ARCHITECTURAL RECORD

Business Design Engineering
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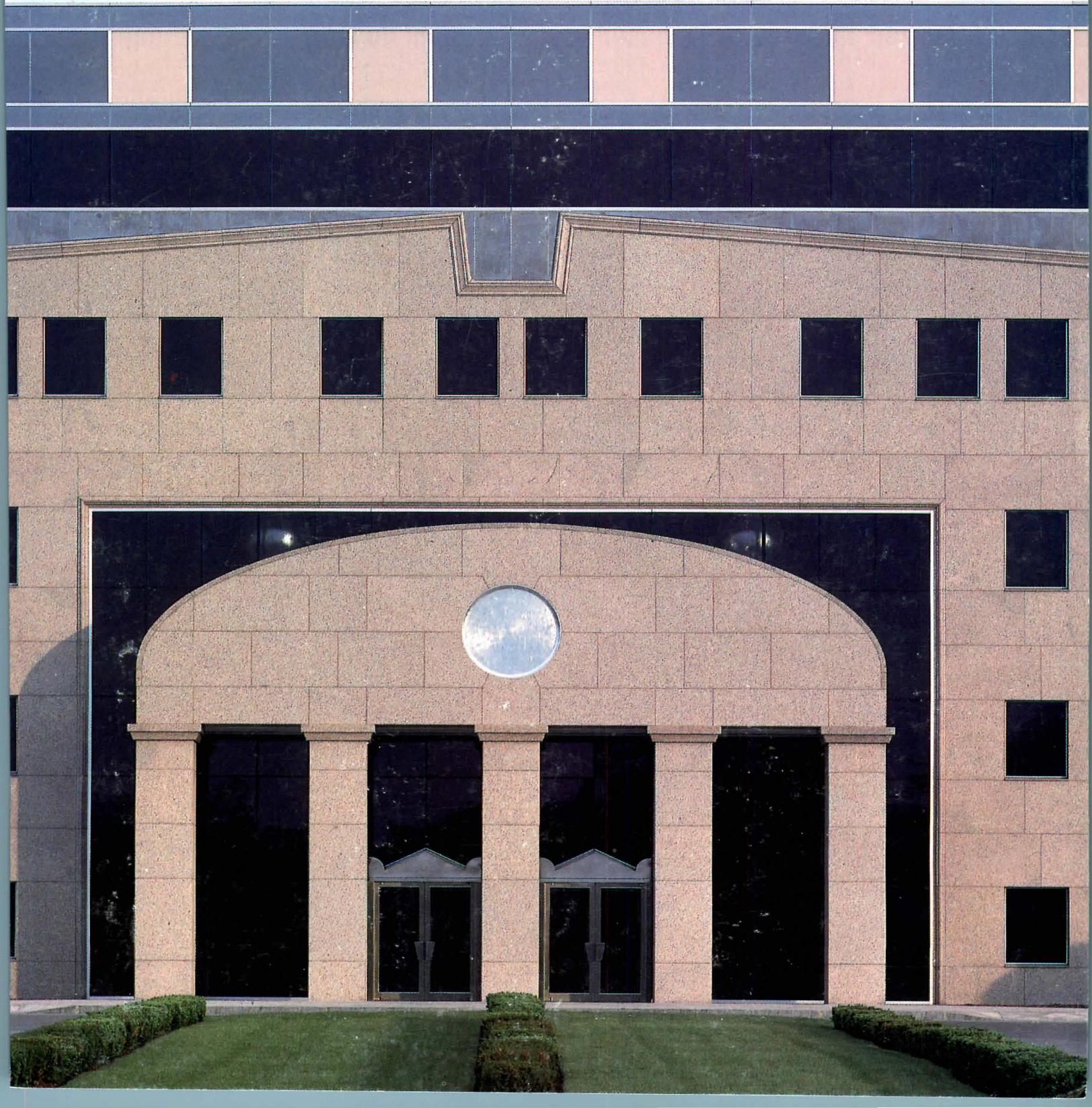
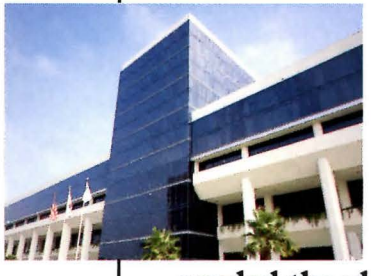
February 1986



How laminated tough design problems

The architects wanted a distinctive glazing. An appearance that would set their building apart. But that wasn't all they wanted. They also



Anaheim Hilton & Towers. Building design: Sun Cal Inc.

needed the glazing to effectively screen solar heat and the damaging effects of UV radiation on draperies, carpeting and upholstery. Tough challenge? Yes, but there was even more. The glazing also had to deliver the safety performance essential in a large, busy hotel.

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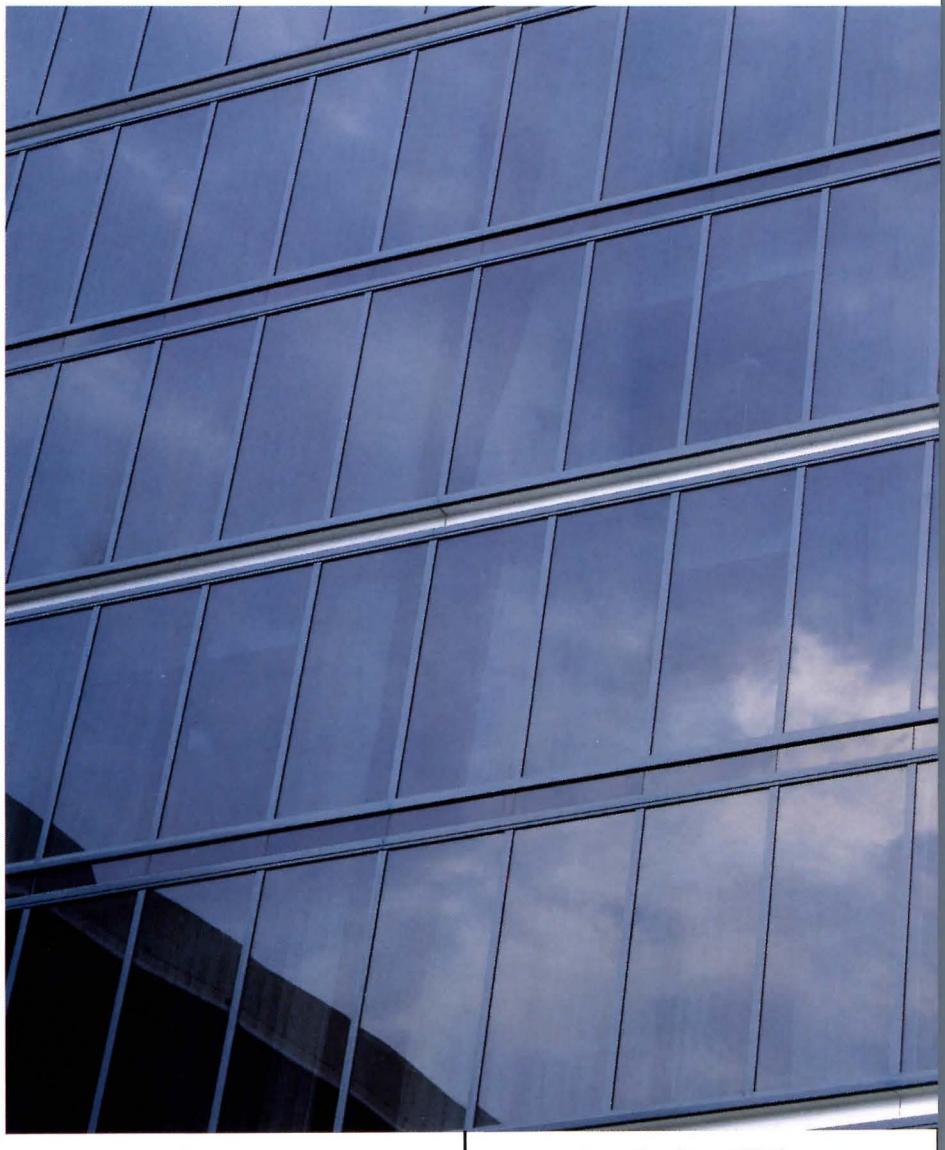
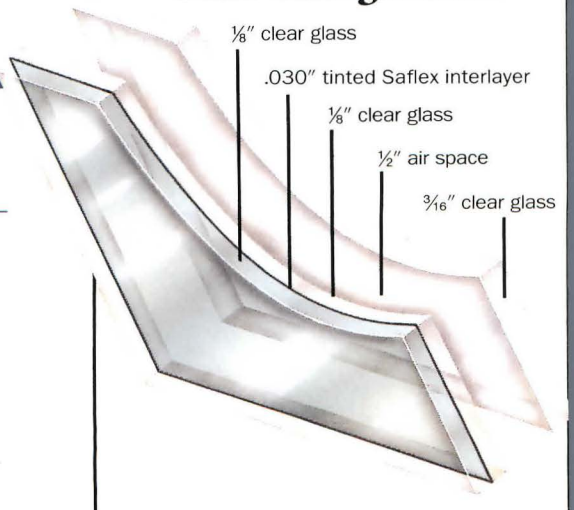


Anaheim Hilton Glass Configuration



glass solved three for the Anaheim Hilton.

Laminated glass not only controls heat gain but screens out the effects of UV radiation as well. The solar performance that laminated glass gives in the insulated configuration at Anaheim Hilton & Towers is shown at right.

PERFORMANCE CHARACTERISTICS OF INSULATED CONFIGURATION AT ANAHEIM HILTON	
Visible Transmission	25%
Solar Transmission	29%
Ultraviolet Transmission	0.1%
Shading coefficient	0.55
U-Value	0.55
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Circle 1 on inquiry card

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Circle 2

Modular carpet systems by Lees in over 200 colors and patterns. Photography: Fred Schenk.

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Letters

How inspired I was by Mildred Schmertz's first editorial [RECORD, October 1985, page 9]! Social issues! After 20 years of zoots and then pediments, we ask about the quality of our lives, the exact question we need to ask right now.

My reaction to the question comes when I see the Humana Building: yes, it is beautiful, and I am glad that such things exist in order that we be able to experience them. But isn't it just maybe a little, well, unseemly? Architect Richard Weinstein had exactly the same reaction when I interviewed him for our local AIA magazine, and Vincent Scully tiptoed around the same issue in his *New York Times Magazine* article. I think that Miss Schmertz touched an idea that is not only in the air but that is needed and, finally, right. I am excited about the prospect of maybe feeling clean again, of feeling unapologetic and proud of what architects do.
William Hubbard
Venice, California

Your editorial on the recent AIA "down with landscape architects!" policy was nothing less than superb [November 1985, page 9]. One doesn't do such things in the name of friendship, but you have made a lot of friends.

In my mind, the piece was informative, accurate, fair, and constructive. It was truly heartening to those of my profession who hope for a reconsideration by the AIA board at its meeting in June. There, I am sure, RECORD's editorial will have a favorable impact.

The unfortunate policy has had its positive aspects. It has galvanized the ASLA membership to unprecedented group action, and it has brought a flood of letters and calls from many architects.
John O. Simonds, FASLA
Landscape Architect
Pittsburgh

While nibbling a sandwich at my desk, I reached for the November issue of RECORD, where I found one of the most compelling arguments in support of licensing landscape architects.

Thanks for being the White Knight. Landscape architects need all the help they can get.
M. Paul Friedberg
Landscape Architecture, Urban Design
New York City

Regarding your recent editorial "Licensure of landscape architects—an interdisciplinary debate," I agree that the AIA's point of view is "extremely puzzling"—and not only in the case of landscape architecture. The policy statement against the licensing of allied design professionals is very disheartening—especially in view of the fact that the movement to get designers (interior, graphic, product, and exhibition) recognized as professionals has only begun to gather momentum.

I view the AIA's position as a setback for the movement toward professional recognition for all designers. Licensing must be an eventual option for design professionals. It is absurd to think that architecture is the only design discipline entitled to be recognized as professional—by licensing or any other procedure.
Clifford Abrams
Abrams Associates, Inc.
Evanston, Illinois

In response to your October 1985 editorial, I would like to offer a few comments and suggestions.

1. I like RECORD's current format and the use of large pictures and small drawings for a complete presentation.

2. The editorial observation by Roger Kimball on Graves's Whitney Museum design [RECORD, October 1985, page 113 et seq.] is one of the best-balanced, readable, and yet opinionated architectural reviews I have ever read (even including hermeneutical embroidery).

3. The organization of the 1985 guide to computer software [RECORD, October 1985, pages 49-80] follows an approach I would like to see you follow for the entire magazine. For a number of years, I have torn up my periodicals into useful parts that can be filed by topic—wishing as I do that the articles were organized to make it easier to remove them intact. In the spirit of "value publishing," I would appreciate your consideration of a "bundled" approach to organizing each issue so that those of us who want to *use* it can unbundle it and put the parts where we need them.

4. The SMPS marketing review [RECORD, October 1985, page 41 et seq.] was excellent feedback, which I have passed along to our marketing department.
Mark Spitzer, AIA
TRA
Seattle

In response to item 3, the issue of "bundling" articles into discrete, clippable parts has always occupied the attention (and divided opinions) of magazine editors and graphic artists.

In response to items 1, 2 and 4, thank you, thank you, and thank you.—Ed.

Correction
The structural engineer for the John A. Sibley Horticultural Center (RECORD, October 1985, page 104) was Geiger Associates, P. C.

Calendar

Through February 14
Aga Khan Awards for Architecture: 1980 and 1983, an exhibition of contemporary Islamic architecture; at Gund Hall Gallery, Harvard University Graduate School of Design, Cambridge, Mass.
Through April 6
The Architect and the British Country House, 1620-1920, an exhibition of architectural drawings of British country house designs; at Octagon Museum, Washington, D. C.
February 17 through March 14
Transforming the American Garden: Fourteen New Landscape Designs, an exhibition; at the Freedman Galleries of The Urban Center, 457 Madison Ave., New York City.
February 18 through March 7
Establishing a Threshold: Twelve Architectural Practices in Boston, an exhibition at Harvard University Graduate School of Design, Cambridge, Mass.
February 20 through March 30
Exhibition *Master Pieces,* showing three-dimensional creations of furniture from major paintings; at the Gallery at Workbench, 470 Park Ave. South, New York City.
February 23 through March 2
Great Women Designers of the Twentieth Century, an exhibition of industrial design by women, including furniture and other industrial products; at Arango, Dadeland, Miami.
March 4 through May 25
Built for the People of the United States: 50 Years of TVA Architecture, showing drawings and photographs, organized by the Art and Architecture Gallery of the University of Tennessee; at the National Building Museum, Pension Building, Washington, D. C.
March 6-7
Three workshops for advanced CAD/CAM/CAE system buyers, sponsored by the magazines *CAD Report, Daratech's CAD/CAM, CAE Survey, Review, and Buyer's Guide,* and *A-E-C Automation Newsletter*; in San Diego. For information: Jack Sanders, *Computer Aided Design Report,* 841 Turquoise St., Suites D & E, San Diego, Calif. 92109 (619/488-0533).
March 19-21
Westweek, furniture exhibits and seminars on contract interior design; at the Pacific Design Center, Los Angeles.
April 2-4
First annual Restaurant/Hotel International Design Expo & Conference (RHIDEC) at ExpoCenter, Merchandise Mart, Chicago. For information: Robert A. Weissman, National Expositions Co., Inc., 14 W. 40th St., New York, N. Y. 10018 (212/391-9111).

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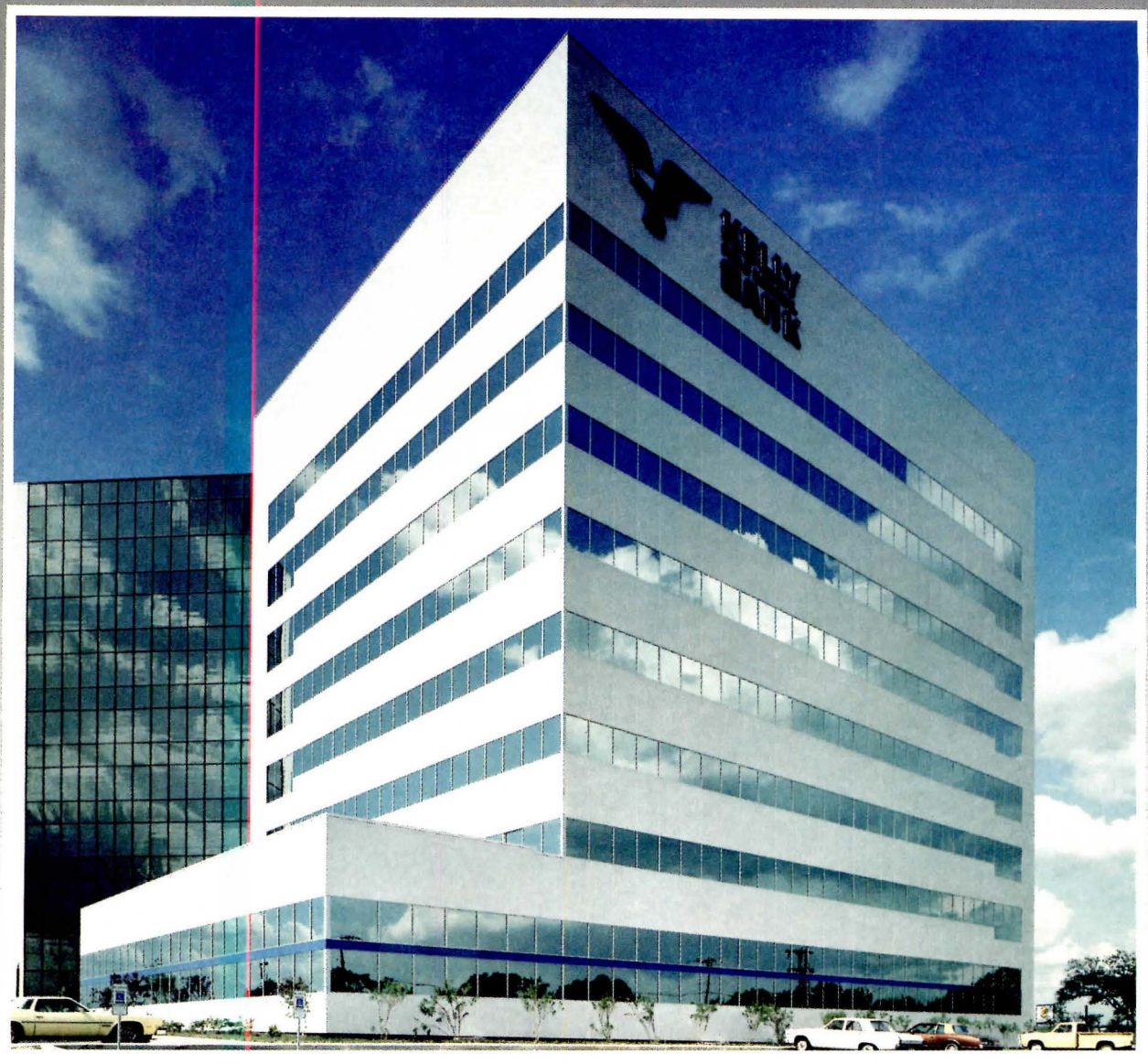

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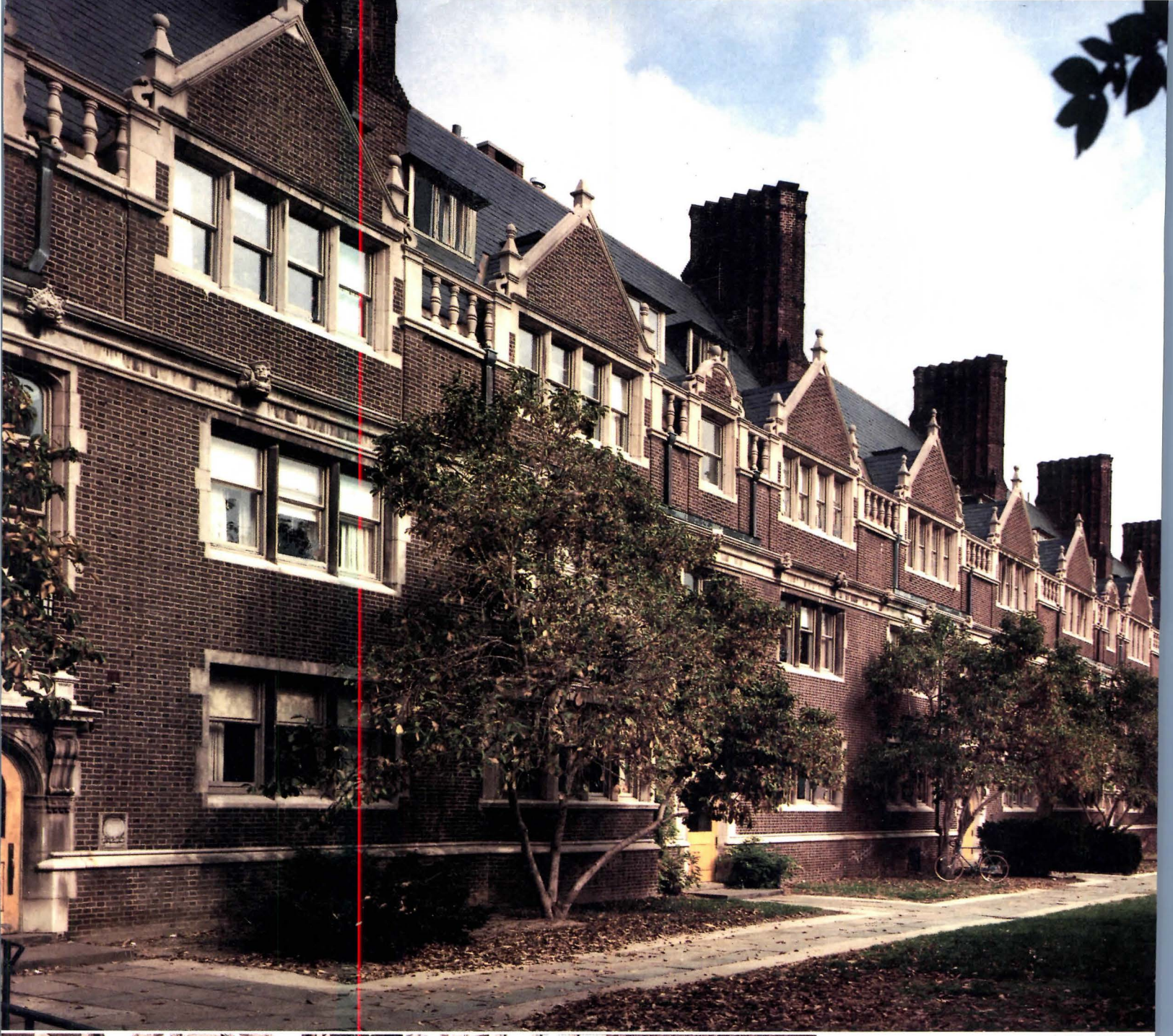
Rehabilitation investment tax credits—an endangered achievement

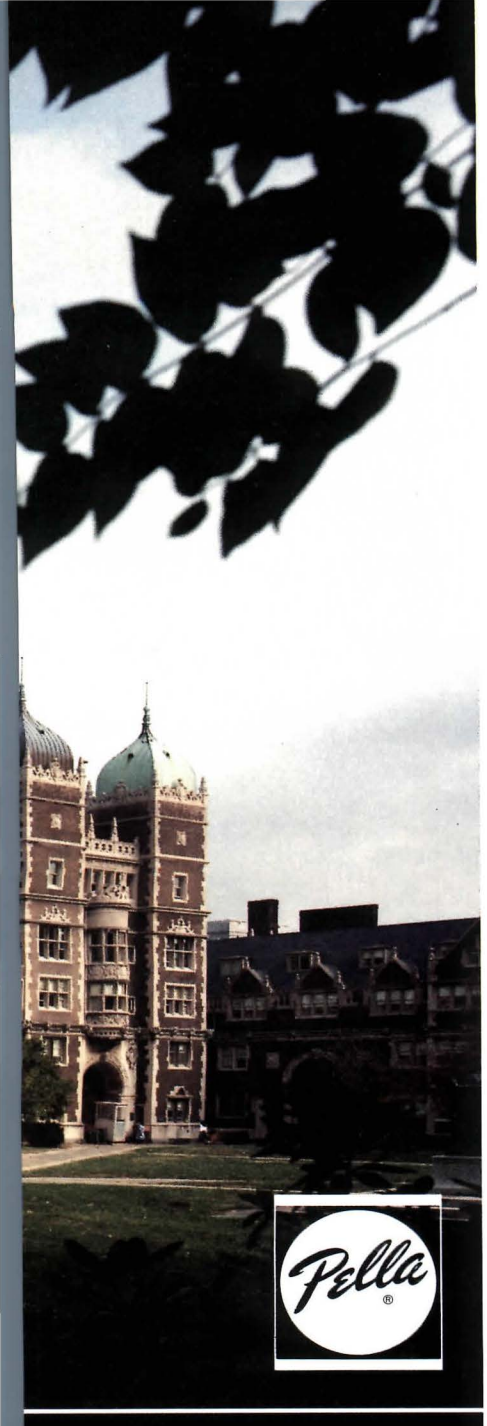
As most of you know, the American Institute of Architects in conjunction with the National Trust for Historic Preservation, Preservation Action, and the rest of the preservation community nationwide, has been lobbying Congress to retain rehabilitation investment tax credits for old and historic buildings. The Administration's original tax reform proposal, submitted to Congress by President Reagan last May, called for the complete elimination of these credits in the professed belief that the predicted growth in demand for these incentives would bring a corresponding increase in lost federal tax revenue. The General Accounting Office, in its report to the Joint Committee on Taxation of the Congress, asserted that "the benefits from this tax expenditure have accrued, for the most part, to individuals at the higher income levels and to partnerships and corporations at the higher asset levels." Such arguments hardly offset the all too obvious reality. Loss of the tax credits would be a disastrous setback to this country's efforts to renew its cities and towns, a sadly premature end to the most promising program of urban rebuilding the federal government has so far been able to invent. Furthermore, the rehab tax credits are the source of considerable tax revenues at the federal, state, and local levels through the economic development they leverage.

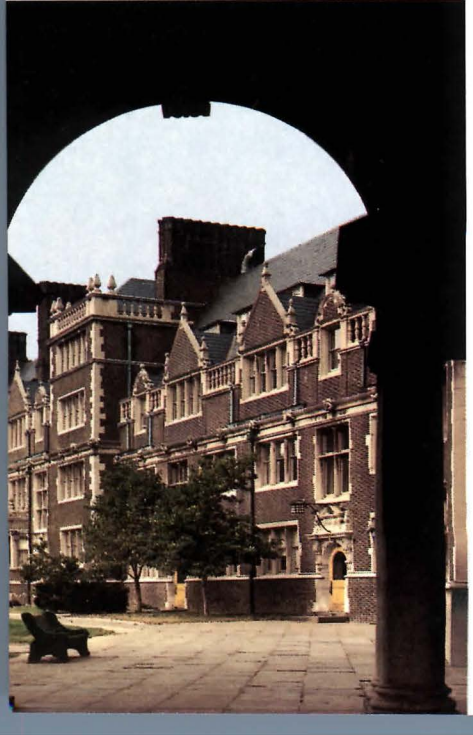
The President of the National Trust, J. Jackson Walter, in an address to the National Press Club, put it strongly. The elimination of tax credits for a significant percent of the cost of rehabilitating historic buildings "would have a devastating effect on revitalization prospects for cities and would doom thousands of historic buildings to demolition. Already, the threat of the legislation has shelved projects throughout the nation. These projects will not be undertaken if the incentives are lost. Let me say this directly. Developers don't need this incentive. Historic buildings need it. Real-estate developers and investors will continue to make money with or without historic rehabilitation tax incentives. They'll put their dollars into what will give them the best return, whether it is suburban shopping centers, office towers, or luxury townhouses. What we want them to do is put their dollars into historic buildings." The tax credits create housing units, including apartments for low- and moderate-income renters. They strengthen state and local economies in a variety of ways. Walter told the Press Club that the rehab of historic buildings has produced more than 180,000 new jobs and upgraded more than 36,000 housing units. Such tax-credit-aided projects generate $5.3 billion annually in general business activity, including increased local retail sales.

Just before the Christmas recess, the House Ways and Means Committee's tax-reform bill was adopted by the House of Representatives. It turned out to be more favorable to community revitalization, housing, and rehabilitation than Reagan's original tax proposals. In the Committee's bill, rehabilitation tax credits for old and historic buildings would be retained, but somewhat reduced. Certified historic building rehab credit would be reduced from 25 percent to 20 percent, the full amount of the credit being subtracted from the depreciable basis. (For revised tax credits in other categories of rehab, see page 45.)

