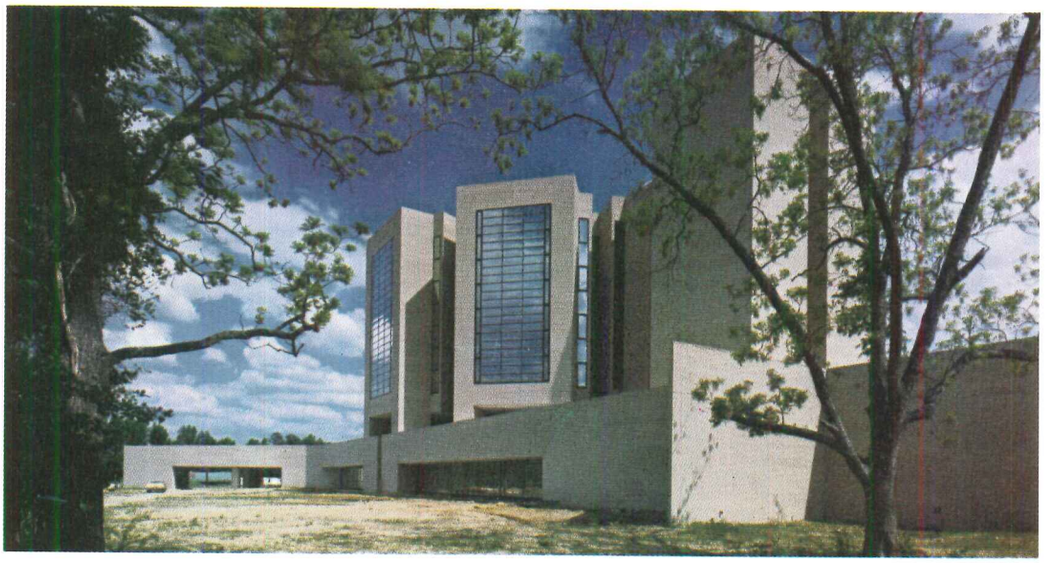
Web of steel illustrates framing complexity of the octagonal nursing tower. A future tower can be added to the east wing.



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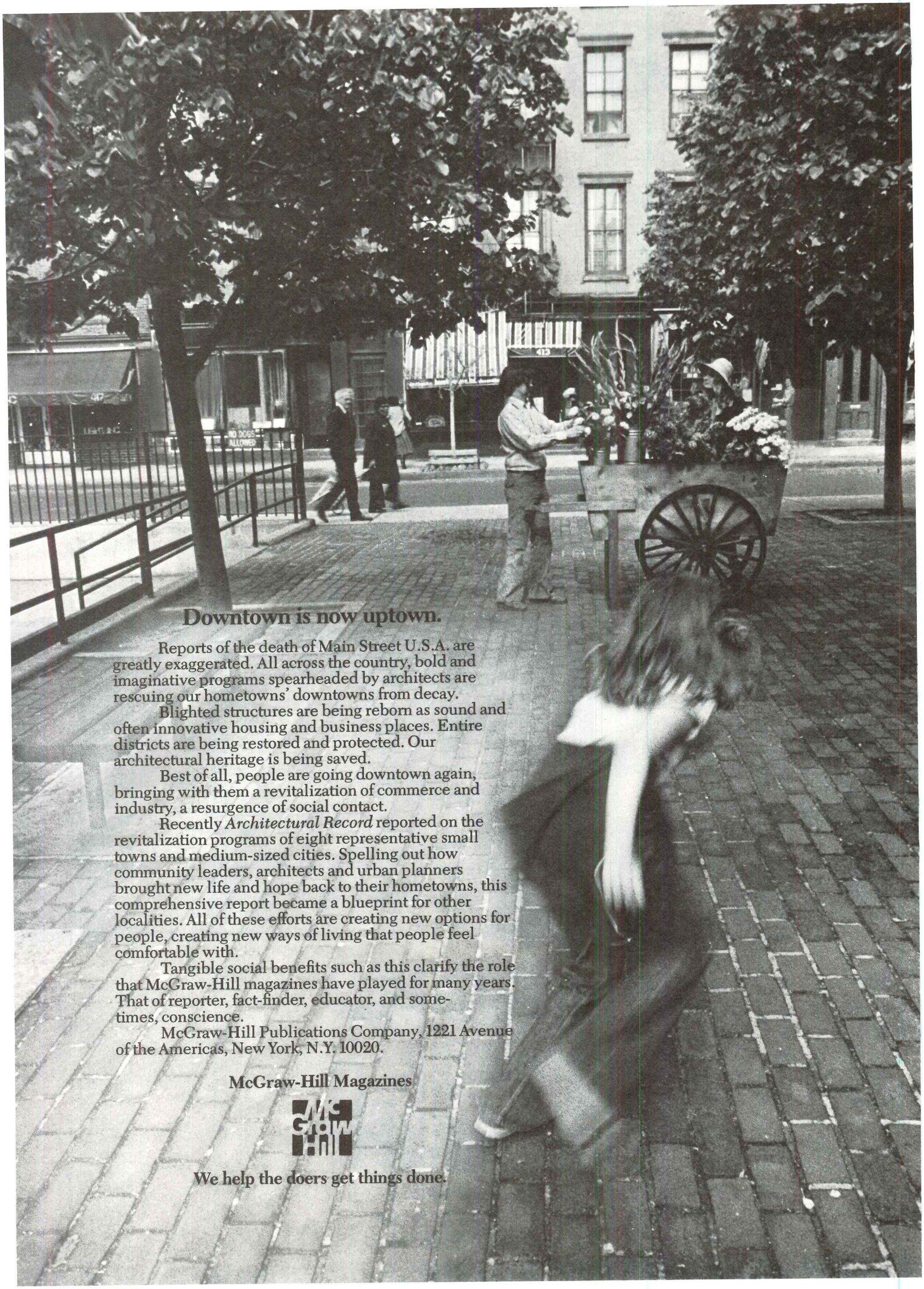

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Recently *Architectural Record* reported on the revitalization programs of eight representative small towns and medium-sized cities. Spelling out how community leaders, architects and urban planners brought new life and hope back to their hometowns, this comprehensive report became a blueprint for other localities. All of these efforts are creating new options for people, creating new ways of living that people feel comfortable with.

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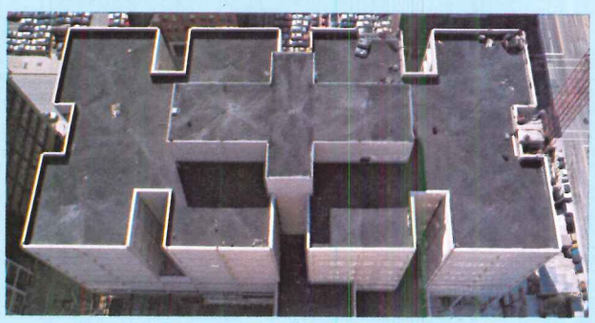

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Adding to older houses: many approaches, many choices

Each of the four cases shown in the pages that follow reflects a different set of owner needs and a different approach to the problem of adding space to an existing house. The Mayers & Schiff addition, photo below, is the most familiar approach but the solution itself is fresh, inventive and not without whimsy. The others are quite varied. C.C. Pei's renovation/addition to a New York City penthouse (pages 84-85) envisions a gradual "swapping" of spaces. Thomas Simmons added to his Washington, D.C. townhouse (pages 86-89) to provide an office for his own use as well as to create an income producing property. And Daniel Solomon transformed an old hillside house in Mill Valley, California (pages 90-92) into virtually a new residence. Each in its way is outstanding.

Addition to New England rural house

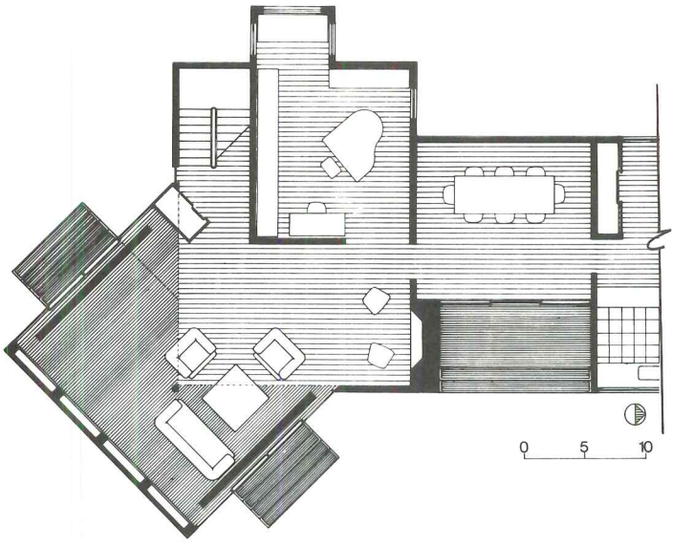
Here is an 80-year-old, rural house in Connecticut that has undergone minor cosmetic surgery several times in the past. None of these revisions, however, provided what was needed most: an adequate living room keyed to lawn spaces and to distant views. The existing living room was little more than an access way to the stairs and was virtually unfurnishable.

Mayers & Schiff strove to retain as much of the original character of the house as possible but to express the new addition for what it was. No attempt has been made to visually incorporate the new into the old or to erase the seam. The new living room is a double-height volume placed at 45 degrees to existing axes. It encloses at its upper level the existing eaves together with windows. Only the lower portion of the existing wall was removed and replaced with a structural column. In this manner, the old projects quite literally into the new, serving as a constant, vestigial reminder of what was, and making the new work an addition in the purest sense. To further emphasize the relationship between old and new, the existing horizontal siding was retained and contrasted to new finishes which are laid up diagonally.

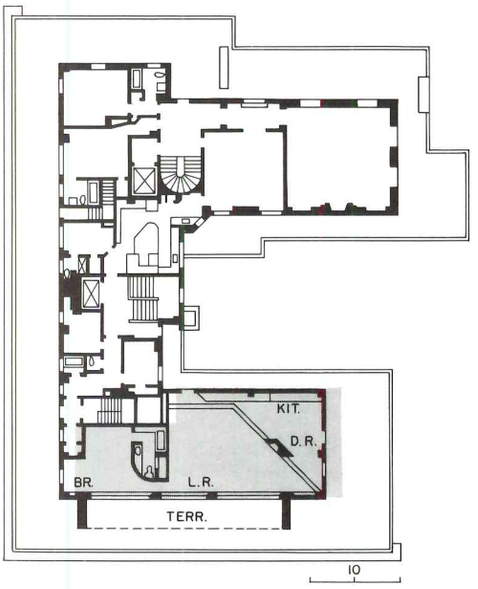
The 45-degree offset of the addition opens direct views to the distant hills of the southeast and to large trees and lawn to the southwest—views that previously had been obliques.

There was, of course, a good deal of fun in the design to begin with. Mayers & Schiff retained much of it and added some of their own; but they were careful, in doing so, to solve real problems of comfort and function as well.

RESIDENTIAL ADDITION, Connecticut. Architects: *Mayers & Schiff*. Owners: *Martin and Lois Nadel*. Contractor: *Clifford Taber*.



Bill Maris photos



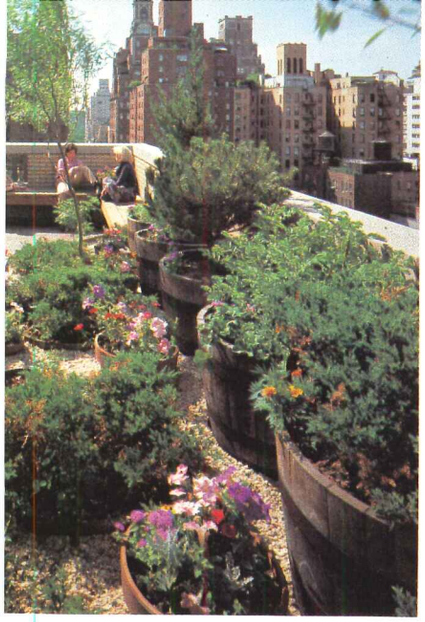
Manhattan penthouse addition

When the small rooftop structure next to the upper level of their own duplex apartment became available, the owners purchased the space with the eventual aim of selling the lower portion of their duplex and consolidating their space on the roof level of this Manhattan highrise. They commissioned C.C. Pei to transform what had been laundry and maid quarters into an efficient, self-contained guest house.

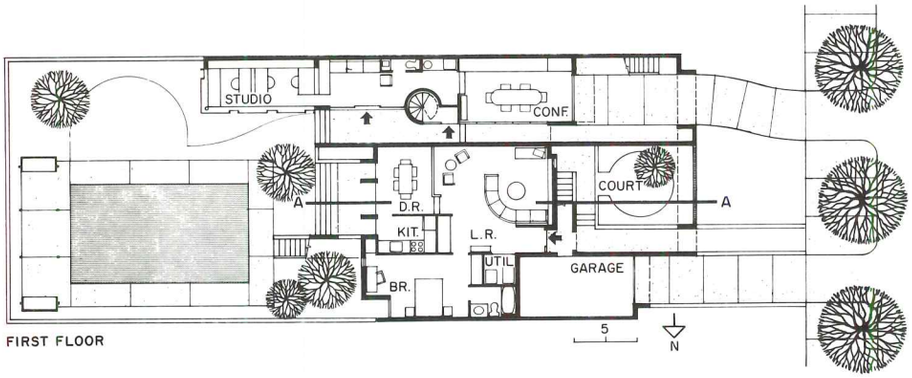
Pei gutted the small space, raised the floor to match the level of the surrounding terrace and used the underfloor space to run mechanical services. Even with the raised floor, Pei maintained ceiling heights between 9 and 10 feet. By opening the wall to the west, then protecting the sliding glass with awnings and drop screens, long views from the living room and bedroom could be achieved without either loss of privacy or unmanageable solar gain. Working within existing structure, Pei designed spaces that are not large but are finished with elegance and the furniture has been selected with close attention to scale and texture.

The guest house is ringed on three sides by terrace strips of variable width. Landscape designer Graham Gordon sensitively developed these areas with planting, using simple devices—containers of various kinds plunged into beds of gravel—to form a more or less continuous green belt around the outdoor areas. Though lush in feeling, the planting beds are easily maintained. Plants can be added, subtracted, moved and tended with comparative ease.

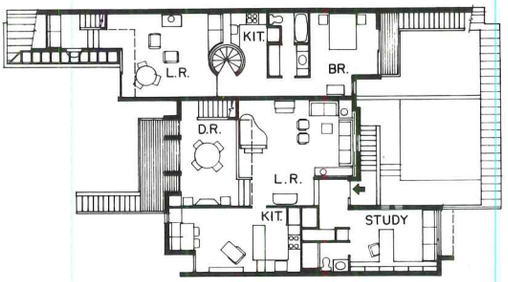
ROOFTOP APARTMENT, New York City. Owners: *Mr. & Mrs. Peter Millard.* Architect: *C.C. Pei.* Landscape design: *Graham M. Gordon.* Contractor: *Albert Disser*



Peter Aaron photos



FIRST FLOOR



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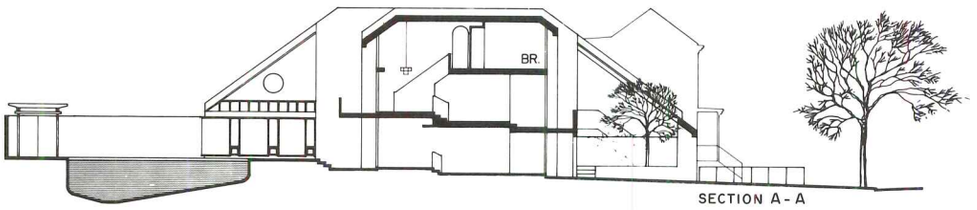


SECTION A - A

Capitol Hill addition

A decade ago, architect Thomas B. Simmons purchased a vacant lot in southeast Washington, D.C., and built a townhouse for his family that included in its design a single, lower-floor rental unit. He then went to work in a local firm. When he decided recently to open his own practice, Simmons bought an adjacent lot and made a substantial addition to his earlier house. The new addition includes his office on the ground floor, a new master bedroom above and a second rental unit, this time a small duplex, also over the office.

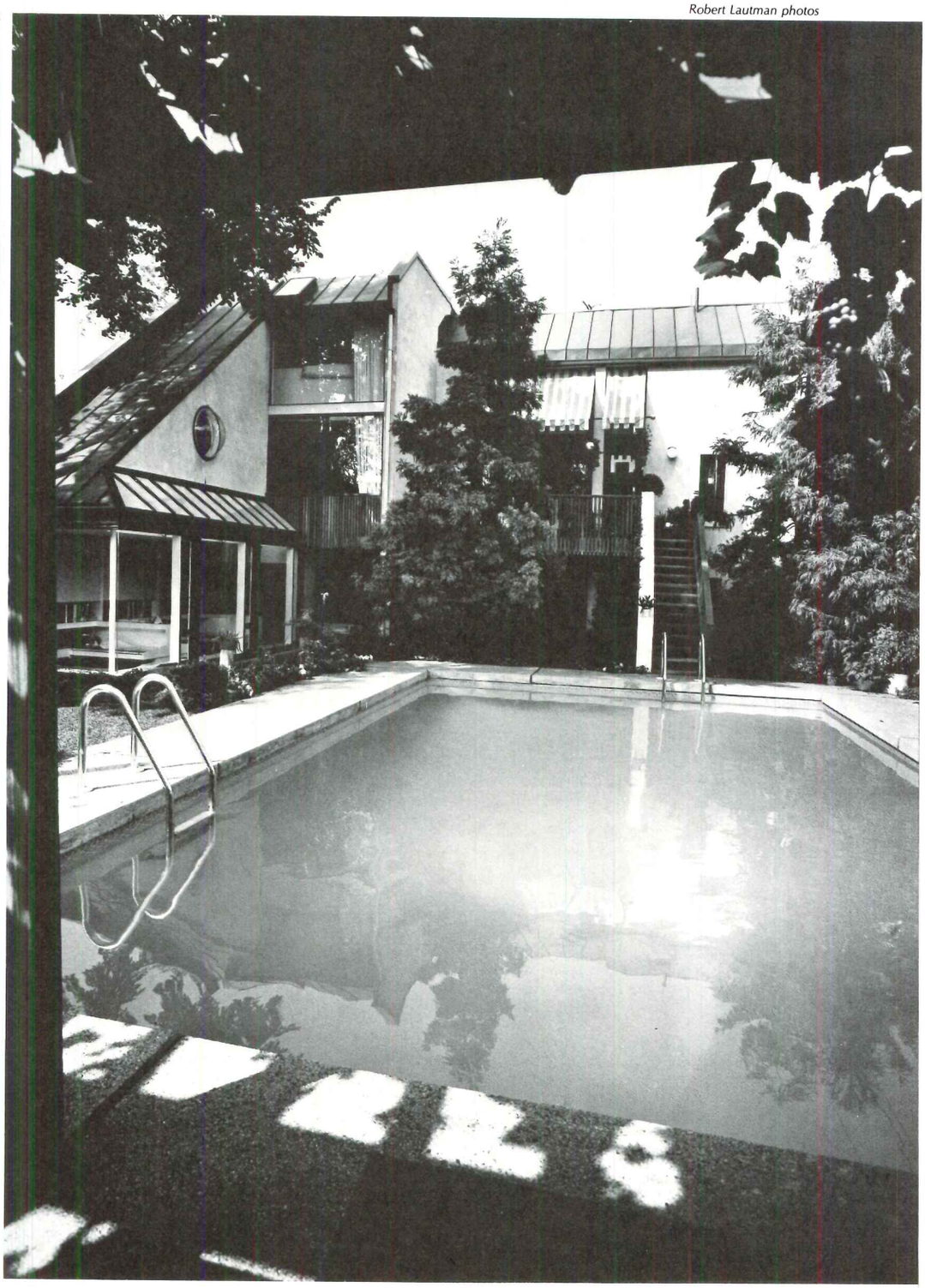
The architect describes the situation as "a kind of affluent commune with none of the messy, shared privacies so mistakenly undertaken by real communes—each unit has complete separation, just the amenities are shared." These amenities are not inconsiderable. They include a handsome swimming pool and garden for flowers and vegetables, all arranged in the consolidated backyard space (photo right).

The new office space (photo overleaf) faces the pool and is generously north lighted through glass walls that keep the narrow linear volume from feeling constricted. Operable panels admit pleasant summer breezes.

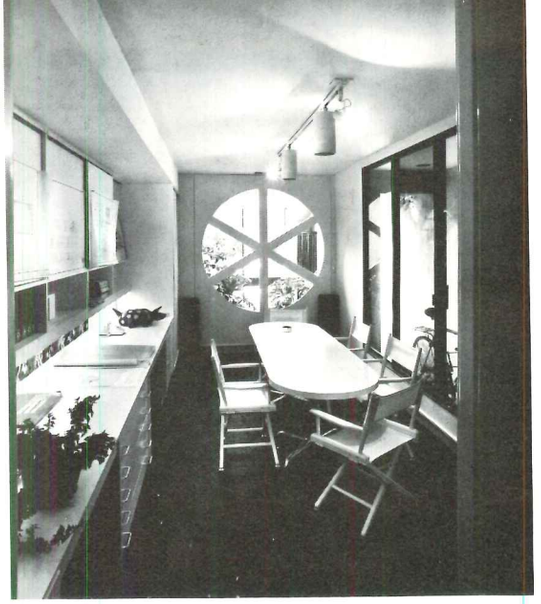
For his new wing, Simmons has freely introduced new forms and details—especially new kinds of openings—but collected them under the same metal roof and integrated them easily into a single, united composition. A lot happens in these volumes but the spaces do not seem tortured and the functions (house, rental apartments, office) are carefully organized to complement each other in a variety of ways.

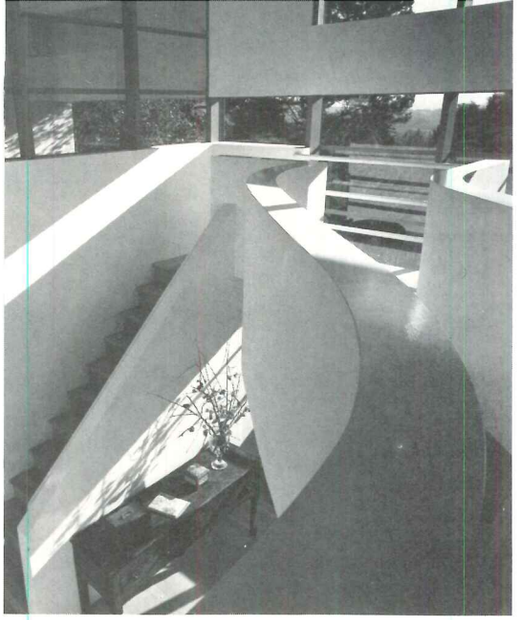
SIMMONS RESIDENCE AND OFFICE, Washington, D.C. Architect: *Thomas B. Simmons*. Structural engineer for addition: *Carl Hansen*. Landscape architect: *Ferco Goldinger*. Contractor for addition: *architect/owner*.

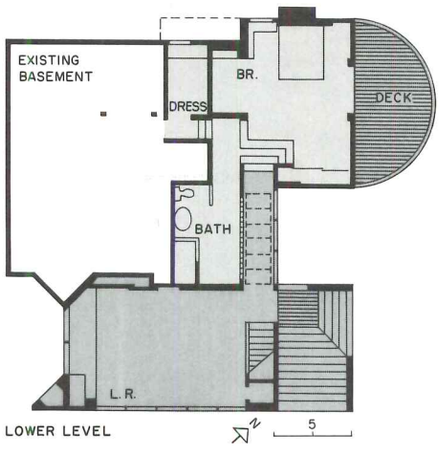
Robert Lautman photos

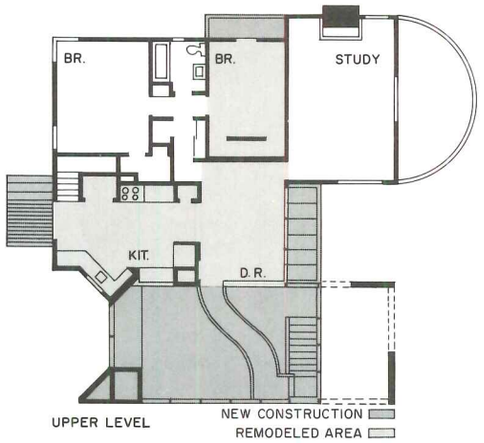


The dining space (photo left) and the office (photo across page) both focus on the pool and garden at the rear of the property. The new master bedroom (photo below) overlooks the entry court. The narrow conference area (photo right) is an extension of the drafting area that opens through a wheel window to the same entry court.









Joshua Freiwald photos

Mill Valley renovation

Architect Daniel Solomon was commissioned to renovate and add to a dilapidated house on a hillside in Mill Valley, California. The owners were attracted to the property by its fine views and Solomon's task was to develop the plans to frame these views and bring up the house to a more comfortable level of finish and functional convenience. The owner, an industrial designer, asked that the whole house be given a new and fresher image.

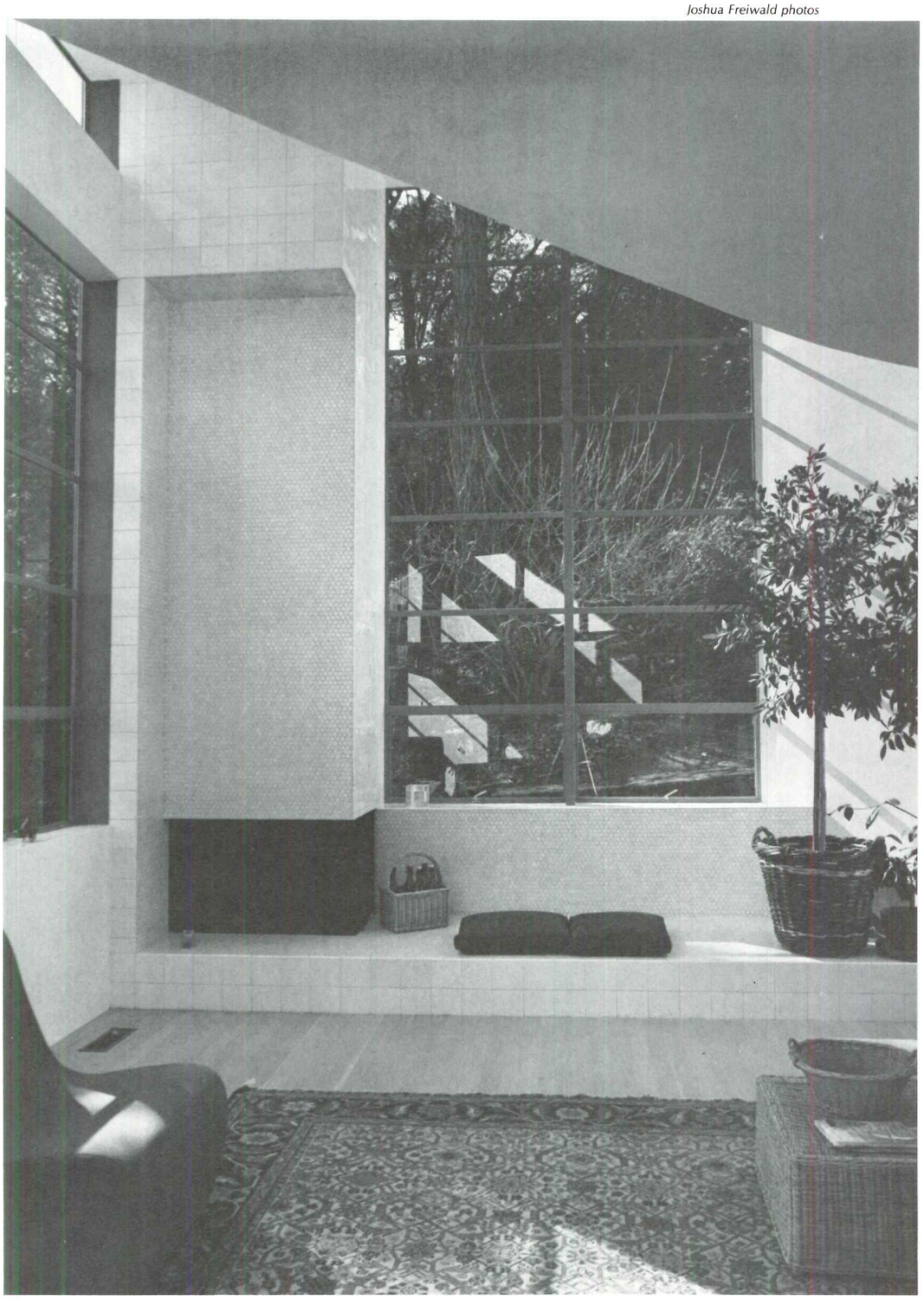
The main elements of the renovation and addition (see plans) were these:

- new living room addition
- conversion of a portion of the basement to a new master bedroom and bath
- new glazed corridor providing access to the master bedroom
- enlargement and renovation of the dining room and kitchen
- conversion of the old living room to a new study.

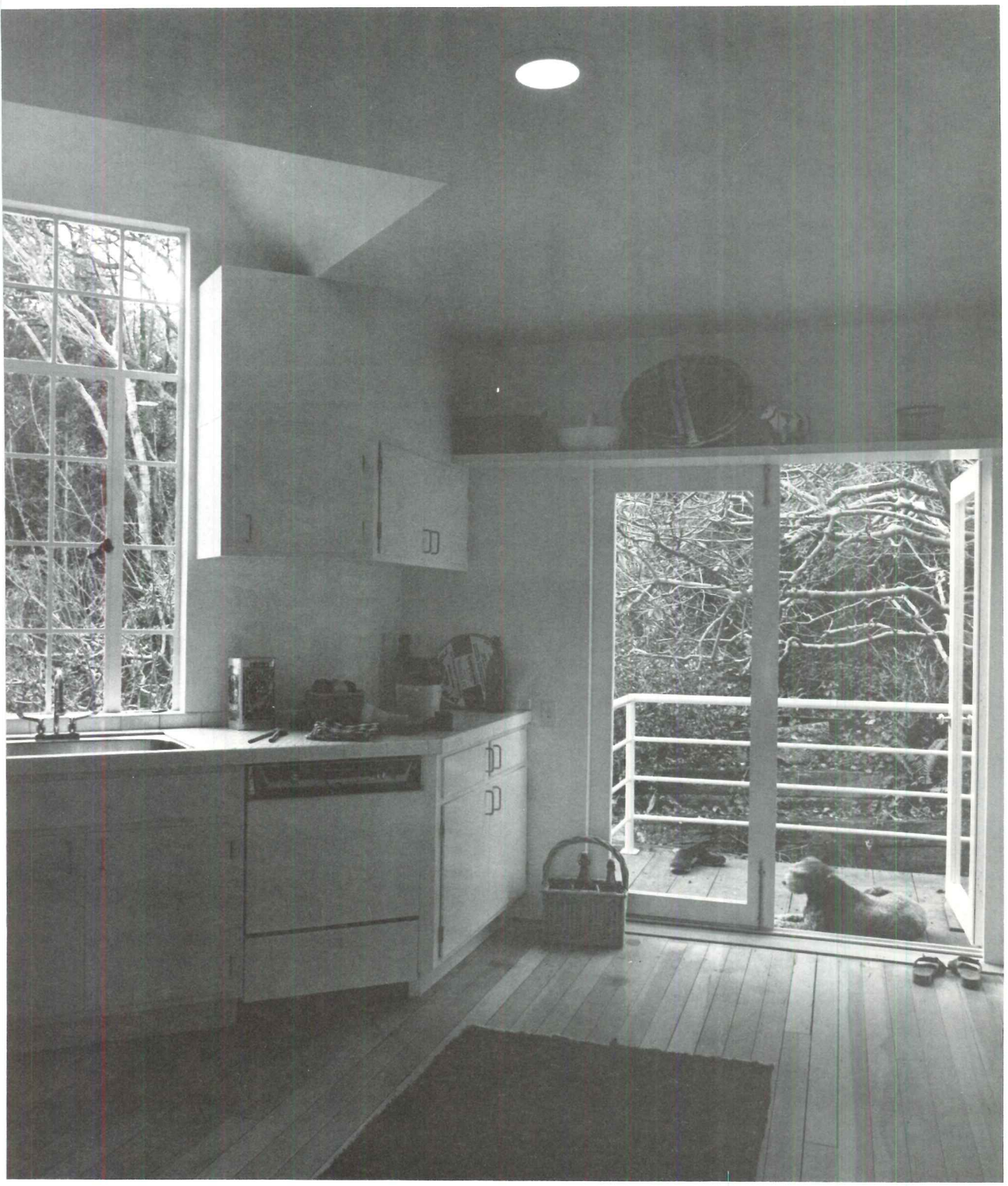
The transformation of the 2250-square-foot house, as the photos indicate, is nearly complete. Almost nothing remains of earlier finishes. Because the building code is less restrictive for renovations than for new work, large glass areas, facing the morning sun, could open views from the living room down the long slope of the site. In developing the circulation plan, Solomon sought to create layers of transparency through which the site and surroundings could be perceived with various degrees of immediacy.

In discussing the idiom he used in design, Solomon says early modernist images—particularly the work of Schindler—crowded the back of his mind as he sought the right relationship between house and site and as he developed the planar surfaces and intersections that give the house its essential character.

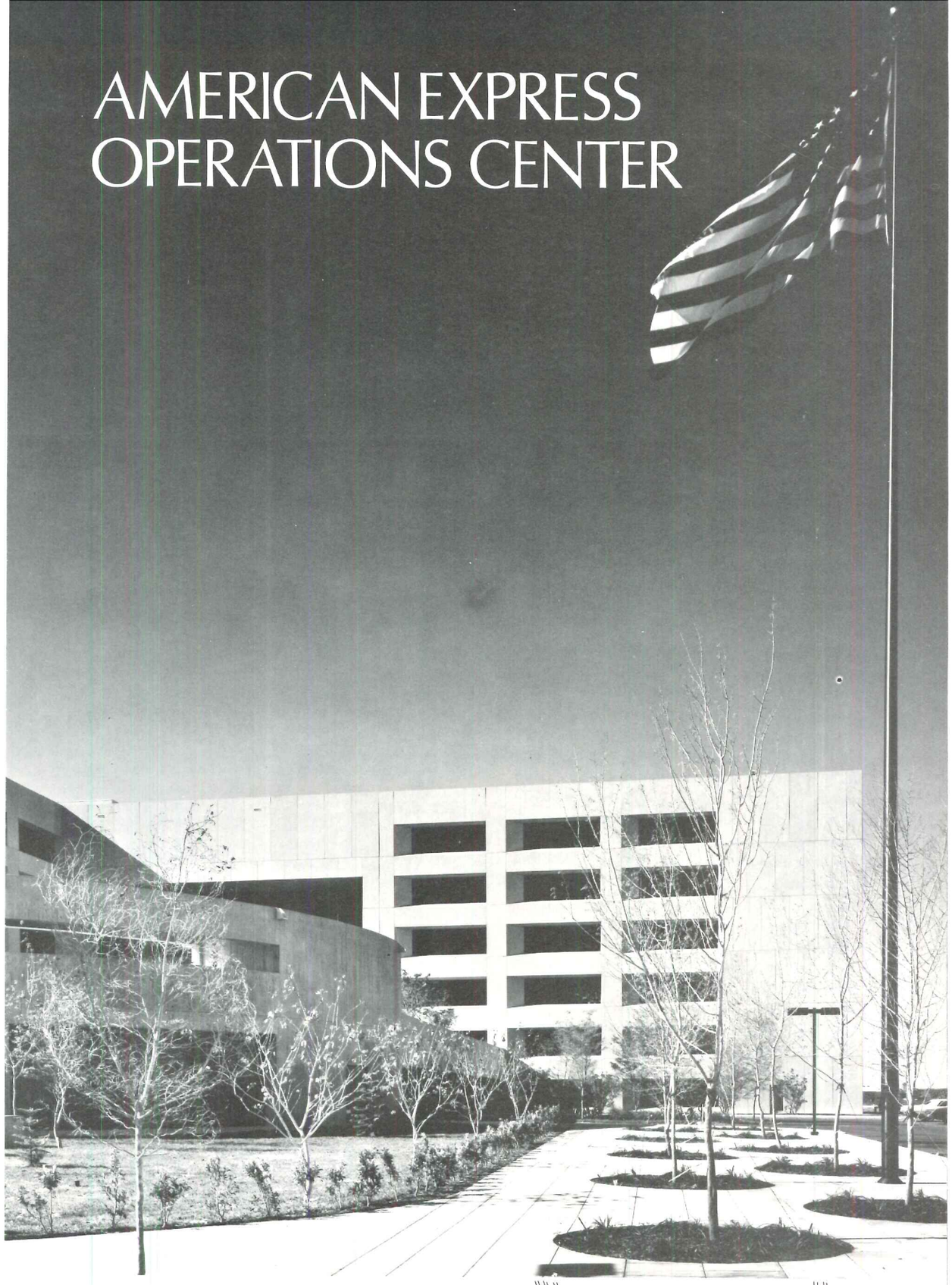
ADDITION AND RENOVATION, Mill Valley, California. Architect: *Daniel Solomon; Toby Levy, project associate.* Structural engineer: *Ralph Gareth Gray.* Contractor: *Menke, Incorporated.*



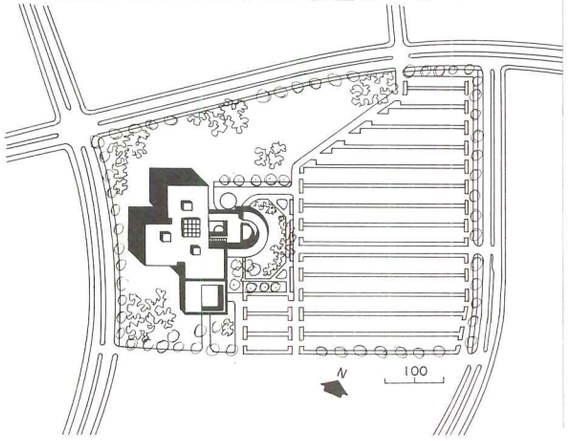
Of all the additions, the Solomon design is the one that most fully absorbs the old, concealing most of it, and fusing what is left into new surfaces with hardly a seam. Photos right and below show renovated dining and kitchen areas.



AMERICAN EXPRESS OPERATIONS CENTER



American Express's new Southern Region Operations Center has been designed by architects Ferendino/Grafton/Spillis/Candela for a suburban site in Fort Lauderdale, Florida. Like many such buildings, it represents a conscious decision by its owners to be out of the center of town, accessible only by highways that mark three sides of the 25-acre site (see plan, right). Part of this decision involved the desire for a "low profile" image. And the architects have answered this desire by producing a building that is apparently plain on the exterior, but which opens toward a surprising interior environment of large-scale spaces. These fairly burst from the envelope on the least conspicuous side, toward the entrance route from the parking lot (photo, above). But even here, the true nature of the interior—as seen on the following pages—remains to be revealed.



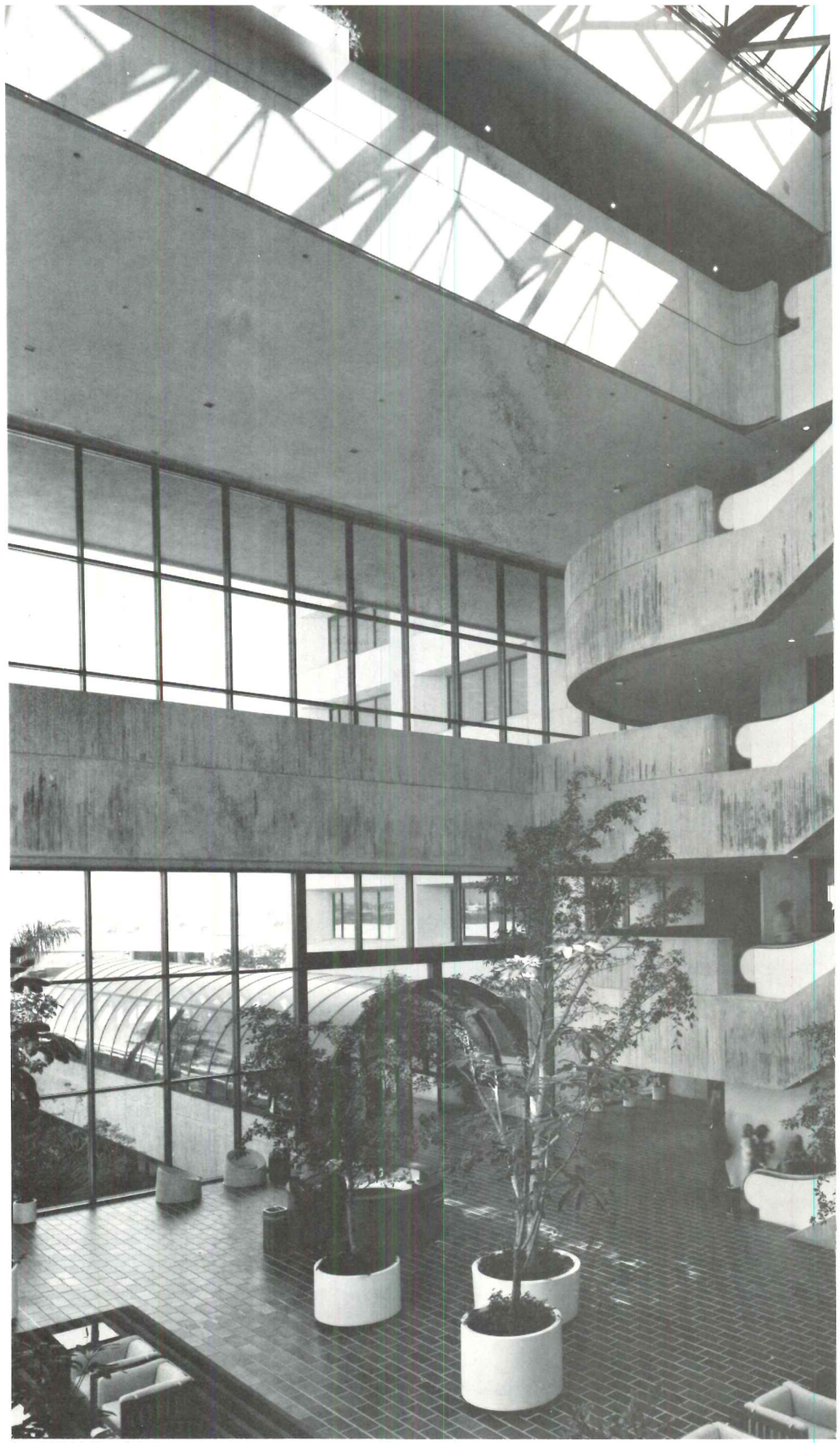
With the rapid growth of its credit card division, American Express has decentralized its related day-to-day operations to area centers. Most public contact is by mail or telephone. Accordingly, these centers are primarily planned for the people who work in them, and for the efficiency both of the intended ongoing functions and of construction.

Because of local zoning requirements, the Fort Lauderdale facility's 437,000 square feet of operations were limited to six floors, which meant, of course, that each floor would have to be unusually large. Accordingly, architects Ferendino/Grafton/Spillis/Candela separated each floor into three areas around separate toilets, stairs, and air-handling systems. In turn, the three areas surround and open to the central sky-lit atrium/lobby that provides a sense of location on each floor. All planning is based on a module that is five feet square.

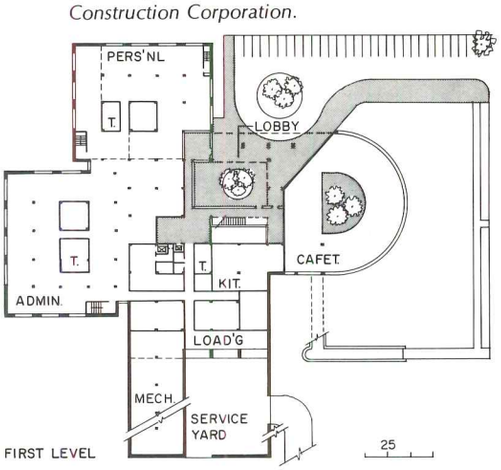
The architects estimate that the two-year construction period was one year less than they would have expected without "fast-tracking." And they cite another advantage of having a general contractor at work during the production of working drawings: the process allowed the architects to test alternates for the major systems. Because the bearing strata on the site was loose sand, bids were taken for several kinds of pilings and spread footings (the latter proved to cost 30 per cent less). Similarly, a composite poured-in-place and precast concrete structural system proved cheapest and fastest to erect in this particular instance. And precast concrete panels with tinted glass in anodized aluminum frames proved to be the least expensive sheathing that would produce low long term maintenance costs—even before heat transfer qualities were considered. The total cost of the building was $22 million.

Because of the location, thermal considerations were of prime importance in all of the planning. Exterior glass areas were held to less than 20 per cent of the wall area, windows were recessed two and a half feet to avoid direct sun, and the large roof area was given an unusually thick insulation. White quartz gravel was used as a reflective surface for the concrete panels that form the walls.

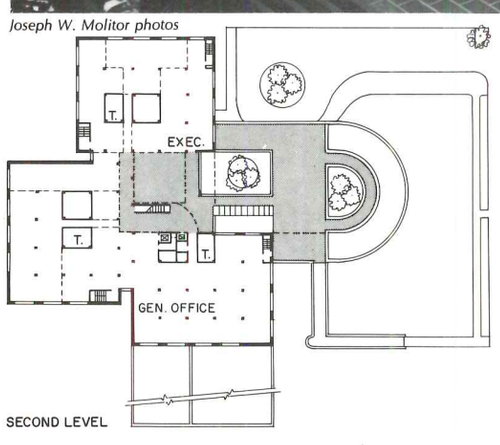
AMERICAN EXPRESS SOUTHERN REGION OPERATIONS CENTER, Fort Lauderdale, Florida. Architects and engineers: *Ferendino/Grafton/Spillis/Candela—partner-in-charge: Edward Grafton.* Associated architect: *James Flanagan.* Consultants: *Geiger-Hamme Co. (acoustical); Nicholson & Wilson Associates, Inc. (interiors); MC² (costs).* General contractor: *Pavarini Construction Corporation.*



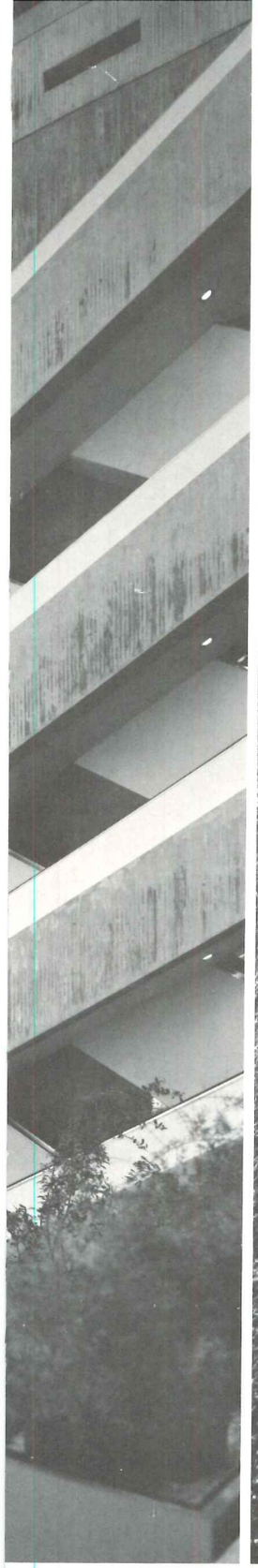
Joseph W. Molitor photos

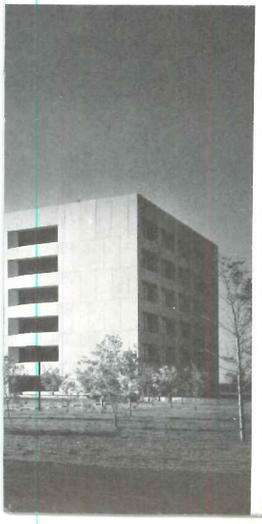


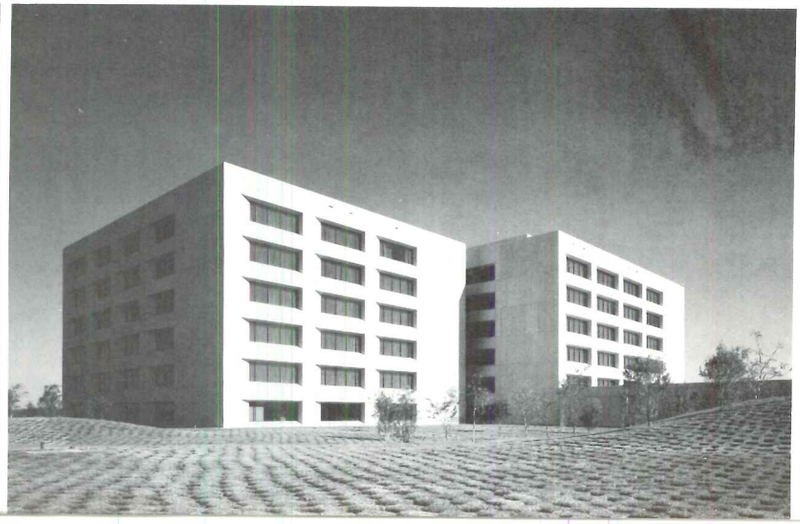
FIRST LEVEL



SECOND LEVEL

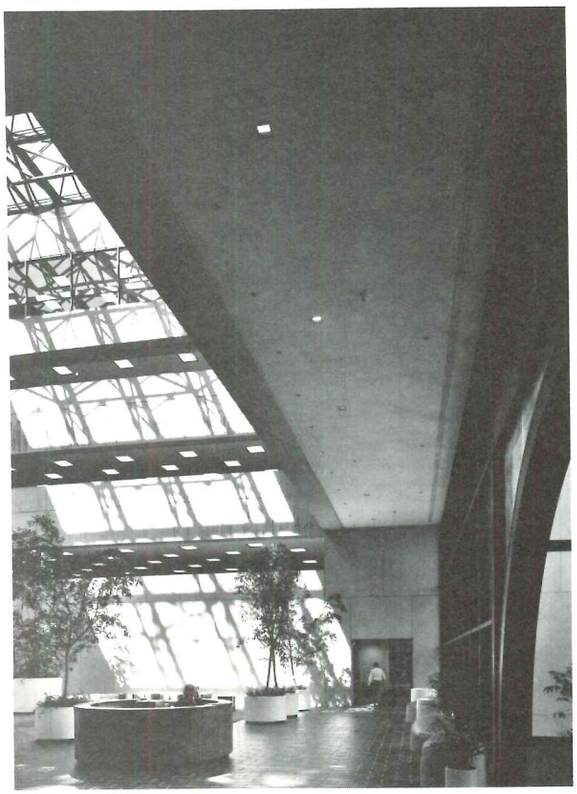






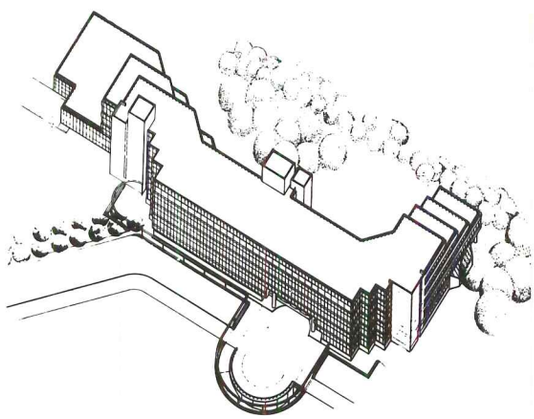
The views from the surrounding highways (photo, near left) speak basically of efficiency. From the parking lot, the building begins to take on a more complicated aspect (photo, far left) that is fully revealed only on entering. From a semi-enclosed courtyard at ground level, an escalator under the arched glass enclosure (photos, above) leads to a central skylit lobby that rises through the building's six stories. A second courtyard at ground level (photo, above) is surrounded by the semi-circular cafeteria, and by a roof-top plaza above it.

The cafeteria (photo, left) affords a number of interesting views for diners. These views include the ground-level courtyard (which the semicircular room surrounds), the upper level plaza through clerestory windows, and the outside of the building through limited, view-directing fenestration. Another ground-level courtyard at the main entrance (photo, below) greets visitors and employees alike before they ascend to the main lobby (left hand photo, below) on an escalator under the curved glass roof. The basic concept is that of enclosed environments—an appropriate solution to the undefined surrounding terrain.



NCR CORPORATE HEADQUARTERS

NCR's corporate headquarters has been designed by architects Lorenz and Williams for a suburban site in Dayton, Ohio. Like the American Express facility on the previous four pages, this building occupies a large site that is only accessible from adjacent highways. But the choice of location here was prompted both by a desire for visibility and by a desire to take advantage of the site's specific natural assets: woods and a system of rivers and lagoons that practically surround the building. Accordingly the headquarters has two distinct "faces." One is the glistening glass facade on the public side (isometric, right and photo, overleaf), where some 1500 visitors enter the building each day. The other face is a much more intimately scaled facade which steps gently down toward the river and a park for the employees' enjoyment and recreation (photo, above).



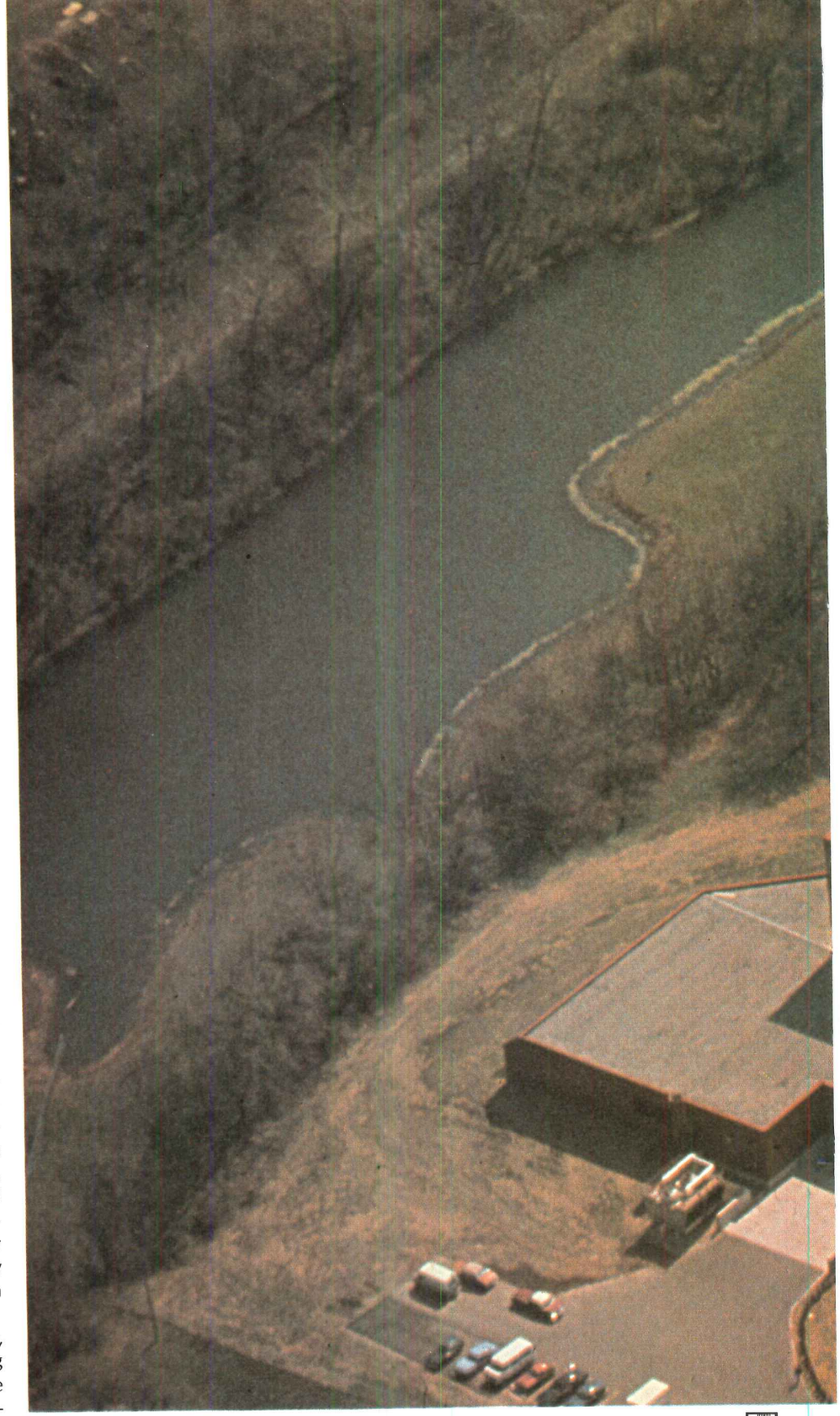
NCR's headquarters turns a smooth reflective glass wall toward the public, and thereby makes the expected large scale statement of a major corporation—a statement softened by mirrored images of the sky and a vast "front lawn". The image is reinforced by a monumental circular entry court that extends into the building under an enormous Vierendeel truss (photo, below). The truss makes a clear indication of "entrance," and allows an almost unobstructed view through the lobby to the totally different environment of woods and meandering river banks beyond the building.

It is this dichotomy of the building's two sides—as expressed by landscaping, building massing and cladding—that forms one of its greatest points of interest. The visitor passing through the lobby is confronted by a continuous low glass-roofed gallery (see last page) that projects out of the building, and wanders along the building's irregular rear wall. Visually, the gallery draws occupants and visitors out into an informal natural environment. To emphasize the difference between one side and the other, the massing of the 300,000-square-foot building is segmented toward the river by an external elevator tower and by a profile that steps down to an almost residential scale.

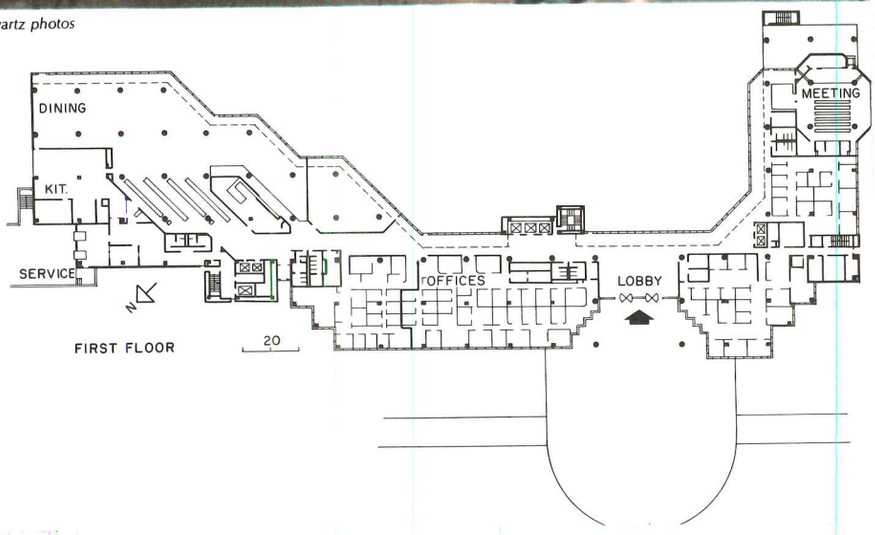
Because of the large number of daily visitors, the building's functions are separated horizontally so that the most public spaces, including a meeting room for up to 150 persons, are located on the ground floor. The more private functions are arranged in ascending order to the executive offices at the top, on the fifth floor. Also on the ground floor, a dining room for up to 600 persons opens to the glazed gallery, and hence to the river-front park beyond. The basement holds some of the parking spaces, mechanical rooms and office services.

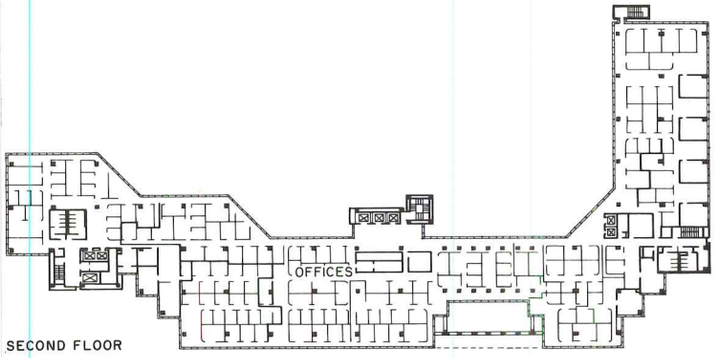
Almost all of the office spaces are separated only by low partitions, which—in a majority of areas—has the advantage of allowing simultaneous views both toward the river and toward the front lawn. In such open offices, corridors are placed directly against the windows. Exceptions to the open plan are some conventionally partitioned executive offices, generally located in the wing projecting toward the river. Because of this wing's position, offices along both of the long walls have river views. Generous structural bay sizes of 30 by 30 feet enhance the flexibility of the open plan system.

NCR plans to develop part of its large site, especially that portion between the building and the river, for employees' recreational use during non-working hours. Similarly, the en-

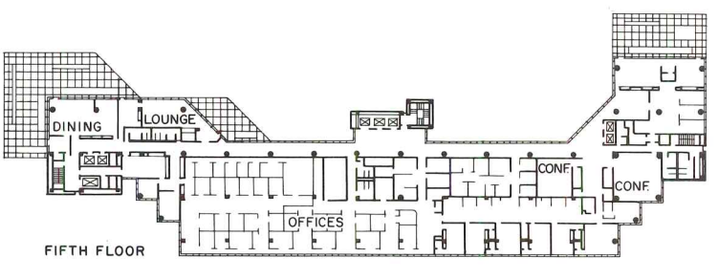


William Schwartz photos





SECOND FLOOR



FIFTH FLOOR

trance drive is being more fully landscaped, and a semicircular row of flags is to define the outer perimeter of the entry court.

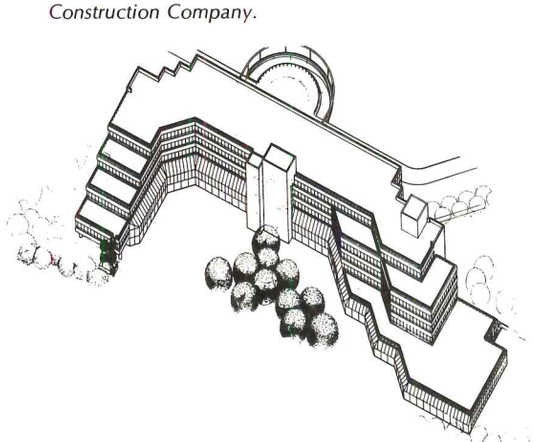
The nature of this headquarters building—its "two-sidedness"—is more than a response to complex program requirements and the nature of the site. It is also a response to sun orientation. The all-glass front wall is on the north, and the other walls generally have only enough glass to allow views. The unglazed portion of the building's skin consists of insulated pre-cast-concrete panels. These are faced with red quarry tile, and attached to the building's pre-cast-concrete structure on a module of 5 feet. According to Lorenz and Williams, "the desire to open the building to the site, while retaining energy efficiency, was a significant part of the design objective".

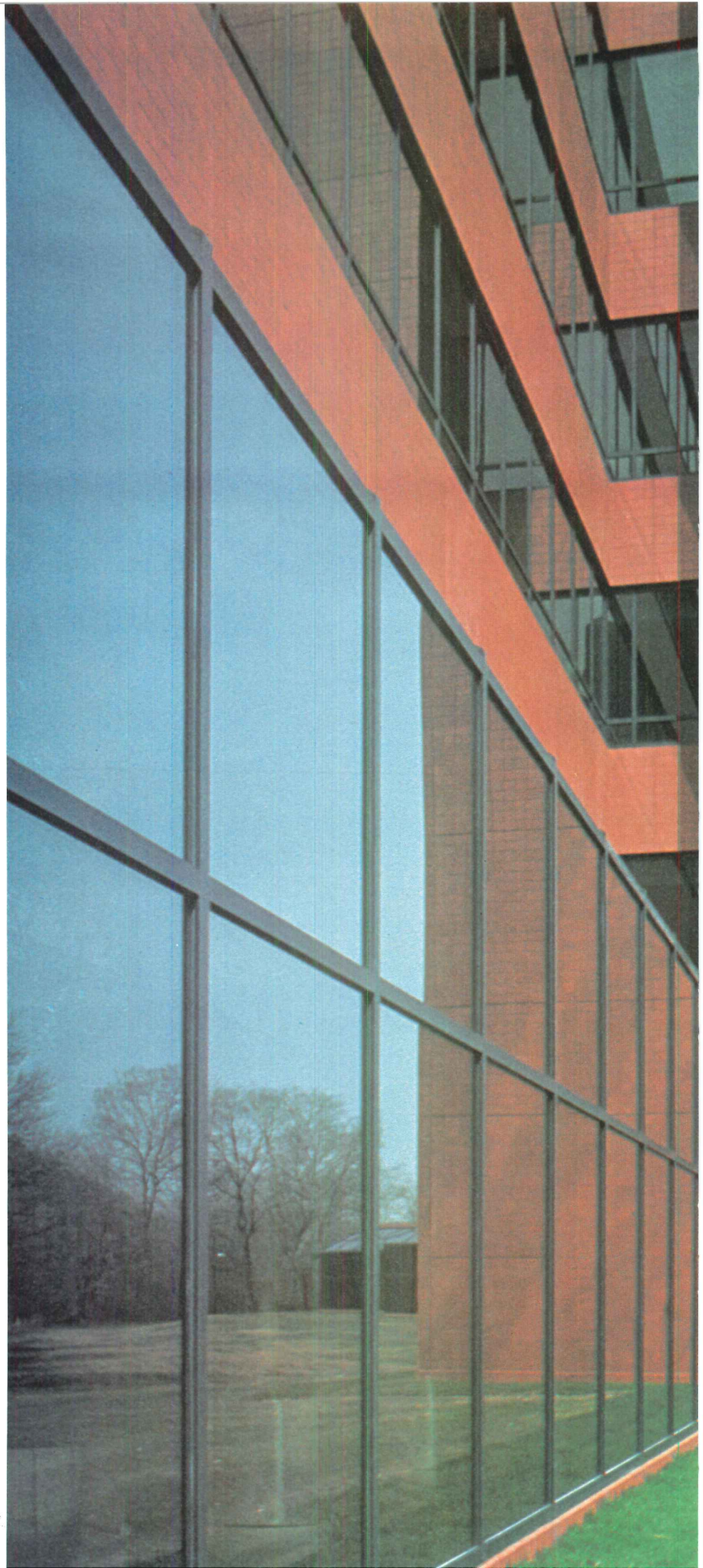
Other energy-conscious attitudes can be seen in the design of mechanical and electrical systems. High levels of artificial lighting are maintained only directly on desks, and the variable volume air supply can use direct outside air in good weather.

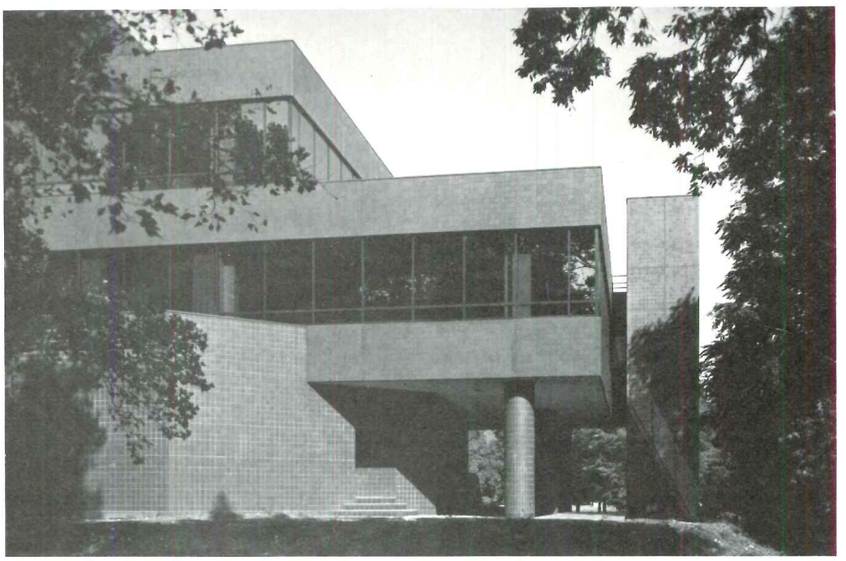
Both the pre-cast structure and panels were used to speed erection. An important part of the time saving was the ability to build during Dayton's often-severe winter months. As was the case with the American Express facility on the last pages, construction was on a "fast track" schedule. The construction cost was $12,400,000.

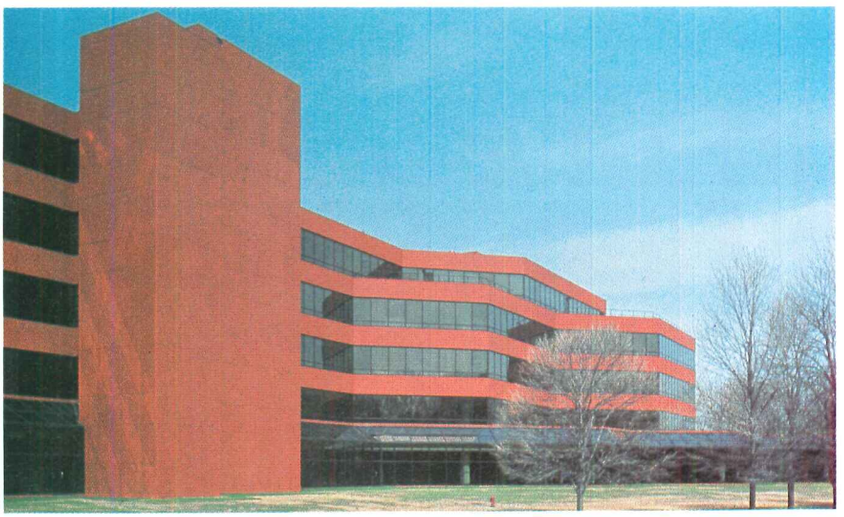
Altogether, the design of this headquarters building is a carefully considered response to the increasingly complex nature of such larger buildings everywhere. Corporations and government clients alike are now recognizing the dichotomy between formal large-scale images and pleasant human working environments. They are also recognizing the possible problems with a large building in existing surroundings. NCR's new headquarters resolves these problems—and recognizes the need for proper solar orientation—by a sensitive but direct physical expression of the different needs in one building.

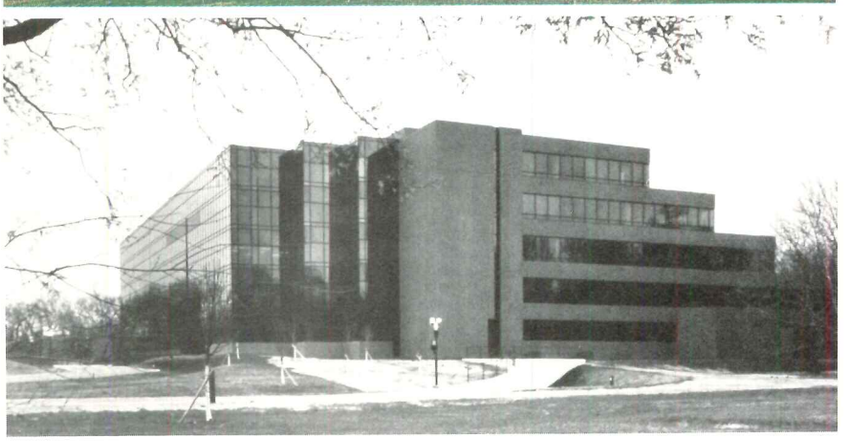
NCR CORPORATE HEADQUARTERS. Dayton, Ohio. Owner: *NCR Corporation*. Architects and engineers: *Lorenz and Williams, Inc.—principals-in-charge: O. E. Likens and Larry Anderson; project architect: A. Notley Alford; designers: Thomas Allen and William Gustafson; mechanical engineer: John Kolb; electrical engineer: Harold Patterson; interior designer: Robert Nichol.* Other engineers: *Lorenz and Williams and P. J. Ford* (structural); *Dayton Testing Lab* (soils). Consultants: *Ralph Woolpert* (bridge and sitework). General contractor: *Turner Construction Company*.











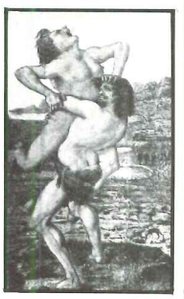
A gallery with glazed walls and roof (photo,left) projects from the building on its side toward the river. Reflected in the glazing is the fine view that office workers and visitors alike share. On this river side, the building steps down to an almost-residential scale (photos, right) and isometric, opposite). The change between the all-glass front facade and the glass with quarry-tile-surfaced concrete panels on the sides and rear can be seen in the photo below. The glass on the front facade is tinted brown and all mullions are stainless steel.

The chairman's office on the top floor of the wing that projects toward the river has its own terrace and views of the river and woods beyond (photo, top). The employees' dining room has one wall that is part of the continuous glazed gallery along the river side of the building (photo, left). The majority of offices have low partitions that facilitate both flexible use of the spaces and views out of the building in all directions (photo, below).

POSSIBILITIES IN ARCHITECTURE

by Robert Geddes

What is architecture? And why are there so many different directions it can take? Because—fortunately—architecture has many different possibilities, and all of them have their origins in living.



Antaeus, a mythological giant of Libya, son of Poseidon (the sea) and Gaea (the earth), was for a long time invincible in wrestling because his strength was magically renewed every time he touched the earth his mother. But Hercules throttled Antaeus and defeated him by holding him up off the ground. Architecture is like Antaeus: it gains its power from its contact with life. Architecture is grounded in human experience, and it celebrates nature and civilization. It is a manifestation of life, a means of promoting life, and ultimately a judgment upon life's quality.

But architects are people like everyone else, so naturally when they feel threatened from one direction or another they can seek to justify themselves by insisting that what they do serves no external purpose, that it is an end in itself to be understood purely on its own terms: art for art's sake. Today's surprisingly widespread fascination with the idea of "autonomous" architecture—an explicit goal of a few contemporary designers, and an implicit or even subconscious goal of perhaps many more—comes from an intellectual tradition which is old and which indeed can be traced back to very respectable sources. Immanuel Kant, for instance, by defining human capability as the three categories of *cognitive knowledge, moral conscience,* and *aesthetic sensibility,* left the door open to the possibility of "autonomous" art. This is because in his scheme the true, the good, and the beautiful can be separated from each other and broken asunder. Thus someone like the French writer Théophile Gautier could claim that aesthetics had nothing at all to do with usefulness: "Only those things that are altogether useless can be truly beautiful: anything that is useful is ugly." And an Oscar Wilde could claim that it had nothing to do with morality: "No artist has ethical sympathies. An ethical sympathy is an unpardonable mannerism of style." The notion of "autonomous" architecture similarly assumes that art can be understood only in terms of its aesthetic qualities and structures. As Clive Bell said, "To appreciate a work of art, we need bring with us *nothing* but a sense of form, color, and a knowledge of three-dimensional space."

The value of this kind of point of view, of course, is considerable, in that it gives strong support to the intrinsic worth, the internal validity, of the art of architecture. The problem with it, nonetheless, is that it can unfortunately lead to aestheticism and finally to escapism.

Architecture is the home of man, and there is no escape from that. There may be architecture without architects, but not architecture without people—or, for that matter, any very sizeable group of people without architecture. Among the very simplest of peoples whose societies may not even have produced any buildings, there are still boundaries, markers, entrances, paths, centers, and—in short—the makings of a sense of place. In other words, there is architecture. Architecture seems to be a necessary instrument of living. It is a coherent and idealized representation of nature and of ourselves.

For this reason, I believe that there really can be no "autonomous" architecture any more than there can be autonomous life. If architecture is separated from human social experience, it loses its values, it loses its ability to speak. And it loses its source of imagination.

What is imagination? It is the intellectual power that we call on when we try to deal with the randomness and apparent chaos of everything we experience. Imagination is the faculty which seeks coherence and wholeness, and it takes the risk of oppositions by accommodating contradictions within a larger perspective. The creation of architecture occurs at the meeting place between experience and the imagination. The ideal of the imagination is unity. Just as in life the imagination helps us to cope with the complexities and contradictions we experience, so in architecture does it provide us with a sense of coherence.

Coherence provides that a work of art has a harmonious relationship of parts and a sense of the integrity of the whole. This, presumably, is what we are talking about when we talk about "form." Coherence has always been the objective of form-making, though obviously it is something that has been achieved in very many different ways. In the Gothic period, for instance, the achievement of luminosity within a building was of the highest interest. By contrast, in the nineteenth-century stylistic revivals, ethical or romantic association with other times and places was sought. The weighting and emphasis given to different aspects of architecture is not a matter of architecture's own internal logic and necessity, but of the priorities of the people who make it. And so it very obviously follows that there can be no one kind. The particular mix of emphases at any one point is influenced by the arrangements that serve users and their social institutions (in other words, by life) and by the arrangements that have so far been tried out (by historical precedents). Architecture, that is, is influenced by necessity and association.

Traditional "functionalism" does not adequately account for the complexities of architecture, although, of course, it does have some sense of truth about it. But there is a difference between the truth and the whole truth. Primary "functions" are those that the functionalist tradition most easily recognizes—like being protected from the rain, looking out a window, finding the entrance, seeing another person. But those who seek to understand architecture in terms of its associations and its symbolic values correctly identify still other functions. For example, the Italian critic Umberto Eco wrote that a "Gothic cathedral makes possible several primary functions such as 'gathering together,' but at the same time it communicates a number of 'ideological' values such as 'mystical atmosphere,' 'diffusion of light as a symbol of the divine presence,' or 'concentration,' 'deference,' and so on." Eco therefore shows that "function" does not have to be understood in the restricted sense assigned to it by "functionalism."