Preservationists consider the House Ways and Means Committee's proposals good news and a victory for their lobbying effort, although they still have a number of reservations about certain details of the bill. Furthermore, they caution their supporters that the battle to retain the preservation tax credits in an acceptable form is not yet won. The legislation must be passed by the Senate prior to being presented to the President for signature. Architects concerned with the outcome (which should be most of you) must keep up the fight. The tax incentive offers the best ongoing chance to preserve our architectural heritage and build livable cities. Market forces, left alone, cause the abandonment and eventual destruction of valuable older building stock. You have persuaded your representatives. Now write your senators. *Mildred F. Schmertz*







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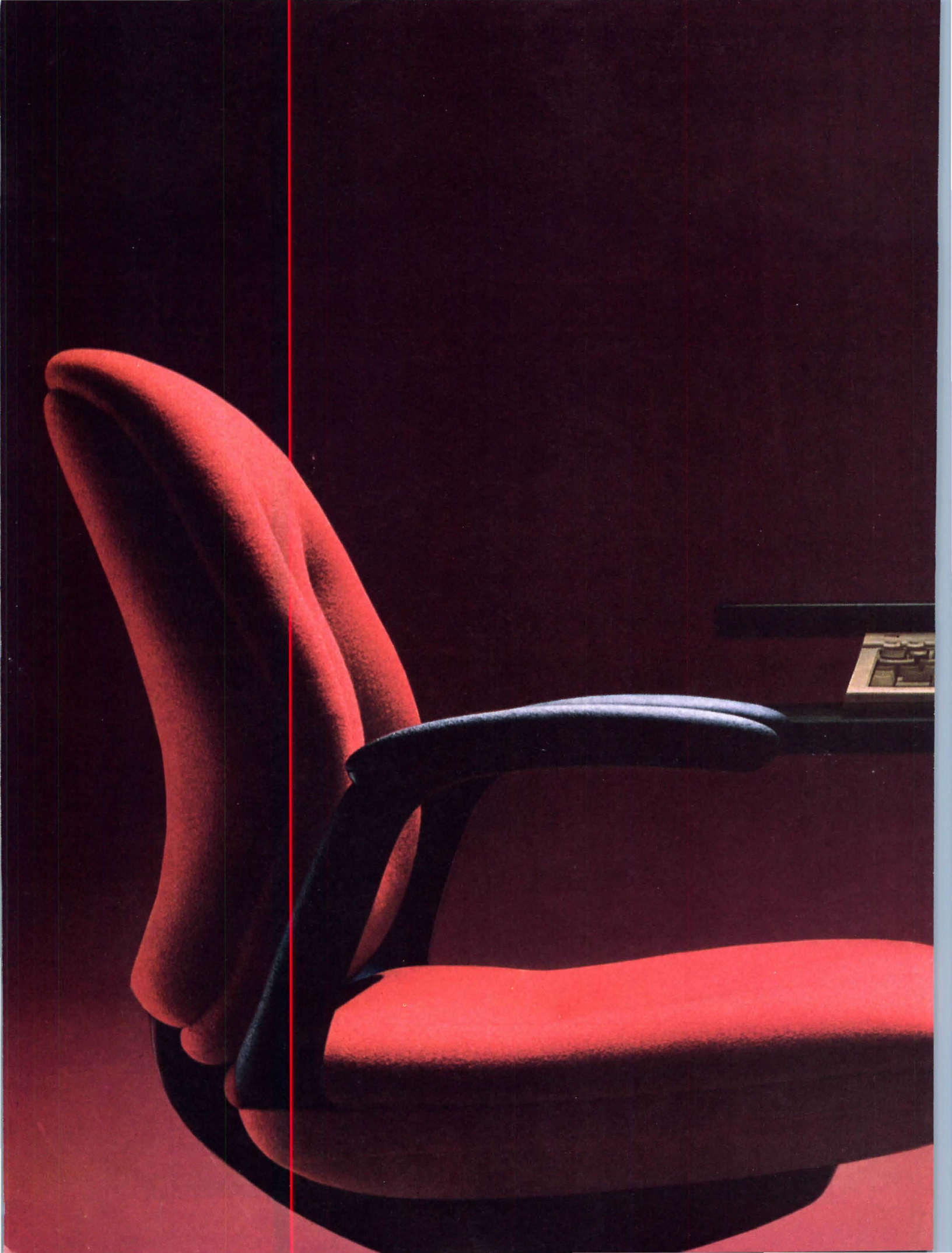

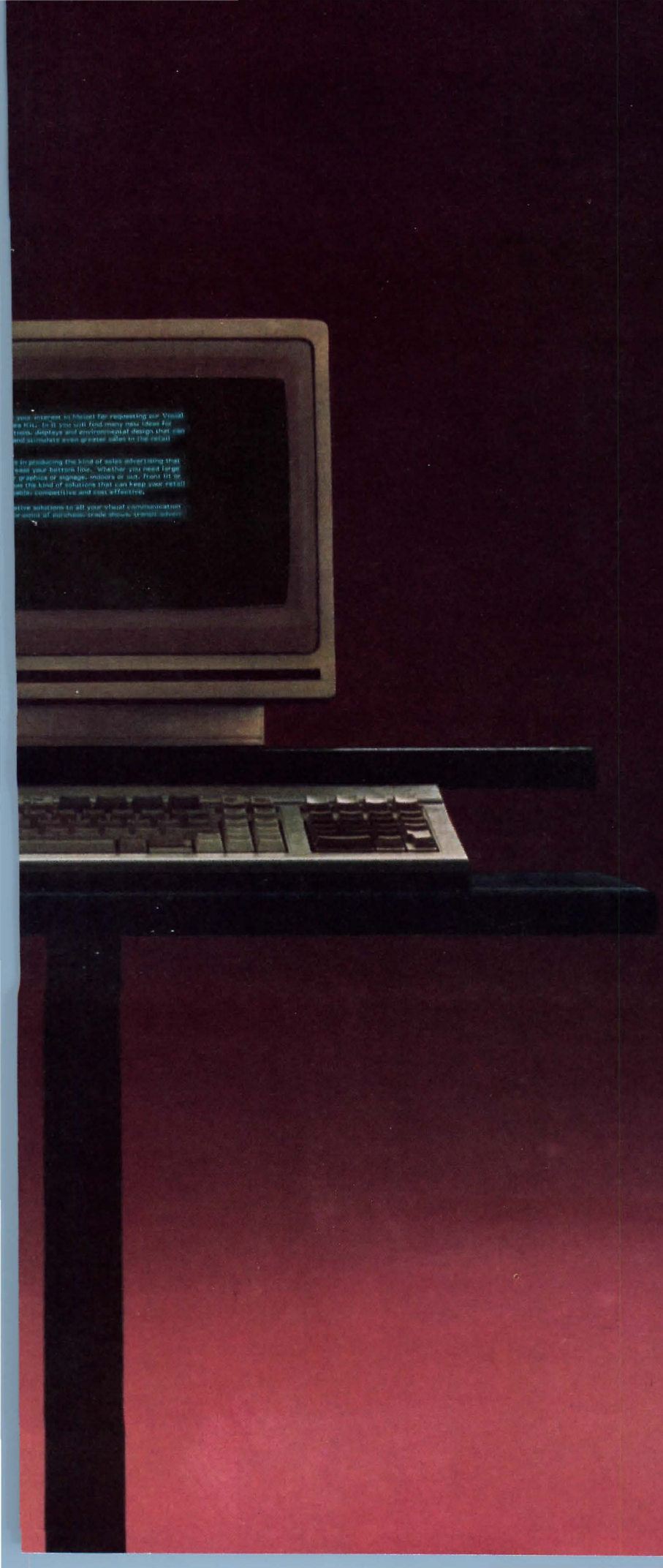

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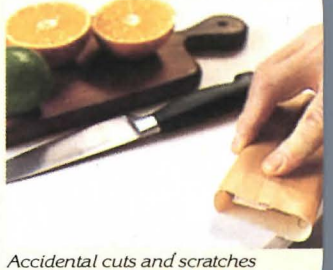


Accidental cuts and scratches can be sanded out without destroying the beauty.

Send for more information on CORIAN.

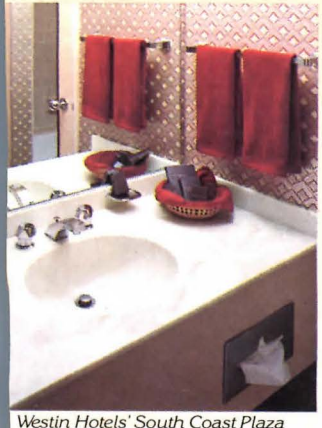
See Sweet's General Building Market 6.15/Du, or phone Du Pont at 800-527-2601. For our 16-page book, "Designing with CORIAN,®" write Du Pont Co., Room X39443, Wilmington, DE 19898. Telex: 83-5420.

Outside the U.S.A.: Canada: Du Pont Canada Inc., Box 660, Station "A," Montreal, Que., Canada, H3C 2V1; Europe: Du Pont de Nemours Int'l. S.A., 50-52 Route des Acacias, Geneva 24, Switzerland, Phone: 41-22-37-86-18; Australia: Du Pont (Australia) Ltd., 168 Walker St., Nth. Sydney, N.S.W., 2060 Australia, Phone: 923-6111; Japan: Du Pont Far East, Inc., Kowa No. 2, 11-39, Akasaka 1-Chome, Minato-Ku, Tokyo, Japan 107, Phone: 03-585-5511; Singapore: Du Pont Far East, Inc., Suite 601, World Trade Ctr., 1 Maritime Sq., Singapore 0409, Phone: 273-2244.

Circle 8 on inquiry card

where, because stains, burns, come right out.

CORIAN shrugs off rough wear and looks great in this fast food outlet in Rotterdam, Netherlands.



Westin Hotels' South Coast Plaza installed CORIAN 7 years ago, and it still looks like new.

Corian is solid all the way through.

CORIAN

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What's the difference between a roof window and a skylight?

Model TPS top-hung roof window

Model VS ventilating skylight

The difference is very straightforward. A roof window opens and pivots so both glass surfaces can be cleaned from inside. A skylight does not pivot for cleaning. Of course, there is a difference in quality and value among manufacturers. But, a simple comparison of features, quality and price will show you why VELUX, with 44 years of experience and craftsmanship, is the world leader.

In addition to our four distinctive models, VELUX provides precision-engineered prefabricated flashings to make installation easy and weathertight. We also offer quick delivery and a full range of optional accessories and glazing.

To learn more about the difference and the possibilities, write for our free 24-page full-color brochure, "The Complete Guide to Roof Windows and Skylights."

VELUX® **The world leader in roof windows and skylights.**

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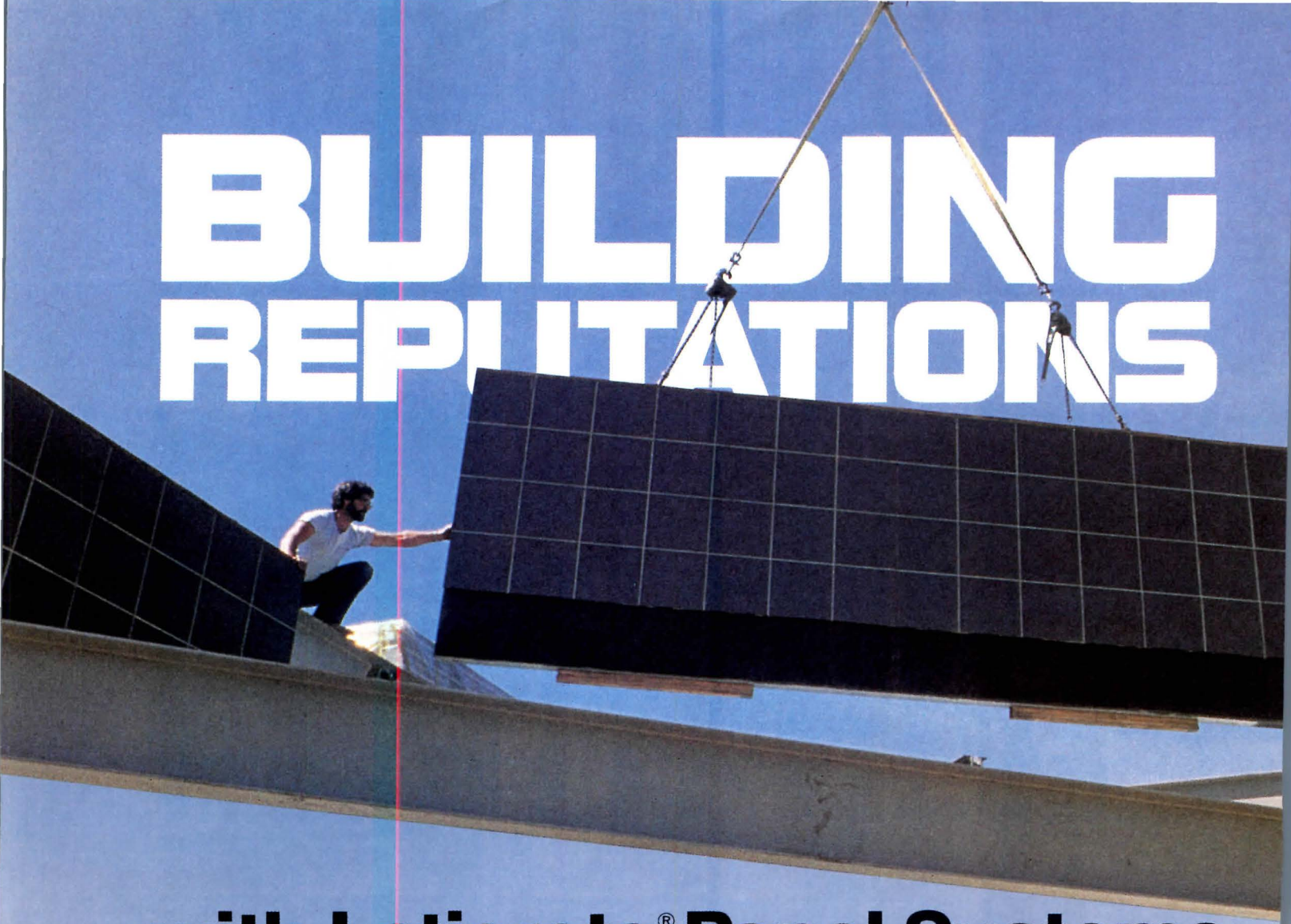
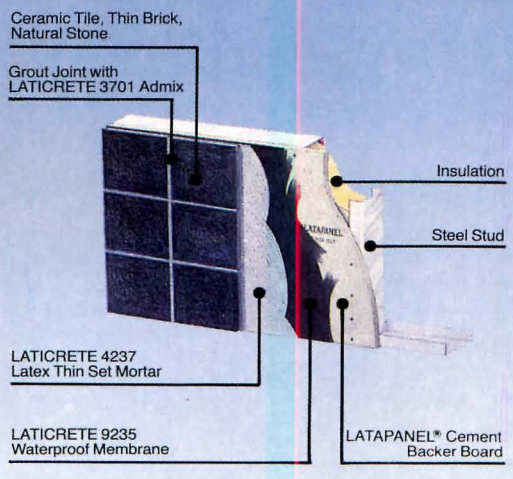
BUILDING REPUTATIONS



with Laticrete® Panel Systems



Specifying a panel system that is efficient, field proven, and economical can result in a building that is visually exciting as well as functionally efficient. At Laticrete, we've built these key design features into our panel system:

- thin light weight construction
- quick quality controlled fabrication and installation
- variety of form and surfacing materials
- independent laboratory tested — wind load proven
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Build your reputation by building on our reputation . . . specify The Laticrete® Panel Systems.

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Our designers have been doing exciting things with the affordable AURATONE® ceiling line. Take Tapa with its high fashion look of tropical fabric. Fresh. Elegant. Timeless. You can get Tapa in 2 x 2′ and 2 x 4′ panels or 12 x 12″ tiles. In affordable color, too. See our representative. Or write to us at 101 S. Wacker Dr., Chicago, IL 60606-4385, Dept. AR286E. **USG Acoustical Products Company**

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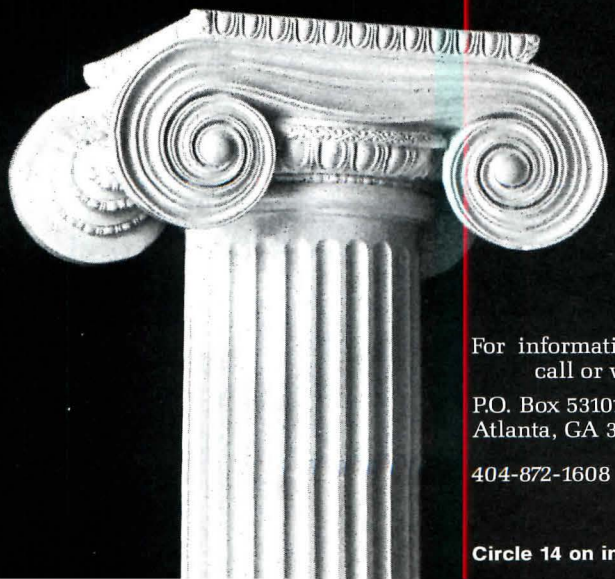

For information/brochure call or write

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404-872-1608

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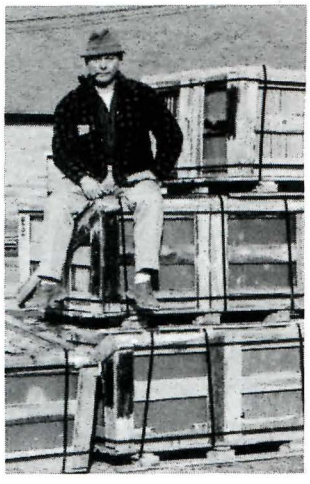
Think Vermont. Think Vermont Green!

"I'll tell you why. Up here in Vermont, as you know because I've told you so many times in this little series of advertisements, I own a quarry full of good slate in purples, reds, mottled, and greens. The way the cookie crumbles is that we get some purple and red but a lot of mottled and green. Not long ago, anxious to sell some of that green slate, I made a deal to sell 80,000 square feet of it to a shopping center developer. The trouble is that the shopping center deal went sour, as shopping center deals often do, and as a result...

I'm sitting on 80,000 square feet of green slate you can have wholesale. In fact cheap

"The slate is very good quality, a very nice color (somewhat romantically called Mountain Mist). It's natural cleft, sawed into two-by-two-foot squares, ½-inch nominal thickness, very hard and very skid-resistant. It will have to be mud set. At the risk of sounding like Crazy Eddie, I really have to move this slate out. For one thing, two acres of slate, even in neatly stacked crates, takes up a lot space in the yard (it's a month's production). Besides, every time I see that stack of crates I'm reminded that I may not after all be the shrewdest Yankee trader in Vermont, which is an image of myself I rather like. So...



Think green slate. Think two-acre plaza -at a patio price

"If you've got a job that could use 80,000 square feet of lovely green slate, call me toll-free at 1-800-343-1900. And hurry. The price is not going to be *insane*, but it's going to be pretty darn attractive. Like the slate. Which I *sure* would like to move out of the yard.

—Bill Markcrow

VERMONT STRUCTURAL SLATE COMPANY

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New THERMAFIBER®
Smoke-Stop-System keeps smoke from pushing through THERMAFIBER® insulation at "poke-through" openings and curtain wall seams. Essential component of this exclusive system is THERMAFIBER® SMOKE SEAL™—a special fire-resistant sealant that blocks the passage of smoke between floors. The unsurpassed life safety results are, not only a 3-hour fire barrier, but an effective shield against lethal particulate smoke.

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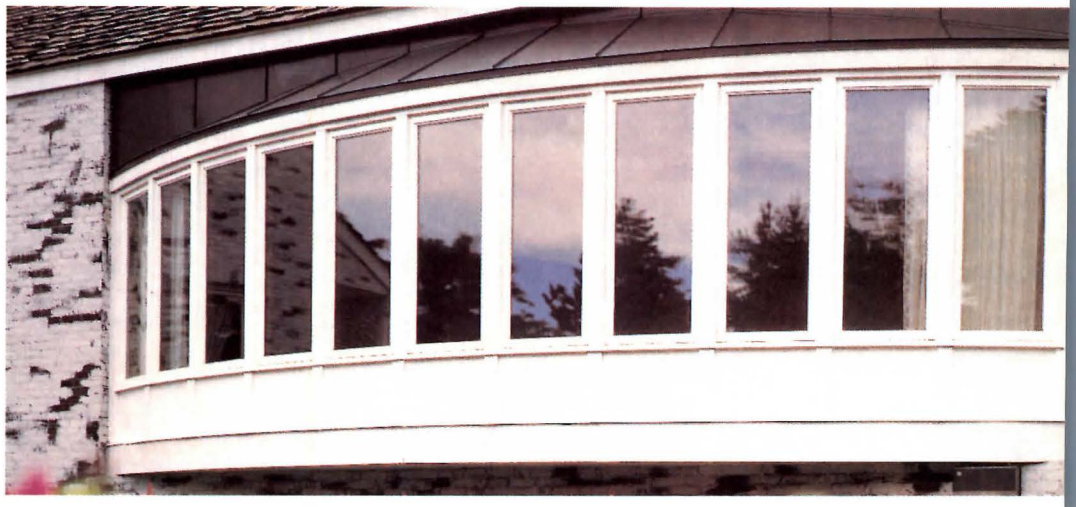

MARVIN WINDOWS SELL ANY HOUSE. NO MATTER WHAT SHAPE IT'S IN.

SOLD

If this is the sign of success in your business, then consider that more and more signs are pointing to Marvin Windows as the window of choice in distinctive home designs.

Not just because we have higher standards than other window companies. Which we do.

Or more standards, which we do. (In fact, we have over 5,000 standard sizes or we'll custom build to your specifications.)

But because we *set* many of the standards now found throughout the industry.

THE WINDOW THAT LASTS HAS A HISTORY OF FIRSTS.

You should know that Marvin was the first national manufacturer to offer Round Top windows.

We were the first major manufacturer to offer Trapezoids and Triangles as complete units.

The first manufacturer to ship factory-installed extension jambs and completely assembled set-up windows.

First to bring wood bead glazing to the market on a

national scale.

First with its own nationwide trucking fleet, cutting delivery time from weeks to days.

We were the first to offer Low-E glass on its entire line.

And the list goes on.

WHY NEW IDEAS TAKE SHAPE FIRST AT MARVIN.

When you make a window to order, and word gets around, you start getting some pretty wild requests. Like factory applied jamb extensions that are 20" wide. Or Round Tops that are eight feet across.

All of which get our research guys thinking on an even bigger and grander scale.

But as our list of innovations shows, they're not just thinking shapes and sizes.

Up here in Warroad, temperatures can plunge to 40° or 50° below. So we've been building triple-glazed, double weatherstripped windows for a long time. And living with them comfortably through freezing winters and blistering summers. Because every window is made to order, we're able to offer state-of-the-art manufacturing and options, like deep-treated vacuum penetration processes for protection against rot and decay, and different metal and Polycron® finishes for maintenance-free exteriors.

FIRST IN AVAILABILITY AND SERVICE, TOO.

Of course you can't sell any shape house if your windows haven't arrived on time. So we had another innovative idea: no matter what size, no matter what options, we can usually ship in 3 weeks or less from the time we get your order. (Round Tops and special glazing take longer.)

Your Marvin dealer has all the information and advice you need to help your greatest designs take shape. He's specially trained in back-up support and timely service.

For more information on the shape of things to come, call **1-800-346-5128** (in Minnesota, 1-800-552-1167), or write, Marvin Windows, Warroad, MN 56763.

MARVIN WINDOWS ARE MADE TO ORDER.

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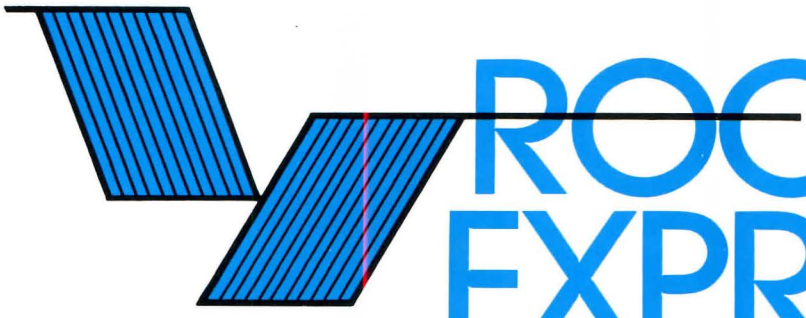

ROOFING EXPRESSION I

a design competition to recognize excellence in the use of metal roofing

Roofing Expression I is sponsored by FOLLANSBEE STEEL CORPORATION, producers of TERNE and TCS lifetime roofing metals

CALL FOR ENTRIES

Follansbee Steel Corporation announces a design competition for architectural students and young professionals, aimed at recognizing design achievements in the use of Follansbee TERNE and Follansbee TCS (terne-coated stainless steel).

The competition is now open to senior students enrolled in a full-time program in an accredited architectural school or department and to practicing professional architects with a degree from an accredited architectural school or department and who will not be over 35 years of age as of January 1, 1986.

Awards and recognition will be made in each of the two divisions, Division 1 for students, and Division 2 for professionals. The prizes for each Division will be:

First Prize	$2,000.00
Second Prize	1,000.00
Third Prize	750.00

In addition, teachers of students will be awarded $200. Plaques will be awarded to school of winning students. Entrants who submit entries as a group will share awards.

Entries will be judged by a panel of distinguished architects and awards will be based on the combination of esthetic expression, functional suitability, engineering excellence and economy of use.

Deadline for requesting the information kit and entry forms is February 28, 1986. Write Follansbee Steel Corporation, State Street, Follansbee, WV 26037, attention Mr. Jay Carey.

FOLLANSBEE

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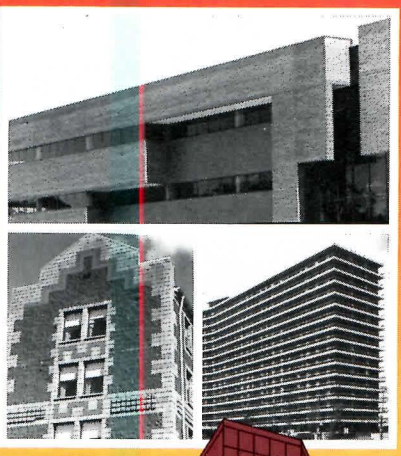

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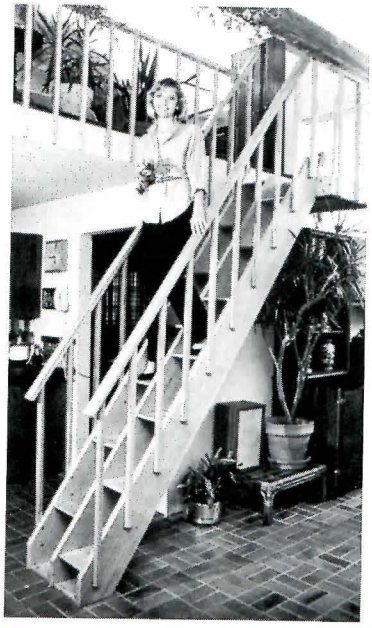
The Lapeyre Stair



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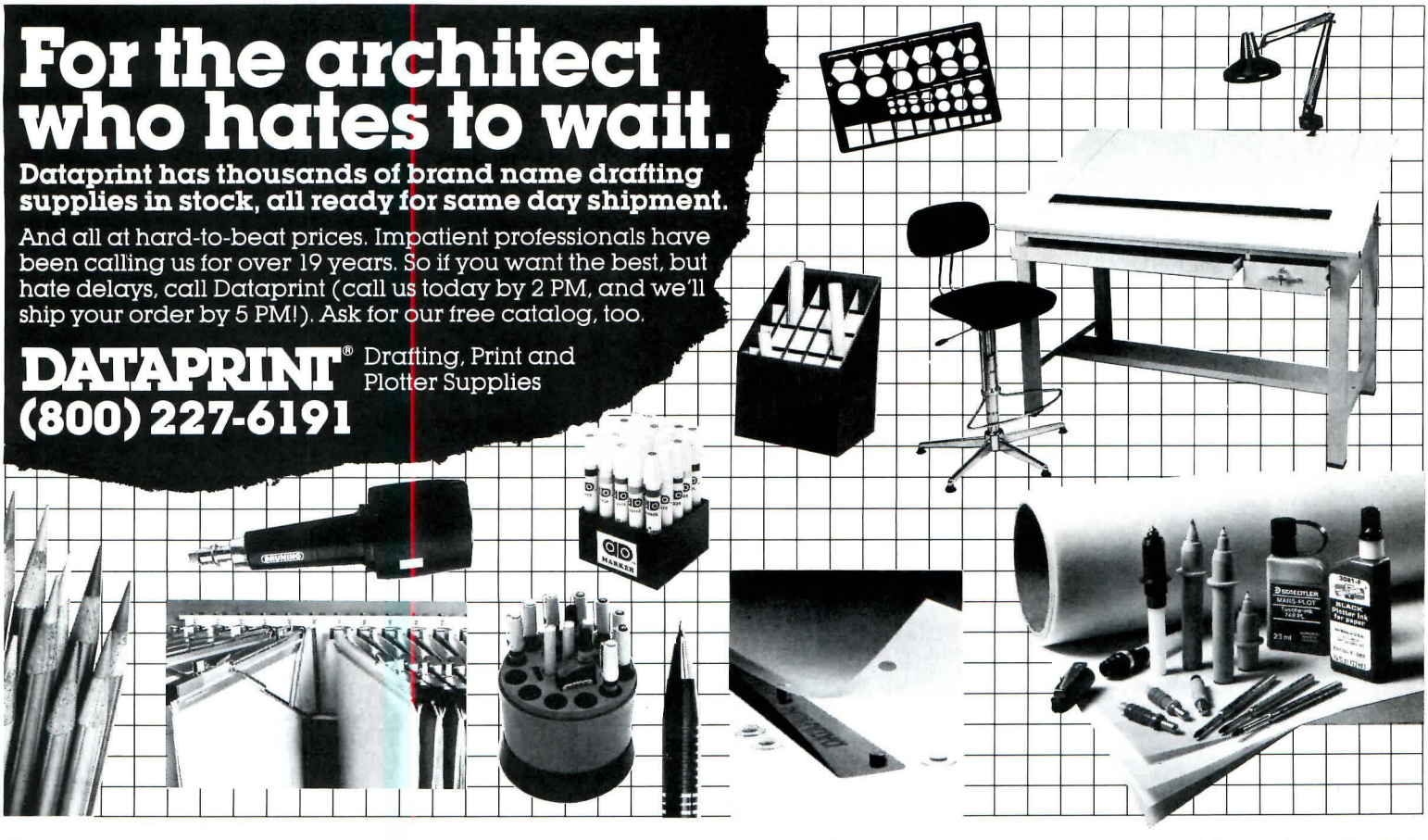

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HISTORY IN

Cooley Roofing Systems unrolls the largest single-ply roofing installation in the world: 2,700,000 square feet of Cool Top® 40 to cover the new Mazda Motor Corporation assembly plant in Flat Rock, Michigan.

You're about to observe one of the greatest events in single-ply roofing history. As the world's largest single-ply roof installation begins to unfold, you'll see each stage of its development... Right here on these pages.

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What is it about our CoolTop 40 Roofing System that makes it so right for the Mazda project? Its outstanding performance features of course.

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Last, but not least is the Syst method of attachment. Because th

p 40 Roofing System is mechani-
astened, attachment of the mem-
to the deck can be verified by visual
tion. And, since the System is so
eight, it eliminates the need for
...(25 million pounds of ballast in
to the Mazda roof installation.)
top it all off, our technical serv-
up gets involved in project spec-
ons, engineering details, contrac-
ining, project supervisions and warranty inspection.

Customer assistance that demonstrates the kind of support Cooley Roofing Systems puts behind every roof installation regardless of job size.

With all our CoolTop 40 Roofing System has to offer, it's no wonder we were chosen to install the world's largest single-ply roof. To find out how Cooley Roofing Systems can meet your project needs, call or write: Scott Bieber, National Sales Manager, today!

*CoolTop 40 made from Tyrin brand CPE as manufactured by Dow Chemical Company.

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For information on Dover elevators or assistance on any elevator project call your local Dover office. Or write Dover Elevator Systems, Inc., P.O. Box 2177, Memphis, TN 38101.

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"When we decided to bid the Statue of Liberty project, we wanted to use Cook Drilling. Once we saw the specs, we knew there was no one else who could do the job!" Doug Muttart, *President*, National Elevator Corp.

When you've been in the drilling business for over three generations, you start to think you've seen it all. With the Statue of Liberty project we saw a new one!

A 100 foot jackhole, drilled from inside the base of the Statue, absolutely plumb!

We had to dig deep, literally and figuratively, to complete this project.

We did. On time and on spec.

We're proud of our contribution on this project, but we're also proud of the thousands of other projects we've worked on. Some were simple, and some were so difficult that others couldn't (and wouldn't) do them.