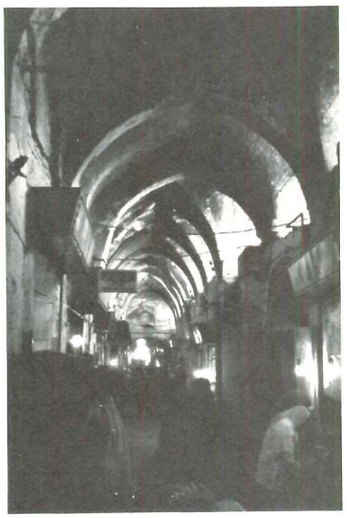
If traditional "functionalism" won't do, what other possibilities are there? At the outset, let us make it clear that *no one thing* can do. There have, after all, been many attempts to explain architecture, sometimes in unitary terms (such as "architecture as space"), and sometimes in dualities (such as "form and function"), and sometimes in triads (such as "firmness, commodity, and delight," or more recently "task, form, and technics"). In one way or another, all simple explanations fail adequately to express the variety of the experience or the complexity of the production.

I believe that architecture has at least eight different possibilities. All eight coexist. The challenge to the architect is to make all of them—or at least as many of them as possible—coherent and vivid. . .

Robert Geddes is Dean of the School of Architecture and Urban Planning at Princeton and design partner in charge of the Princeton office of Geddes Brecher Qualls Cunningham Architects.

In this article I have borrowed freely from the following works, which I also recommend to those who may be interested in further reading: Robert Gutman, editor, *People and Buildings;* Richard Wollheim, *Art and its Objects;* Dennis Donahue: *The Sovereign Ghosts: Studies in Imagination;* and Roger Scruton, *Art and Imagination.*

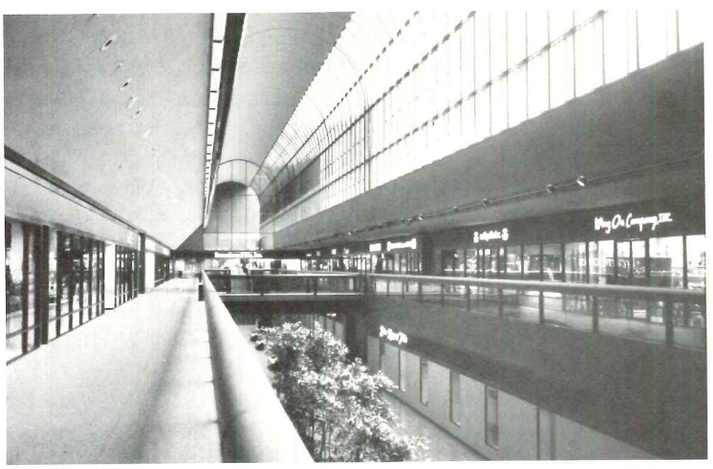
TO PROTECT

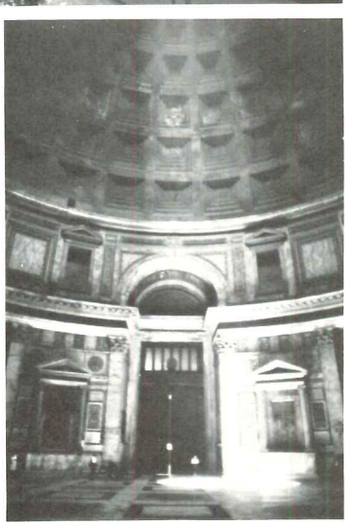


Man, the human animal, is compelled to invent architecture in order to exist. A building intervenes on behalf of the human body—frail, unprotected, and lonely in its natural climate. The built environment is a special kind of micro-climate that meets the body's sensory needs for light, for heat, for sound, for protection, for security, and for orientation. Architecture creates a sense of place for the senses.

Architecture is the body's "third skin." That is, the body comes covered with its own skin as standard equipment; as added equipment, one chooses clothing, hats, gloves, and sweaters to suit the climate and occasion, creating a second skin. A building is a third skin, the kind of environmental cover that the body requires for living, for working, for acting, for performing, and for being a social animal.

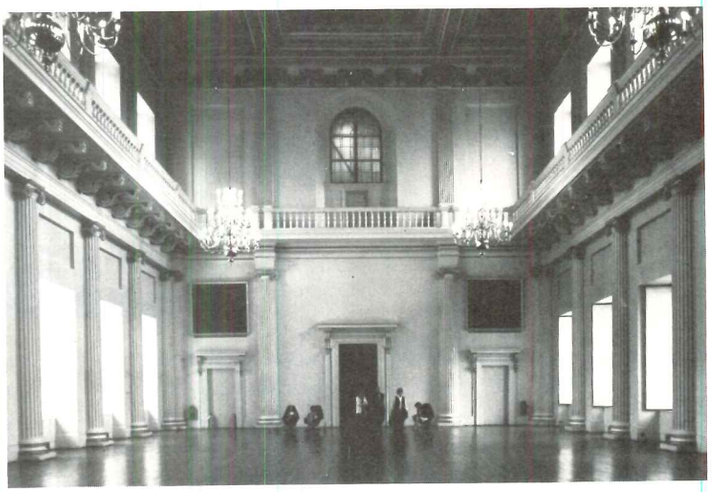
A building is a permeable filter, a selective barrier that can be opened or closed, so that environmental forces can be controlled. The membrane between inside and outside is architecture's. Architecture is the capturing of light. For the religious mind, the illumination and luminosity of architecture is a metaphor for divine light. For the secular mind, luminosity is the most noble experience of nature.





A covered arcade in Jerusalem (top)
The Pacific Design Center
in Los Angeles (above)
The Pantheon in Rome (right)

TO GROUP



Architecture controls the physical environment so that people, as individuals and groups, can live, work, and be together. The milieu that buildings create is a shared place for social interaction, for face-to-face meetings, for small group activities, for twosomes and threesomes and foursomes—a group domain. At the same time, the social milieu of building creates many personal places, a room of one's own, a corner or niche, a table and chair which make a territory with some privacy. Personal spaces and group spaces are part of the continuous realm of common-sense territories in everyday life. Architecture is the means of accommodating and expressing the spaces for social living.

Some spaces are able to encourage people to meet, drawing them together, enabling group activities, increasing face-to-face contacts, and enhancing social life. These places have a sense of a group domain, of public territory. Look for these characteristics in the lobby of a dormitory, or the entrance to a dining hall, or a family's living room, or on a well designed sidewalk plaza.

Other spaces have characteristics which discourage the public life, making face-to-face relations more difficult, and giving little encouragement to a shared territory: look at many bus terminals and subway stations, or the ground levels of some high-density high-rise housing.

Whitehall Palace Banqueting Hall
in London (top)
Richard Stockton State College
in New Jersey (above)

TO EMBODY INSTITUTIONS

Architecture is the embodiment of a social institution (the family, the church, the school, the state, or the institutions of commerce and work). A building is the physical form of a social form.

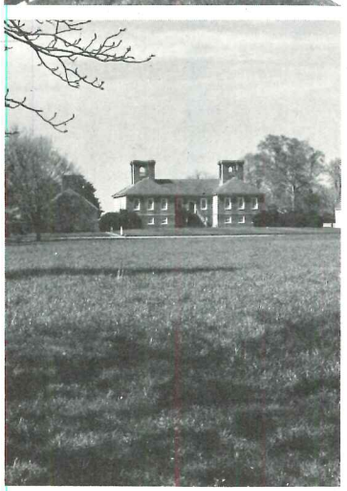
One of the joys of architecture is its ability to create, out of common-sense space of daily life, the settings for rituals. For example, eating together in a shared place is one of the key rituals of social institutions as diverse as the family, the advertising industry, and the university.

For a social institution, architecture is an enabling mechanism, making it possible to house its members and accomplish its rituals. Whether rituals are religious (requiring a sacred place) or secular (requiring a mundane place) the architectural form serves the norms and values of the social institution. The rituals may be simple, like entering a building: look at the narthex of a church or a lobby of an office building. The rituals may be theatrical: look at an altar, or the podium at a political convention. The rituals may be complex and hierarchically arranged: look at the quadrangle of a college, or at a governmental center. The rituals may be organized temporarily, as a sequence of actions: look at a dining hall or an airline terminal.

The family is a social institution that is profoundly affected by its physical setting. The shape and geometry of household spaces has a strong impact: For example, the size and arrangement of the living room influences whether or not there is an opportunity for genuine interaction and social contact. A key problem of family relationships—privacy vs. community—is something that architects can deal with in the spatial organization of the house.

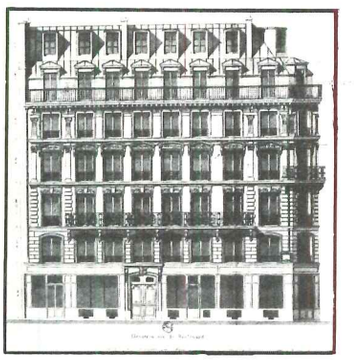
Architecture is a major investment of an institution's resources. It is an instrument of development. The decision to support, for example, housing and community facilities, is a key to the priorities of a society; similarly, for colleges or corporations, the decision to build a research laboratory or an office building is linked to an over-all strategy for institutional development. It is possible to learn a lot about institutions by reading their buildings as well as their public reports.

Buildings are symbols of our important values and goals; they relate to ideas and operations in the social realm. Since these values and practices are given their formal structure by social institutions, it is most helpful for architects to see institutions as the bridge, the mediator, the connection between their concerns for physical form and society-at-large's concerns for social form.

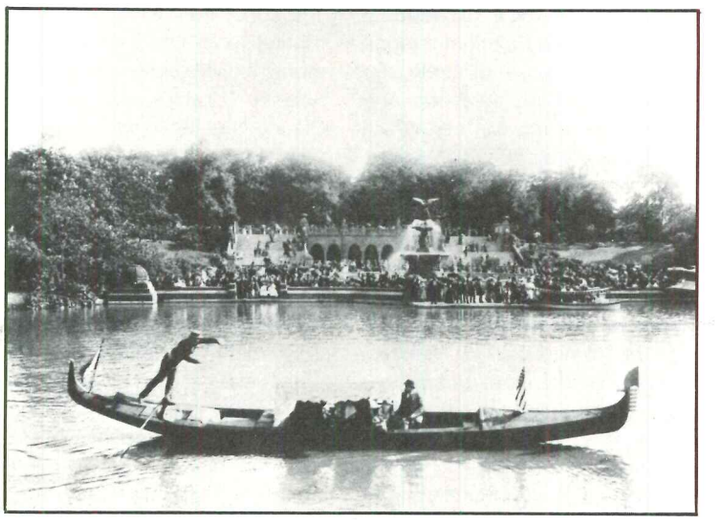


Trinity College in Cambridge, England (top)
Park Avenue in New York (middle)
Stratford Hall in Virginia

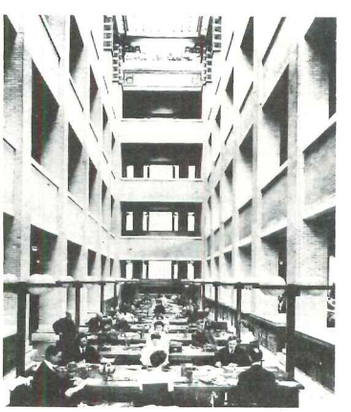
TO INFLUENCE SOCIETY



A facade in Haussmann's Paris (right)
Boating in Central Park in New York
Wright's Larkin Building in Buffalo
Roehampton housing new Longdon (bottom)

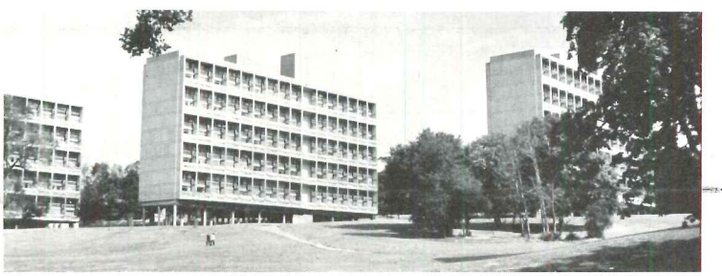


Architecture is a means for the improvement of society. The physical environment generally, and the built environment specifically, influence the quality of life for all members of society. The distribution and availability of sunlight, or of open space, for example, is a matter of spatial justice. If a depressed condition of life is one result of a bad environment—overcrowded, unsafe, confused, dirty, unhealthy, and ugly—then the amelioration of life can be aided by a truly better environment. The rebuilding of the slums, the renewal of old districts, and the helpful building of new towns are examples of architecture that improves the fabric of society itself.



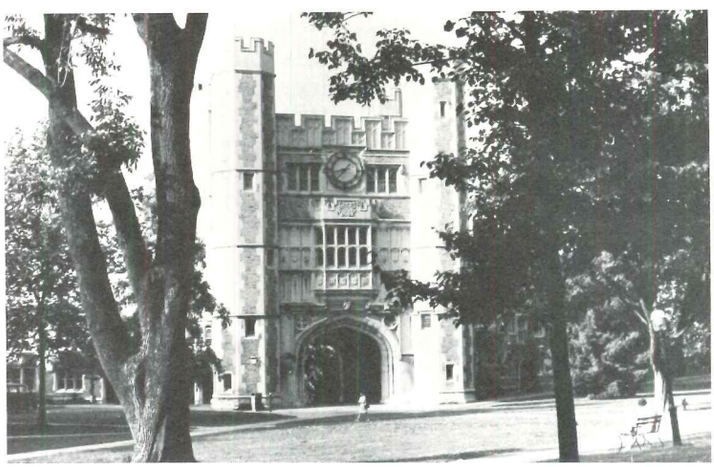
Some ideas are shared almost equally by architects and social scientists, each feeling that the concept is fundamentally theirs. Such a tug-of-war exists around the most pervasive proposal for improving the quality of life in cities, "the neighborhood concept." As both a physical and a social form, the neighborhood is a vivid example of the expectation that architecture can improve the life of a community.

Architecture builds the city of man. The physical setting of the social community is the embodiment of political ideas such as equity and fairness, order and harmony, liberty and justice, an open society or a closed society.



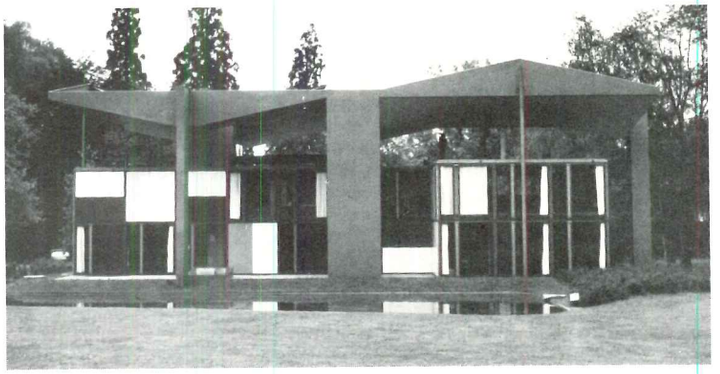
TO INFLUENCE CHARACTER

Architecture has a moral influence on people, and therefore architecture can be a means for moral improvement. A building can be an embodiment of a moral quality. The sense of unity, for instance, is both aesthetic and moral. A building can encourage and speak out on behalf of virtues, such as courage, or temperance, or honesty, or fairness. The idea of "good proportion" is an aesthetic as well as a moral concept, and a building which has a harmonious sense of wholeness is a vivid example of right action. Architecture creates a sense of understanding of other people, a special kind of empathy, an insight into other lives that is profoundly moral in its effect. When you observe and understand what a building is, you also are gaining insight into what its users are, what their social role is, and what they are saying about their place in society. If an increase in social empathy is morally good, then architecture contributes to an improvement of the moral life of society. Both Ralph Adams Cram's Gothic and Claude-Nicolas Ledoux's Classical architecture reveal moral intentions. Ledoux, for example, designed "a house devoted to the moral virtues," and proposed a building in the form of a cube because it is "the symbol of immutability." At Princeton, Cram's 1928 Gothic chapel is a building which was designed to offer moral instruction. John Ruskin wrote on architecture that "great works *reflect the moral character* of the men who make them and the society in which they are made; in turn, they wield a potent *influence*."



A gothic gate at Princeton
The Rotunda at the University of Virginia (bottom)

TO COMMUNICATE EMOTION

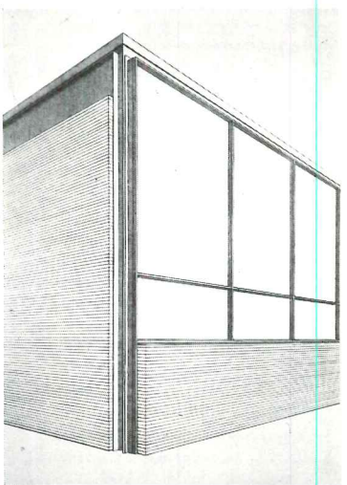


Architecture is a means to communicate feeling, an expression of emotion. In this way, architecture is concerned with the making of expressive forms that are the symbols of feeling.

In *Feeling and Form* Suzanne Langer argues that "art is the creation of forms symbolic of human feeling. The making of this expressive form is the creative process that enlists a man's utmost technical skill in the service of his utmost conceptual power, imagination." Brutal or civil, crude or delicate, serious or gay, noble or frivolous, magnanimous or selfish, sincere or insincere, harmonious or discordant, orderly or chaotic, calm or hectic, aloof or friendly—these are emotional qualities that are expressed by architecture.

In the broadest sense, architecture creates the image not just of material but also of intangible culture, and it expresses social feelings. Architecture's expression of culture is most evident in the buildings of social institutions—a house for a family, a church for a congregation, a college for a community of scholars and students, a capitol for a state.

In more personal terms, architecture can express the feelings of the architect or the inhabitant. Perhaps, like musical delight, the pleasure of fine architecture derives its joys from both.



A house by Le Corbusier (top)
A house in Peru, Vermont
Details by Mies (above)
Details of a facade in London (left)

TO ASSOCIATE WITH REALITIES

Architecture refers to other architecture, and to other places, times, and institutions. A building is more than a representation of itself. By reference, reflection, and even imitation of another reality, a building encourages our understanding of other things.

Sometimes operational factors are overwhelming influences, leading to the emergence of a building "type" such as the contemporary office block. The similarity to Lever House of office buildings in Addis Ababa is at first glance more a matter of functional type than of association. But is it the whole truth? Is there not also operating a kind of pride of identification with "modernization," with the progressive institutions of commerce and with the Western world? Rightly or wrongly, architecture expresses this association.

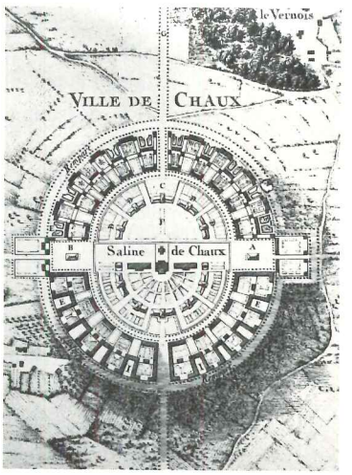
Sometimes, deliberate reference to another time is the dominant influence on an institution or architect. The "collegiate Gothic" style, as well as being a very adaptable building and planning system, was a conscious attempt to associate with the medieval origins of the universities of Oxford and Cambridge; similarly the use of neo-Roman style was advocated by Thomas Jefferson for the new American democracy, and the Girard Trust Company in Philadelphia, designed by McKim Mead and White, was an obvious attempt to be associated with the permanence and cosmic significance of the Roman Pantheon.

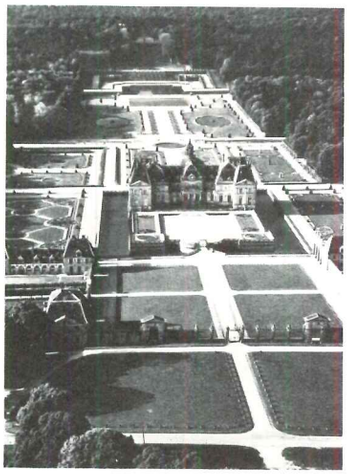
Sometimes, a building refers not to another building, but to ourselves, our human bodies. In order to construct space, we take our bodies as an instrument of order and measurement, a source of what the mathematician Henri Poincaré called an "instinctive geometry," which is neither pure abstraction nor a simple representation of our bodies. We rarely see a whole building which is an actual representation of a body, but look at the plan of a Gothic cathedral, or the Temple Dedicated to Love proposed by Ledoux. And we often experience buildings which are organized like the body (for example, symmetrical from side to side, but not symmetrical from top to bottom; having a vertical axis; having a head).

Sometimes, a building refers to nature, especially to the habitat that has cradled civilization: the meeting place of forest and grassland. A building can have columnar halls and arcades (like a forest) and cloistered courtyards (like a clearing in a forest). Look at the Jefferson concept of the University of Virginia as an example of an imitation of pastoral nature. Architecture draws prototypes from nature.

A weekend house in Scandanavia (top)
A gate at Gonville and Caius College in Cambridge (middle)
Details of a house by Antonio Gaudí (above)

TO ASSOCIATE WITH IDEALS





Architecture can be the image of an ideal, such as an ideal nature, or an ideal society, or an ideal cosmos, or the myth of a golden age.

The tower and the dome are two of the most powerful forms of reference to an idealized nature and cosmos. The tower not only marks a place, but also refers to the axis of the world; the dome not only encloses a space, but also refers to the cosmic cover of the heavens.

The myth of a golden age exerts a powerful influence on architecture, with references to ancient Athens, or to the medieval community, or, more parochially, to a heroic period of architecture's own development, like the 1920s.

The ideal of democracy was a stimulus to Louis Sullivan and Frank Lloyd Wright; they sought to make architecture the embodiment of liberty, the expression of justice, the image of a democratic community.

The ideal community has been framed by many architects, such as the "House of Communal Life" by Ledoux, for sixteen families who would live together in harmony and peace, and in Ledoux's words, "surrounded only by virtue . . . would know nothing of evil."

The idealized institution is often a matter of some choice; we have colleges that are Gothic because of references to medieval scholasticism; or Georgian Renaissance because of references to classical academy. Similarly, we have town halls that are Gothic because of an idealized notion of the medieval urban community, and town halls that are Greek or Roman because of an idealized notion about the roots of democracy. Perhaps the most permanent example of an idealized institution is embodied in the concept of the quadrangle, the cloistered courtyard, or the plaza, which serves as the functional and symbolic center of a community.

The town of Chaux in France (top left)
A French chateau: the idea of "horizontal" (top right)
Domes in Venice
The World Trade Center: "tower" and "two-ness"

COMPLEXITY AND COHERENCE

Since architecture originates in human experience, it has the possibility of being many different things. I have tried to show eight of the possibilities, all of which coexist. There are certainly more, plus a dazzling array of other possibilities for combining them all. The challenge is to admit them all and confront them, trying to include as many as possible, and bringing them coherently together with compositional skills.

Architecture is, in fact, a composition, and the architect is like a composer. The composition may pursue many different themes—static or dynamic, clear or ambiguous, open or closed, simple or complicated. The relationship between the parts of the composition, as well as the parts themselves, needs to be developed with logic and with a sure sense of what is required. But the ultimate goal is still more than this: it is to create a whole thing out of all of the parts—a vivid unity with an identity and an integrity of its own. The goal, that is, is to create a sense of coherence. And in doing this the architect makes his or her most valuable social as well as aesthetic contribution. In doing this the architect creates *form*.

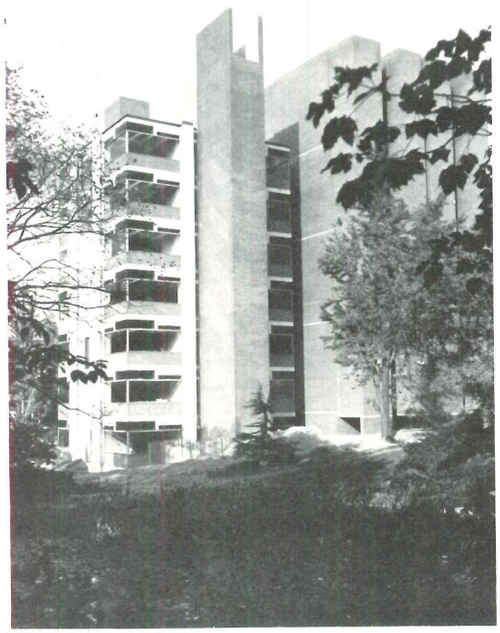
Consider a prairie house by Frank Lloyd Wright. In it you will find not only a wonderful place to live, a shelter, and a stage for family life. You will also find a rich organization of vertical and horizontal planes, a fine choreography of solids and voids. You will find a varied orchestration of light and shade and of smooth and rough. And all of these phenomena will be a part of a still coherent composition.

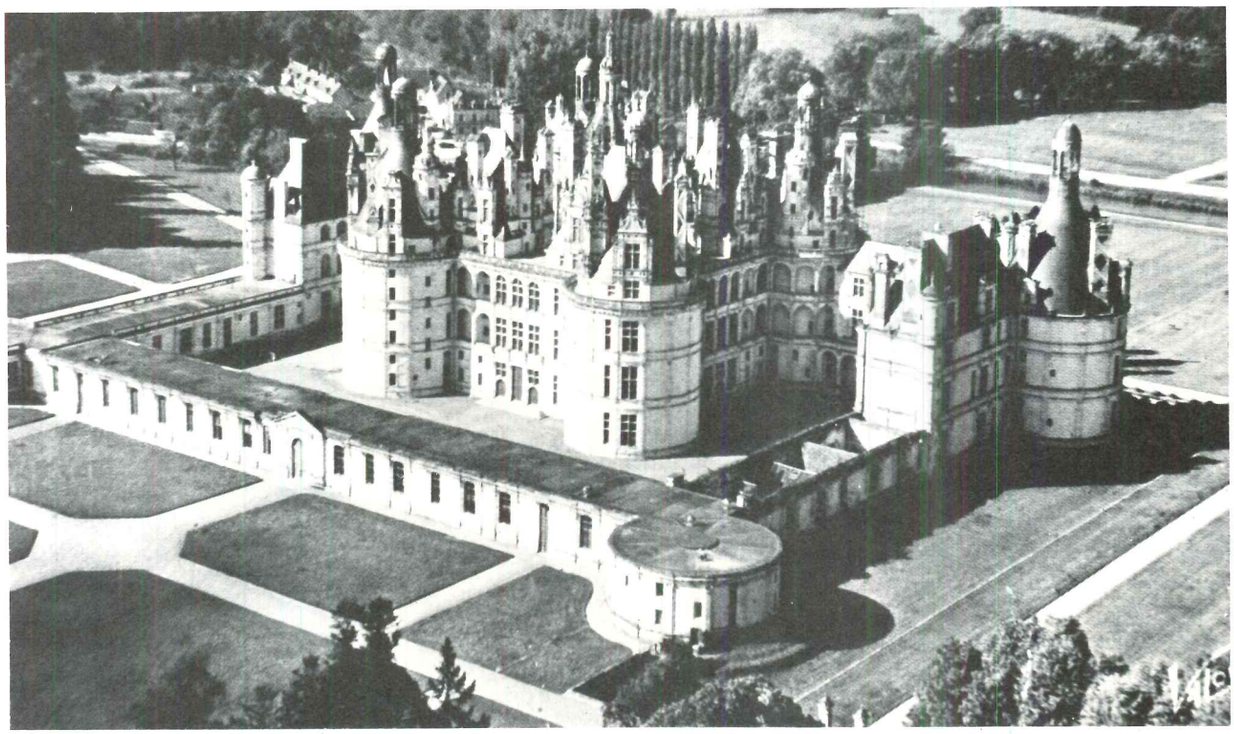
To me the prairie house shows the coexistence of the social and the aesthetic, and in my own work I have found this to be the key to architecture, the most likely departure gate on the long journey to all of architecture's possibilities. From my own point of view, the proper connections between social form and physical form are the central issues, and I believe that an understanding of the nature of social institutions, their values, their norms of behavior, and their rituals, is the most helpful way for an architect to get started.

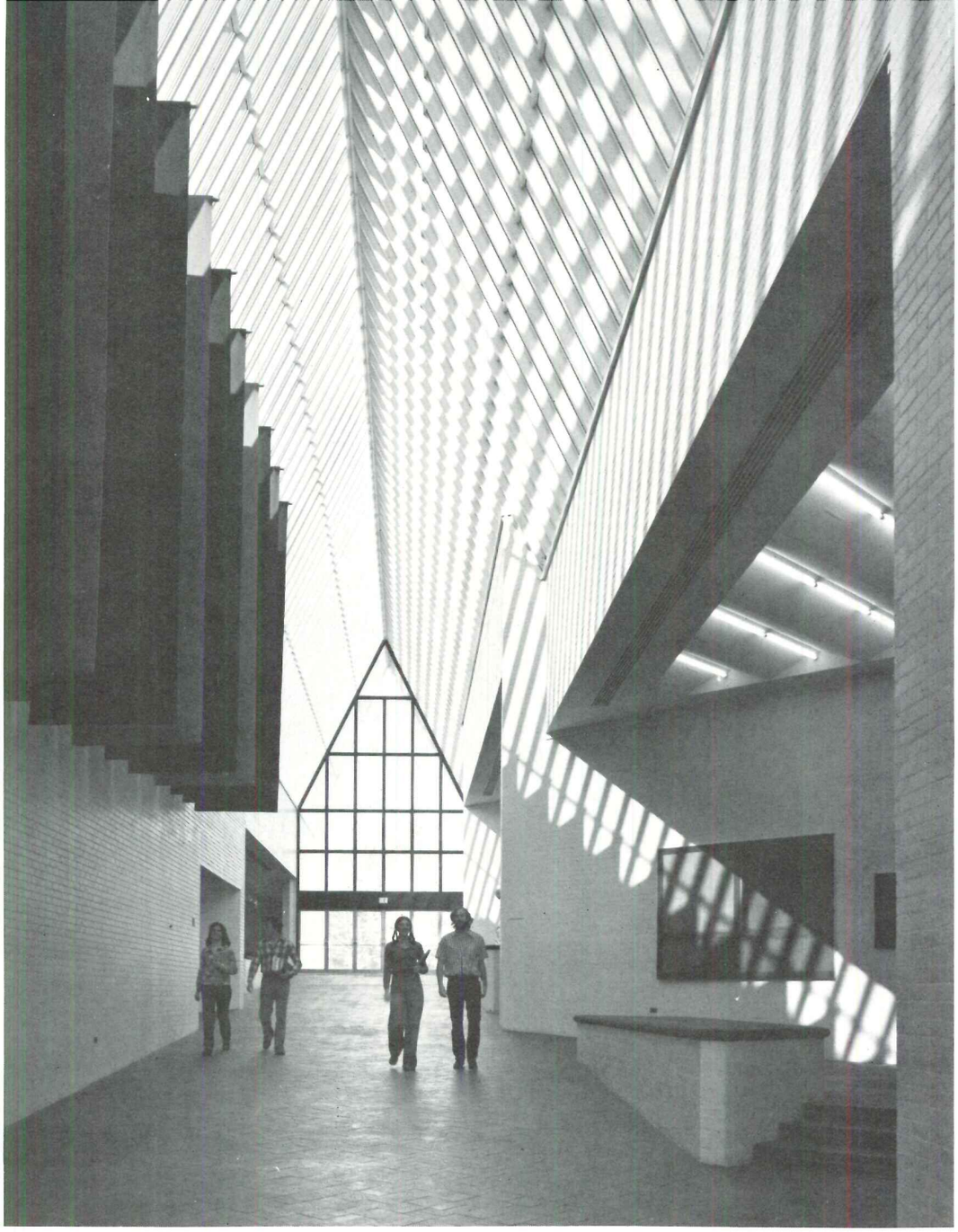
Nonetheless there can be no single formula. We can only bring our own experience and knowledge optimistically before the light of our imagination—that inventive faculty which receives many possibilities, the poetic sense that balances and reconciles discordances, the producer of vivid images, and the creator of coherence, the creator of form.

The task is to give form to all of the possibilities of architecture. Though societies and cultures change, and emphases shift, all of the possibilities do coexist, opening up prospects of great richness. As Lewis Mumford once said of our time and of the future, "I am pessimistic about the probabilities and optimistic about the possibilities."

Kahn's Richards Labs in Philadelphia
The Chateau of Chambord







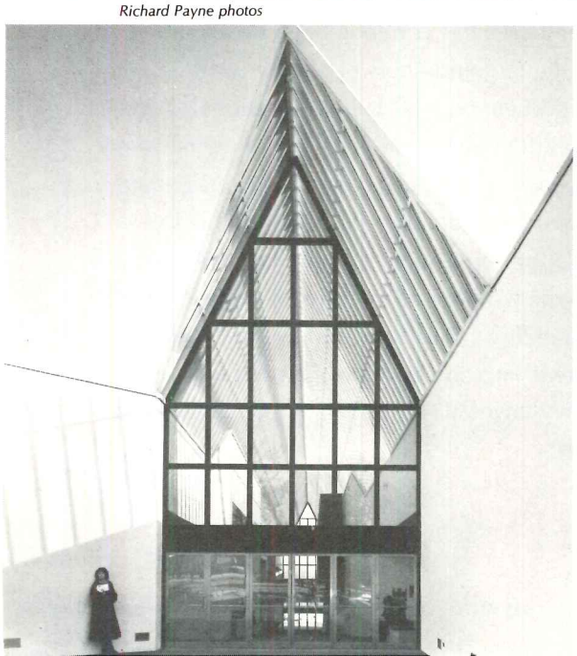
Fine Arts Center, Muhlenberg College
Allentown, Pennsylvania
Johnson/Burgee architects and
Wallace & Watson associates

COLLEGE BUILDINGS: THE MULTI-PURPOSE BUILDING AS AN ALTERNATIVE TO THE SPRAWLING CAMPUS

The development of college buildings and campuses has continued at a steady growth rate for years, in an effort to keep pace with the large numbers of people attending or aspiring to college. The Department of Health, Education and Welfare's National Center for Education Statistics predicts that college enrollment will increase 25 per cent from 1976 to 1983. To provide facilities for this expected growth, colleges and universities are continuing to build; and in many cases they are constructing a new kind of facility—a structure which serves more than one purpose; or houses a variety of disciplines; or is jointly owned and used by many colleges; or which houses all facilities of a new college under one roof. The examples shown in this Building Types Study represent a variety of attempts to organize tightly a variety of functions into one structure, at campuses as far apart geographically and philosophically as ivy-covered institutions in the East and in alternative colleges in the West.—*Janet Nairn*

A STARKLY ELEGANT FORM PROVIDES STRONG ARTISTIC EXPRESSION AT THE FINE ARTS CENTER, MUHLENBERG COLLEGE

Richard Payne photos

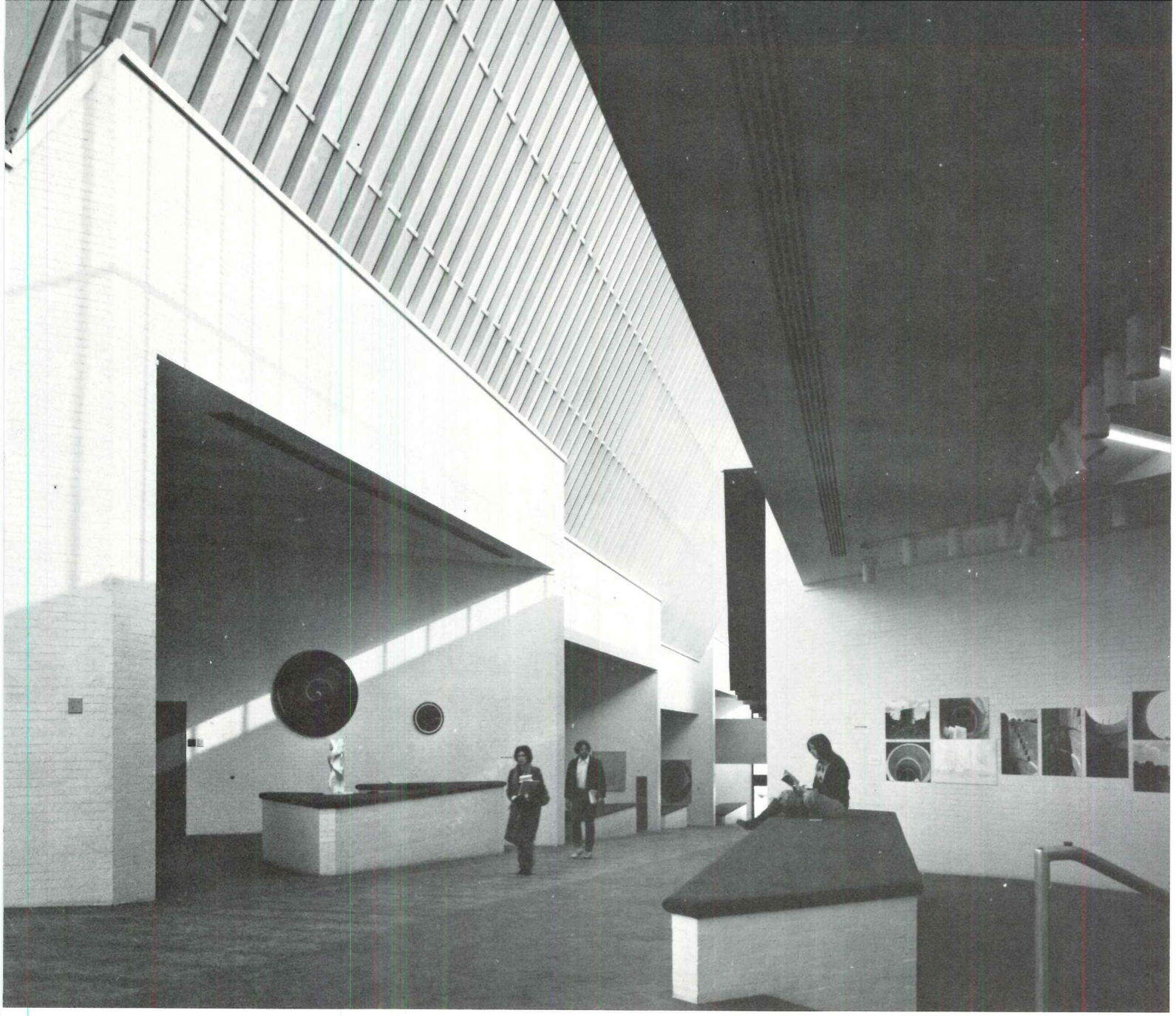


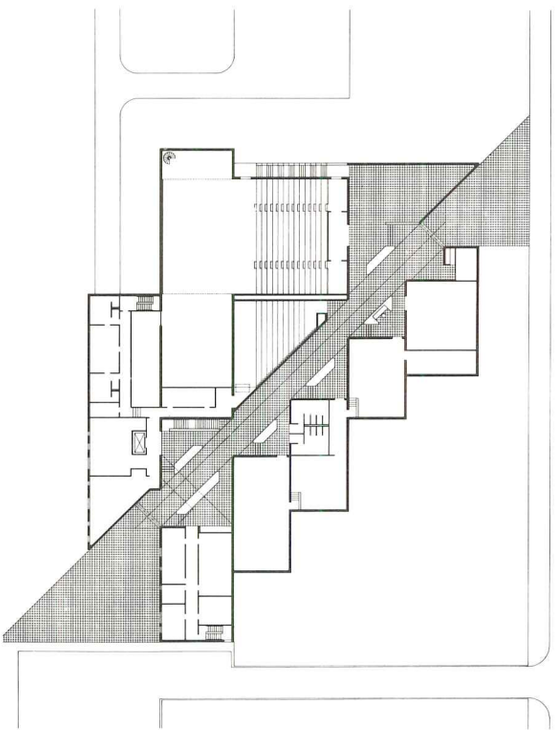
Beautifully and functionally organized, the Fine Arts Center at Muhlenberg College is also visually elegant and exciting—a splendid symbol for a college in the process of developing an arts and humanities program.

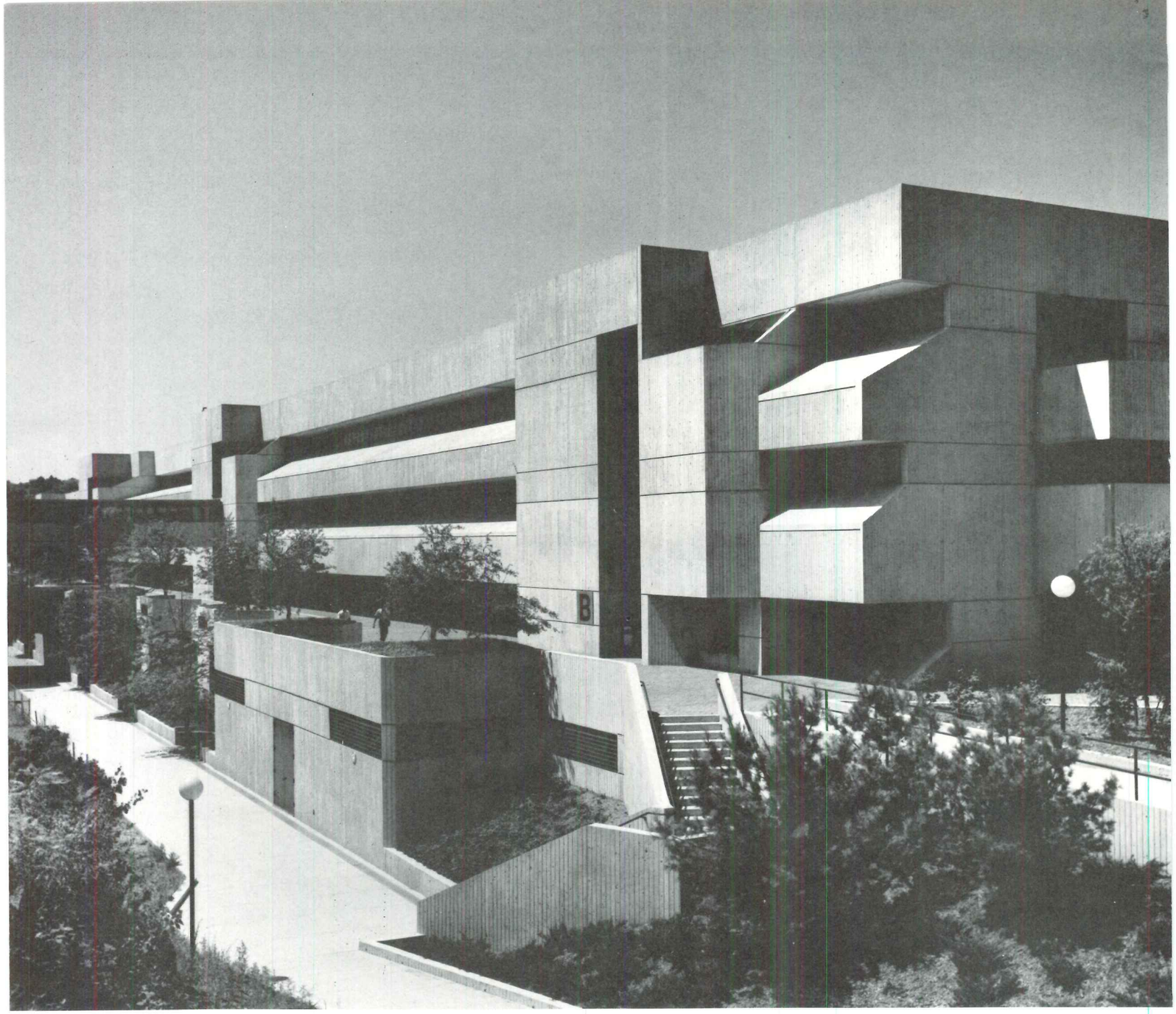
An immense corridor, which acts as an "indoor street", slices diagonally through the site; and off it opens a variety of classrooms and theaters. The full length of the corridor is capped with a skylight (of reflective glass) that retains the identical shape of the top portion of two entrance arches. As the site gently slopes, the height of the skylight changes, from 39 to 52 feet.

The "street" concept was developed first, says architect John Burgee, and all other facilities were plugged in—each capable of being easily expanded outward if necessary. A series of triangular spaces, created along the corridor as a result of the organization of the classrooms, are utilized as an art gallery or gathering spots. The treatment of form and fenestration is different on each elevation, depending on the internal need for natural light. Spaces requiring no natural light were spread out on the southern side, while others, such as most classrooms and offices, were located to the west. These have a random window pattern (bottom right).

FINE ARTS CENTER, MUHLENBERG COLLEGE, Allentown, Pennsylvania. Owners: *Muhlenberg College*. Architects: *Johnson/Burgee Architects and Wallace & Watson Associates*. Engineers: *Wallace & Watson Associates (structural); T.A. Coughlin & Co. (mechanical/electrical)*. Consultants: *Robert Hansen & Associates (acoustical); Jack Kilpatrick (lighting); Robert Brannigah (theater)*. Interior design: *Johnson/Burgee Architects and Wallace & Watson Associates*. General contractor: *Somers Construction Co., Inc.*







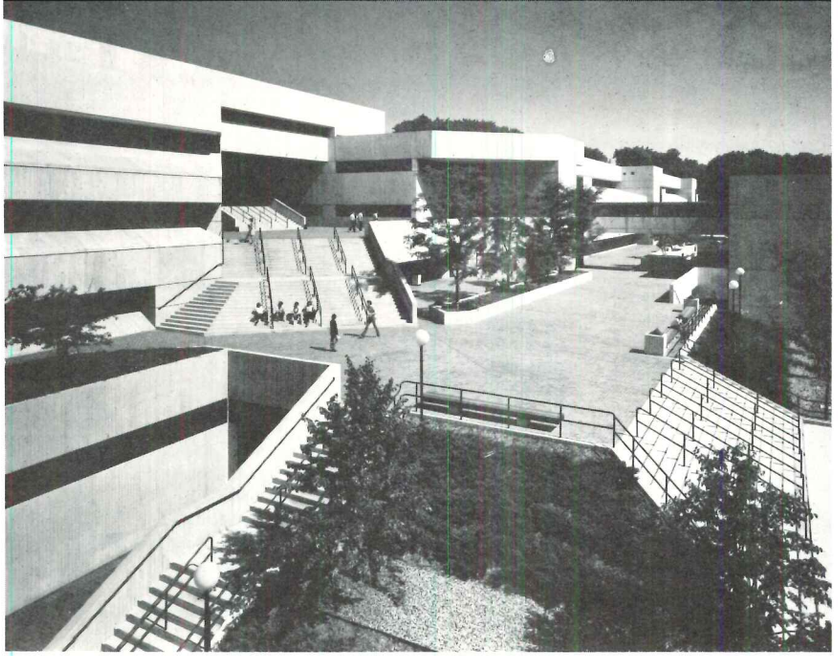
INTRICATELY-DESIGNED PEOPLE SPACES HIGHLIGHT A MEGASTRUCTURE AT HOLYOKE COMMUNITY COLLEGE

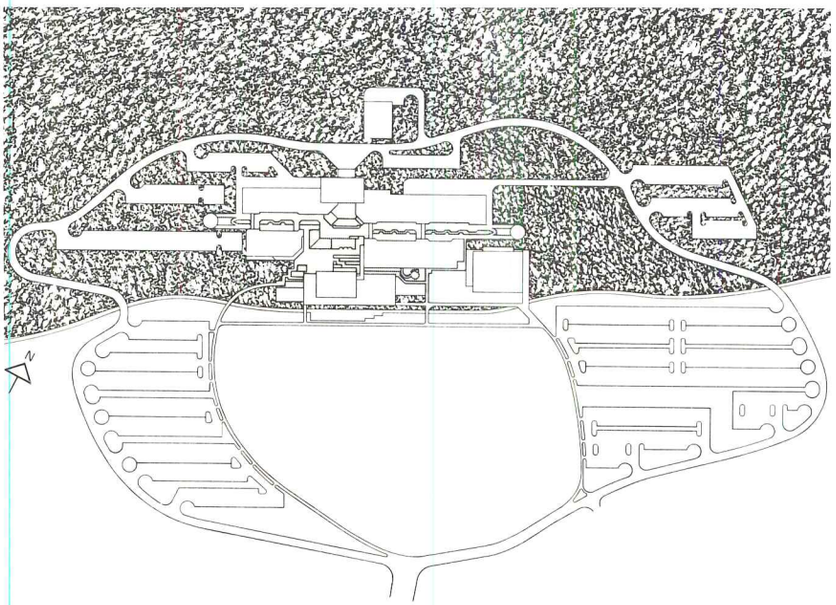
This huge, "all-in-one" complex has been designed for Holyoke Community College with a sensitivity to "people spaces" that counteracts the sometimes negative and overpowering aspects of such a megastructure. Intricately developed circulation patterns—centering around an open, landscaped spine—offer not just convenient, but easily understood passage through the building.

The complex steps down the southeastern slope of a major ridge on the edge of Holyoke, Massachusetts. A difficult site, it is heavily wooded and quite rocky and steep in sections. Following the natural contours of the site, the building has been set into the hillside; the athletic fields are positioned on the flatter areas. While the complex is one huge structure, it is distinctly separated into three sections. The student center—comprised of a bookstore; cafeteria; dining, meeting and game rooms; post office; administrative offices; library; and main entrance—is centrally located. A classroom wing is set to one side of the student center, physical education facilities are on the other. Parking is divided around the perimeter.

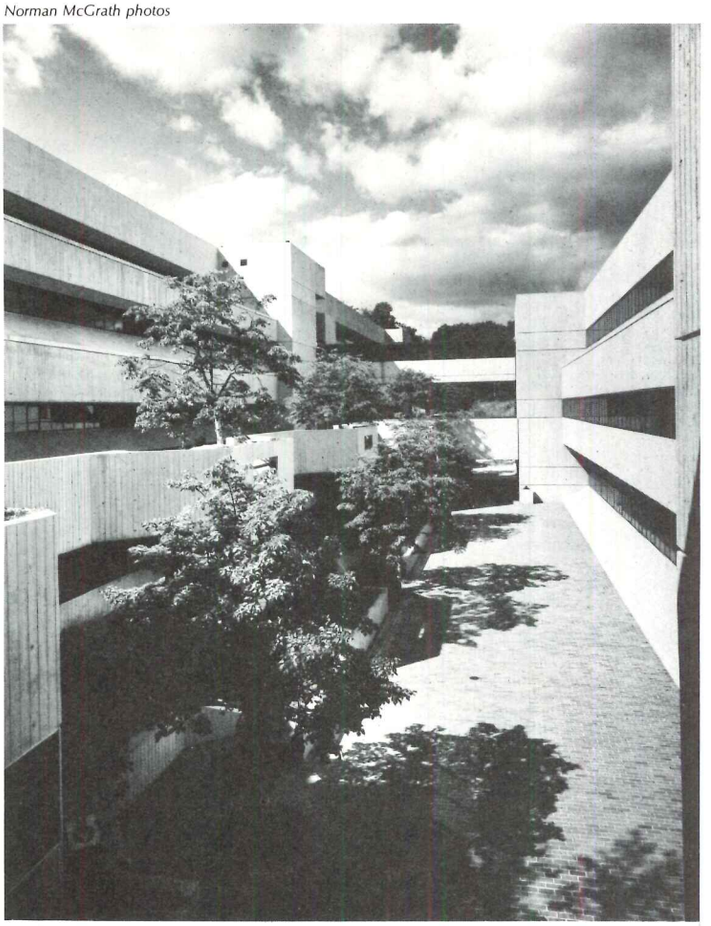
The strength of the building's form and the concrete exterior are softened by the pattern of landscaped courtyards, terraces and decks, all oriented to the south for sunlight and to capture breezes. The linear, multi-level mall—which serves as the connecting spine and main circulation corridor—runs from one end of the complex to the other. All future expansion will be positioned off a linear continuation of this spine. Enclosed pedestrian bridges cross over the spine to facilitate circulation and provide protection from bad weather. The roof top of the student center is also utilized for outdoor gatherings. Vertical circulation is equally stressed throughout, and is highlighted by the grand stair entrance.

HOLYOKE COMMUNITY COLLEGE, Holyoke, Massachusetts. Owner: *Commonwealth of Massachusetts, Bureau of Building Construction.* Architects: *Daniel, Mann, Johnson & Mendenhall—Stanley Smith, principal-in-charge;* design team: *Gerd Ernst, Carl Gaede and John Spohrer; project architects: Harry Clausen and Milan Svabensky.* Associated architects: *Masiello & Associates (Phase 1); Caolo & Bieniek (Phase 2 & 3).* Engineers: *Daniel, Mann, Johnson & Mendenhall (structural/mechanical/electrical); Goldberg-Zoino & Associates, Inc. (foundation/soils).* Landscape architects: *CR3 Incorporated.* Consultants: *Bolt, Beranek & Newman (acoustical); Leonard Auerbach (theater).* Interior design/graphics/cost: *Daniel, Mann, Johnson & Mendenhall.* General contractors: *Daniel O'Connell's Sons, Inc. (Phase 1); H.P. Cummings Construction Company (Phase 2).*

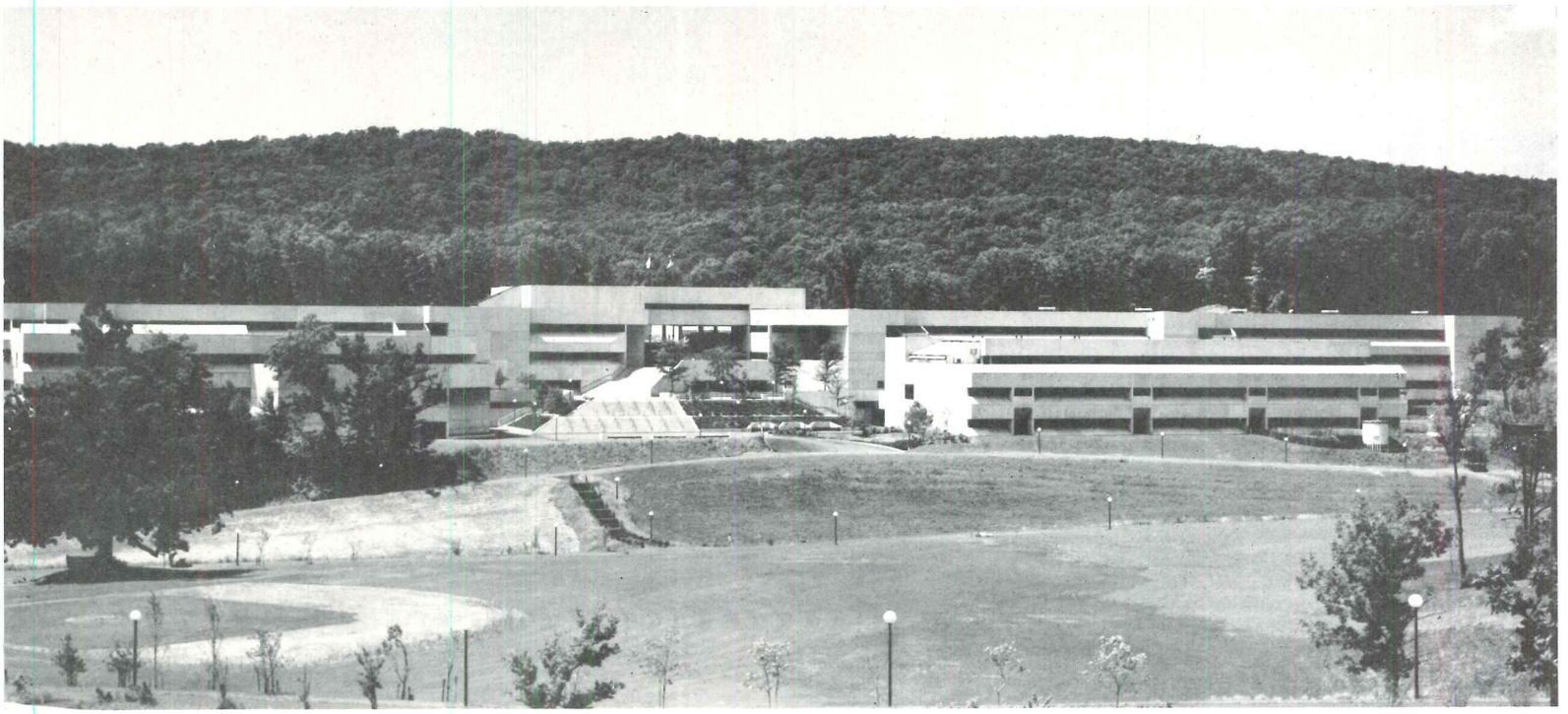


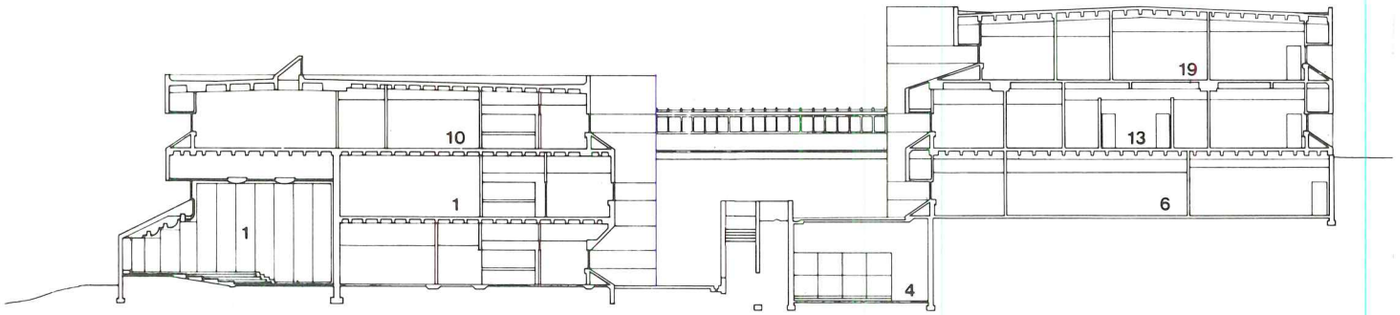


Norman McGrath photos



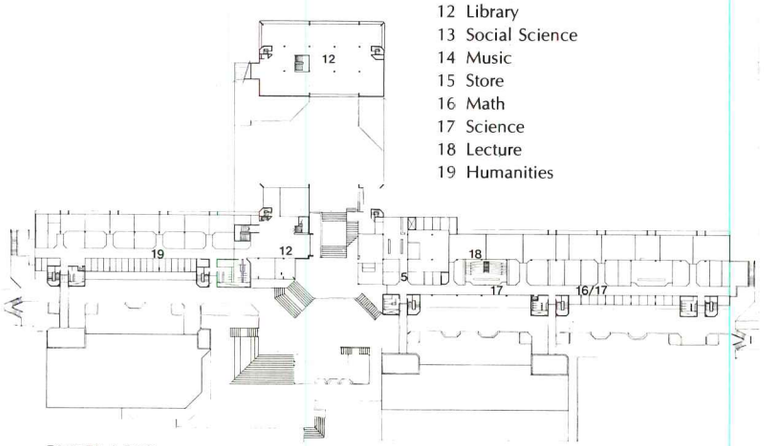
As the complex steps down the slope, its form has been shaped for interest and diversity as well as to permit light to reach the all-important pedestrian walkways and terraces (photos above). The structure's linear nature is emphasized by the long, unbroken lines of fenestration (below) and by use of bronze-colored glass to contrast with the concrete exterior.



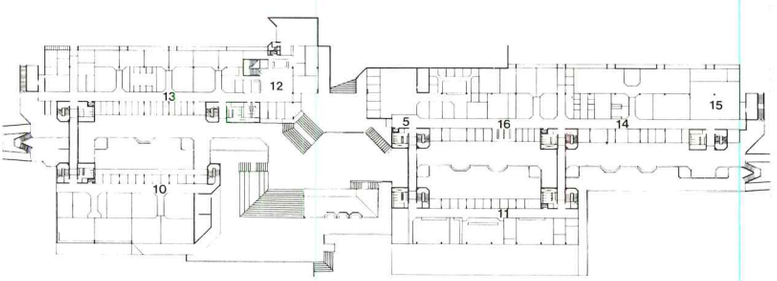


1 Health & Physical Education
2 Mechanical & Maintenance
3 Student Center & Media
4 Theater, Lecture & Resource Center
5 Technical & Science
6 Administration & Office Occupations
7 Technical & Science

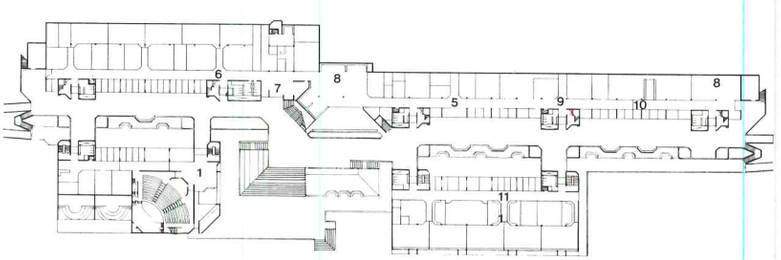
1 Drama
2 Health Science
3 Day Care
4 Mechanical
5 Administration
6 Business Administration
7 Audio Visual
8 Lounge
9 Engineering Technology
10 Arts
11 Biological Science
12 Library
13 Social Science
14 Music
15 Store
16 Math
17 Science
18 Lecture
19 Humanities



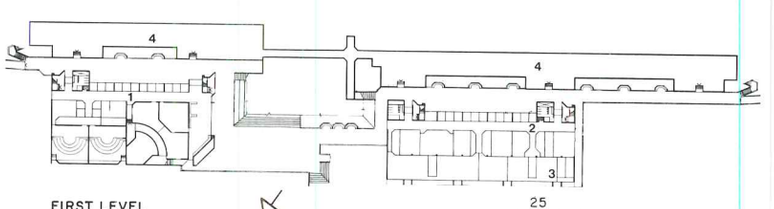
FOURTH LEVEL



THIRD LEVEL

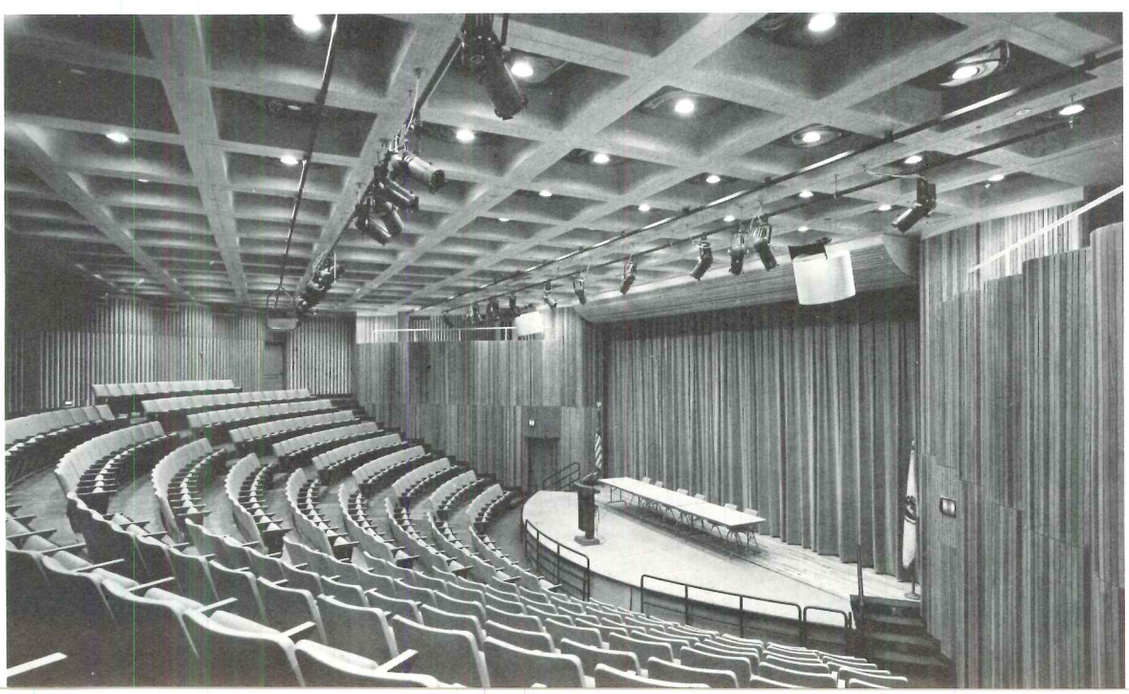


SECOND LEVEL

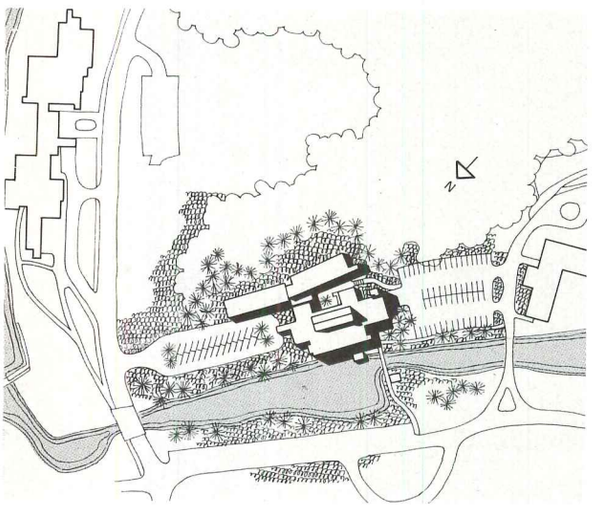


FIRST LEVEL

The need for functional space in a complex so tightly knit as this community college is obvious—but here the architects stressed the efficiency and organization of the circulation system. The pattern of passageways is clearly shown in the section and floor plans. Because of the design scheme stepping the complex down the hillside site, many classrooms benefit by receiving natural light, as in the clere-story windows in the music room (bottom left). This building profile also created a variety of levels in the library (top), and allowed space for a large theater (right).



A NEW SOCIAL CENTER PROVIDES A FULL RANGE OF FACILITIES FOR VISITORS AT WILLITS-HALLOWELL CENTER, MT. HOLYOKE COLLEGE



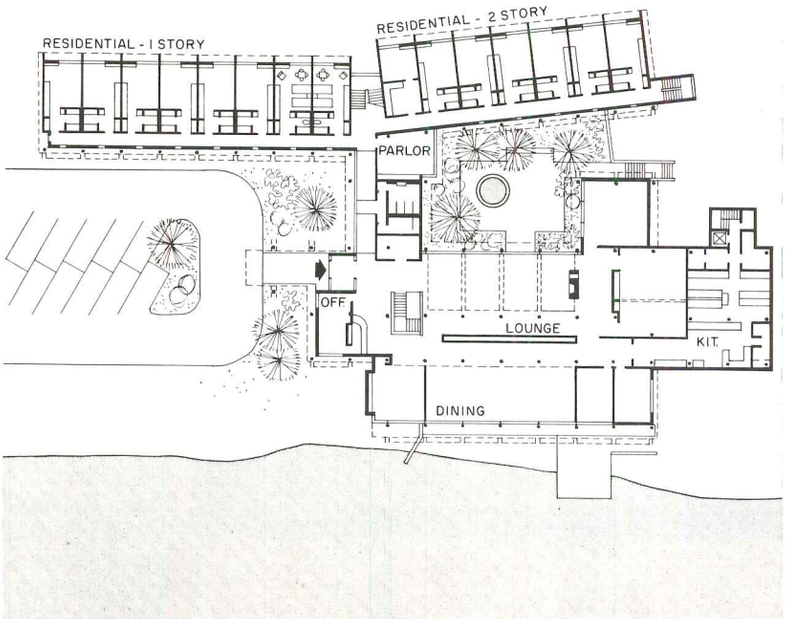
As part of the continuing architectural involvement of the Hugh Stubbins firm at Mt. Holyoke College, its latest design is a multi-use social center—serving the school's alumnae, faculty, students and visitors for small conferences, meetings, entertainment, formal and informal dining, and overnight accommodations.

The building was sensitively positioned to preserve the heavily wooded site and to create views to a stream running through the area. Constructed of concrete rather than brick (the material usually used at the college), the building appropriately sets itself a bit apart—and as seen through the trees, seems to have an almost residential scale and feeling. Extensive use of glass and balconies allow more enjoyment of the beautiful surroundings.

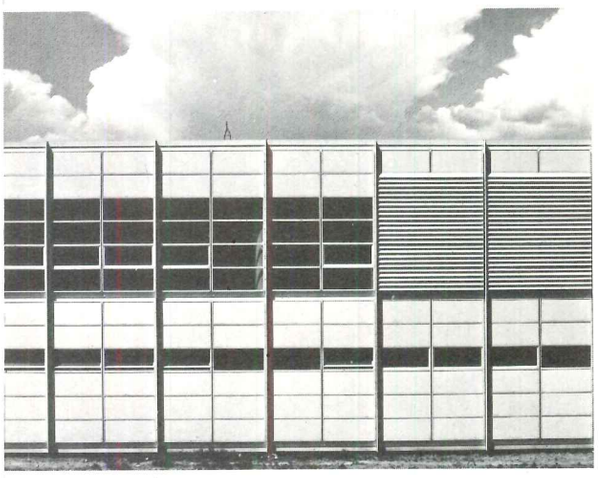
Because the site slopes a full story from one side to the other, a two-level scheme developed. The main entrance, parking, meeting rooms and formal spaces are located on the upper level, directly accessible from the street; a second entrance and informal meeting areas are on the lower level. An inner landscaped courtyard separates the main section of the building from the guestroom wing, while providing another dimension to the views.

WILLITS-HALLOWELL CENTER, MT. HOLYOKE COLLEGE, South Hadley, Massachusetts. Owner: *Trustees of Mount Holyoke College.* Architects: *Hugh Stubbins & Associates, Inc.—Hugh Stubbins, designer; Norman Paterson, project architect.* Engineers: *LeMessurier Associates/SCI (structural); Golder-Gass, Inc. (foundation/soils); Van Zelm, Heywood & Shadford, Inc. (mechanical/electrical).* Landscape architects/interior design: *Hugh Stubbins & Associates, Inc.* General contractor: *Aquadro & Cerruti.*

Joseph Molitor photos



HIGHLY TECHNOLOGICAL SOLUTION CENTER JOINTLY USED BY THREE COLLEGES: AURARIA LEARNING RESOURCES CENTER

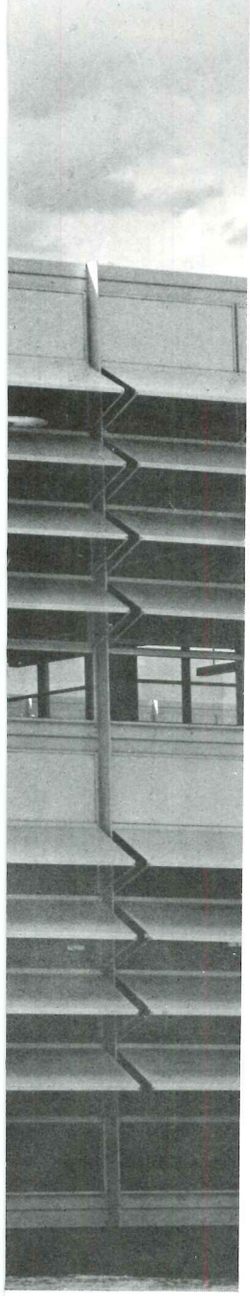


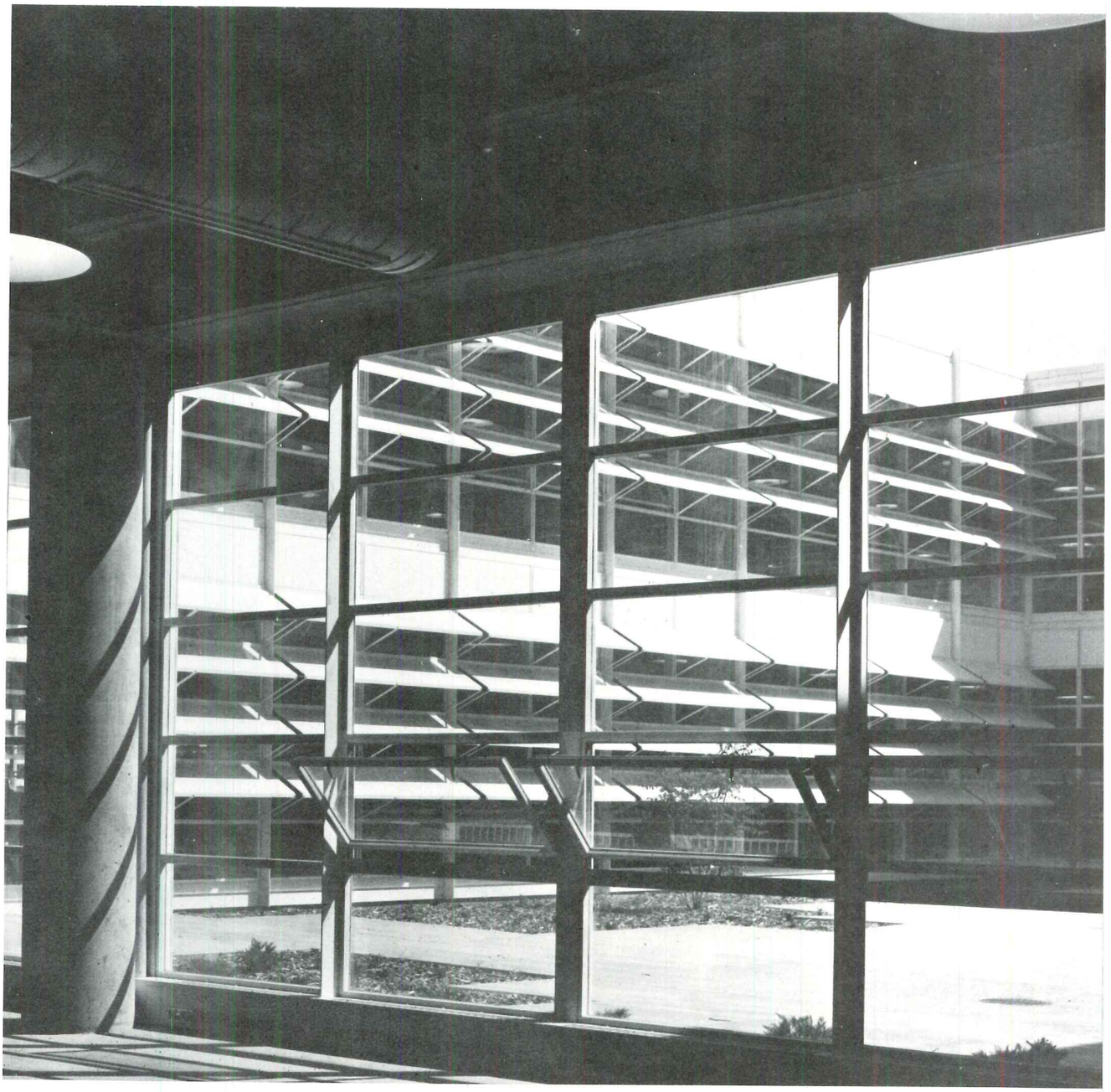
A straightforward technological solution to energy efficiency has been successful—and created a strong new visual expression for a developing campus. This newly-completed learning resource center, located in an older section of downtown Denver, is shared jointly by the Denver Community College, Metropolitan State College, and the University of Colorado. It contains a library, and media production and education facilities (including television studios and audio, photographic, graphic and electronic departments).

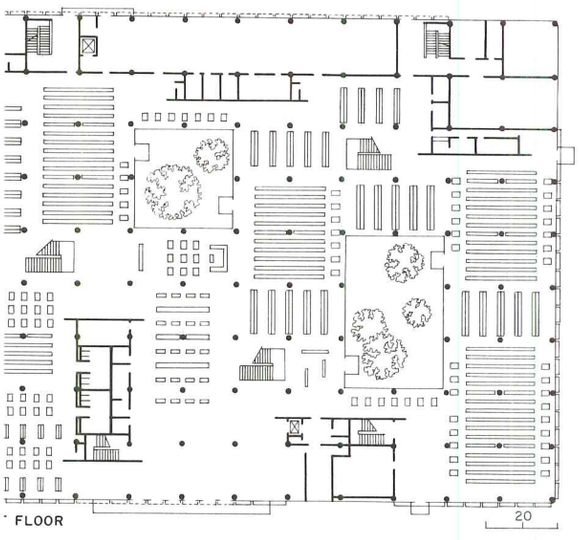
It is the handling of the building's exterior that is significant. A radical departure from the other campus buildings, it utilizes an aluminum curtainwall system of sun screens on the south and west elevations. This was initially developed as a prototype but so far has not been incorporated in other buildings. The interiors are highlighted with two open courts placed asymmetrically.

The large number of sun screens provided seemed logical to the architects for a site that is 5,280 feet above sea level and has sun an average of 300 days per year. The screens initially saved $400,000 in the required mechanical equipment and are expected to reduce operating costs. Each sunshade is two feet deep and is kept at a 40 degree angle during the summer months and adjusted during the winter months to permit sunlight and solar heat to reach into the interior.