But we did! And we did them right because we have the equipment and the experience to do any project. In some cases, we've even designed new equipment to do a seemingly impossible job.

We've built our reputation on doing the simple jobs and the hard jobs, on time, on-spec, and on-budget.

We work to your requirements, not ours. Maybe that's why so many contractors call us first! We'd like you to join them.

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Toll Free (800) 523-5900

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TO BUILD ONE OF THE WORLD'S MOST UNIQUE ELEVATORS WE HAD TO START IN A HOLE AND WORK OUR WAY UP.

100 feet below the base of the Statue of Liberty is where our contribution to the Statue's renovation started.

Into the 100 foot - absolutely plumb hole went one of the largest jack assemblies ever built.

It was built at Cemco, along with the platform, controls and pumping units for this one of a kind elevator system. But the jack wasn't the only unique aspect of the elevator! The 3 hydraulic pumping units were custom-designed by our engineers! That meant a lot of modification from our end. But we did it. And we're proud to have been a part of it!

Building a system this big and this unique took more than just manpower and equipment. It took experience and dedication, too.

Cemco's experience goes back over 60 years. And our commitment comes from the dedication that our people bring to the job everyday. The commitment that goes into every project we do. It's this commitment and experience that brings more and more contractors to Cemco for all of their hydraulic elevator needs. We'd like you to be one of them.

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Hydraulic Elevator Systems

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Over the years we've worked for some very impressive companies. EDI/ECI has been selected by architects, designers, and contractors to manufacture elevator cabs and entrances to suit their needs. Some have been fairly easy to do, and some were anything but.

Then there's the Statue of Liberty!

Together with National Elevator Corporation and their other contractors we gladly accepted the challenge to manufacture the cabs and entrances. If ever there was a unique design, this was it! A double-decker glass cab with a 360° open view and a special stainless steel finish just for starters!

We met the challenge – on time!

The EDI/ECI team is recognized throughout the industry because we've always accepted and met challenges, like the Statue. Our symbol is quality, craftsmanship, excellence and a great pride in everything we do. 40 years of elevator experience has given us a capability you'll not find elsewhere. Before you start your next project call us. We'll open our doors to some new ideas for you.

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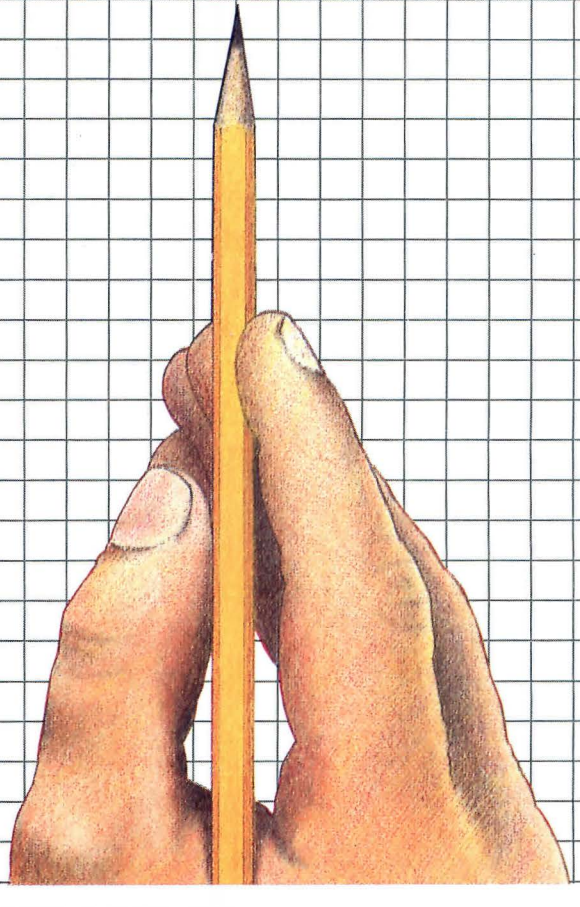
NEMO COLLECTION/SPECTRAL 100 SERIES



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So visit the Nemo Tile showroom for some creative eye hand co-ordination.

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718/291-5969

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TO BUILD ONE OF THE WORLD'S MOST UNIQUE ELEVATORS WE HAD TO START WITH A REVOLUTIONARY IDEA.

Any company bidding on a project usually tries to put their best foot forward to get the business.

We're no different.

But when we decided to bid on the Statue of Liberty Project we quickly found out that we needed to do more than the usual.

So, we put our best feet forward, in a manner of speaking.

The specifications for the project were unique. Everything about the project was unique! From the opportunity it presented to the actual construction and installation of a double-decked, glass enclosed hydraulic elevator unlike any other in the U.S., maybe the world!

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New York Chapter study illustrates the liability problem

After minimal increases between 1981 and 1984, liability insurance premiums for architects suddenly surged last year, causing industry analysts to predict that they will seriously affect the profitability of firms, making the smaller ones, in particular, increasingly marginal (December 1985, page 18.)

According to a study done by the New York Chapter/AIA with the New York State Association of Architects and published in *Oculus*, the chapter's newsletter, liability insurance premiums in New York State and City have gone up 2.6 times in the last year, while fees, have only increased 1.5 times. The survey, based on 200 state and city submissions, represented a professional population of 2,472 collectively earning $172,500,000 per annum.

According to Martin Raab, a partner at Haines Lundberg Waehler and the author of the *Oculus* article, the rise in premiums is not connected to an increase in claims. Nationally, loss ratios for the architectural profession are approximately 50 percent of premium volumes, making it a relatively profitable and low-risk field to insure.

Said Raab, "No one has been able to show me accurate statistical data that proves that architecture as a profession has had an increase in liability claims commensurate with the rise in premiums." The view in the design professions is that insurance companies are recouping the huge losses surrounding such disasters as Bhopal by spreading them to all their clients. "The companies seem to have lost their actuarial capabilities," explained Raab. "They've switched from investment to risk as a means of making money and they're charging whatever the market will bear."

In architecture, where profit margins hover around 6 percent, insurance costs now approach profits for small- (up to $500,000 in gross annual fees) and medium-sized ($500,000-$1,000,000) firms. Small firms are proportionally bearing the brunt of the increase. In 1984-85, premiums for small New York City firms increased from 2.6 percent of gross fees to 5.7 percent, a rise of 119.2 percent. For medium-sized firms, they increased from 2.1 percent to 3.8 percent. Premiums for firms with over $1,000,000 in fees rose from 1.8 percent to 2.6 percent. The discrepancy, Raab indicated, was partly due to the lower deductibles that small firms typically take, with a concommitant rise in premiums. Already, some 20 percent of the chapter's membership is "going bare" (without insurance), though they represent only a small percentage of its total gross fees.

Proposed remedies include increasing deductibles, self-insurance, and the formation of captive insurance companies, as some doctors are doing. Of these, the latter appears particularly attractive. However, Raab noted, capital requirements for captive companies are usually too substantial for most architects. "Besides," he adds, "as soon as the rates go down, the captive members flee to the large carriers." The Interprofessional Council on Environmental Design (ICED), composed of such professional groups as the AIA and the American Consulting Engineers Council, is advocating tort reform as a long-term solution and is encouraging members to discuss the issue with state and local officials.

Raab expressed strong concern that architects not remain complacent about this issue. "We saw the rates go up like this in 1977-78 and then come down. We survived," he says, "but each time the crisis becomes more severe. In the 13 years that I've been a partner at this firm, I've seen our insurance rates go up 4,000 percent. If they go up another 4,000 percent, we're out of business and we're the largest architectural-engineering firm in the city." *Julia Lichtblau*

Dimming optimism among urban activists

Recovery is still underway in the nation's cities but, in the view of one group of activist city officials, the handwriting on the urban walls portends that it could be slowing. The group's particular concern is the nation's budget deficit.

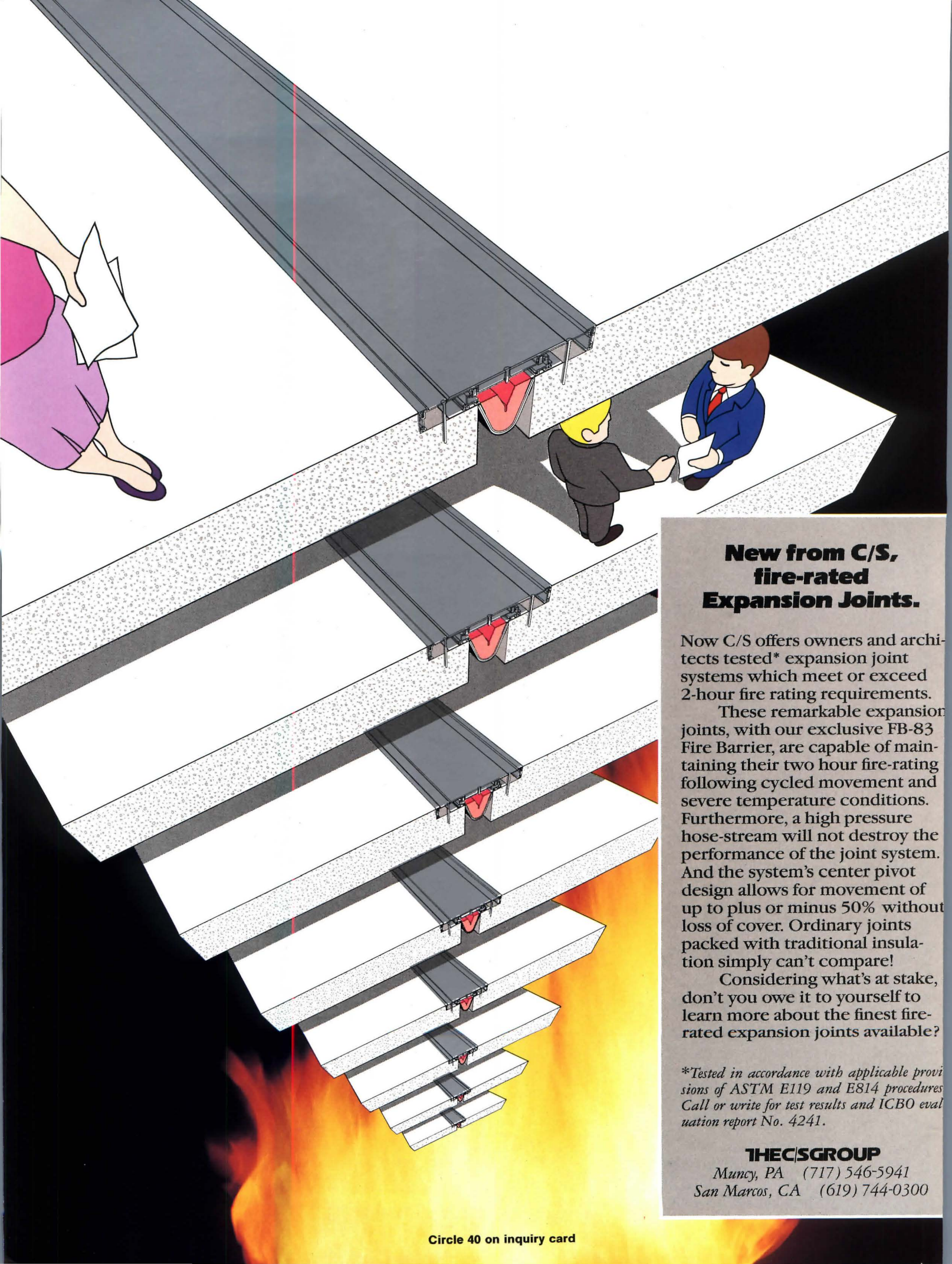
The National Urban League's annual survey on economic conditions and outlook for U. S. cities summarizes the views of almost 500 elected officials from 371 cities throughout the country. Sixty-six percent of the responses listed the deficit as the number one concern, followed far behind by unemployment, with 18 percent, and federal income-tax reform with only 7 percent. However, 73 percent of the respondents did say that raising sufficient revenue to finance federal programs as part of tax reform (which sounds suspiciously like raising taxes) was "very important."

"The deficit has hung like a dark cloud over the economic horizon of the nation's cities," intoned league director Alan Beals. "It has alarmed local government leaders because the administration and the Congress have repeatedly failed to face up to the problem."

As to conditions within the communities represented in the league survey, Beals said the respondents listed only two of 16 categories, both involving credit markets, as showing improvement. Fifty-six percent said local mortgage conditions had improved, and 53 percent said rates on city borrowing were better. "But in other areas, the survey found far fewer signs of a resurgence that are as broad as we reported a year ago," Beals said.

On the subject of the homeless, only 5 percent felt that there was improvement, compared to 10 percent last year. On urban poverty in general, 10 percent said things were better, compared to 12 percent a year ago. In other categories, such as overall economic conditions, city fiscal conditions, unemployment, crime, and cost of living, ratings dropped anywhere from 41 to 18 percentage points. In terms of demand for emergency relief services, almost half of the respondents said demand had increased while the other half said demand was about the same.

According to Beals: "These responses indicate that the momentum of economic recovery is flattening out in most of the nation's cities, and the concern of local government leaders is to keep it from stalling." *Peter Hoffmann, World News, Washington, D.C.*



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Computers:
Facility management is fertile ground for automation

The authors discuss computer application in this new field for architects

By Michael L. Sena and Eric Teicholz

Facility management—a relatively new market for architects' services—is also emerging as a new market for suppliers of turnkey computer systems, software developers, and computer consultants who now specialize in the field.

For over a decade, computerized methods of facility management had been the sole province of a handful of specialized service organizations or had been embodied in custom-built programs that required mainframes. Recently, however—during the past four years, in general, and particularly during 1984—facility management was discovered as an application by most of the major CAD suppliers, software houses, and general service bureaus.

To understand why this phenomenon continues to take hold and what might be the future course of automated facility management, we first need to understand what facility management is—as a discipline and an occupation. Only then can we discover what needs can be really satisfied by automation.

In a broad sense, facility management has been around ever since civilization decided to provide and maintain places for activities. Facility management, however, must be distinguished from facilities management, the latter encompassing buildings, community services, and underground and above-ground utilities, as well as transportation networks.

Facility management, as defined by the International Facility Management Association, which was founded in 1980 and is the only international professional association in the field, is concerned with the tasks of "design, construction, maintenance, and management of the physical environment as it relates to people and the work process." Facility management is, therefore, the coordination of the people and the work of an organization into the physical workplace—a service that architects would seem particularly well-suited to provide.

Mr. Sena is the manager of consulting systems and Mr. Teicholz, the president, of Graphic Systems, Inc., a Cambridge, Massachusetts-based computer consulting firm working in the areas of systems evaluation, procurement, management, and—increasingly—facility management. Mr. Teicholz is an architect, a former professor at Harvard, a lecturer at MIT on architecture and computers, and the author of A/E Computer Systems Update, Computer Graphics and Environmental Planning, CIM Handbook, *and the recent* CAD/CAM Handbook, *all published by McGraw-Hill.*

While the IFMA definition may appear to be somewhat limiting, or, at least, not all-inclusive, facility managers are responsible for the planning, construction, and ongoing management of billions of square feet throughout the world. And what is included in the definition are architecture, building engineering, interior planning and design, construction, acoustics, lighting, finance, leasing, maintenance, communications, information management, personnel management, purchasing, worker comfort, and safety—among other categories.

During the past several years, there have been serious efforts by specialists within institutions and corporations to standardize their title as "facility manager" and their in-house organization as the "facility management department." Nevertheless, a large number of telephone calls to a random selection of corporate offices, hospitals, universities, and government agencies will generate almost as many titles as telephone calls. A sample would include: "director of physical plant, director of operations, director of facilities planning, director of building maintenance, director of corporate planning," and—importantly for us—"chief architect."

The types of facility management tasks are determined by the served organization's size, in personnel and floor area, and its churn rate—the frequency with which an organization's total space is changed during any given year. According to the IFMA, an organization with less than 1.25 million square feet is considered small; a churn rate of 0-15 percent is considered low; and a churn rate of over 33 percent is considered high.

Shared characteristics of client organizations help us construct a model for facility management

First, every facility (including building, people, and activities) has a "facility cycle." This is outlined by the sequential list shown in the table overleaf, and includes all the tasks required to bring a facility into being and to keep it functioning. The facility cycle relates to the period of use by an organization—not the useful life of a building.

Larry Vanderburgh, a facility manager and architect with the General Services Administration, has developed a model for planning facilities. According to his model, a professional facility manager frequently wears three hats at once—those of a planner, a designer, and a manager (to whom, as can be seen in the chart, he assigns a broad range of functions). His study finds that managers primarily work with words, planners deal mainly with numbers, and designers express themselves chiefly through graphics.

It is easy to extend his model to the entire facility cycle and suggest that, for a small organization, a consultant (such as an independent architect), a single in-house individual, or a small group may indeed perform all three functions; but as an organization grows, the functions should be delegated to specific groups or individuals who perform only specific functions. (Hence, it becomes obvious that independent architects performing facility management functions, especially for a large-client organization, will welcome that organization's in-house facility management capabilities for, at the very least, its day-to-day activities.)

It is then possible to allocate tasks within the facility cycle to the functional heading under which they most naturally fit. Whether an organization is large or small, has a high churn rate, or none at all, some or all of the tasks, as listed in the facility-cycle table, can be performed using primarily words, numbers, or graphics.

While there are shared client characteristics, there are also important differences

According to an IFMA study, these differences depend on an organization's size—as determined by the number of personnel and number of square feet of floor area to be managed—and its churn rate.

Size strongly affects the types of facility management tasks that must be performed and, therefore, the automation requirements needed to do them. For smaller organizations, these tasks are custodial care, maintenance and building services, and space planning.

If the smaller organization has an in-house facility manager, he or she is in a central role, making management, planning, and design decisions. But the aspect of facility management for a smaller organization that might involve computers is probably limited to word manipulation, with a possible additional need for number crunching.

For the smallest organizations (up to 500,000 square feet), these facility management activities are usually handled in an informal way and the database requirements (i.e. the need to store, manipulate, and retrieve data on the facility) are not sophisticated. Word manipulation for this group would focus on, for instance, monthly space-use reports, memos, and personnel listings.

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Corporate mission determination Program overview		
	Programming activities Activity modeling Space programming	
		Analysis of physical factors
Space standards		
	Space requirments Stack and block Adjacency and optimization	Cost budgeting
Approvals		Schematic design Massing and modeling Furniture and equipment layouts Cost estimating Working drawings
Contract supervision Supervision and administration Construction and installation		Field changes
Monthly area reporting Monthly component reporting Inventory management		
	Standard versus actual space	
Personnel listings Space allocation Reporting Purchasing Records management Telephone communication systems		
	Forecasting	Update of existing condition records Current space usage determination
Lease analysis Quality control		
Energy control	Historical summary of activities and trends Energy consumption analysis	
Security systems control Asset management		

As the small organization grows, its database requirements grow. When a company handles its own database requirements, they may be filled by personal computers or time-sharing on the company's mainframe. In addition to the smaller organization's word tasks, automation aids slightly larger organizations in certain planning functions that require the manipulation of numbers. Space programming, cost estimates, and the projection of space requirements that are based on personnel forecasts are tasks that can be efficiently carried out by automation. The use of CAD systems speeds up the process of laying out furniture and equipment and of producing working drawings. Drafting and as-built records are also made easier with CAD.

The larger organizations have the type of complex needs for which computers are most suited

In a larger organization, the facility management needs will be broader. If the function were to be performed in house, there would be a director of facilities who would have one or more facility managers. Other managers reporting to that director might include a budget and finance manager and a real estate manager. Under the facility manager's direction, there would be divisions for security, telecommunications, custodial work and housekeeping, and a facility coordinator who would control building services and planning.

Planning and forecasting become more important in these larger organizations, as do operations and maintenance. The need for automated services grows in both database-size requirements and sophistication. Still, the speed with which monthly area, space-allocation, and inventory reports can be produced with automation is the main justification for its use.

In really large organizations, automated systems are efficiently used in most of the management functions. The areas in which the greatest need exists for automation are stacking and block planning, and adjacency optimization. Keeping building plans current through regular updating is also greatly aided by automation, once the basic building data are recorded.

The churn rate affects an organization by producing various clusters of responsibility

Again referring to the IFMA study, organizations with low churn rates have four functional clusters of responsibility. In the order of importance, they are maintenance (purchasing, installation, and operating budget); interior

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planning (long-range planning, evaluation, interior budgeting); architecture; and real estate.

High-churn organizations display five clusters of responsibility with somewhat rearranged functions. They are: interior planning (evaluation, installation crews, purchasing, and architecture); long-range planning; furniture; budget; and real estate.

There are obviously overlapping determinants between size and churn rate in how facility management is performed.

For instance—parallel to the circumstances for large vs. small organizations—the major difference between low- and high-churn organizations is that, in the low-churn group, in-house facility management would normally be performed by one department, whereas in the high-churn organization, it would be performed by four or more departments. Low-churn organizations find the greatest need for automation in management tasks. High-churn organizations find the needs for automation in management, planning, and design. While either churn rate *or* size would tend to dictate the number of responsibility divisions, numerous in-house departments might be difficult to justify in organizations with less than 500,000 square feet. (The small organizations with high-churn rates, then, might appear to be prime candidates for the use of consultants.)

There are good reasons for computer use in facility management to be growing

There are two recent surveys on the use of computers in facility management. One is by the Facility Management Institute for the IFMA, and was completed in August 1983. The second is by *Facilities* magazine, and was completed in September 1984. The FMI reported that 41 percent of the respondents currently used computers in at least one aspect of facility management, and that another 32 percent who did not currently, planned to do so in the future. The *Facilities* study, done one year later, reported a total of 47 percent of respondents currently using computers and 39 percent planning to do so.

We could speculate on why the use of computers in facility management is increasing:

- More individuals in management are aware of the value of computers in decision making;
- There is greater need for accountability in decision making;
- There is greater need for a speedy response (e.g. churn rates may be increasing in more organizations);
- Computers are becoming easier to use than they once were;
- Computer power is becoming less expensive and more widely available.

In our opinion, it is all of these reasons plus two important facts:

- Facility management, as a profession and as an activity, has matured and achieved both status and respect as being vital to the business of an organization;
- Computer systems have matured from when, just several years ago, they could only offer expensive drafting or mainframe database handling, to now, when they can offer powerful integrated CAD and database solutions for a range of prices to fit most needs.

Computer usage, as reported in these surveys, does not correspond exactly to the list of activities in our facility cycle since some of the activities can be accommodated by a single piece of software or computer equipment, while other activities require several devices or programs. The lists also do not correspond exactly to one another. We have developed a generic list of facility management applications to which computers have been applied and which are available today:

- Personnel allocation
- Allocations of space, furniture, and equipment
- Accounting
- Strategic planning and forecasting
- Business growth projections and modeling
- Space programming related to personnel projections and space standards
- Locational analysis, such as adjacency diagrams, stacking, and block planning
- Design drafting for the architectural, engineering, and site planning disciplines—including three-dimensional modeling
- Lease and property management
- Purchasing
- Cost estimating and budgeting
- Move coordination
- Furniture and partition layout
- Construction and project management
- Construction documents, including drawings, schedules, specifications, and bills of materials
- Security systems management
- Business presentation graphics

If you want to know where computers are least and most used, here is that list

According to the surveys, among those functions that have been most automated are inventory, personnel allocation, and accounting; the least automated are strategic planning, space programming, and construction documents. Most important, few users have automated *most* of the facility management activities they perform. The use of CAD and integrated design, drafting, and database systems is not widespread at present.

Lee Hales, a well-known consultant in facility management, has explained this by stating that, for in-house facility departments, there is a greater payback in planning and inventory control than in producing designs and drawings. This is certainly true, but it may also be a result of facility managers taking best advantage of what is available in computer hardware and software and what is most affordable.

Now that integrated systems are becoming available, here are a few of their advantages

Until very recently, there have been few of what have been called integrated systems; that is automated systems that combine many of the above applications in a single, cost-effective hardware and software solution. Such systems can now provide the following major advantages:

1. The accuracy and ease of updating that is inherent in a computerized record of building plans and inventory (space, furniture, and equipment) so that a change in the building plans or in the location of equipment in the drawing database is immediately reflected in the nongraphic database.
2. The ability to produce fast layouts and drawings and to generate, from these layouts, construction or erection drawings, specifications, work orders, and purchase orders.
3. The ability to make associations between building spaces and the personnel occupying these spaces, and then to determine the location of personnel—as well as to identify the individuals currently occupying spaces and what they have in the way of furniture and equipment.
4. The ability to show the graphic result of different space standards, workstation arrangements, or growth projections, and to present the results of an analysis of different department locations.

What has been available has been either non-CAD systems or CAD systems, the former being capable of working with words and/or numbers, and the latter confined mainly to drawings. What has become available during the past two to three years is a solid group of CAD and database management systems that are attempting to handle all of the facility management functions.

The non-CAD systems included—in the order of their appearance—mainframes, word processing systems, and personal computers. CAD systems have followed the development of mini-, micro-, and personal computers. First introduced in the late 1960s, and used sparingly throughout the '70s for facility management, many of the CAD-only systems have evolved into the CAD and database management systems being marketed for facility management today.

Here, in part, is what the future may look like in the automated facility management field

At this point, it appears that the market for systems and software has not been satisfied with either the non-CAD or the CAD-only solutions. Integrated systems are slowly being introduced and the buyers are experiencing mixed results—mainly because the application software has not been developed to a high enough state.

This becomes apparent from an analysis of the returns to a questionnaire mailed by Graphic Systems, Inc., to over 3,000 facility managers in the U. S. in December 1984 and January 1985. However, our returns also indicate that the market is eager for solutions.

There are over 15,000 companies in the U. S. alone with over 500 employees, and most of these companies will use some form of automated facilities management within the next two years. The market in the remainder of the world has not been readied for facility management, but it is not unrealistic to believe that it will develop in a similiar way to its U. S. counterpart. The market is large and it is growing.

Price, however, is an important consideration, more important than in many other computerized application areas. Facility management does not generate income for the served organizations, although the rationale is that it potentially saves huge sums of money.

As suppliers recognize this, they will offer better-functioning, integrated solutions on lower-priced computing systems. This trend has already been established by some suppliers and will continue. While the completely-integrated system is being developed for the right price, facility managers will have to satisfy their management, planning, and design requirements with a variety of systems already on the market.

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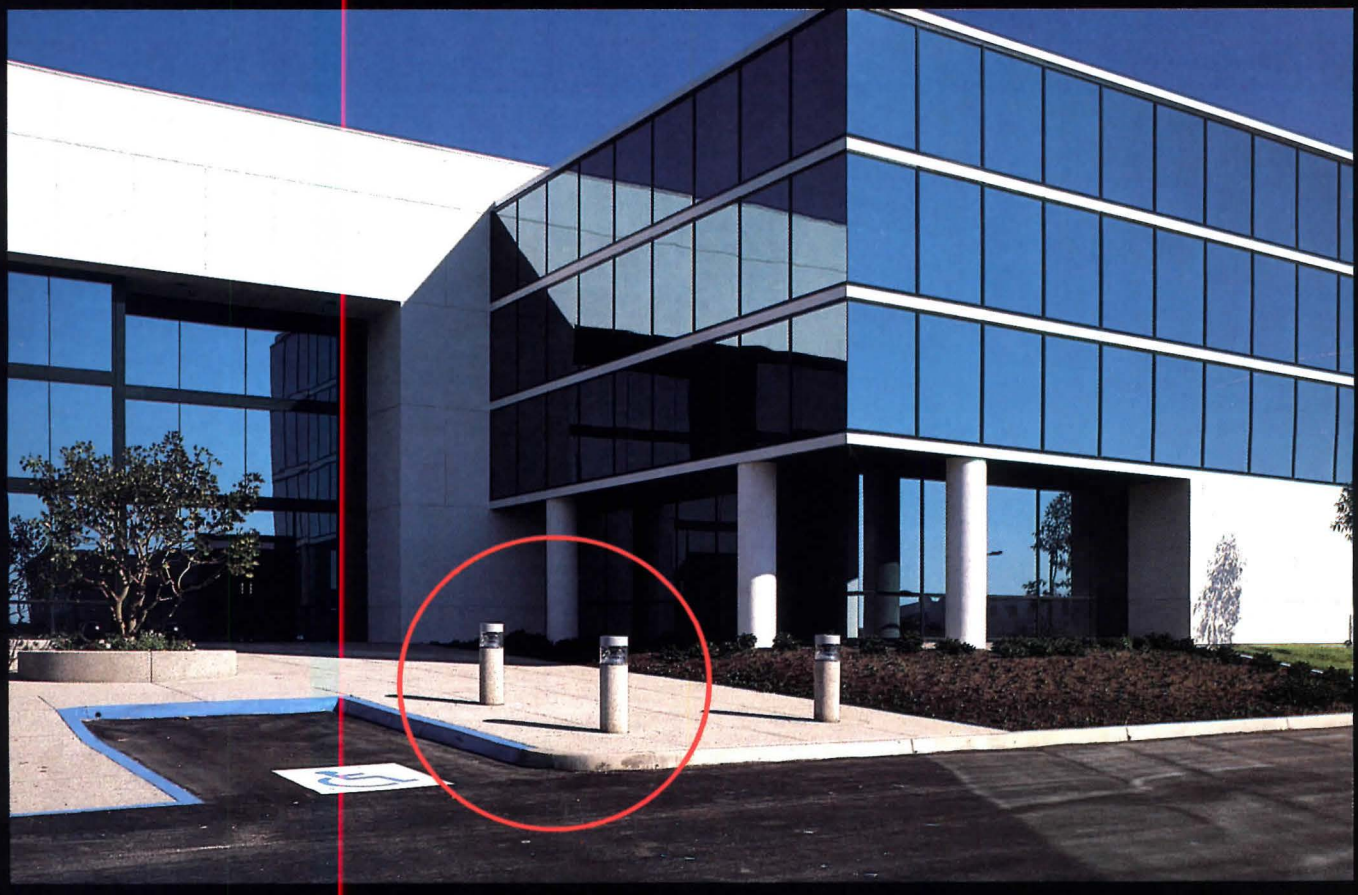

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Finance:
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Even though most houses will continue to be beyond reach for most buyers, more costly ones, along with multifamily housing, will be built

By Joseph Spiers

The business press in 1985 regaled readers with headlines that trumpeted farm crises, bank failures, mega-mergers, devastating trade deficits, and a federal government debt topping the $2 trillion mark. (Quick, how many zeroes in a trillion?)

Bold-faced headlines notwithstanding, the 1985 economic maelstrom may have had little direct impact on the lives of most architects. Meanwhile, however, more quietly and with little fanfare, a story was unfolding that probably affected architects far more than all the headline issues combined. That story: the disappointing performance of residential construction.

Disappointment in housing, as in everything else, must be measured against expectations

In this case, expectations for housing had been ignited early in 1985 by an encouraging tumble in mortgage rates (chart 1). By the second half of the year, in fact, mortgage rates fell below 12 percent, their lowest level of the decade. Inspired by this development, forecasters set their 1985 sights on the magical housing-starts number of two million.

Besides the interest rate decline, another potential spur to demand was slow growth in house prices—up only 4 percent last year. That small rise combined with the mortgage-rate fall made home ownership more affordable to average Americans than at any time since 1979—this according to the National Association of Realtors' affordability index (chart 2). From the summer of 1984 to the summer of 1985 alone, homes became 10 percent more affordable.

In short, 1985 was rife with good tidings for residential construction. But, like the dog in Sherlock Holmes' *Silver Blaze,* housing never barked: Starts, which had climbed spectacularly in 1983 when interest rates fell, actually declined for a while in the middle of 1985 (chart 3) even as rates tumbled.

Compounding this paradox was the (assumed) fact that demand for homes had been pent up by high mortgage rates in the early 1980s, so that falling rates should have unleashed an unusually strong flurry of would-be homeowners into the market.

Such is the stuff that high hopes are built on. Yet, instead of beginning work on two million dwelling units in 1985, builders will probably have broken ground for about 1.8 million—10 percent less than in 1978 or 1979 when the U. S. was home to 18 million fewer souls.

To be sure, 1.8 million housing starts is not a bad level of activity. That level in 1985 would be a bit better than 1984's. And it would make 1985 the third year in a row in which housing starts exceeded 1.7 million, a number way up from the horrendous 1.1 million bottom touched in the depths of the 1981-82 recession.

Nonetheless, the disappointment still rankles. All systems in 1985 were go—mortgage rates fell, affordability rose, and pent-up demand had an opportunity to come forward; yet the market did not regain its strength of 1977-78.

The failure of new housing construction to respond as vigorously as anticipated to improved financial conditions raises two questions of serious import for architects: 1) Why the failure? 2) What does the failure imply for 1986? Of course, the answers to the two questions are not unrelated.

The answer to why housing isn't stronger may reside in the bosom of the American family

More precisely, it may reside in the family's financial status. To cut to the heart of the matter before laying out the details: That financial status has not done so well in the 1980s.

Consider 1978, the last year in which builders started work on two million dwelling units. Median family income (meaning that 50 percent of families had more and 50 percent had less) in 1978 was $17,640; by 1985, income jumped about 52 percent to $26,783. Sounds great, until you realize that inflation for the 1978-85 period ate up 54 percent of all income gains.

Translation: Mr. and Ms. America were not as well off financially in 1985 as they were in 1978. The picture looks worse if 1979 is used for comparison: Income up 36 percent, prices up 42 percent.

This weakness in real income growth is one reason housing starts in 1985 fell short of terrific. People facing stagnant income growth felt hesitant about trading up; and young adults in such families seemed to lack the assurance to go out and start their own households.

Now it's helpful to look at statistics on median income because it provides a broad perspective on how people are doing. But it's also useful to supplement this information with more detailed information on how certain groups of people have done in recent years.

For example, look at table (overleaf). It shows how much total family income in the U. S. was

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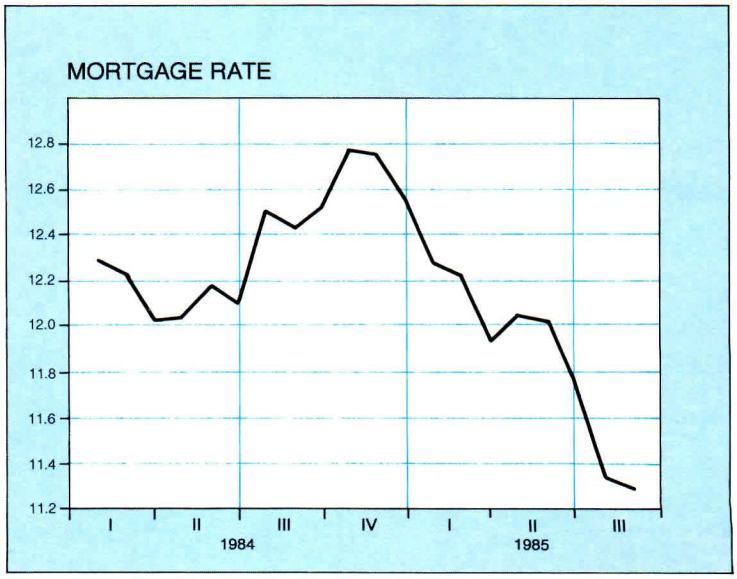

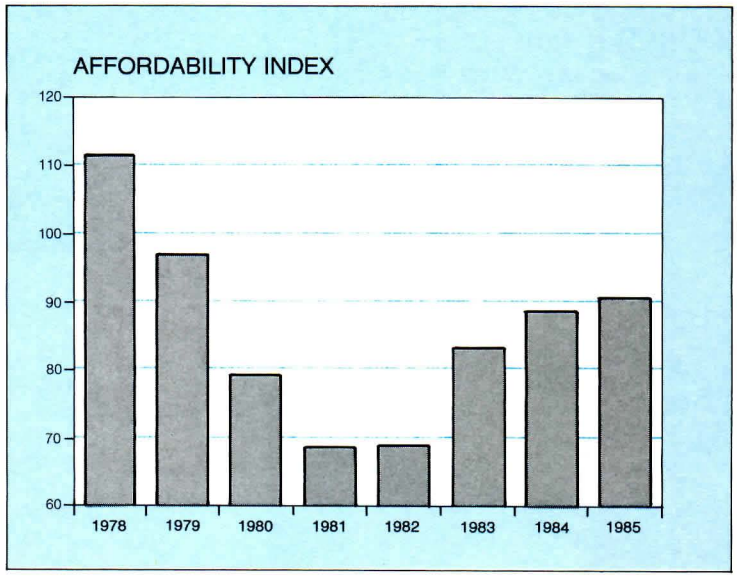

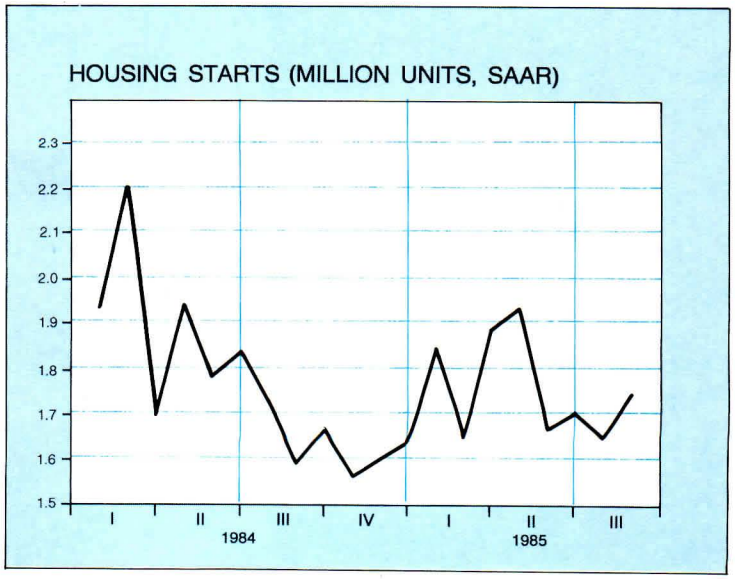

Mr. Spiers is senior economist for McGraw-Hill's Data Resources, Inc., which supplies economic information and forecasting to government, industry, and financial institutions.

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earned by families in different economic situations. Granted, at first blush it may seem that only a social worker or an economist could love a table such as this; but for those who care about the course of housing in the next few years, these numbers could contain important insights.

The point to be made by this table is that Americans in the upper two-fifths of the income scale have been garnering a greater share of total income for the past decade and a half, but particularly since 1979. In this latter period, the top fifth of U. S. families raised their share of total income a full percentage point to 42.7 percent. (This means that 20 percent of all families in the country earned 42.7 percent of all income.) Meanwhile, the group in the middle saw its share drop from 17.5 percent to 17.1 percent. To put it another way, the median income of the middle group rose 42 percent from 1978 to 1983 while the median income of the top group rose 50 percent.

Here is why the market will be good for costly houses—those that are usually designed by architects

What the current income trend suggests for housing is that a two-tier market has been developing, divided into those who have done okay financially in the 1980s and those who have not. Those who have done okay may have already bought a house; those who have not flourished may have their demand pent up for a long time, regardless of what mortgage rates do. For, in order to buy a house, you need to have saved up money out of income, and you need current income to make the monthly payments. If your income is lagging, you'll think twice about big long-term financial commitments for 15 or 30 years.

All this sounds very basic, and it is. But it may have been overlooked by those who anticipated a big housing boom when mortgage rates started falling a year ago. In other words, many middle American families may still be out of the housing market, and they may have little prospect of getting back in for quite awhile.

Of course, in an era of go-go creative financing, some people may not let a little lack of income stand between them and a house. Among those who decided to take a chance and buy in the face of no growth in real income, an increasing percentage are now delinquent on their mortgage payments; or they have walked away from paying altogether and have defaulted. According to the Mortgage Bankers' Association, nearly 6 percent of homeowners are delinquent on their mortgage payments, a higher percentage than in the 1981-82 recession. And nearly 0.8 percent of home loans are being foreclosed—more than double the rate of 1979. Clearly, driven by the strong desire to own a home, many people are driving themselves past the point of prudence.

Ditto for the banks. Certainly, banks must keep their funds loaned out if they are to make a profit. And if they must cut some standards in order to keep pumping the money out, sobeit. The result: Banks in the 1980s loosened their long-standing rules of thumb concerning how much of a homeowner's income could go to covering the mortgage. Banks also looked the other way as they reduced the amount of down payment that was required. If a person only had to put down 5 percent to acquire a house, a subsequent drop in income might only mean walking away from a fairly small investment.
No big deal.

To the government, however, it eventually did become a big deal. So this past summer, Fannie Mae told mortgage companies it would tighten standards on the high-risk mortgages it buys, primarily those requiring buyers to put down less than 20 percent. For example, under prior rules a buyer putting down 5 percent on a median-priced home would qualify for a mortage with an income of less than $33,000. Now the buyer needs more than $36,000. The upshot: Lenders will tighten their own standards, since they often sell mortgages to Fannie Mae; hence, fewer would-be homebuyers will actually get the green light.

To return to the questions posed earlier: Why the housing disappointment, and what does it mean for the year ahead? An answer to the "why" has now been suggested—stagnant income growth and outright declines in income, after inflation, for people on the middle and lower-middle rungs.

An offshoot of this answer is that, even though mortgage rates have declined substantially in the past year, they are still at historically high levels. And, as already suggested, for people who have had trouble keeping up financially in the past half decade, deciding to pay 12 percent interest for 30 years is no casual affair. What's more, these people can no longer bet on the value of their houses shooting up radically, as occurred in the 1970s and early 1980s. Hence, if they get in a financial bind, they don't have the option of selling and making a nifty capital gain as a way of bailing themselves out.

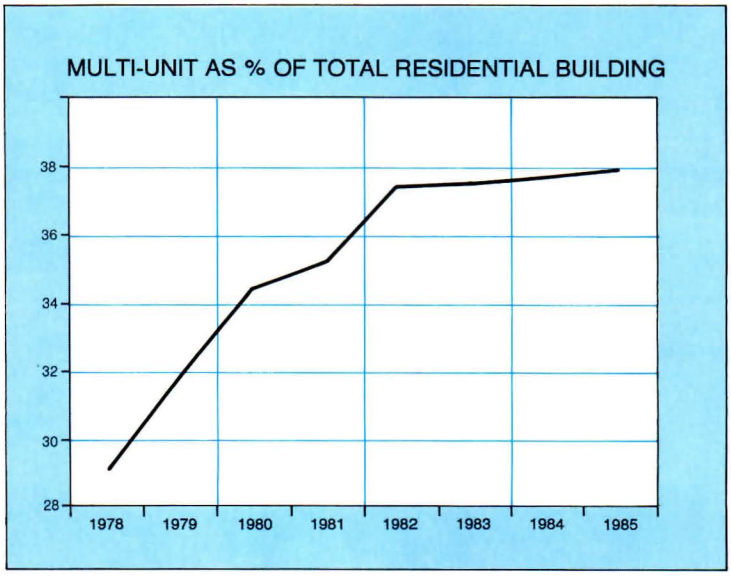
Now, what does slow and two-tiered income growth in recent years mean for 1986? Overall, it means new housing construction will remain disappointing. Which is not to say that construction will be bad. In fact, McGraw-Hill's economic forcasting unit, Data Resources, Inc., predicts a small increase in housing starts in 1986. If mortgage rates continue down, then things could be even better. As with 1985, the disappointment in 1986 will be that starts will again fall below that elusive two-million mark.

For architects catering to the high end of the market, however, this decade's income trend suggests that 1986 could be a good year indeed. Consider this: While the mean price of a single-family home was 12 percent higher than the median price in 1978 (remembering that the mean is a straight average, while the median is the point at which half are above and half are below), in 1984, it was 19 percent higher. That means a greater and greater gap between ordinary homes and high-end homes.

To put it differently, people with money are spending generously on houses—implying that there is good business in designing expensive houses or extensive remodelings.

Another facet of two-tier income growth is that fewer people can afford single-family houses, so they opt for apartments and condos. Not surprisingly, therefore, in recent years, an increasing share of new residential construction has been multi-unit (top chart). More of the same is expected in 1986.

Outside of high-end single-family homes and multi-unit complexes, 1986 could be a slow year, and an uptick in interest rates could be lethal. Right now, however, it looks like rates will be well behaved for awhile, so housing should start off the new year on good footing. No matter how good the footing gets, however, it will be a climb back to the summit of the late 1970s.



Percent of total income earned by American families by income class

Quintile	1967	1978	1979	1983
Lowest fifth	5.5	5.2	5.2	4.7
Second fifth	12.4	11.6	11.6	11.1
Middle fifth	17.9	17.5	17.5	17.1
Second-highest fifth	23.9	24.1	24.1	24.4
Highest fifth	40.4	41.5	41.7	42.7
	100	100	100	100

The number of families was broken into five groups, and the percentage of total family income earned by each group was calculated. Each number in the table shows this percentage. So, for example, in 1967, the middle group earned 17.9 percent of all family income and 17.1 percent in 1983.

Source: U. S. Census Bureau

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Practice:
Just how bad will the tax bill be?

Now that the tax bill has passed the House, the AIA has studied its implications and reports on its actions to protect the interests of those who design for the construction industry

Almost a year ago, President Reagan submitted his tax proposals, meant to produce fairness, growth, and simplicity, to the Congress. Last December, a sharply divided House delivered what one side, as represented by House Ways and Means Committee chairman Dan Rostenkowski, has called "more tax reform and more tax fairness than any bill in history," but what the other side, as represented by House Republican Whip Trent Lott, has called "tax change instead of tax reform."

Administration strategists, fearing that tax reform would be buried forever if a bill did not pass the House by year's end, successfully urged the President to support the committee bill over Republican objections. Support by the President, who called the committee bill "a good start," placed many Republican members of the House in the awkward position of either supporting a Democratic bill they did not like or going against their own President. As a concession to House Republicans angered at some of the bill's provisions, the President agreed to veto a final tax bill that does not contain specific provisions not now included in the House bill.

Negative reactions to the House bill especially have come from defense, banking, and real estate

Sixty-eight major U. S. corporations and business associations joined in a letter to the President and Congress urging that the tax bill be set aside "while the whole subject of tax reform is reviewed." The signators included such corporations as AT&T and Ford, and such groups as the U. S. Chamber of Commerce and the National Association of Manufacturers. The letter argued that the tax proposals "risk serious damage to the economy and thereby threaten to increase the already dangerously large federal deficits."

The real-estate and construction industries followed this line of reasoning in also opposing the committee's bill. In a letter to members of the House, the Association of General Contractors of America claimed the proposal would "stifle growth, depress capital and construction investment, and cause a resultant adverse ripple throughout the economy that would induce a recession accompanied by a severe loss of jobs."

In a letter to the House, the AIA shared this concern in its role as a member of the Joint Real Estate Tax Committee. Comprised of 18 national associations, the committee expressed unanimous fear that "the real losers under the proposed provisions that reduce the construction industry's favored status are the consumers who need affordable rental housing and who purchase goods and services from businesses which require office, retail, and industrial space." The committee further stated that "the enactment of these provisions would cause a restructuring of the real estate industry and would have a serious negative effect on all sectors of the industry and on the economy in general."

Of particular concern are the provisions that would dramatically change the way equity capital is raised. Reform measures would extend at-risk limitations and cost-recovery periods. Other measures, such as the limitations on interest deductions and a tougher alternative minimum tax, were said to have less direct influence, but be equally disruptive. While low-income housing received favorable treatment with respect to tax-exempt bonds, depreciation, rehabilitation expenses, and at-risk rules, proposed tenant income and reporting requirements might negate even those benefits.

Three coalitions with AIA backing have already produced victories over the original bill

The AIA waged its major campaign through the Joint Real Estate Tax Committee and two other coalitions, one formed to preserve the rehabilitation credits and one to maintain the cash method of tax accounting. The Institute also participated in alternative energy and low-income housing coalitions.

The campaign to save the rehabilitation tax credits, for example (this month's editorial, page 9), received a boost at the AIA's San Francisco convention when Democratic Ways and Means Committee member Wyche Fowler declared his support and urged the preservation community to lobby actively. A convention resolution calling for retention of the credits was passed, approved by the AIA Board, and distributed to members of Congress. Lobbying for the credits was coordinated by the Committee for Future Investment in America's Past, comprised of the AIA, Preservation Action, the National Trust for Historic Preservation, and developers.

Given the President's proposed elimination of the credits, they have fared very well as a direct result of these lobbying efforts. The House-passed version replaces the existing three-tiered credit with a two-tiered system for property placed in service after December 31, 1985. The new credit is 20 percent for certified historic structures and 10 percent for buildings constructed before 1936, with full basis reduction. In the context of lowered tax rates, this reduction is partly offset by the anticipated reduction in overall tax burdens, but represents a significant show of support for the credits by the House.

With equal dedication, the Institute likewise urged retention of the option for professionals to utilize the cash basis of tax accounting. The institute participated actively in a coalition comprised mainly of lawyers and accountants, and also formed a separate coalition to represent the design professions. The design coalition grew to include ASCE, PSMA, DPC, NSPE/PEPP, ACEC, and ASLA, and chose the Institute as the liaison to the lawyers' and accountants' group.

As a focal point of its lobbying efforts, the design coalition conducted a survey of the coalition's membership to determine the proposal's impact on the profession. The poll found that 83 percent of respondents currently using the cash method would suffer accelerated tax liability if forced to switch to the accrual method. In addition, 62 percent said they would have substantial tax increases.

Results of the survey were transmitted to the Ways and Means Committee's task force on accounting issues by Representative Ronnie Flippo. The task force and the full House supported the coalition's position, but retained the $5-million-annual-gross-receipts cutoff originally proposed by the President. Since most design firms fall under this limit, retention of the cash option will guarantee that most architects will not have to pay taxes until they receive payment for their services.

The Institute also joined a coalition of such groups as the Solar Lobby in support of a wide range of alternative energy tax credits. Support for these credits has been mixed. After debate, the Ways and Means Committee proposed that residential and business solar and business geothermal credits be extended on a declining basis for three years, but credits for wind, geothermal, and other energy-saving measures be allowed to expire. The Senate, on the other hand, has expressed support for these credits and their future awaits review by the Senate Finance Committee.

Diverse support for the House bill means that the battle is far from over

To counter adverse claims, the White House released a statement from the Council of Economic Advisors and the Treasury Department reporting that, contrary to rumors, the bill would not bring on a recession. This view was supported by the technology-oriented Tax Reform Action Coalition whose members rely more on research and development than capital investment.

A liberal coalition has also emerged to support the bill. A group of 102 national organizations, including the League of Women Voters, Citizens for Tax Justice, and the Children's Defense Fund, has applauded the provisions to move about 6 million low-income families and individuals off the tax roles and to strengthen the minimum tax for other individuals and corporations. The National League of Cities has added its support because the bill retains the state and local tax deduction, and the House Select Committee on Children, Youth, and Families has reported that the bill is the fairest to families.

Indications are that the Senate will attempt to bring the House bill closer to the President's originally submitted proposal. Senate Majority Leader Robert Dole has said, "We can do a lot better... we can make it tax reform again instead of sort of reshuffling the different loopholes and the different interest groups."

The pressure of the deficit will also give the tax reform debate a new complexion. The Senate Finance Committee will find it difficult to match the progressivity of the House bill without increasing tax rates or eliminating provisions greatly favored in an election year. What remains to be seen is whether any bill that can gain consensus can also remain faithful to the often contradictory goals of fairness, growth, and simplicity.

Based upon last year's debate, the issues of real-estate-capital formation and retention will be among the most hard-fought in the Senate. This debate has consequences for the design profession that surpass even professional liability. If tax reform destroys the country's economic growth, many design professionals will find themselves in the middle of a recession once again.

Last year's lobbying efforts proved that the design community can present its concerns to Congress effectively. "We are proud of the AIA government affairs efforts," stated AIA's general counsel James V. Siena. "Congress showed it was receptive to arguments well made on the issues of particular and direct concern to architects. However, we share the disappointment of the real-estate and development interests in that the House bill seems to reflect a lack of concern for continued growth in that segment of the economy. We will be with them in the Senate fight to change that."

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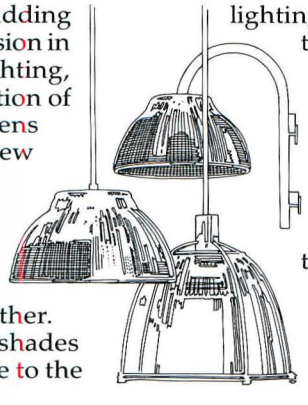

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Marketing:
New strengths from the hit-rate matrix

The authors offer a three-dimensional concept for getting more out of tracking your marketing strengths

By John Gwin and John Lindgren

A hit rate—or the number of successes for a given number of tries to get commissions—is a fairly common measure of an architecture or engineering firm's success in its marketing efforts. However, a simple hit rate on all types of commissions, referred to without qualifying information, can produce misleading conclusions and, worse, the wrong marketing decisions.

Some firms use two hit rates. One represents the percentage of short lists achieved as a result of proposal submissions. The other, then, is the percentage of jobs that results from making short lists. But, even when these evaluative techniques are used together, they still fall short of providing valuable insight into a firm's market position, its image, and where its success really lies.

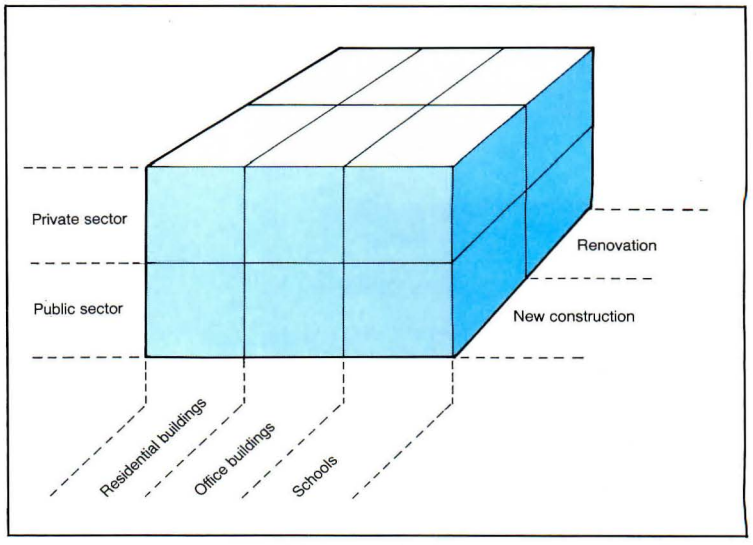
We propose that firms develop a more sophisticated tool that we call a hit-rate matrix (or network, if you prefer)—a tool that will both measure success *and* help to form a marketing strategy for future success. Our concept is simple:

Rather than using one or two hit rates, firms should use many in such a way that they relate

The resulting matrix is three-dimensional in concept, although, unless you want to record your input on blocks, you will have to use sheets of paper that you relate in a three-dimensional way. The diagram demonstrates a typical hit-rate matrix that might be used by an architecture or engineering firm. Its "blocks" represent different combinations of client type, construction type, and whether or not the job is new construction.

Let's use the example of a moderately large architecture and engineering firm. This firm offers a whole spectrum of services to several markets. It offers design services to private and public sector clients; it offers design services for housing, office buildings, and schools. Additionally, the firm does new construction and the renovation of existing structures. Using the matrix concept, each of the 12 blocks (or cells) in the diagram represents a hit rate for a market area that is a possible combination of the firm's services. By seeing which cells have high rates, the firm can gain insight into its market strengths and probably ascertain how it is perceived by potential clients, as well. Cells with low hit rates show weaknesses.

A firm may add a fourth dimension: short-list hit rates by type of service. This provides a measure of the success of interviews. There may not be trouble making short lists, but the success at getting jobs is less than expected, meaning that interview skills need work.



Doesn't this seem a complicated way of keeping track of what firm principals should already know?

While one might argue that the principals may have an intuitive feeling about their firm's strengths and weaknesses, a quantitative way of keeping track of hit rates offers numerous advantages:

First, if a firm keeps track of the marketing costs associated with individual jobs, it has a measure of the investment value of going after certain types of clients or types of commissions. Setting up a cost accounting system in this manner allows firms to evaluate areas that are far too expensive to invest in and indicates areas where marketing dollars are most effectively spent.

Second, tracking hit rates by segment over time allows management to react quickly to changes in the marketplace. If hit rates are declining for certain segments or project types, then management can investigate the potential causes of these declines and make adjustments.

For example, an investigation into a decline in the hit rate for private new commercial construction might reveal that a firm is not being short-listed because it is perceived as providing low-quality interior design work. In response to this situation, the firm might play up its abilities with interior design in future proposals. Tracking a hit rate for new private commercial construction after its shift in proposal focus is used would demonstrate the worth of the strategy.

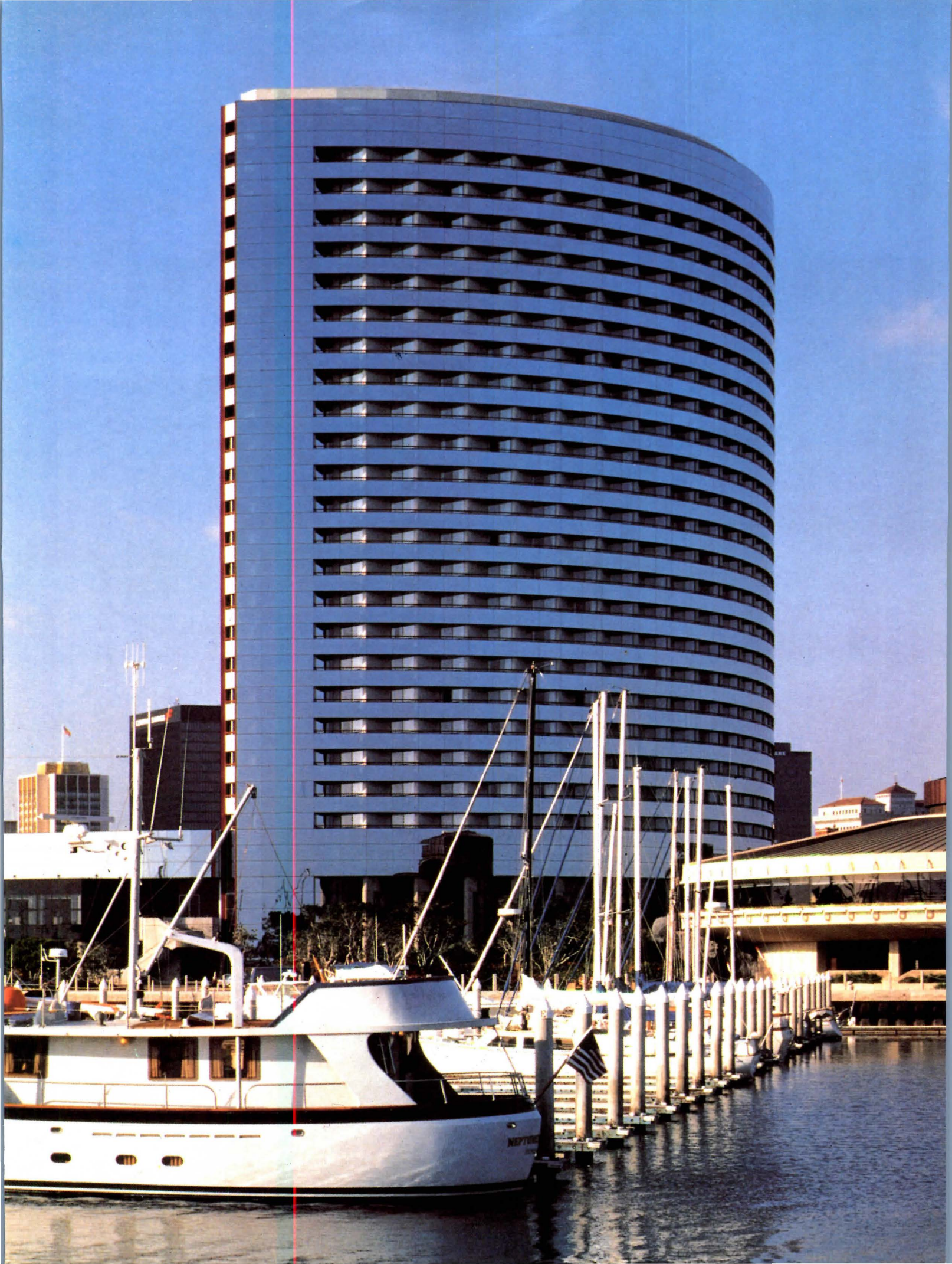
Third, a firm can use the hit-rate matrix to reposition itself in the marketplace. Let's say a firm's current hit-rate matrix reflects high levels of success in public sector renovation work, but the firm wishes to reposition itself as a private-sector new-construction firm. The success of its efforts to make that change can be monitored through observing changes in the hit-rate matrix. Of course, unless the firm wishes to abandon its current successes, it should strive to maintain its current, successful hit rates, while increasing its hit rates in the matrix cells it desires to be in.

A last use of the hit-rate matrix is to point to services that should be abandoned. If a firm is simply not successful at securing certain types of jobs, as pointed out by its new analysis tool, it should consider abandoning its pursuit of that particular segment. The marketing costs incurred in that cell may simply be too great to support a continued effort.

The cell categories we have used here are merely illustrative. The dimensions of the matrix can be used to divide clients in any way that makes sense, given a firm's particular situation. For example, one dimension might differentiate between new and existing clients. By this, a firm might ascertain that it has little success gaining new clients, but once it lands a client, retention is very good. This implies certain marketing strategies, such as the use of testimonials by previous clients in proposals to potential new ones.

Other dimensions that might be used in the matrix are municipal versus federal clients, architecture versus engineering jobs, design/build versus design-only jobs. The possibilities are virtually endless, and several matrices would further narrow its analysis. In short, the hit-rate matrix is a means of pinpointing successful marketing efforts, a diagnostic tool for determining image and position, and a strategic tool for developing marketing programs.