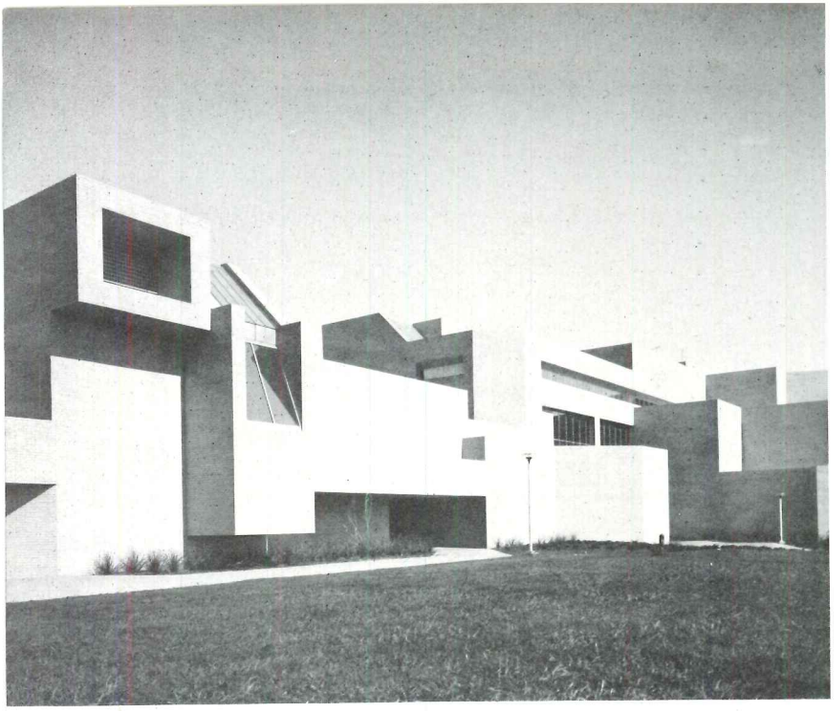
AURARIA LEARNING RESOURCES CENTER, Denver, Colorado, Owner: *State of Colorado*. Architects: *C. F. Murphy Associates—Helmut Jahn, partner-in-charge; David Hovey, project architect.* Engineers: *Zeiler & Grey (structural); C. F. Murphy Associates (mechanical/electrical).* General contractor: *Martin K. Eby Construction Co., Inc.*

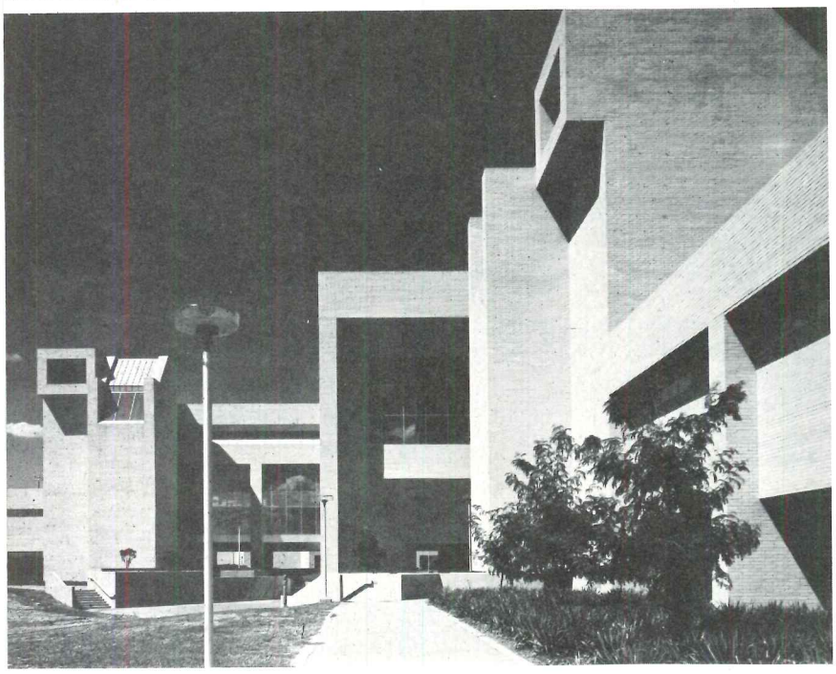




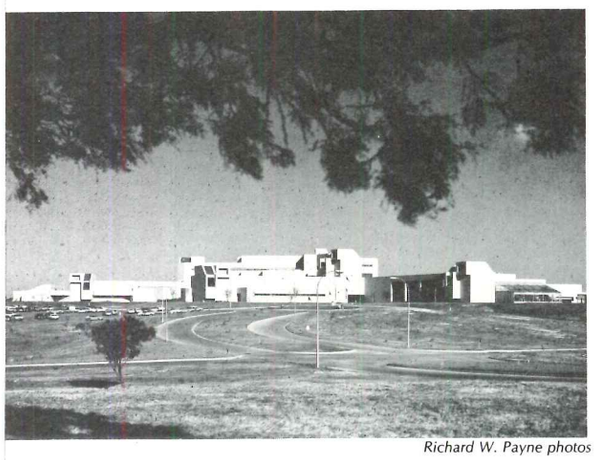


Consistent with the "technological" handling of the exterior, the ceiling is open, exposing the mechanical and electrical systems. Primarily an open planned interior, some offices and work areas are located on the perimeter and enclosed. The adaptation of sun screens (above and right) has created a rhythmical array which is functionally changeable for heat control.





STUDENT OPINION HELPED SHAPE THE DESIGN FOR A ONE-BUILDING CAMPUS AT TARRANT COUNTY JUNIOR COLLEGE



Richard W. Payne photos

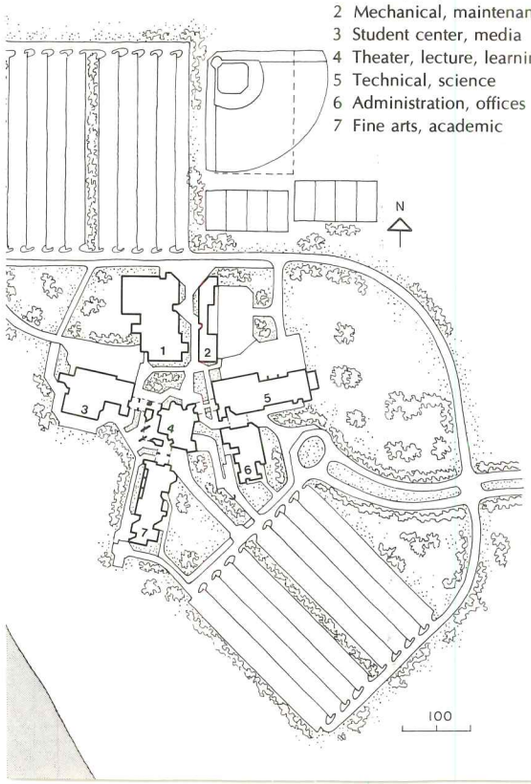
A one-building campus, the design of this Fort Worth Junior College is a direct result of research into students' opinions about the design of other colleges in the same district. One much-expressed desire of the students was for a dual circulation system that would permit both enclosed and open passageways throughout—an alternative to the individual buildings connected by landscaped plazas on the other campuses.

A pinwheel-shaped design evolved, with the hub of the wheel as the learning resource center (center of photo, top right), where the theater, lecture hall and library are located. Stretching outward are three spokes of classrooms and offices, many with views to a large lake on the site. The only separate structures on the site are the physical education building and the maintenance building.

The sharply angular form and the impact of its massing is the result of stacking of building sections. A simple grid system was used in the organization of classrooms, but their vertical placement created a roof-line of varying heights which dramatically outlines the complex on its open, flat-land site. All air-handling components of the mechanical system are located in the stairwells, distinguished on the exterior by their windowless facades and air scoops at the roofline.

TARRANT COUNTY JUNIOR COLLEGE, Northwest Campus, Fort Worth, Texas. Owner: *Tarrant County Junior College District—Dr. Joe B. Rushing, Chancellor.* Architects: *Geren Associates.* Engineers: *Nagler/Hixon Engineers and Consultants (structural); Love/Fribeg Inc. (mechanical/electrical).* Landscape architects and civil engineers: *Carter & Burgess Inc.* Acoustical consultants: *Boner Associates.* Interior design/graphics: *Geren Associates.* Contractor: *Gilmore & Walker Inc.*

1 Health, physical education
2 Mechanical, maintenance
3 Student center, media
4 Theater, lecture, learning resource center
5 Technical, science
6 Administration, offices
7 Fine arts, academic

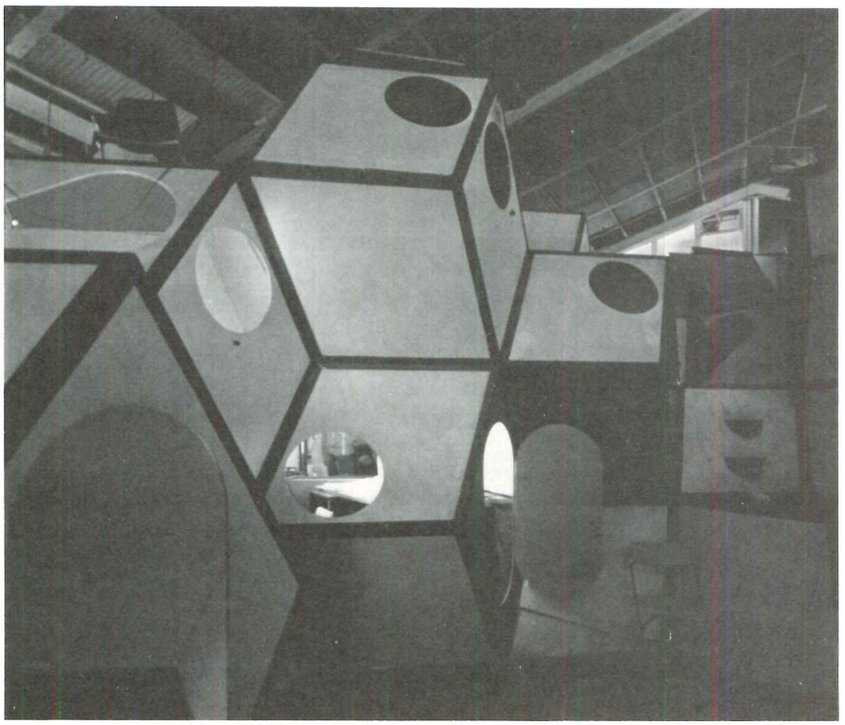


AN ALTERNATIVE KIND OF DESIGN FOR AN ALTERNATIVE KIND OF SCHOOL—SCI ARC

When he was a professor at California State Polytechnic Institute at Pomona, Ray Kappe initiated an "alternative program"—a less formal and structured program which led, in 1972, to the founding of the Southern California School of Architecture (better known as Sci-Arc) at Santa Monica. With 70 students, seven faculty members, and almost no money, the school was opened in an unused, 20,000-square-foot industrial building. The first design project for the fledgling school was the rehabilitation of the building—it was cleaned out and painted white; and the staff and students devised a low-low-cost system of simple pipe scaffolding spanned by plywood sheets as floors and partitions to create studios. In the manner of architectural schools everywhere, pennants and banners and drawings and posters have been hung to add color and excitement to this simple space. Some faculty members have taken as offices, and some students have elected to set up shop in, a colorful construction of "rhombic dedechedrons" (photo lower right and top photo overleaf)—fashioned of plywood.

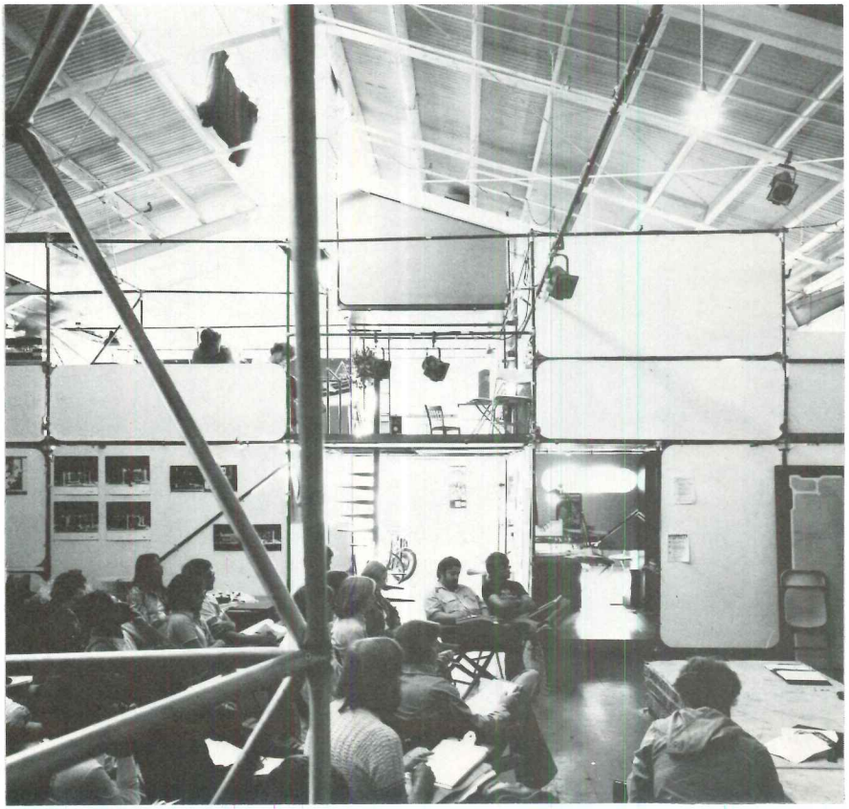
Thus the design reflects the philosophy of the school—an in-process kind of teaching and learning; with a maximum opportunity for a community exchange of ideas. The program at Sci-Arc, leading to a degree in six years, combines the necessary structured and formal classes and design studios—but students are urged to get involved in independent study, community design studios, student-taught seminars, and to work part-time in area architectural offices.

SOUTHERN CALIFORNIA INSTITUTE OF ARCHITECTURE, Santa Monica, California. Architect: *Raymond Kappe, FAIA, Director; staff, and students*



Large open areas in Sci-Arc's loft building are used for group "crit" sessions (above) and for meeting and lecture areas (right). Both photos show the constructions of pipe-and-plywood and the "private" plywood shapes which the students use for studio space.

Sci-Arc, founded in 1972, has just been accredited. Its original size of 70 students and seven faculty members has now grown to 200 students and 25 faculty—all practicing architects or designers. The private, tuition-funded school has just purchased 120 acres of land in Topango Canyon, near its present site, to be used for experimental work and as the site for a future research center.



Building sciences institute is launched, and has begun its work

The National Institute of Building Sciences (NIBS), "a significant new resource for putting building technology to work in the service of human needs," is calling for the active creative participation of architects, engineers and all members of the building community (not forgetting users) to help make it work. NIBS has a lot of champions, as well as some doubting Thomases. But since Congress has just appropriated $1 million for NIBS operation in fiscal year 1978 (which began in October), it appears that the long organizing process is over and NIBS is ready to get down to work. And so, this update on NIBS' reason for being and immediate plans is timely reading.

What is NIBS? In the Act that established NIBS, it is described as the "single authoritative nationally recognized institution to provide for the evaluation of new technology, and to facilitate continuous introduction of such innovations and their acceptance at the Federal, state and local levels." NIBS is a nonprofit, nongovernmental organization authorized by the Congress in the Housing and Community Development Act of 1974 (Title VIII, Section 809, PL 93-383). NIBS is seen by many in the industry as an offer from the Congress to the building community—some say a last offer—to set its own house in order. If NIBS were to not do its job, which includes being financially self-sustaining by 1983, its mandate from the Congress could eventually be superseded by a Congressional mandate for Federal government regulation.

Otis M. Mader, chairman of the NIBS board of directors which has been responsible for turning a legislative mandate into a working reality, has described the intent of the Congress in enacting the legislation in terms which suggest the dimensions of the difference NIBS could make:

"In the Act, Congress deplores the lack of an authoritative national source for collecting, evaluating and disseminating advisory information on building science and technology related to achieving nationally acceptable or compatible standards. Congress sees that as an obstacle to technological and economic improvement of the building process.

"The Act acknowledges the contributions toward uniformity made by the model codes, but emphasizes the problem of keeping these model codes technologically updated."

Architects and engineers have much to gain from the establishment of such an institution, "designed," as one Congressional committee report put it, "to analyze and disseminate information on new building techniques, technology and materials." The American Institute of Architects and the professional engineering societies were, in fact, in the forefront of the five-year effort (1969-1974) which culminated in the passage of legislation responding to a need first officially identified by the Douglas Commission Report of 1968.

David S. Miller, vice chairman of the NIBS board and chairman of the board committee on liaison points out that the kind of difference NIBS can make will be determined to a very large degree by the building community itself, through its membership on the "Consultative Council" mandated by the NIBS legislation.

"We see the Consultative Council as the vital link between NIBS and all sectors of the building community," Miller says. NIBS' mandate from the Congress, he notes, applies not just to housing but to all building; and the "building community" as the legislation views it encompasses not just the building industry but the users of buildings as well. And he adds that the NIBS board looks for Council membership to reflect the full breadth of the NIBS mandate.

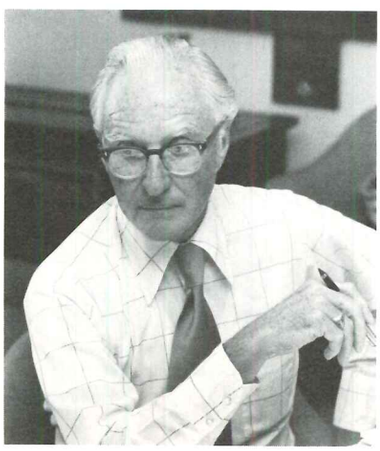
NIBS gets its first major funding and appoints Gene C. Brewer as its first head

Though its enabling legislation authorized appropriation of $10 million to get NIBS started, in takes of $5 million each in fiscal 1975 and 1976, the first Congressional appropriation NIBS actually got provides $1 million for fiscal 1978, effective, on the fiscal year calendar newly established by the Congress, on October 1, 1977.

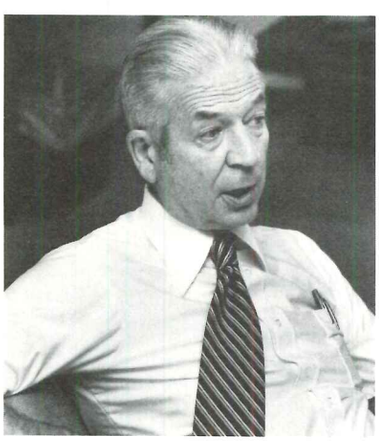
Almost the first action taken by NIBS after President Jimmy Carter signed the appropriations bill containing its funds was the appointment by the NIBS Board, effective November 1, of Gene C. Brewer as president and chief staff executive. He had been serving since June as a consultant to the Board.

Brewer has had a 40-year career in the building community since he joined U.S. Plywood as a production-line trainee in Seattle in 1937. At U.S. Plywood, he rose to president in 1958, became chief executive officer in 1965 and—when U.S. Plywood merged with Champion Papers—was elected president and chairman of the executive committee. He resigned from U.S. Plywood-Champion Papers in 1969.

His long-time commitment to a wide range of public-interest and consumer-interest causes



NIBS' first president,
Gene C. Brewer

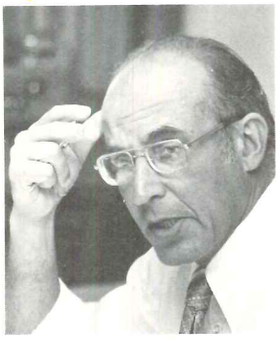


NIBS' chairman,
Otis M. Mader, vice president,
Aluminum Company of America

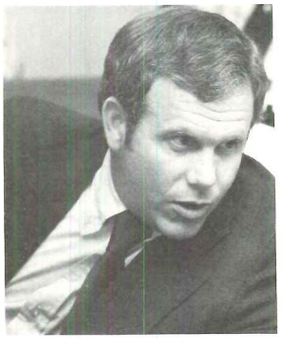
NIBS' vice chairman,
David S. Miller,
David S. Miller Associates

NIBS' secretary,
Robert A. Georgine,
AFL-CIO

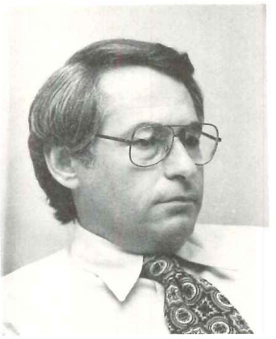
NIBS' treasurer,
Robert J. Brungraber,
Bucknell University



Leo J. Cantor,
commissioner of buildings,
City of Richmond, Virginia



William F. Floyd, III
Builders Investment Group,
Atlanta



Jasper S. Hawkins,
Hawkins and Lindsey, Architects
Los Angeles

Joseph H. Newman,
Tishman Research Corporation,
New York City

Charles H. Pillard
IBEW,
Washington, D.C.

Robert F. Schmitt,
Bob Schmitt Homes,
Strongsville, Ohio

Charlene Sizemore,
Consumer Affairs Advisory Council
of West Virginia

Herbert H. Swinburne,
architect and consultant,
Philadelphia

HUD Assistant Secretary for Policy Development and Research, Dr. Donna E. Shalala, is welcomed by NIBS' chairman, Otis Mader to a board meeting.

beyond his own industry was a major factor in Brewer's selection for the key NIBS post—for example, he has been a member of the policy advisory board M.I.T.-Harvard Joint Center for Urban Studies, a trustee of the National Safety Council, a director of the Sherwin-Williams Company, of the Federal Home Loan Bank Board of San Francisco and of Wells-Fargo Mortgage Investors. He is also a past president and past chairman of the board of the National Forest Products Association.

The new president knows and is concerned about the doubting Thomases. And he says he, "is well aware that there is concern out there in the building community as to whose turf will be invaded." NIBS will not write codes, he says, without being asked: but, following its Congressional mandate, NIBS will "look for holes" and try to get them filled. NIBS will not build up a big bureaucracy, he says (addressing still another lurking concern): he expects his staff to total not more than a dozen—four or five professional and technical people plus secretarial and clerical staff. NIBS investigations and research will be contracted out to appropriate existing organizations or conducted by professional consultants retained by NIBS on a project basis.

In all things, Brewer stresses, NIBS will be faithful to the letter and the spirit of its mandate from the Congress, and to the interpretation of that mandate provided by the NIBS Board in the two most important documents to come from NIBS so far—the "Mission Statement" and its companion "Policy Statement."

NIBS' list of what it will and will not do makes clear the nature of the organization

In the words of the one-page policy summary adopted (October 10, 1977) by the NIBS Board of Directors, NIBS will:

1. Seek to establish a total system for

a) the development of performance criteria and standards for materials, components and systems used in buildings,

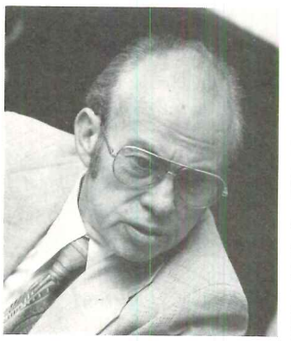
b) the establishment of criteria for testing and evaluating performance standards,

c) the promulgation of performance standards that do not contain the force of law, but will be of value to all regulatory jurisdictions,

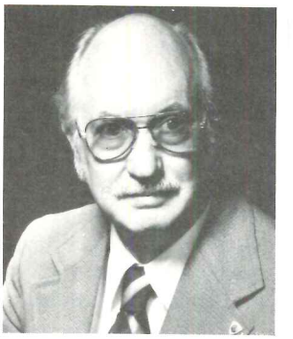
d) the prequalification of manufactured products that meet promulgated standards,

e) the establishment of a process that will reconcile, equitably, those disputes that may arise because of the promulgation of a standard;

Warner Howe,
Gardner and Howe, structural engineers, Memphis



Jodie R. Johnson,
Johnson Homes, Inc.
Gulfport, Mississippi



Rudard A. Jones,
Small Homes Council,
University of Illinois

S. Peter Volpe,
Volpe Construction Company,
Malden, Massachusetts

Jeremiah T. Walsh,
commissioner, Department of Buildings, New York City

Paul S. Conklin photos

2. encourage the integration into an effective system of those organizations whose purpose is to develop voluntary standards for the building industry;

3. serve all classes of building and their related facilities, but give priority to those efforts demonstrating earliest benefits in areas of greatest need;

4. apply its influence and resources to the understanding and acceptance of the performance approach to building;

5. encourage uniformity in building codes whenever it is practical and beneficial to performance and cost.

In the words of the same one-page policy summary of the NIBS Board, NIBS:

1. Will not undertake direct research activities of its own: but will stimulate or contract with others for such research;

2. will not write building codes;

3. will not write building performance standards: but will contract with existing voluntary standards organizations to do so when needed;

4. will not operate its own testing laboratories;

5. will not attempt to promulgate performance standards in those areas where it is impractical, or where the projected cost of such effort will exceed any forseeable benefit;

6. will not assume responsibility for sociological problems related to buildings: but it will be sensitive to the social consequences of technological decisions.

NIBS has taken some research contracts since becoming a corporate entity

NIBS came into being on July 9, 1976, with the swearing in of the 18-member board of directors who had been appointed by the President and confirmed by the Senate. The processes of Presidential appointment and Senate confirmation (mandated in the authorizing legislation, passed August 22, 1974) had consumed nearly two years.

The next step, incorporation in the District of Columbia, was accomplished by the new board within two months of its swearing in. Of two options offered by the legislation, the board selected incorporation in D.C. on the advice of legal counsel that the D.C. incorporation could be accomplished much more quickly than a charter from the Congress.

In the 14 months since it thus became a corporate entity (September 8, 1976), NIBS has:

1. Responded to its Congressionally-mandated responsibility for energy conservation standards by negotiating an initial grant of $500,000 from the Department of Housing and Urban Development (HUD) to provide advice and assistance in the development and promulgation of energy conservation standards (as directed by the Energy Conservation and Production Act of 1976);

2. extended the range of its involvement in energy conservation by negotiating an initial grant from the National Bureau of Standards (NBS) for advice and assistance in the development of standards for solar energy technology for new and existing housing and other building;

3. sought and received, as provided in the authorizing legislation, and as a result of its early initiatives in energy conservation, a general support grant of $95,000 from the Energy Research and Development Administration (ERDA);

4. entered into negotiations with ERDA for a $50,000 contract for a feasibility study preparatory to establishment of a system for the assembly, storage, and dissemination of data and information concerning criteria, standards and other technical provisions of housing and building codes throughout the United States.

All of these steps were accomplished through members of the board of directors, organizing as standing committees of the board, during a period when NIBS had neither staff nor a Congressional appropriation of its own. It was operating (for what turned out to be 13 months instead of the expected six) on a $140,000 start-up fund provided by HUD under a contract with the National Academy of Sciences (as required by the NIBS legislation) to provide "advice and assistance" to NIBS during its organization. The Academy also provided space and secretarial help.

During the same 14-month period, the NIBS Board and its standing committees were also working to establish the organizational format required by the legislation and on preparations for carrying out NIBS' mandated functions and responsibilities. Among the activities in this category were:

1. Development and circulation for public comment among all sectors of the building community of a detailed "Mission Statement";

2. development of an initial budget request with a five-year projection and its submission to the Office of Management and Budget for consideration by the Congress in the FY 1977 supplemental and the FY 1978 appropriations processes;

3. development of a policy document to support its Mission Statement;

4. implementation of an extensive professional staff recruitment program preparatory to actual engagement of staff when initial Congressional support became available;

5. appointment of an ad hoc planning committee of building community and public interest individuals to develop for the NIBS Board a proposal for creation of the "Consultative Council" mandated by the authorizing legislation;

6. extensive liaison work with both public and private sectors of the building community.

Under the leadership of Vice Chairman Miller, the activities of the liaison committee, as a standing committee of the board, have resulted in a broad range of informational exchanges with organizations in Europe and Canada as well as the United States.

NIBS must get industry financing by 1983 according to the Congressional Act

To support programs already planned and now getting under way, NIBS is seeking a $2-million appropriation for fiscal 1979. The NIBS budget request for fiscal 1979 includes a five-year projection of activities and estimated expenditures (October 1, 1977–September 30, 1982).

Activities in the current year, in addition to the work on energy conservation standards with HUD and solar energy standards with NIBS under the agreement described earlier, include:

1. Make the Consultative Council operational as an arm of NIBS;

2. plan and begin an inventory of all

public and private entities currently engaged in the development, promulgation and maintenance of criteria, standards and other regulatory provisions, to ascertain their perceived roles and to catalog actual documents and their current use;

3. develop a plan for a thorough survey of the programs and resources that currently are available for the evaluation and prequalification of new and improved building technology;

4. survey existing research efforts in the building community and develop a research agenda, with particular emphasis on the gaps and weaknesses in the development of the performance concept;

5. initiate the task of establishing the technical data base (envisioned as a computer access, storage and retrieval system) which is so essential to NIBS' function as an information resource for the building community. The first step will be to develop the system for one major area—energy regulations—selected because of NIBS' special (statutory) responsibility (under the Energy Conservation and Production Act of 1976) for the development of energy standards.

NIBS is to be entirely self-sustaining

NIBS is expected (by legislative mandate) to provide as much of its own financial support as possible as soon as possible—and, in any case, to be entirely self-sustaining by no later than 1983. Its Congressional authorization of $10-million, of which $1 million was appropriated for fiscal 1978, is intended only as a start-up fund for a "nonprofit, nongovernmental" institution which should be able to generate its own support from the building community it will serve.

When 1983 arrives, NIBS now expects that the following elements of its program will be self-sustaining, through a schedule of fees for the provision of management services:

1. Evaluation and prequalification of existing and new building technology;

2. assembly, storage and dissemination of technical data and other information;

3. operation of the Consultative Council and liaison with the building industry;

4. development of information conferences, literature and publications;

5. provisions of advice and rationalization of building technology and standards disputes.

General support funds will be sought for these program elements that are not expected to be self-sustaining:

1. Development, promulgation and maintenance of performance criteria and standards;

2. planning a research agenda, and supporting investigations and special studies;

A Consultative Council is the mechanism for building community communications

NIBS was clearly envisioned by the Congress as the building community's own organization. Its prospects of accomplishment depend largely on the support and participation of the building community. By legislative mandate, NIBS must do its work through existing entities whenever possible, and it must establish the Consultative Council with membership open to the whole building community.

In the somewhat cumbersome but explicit and comprehensive language of the authorizing legislation, NIBS is directed both to "assign and delegate, to the maximum extent possible," its functions and responsibilities to "one or more of the private organizations, institutions, agencies and Federal and other government entities with a capacity to exercise or contribute to the exercise of such responsibility," and to establish a Consultative Council with a membership, "available to all appropriate private trade, professional and labor organizations, private and public standards, code and testing bodies, public regulatory agencies and consumer groups, so as to insure a direct line of communication between such groups and the Institute, and a vehicle for representative hearings on matters before the Institute."

NIBS is now developing nominations for the Consultative Council by communications with a list of organizations compiled to represent all of the building community entities which might (or should) have an interest in NIBS.

Members of the first executive committee of the Council will be appointed to one-year terms by the NIBS Board to represent various segments of the building community—private, consumer, trade, professional, labor, standards, codes and testing, state and local, and public. After the first year, Council members will elect their own executive committee, and beginning in the third year, to two-year terms on a staggered basis.

With the advice of the Consultative Council executive committee, NIBS will be prepared to launch a vigorous campaign for the memberships which will be the foundation of the continuing two-way communication with the building community that must inform and illuminate all of the NIBS' activities.

The honor of being a member of the first board of directors of NIBS was anything but "honorary." The organization of the board so that it not only sat as a board, but operated as a group of standing committees doing the work of the board, encouraged a rare degree of involvement by all its members. Chairmen Mader counts their dedication to the board's mission among the significant accomplishments of NIBS. The board has been meeting on the average one day a month with close to 100 per cent participation by board members, and with the standing committees (all the same people) meeting the day before.

As stipulated in the legislation, the 18 board members represent among them both the "construction industry" and "public interest" sectors of the building community. Architects and engineers are listed in the legislation as representing the public interest, along with officials of Federal, state and local agencies and representatives of consumer organizations. Construction industry representation is stipulated to include representatives of "construction labor organizations, product manufacturers, builders, housing management experts, and experts in building standards and fire safety."

Members of the NIBS Board of Directors, with their private affiliations, are:

Chairman—O. M. Mader, vice president, Consumer Group, Aluminum Company of America, Pittsburgh,

Vice Chairman—David S. Miller, president, David S. Miller Associates, Inc., Cleveland,

Secretary—Robert A. Georgine, president, Building and Construction Trades Department, AFL-CIO, Washington, D.C.,

Treasurer—Robert J. Brungraber, professor of civil engineering, Bucknell University, Lewisburg, Pennsylvania.

Also:

Leo J. Cantor, Commissioner of Buildings for the City of Richmond, Virginia,

William F. Floyd III, director of operations, Builders Investment Group, Atlanta,

Jasper S. Hawkins, principal, Hawkins and Lindsey, Architects, Los Angeles,

Warner Howe, owner, Gardner and Howe Structural Engineers, Memphis,

Jodie R. Johnson, president, Johnson Homes, Inc., Gulfport, Mississippi,

Rudard A. Jones, research professor of architecture and director, Small Homes Council, University of Illinois, Champaign, Illinois,

Joseph H. Newman, senior vice president, Tishman Research Corporation, New York City,

Charles H. Pillard, international president, International Brotherhood of Electrical Workers, Washington, D.C.,

Robert F. Schmitt, president, Bob Schmitt Homes, Strongsville, Ohio,

Charlene Sizemore, Consumer Affairs Advisory Council of West Virginia, Huntington, West Virginia,

Glen R. Swenson, director, Utah State Building Board, Salt Lake City, and president, National Conference of States on Building Codes and Standards, Washington, D.C.,

Herbert H. Swinburne, independent consultant in architecture, planning and building research, Philadelphia,

S. Peter Volpe, president and treasurer, Volpe Construction Company, Malden, Massachusetts,

Jeremiah T. Walsh, Commissioner, Department of Buildings, City of New York Housing and Development Administration, New York City.

Now that the organizational period is over, NIBS standing committees have been restructured, and the chairmen appointed by NIBS Board Chairman Mader last month are: Legal Affairs—Leo J. Cantor; Nominations and Appointments—Jeremiah T. Walsh; Budget and Finance—Robert J. Brungraber; Personnel and Services—Joseph H. Newman; Liaison—William H. Floyd III; Mission and Program Planning—Jasper S. Hawkins; Consultative Council Affairs—Warner Howe; Technical Operations—Herbert H. Swinburne.

Five members have been appointed to the Technical Operations Committee to head subcommittees: Evaluation and Prequalification of Technology—Robert J. Brungraber; Data Collection and Dissemination—Rudard A. Jones; Performance Criteria and Standards—Leo J. Cantor; Definitions and Research Needs—Warner Howe; Energy Affairs—Joseph H. Newman.

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Series 9000/Mobiles: Two reasons why Steelcase is the world

Steelcase Series 9000... the most beautiful and the only new systems furniture of the Seventies.

Steelcase Series 9000 saved a leading insurance company* 17% of its floor space, 65 people now work better in a claims department previously occupied by 55.

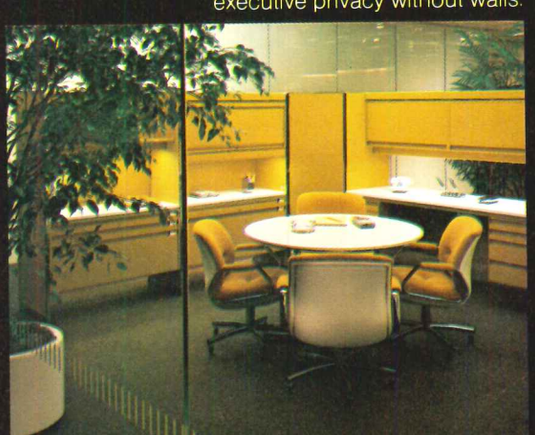
A well-known railroad* did even better. Achieved a 25% savings with Series 9000. Reduced square footage from 60 feet per person to 45, yet increased efficiency, productivity.

Series 9000—systems furniture that combines the solidity of furniture with the flexibility of a system to offer space designers total solutions to office space problems.

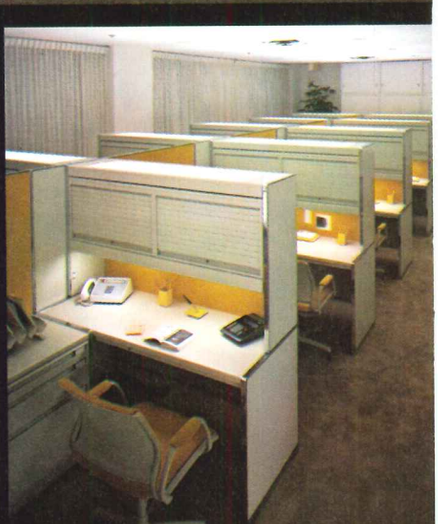
*Company names available upon request.

Pass-through work stations keep people in touch, work within reach of each other. Built-in lighting eliminates ceiling fixtures.

65" high Series 9000 provided executive privacy without walls.



Series 9000 components are available from 30" to 75" high to suit the job at hand.



10 work stations, just 360 square feet of floor space with built-in lighting.

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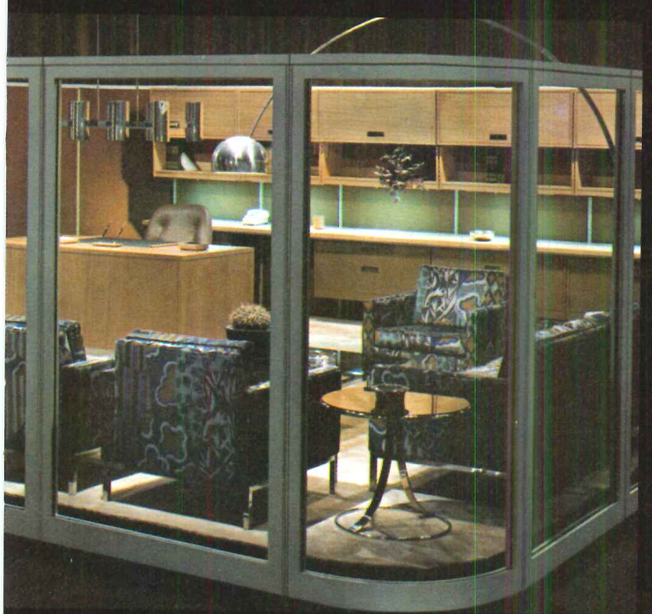
Steelcase Mobiles... the most functional of all systems furniture.

Blue Cross/Blue Shield of Iowa added 13% more people without adding more space. Thanks to Steelcase Mobiles and Paperflo, they saved $3,000 per year in office rental costs alone!

In another installation*, Steelcase Mobiles reduced floor space almost a third, increased productivity 9%, achieved salary savings of $65,000 annually, and returned the investment in a mere eight months!

Mobiles and Series 9000. Two reasons why, when it comes to systems furniture, more designers come to Steelcase than to anyone else in the entire world.

rved Movable Walls separate work area
m conference area—soften the open space.



elcase Mobiles are modularly compatible.
sks work with walls and files.

Steelcase

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Steelcase-Strafor, S.A. Sarrebourg, France.

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Steelcase

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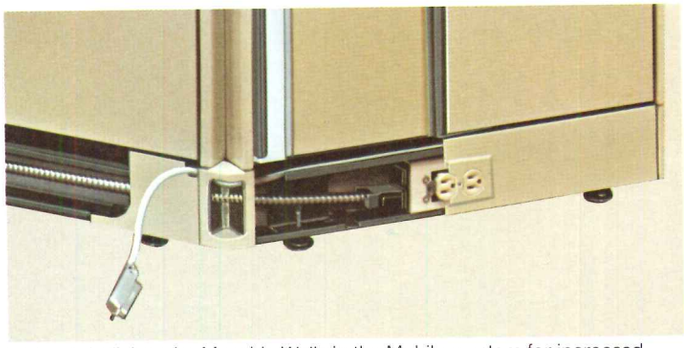
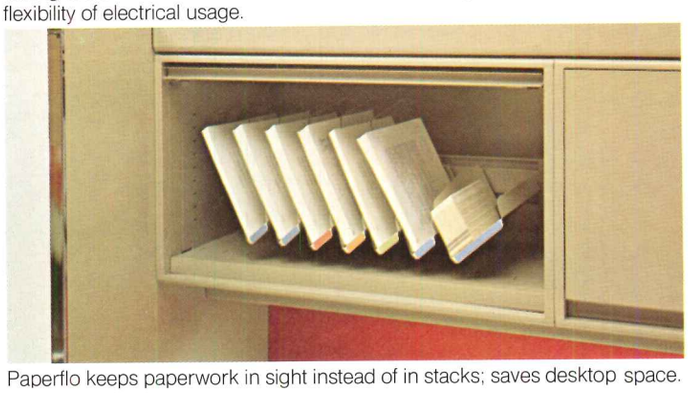
Steelcase products and services also available in the Middle East.

Space-saving Mobiles build up instead of out with a wide variety of modular, job-fitting components.



Wiring is built into the Movable Walls in the Mobiles system for increased flexibility of electrical usage.

Series 9000 and Mobiles both offer energy-saving, U.L. listed Task and indirect Ambient lighting.



Paperflo keeps paperwork in sight instead of in stacks; saves desktop space.

Wiring tucks inside end panels of Series 9000 desks to improve appearance and eliminate clutter.

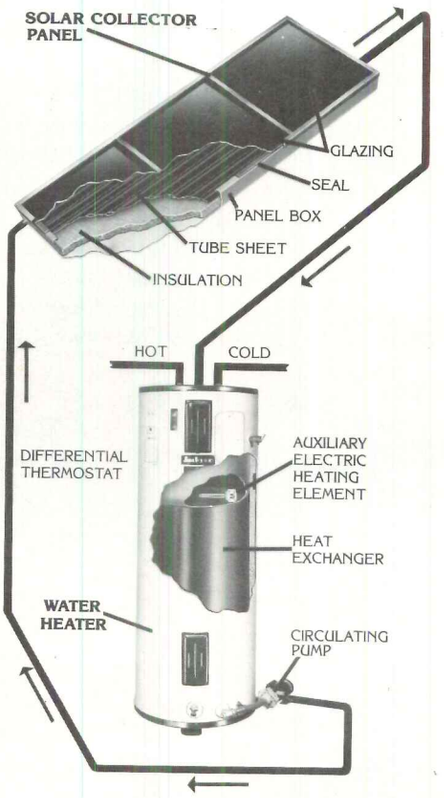
Series 9000 is solid stable furniture that you can change, rearrange, even reassemble for unmatched flexibility. With built-in lighting.

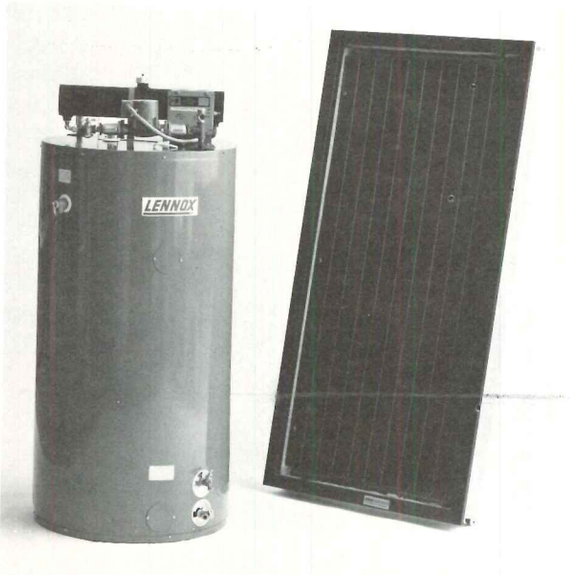
For more information, circle item numbers on Reader Service Inquiry card, pages 195-196.

Packaged residential solar water heater

This system includes collector panels and water-heater storage tank. Test data provided by the company shows the package capable of delivering up to 95 gallons of 140 F water per day for three to 10 cents per week when the sun is shining, and depending on the geographic area and cost of supplemental fuel. The circulating system is a closed loop design: a pump circulates a fluid through the collectors, down through the tank and back to the rooftop collectors. The heated fluid passes through a heat exchanger located in the tank, transfering heat to 80 gallons of stored water. Temperature sensors activate the pump when necessary. ■ W. L. Jackson Mfg. Co., Inc., Chattanooga, Tenn.

Circle 300 on inquiry card

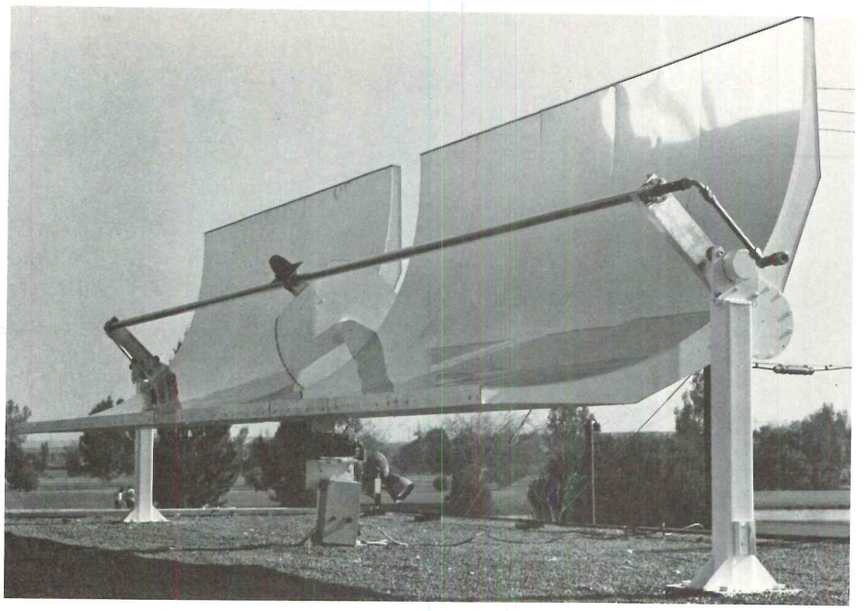




Domestic solar hot water system is field-proven

Said to provide up to 100 per cent of the hot water needed by homes or small businesses, the LSHW1 series includes a flat-plate collector and a "solar hot water module" that can be combined with a new or existing hot water heater. The collector has a high-absorption, black-chrome-coated absorber plate, an acid-etched, tempered low-iron glass cover and fully insulated construction. ■ Lennox Industries Inc., Marshalltown, Iowa.

Circle 301 on inquiry card



Parabolic trough concentrating solar collector for space heating, cooling

Model 3001 is a high-temperature collector designed for space heating and cooling, and hot water and steam generation. Designed to heat water, organic liquid or air, the unit heats fluids in the temperature range of 250 to 600 F. Model 3001 is assembled in 10-ft long modules normally coupled together to form a line of collectors operated by a single drive system producing a 180-degree sun tracking scan. The reflecting surface is aluminum lighting sheet mounted on a painted surface. Post supports and receiver manifolds are supplied. ■ Acurex Corp., Mountain View, Calif.

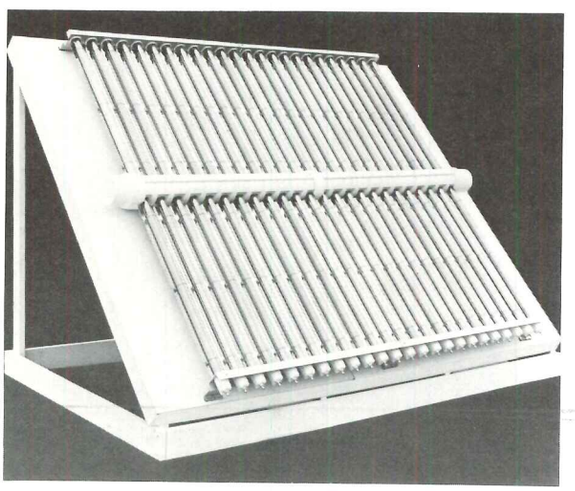
Circle 302 on inquiry card

Prototype solar collector offered for testing

The company is now offering its *Sunpak* solar energy collector in a test-module package to organizations working on solar energy research. The package includes 48 evacuated glass tubes, manifold system, and mounting hardware. The reflecting surface must be supplied by users. The system, introduced in 1975, now uses air as its gathering medium, and produces temperatures sufficient for heating and cooling. ■ Owen-Illinois, Toledo, Ohio.

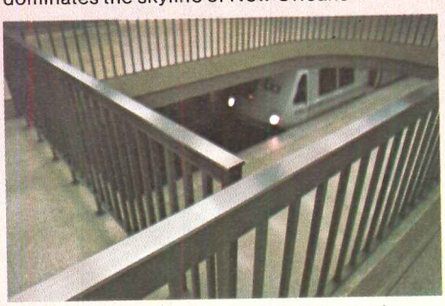
Circle 303 on inquiry card

more products on page 137



KALCOLOR® ALUMINUM SPECTACULAR SUPERSTAR

SUPER STADIUM: Superdome, a gleaming 500,000 sq. ft. expanse of Kalcolor aluminum, dominates the skyline of New Orleans.



SUPER TRANSIT: Bay Area Rapid Transit, 34 contemporary stations with lustrous Kalcolor aluminum, joins together 15 cities in the San Francisco Bay Area.

To achieve spectacular results, specify the Superstar of finishes: Kalcolor aluminum.

From the tallest hotel in the world to the most magnificent indoor stadium, and even underground to one of the longest rapid transits in the world, you'll see Kalcolor gleaming beautifully. That's because Kalcolor is a lot more than just an ordinary anodic finish.

It's an exclusive integral-color, long-lasting hardcoat anodic finish that's corrosion-resistant, abrasion-resistant and weather-resistant. This special self-coloring, anodizing process developed by Kaiser Aluminum offers you a choice of nine subtle colors.

Whether it's new construction or remodeling, on a magnificent scale as illustrated or a smaller scale such as windows, doors and fascia; Kalcolor aluminum will do the job like a Superstar. Superbly.

For more details and literature about Kalcolor, write Kaiser Aluminum, Room 776 KB, Dept. A, 300 Lakeside Drive, Oakland CA 94643.

KAISER ALUMINUM

For more data, circle 65 on inquiry card

SUPER HOTEL: The Peachtree Plaza, 70 floors of glass and shimmering Kalcolor aluminum, towers above Atlanta.

For information, circle item numbers on Reader-Service Inquiry card, pages 195-196.

SECURITY EQUIPMENT / Architectural and institutional security hardware is pictured in actual installations in a 12-page color brochure. Sections cover mechanical locks, electric locks, door hardware, room furnishings, and locking devices. ■ Folger Adam Co., Joliet, Ill.

Circle 400 on inquiry card

LARGE SPACE DIVISION / The *Acoustic-Seal* 900 panel system, specifically designed for large space applications up to more than 88-ft wide, is presented in a product brochure. Color photographs show the wall system as used in exhibition halls, convention meeting rooms, auditoriums, etc. A selection table pictures over 18 jute textured and woodgrain vinyl finishes available for these steel operable walls. ■ Modernfold, New Castle, Ind.

Circle 401 on inquiry card

MAILBOXES / A catalog insert describes the "Statesman" series of aluminum horizontal mail boxes, said to provide durable construction at a competitive price. Both front- and rear-loaded models meet all postal regulations. ■ American Device Mfg. Co., Steeleville, Ill.

Circle 402 on inquiry card

LOCKERS / Single-, double-, and multiple-tier and duplex lockers are among the products shown in a full color catalog. Special lockers include noise-reducing "Quiet-Lockers," recessed handle lockers, and heavy-duty ventilated team room lockers. A diagrammed guide to recessed locker installation is provided in the catalog. ■ Penco Products, Inc., Oaks, Pa.

Circle 403 on inquiry card

PROJECTION SCREENS / Audio-visual projection screens for schools, convention centers and offices are shown in a six-page catalog, which contains photographs, product descriptions, sizes and prices of over 15 models. The complete line includes portable tripod, wall, ceiling electric and auditorium-type flame-resistant screens. ■ Da-Lite Screen Co., Inc., Warsaw, Ind.

Circle 404 on inquiry card

DEMOUNTABLE WALL SYSTEMS / The "5700" and "5900" series demountable walls are described in a six-page color brochure. Application photos show door frames, snap-on vinyl base, core door units, demountable panels and special glazing conditions. ■ Vaughan Walls, Inc., Compton, Calif.

Circle 405 on inquiry card

EXTERIOR/INTERIOR PANELS / A reinforced mineral fiber panel with an acrylic, weather-resistant color finish, *Permatone "S" Flexboard* is suitable for both interior and exterior building applications. An eight-page brochure provides full physical property data, uniform load tables, applications and limitations, and illustrates color choices for the building panels. ■ Johns-Manville, Building Systems Div., Denver, Colo.

Circle 406 on inquiry card

NON-SKID MATTING / *TileDek* is a "textured" rubber mat designed to provide a dry, resilient, skid-resistant surface around pools, on doorsteps and patios, on industrial floors, kitchens, restaurants, etc. A product brochure shows how each tile, raised off the floor by hundreds of ½-in.-diameter "legs" per sq. ft., interlocks to form a seamless surface without gluedown. ■ Uniroyal Chemical, Naugatuck, Conn.

Circle 407 on inquiry card

FLOORING REPAIR / Repair rather than replacement of leaking brick or tile floors is possible with the *Pressure-Fill* process described in an illustrated brochure. Using catalyzed polyester resins, the process completely fills water and/or contaminant-carrying voids, and rebonds brick or tile to the subfloor. ■ Kem-Tex Corp., Winona, Minn.

Circle 408 on inquiry card

CHEMICAL INDUSTRY COATINGS / "Coatings for Chemical Process Industries" describes the properties of coatings by generic type, and the industrial environments to which they are best suited. Ten *Glid-Guard* products are discussed, and their specific applicability is charted. ■ Glidden Coatings & Resins, Cleveland, Ohio.

Circle 409 on inquiry card

RECREATIONAL COATINGS / A selection guide to protective coating systems for recreational equipment, rest areas, swimming pools, etc. is divided into three sections: surfaces to be coated; surface preparation method; and the recommended coating product. ■ Rust-Oleum Corp., Evanston, Ill.

Circle 410 on inquiry card

OUTDOOR LIGHTING POLES / Data sheet gives dimensional and installation information for 17 steel-tube poles for sports lighting, shopping centers, parking lots, low-traffic streets, etc. A map shows national wind velocities by state. ■ Valmont Industries, Inc., Electrical Products Div., Valley, Neb.

Circle 411 on inquiry card

OFFICE CHAIR / A color brochure illustrates the *Fineline Chair* in guest, conference or dining applications; the chromed steel rod frame is shown in models with or without arms. ■ GF Business Equipment, Youngstown, Ohio.

Circle 412 on inquiry card

MODULAR WORKSTATIONS / A 12-page color brochure covers the *Partitioner* line of workstations for commercial and industrial use. Text tells how the pre-planned office units save space and cut costs in providing comfortable and efficient work centers. ■ Rockaway Metal Products Corp., Inwood, N.Y.

Circle 413 on inquiry card

CONCRETE ADMIXTURES / Additives said to provide improved workability, increased strength, controlled setting time and greater durability of concrete are described in a 12-page illustrated brochure. Included are product summaries and technical data on *Pozzolith* "Normal," "Retarder," and "Hi-Early" concrete admixtures. ■ Master Builders, Cleveland, Ohio.

Circle 414 on inquiry card

CUSTOM SIGNAGE / Two technical bulletins provide architects and end-users with detailed engineering specifications for sign production. The functional, structural and electrical requirements for both custom *Plexiglas* and *Plexiglas DR* Impact Modified Acrylic are covered. ■ Rohm and Haas Co., Philadelphia, Pa.

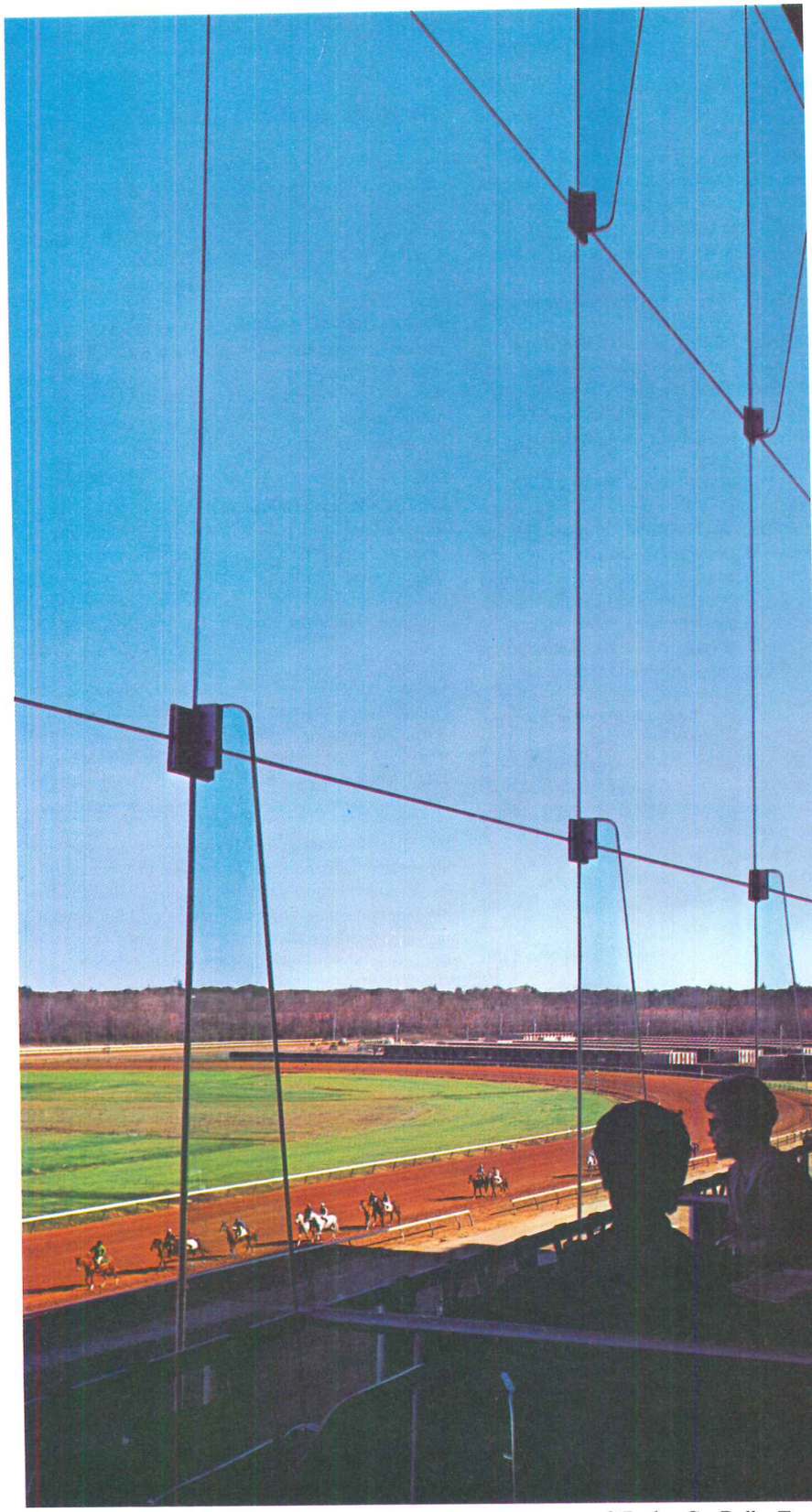
Circle 415 on inquiry card

SMALL PART STORAGE / A color leaflet shows how movable plastic or galvanized steel "Maxi" bins attach tightly to louvers of rigid support panels for simple and accessible small parts storage. Photographs illustrate various uses of the system in warehouses and inside trucks. ■ Interlake, Inc., Material Handling & Storage Products Div., Chicago, Ill.

Circle 416 on inquiry card

More literature on page 145

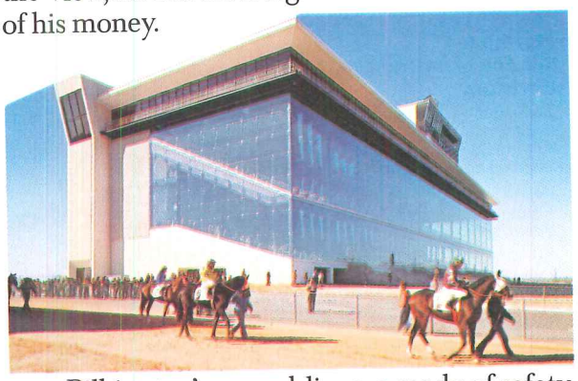
10,000 racegoers shouldn't have to wear blinkers.



At the Louisiana Downs Race Track only the horses wear the blinkers.

The 10,000 spectators in the new grandstand enjoy a high, wide and handsome view of the whole course.

The Stand's 68ft high glass facia is a Pilkington 'Armourfloat' Suspended Glass Assembly System: the only suspended glazing system in the world capable of a towering 75ft. And, with no obscuring mullions to spoil the view, no one loses sight of his money.



Pilkington's assemblies are made of safety glass, especially tempered to resist sudden atmospheric changes and capable of withstanding virtually any windforce.

Because it is suspended from overhead, in the unlikely event of a plate being broken, the panels around the break remain intact, which makes life safer for spectators.

What's more, the design scope is practically unlimited. 'Armourfloat' suspended assembly systems go where you want them to go.

And the design concept has been thoroughly tested by the independant U.K. Government funded Agrément Board.

Write for fully illustrated brochure to Doug Curry, Pilkington Brothers Canada Ltd., 101 Richmond Street West, Toronto 1, Ontario. Cables: Pilkho Tor. Telephone: 416 363 7561.

And you'll discover that with the Pilkington System the sky's the limit. Well, 75ft anyway.

PILKINGTON

Glass. We make it work harder for you.

Architects: Century A.E., Houston, Texas. General Constructor: Henry C. Beck & Co., Dallas, Texas. Glazier: Binswanger Glass Company.

For more data, circle 66 on inquiry card

STREET HOCKEY RINK / Available in standard sizes up to 85-ft by 200-ft, this heavy-duty rink for outdoor street or roller hockey is said to be easily assembled on site with hand tools. The packaged rink comes complete with polyester-finished plywood dasherboards, frames, and all necessary supports and hardware. Penalty and player boxes, kick plates and steel pipe goals are options. The rink is impact- and weather-resistant; boards will not warp or ever need painting. Installation can be on any blacktop or concrete surface. ■ Roller Hockey Rinks, Inc., New Castle, Del.

Circle 304 on inquiry card

SECURITY GLAZING / *Secur-Lite 4X* glass is pictured resisting repeated blows with a baseball bat; the security glazing product meets NSI and UL safety and burglar-resistant standards. The glass is constructed of four plys of specially strengthened thin float glass, laminated with layers of clear vinyl. *Secur-Lite* requires no special frames or hardware; it can be tinted, reflective coated, and combined with opaque mirrors, wired glass, etc. ■ Globe-Amerada Glass Co., Inc., Elk Grove Village, Ill.

Circle 305 on inquiry card

WOOL UPHOLSTERY FABRIC / The deeply-cushioned sofa shown above is upholstered in an all-wool-face material said to wear better, cost less and look plusher than "mohair plush" fabrics. "Wool Elegance" has a double warp and tight weave for wear resistance in high traffic contract applications. ■ Lazarus Fabrics, New York City.

Circle 306 on inquiry card

BUILDING MONITOR/CONTROL / Said to offer improved performance and lower costs for buildings of 200,000 sq ft and larger, the "System 20" is a self-monitoring control for building automation, energy conservation, life safety and submetering. Features of the system include a two-year payback, an ability to communicate over existing power lines or dedicated two-wire lines, a claimed low installation cost, and a capacity of up to 250,000 zones. Information is displayed on video terminals or printed, each in conversational English. The "System 20" has been found in full compliance with the standards of NFPA 72-D for Type 1/Class A operation by UL and FM. ■ Compuguard Corp., Pittsburgh, Pa.

Circle 307 on inquiry card

SOLID WASTE COMPACTOR / Engineering features intended to save energy and increase the useful life of solid waste compactors have been incorporated into the design of the *Tri-Pak* "TP-77" power unit. A deceleration cycle can bring a 3-ton compactor ram to a complete stop in a space of 3-in., reducing the strain on the hydraulic system and the compactor itself. A regenerative hydraulic system permits fast operation with low power usage. The "TP-77" is suitable for a large-volume industrial applications; smaller compactors are also available. All meet pertinent safety codes. ■ Tri-Pak Systems Co., Louisville, Ky.

Circle 308 on inquiry card

more products on page 139

Integrated Ceiling Systems from Johns-Manville. Styling and performance from one source.

J-M Integrated Ceilings are total systems including acoustical, air handling, suspension and Holophane® lighting components. Each component is designed and manufactured to unite with every other. All backed by the Johns-Manville headquarters team and a nationwide network of 125 sales representatives.

New grid system.

We've just introduced a new modular grid suspension. It's not only stronger, it's better looking. And easier to install. With mitered flanges and a thru-regress at all intersections.

J-M systems can be adapted to a wide range of performance requirements. We can even give you computer-calculated life cycle cost comparisons.

Call us now.

Learn more about Johns-Manville Integrated Ceiling Systems. Call your local J-M office, consult Sweet's, or write: Johns-Manville Sales Corp., Holophane Div., P.O. Box 5108 – AR–11, Denver, Colorado 80217.

First Federal Savings and Loan Assn. of Charlotte County, Punta Gorda, Fla.
Architect: Willard N. Bowman, Jr., Punta Gorda, Fla.
Integrated Ceiling Contractor: Davidson and Son, Sarasota, Fla.

JM
Johns-Manville

For more data, circle 68 on inquiry card

ALL-FUEL CHIMNEY / Designed for use with coal, oil, gas or wood in residential and commercial installations, the *Air-Jet* metal chimney system snaps together without twisting or screws. The lightweight flue comes complete with all necessary supports and flashings and a round termination cap. The three-wall design promotes a good draft; the chimney heats up and cools down quickly, to save fuel by reducing on-off furnace operation. ■ General Products Co., Fredericksburg, Va.

Circle 309 on inquiry card

ROTARY DRAWING BOARD / The *Rotobord Spacemaster* drafting board has a high-accuracy gauge for scaling off precise distances on forms and drawings. The scale provides for spacing in divisions of 0.08 mm; distances greater than the 5 mm measurement of the gauge itself can be accommodated by depressing the spacing lever more than once; the desired setting is locked in by the *Spacemaster* dial. The portable rotating drawing board and *Spacemaster* gauge, with carrying case, lists for $195.00. ■ Zi-Tech Div., Aikenwood Corp., Palo Alto, Calif.

Circle 310 on inquiry card

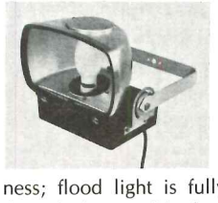
OFFICE SEATING / Pictured is a conference chair with upholstered seat and back and a five-legged base, one of four basic models in an office chair series designed by Peter Protzmann. A compound curved back provides comfort and support in each model: executive tilt/swivel seat; pull-up chairs with and without arms; and a fully-adjustable secretarial chair. ■ Domore Office Furniture, Elkhart, Ind.

Circle 311 on inquiry card

HOTEL/MOTEL SMOKE ALARM / Said to be competitively priced, this smoke detection package features up to six tamper-proof battery-operated smoke alarms, wired to a compact remote indicator panel. An alarm is activated if the *SmokeGard* unit is removed from its mounting plate; a flashing light assures that the battery circuit is working. Each UL-listed smoke alarm is priced at $64.00; the "Model 601" Remote Panel monitor is $55.00. ■ Statitrol Div., Emerson Electric Co., Lakewood, Colo.

Circle 312 on inquiry card

FLOODLIGHT / The low-wattage "Lite Flood" luminaire comes prewired with 3-ft of flexible cord, and can accommodate mercury vapor and HPS lamps. The tempered glass lens is sealed and gasketed for weathertightness; flood light is fully adjustable. Relamping is through the top of the housing. ■ ITT Landmark Lighting, Southaven, Miss.



Circle 313 on inquiry card

HOTEL/MOTEL SECURITY / As used in a large Virginia motor inn, the *Cardgard* electronic security system performs two functions: it replaces conventional locks with sensing units that "read" a personal code on a disposable plastic card, and it allows hvac units in each room to be automatically turned lower by remote control as the guest checks out. Then that code is erased from the system, and that card can no longer be used. Photo shows the control terminal, located at the front desk ■ ADT, New York City.

Circle 314 on inquiry card

SPACE DIVIDERS / Abrasion-resistant, easily-cleaned vinyl fabric wallcoverings are featured on this portable wall and modular space divider system. Panels are moved and installed by one man, using a special cart equipped with a level to release the spring-loaded panel head into holding position. Available in 4- and 5-ft widths, the dividers are fitted for electrical and telephone distribution systems, and meet NFPA Class A and UBS Class 1 fire ratings. ■ Papsco Inc., Sunnyvale, Calif.

Circle 315 on inquiry card

more products on page 141

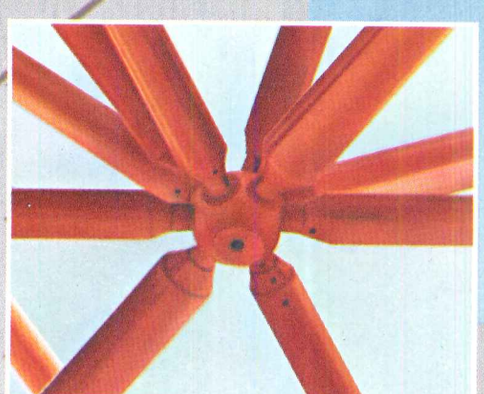
Your gateway to the future.

The architects of Omaha's Central Park Mall* chose the MERO® building system to form the Mall's entry arch.

They could have also chosen it for function. Other architects did in such structures as the cantilevered roof of Berlin's Olympic stadium or the atrium roof of the CP hotel in Montreal.

Whatever the architectural intent, the MERO system can be relied upon for clean, well-executed details and remarkable design freedom within the space-frame idiom.

To expand the horizons of your design imagination write or call Unistrut Corp., Wayne, Michigan 48184. (313) 721-4040, other states toll-free (800) 521-7730.

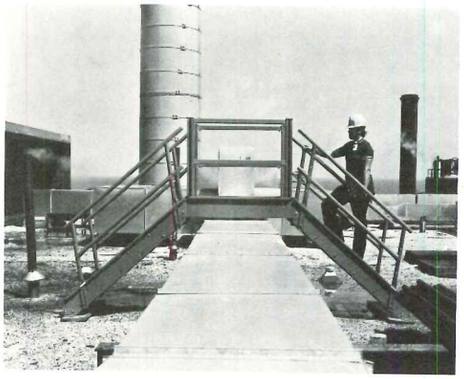


*ARCHITECTS: BAHR VERMEER & HAECKER/LAWRENCE HALPRIN & ASSOCIATES.

GTE SYLVANIA

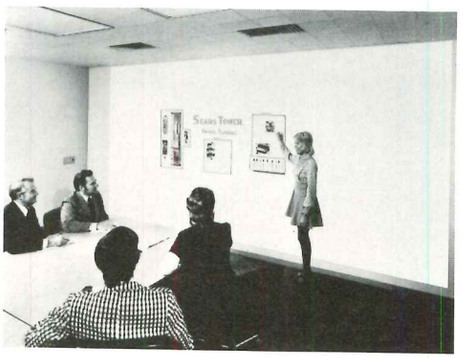
UNISTRUT CORPORATION

MERO®



ROOFTOP BRIDGES / The "Clearspan Crossover Bridge" meets OSHA standards for safety while providing service and maintenance personnel with convenient access to and over rooftop machinery, ducts, etc. Bridges are available in a number of configurations assembled from prefabricated parts; the two stairways have tubular handrails; a platform walkway has non-skid oval-hole steel floor grating. ■ Equipto, Aurora, Ill.

Circle 316 on inquiry card

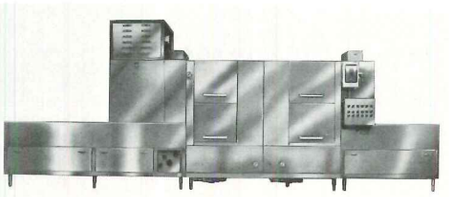


VISUAL AID PANEL / The "communication wall" shown has a lenticular surface, said to virtually eliminate hot spots and glare. Panels are used for film projection, and easily erased color writing with liquid markers; they will accept magnetic letters. Surface has a Class 1 fire rating. Panels are available as aluminum-framed wall-mount models, or in roll form with pressure-sensitive or applied adhesive backing for covering entire walls. ■ Eberhard Faber, Inc., Wilkes-Barre, Pa.

Circle 317 on inquiry card

OPEN OFFICE LIGHTING / Shown in the manufacturer's own Chicago showroom, which is illuminated entirely without overhead ceiling lights, this *Emetric* workstation is fitted with a ambient/task light fixture. The acoustically-covered light tower, shown with storage capacity, houses a 250-watt HID fixture, providing glare-free overall lighting reflected off the ceiling. The task light has a molded parabolic lens. All fixtures operate from the power distribution channels flush with the end panels of the desk. ■ Eppinger Furniture, Inc., Elmsford, N.Y.

Circle 318 on inquiry card



INSTITUTIONAL BATCH WASHER / The "Model 1200" cage and pan washer features a powerful washing action operating simultaneously from the top, bottom and both sides. Both conveyor speed and water conditions are fully controllable, to minimize power and hot water demands for any volume or type of load. Pump-powered wash and rinse sections are on separate circuits, each with an emergency on-off switch. The *Hydro-San #1200* is 20-ft long by 5-ft 6-in. high, with a chamber capacity 24-in. by 20-ft by 24-in. ■ Vernitron Medical Products, Inc., Carlstadt, N.J.

Circle 319 on inquiry card

TENNIS COURT SURFACE / A permanent outdoor tennis surface, *Bolltex* synthetic textile courts are resilient and permit true ball bounce. Open-needled construction provides drainage and allows for escape of ground moisture; courts are said to dry quickly after rains. *Bolltex* can be installed over any existing surface, and does not need resurfacing, repainting or repairs. ■ Albany International Corp., Albany, N.Y.

Circle 320 on inquiry card

more products on page 143

Our fillers, sealers, primers, topcoats, textures, and glosses preserve...beautifully!

Concrete does the big jobs. More and more contemporary construction is concrete — versatile, economical.

And Glidden coatings do big jobs for concrete and masonry: protection enhancement, maintenance reduction, graphic stimulation.

We do it with a full line of concrete coatings formulations — latex, alkyds, silicones, and epoxies for all interior or exterior applications, in any environment.

We do it with the full service responsibility that only a major coatings maker can deploy for you: single source convenience, complete technical service backup, free color styling and decorator help from professionals.

Tell us about the job you want your concrete to do. We'll tell you how our concrete coatings and services will help you get it done.

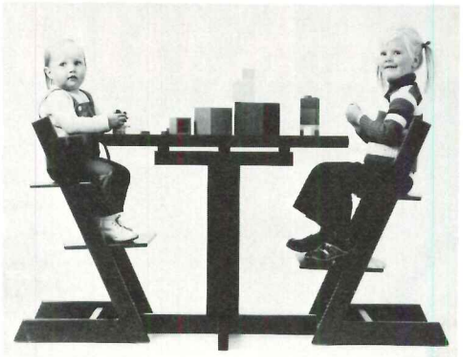
Better.

Glidden

For your Glidden Representative, call the SWEETS BUYLINE.

SCM® GLIDDEN COATINGS & RESINS
ARCHITECTURAL & MAINTENANCE
SCM CORPORATION, CLEVELAND, OHIO 44115

For more data, circle 72 on inquiry card

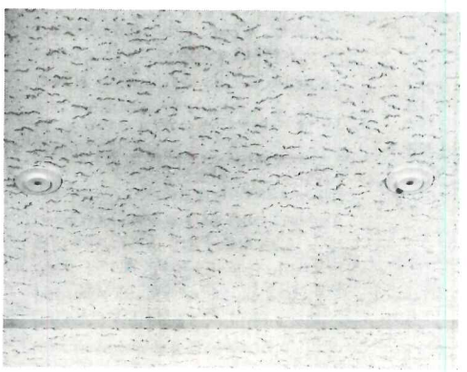


CHILD'S SEATING / The "Tripp-Trapp" table/chair combination is formed of panels of smooth beech slid into the grooves of the angled frame. Seat and foot support adjust to accommodate different size users, from an infant, secured by bentwood loop and leather strap, to an adult. Imported unit is adaptable for institutional and school, as well as home use. ■ Westnofa U.S.A., Evanston, Ill.

Circle 321 on inquiry card

BAR TOP/SINK / Useful as a wet bar or hospitality center in living, dining, or family rooms, or as an island counter top in the kitchen, this "cast-in" one-piece counter sink is made of stain- and abrasion-resistant *Corian*. Counter/sink is 61-in. long; the symmetrical bowl placement allows the unit to be installed in either right- or left-hand position. Other one-piece top and bowl units are available as bath vanities in 15 single-, and four double-bowl sizes; and as a 10-ft-long kitchen counter top and sink. ■ Du Pont Co., Wilmington, Del.

Circle 322 on inquiry card



INTRUSION DETECTORS / The *Advisor* ultrasonic intrusion detection system is available with flush-mounted ceiling transceivers said to be virtually unnoticeable; with the transceiver positioned above the ceiling tiles, only the white transducer caps are visible from below. The detector can sense the motion of an intruder, and differentiate it from random motion; alarm indication light facilitates installation and testing. ■ Aritech Corp., Framingham, Mass.

Circle 323 on inquiry card

WASHROOM ACCESSORIES / Two recessed paper towel dispenser and waste receptacle combination units are designed for washroom areas where wall space may be limited; both models fit into rough wall openings 56½ by 12½-in. "B-3703" has a satin-finish stainless steel door completely covering the cabinet and concealing the full-length door hinge; model "B-3707" has a solid laminated plastic door in several colors and woodgrains. Covered 7-gal waste receptacle is leak-proof; two tumbler locks help prevent pilferage and vandalism. ■ Bobrick Washroom Equipment, Inc., New York City.

Circle 324 on inquiry card

KITCHEN CABINETS / This line of kitchen cabinets and counters has been specifically designed to meet some needs of the elderly or physically impaired person confined to a wheelchair. A high toe space—8¾-in.—allows the foot rest of the chair to fit close under the cabinet. Each base unit is equipped with two easy access slide-out trays finished with a low-maintenance laminate surface, or three slide-out drawers. Cabinet height is 32¾-in., lower than conventional storage units. ■ Merillat Industries, Inc., Adrian, Mich.

Circle 325 on inquiry card

More Products on page 149

MAX: Still one of a kind!

A dozen years after its introduction, the Sargent Maximum Security System doesn't have to bow to any of the "competitive" products in the marketplace.

The MAX still offers a keying system with full masterkeying capabilities... seven levels if you need them. That's more than enough for even the biggest keyed complex. There are 24,500 safe, usable day key changes available regardless of the level of masterkeying.