Mr. Gwin and Mr. Lindgren are associate professors of commerce at the University of Virginia and principals of DataResource Group, a consultant firm for clients in the service sector.



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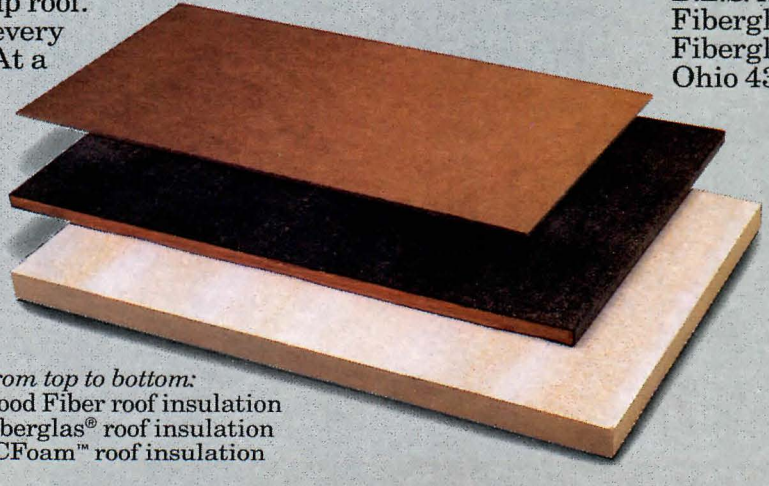

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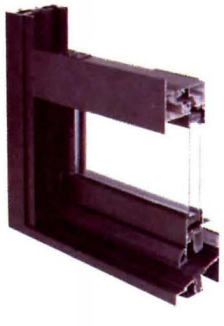

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Architectural education: What is the National Institute for Architectural Education all about?

The NIAE (which for its first half-century was known as the Beaux Arts Institute of Design) is an important, but not well enough known, factor in architectural education. We have asked Stanley Salzman, NIAE board member and past president, to give some details and objectives

By Stanley Salzman

"The National Institute for Architectural Education is the best kept secret in town," said Joan Davidson, the president of the J. M. Kaplan Fund. Ms. Davidson might well be right, although architecture students and their critics (national and international) subscribe to NIAE Traveling Fellowship Competitions; high school students and their guidance counselors attend NIAE Career Day in Architecture; and architects, students and the public-at-large visit the NIAE Galleries. In spite of this, however, the full scope of what NIAE stands for, and what it does, is not widely known.

It all started with the creation of the Paris Prize

The Paris Prize was established by the Society of Beaux Arts Architects (American architects who had studied at the École in Paris) in 1903. Through the efforts of architect Lloyd Warren, Paris Prize winners entered the advanced first year studio at the École without the French government prerequisites. The BAID was chartered by the Board of Regents of the State of New York and became the administrator of the Paris Prize. Now permanently endowed, this historic award later became the Lloyd Warren Fellowship/Paris Prize in Architecture.

In 1956 the Trustees of the Beaux Arts Institute of Design voted to terminate their organization. The postwar enthusiasm for the Bauhaus philosophy signaled the demise of the Beaux Arts system that had dominated architectural education in this country for more than half a century. But some trustees felt responsible for the continuing administration of the Paris Prize and reorganized for that purpose. Aware of the disfavor of the Beaux Arts connection, they regrouped as the National Institute for Architectural Education.

As NIAE, the organization and scope of activities increased

Three major events occurred from 1956 to 1976. The Paris Prize became a traveling fellowship affording twelve months of independent study and travel abroad. Secondly, many requests were received to create more student competitions and some faculty grants. And, perhaps most important, gifts from the estate of William Van Alen, the designer of the Chrysler Building, endowed an international competition (by covenant, only students from United States schools are eligible for the Paris Prize) and provided the Van Alen residence in New York for NIAE headquarters. Thus, the Institute expanded to generate excellence in architectural education through national *and* international competitions for study and travel, plus the addition of faculty research grants and gifts to schools to conduct competitions.

What is the present organization of the Institute

More than 200 architects, designers and educators are currently NIAE members. The 18 Board members are architects, educators, a lawyer, a banker, and a public relations counselor. The Board meets monthly to set policy.

NIAE has flowered since 1976. The Van Alen residence was sold and NIAE purchased a loft building in the Chelsea district of New York City. The new headquarters provides 6,000 square feet of gallery and meeting space. Other floors in the building are rented to architects and designers. A cooperative studio is offered to young architects at below-market rentals, and a restaurant is on the first floor.

NIAE, then, is funded by membership dues, income from the new building, a portfolio of prudent investments, and gifts from friends. New memberships are encouraged, and applications and information are available from the NIAE.

The NIAE purpose—to generate excellence in architectural education—was further amplified during the last decade. A serious concern for the lack of information and the misinformation on architectural education kindled the design of "Career Day in Architecture" in 1976. Career Day introduces high school students, their advisors, and parents, to representatives from schools of architecture and to practicing architects, to provide current and correct information on what the profession is really all about.

The Paris and the Van Alen Prizes were revised to accommodate new student needs, and the new John Dinkeloo Traveling Fellowships were funded in 1985 to support a joint venture with the American Academy in Rome.

A summer architectural program for inner-city high-school juniors was designed, and the NIAE Galleries were opened. Details on the major concerns of NIAE follow:

1. Architectural design competitions for study and travel

The Lloyd Warren Fellowship/ Paris Prize in Architecture. The 73rd Paris Prize is open to senior students and recent graduates from *accredited* U. S. schools of architecture. The 1986 program is to design "a National Center for Botanical Study," and was written by Taft Architects (drawings are due June 1, 1986). Prizes amounting to $23,500 will be awarded, including a first prize of $8,000 for eight months of travel, a second prize of $6,000 for six months of travel, and a third prize of $4,000 for four months of travel. NIAE publishes and distributes a bulletin that includes photographs of winning designs and comments.

The William Van Alen Traveling Fellowship. This 15th International Competition is open to full- and part-time students working toward a professional degree in any accredited school in the world. The program, outlined by Byron Bell, is for "A celebration of Modern India across the river from the Taj Mahal." (Submissions are due in June.) Prizes amounting to $23,000 will be awarded, including two first prizes of $6,000 each for six months of travel, two second prizes of $3,000 each for three months of travel, and two third prizes of $1,500 each for one month of travel. A bulletin is published.

2. Portfolio competitions for travel and residence at the American Academy in Rome

The John Dinkeloo Traveling Fellowships. The John Dinkeloo Fellowships have been permanently endowed by Kevin Roche, the Dinkeloo Family, and friends of John Dinkeloo. The fellowships (the jury may award two fellowships each spring) are open to senior students and recent graduates. Each offers four months of travel and two months in residence at the American Academy in Rome. Requirements are a portfolio and a statement of purpose.

3. Scholarships and grants

Summer Program at Fontainebleau Scholarships. NIAE assists this summer program in France for architecture students from American schools (who will study at Fontainebleau with students of painting, sculpture, and music) by awarding full and part scholarships in late spring.

Special Grants. NIAE is prepared to financially support individuals and groups affiliated with schools of architecture who are involved in creative and impactual projects related to architectural education.

4. Information: a career in architecture

Career Day in Architecture. Career Day is an all-day Saturday immersion in architecture and architectural education for high schools students, their guidance counselors and parents. There have been nine annual Career Days in New York and two in Chicago. New York speakers have included Philip Johnson, Kevin Roche, Denise Scott Brown and Charles Gwathmey; and, *Continued*

Stanley Salzman FAIA, practices architecture in New York and is a Distinguished Professor of Architecture at Pratt. He is on the board of the National Institute for Architectural Education and a member of the Ad Hoc Committee of the Six. Last year he received the American Institute of Architecture Students' Educator Honor Award.

NIAE provides information and posters for all programs. Contact: Lillian Marus, Executive Secretary, National Institute for Architectural Education, 30 West 22nd Street, New York, New York 10010. Telephone: (212) 924-7000.

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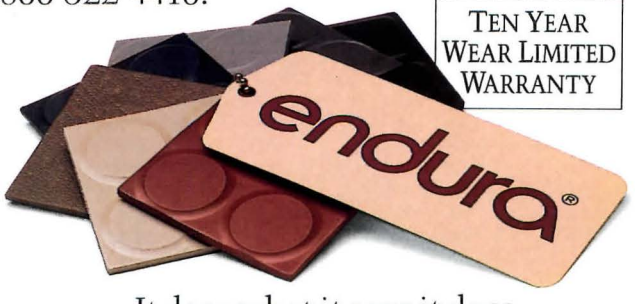

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in Chicago, Bruce Graham, Harry Weese, Diane Legge-Lohan, and Cynthia Weese. Career Day 1985 attracted more than 500 students, advisors and parents. Representatives from 36 accredited schools of architecture participated, and the key speaker was Paul Goldberger.

High School Advisors' Friday. On the Friday before Career Day, NIAE is host to high school guidance counselors and the school of architecture representatives who are in town for Career Day. After lunch the group meets informally and talks shop: architectural education. Last years' guest panel included James Ellison, American Institute of Architects; Richard McCommons, Association of Collegiate Schools of Architecture; John Jeronimo, National Architecture Accrediting Board; and Deborah Dietsch, Associate Editor, ARCHITECTURAL RECORD. This new NIAE outreach offers information on architecture and architectural education to high school guidance counselors.

The Ad Hoc Committee of the Six. One committee representing all of the permanent staff members of the major architectural organizations was a natural, and "ad hoc" was chosen to focus on immediate information related to architecture and architectural education, and to be able to act quickly. The current members are: ACSA: Richard McCommons, Executive Director; AIA (appointed by James Ellison, Administrator of Public Services): Lois Thibault, Director of Education Programs, and Alan Sandler, Director of Public Education; AIAS: Scott Norberg, President, and Whitney Powers, Vice President (founding Committee members were Thomas Fowler and Christine Reinke, last year's officers); NAAB: John Jeronimo, Executive Director; NCARB: Samuel Balen, Executive Director; NIAE: Alyce Knight and Stanley Salzman, Trustees. The first mandate of the committee was the design of effective systems of communication with high school students, guidance counselors, and parents.

A concise two-page handout on the profession and education was prepared by Lois Thibault and is now available. The committee has produced a generic, TV laser disk entitled *Career: Architecture.* The disk will be presented to more than one million high school students this year.

A computer floppy-disk, *Twenty Questions*, is in preparation under John Jeronimo's direction. By answering these questions the students set their educational goals and their qualifications. The computer screen will then show the schools that come closest to the students' needs and that might accept them. This disk will be available at the end of the year.

The committee is presently determining strategies (coordinated by ACSA) to encourage the 92 accredited schools to produce one- to three-minute video tapes that can be added to the laser disk.

Inner City Summer Program. Many schools offer summer programs for people interested in studying architecture. The NIAE summer program is directed to inner-city, metropolitan New York, high school juniors. The faculty includes teachers from Columbia, Cooper Union, City University, New Jersey Institute of Technology, New York Institute of Technology, Pratt, Princeton, and Yale. The classes are held at NIAE during after-work hours. There are no fees.

5. Exhibitions and meetings

The NIAE Galleries. These state-of-the-art galleries are ideal for the exhibition of drawings and models. The inaugural exhibition celebrated the first 25 Paris Prize winners and their drawings.

The opening night, in February 1985, of the exhibition of the work of Abraham W. Geller crowded some 400 architects and their friends in the galleries. Geller was subsequently awarded the NYC/AIA Medal of Honor and Award of Merit.

The next major exhibition will be in Spring 1986 on the work of John Johansen. Both exhibitions were partly funded by the J. M. Kaplan Fund.

Schools from across the country have exhibited student work, and metropolitan schools have shown senior projects to attract jobs for their graduates. The galleries were also a home base for *Forum*, the 1985 AIAS national convention in New York City.

Meeting Space. NIAE provides meeting and reception space, at no charge, to non-profit architecture and education organizations. The Alliance of Women in Architecture has met regularly at NIAE, as has the NYC/AIA *Introduction to Professional Practice for Recent Graduates program;* and *Women in Design.*

Traveling Exhibitions. From time to time NIAE sends exhibits of Paris Prize and Van Alen drawings to schools on a round-robin basis. The Metropolitan Museum of Art, however, is the custodian of all original drawings.

6. New directions

The New Directions Committee. A Committee of Trustees monitors all programs and proposes changes to make these programs more meaningful. This Committee also evaluates new and experimental proposals that might provoke and stimulate educators and their students to generate excellence in architectural education.

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Architectural education: A.R.E. Pre-Design— can you pass this mini-test?

With all the hoopla about the Architect Registration Examination (vividly pro and con), we wondered how critics would fare! From time to time, we will run sample mini-tests of the nine A.R.E. divisions. Take 15 minutes, grade yourself, and let us know what you think

The current A.R.E. exam (RECORD, Feb. 1984, page 39; Aug. 1985, page 53) has generated a plethora of letters. So we asked NCARB to prepare the intro below and 10 representative questions from the Pre-Design section to show what it is about. Does it seem fair, knowledgeable—if you prepared or had to grade it, how could it be better? The official approved answers are inverted below right. H.L.S.

The specifications for the Pre-Design Division of the A.R.E. include a statement of intent, a list of various tasks, and numerous considerations. This structure has assisted the examination writers in developing questions and problems to assess whether a candidate for registration is capable of providing specific professional services.

Some tasks are not easily adaptable to a written test—for example, the task of interpreting for the "owner" of a site or project the terms of a contract. The examination acknowledges such tasks by presenting to the candidate problems or questions requiring a similar thought process or particular skill.

The basic orientation and approach of Division A is outlined below:

Division A: Pre-Design
Application of the principles of land-use planning with respect to the interrelation of the intended use or uses with the environment in which it is a part; the conversion of raw data, identification of missing data, evaluation of implications, establishing alternatives, and stating the building problem in terms usable for conceptual resolution to the building and site design development of service.

This division requires responses to questions presented mostly in the multiple-choice format—in the original test, by blackening in circles for machine grading. Tasks in Pre-Design require the candidate to apply factual and practical knowledge, understanding, and experience to the subjects of design objectives, space requirements, space relationships, adjacencies, flexibility and expansibility, and site considerations, and to apply the theories and principles from architectural history relating to the usual services provided by architects in the Pre-Design phase of project development. Functional, physical/technical, economic, legal, and perceptual issues form the content areas of questioning in this division.

The questions in this mini-quiz are from the 1984 and 1985 editions of Division A. If, after taking the quiz, you would like further information about the A.R.E., write to NCARB for *Circular of Information No. 2* or data on the A.R.E. *Handbook*. Both documents are now available.

Questions

1. Which of the following factors affecting the use of exterior sitting areas for quiet reading and study could be controlled least through design?
   (A) Solar radiation
   (B) Wind
   (C) Off-site noise
   (D) Air pollution

Answer _____

2. A combination of which of the following conditions would produce a building site with very poor drainage?
   I. A stream passing through the site
   II. A gradient across the site of less than 1%
   III. A high groundwater table
   IV. A lack of available public storm drainage to the site
   V. Heavy vegetation on the site
   (A) II, III, and IV only
   (B) II, IV, and V only
   (C) III, IV, and V only
   (D) I, II, III, and V only

Answer _____

3. Assume that the following types of soil have the same density.
   I. Clay
   II. Gravel
   III. Sand
   IV. Silt
   Which of the following ranks these soils from highest to lowest in bearing value?
   (A) I, III, IV, II
   (B) II, III, I, IV
   (C) II, IV, III, I
   (D) IV, III, II, I

Answer _____

4. The greatest potential cost savings in a fast-track project, as compared to a conventionally scheduled project, accrue to whom and for what reason?
   (A) The tenant, because of lower rental rates
   (B) The client, because of lower interest cost
   (C) The contractor, because of lower construction cost
   (D) The architect, because of lower production cost

Answer _____

5. A building's ratio of net area to gross area is an indication of which of the following?
   (A) The space used by mechanical equipment in relation to the total building area
   (B) The relative efficiency of the building
   (C) The relation of the total building area to the building site
   (D) The relation of the "footprint" of the building to the building site

Answer _____

For questions 6 and 7, although more than one word may be correct, select only a *single best response* from the following:

Written Identification Answer List

A0 Architrave	C0 Megastructure
A1 Asphalt shingles	C1 Moderating
A2 Axial	C2 Module
A3 Bay	C3 Monument
A4 Clerestory	C4 Node
A5 Concentric	C5 Organic
A6 Concrete	C6 Periphery
A7 Datum	C7 Plaster
A8 Eclecticism	C8 Plastic
A9 Eutrophication	C9 Program
B0 Facade	D0 Regionalism
B1 Fascia	D1 Scale
B2 Flood plain	D2 Structural expressionism
B3 Historicism	D3 Tempering
B4 Indigenous	D4 Thatch
B5 Infrastructure	D5 Tile
B6 Interface	
B7 Isobar	
B8 Linear	
B9 Matrix	

6. What is the term that describes the effect that large bodies of water have on the microclimate of a site?

Answer _____

7. In ancient Egyptian architecture, the hypostyle hall had a higher roof than those of surrounding spaces. What is the term used to describe this difference if it is architecturally exploited?

Answer _____

Question 8 is based on the following situation:

The public housing authority of a major metropolitan area has decided to undertake an experiment allowing management of the projects by residents. To this end, the residents have elected representatives in each project to be members of a council that will concern itself with the problems and needs of the community. Some residents also have entered training programs that will prepare them for the task of managing the projects (rent collection, mail distribution, etc.).

8. The project has a fixed budget for construction and, during the course of a meeting between the housing authority and the council, it is determined that a new facility is needed which was not foreseen in the initial funding process. The architect should do which of the following?
   (A) Advise the residents that it is impossible to accommodate their needs.
   (B) Advise the housing authority that an investigation of vacant spaces within the project will be made to determine the feasibility of meeting the determined needs.
   (C) Advise the housing authority of the residents' new needs and coordinate with the residents and the authority on how best to solve the problem.
   (D) Advise the housing authority that unless the funding is produced immediately, the work schedule will be delayed.

Answer _____

9. Floor-area ratio restrictions, parking requirements, and development standards can be found in which of the following?
   (A) The zoning ordinance
   (B) The building code
   (C) The fire safety code
   (D) ANSI Standards

Answer _____

Question 10 is based on the following information:

Building site..... 120' x 160'
Efficiency ratio of building.....75%
Floor area ratio 4
Height limit ..... None
Setback ..... None
Plaza bonus .....A bonus of two square feet of gross floor area is allowed for every square foot of open plaza.

10. What is the minimum number of stories above grade for a building with a plaza measuring 64' x 75' which is developed to the maximum allowed square footage?
    (A) 4.5
    (B) 5
    (C) 6
    (D) 7

Answer _____

The following are the approved answers for the 10 questions:

1.—D	6.—D-3 or C-1
2.—A	7.—A-4
3.—B	8.—C
4.—B	9.—A
5.—B	10.—C

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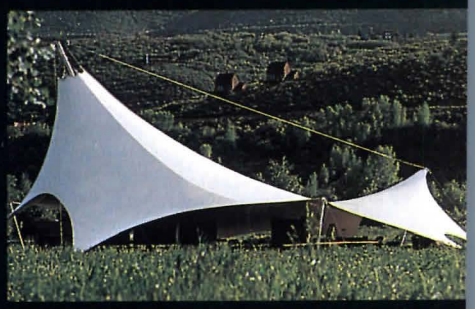

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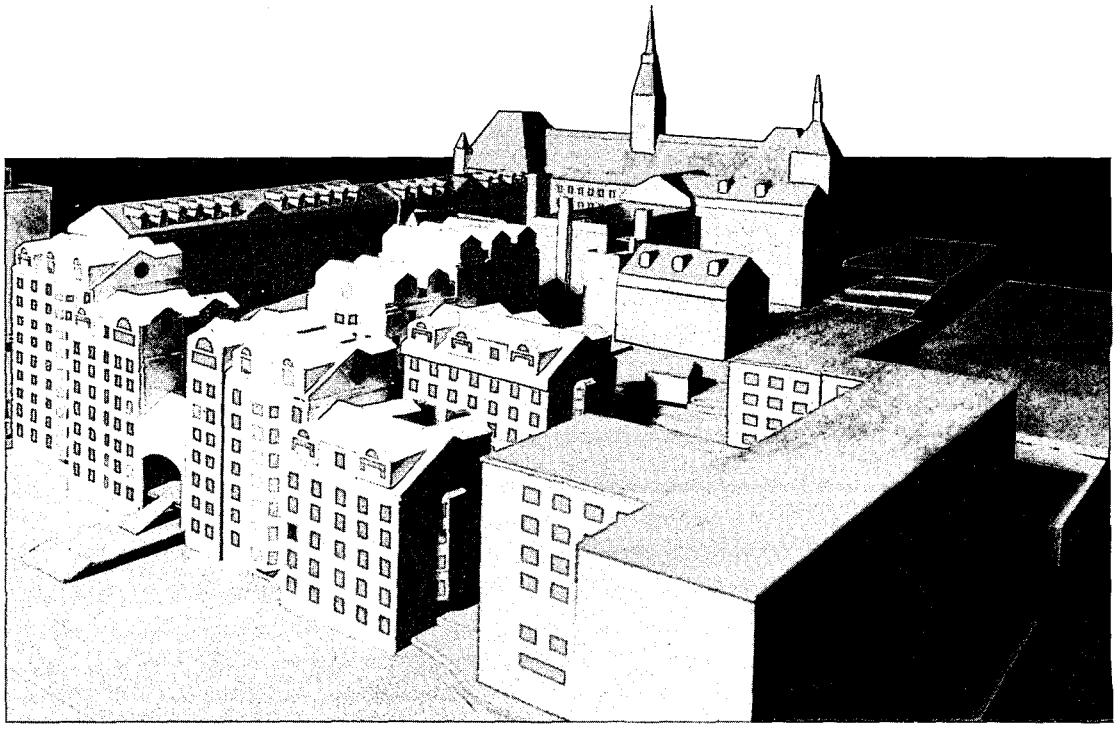
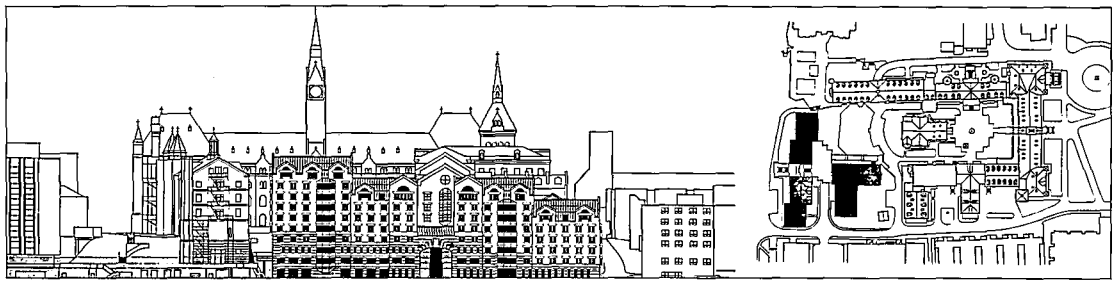
Fitting and proper: A new student residence at Georgetown

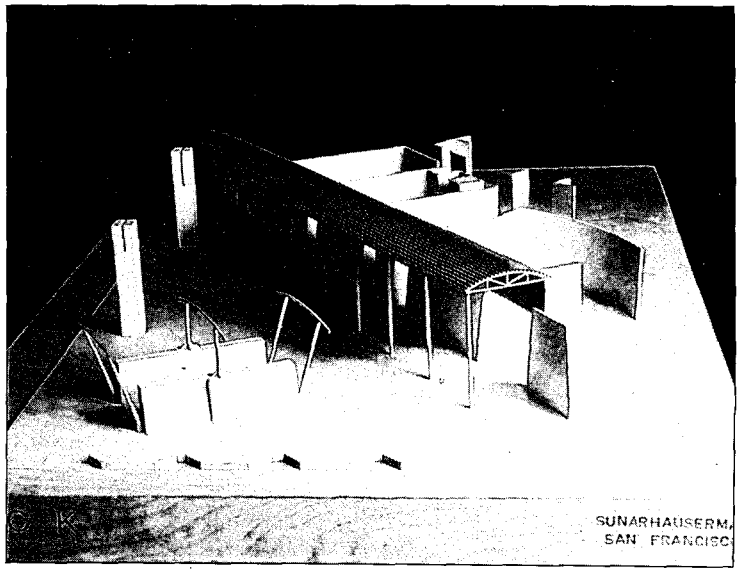




Few American academic institutions can boast the architectural distinction of Georgetown University's original quadrangle. It is a picturesque assemblage that includes the school's first structure—Old North Hall, built in 1789—in addition to Healy Hall, a distinguished Victorian Gothic pile erected at the end of the 19th century. Despite other assorted additions over the years, the quadrangle has always remained open at its western end—a situation that will soon change with the completion later this year of a 700-bed student residence complex, inelegantly dubbed Village C. Designed by Mariani & Associates, the project has been broken down into three major building groups (shaded area of campus plan above) whose stepped elevations and sloping, dormered rooflines relate to the scale and massing of older adjacent structures. Other contextually sensitive features include brick facades with cast stone trim, punched and three-sided bay windows, and arched door openings. Although the new complex will be taller than existing structures, its situation at the base of a hill will ensure the continued prominence of the landmark spire atop Healy Hall.

Life after Graves

After having engaged Michael Graves to design showrooms in New York, Chicago, Houston, and Los Angeles, furniture manufacturer SunarHauserman has decided that it's time for a change: witness plans drawn up by architect Mark Mack for a new showroom in San Francisco (right) that reveals a decided shift from Gravesian postmodernism to California primitivism.



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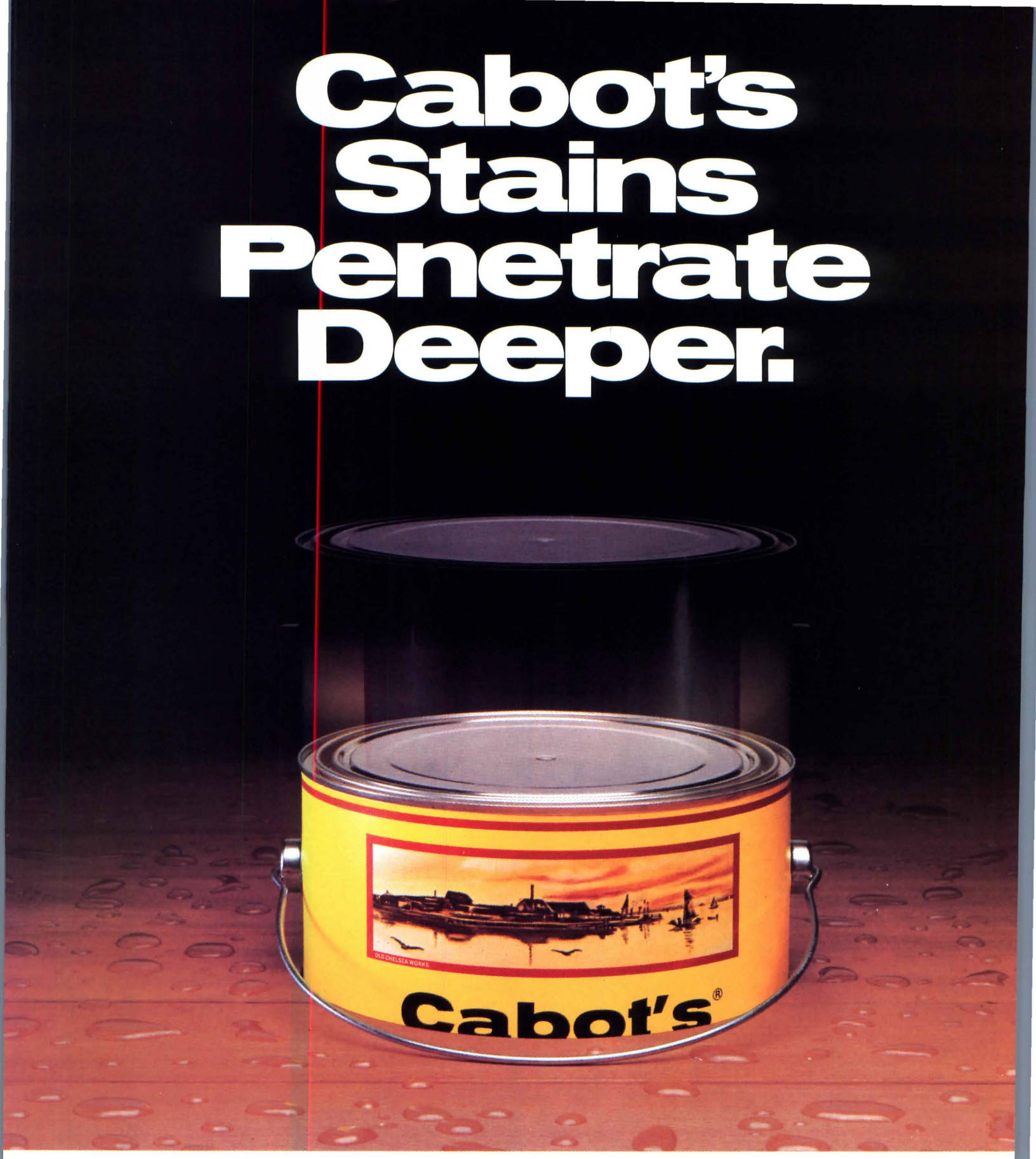

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Cabot's Stains

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News briefs

Arthur C. Erickson of Canada has been selected to receive the AIA Gold Medal, the highest honor the architectural profession bestows. Erickson becomes the 46th recipient of the award, which was begun in 1907. He will receive the medal in June at the AIA's 1986 national convention in San Antonio.

In other AIA news, John A. Busby, Jr., has been inaugurated as Institute president for 1986. Busby, executive vice president/secretary of the Atlanta firm Jova/Daniels/Busby, succeeds Kansas City architect R. Bruce Patty. . . . The San Francisco firm of Esherick Homsey Dodge & Davis has received the AIA's 1986 Architectural Firm Award, given annually to a firm that has produced "distinguished architecture" for at least ten years. . . . Nine architects from eight foreign nations have been named honorary fellows of the AIA. The 1986 honorees are John M. Davidson of Australia, Solange d'Herbez de la Tour of France, Abdel Wahed El Wakil of Egypt, Brian E. Eldred of Canada, Wilhelm Holzbauer of Austria, Henning Larsen of Denmark, Geoffrey Arthur Rowe of Great Britain, and Heikke and Kaija Siren, a husband and wife team from Finland.

Herman Miller, Inc., has won the Design Leadership Award, given annually by the American Institute of Graphic Arts to a corporation "whose overall commitment to design over a substantial period of time has consistently resulted in . . . the highest standards of graphic design."

Architect Antoine Predock of Albuquerque has been selected in a national competition to design a new fine arts complex at Arizona State University in Tempe. RECORD will feature Predock's winning scheme in next month's Design Awards/Competitions section.