The MAX cylinder is a lock picker's nightmare. Instead of a single row of key pins, there are three rows, each on a different axis. Instead of the five, six or seven pins in conventional cylinders, the MAX has twelve.

The MAX has a key that can't be duplicated on "corner store" key cutting machines... a little inconvenient if a key is lost or misplaced, but a feature that is big on security. The keys are not cut as are conventional keys. They are milled to within precise tolerances... and are available only through the Sargent factory.

A MAX system is a proprietary system. The chance of any one key operating another lock cylinder by accident doesn't exist. Security for the building owner is assured.

MAX: a proven security system.

SARGENT®

First in quality since 1864.

Sargent & Company, New Haven, Connecticut 06509. In Canada, Sargent & Company (Canada) Ltd.

For more data, circle 74 on inquiry card

PAPERWORK ORGANIZER / An organizing system for inprocess paperwork, the *Active File* may be ordered as a freestanding unit, as a hanging unit on open office panels, or as a roll-out file. An eight-page color brochure shows the *Active File* in a variety of office situations, and lists all dimensions and components. ■ GF Business Equipment, Inc., Youngstown, Ohio.

Circle 417 on inquiry card

COPPER SHEET / Illustrated construction details are provided in a six-page brochure on "Tough 12" copper sheet, showing the material installed on "thru-wall" and chimney flashings, mansard slopes, roofs with horizontal seams, etc. Literature gives mechnical properties, thickness and weight tolerances, and recommended applications for the high-yield, 12-oz copper sheet. ■ Revere Copper and Brass Inc., New York City.

Circle 418 on inquiry card

METAL COMPOSITE SHEET / *Alucobond* sheet has .020-in. aluminum faces over a polyethylene core. Such semi-structural use as exterior curtain wall, interior partitions, signs, displays, etc., are suggested in a color brochure on *Alucobond*; physical characteristics and workability features are also included. ■ Consolidated Aluminum Corp., Architectural Div., St. Louis, Mo.

Circle 419 on inquiry card

SOLAR GLASS / A color brochure introduces three glass products for solar energy applications: *Sunadex*, a "water white" glass with virtually no iron oxide; *Lo-Iron*, with a low iron-oxide content; and *Starlux*, a regular float glass. ■ ASG Industries, Inc., Kingsport, Tenn.

Circle 420 on inquiry card

INTERIOR/EXTERIOR DOORS / A revised industry standard for Douglas fir, Western hemlock and Sitka spruce doors and blinds has been published, incorporating the latest Federal safety glazing requirements. The manual also illustrates and describes the commonly used sizes, grades and designs of stile-and-rail doors, louvered doors, and louvered window and door blinds. ■ Fir and Hemlock Door Assn., Portland, Ore.

Circle 421 on inquiry card

TEXTILE STATIC PROTECTION / Stainless steel fiber, drawn finer than human hair and invisibly incorporated into yarn, is said to provide reliable and permanent static control for carpets and other textiles. A color brochure describes how *Bekinox* and *Bekitex* (metal and polyamide) fibers can be used in woven, tufted and needle-punched felt carpeting to reduce static build-up to 500 volts or less, even in low humidity conditions. ■ Bekaert Steel Wire Corp., Atlanta, Ga.

Circle 422 on inquiry card

DOOR/FRAME SYSTEMS / A four-page brochure introduces a complete opening "package:" doors, frames, hinges, locks and closers. Doors are available in hollow-, solid, and mineral-core construction, and may be faced with the same material used on adjacent walls for a uniform appearance. Doors can be pre-glazed to standard or custom specifications, and are available with fire ratings up to 1½-hrs. ■ Marlite Div., Masonite Corp., Dover, Ohio.

Circle 423 on inquiry card

STEEL ENTRY / The "Universal Hardware Adapter System" offered with the "2001" steel door accommodates a variety of deadbolt/passage lock center-line distances. An eight-page color brochure describes this and other features for this line of fire-rated, urethane insulated doors. ■ Precision Building Products, Miami Springs, Fla.

Circle 424 on inquiry card

PVC SIDING/ROOFING / A product flyer provides typical details and a sample chip of *Phase II* PVC corrugated siding and roofing panels. Solid panels are FM-listed Class A; literature lists physical, structural and chemical resistance properties of the dimensionally-stable *Phase II* siding/roofing. ■ H & F Products Co., Cornwells Heights, Pa.

Circle 425 on inquiry card

LOOSE-FILL INSULATION / The R-values and different types of cellulose wood fiber insulation are discussed in a 16-page booklet. A side-by-side section compares the thermal-flame resistance, moisture absorption and other characteristics of cellulose and mineral wool loose fill insulation. Booklet gives ASTM and UL ratings. ■ Diversified Insulation Inc., Hamel, Minn.

Circle 426 on inquiry card

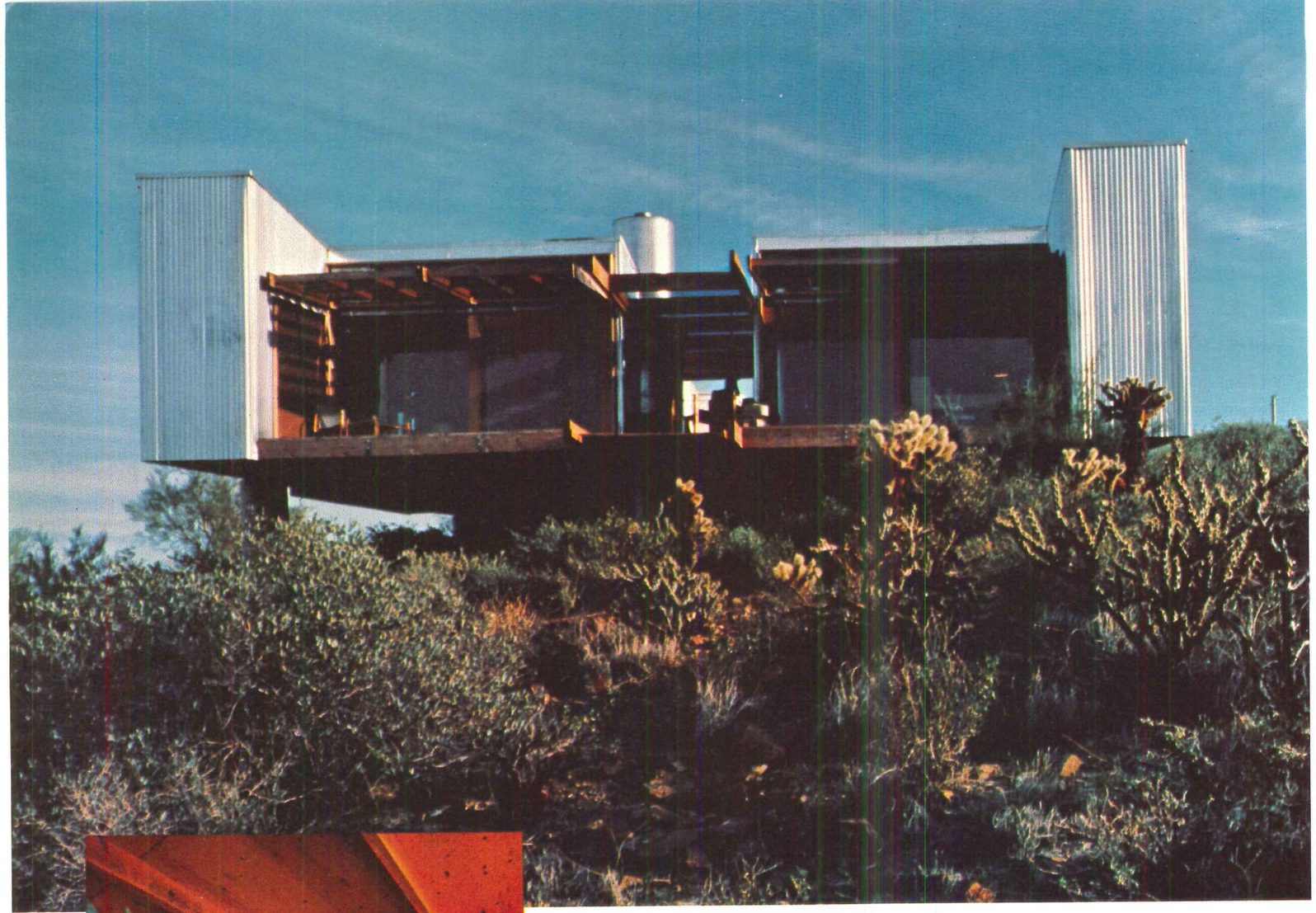
EXPLOSION-CONTROL WALL / The "Controlled Release Wall System" is designed to help protect industrial plants and power generating facilities from structural failure caused by severe storms, tornadoes, and explosions. An eight-page technical bulletin describes the special wall panels which open inwardly or outwardly to relieve pressures, citing the wall system's predictable performance and savings in structural steel costs. ■ H.H. Robertson Co., U.S. Building Products Div., Pittsburgh, Pa.

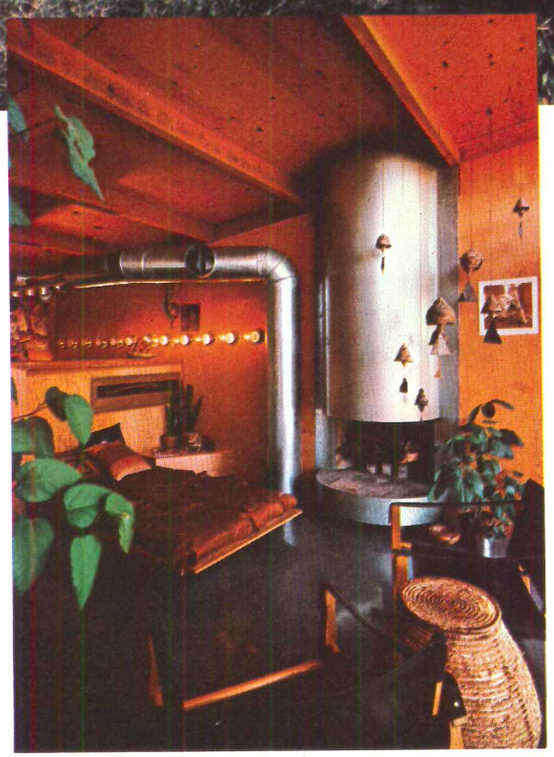
Circle 427 on inquiry card

INDUSTRIAL GRATINGS / A line of corrosion-resistant structural gratings, stair treads, barriers and hand rails, and other construction products manufactured of fiberglass reinforced plastic is shown in a 16-page catalog. Included are chemical resistance and load deflection data, installation procedures and application illustrations. ■ Fibergrate Corp., Dallas, Texas.

Circle 428 on inquiry card

more Office Literature on page 147





GALVANIZED STEEL COMBINES LOW COST, MINIMUM MAINTENANCE AND MELLOWING BEAUTY IN HOME ARCHITECT BUILT FOR UNDER $13,000

Architect William P. Bruder, designed his house and studio in New River, Arizona and built it with the help of friends for under $13,000...about $11. per square foot.

Mr. Bruder says, "My basic philosophy of architecture includes the use of materials in a direct, natural, functionally aesthetic way. I am interested in minimum maintenance and the uses of materials that will weather with dignity. Architecture should get better with age. Galvanized (unpainted) metal meets these requirements."

"In addition, the dynamics of natural light are very important and the reflective qualities of the corrugated matte-finished metal siding on the house make for a daily as well as seasonal difference in how the building is viewed in the landscape. The light and shadow patterns across the metal are very exciting."

"The (galvanized) metal ductwork and fireplace are a direct and aesthetic way to treat these elements sculpturally. The galvanized floor represents an easy to maintain surface and was installed at a very low cost."

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PRODUCT DATA SHEETS / Now available by annual subscription to all interested in building product information is the *Spec-Data* reference series. These specification guides consist of individual sheets with all the technical information needed by the design professional to identify, describe and specify individual construction products. ■ The Construction Specifications Institute, Washington, D.C.

Circle 429 on inquiry card

FIRE DAMPER / Data sheet introduces the competitively-priced "U-450G" all-welded, 16-gauge galvanized steel damper for use with low velocity rectangular ductwork. Activated by a UL-listed fusible link, the fire damper is UL-classified for 1½-hrs, and meets NFPA 90A requirements. ■ United Sheet Metal Div., United McGill Corp., Westerville, Ohio.

Circle 430 on inquiry card

CONSTRUCTION SEALANTS / Characteristics and features of four different silicone construction sealants are given in an illustrated selection guide. Design, joint preparation and application data for *Silglaze* sealant, Silicone Construction 1200 sealant, *Silpruf* sealant, and Sanitary 1700 sealant are included. ■ General Electric Co., Silicone Products Dept., Waterford, N.Y.

Circle 431 on inquiry card

ROLLING METAL DOORS / Full architectural details are included in a catalog on rolling metal doors and fire doors, rolling grilles, shutters, rolling fire shutters and sliding grilles. Featured is the "M58A Solenoid Relase" for rolling fire doors and shutters. This control provides positive closing when activated by smoke or heat detectors, but is not affected by power lapses or failures. ■ Cornell Iron Works, Inc., Mountaintop, Pa.

Circle 432 on inquiry card

EPOXY COATINGS FOR CONCRETE / *Sikagard 670*, an environmentally safe water-base epoxy/acrylic product for protecting and decorating concrete, and *Sikadur* epoxy adhesives to patch, seal, top, grout, bond and anchor are outlined in a plant-maintenance brochure. A chart matches these and five other concrete treatment products with their specific plant-repair applications. ■ Sika Chemical Corp., Lyndhurst, N.J.

Circle 433 on inquiry card

OFFICE/INDUSTRIAL PANELING / A 24-page pocket-sized brochure is used to describe the full line of *Marlite* products for office and industry. Included are prefinished hardboard plank and paneling, modular in-plant offices, clear span mezzanines and security enclosures, fiberglass tub kits, toilet compartments, doors and frames, office partitions, and simulated brick and stone siding for interior and exterior uses. ■ Marlite Div., Masonite Corp., Dover, Ohio.

Circle 434 on inquiry card

LAMINATED PLASTIC / Three marble patterns in plastic laminate are introduced in a color brochure: "Grecian," "Tuscan," and "Victorian." Close-up color photographs show these and the 11 other marble and slate patterns in the "Design Group I" series. ■ Wilson Art, Temple, Texas.

Circle 435 on inquiry card

METAL PROTECTION / Materials and methods for safeguarding the integrity of metal surfaces used in all kind of construction are described in an illustrated brochure. Special emphasis is given to fusion-bonded powder coating of steel reinforcing bars. ■ M C P Facilities Corp., Glen Head, N.Y.

Circle 436 on inquiry card

We'd like to make everything perfectly clears.

Some people just can't figure out why we're so enthusiastic about Simpson Redwood Clears. Let's face it, some people don't even know what they are.

We hope these pictures clear things up.

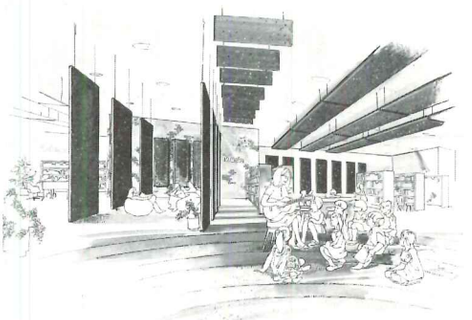
If they're anything, Simpson Redwood Clears are versatile. No other grade of redwood offers so many options: rough or smooth textured surfaces, a variety of patterns and a great selection of wide widths. The contrasting mix of heart and sapwood gives every board its own unique character. Clears offer the builder and designer appearance options ranging from dramatic zebra stripes to subtle texturings.

And Clears still retain redwood's traditional advantages. In fact, Simpson Redwood Clears are the most economical way to purchase kiln-dried knot-free redwood. Anywhere. Specify Clears for exterior siding, interior paneling, fascia, trim, even decks and outdoor furniture.

Whatever your project, there's a place in it for Clears. For more information just write "Clears" on your business card and send it to Simpson Timber Company, 900 Fourth Avenue, Seattle, Washington 98164. We'll get back to you with some clear choices you can specify.

Redwood Clears
Simpson

For more data, circle 76 on inquiry card



SOUND-ABSORBING BAFFLES / Acoustical-control panels are wall carpet-covered frameless units constructed with a glass fiber core. *Aircoustic* panels and baffles are Class A fire rated, with a SRC of up to .95. Units are 1- and 2- in.-thick, in either 4- by 8-ft or 4- by 10-ft standard sizes. "Invisible" clips attach the panels to walls or ceilings in new or existing band practice rooms, open classrooms, auditoriums, etc. ■ Air Wall Div., Richards-Wilcox Mfg. Co., Paramount, Calif.

Circle 326 on inquiry card

CONFERENCE TABLE / The "Hoboken" table comes with a 1½-in.-thick curved-edge top in a choice of 10 lacquer colors, glossy or low-glare, as well as natural woods. Table top is supported by two cylindrical pedestal bases, either wood, colors, polished chrome or brass finish, etc. ■ Intrex Inc., New York City.

Circle 327 on inquiry card

TABLE/CHAIRS / Available in either black or white, the lightweight table has a polyurethane frame supporting a laminate top. The stackable "Bartoli" chairs are molded of polypropylene, and are said to be sturdy enough for restaurant use. Chairs, offered in black, white and red, list for $35 each; the table is $230. ■ Kartell Collection, Beylerian Ltd., New York City.

Circle 328 on inquiry card

In Houston's Famous
"The Galleria" Skyline

Five Ceco formwork jobs in eight years

Contractors and owners coast to coast save on forming costs with Ceco services

Impressive architecture in concrete is adding excitement to Houston's modern, Galleria skyline. These five projects are typical of Ceco's concrete formwork in Houston over the past eight years.

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—And a firm contract price that represents cost savings to contractors and project owners.

—And performance by formwork specialists who take pride in getting the job done right.

Ceco offers economical and time-saving formwork for rib-slabs, waffle-slabs, flat-slabs, columns and beams. Services are nationwide on a local basis. For more facts, please see Sweet's or contact your nearest Ceco office.

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Gerald D. Hines Interests

1. Post Oak Tower (1969)
Hellmuth, Obata and Kassabaum } *associated architects*
Neuhaus and Taylor
Ellisor Engineers, Inc., *structural engineers*
Harvey Construction Company, *contractors*

2. Houston Oaks Hotel (1969)
Hellmuth, Obata and Kassabaum } *associated architects*
Neuhaus and Taylor
Ellisor Engineers, Inc., *structural engineers*
H. A. Lott, Inc., *contractors*

3. & 4. Galleria II.(1976)
Hellmuth, Obata and Kassabaum } *associated architects*
S. I. Morris and Associates
Ellisor Engineers, Inc., *structural engineers*
Harvey Construction Company, *contractors*

5. Galleria Plaza Hotel (1976)
Hellmuth, Obata and Kassabaum } *associated architects*
S. I. Morris and Associates
Ellisor Engineers, Inc., *structural engineers*
H. A. Lott, Inc., *contractors*

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OFFICE NOTES

Offices Opened

F. James Akin/Stuart L. Rothman, AIA/ Associated Architects have announced their formation of a new architectural practice. Offices are at 10405 Town and Country Way, Suite 404, Houston, Tex. 77024.

Robert Kaplan and Associates is a new architecture and planning firm established by Robert I. Kaplan, AIA, with offices at 5410 Leaf Treader Way, Oliver's Carriage House, Columbia, Md.

Firm Changes

Anderson Notter Finegold Inc. is the new name given to the firm known previously as Anderson Notter Associates Inc. Mr. Maurice N. Finegold is a new principal in the firm. Offices are at 77 N. Washington St., Boston, Mass.

Booker Associates, Inc. have appointed Mr. Alvin A. Vogt, AIA, as Manager of their Architectural Department. Offices are at 1139 Olive St., St. Louis, Mo. 63101.

The California State Polytechnic University, Pomona, announces the appointment of Robert Mittelstadt as chairman of the school of environmental design's department of architecture.

CRS Design Associates, Inc., have announced the appointment of W. Vince Fuller as Vice President and Corporate Controller, and Bob S. Bridwell as Senior Vice President and Chief Financial Officer. Offices are at 1100 Milam Bldg., Suite 500, Houston, Tex.

Daniel, Mann, Johnson & Mendenhall in Los Angeles have announced that Albert A. Dorman, presently President and Chief Operating Officer, has been named Chief Executive Officer.

Drexel University Evening College has appointed Peter F. Arfaa to the head of the architecture department. Mr. Arfaa is the executive director of the Philadelphia chapter of the AIA.

Environmental Planning & Research, Inc., has announced that John J. Hernikl, AIA, and Edward M. Lee, AIA, have joined the firm. Offices are at 649 Front St., San Francisco, Calif.

Folse/HDR have announced the appointment of Edward C. Spooner, AIA, as Director of Design. Offices are at 1440 Canal St., Suite 2120, New Orleans, La. 70112.

The Grad Partnership has named Ronald H. Schmidt as a partner. Dennis G. Hanvey, Fredric Rosen, and David R. Zugale have been promoted to associates in the firm.

Gruzen & Partners have named Barbara L. Geddis, AIA, as an associate in the firm. She is in charge of facility planning for its Urban Design and Planning Division. Offices are in New York City.

Charles Kober Associates announced the promotion of John S. Carson, AIA, and James Porter, AIA, to vice presidents of the firm. Offices are in Los Angeles.

Morgridge, Bader, Richards & Coghlan is the new name given to the firm previously known as Powell, Morgridge, Richards & Coghlan. The architectural firm is located in Los Angeles.

more office notes on page 153

A hall of fame for the heroes of space.

ELEVATORS BY DOVER

In the hills above Alamogordo, New Mexico, the International Space Hall of Fame honors the pioneers of all nations who opened the doors of the universe to man. Exhibits, both indoors and out, document the significant events in the exploration of space and offer predictions of marvels yet to come. Visitors and staff move swiftly between the five floors of the multi-million dollar structure on Dover traction elevators. For more information on Dover Elevators write Dover Corporation, Elevator Division, Box 2177, Dept. A, Memphis, Tennessee 38101.

DOVER

The International Space Hall of Fame,
Alamogordo, New Mexico
Architect: Charles Nolan,
Alamogordo, New Mexico
General Contractor: Frank Tatsch,
Silver City, New Mexico

For more data, circle 82 on inquiry card

OFFICE NOTES *continued from page 151*

Richardson Chase Johnson is the name given to the firm previously known as Richardson Chase and Associates. Architect David A. Johnson, formerly with William L. Periera Associates, joins the firm as a partner.

Stevens & Wilkinson have announced the election of James F. Kortan, AIA, ASID, as Director of Design and William H. Barnett as Chairman of the Board. Offices are at 100 Peachtree St., Atlanta, Ga. 30303.

3D/International has announced the promotion of Frank F. Douglas, AIA, H. Davis Mayfield III, Harry L. Scoggin, AIA, Keith J. Simmons, AIA, Charles B. Turner, AIA, Bob G. Wade, AIA, and Dennis T. Yaklofsky, AIA, to vice presidents of the company.

The University of Texas School of Architecture has announced that Dr. Edward McClure will be the new associate dean for planning.

William G. Wells & Associates, Architects, is the new name given to the firm known previously as Wells, Meagher & McManama. This change is due to the retirement of Richard L. Meagher, AIA. Offices are in Roanoke, Va.

New Addresses

Alex Frank Orkow & Associates, Architecture/Planning, 2149 S. Clermont, Denver, Colo. 80222.

Kenneth Balk and Associates, Inc., architects, engineers, planners, 16630 Imperial Valley Dr., Suite 141, Houston, Tex. 77060.

Delgado & Gilbride, architects and planning consultants, 18 E. 53 St., New York, N.Y. 10022.

Bruce Jonothon Geller, architect and planner, 236 Highway Nine, Howell, N. J. 07731.

Clovis Heimsath Associates AIA, Building on the Square, Fayetteville, Tex. 78940.

Rogers, Butler & Burgun Architects, 521 Fifth Ave., New York, N.Y. 10017.

Stanley Tigerman & Associates, Ltd., 920 N. Michigan Ave., Chicago, Ill. 60611.

Mixing old and new building subject of December conference

The National Trust for Historic Preservation plans a conference on *Old and New Architecture: Design Relationship* in Washington December 1-3. Co-sponsored by the Washington chapters of the American Institute of Architects and the Society of Architectural Historians, the conference will explore the relationship of old and new architecture and the possibility of obtaining a consensus on principles of design. For information: Office of Preservation Services, National Trust for Historic Preservation, 740-748 Jackson Place, N.W., Washington, D.C. 20006.


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NEW GAF® PrintVac™ 190 Fluorescent Diazoprinter

For prints that bear close inspection. By the eye. By the nose.

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And note that this dry, high-quality diazo print is virtually free of odor.

Reason: a unique system that effectively pulls odor off the paper as it exits the machine.

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American-Standard Export is supplying sanitaryware products, service and technological back-up to an astonishing number of foreign hotel projects. In South and Central America, Africa, the Far and Middle East.

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Read a steel joist. You'll find profit between the lines.

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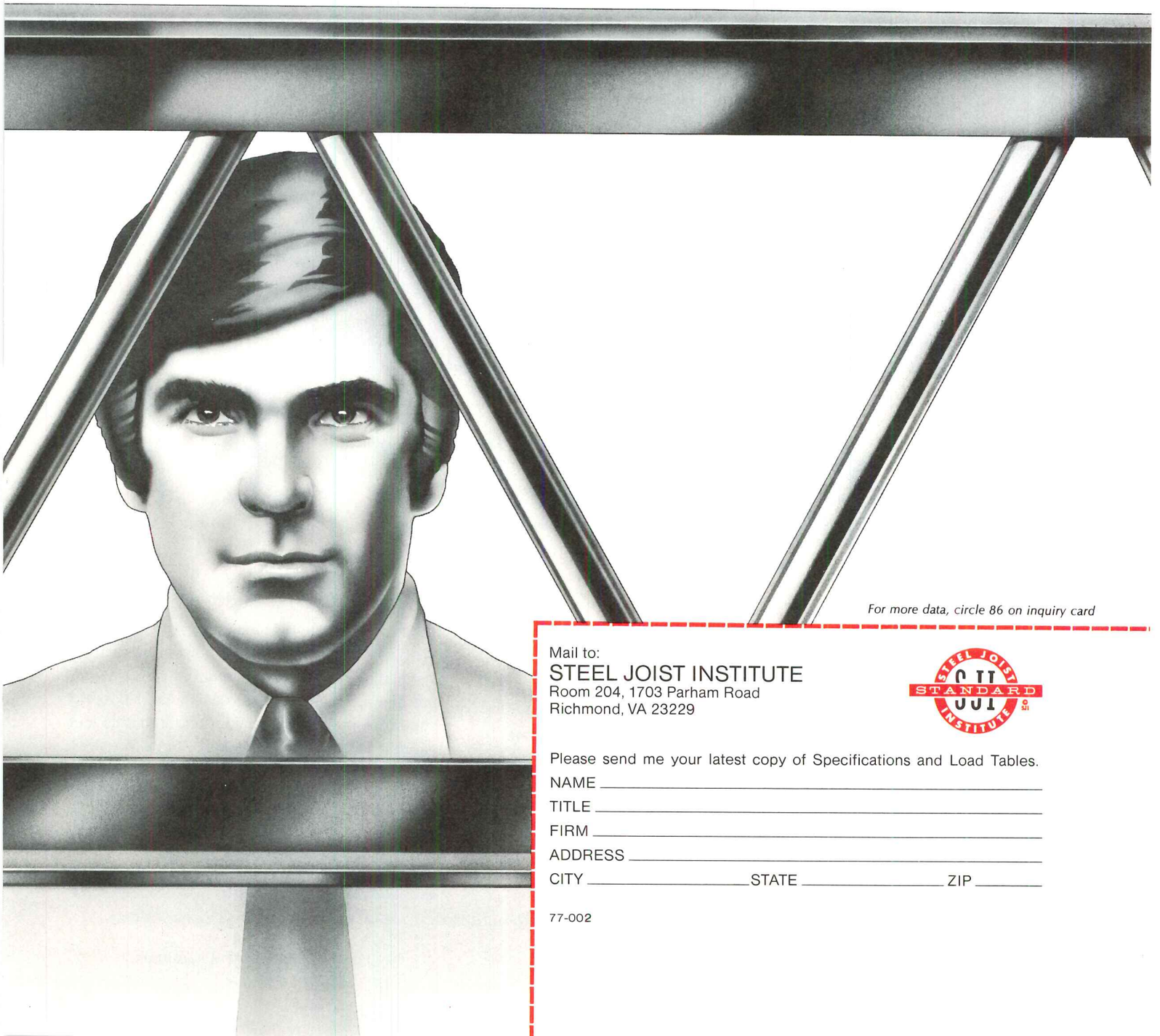

For more data, circle 86 on inquiry card

Mail to:
STEEL JOIST INSTITUTE
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Richmond, VA 23229

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

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FIRM _____

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CITY _____ STATE _____ ZIP _____

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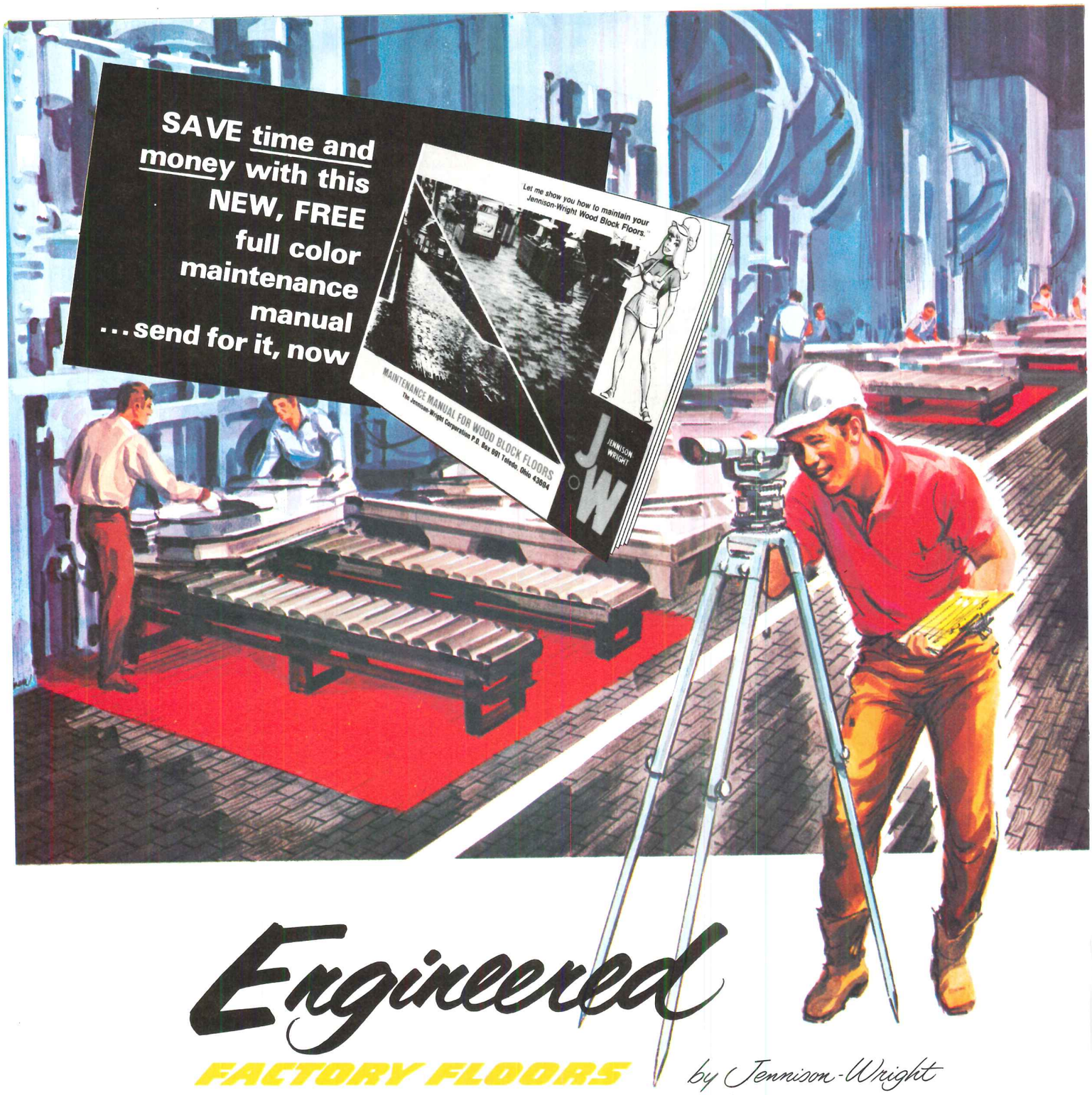

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At first glance, wood blocks don't look sophisticated. It would be easy to assume that their installation requires a minimum of preplanning, but this is not so in most cases. Your flooring should be engineered to your requirements just as your factory was. Jennison-Wright Kreolite® End Grain Wood Block Floors have many advantages (see panel at left), but to take full advantage of their features, preplanning is most desirable. Our Design Engineers will gladly perform this service at no charge.

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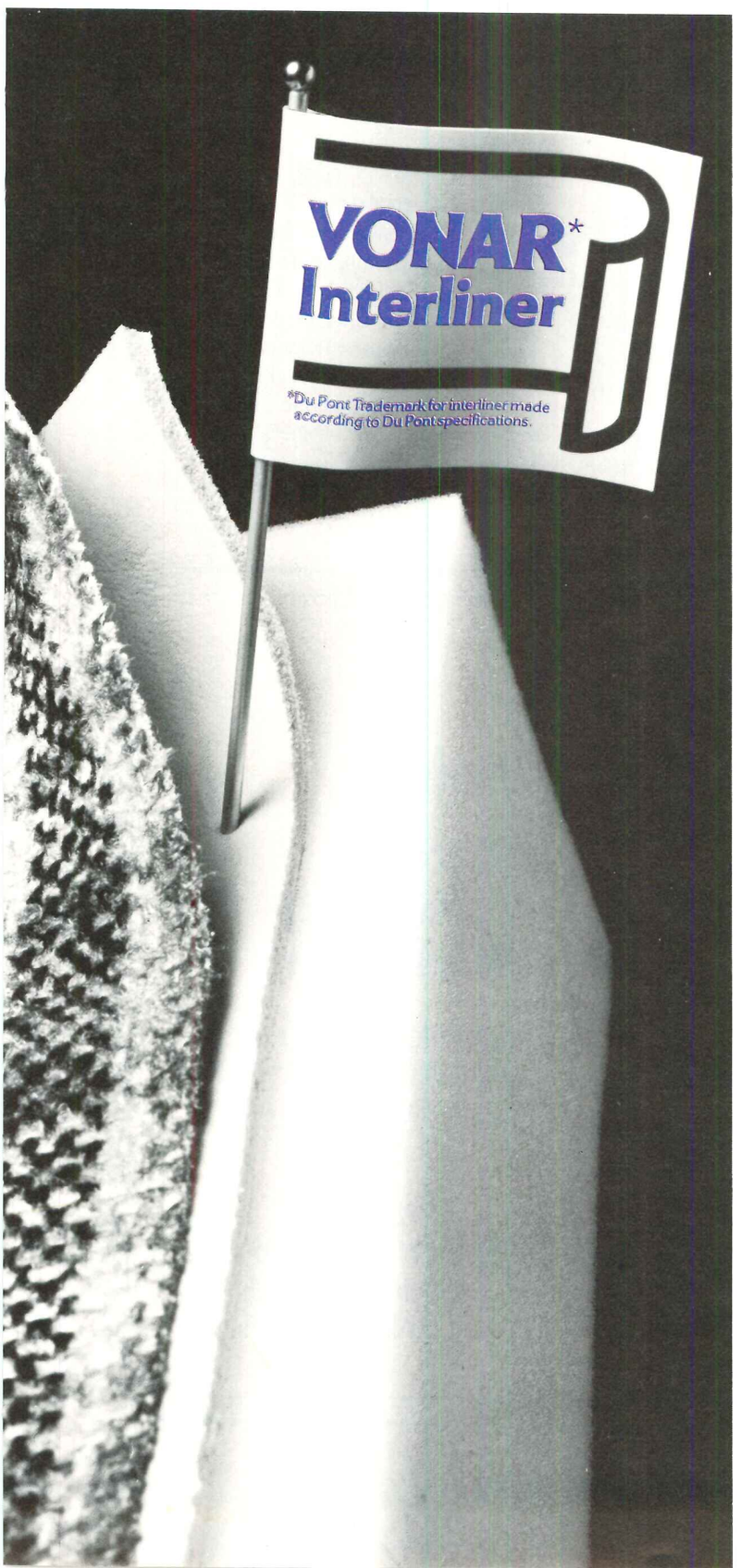
For more data, circle 87 on inquiry card

For improved flammability performance, without sacrificing design, specify furniture with VONAR interliner.



In response to increasing demands for improved flammability performance in upholstered furniture, Du Pont developed the VONAR* family of interliners. In limited ignition situations, properly used VONAR interliners can reduce the likelihood of ignition of furniture as a unit. Should ignition occur, VONAR can reduce the furniture burning rate.

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Authentic VONAR interliner is made only by licensed interliner manufacturers according to Du Pont's rigid specifications for VONAR formulation and physical properties.

Du Pont is committed to protecting you and your customer against imitation interliners by regularly testing samples from licensees for proper formulation, specified thickness, physical properties, and restricting use of the VONAR trademark to those who meet Du Pont specifications.

Ask for VONAR. Make certain you use—and your client gets—authentic VONAR interliner. For more information, use the coupon below, or write: Du Pont Company, Room 35581F, Wilmington, DE 19898.

*Du Pont trademark for interliner made by licensed manufacturers according to Du Pont specifications. Du Pont supplies the basic elastomer to such manufacturers, but Du Pont does not make the interliners.

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Please send me: ☐ further technical data and test results
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AE/UPDATE

A classified advertising section devoted to helping architects and engineers keep up to date on building product manufacturers.

Introducing ScreenOne

From the inside out, ScreenOne has been designed for beauty and flexibility. With a thick and luxurious look and feel, it's elegant enough for the chairman of the board. Yet the removable cover material and free-standing design make it practical enough for the word processing center.

Your choice of striking graphic patterns, many sizes, colors and trim options, as well as the highest acoustical and fire ratings.

From the inside out, there's never been a screen like ScreenOne. Write Vogel-Peterson, Elmhurst, IL 60126, for more information.

VOGEL PETERSON

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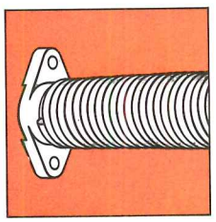
Raynor's reputation for dependability comes from doing things better ...like making our own springs!



The heart of a dependable, long-lasting sectional overhead type door is the spring. That's why at Raynor we don't rely on anyone else's spring to open and close our doors. Instead, we custom engineer, specify and wind our own . . . for each and every door we build. And we do it all right in our own plant.

It's this extra concern for quality that's made Raynor the brand you can depend on for residential, commercial and industrial doors made of wood, aluminum, fiberglass or steel. Call us for more specifics. 815/288-1431. Or write Raynor Manufacturing Company, Dept. AR, Dixon, IL 61021, for the name of the Raynor factory-trained distributor/installer near you.

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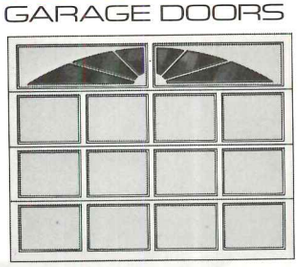

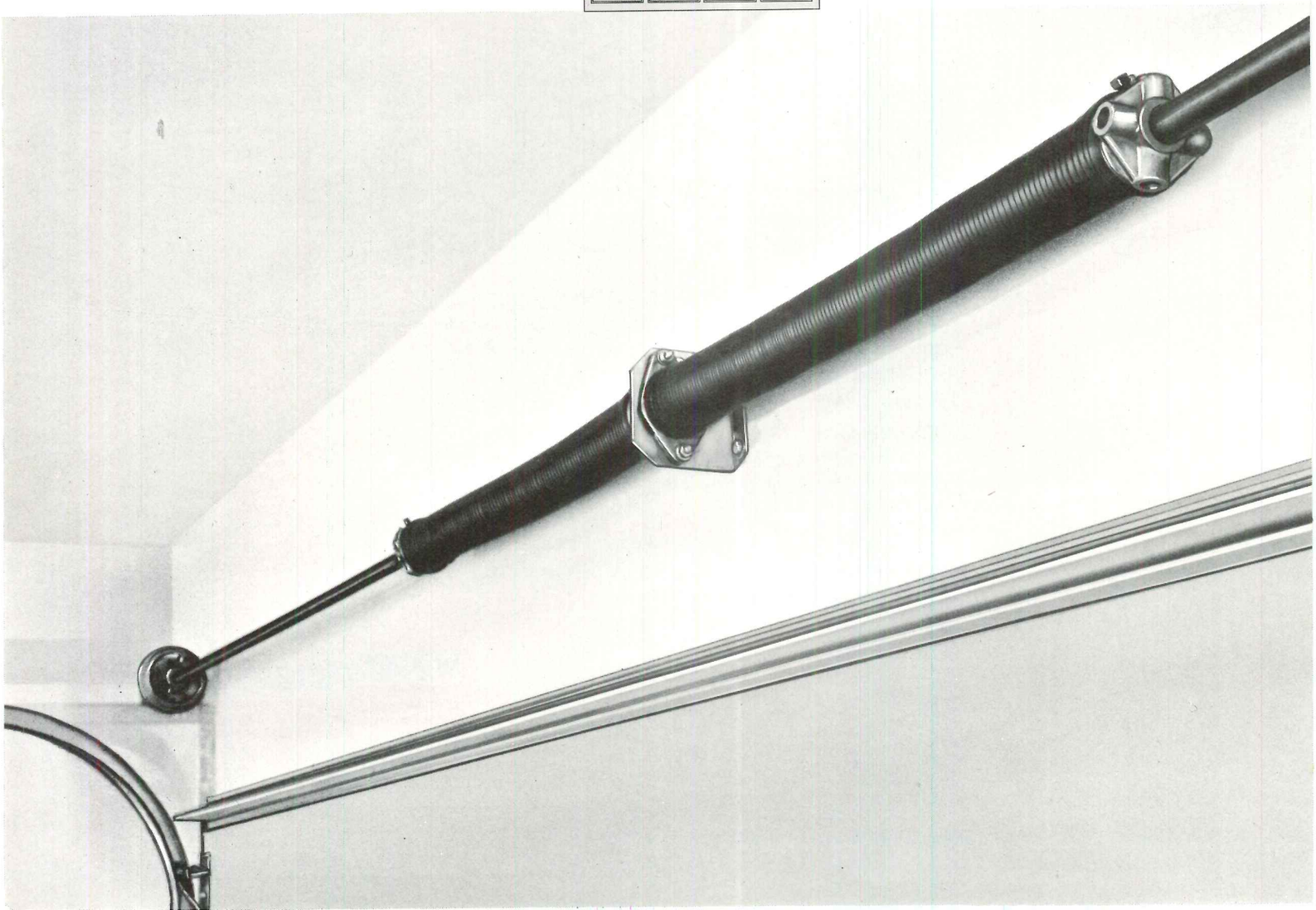

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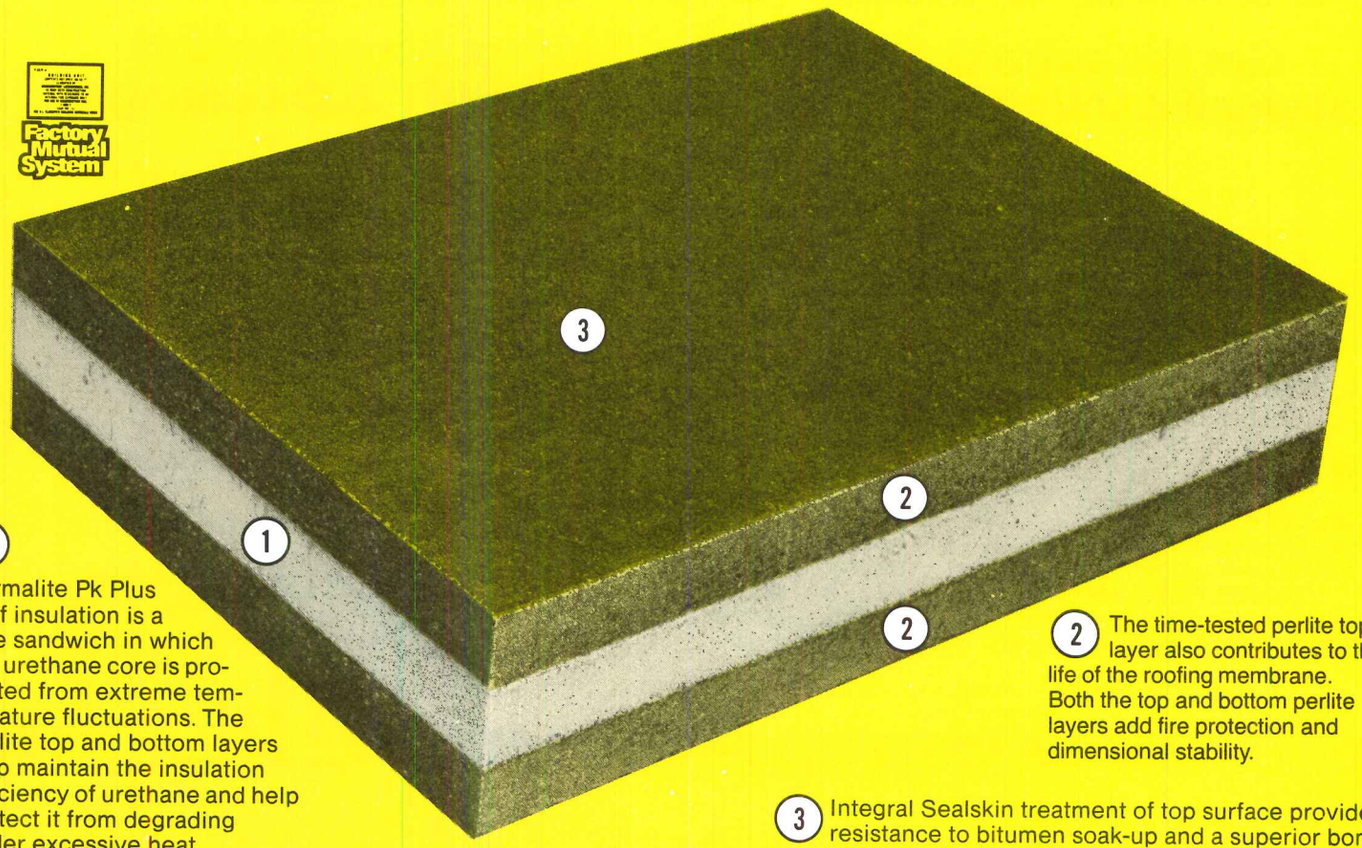

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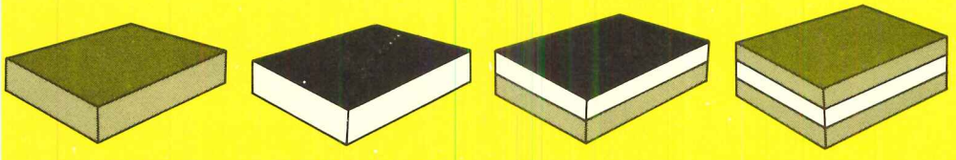

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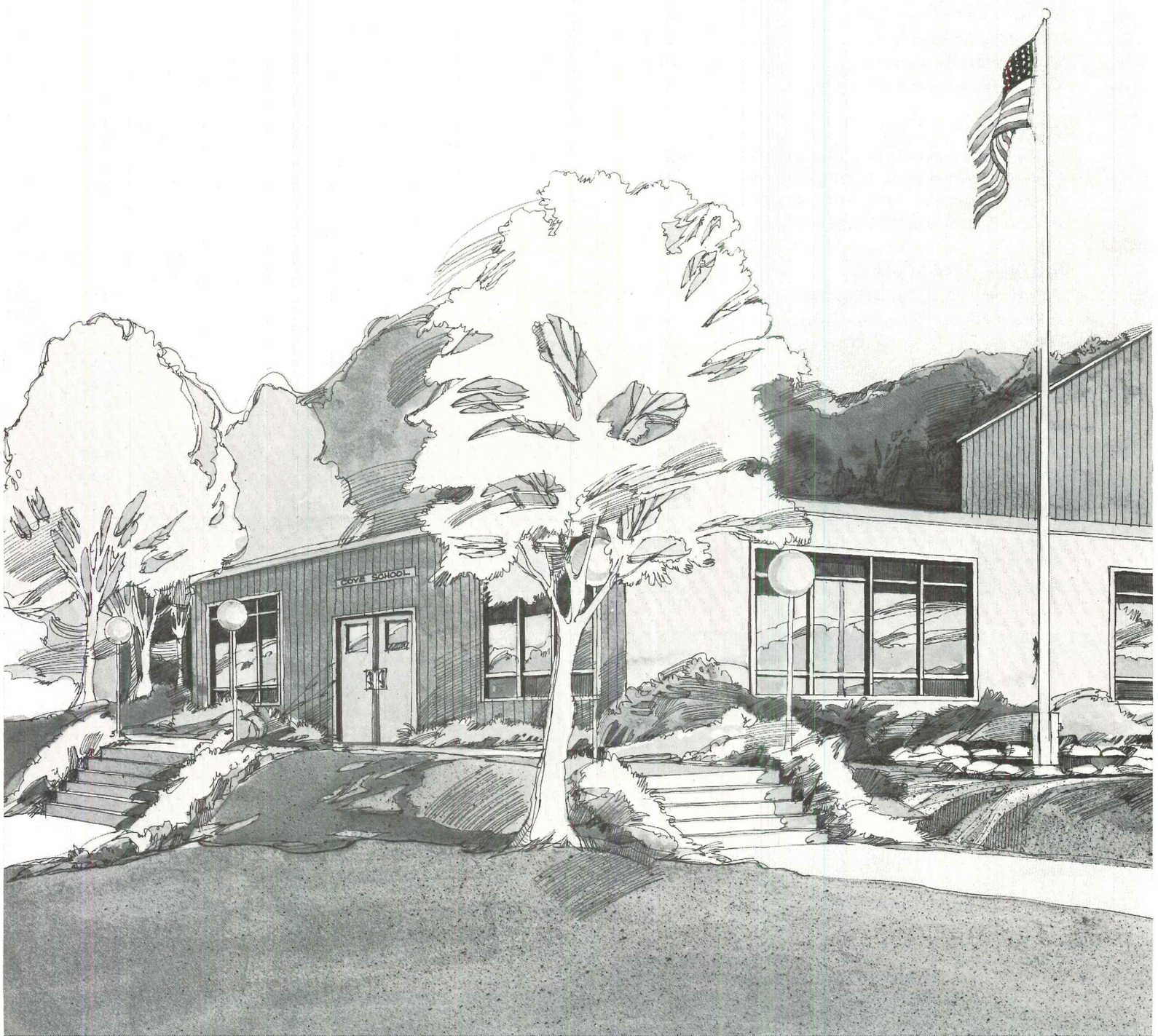

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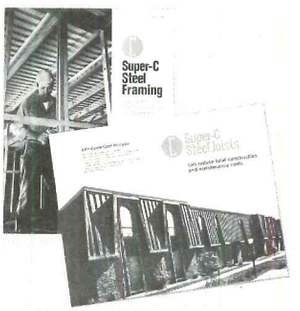

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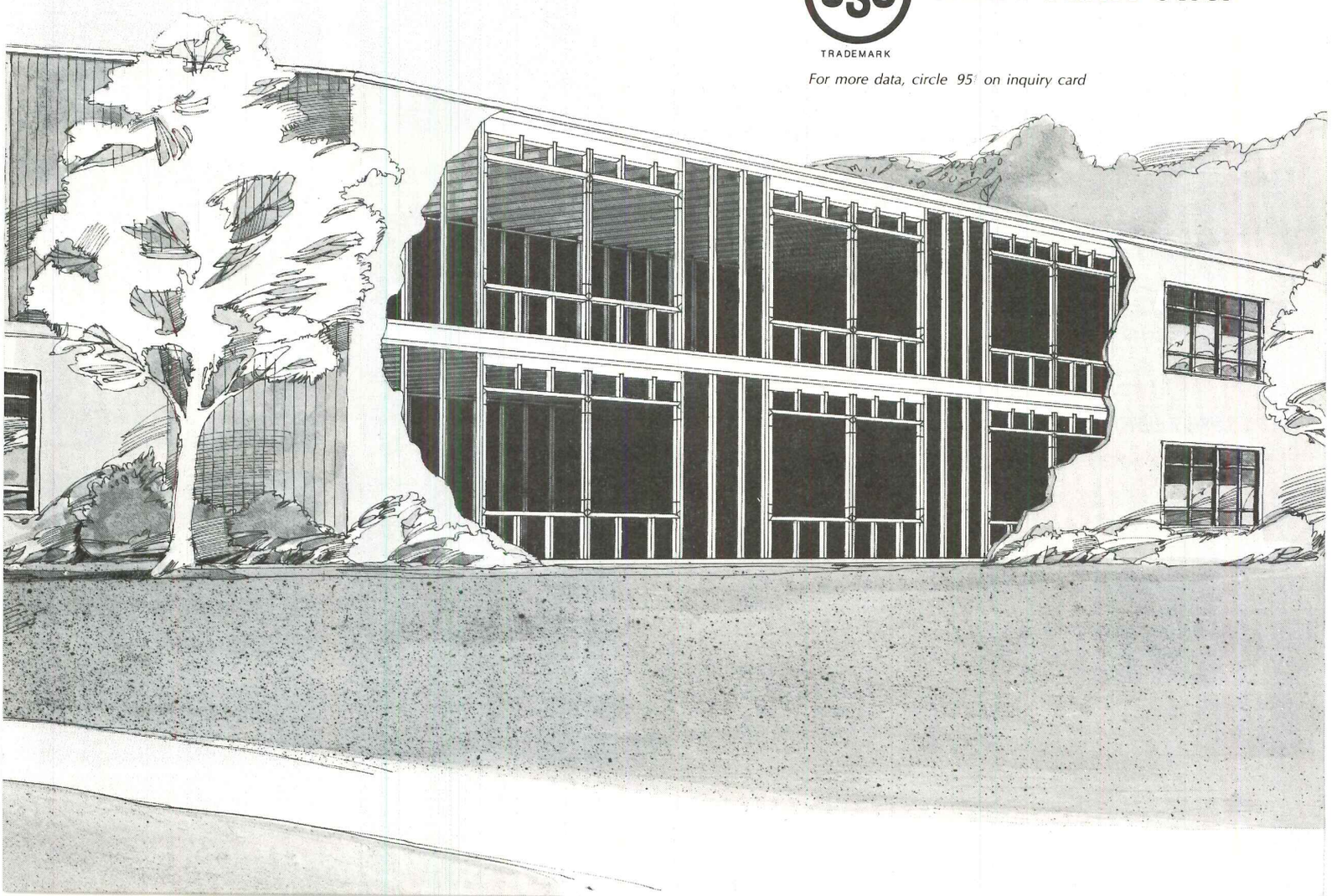

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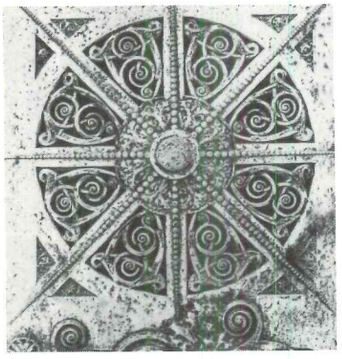

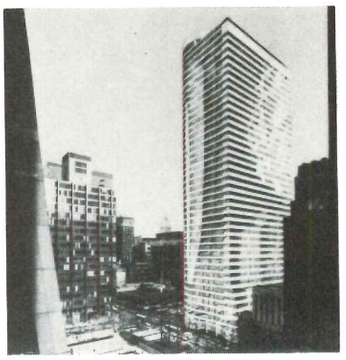

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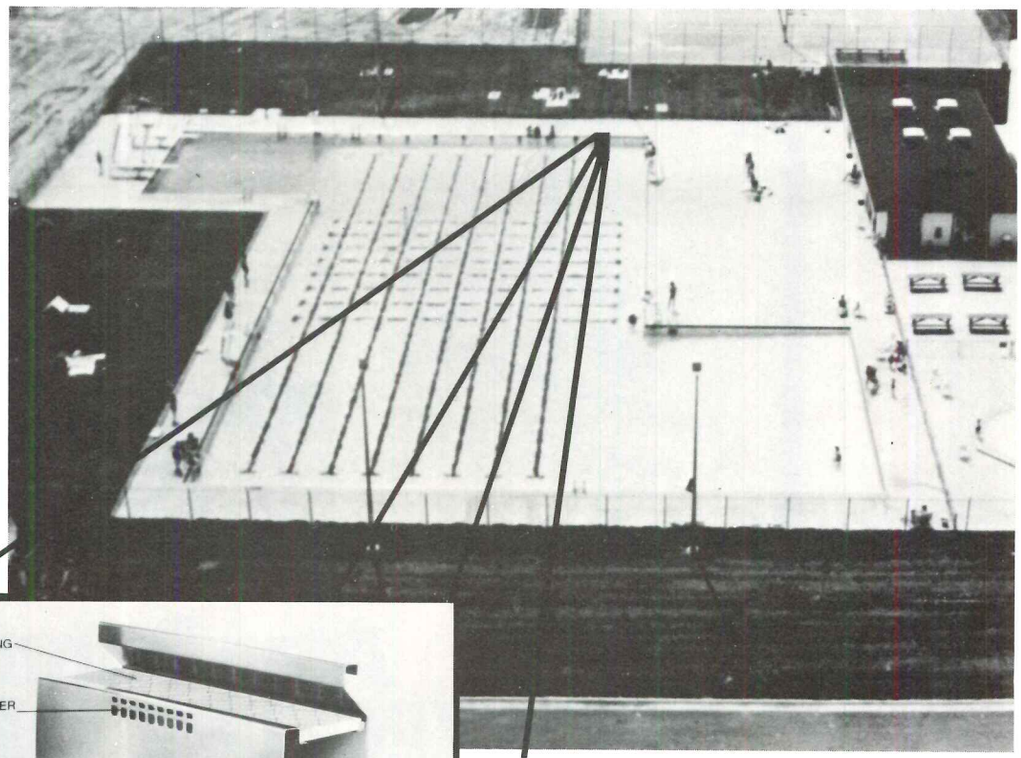

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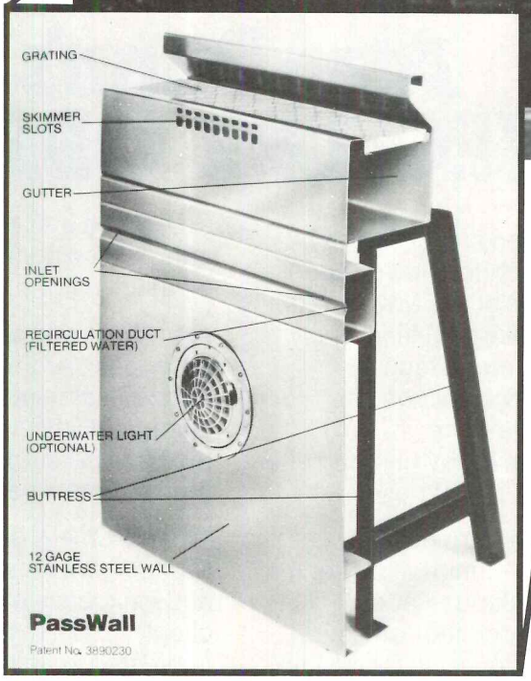

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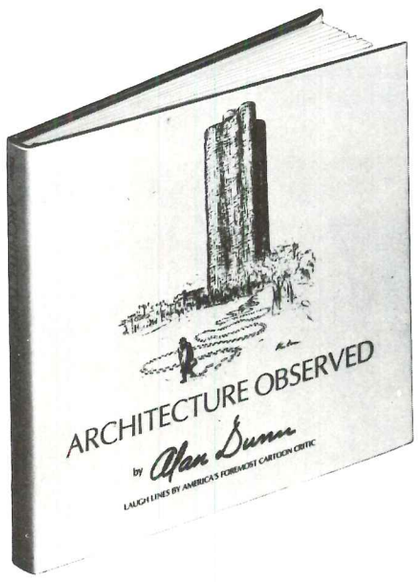

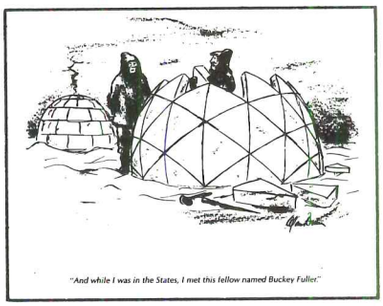
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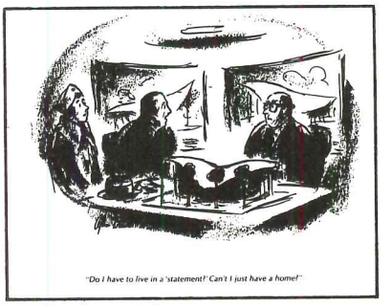
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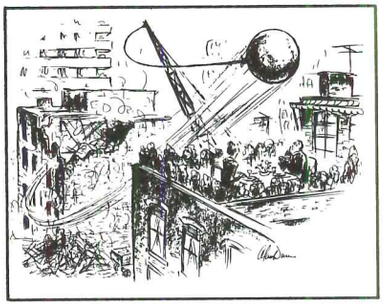

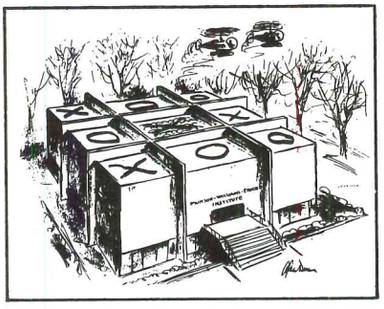

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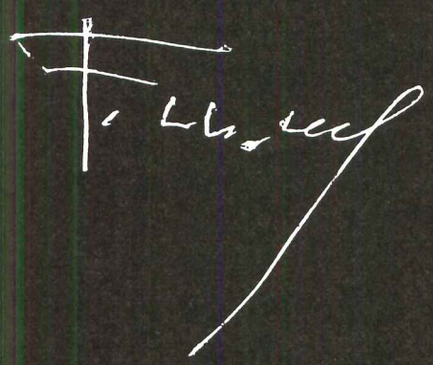

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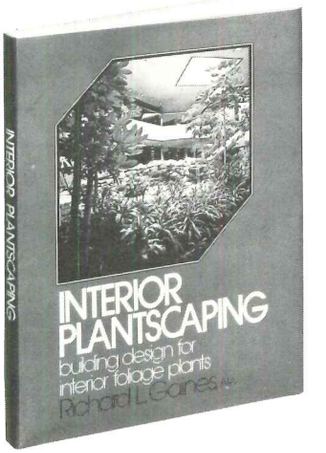

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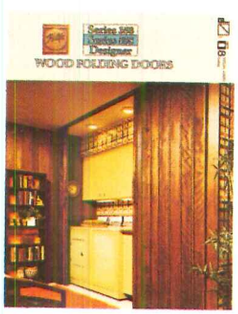

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2. Date of filing—September 29, 1977.

3. Frequency of Issue—Monthly except May, August and October when semi-monthly. Number of issues published annually: 15. Annual subscription price: $17.00.

4. Location of Known Office of Publication—1221 Avenue of the Americas, New York, NY 10020.

5. Location of Headquarters of General Business Offices of the Publishers—1221 Avenue of the Americas, City, County and State of New York 10020.

6. Names and Addresses of Publisher, Editor and Managing Editor—Publisher: Blake Hughes; 1221 Avenue of the Americas, New York, NY 10020; Editor: Walter F. Wagner, Jr.; 1221 Avenue of the Americas, New York, NY 10020; Managing Editor: Herbert L.Smith, Jr.; 1221 Avenue of the Americas, New York, NY 10020.

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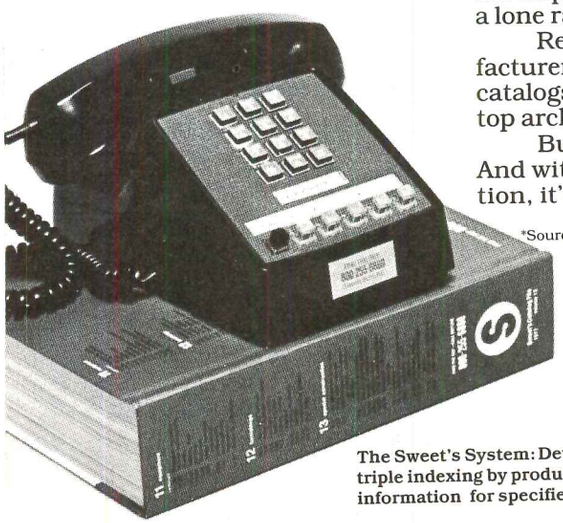

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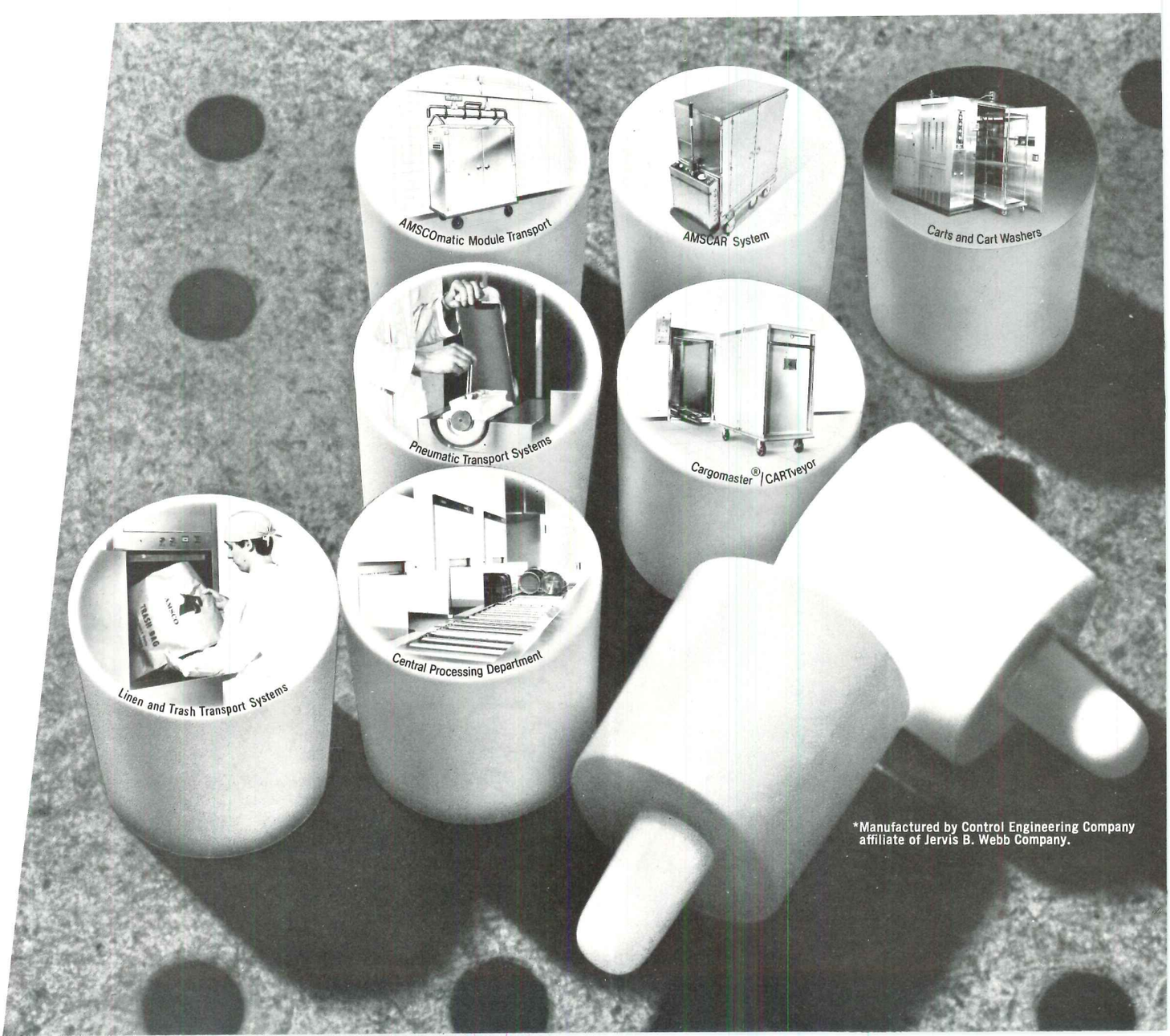

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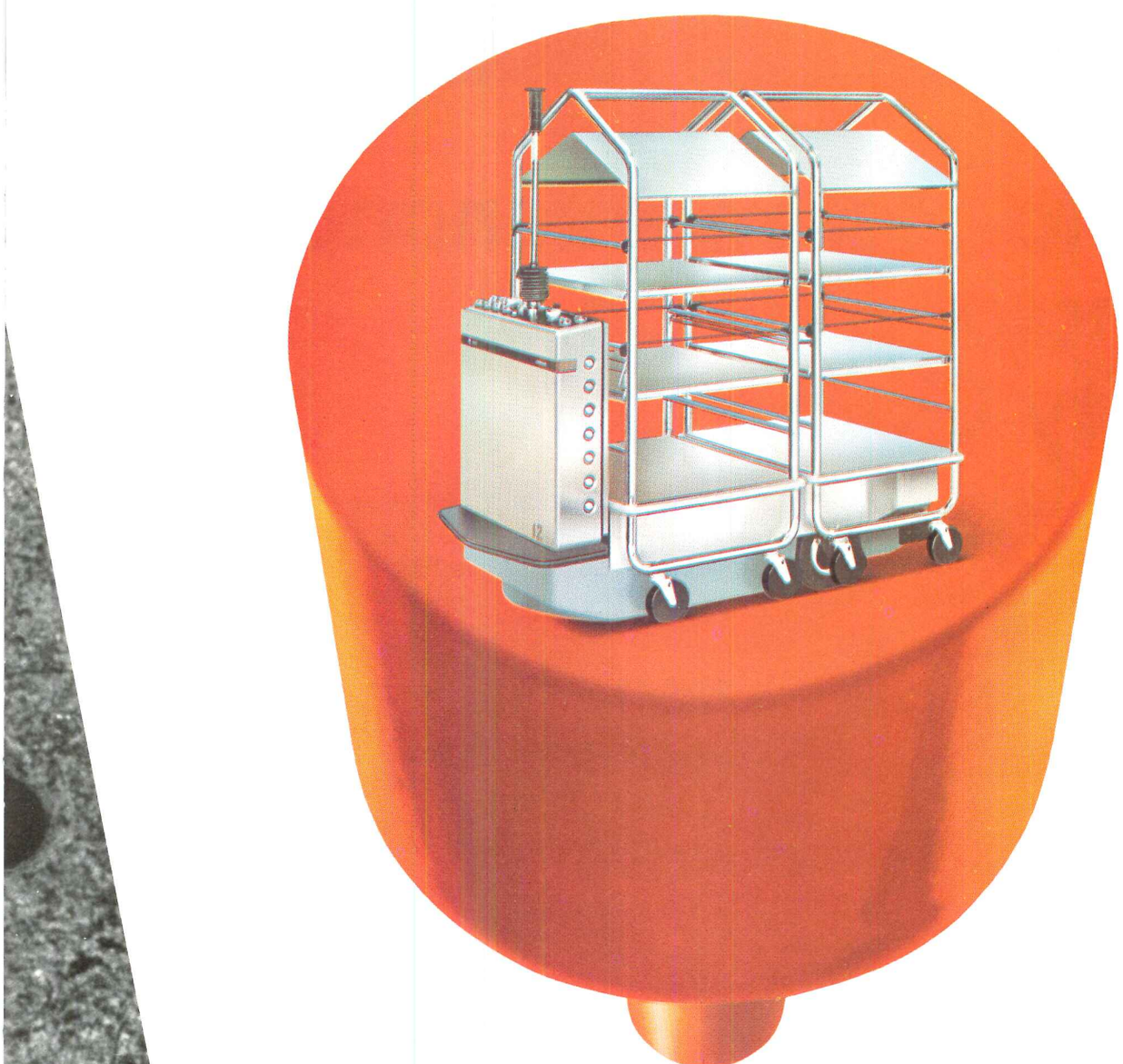

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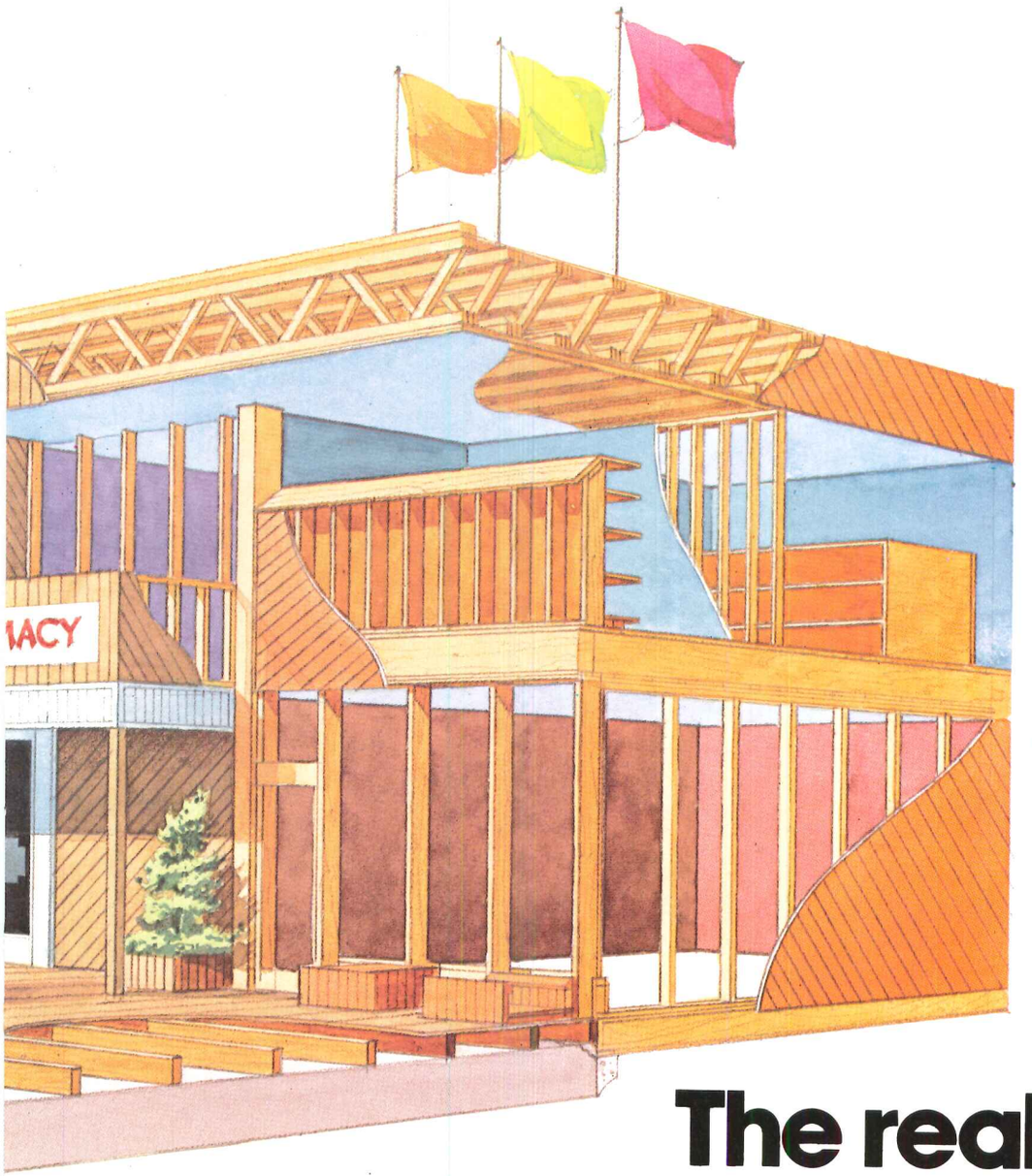

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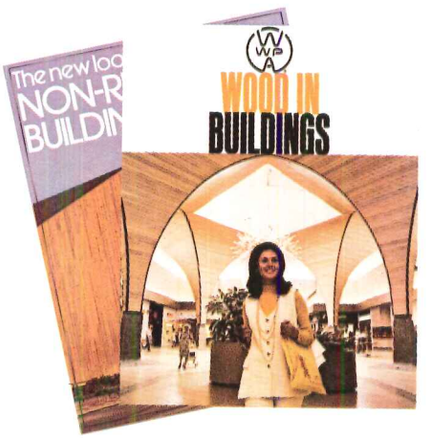

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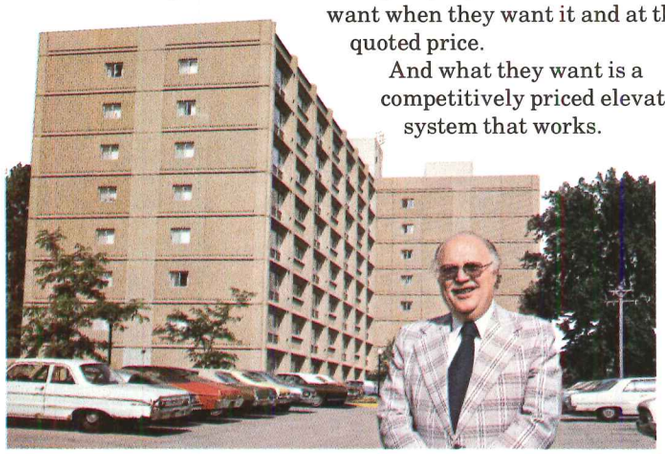

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