Steelcase Inc., the nation's largest manufacturer of office furniture, has purchased the Meyer May House in Grand Rapids, Michigan, designed by Frank Lloyd Wright in 1909. The company, which produced the furniture that Wright designed for his S. C. Johnson administrative building in Racine, Wisconsin, will restore the house and use it for public and corporate functions.

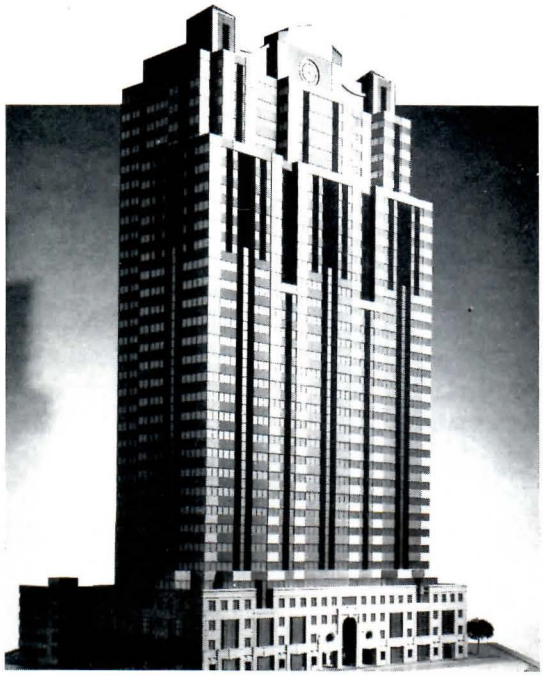
The Old Executive Office Building in Washington, D. C., an excellent example of the French Second Empire style designed by Alfred B. Mullett in 1871, is now open for public tours on Saturday mornings. For reservations, call 202/395-5893 Monday through Friday from 9:00 AM until noon.

An ambitious mixed-use proposal in the nation's capital

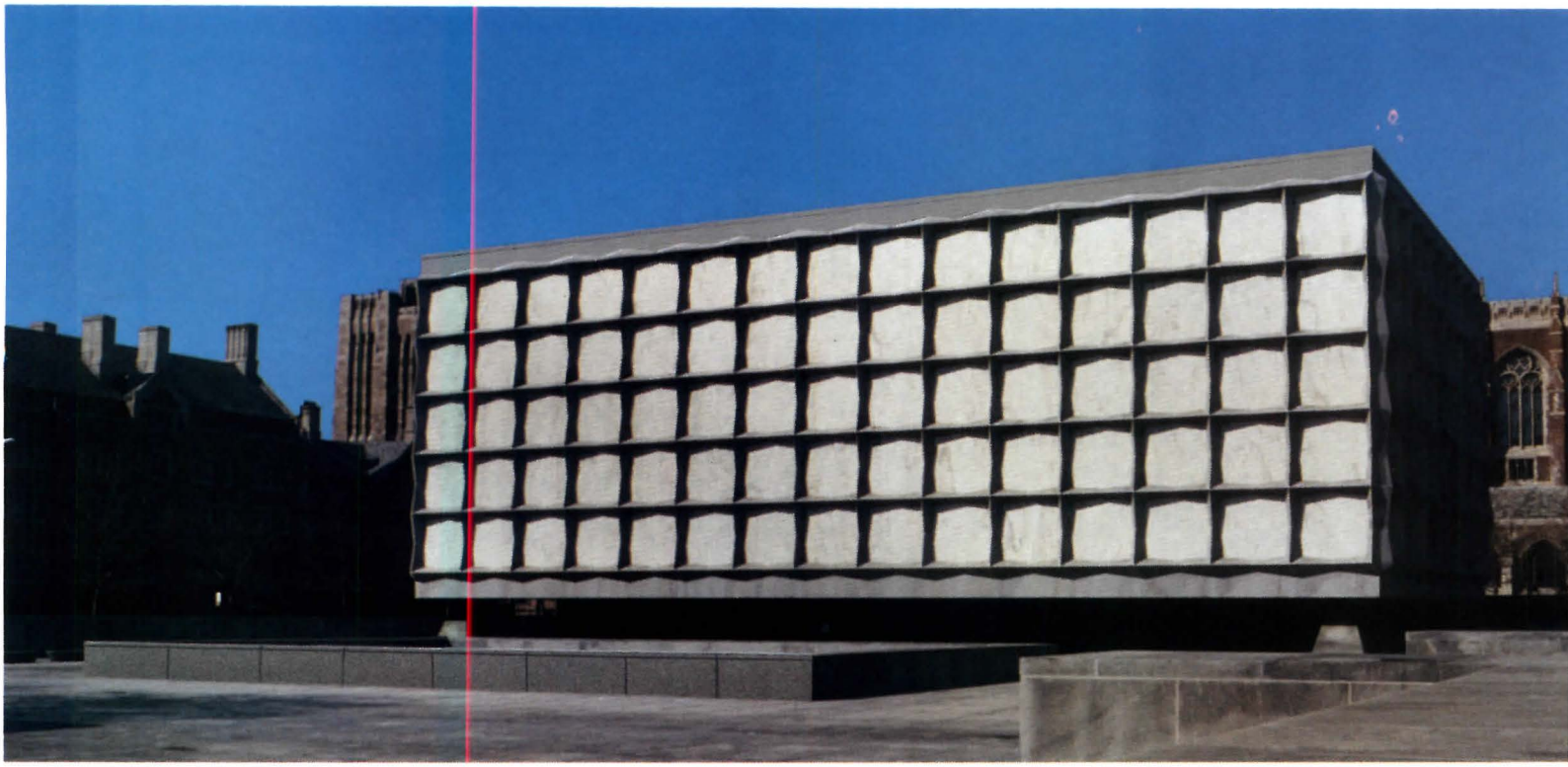
©*F. Harlan Hambright*

No stranger to grandly scaled development schemes along the Washington, D. C., waterfront, Arthur Cotton Moore Associates is about to embark on the largest private project in the history of the nation's capital. Dubbed The Portals, the 3-million-square-foot mixed-use proposal is planned for a prominent site between the city's 14th Street and Case bridges. The architects' model depicts an elaborate, almost baroque building ensemble comprising a 650-room hotel, two theaters, office space, numerous shops and restaurants, and a community center—all to be erected on a platform that conceals existing railroad tracks on the site. A new pedestrian boulevard bisecting the project is meant to enhance the never-completed Maryland Avenue axis leading from the U. S. Capitol to the Tidal Basin and the Jefferson Memorial.

Grounded in history: Two new projects by Kohn Pedersen Fox



If postmodern architecture no longer holds the shock value that it did back in 1978 when Philip Johnson and John Burgee unveiled the AT&T Building, it is partly due to the work of Kohn Pedersen Fox, the prolific 10-year-old firm that seems these days to have a commission in nearly every major American city. Perhaps more than any other firm, KPF has been successful disseminating a thoughtful brand of historicism which eschews the clichés that have crept into the work of even the best-intentioned architects. A pair of new projects exemplifies KPF's current portfolio. In Philadelphia the firm has designed Two Logan Square (left), a 34-story office tower whose severe neoclassical granite-and-glass detailing is meant to harmonize both with nearby 19th-century buildings and with KPF's own One Logan Square, a mixed-use project completed in 1984 (RECORD, February 1985, pages 142-149). By contrast, a stylized version of the neo-Gothic characterizes the design of 75-101 Federal Street in Boston (right), a 1.2-million-square-foot office and retail complex that comprises a new 31-story tower—crowned by lighted turrets and finials—and the renovation of an existing Art Deco building.



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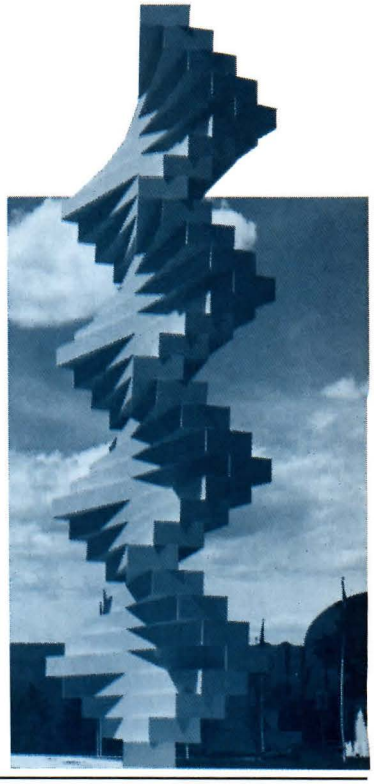
A mall by any other name. . .

The American public's appetite for shopping in what developers now euphemistically call "festival marketplaces"—first seen at San Francisco's Ghiradelli Square and more recently popularized by the Rouse Company in Baltimore, Boston, and New York—continues unabated. Just a year after the old Jackson Brewery complex in New Orleans was converted into a six-level retail center (small photo right), plans are afoot to add 70,000 square feet of "fashion, food, and fun" (developers' words) to the castellated brewhouse, which is strategically located on the Mississippi River in the Crescent City's French Quarter. A proposal drawn up by Concordia Architects calls for a four-story, stripped-down version of the original Romanesque Revival building that will feature the now-ubiquitous central atrium, crisscrossed by escalators and scaled by glass-enclosed elevators. Although the project's promoters promise that the new building's mix of shops and restaurants will reflect a strong New Orleans flavor, the original brewery complex reveals how quickly these centers—even with such seemingly "regional" accouterments as food courts, jewelry kiosks, and flower carts—have become as formulaic as suburban malls.

Denver Design Center unveils its homage to Herbert Bayer



The final work of Herbert Bayer, the former Bauhaus teaching master who died last year at the age of 85, has been dedicated in Denver. Located in front of the new Denver Design Center and part of a 55-acre mixed-use office and retail complex known as Broadway Plaza, "Articulated Wall" is an imposing eight-story-high, 1.7-million-pound work of art that is said to be the largest and heaviest static sculpture in the Western Hemisphere. The piece consists of 33 precast concrete blocks, painted chromium yellow, spiraling around a 42-inch-diameter hollow mast that was formerly the refueling tube of an aircraft carrier. The work is a recreation of a similar sculpture that Bayer designed for the 1968 Olympic Games in Mexico City, and it has been donated to the Denver Art Museum, the site of Bayer's archives, by the developers of Broadway Plaza.

West Week '86 will examine technology's impact on architecture and design

Over the past ten years, West Week has evolved from a small regional market for contract furniture manufacturers located at the Pacific Design Center into an important design conference and product showcase that annually attract an increasingly national audience. The theme of this year's West Week, scheduled for March 19-21, is "Art, Technology & Design." To underscore the relationship between art and technology, organizers have planned a "conceptual art event" by artist Tom Van Sant that features an interaction between a mirror station erected on the south plaza of the PDC and a geo-stationary satellite orbiting 22,000 miles above the earth. The following events, all to be held at the PDC or the nearby West Hollywood Auditorium, will be of special interest to architects:

Wednesday, March 19

9:00 AM-5:00 PM: Showrooms open for product viewing.

10:00 AM: Pilar Viladas of *Progressive Architecture* will introduce a retrospective presentation by Cesar Pelli, architect of the PDC.

2:30 PM: Peter Blake and James Elliott will moderate a panel on museum architecture featuring Frank Gehry, Max Gordon, Cesar Pelli, and Norman Pfieffer.

5:00 PM: Panel on the design of international corporate interiors featuring Charles Anderson Bell, Robert J. Cook, Michael Tatum, and Kenneth Walker.

Thursday, March 20

9:00 AM-9:00 PM: Showrooms open for product viewing.

9:00 AM: An all-morning conference for corporate executives entitled "Achieving Excellence in the Workplace."

2:30 PM: Architect Stephen Ehrlich will moderate a panel discussion on recent interior projects in Southern California. Rob Quigley, Johannes Van Tilburg, Joseph D'Urso, Thom Mayne, and Jill I. Cole will be featured.

Friday, March 21

9:00 AM-5:00 PM: Showrooms open for product viewing.

9:00 AM: Charles Gandee of RECORD will moderate a panel on chair design featuring Niels Diffrient, Don Chadwick, Bill Stumpf, Michele de Lucchi, and Warren Snodgrass.

3:00 PM: An analysis of artist Tom Van Sant's conceptual artwork and a discussion of space technology, its roots in art, and its influence on *mankind's environmental concerns.*

For a full schedule of West Week events, contact the PDC Public Relations Office, 8687 Melrose Ave., West Hollywood, Calif. 90069 (213/657-0800). RECORD will feature West Week coverage in its May issue.

Cloaked in controversy

©*George T. Kruse*

The debate surrounding Michael Graves's expansion plans for the Whitney Museum has reached the West Coast. At San Francisco's annual Beaux Arts Ball, architect Jim Caldwell and his wife, Phillipa, came clad in models of the Brueur original and the Graves addition. Graffiti on the Brueur model reads "Less is more," while a Le Corbusier man shouts "Non!" from a rampart on the Graves addition.

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Reviving Galveston's heritage of commemorative architecture

The seven processional arches recently erected in Galveston to celebrate Mardi Gras include designs by (1) Helmut Jahn, (2) Stanley Tigerman, (3) Charles Moore, and (4) Boone Powell.

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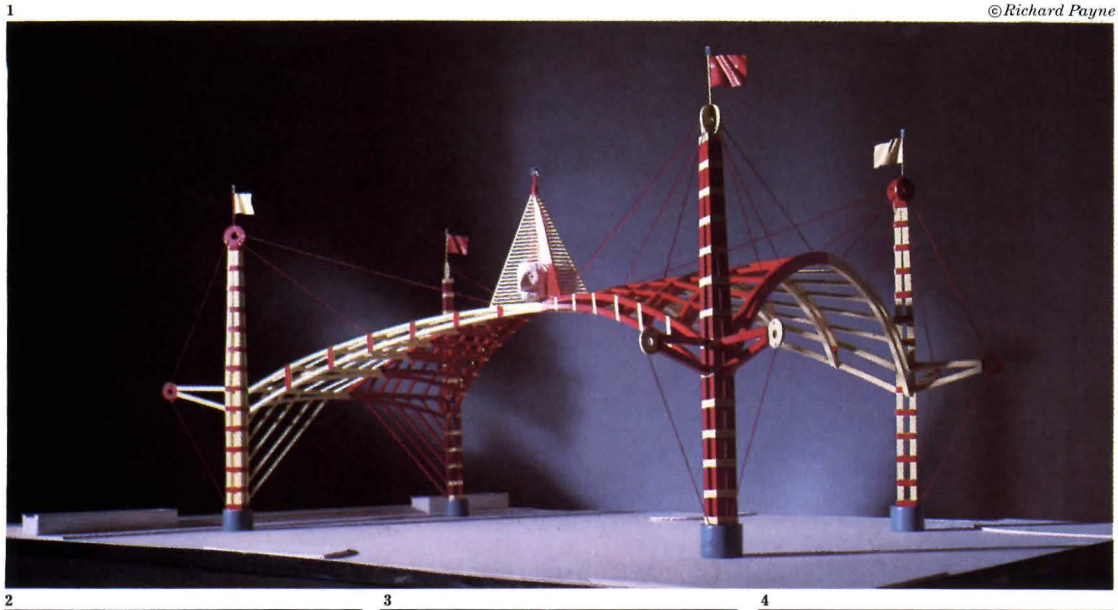

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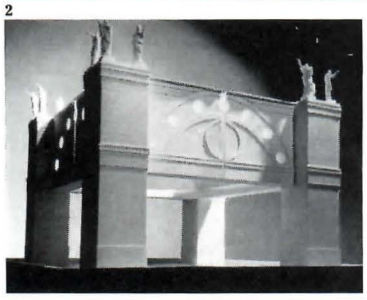

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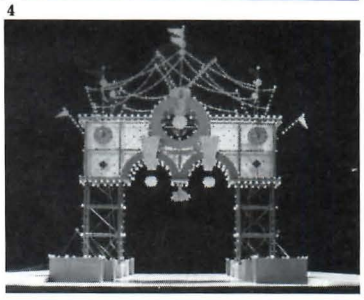

In their headlong drive to rebuild American cities, 20th-century architects have been less sensitive than their forebears to the notion of urban ritual and the time-honored practice of erecting temporary structures that both embellish the public realm and commemorate noteworthy events. Although European monarchies may have utilized celebratory architecture merely as a way of flaunting their power and appeasing the masses, the construction of garland-bedecked festival pavilions and arches in American cities during the 19th century was a considerably more civic-minded urban tonic for all the classes. It is this latter tradition that the city of Galveston has revived as part of its current Mardi Gras festivities—reinstated after a 40-year hiatus—and it has done so in a big, Texas-style way. The community's powers-that-be have commissioned architects Helmut Jahn, Cesar Pelli, Charles Moore, Stanley Tigerman, Gene Aubry, and Boone Powell to design seven arches, four of which are shown here, that will span the streets of the historic Strand district through April 15. Each arch exhibits a curious amalgam of the architect's individual stylistic tendencies and his concept of what constitutes appropriate celebratory symbolism in a city like Galveston.

AIA show is a treasure trove of sylvan delights

While lovers of things English flock to the blockbuster exhibition "The Treasure Houses of Britain" at Washington's National Gallery, a smaller, perhaps more discerning, group of anglophiles has found its way to the AIA's Octagon Museum, where a show entitled "The Architect and the British Country House, 1620-1920" is currently on view through April 6. Organized by John Harris, curator of drawings at the Royal Institute of British Architects, the exhibit comprises 90 architectural drawings, arranged chronologically, that illustrate the development of the English country house. The show features drawings by Jones, Wren, Kent, Vanbrugh, Hawksmoor, Gibbs, Adam, and a panoply of late 19th- and early 20th-century revival-style architects (including the 1873 rendering of a half-timbered dwelling by Axel Haig, shown right).

Competition calendar

• A call for entries has been issued in a competition to establish the boundaries of the Ybor City section of Tampa "through a strong entry statement or gateway that is compatible with the spirit and architectural character of the district." Prizes totaling $8,000 will be awarded. Requests for information should be made by February 28 to Stephanie Ferrell, Historic Tampa/Hillsborough County Preservation Board, 452 West Kennedy Blvd., Tampa, Fla. 33606 (813/272-3843).

• The Industrial Designers Society of America seeks entries to its annual awards program for excellence in 12 categories of industrial, product, and graphic design. Deadline for entry is May 2. For further information and entry forms, contact IDSA, 1360 Beverly Rd., Suite 303, McLean, Va. 22101 (703/556-0919).

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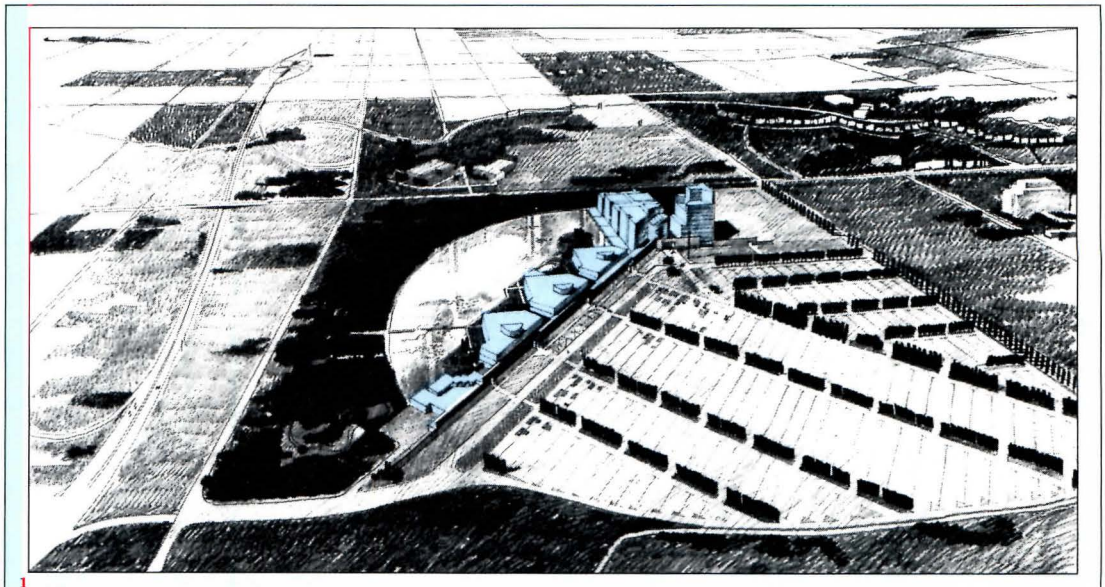
Design awards/competitions: Suffolk County Courthouse Design Competition

Mitchell/Giurgola Architects have been selected over 60 competing firms to design a new judicial complex in Suffolk County, New York. Planned for a partially wooded, 100-acre site in the community of Central Islip, the $116-million project will be constructed in three phases over the next 35 years and will eventually incorporate some 80 courtrooms, in addition to ancillary offices. Mitchell/Giurgola's entry triumphed over finalists Kohn Pedersen Fox Associates, John Carl Warnecke & Associates, Arata Isozaki & Associates, and Arthur Erickson Architects.

The jury for the Suffolk County competition consisted of Joseph D. Monticciolo, FAIA, regional administrator of the U. S. Department of Housing and Urban Development (jury chairman); Richard Bender, AIA, dean of the College of Environmental Design at the University of California in Berkeley; Milton B. Conford, a retired federal judge; Robert J. Frasca, FAIA, partner of Zimmer Gunsul Frasca Partnership in Portland, Oregon; and Don M. Hisaka, FAIA, principal of Don M. Hisaka & Associates in Boston. In premiating the Mitchell/Giurgola scheme, the jurors were especially impressed by the architects' treatment of the site, which includes provisions for a crescent-shaped manmade lake extending the length of the building ensemble. Although the complex's relative inaccessibility to public transportation made provisions for extensive open-air parking mandatory, the architects sought to avoid the appearance of one of Long Island's ubiquitous enclosed shopping malls by bisecting the site with a diagonal wall and orienting a high-rise office tower, a mid-rise District Court building, and a row of three low-rise pavilions housing Family, Supreme, and Federal courts away from parking lots and toward the wooded landscape that frames the lake.

In architectural terms, the Mitchell/Giurgola buildings occupy something of a stylistic middle-ground between the aggressively postmodernist entries of Kohn Pedersen Fox and John Carl Warnecke, both of which were replete with symbols of justice and other more generalized classical allusions, and the modernist scheme put forth by Arthur Erickson. (Arata Isozaki's submission, not surprisingly, was the most idiosyncratic of the five finalists, and it featured a large rectilinear platform with four distinctive towers at the corners, one for each court in the complex.) If Mitchell/Giurgola's winning design lacks some of the grandeur of its competitors, it also eschews much of the bombast. Clad in smooth, sand-colored precast concrete and, on two sides of the office tower, aluminum curtain wall, the structures exhibit the firm's typically understated brand of late-modernism—a thoughtful building mode intended, according to the architects, to produce "an environment that encourages the noble aspirations and goals of the judicial system and the community it serves."



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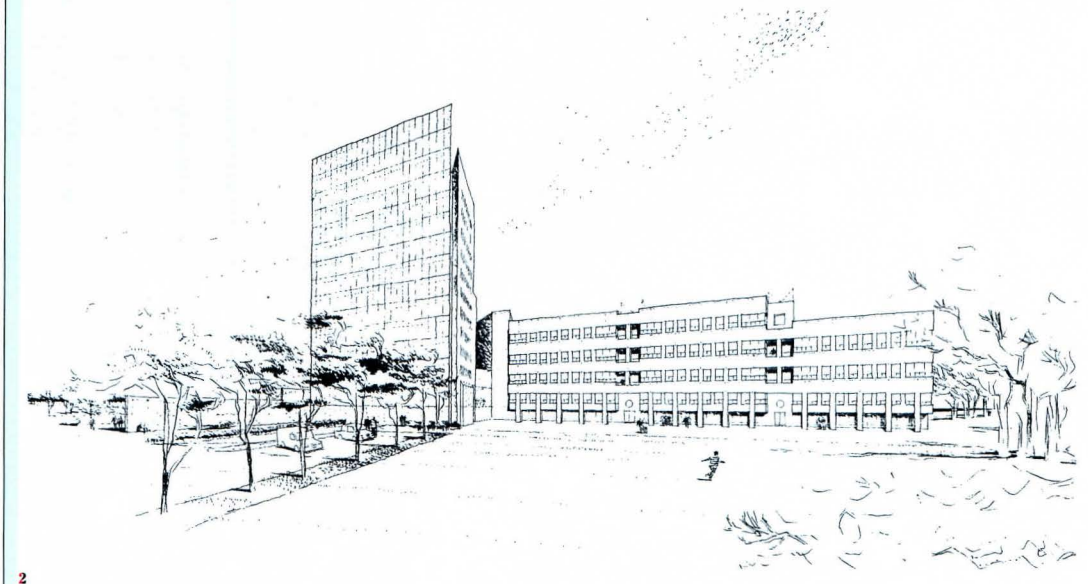

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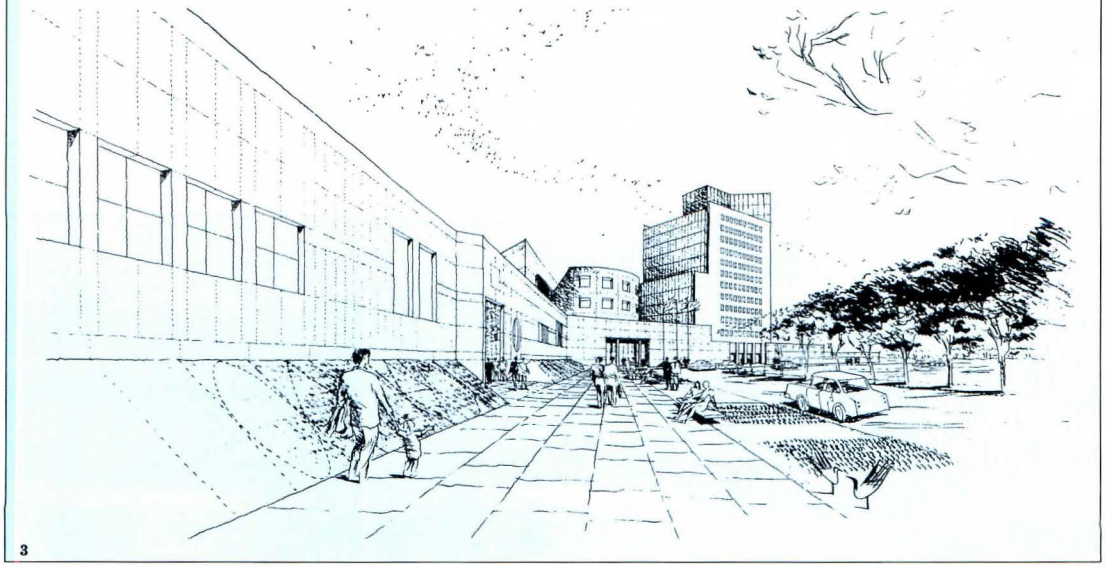
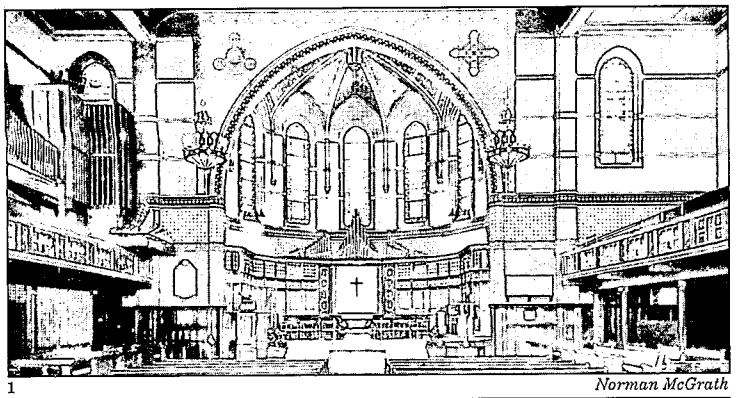


3

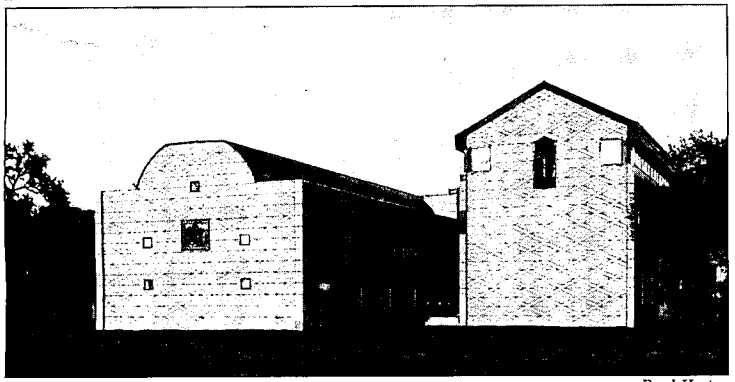
1. Aerial perspective of overall site
2. View toward District Court
3. Approach to main entry

Connecticut Society of Architects 1985 Design Awards Program

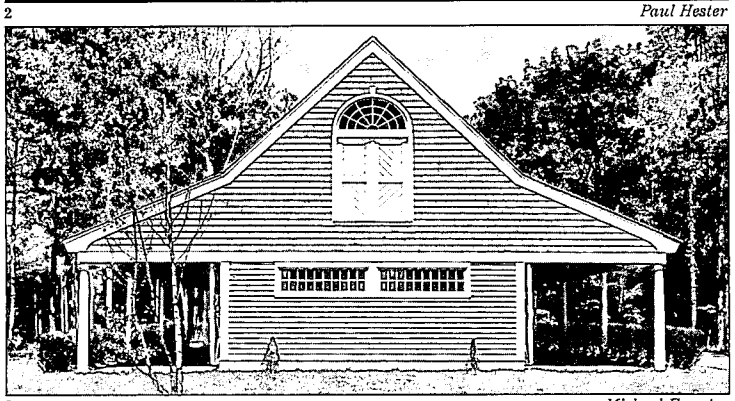
A renovated university chapel, a summer polo-horse barn, and a small inner-city apartment house were among the six completed projects recently cited by the Connecticut Society of Architects in its annual design awards program. The 1985 program attracted 85 submissions from Connecticut-based architectural firms and from out-of-state firms whose work is located in the state. Jurors were Thomas Beeby, AIA, dean of the Yale School of Architecture; David M. Childs, FAIA, of Skidmore, Owings & Merrill in New York; and Peter M. Saylor, FAIA, of Dagit/Saylor Architects in Philadelphia.



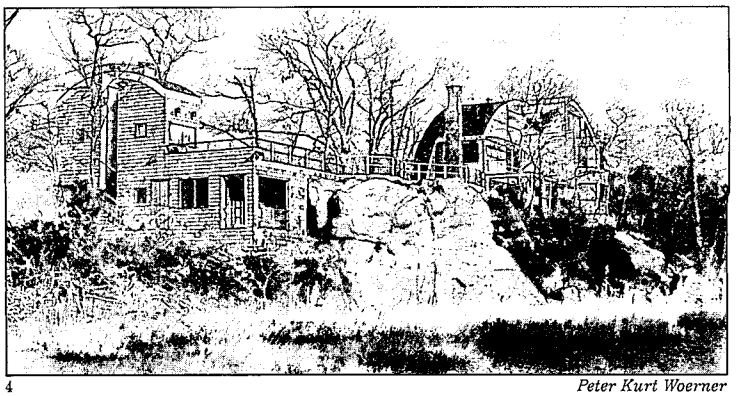
1 *Norman McGrath*



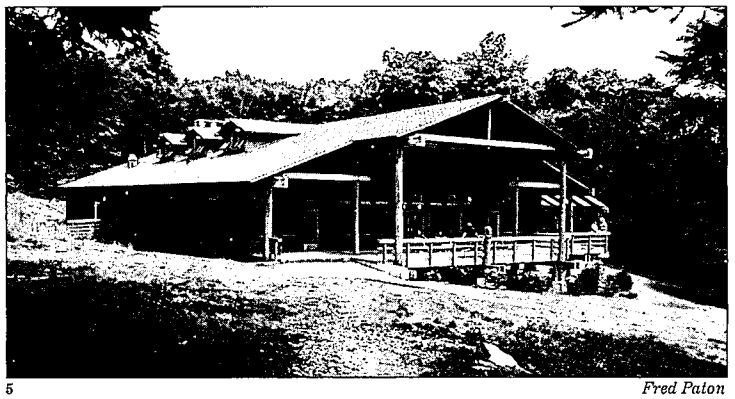
2 *Paul Hester*



3 *Michael Forester*



4 *Peter Kurt Woerner*



5 *Fred Paton*

6 *Karen Bussolini*

1. Battell Chapel Restoration, Yale University, New Haven, Connecticut; Herbert S. Newman Associates, Architects. As part of the restoration of a Victorian Gothic college chapel built in 1876, the architects used 19th-century photographs to locate elaborate interior stenciling that had been painted over during the 1920s. The stenciling was uncovered, analyzed for color, and retinted in 15 original shades. The architects also unobtrusively modernized the chapel's hvac, lighting, and fire-protection systems.

2. Robert R. Herring Hall, Rice University, Houston, Texas; Cesar Pelli & Associates, Architects. A 50,000-square-foot complex housing the university's Graduate School of Administration comprises three building wings grouped around an open court. The building's polychromed brick-and-stone facades and overall massing refer to Rice's heavily ornamented Mediterranean Romanesque architecture, designed by Ralph Adams Cram in 1910. "An effective reuse of existing campus vernacular," observed the jury.

3. Summer Polo Barn, Greenwich, Connecticut; Ferris, Franzen & Associates, Architects. Used to house polo ponies five months of the year, a 70- by 100-foot barn contains 14 stalls, tack and feed rooms, and a hayloft. The structure is constructed of driven wood piles and pressure-treated wood framing, and is sheathed with cedar clapboards and shingles. Doric columns support 10-foot-deep overhangs that soften the barn's height and provide shading for horses and grooms. "This building was designed in the great tradition of stables, yet it makes its own statement," said the jury.

4. Spitzer Pool and Bath House, Guilford, Connecticut; Peter Kurt Woerner & Associates, Architects. Designed to complement a house built by the architect in 1975, an outdoor pool complex overlooking Long Island Sound begins with a curving wall that starts low and terminates in two tower-like structures housing kitchen and storage areas. The jury called the addition "a piece of sculpture [that] is appropriate to the original house. Its playful design . . . fits nicely into the shoreline landscape."

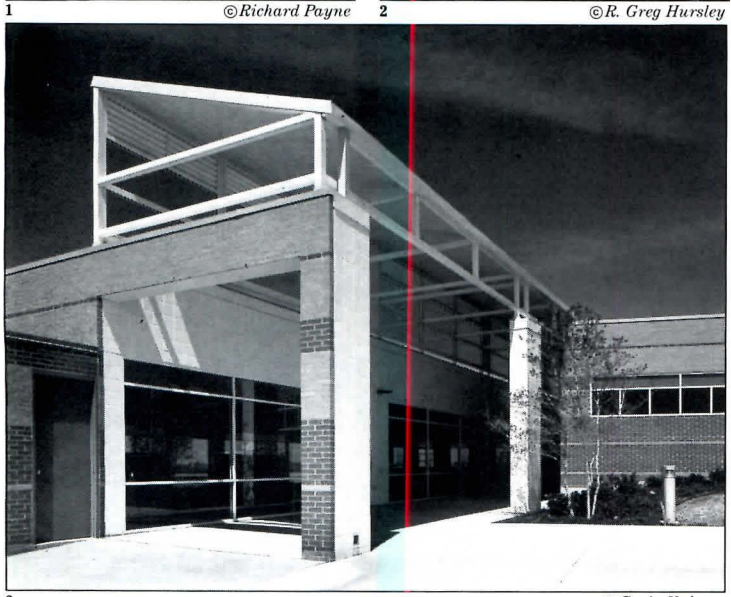
5. Camp Laurel Program Center, Lebanon, Connecticut; TPA Services, Architects. Designed as the primary activity facility and dining hall for a summer Girl Scout camp, this rustic wood-framed building was meant to harmonize both with its natural setting and with the goals of the client. The jurors felt that the architects had realized their intentions: "This building is exactly what it should be. We can almost hear the girls giggling. It respects traditional camp style with its airy interior space, . . . and all the standard elements were put together in a skillful way."

6. St. John Street Apartments, New Haven, Connecticut; Peter Kurt Woerner & Associates, Architects. In an intriguing adaptive reuse project, a vacant concrete-block building on a residential street was converted into four apartments with private courtyards. Oversized windows on the rear elevation illuminate the interiors, while new triangular pediments on the street facade refer to the gable ends of nearby houses. The jury praised the architects for "transforming an eyesore into a gentle, discreet, and simple neighbor."

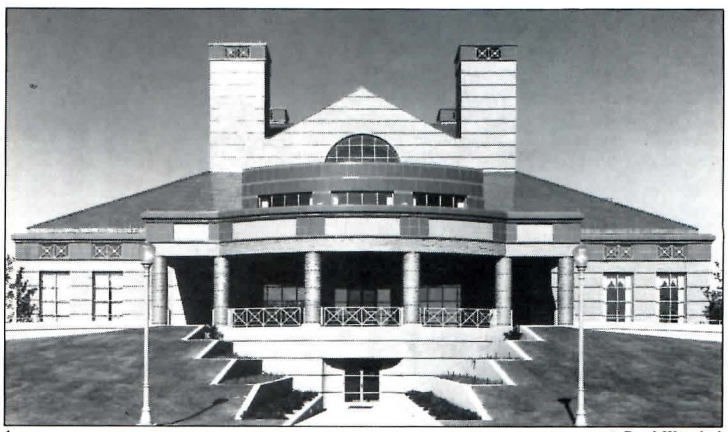
Texas Society of Architects 1985 Design Awards Program

1 ©*Richard Payne*

2 ©*R. Greg Hursley*



3 ©*Craig Kuhner*



4 ©*Paul Warchol*

5 ©*Paul Hester*

6 ©*Balthazar Korab*

1. Four Allen Center, Houston, Texas; Lloyd Jones Fillpot Associates, Architects. For a speculative office project at the western edge of downtown Houston, the architects designed a 50-story, 1.3-million-square-foot tower clad in alternating bands of silver reflective glass and white-coated metal panels. The jury called the design "brilliantly executed minimalism . . . and a new contribution to the high-rise fashion show. The structure's rounded ends give an almost kaleidoscopic view of the buildings around it."

2. Robertson Building Renovation, Austin, Texas; Robert Jackson Architects. An adaptive reuse proposal called for the conversion of a Romanesque Revival warehouse, designed in 1893 by James Riely Gordon, into a mixed-use office and retail facility. In addition to restoring the original facade, the architects allowed natural light into the center of the building by exposing the upper two levels of a 55-foot-high courtyard. The jurors praised the architects "for opening up the time capsule on this beautiful building. The level of attention to the common spaces is in line with the high quality of the original structure."

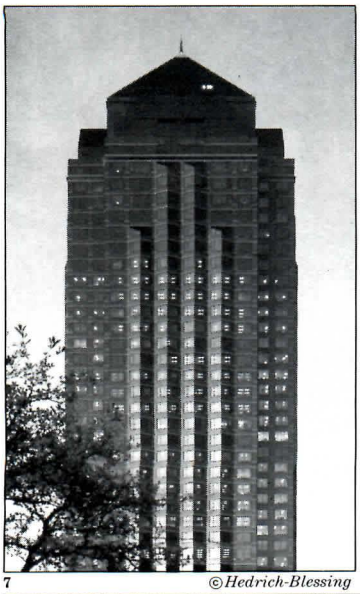
3. Allen Doctors Building, Allen, Texas; Good, Haas & Fulton, Architects. For a 15,000-square-foot medical office project located in a Dallas suburb, the architects eliminated the need for interior corridors by arraying three buildings along an exterior gallery clad in white glazed tile. Light monitors in the gallery roof allow natural illumination to enter adjacent offices. The jury praised the project's crisp detailing and the rhythmic interplay of its subtly banded gray-brick facade.

4. River Crest Country Club, Fort Worth, Texas; Taft Architects (RECORD, October 1984, pages 178-187). Four chimney-like stacks emphasize the cross-axial organization of a 54,000-square-foot clubhouse, designed to reflect the Colonial Revival character of an 80-year-old structure that had been destroyed by fire. "You can look at this project and tell that it is in equilibrium," said the jury. "It's one of those rare cases where the architect and the budget were just right for each other."

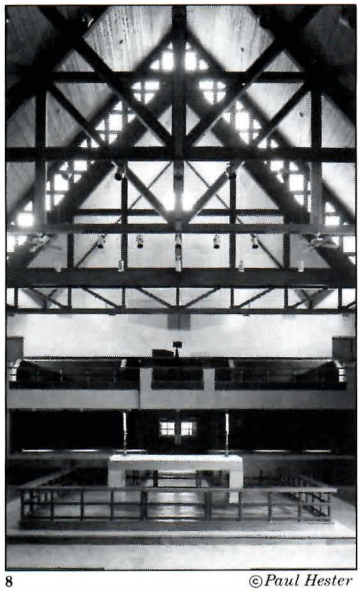
5. Village Square, Houston, Texas; William T. Cannady & Associates, Architects. In order to revitalize several vacant buildings in Houston's earliest suburban shopping center, the architects painted existing brick facades, enlarged narrow upper-story strip windows, stuccoed over tile and stone panels, and added pediments over the main entrance pavilions. Horizontal black awnings unify the overall composition. Said the jury, "With restraint and minimal means, the architects have turned a tawdry corner into a real asset for the neighborhood."

6. Woo House, Dallas, Texas; Woo James Harwick Peck, Architects. For the renovation and expansion of an existing two-story clapboard house in an established Dallas neighborhood, the architects kept the street facade essentially intact and added a series of rectilinear wings grouped around a central courtyard and swimming pool. A circulation corridor between the courtyard and house doubles as gallery space. A brilliant color palette of red, blue, green, and yellow was inspired by local vegetation and helps denote where the original house meets the new addition.

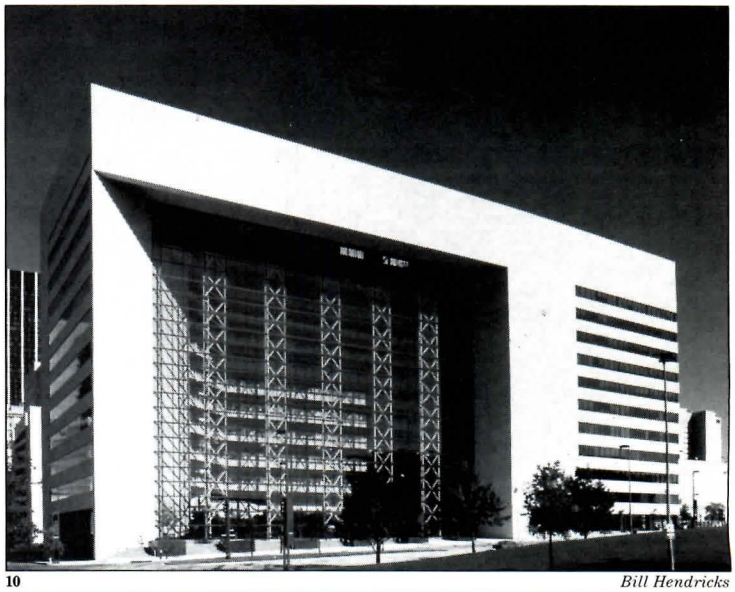
The Texas Society of Architects has recognized a total of 15 projects in the categories of general design and interior design in its annual awards program. We illustrate below the 12 premiated projects in the general design category, selected from a field of 271 entries by jurors Bill N. Lacy, FAIA, president of The Cooper Union in New York City; Charles Redmon, FAIA, principal of Cambridge Seven Associates in Cambridge, Massachusetts; and architect Mark Mack of San Francisco. The interior awards phase of the program attracted 79 entries and was judged by Edward Mills, FAIA, principal of Voorsanger & Mills in New York City; Margo Grant, AIA, principal of Gensler & Associates in New York City; and Stuart Cohen, FAIA, associate professor of architecture at the University of Illinois in Chicago.



7 ©Hedrich-Blessing



8 ©Paul Hester



10 Bill Hendricks

9 James F. Wilson

11 ©Paul Hester

12 Brian Scott

7. LTV Center, Dallas, Texas; Skidmore, Owings & Merrill, Architects. The jury praised this mixed-use tower for setting "a new standard of architectural style for high rises." The structure's location in the pedestrian-oriented Dallas Arts District influenced the decision to place shops, restaurants, and exhibition space in a two-story skylit pavilion. The architects have likened the building's cruciform plan and tripartite elevation to a campanile symbolizing the cultural significance of the area.

8. Church of the Good Shepherd, Tomball, Texas; William T. Cannady & Associates, Architects. A new sanctuary for an existing Episcopal church complex near Houston was designed in the form of a Greek cross, with an exposed-truss roof system resting on four steel columns. "This really looks like a church, even with its postmodernist vocabulary," observed the jury. "There is a feeling of restrained celebration."

9. Benchmark, Longview, Texas; Gary Cunningham Architects. For an office building situated in an East Texas forest, the architects developed a brick facade, seemingly an abstract ruin, that both blends in with its rustic setting and projects a strong image for potential tenants. Said the jury, "Of all the projects we looked at, this is the one with the strongest concept. Rather than making a decision to either blend or contrast with nature, the architect has done both, and he succeeds in showing us this duality."

10. Employers Insurance Building, Dallas, Texas; Burson, Hendricks & Walls, Architects. Faced in precast concrete and glass, a 13-story, 500,000-square-foot addition to an existing corporate headquarters is meant to harmonize with adjacent, similarly clad buildings in downtown Dallas. The jurors reserved their highest praise for the structure's full-height, tubular steel atrium, which they called "both responsive to the city—the public can see inside day or night—and enjoyable for the inhabitants of the building."

11. Frost Office Building, Houston, Texas; Ray B. Bailey Architects. Located on a modest-sized lot in a transitional neighborhood between Houston's downtown and Galleria areas, a three-story mixed-use project contains 7,500 square feet of office space and 1,400 square feet of housing. Small windows and a sloping roof articulate the residential phase of the project, while a broad expanse of horizontal windows expresses the office section. Rose-colored stucco and green awnings are meant to convey a noncommercial image.

12. Addison Market, Addison, Texas; Urban Architecture, Architects. The architects specified brick, polished ceramic tile, and clustered columns to create an identifiable image for a 13,800-square-foot strip shopping center, located on a major thoroughfare north of Dallas. The jurors admired the "sophisticated use of traditional low-cost building systems," and they had special praise for stepped parapets that "give an overall visibility while retaining an individual identity for each shop."

In the interior architecture category, the winning projects were Ferguson's Map and Travel Store and the Negley Paint Company in San Antonio, by Chumney/Urrutia; the Trammell Crow Company Offices in Houston, by Skidmore, Owings & Merrill; and the Woo House in Dallas, by Woo James Harwick Peck.

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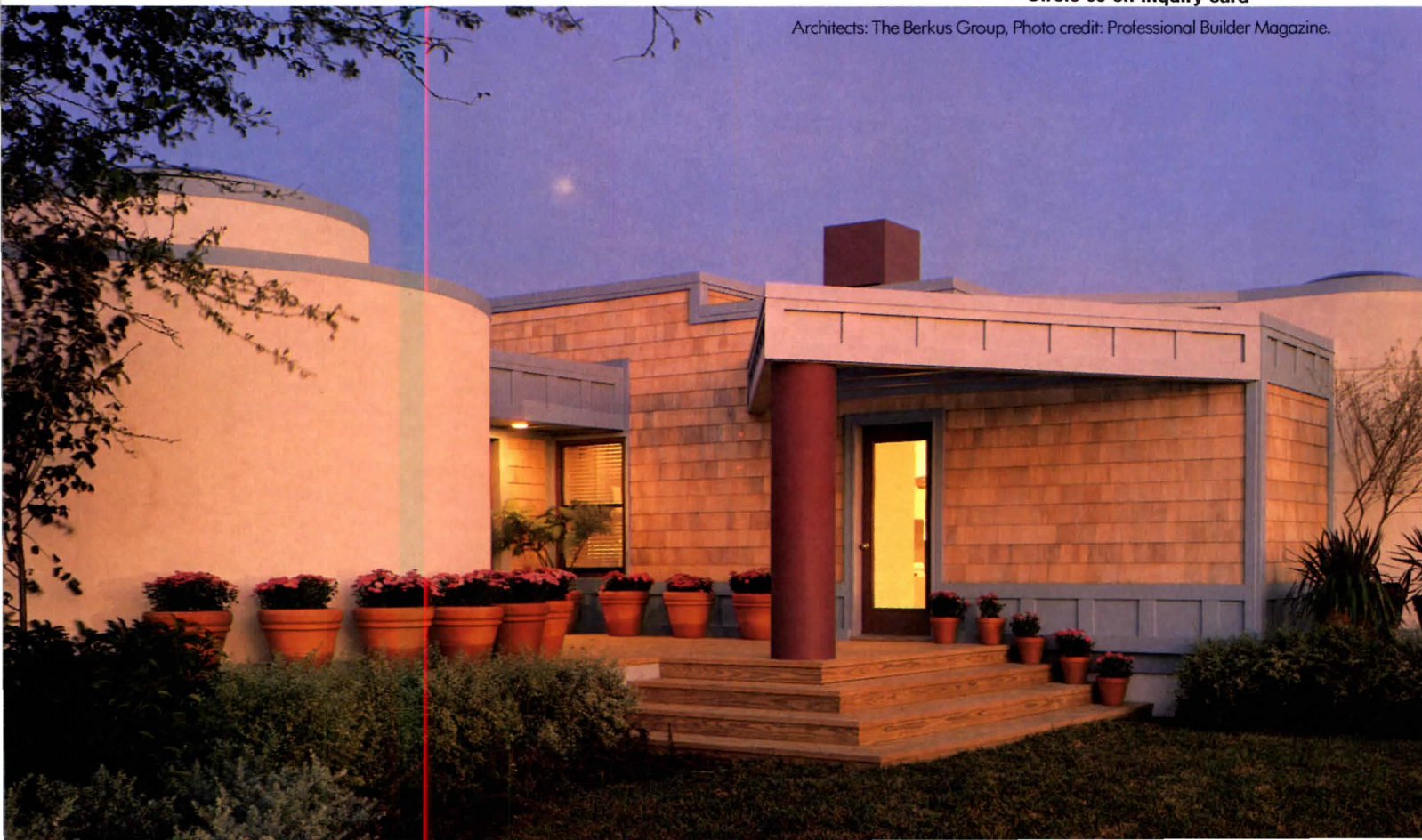

Architects: The Berkus Group, Photo credit: Professional Builder Magazine.

Leonardo Architect, by Carlo Pedretti. New York: Rizzoli, 1985, $75.

Reviewed by Dennis P. Doordan

Leonardo Da Vinci is one of the most fascinating figures of the Renaissance. A true polymath, he possessed an insatiable curiosity and an encyclopedic knowledge of the arts and sciences of his day. His wide-ranging interests and his contributions to a variety of fields combine to make him an attractive role model for architects who continue to see themselves as generalists.

Leonardo is also one of the most frustrating historical figures to study. Few of his architectural projects were actually built, and little of what was constructed survives in a form approximating its original condition. His fame rests primarily on the numerous drawings and notebooks that are scattered in libraries and collections around the world.

One of the foremost Leonardo scholars working today, Carlo Pedretti is eminently qualified to lead the reader through the bewildering maze of material pertaining to Leonardo's interest in architecture. *Leonardo Architect* is arranged chronologically. All of the drawings, notes, and other historical material related to a particular project are collected and analyzed in meticulous detail. This book is without a doubt the most thorough analysis of Leonardo's architecture available in English.

Pedretti interrupts his chronological survey with a series of short essays devoted to special topics. These essays describe recent revelations gained through the ultraviolet photography of Leonardo's manuscripts and discuss various treatises either owned and annotated by Leonardo or dedicated to him. The book concludes with five appendices examining "Special Problems," which include detailed analyses of Leonardo's perspectival studies, his theater and set designs, ornamental designs, and studies for machinery, tools, and utensils.

The vast majority of the book's 544 illustrations are drawings by Leonardo, who attached particular importance to this skill. Leonardo believed that sight was the primary sense organ through which we acquire knowledge; thus he equated seeing with learning. The act of drawing was, for Leonardo, the very conquest of knowledge itself. His frequent use of perspectival sections was unusual and represents an important contribution to the development of architectural graphic techniques in the Renaissance. The quality of the reproductions in *Leonardo Architect* is excellent, and the reader is able to study even the smallest marginal notations. Moreover, Pedretti supplements Leonardo's drawings with analytical diagrams that clarify crucial features of various projects.

Although he does not ignore theory, Pedretti focuses primarily on real commissions that Leonardo received during the course of his long and varied career. The result is an informative survey of the kinds of design problems an architect confronted during the Renaissance. In addition to churches, palaces, and villas, Leonardo designed fortifications, a small portable study for himself, a stable for the Medici with an ingenious double-wall construction, and harbor facilities for the papal port at Civitavecchia.

Leonardo Architect is especially rich in material pertaining to Leonardo's involvement with civil engineering problems. Pedretti demonstrates how, beginning in the late 1480s, Leonardo's interest in urban planning prompted him to explore accurate methods of topographical mapping. This skill proved crucial later when Leonardo was involved in various schemes to alter the topography of a particular area for military, sanitary, or commercial purposes. In 1503, for example, Leonardo proposed diverting the course of the Arno River as part of the Florentine campaign against rival Pisa. In 1514-15 he drew plans for draining the malaria-infested Pontine marshes near Rome. His last architectural commission, in 1517-19, involved the design of a royal residence for the French king at Romorantin, in the Loire region. According to Pedretti, Leonardo used this occasion to propose an extensive system of canals and rivers intended to create a navigable waterway linking the English Channel with the Mediterranean. Pedretti is at his best with this kind of material, tracing the threads of continuity in Leonardo's career and explaining their interrelationships.

Despite the thoroughness of Pedretti's treatment, he offers no new insights into the enduring puzzle of Leonardo's career. Leonardo's patrons form a truly impressive list that reads like a *Who's Who* of Renaissance Italy. He was active in Florence, Milan, and Rome during particularly stimulating periods in the cultural life of each of these centers of Renaissance art. Why, then, did so few of his projects reach fruition? True, his career spanned a period of immense political turmoil, and his involvement with the design of fortifications and weapons of war is a direct reflection of that turmoil. Undoubtedly, the shifting fortunes of war account for some of Leonardo's own misfortune as an architect. However, his colleague Bramante managed to flourish in the same period, as did Raphael and Michelangelo, the other giants of his age. External circumstances alone are not enough to explain the fragmented nature of Leonardo's legacy. Pope Leo X, one of Leonardo's many patrons, once exclaimed in frustration, "Alas, this man will never do anything, for he begins by thinking about the end before the beginning of the work." Leonardo's imagination and vision knew no bounds, yet there comes a time when every designer must make the leap from vision to execution. Leonardo had trouble making that leap.

Leonardo Architect is a richly satisfying visual presentation of Leonardo's architectural work. A careful study of it reminds us that, ultimately, the complement to Leonardo's dictum *saper vedere* (knowing how to see) is *saper fare* (knowing how to do).

Dennis P. Doordan, an architectural historian, received his Ph. D. from Columbia University. He currently teaches in the School of Architecture at Tulane University.

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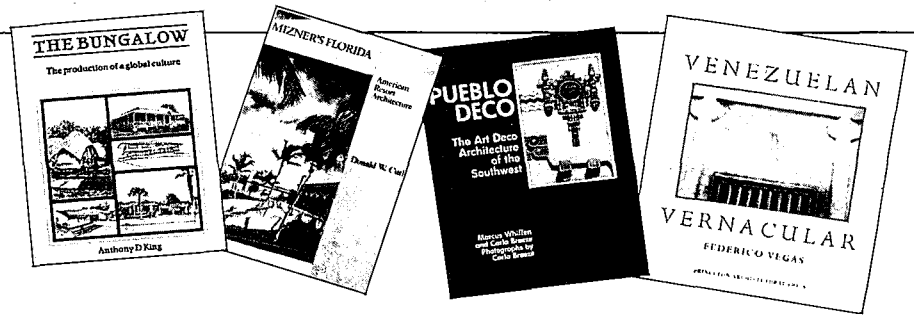


Reviewed by Julie V. Iovine

The Bungalow: The Production of a Global Culture, by Anthony King. London: Routledge & Kegan Paul, 1984, $50.

Bangla, bunglow, bangallaa, bungalo. The bungalow seems to mean all things to all people in Anthony King's searching international analysis of "the political, economic, and cultural factors" that have shaped this modest building form. From the Bengal village huts of India to the replicants sprawled around Los Angeles, King tracks down their every manifestation, interspersing sophisticated views on "urban dialectics" with romantic ditties eulogizing "our little love nest." The saga of "bungaloid growth" is rife with contradictions and reversals. Even the bungalow's shape cannot easily be restricted to the generic one story under one span of roof and, by King's broad definition, the genre must include villas with sweeping verandas and railroad cars mounted on concrete. In the 1800s, English bohemians championed bungalows as "artistic little dwellings, cheaply but soundly built," while by the 1950s, they became synonymous with racist segregation in West Africa. The only consistent theme seems to be their irresistible attraction for capitalist societies bent on carving up the countryside.

In the United States, California bungalows—particularly those by Greene & Greene—have long been a popular topic for monographs on the American Arts & Crafts movement, but King has a different point to make. Finding the subject of architectural styles far too limiting, he focuses instead on the "larger meaning of the bungalow for understanding urbanization and development." Architects, in fact, have had little to do with the bungalow phenomenon. According to King, it was the architects, aristocrats, and intellectuals who contributed to the bad name bungalows later developed in England, holding them responsible for despoiling the land and even instigating the first planning laws to restrict their spread. After reading this dense and brilliant study, no one need ever doubt that bungalows are bigger than life, if not quite as large as the split-level ranch house.

Mizner's Florida: American Resort Architecture, by Donald W. Curl. Cambridge: The Architectural History Foundation with the MIT Press, 1984, $30.

In the early 1950s a *New Yorker* profile recirculated all the old canards about Addison Mizner as the society architect of the '20s who designed in a "Bastard-Spanish-Moorish-Romanesque-Gothic-Renaissance-Bull-Market-Damn-the-Expense Style." More recently, however, people have begun to alter their view of Mizner's Florida work, wondering if his historicist solutions might have been appropriate after all. *Mizner's Florida* combines colorful biography with a thorough reevaluation of the architect's contribution to regional design.

There is no denying that the man was flamboyant and his training eclectic. Aside from two years in Stanford White's office, Mizner learned by traveling with a sketchbook to Guatemala, Spain, China, Hawaii, and Alaska. A bon vivant with a small fortune of his own, Mizner attended parties nightly, dressed in black tie or, as he said, his "fishing clothes," for his clients were always the spoiled rich. After a successful stint in New York, Mizner moved south for his health in 1918, and he altered Florida's architectural history by introducing the Spanish style for the Everglades Club in Palm Beach. Between 1922 and 1925, his most productive years, Mizner designed some 30 villas in Palm Beach. Whether they were in the Spanish mode—all the rage then and not just in Florida—or Venetian Gothic, Mizner's houses shared certain design elements: vast living rooms, loggias on the sea, cloisters, "floating" staircases with partially exposed stone risers, coffered ceilings, and iron grillwork. The rooms were filled with antiques that Mizner scouted out on his annual European tour or with "antiques" created by Mizner Industries.

In 1925 the land bust caught Mizner in the midst of his most ambitious project—a resort city in Boca Raton—and, after that fiasco, his career suffered even more when the fickle Palm Beach crowd lost interest in the Spanish style and in last year's architect. Shortly after his death in 1933, nearly all of his villas were demolished, and Mizner himself was dismissed as a "never-legitimately-frocked architect." The tide did not turn until 1977, when permission to raze one of Mizner's last great Palm Beach mansions was denied; but the ultimate step in the resurrection of the architect's reputation came slightly later with the appropriation of the Mizner look by Florida's current crop of postmodernist architects.

Pueblo Deco: The Art Deco Architecture of the Southwest, by Marcus Whiffen and Carla Breeze. Albuquerque: University of New Mexico Press, 1984, $19.95.

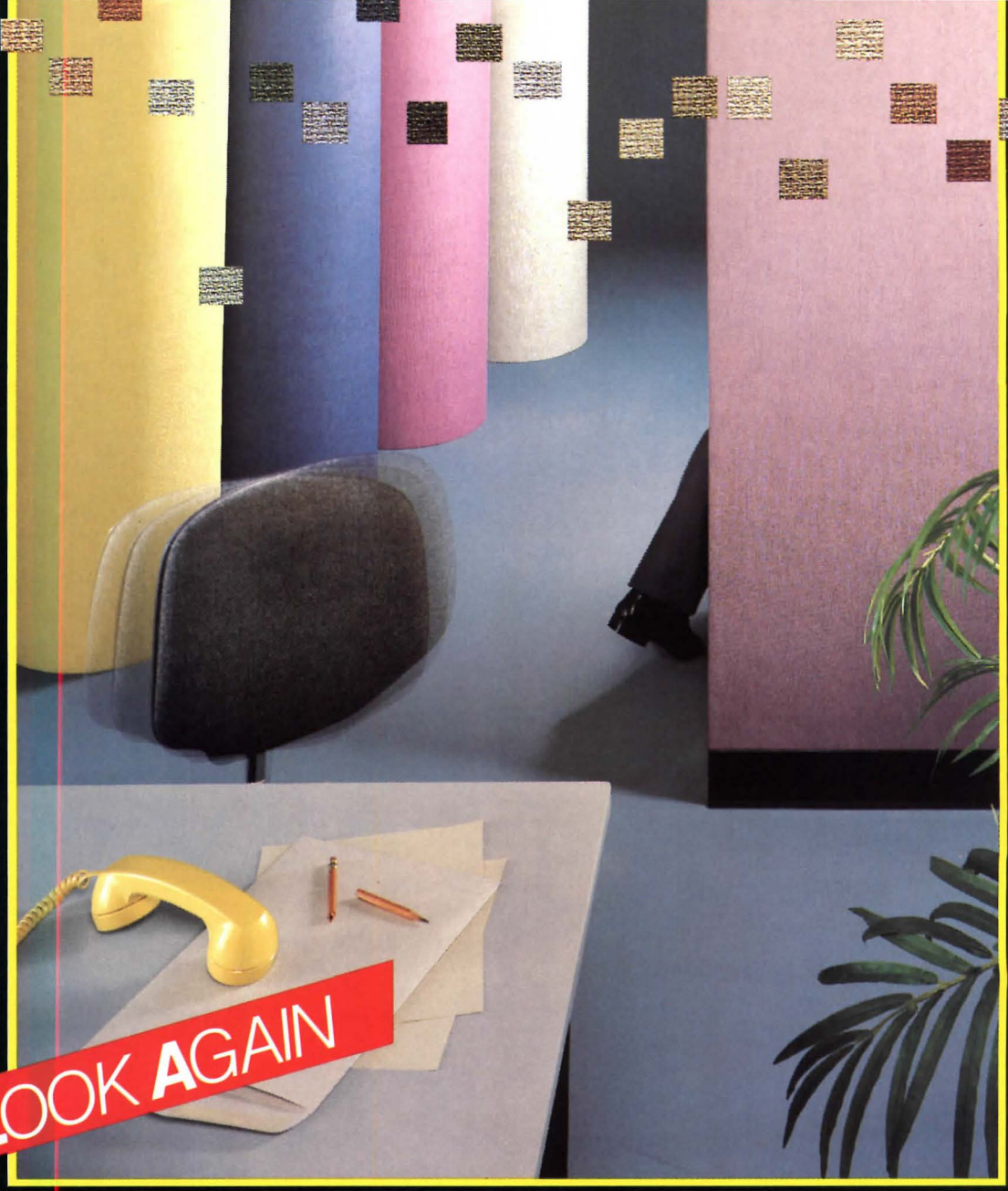
"Pueblo Deco" may sound like a contradiction in terms to anyone who thinks of Art Deco as a style meant for streamlining and the stainless-steel shine of machinery. But in Bisbee, Arizona, it means a five-story "skyscraper" with abstracted cacti over the windows. The authors account for over 50 other buildings in the Southwest that borrow their massings from Deco and their ornamentation from American Indian pottery, basket work, jewelry, and textiles. This curious hybrid style, indigenous to Arizona, New Mexico, and Texas, "represents a creative translation of forms from one medium into another" that, the authors contend, "cannot be characterized as revivalism" (or more bluntly, pop revivalism, as in the Mayan movie theaters of Los Angeles).

Certainly, nothing quite compares with the KiMo Theater in downtown Albuquerque, "a quintessential example of Pueblo Deco." The tripartite block with a central setback hints at the beginnings of a skyscraper, and the heavily encrusted turquoise and corn yellow terra-cotta medallions along the roof line—depicting Pueblo rain clouds, pyramids, vegetables, and Navaho zigzags—certainly speed the eye upward, but the results suggest more Mexican Baroque than big-city Moderne. While evidence of Spanish and Moorish influence on form also abounds, the Bassett Tower in El Paso proves that "Art Deco of the most abstract kind without any admixture of Spanish" was also possible. Other decorative motifs range from shallow piers topped by thunderbird reliefs and profiles of chieftans to friezes comprising chevrons and Zia sun symbols. The best place to look for signs of Pueblo Deco is on courthouses, banks, and department stores. None is a major work of architecture, and many have fallen on hard times, but all attest to the vivid imagination of local architects in the 1930s, determined to be with-it and still true to their own special sense of place.

Venezuelan Vernacular, by Federico Vegas. Princeton: Princeton Architectural Press, 1985, $25.

Most of us associate vernacular in architecture with a home-grown, local mode of building. In *Venezuelan Vernacular,* Federico Vegas has taken a much closer look at the origins of the word itself and then developed a fascinating, if sketchy, theory about the history of Spanish-American town architecture to accompany his, Ramon Paolini's, and Martin Vegas's stunning Venezuelan photographs. Make no mistake, the author insists, this is primarily a picture book and the text is not to be trusted, for "the literature on vernacular architecture is a literature of opinion only, sometimes arrogant, always distant and unattached." Disclaimers aside, Vegas's contribution to the literature has an ephemeral, but impressive, clarity. Floating beneath a series of elegantly laid-out images of gaily painted house fronts, striking ornament, and brilliant details (always photographed at the most pristine moment of a cloudless day), Vegas's essay spins out from the root word "verna," meaning "a slave raised in the household of his master." Thus, the Spanish-American town vernacular style is born of the norms imposed by Spanish colonials on the Americas during the 17th century. Beginning with the imported notion of a street grid and square, the true vernacular style ultimately burst forth during the 19th century when colonial rules were broken and whitewashed streetwalls suddenly went ablaze with color. Vegas's opinions are at their most enticing and credible when he discourses on the reason for such vivid architecture: to create "an illusion of diversity," he says. In an impoverished world that recognizes that there are many options and no resources, color and ornament can make buildings not only "bold and challenging," but individual and private as well. Vernacular architecture, he concludes, is the product of history; and yet when it thrives, as it does in Venezuela, it achieves a level of civilized beauty, "like Greek statues not yet undressed."

Julie V. Iovine is a freelance writer who contributes frequently to RECORD.



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Amsterdam restores its "concrete village" and a way of life

By Tracy Metz

"One has the illusion of being in a strange, even exotic environment, far removed from the city. These Amsterdammers have the privilege of living out in the country in their own city." Such was the pride, expressed in the magazine *Our Amsterdam* in 1948, of a resident of Betondorp, literally "concrete village," a garden suburb in the eastern section of Amsterdam.

Built during the 1920s and designed by a consortium of Dutch architects led by Dick Greiner, Betondorp was truly a product of its times. Not only was it the first project in the Netherlands where that wondrous new construction material, concrete, was applied on a large scale, it was also a bulwark of the wave of socialism that swept over Holland at that time. Seldom have architectural and social change been so closely interwoven.

After World War I both building materials and labor were scarce. The head of the city housing department, A. Keppler, had seen in England how versatile concrete could be, and he felt that it held the key to the quick, cheap housing Amsterdam needed. His idea for a concrete village made it through the city council by the skin of its teeth (the brick industry put up a good fight), and Betondorp's first occupants moved in around 1925. "In the beginning Betondorp was chic," says Jan van de Vegt, a retired lead typesetter who has lived there most of his life. "The first people to move here were civil servants: firemen, policemen, teachers. After them came the lesser gods, the ordinary workers like my father. If you were hoping to move to Betondorp, you could count on a visit from a social worker, who would check under the bed for dust and peer into the linen closet to make sure everything was neatly folded."

The working class was to give Betondorp the political color for which it became famous—red. All that was left-wing could be found there: the Social Democratic Workers' Party, the Workers' Youth Center, the Dutch Communist Party, the Independent Socialist Party, the Union of Communist Propaganda Clubs. In 1935, 55 percent of Betondorp voted socialist; elsewhere in Amsterdam the average was 37 percent.

Social life blossomed, and the community was close-knit in its blissful certitude that socialism was the way to a better future. "Everyone bought their insurance from the same company," says van de Vegt, "and everyone read the same newspaper. That went without saying."

Tracy Metz is an American journalist working in Amsterdam.

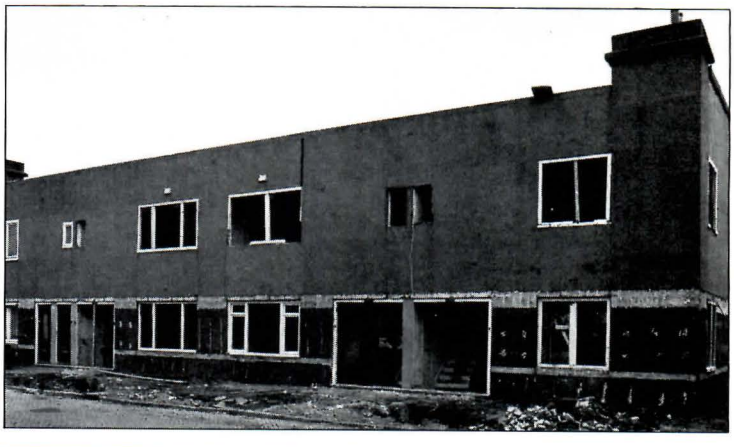
During World War II, solidarity remained strong. Many Jews hid from Nazi occupiers in Betondorp, which organized its own garbage removal team and even had its own "mayor" in case the Germans breached the dikes and cut it off from the rest of the city. Shortly before the Allies arrived in April 1945, volunteers spent two days and nights shoring up dikes with wheelbarrows and spades borrowed from a nearby cemetery.

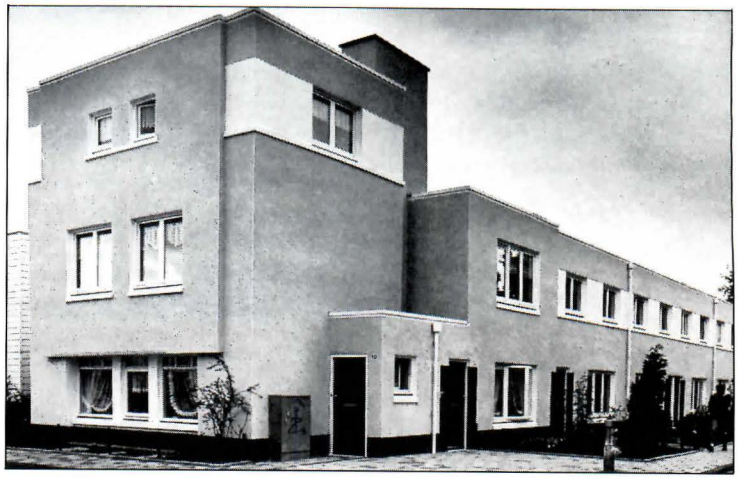
Happy and protected though life was in Betondorp, it was not long before the builders' ignorance of the properties of early concrete construction started becoming painfully apparent. The stucco layer that was supposed to keep moisture out was grossly insufficient; as a result, the iron used to reinforce the concrete started expanding and rusting, and the walls cracked. Some houses leaked so badly that they had to be covered over from top to bottom with wooden planking (which, some said, was a marked improvement over the original). For the same reason other houses were covered with a layer of tarpaper during the 1950s. The village, once so spruce and sparkling, became bleaker and bleaker.

It was clear that something had to be done. Everyone agreed that the village's character, so closely bound up with its architecture, had to be preserved. After long and complicated negotiations, the Ministry of Housing agreed to subsidize extensive renovations, which are now complete. Part of this operation is a new German-made system of insulation whereby the walls are wrapped in coated blocks of expanded polystyrene. Unfortunately, making a hole in this product ultimately has a disastrous effect, and housing officials are continually having to reprimand residents unable to break the habit of hanging a geranium next to the doorway in a wooden clog, nailed into the insulation.

The center of Betondorp is the Brink, a central square designed by Dick Greiner. One of the many drawings he made for the Brink is dated July 27, 1924, the day his son Onno was born. Onno became an architect, and 60 years later he devoted himself to repairing and restoring the public library that his father built on the Brink.

Says Greiner, Jr.: "Restoration is a kind of search for the person who made the building. Yes, my father is here looking over my shoulder. That's all right: he was an important man, and I learned a lot from him. The architects of Betondorp approached their work with great idealism. It was a special type of people who came to live here. They may have changed over the years, but they're still special."





Three views of Betondorp, the landmark housing project in Amsterdam built during the 1920s, show the community's concrete buildings before (top), during (middle), and after (bottom) recent renovations.

Where Westway went: A case study in changing urban priorities

By Carter Wiseman

UPI/Bettmann Newsphotos

The gradual deterioration and ultimate collapse of the West Side Highway in Manhattan led to the initial proposals for Westway.

You could hear an era stop. When, on September 19th of last year, Governor Mario Cuomo and Mayor Edward Koch announced that they would abandon New York City's Westway proposal and trade in the funds for mass transit improvements and a less ambitious road, more than a $2.3-billion highway-and-development project came to an end. With it went a clash of ideologies that even some of the main participants now say had long ago lost touch with the original issues. It engaged some of the best intentions and highest passions in New York. It cost uncounted dollars in legal and other professional fees. And it went on long enough for the city in which it took place to change so fundamentally that in the end all that was left where Westway began were symbols of another day—and a chance to do things differently.

In the beginning, there was a genuinely idealistic vision. As Craig Whitaker, one of Westway's original planners, saw it in 1970, the project was in the same tradition as decking over the old New Haven Railroad tracks to create Park Avenue, or filling in Back Bay to create a new piece of Boston. "Everybody on the design team hated cars," says Richard Kahan, one of Whitaker's former colleagues. Accordingly, the 4.2 miles of highway along Manhattan's dilapidated West Side from the Battery to 42nd Street would be sunk beneath a 93-acre waterfront park and 133 acres of new land for development. Together, they would "stitch together" the Hudson and the city from which it had so long been separated. And because the road would be designated an interstate highway, the federal and state governments would pay for the entire thing. The road, Whitaker says now, "was no more than a way of leveraging money out of Uncle Sam." A long-time observer of the project who eventually turned against it says even today that, in its early days, Westway was a "do-able visionary plan."

Even in the early '70s, however, a lot of people thought Whitaker and his associates were living in a fantasy world. Robert Moses, the late head of the Triborough Bridge and Tunnel Authority and then the most powerful builder in New York history, was one. In 1974, when the estimated cost was a mere $1.2 billion, he asked a reporter, "Can you picture Western and Southern congressmen standing mute while the United States Department of Transportation approves the spending of such monstrous sums to build a four-mile expressway section on the Hudson representing all the federal aid in a Rocky Mountain state for a decade?"

The objections were not all so cosmic. Other critics attacked the proposal on specific points ranging from how to get traffic on and off Westway, to the lack of planning for what would be built on the landfill, to the absence of sufficient public transportation to get people to and from this new piece of Manhattan.

But as the forces divided over Westway specifics, the city around the project began to change in a very general way. By 1975, New York was near bankruptcy and desperate for anything that could be called development. Riding the subways was no fun, but few thought of mass transit improvements as critical to the city's immediate survival. What right-thinking person could pass up a concealed highway, a waterfront park, and a vast stretch of buildable land, all at someone else's expense? As the fiscal crisis began to recede, however, and as the unchecked pace of building began to strangle much of Manhattan, development began to look less urgent, and transit suddenly began to emerge as absolutely vital to making the city's economic recovery stick.

By then, though, the trenches had stabilized. Increasingly, the debate over Westway became one in which there seemed to be no right answers. Honorable men and women (and many who were not) claimed with almost religious fervor that it was not possible to trade in Westway funds for mass transit aid, that Westway would cut pollution, and that it would create more jobs than any of the alternatives. Equally honorable men and women (and many who were not) insisted with equal fervor that exactly the opposite was true. "It became a cultural conflict," says a planner who defected from the Westway project in the early 1970s. "The opponents needed a cause that would replace Vietnam, and none of the backers wanted to lose to a bunch of environmentalist freaks." In the space of a week, the editorial writers and columnists of *The New York Times* could call each other liars without advancing the argument in the slightest. (Among the last casualties was Sydney Schanberg, who was relieved of his duties as a *Times* columnist only last summer after accusing the city's newspapers—including his own—of ignoring what he called the Westway "scandal.")

As the voices grew more shrill and the major issues of whether New York needed, or even wanted, a Westway receded, the campaign became one of small-unit firefights over secondary objectives. The first was clean air. That was succeeded by the effects of the project on striped bass in the Hudson River. The Westway forces took the air issue seriously and won overwhelmingly in court. But, according to one city official close to the controversy, they "couldn't believe a project of such size could be hung up on fish," so they "cut corners" on the legal procedures. The result was a stunning loss on what many would call a technicality. After a court encounter in which judge Thomas Griesa warned the Westway forces that he had sent people to prison for practices less deceptive than theirs, the Army Corps of Engineers was caught claiming that a "significant" impact on the fish was the same as a "minor" impact. The U. S. Court of Appeals subsequently slammed the Corps for engaging in "Orwellian doublespeak."

That would not have been fatal if the rest of the country, alerted finally to what Robert Moses had seen years before, had not risen up to protest. "No one in Congress had taken a close look at the fact that Westway involved a lot more than a highway," says Marcy Benstock, director of the Clean Air Campaign and one of the leaders of the opposition to the project. "Once their eyes were opened, they acted." Spurred by a New Jersey contingent smarting from New York's opposition to a federal grant for Jersey City, Congress blocked funds for the landfill portion of the Westway proposal and refused to extend the September 30th deadline for trading in Westway money for mass transit aid. That put the project's backers in danger of losing both the highway and the mass transit funds.

Suddenly, the trade-in that Westway's supporters had long insisted didn't exist became very real indeed. So did the details of how hard it would be to get the cash. Meanwhile, an enormous chunk of Manhattan had been put on hold. "One of the great tragedies of this affair," says an architect who worked on the plans for one of several surface-road alternatives to Westway, "is that there has been no fall-back position." As a result, the old battle lines are now being redrawn over where the bulk of the limited trade-in funds should be used—on a reduced road or on mass transit—and nobody has any tested recommendations ready to go.

Carter Wiseman is a senior editor and the architecture critic of New York *Magazine. He was a 1984-85 Loeb Fellow at Harvard's Graduate School of Design.*

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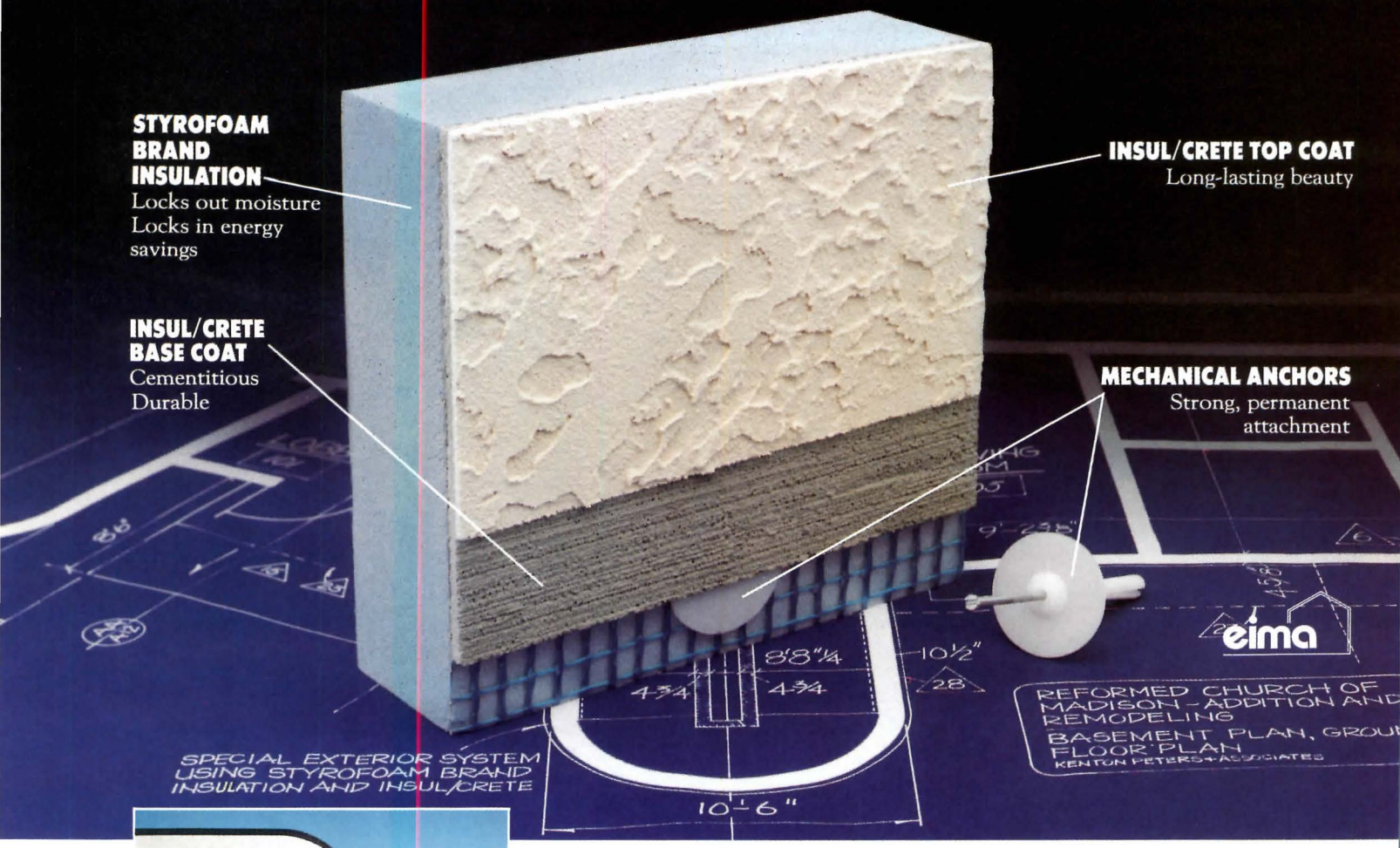

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Westway planner Craig Whitaker predicts that a year from now we will all be wondering how New York could have passed up a dream project paid for entirely out of other people's pockets.

How indeed? According to one of the earliest Westway planners, the decision to cut the roadway back from the George Washington Bridge—its original destination—to 42nd Street in order to avoid community protest on the Upper West Side was "an unmitigated disaster." An offshore road that avoided Manhattan's existing shoreline from the Battery to the bridge made transportation sense, he argues, while to do less wasn't worth doing at all. Another reason is that one of Westway's most attractive features—the park—was, according to Whitaker, played down at the outset to justify funding from the Interstate Highway Trust. When the public relations direction changed to emphasize the park, Whitaker says, "a lot of people thought we were rouging the corpse." Also, much of the development that Westway was supposed to stimulate—Battery Park City and the new convention center, for example—happened without it, defusing the argument for Westway as a catalyst. "The dynamics of development changed just as Westway was born," says one planner close to the project. "Big things can no longer be done in this city fast enough to accommodate market changes."

Most important, though, Westway failed because enough people lost the one thing that could have made such an originally public-spirited undertaking succeed—the faith that those in charge could pull it off without messing it up or selling it out. Faced with the inevitable uncertainties that accompany any project that would have stretched out over the decade of Westway's proposed construction schedule, New Yorkers were being asked to take a great deal on a promise. "The potential for good is overwhelming, irresistible," said Carolynn Meinhardt, a leading spokesman for Westway, just two days before it stalled in Congress.

But should New Yorkers have been asked to believe in a city government that has made development so high a priority that exceptions to the zoning law for height and bulk have become the rule? Should a leadership that stripped the Times Square redevelopment project of virtually every meaningful public amenity, and sold off the old New York Coliseum site to the highest bidder (and with minimal regard to its future impact on the surrounding area) be trusted to do a vastly larger project in the public's best interests? Should an undertaking endorsed by people a federal judge says he would have jailed under different circumstances be given the benefit of the doubt? Westway, says Richard Ravitch, the former head of the Metropolitan Transportation Authority, was "a wonderful thing—in a world of unlimited resources."

If Westway had a reason for being in 1969, it no longer had one in 1985. According to Robert Wagner, Jr., who has watched Westway from his days as chairman of the City Planning Commission through his term as a deputy mayor, "most of the original arguments are now moot." If we had it to do over again, would we do Westway? "Probably not," says Wagner. "Given the other needs out there, it probably makes no sense. Given its history, though, it makes great sense. Once something has gone as far as Westway, and still has positive benefits to offer, it makes sense to keep going." Which is perilously close to saying that we should do it because it is there.

What lies ahead? Certainly a struggle over where to put the cash that can still be had. Certainly recriminations. Senator Daniel Patrick Moynihan, one of Westway's most durable supporters, already seems to feel that the city has lost its potency. "If you start thinking that you've been outperformed by your predecessors," he said to *The Times* after the decision had been made to abandon the road, "you've begun to lose confidence, haven't you?" People on both sides of the argument fear that no matter what kind of road replaces the present West Side Highway, it is likely to produce both increased air pollution and the kind of incremental private development that may seal off much of the waterfront from the public.

Perhaps. But therein lies an opportunity. What New York needs is no longer a series of Westway-like megaprojects; it is a credible policy for growth at a workable scale. And where Westway would have been is the perfect place to begin. From the start, the partisans on both sides of this record-setting debate have insisted that the highway was just a hook to hang the recapture of New York's waterfront. With the lessons of Westway behind it, the city can come together on that process in earnest, by planning for change, instead of trying to change for a plan.

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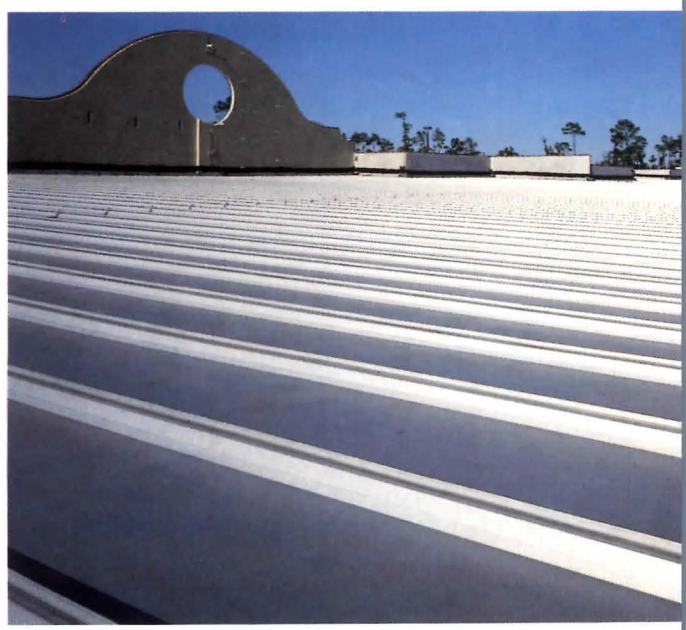

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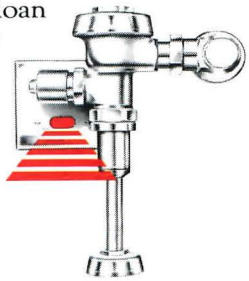

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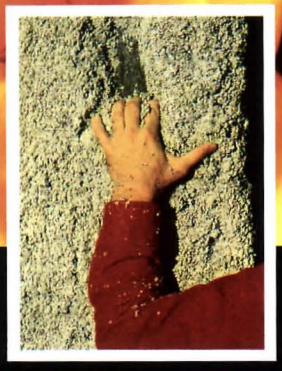

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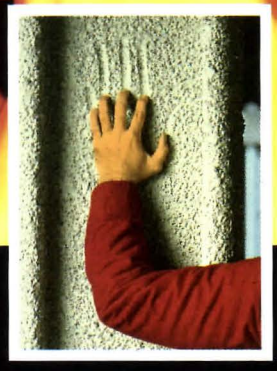

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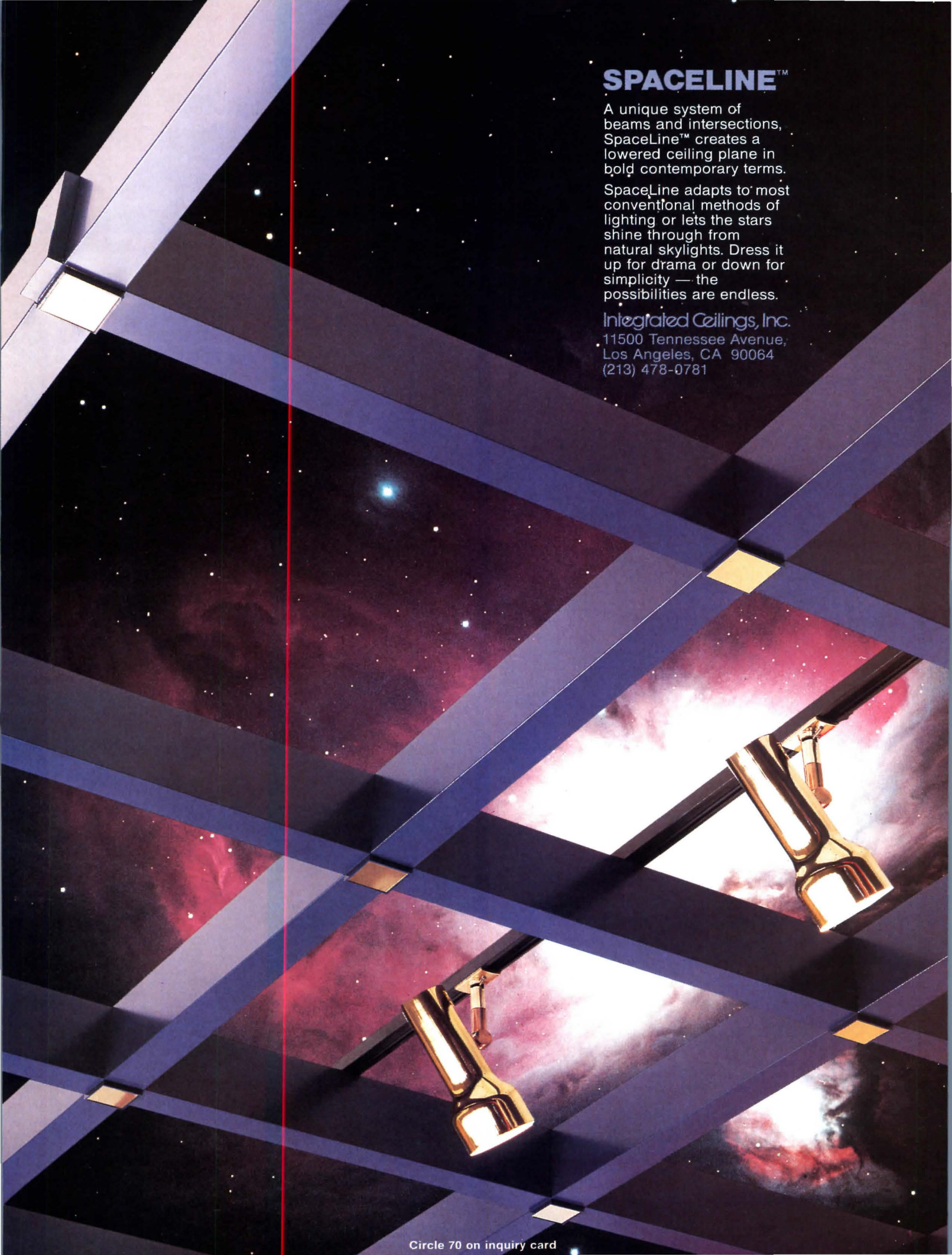


Civil servants

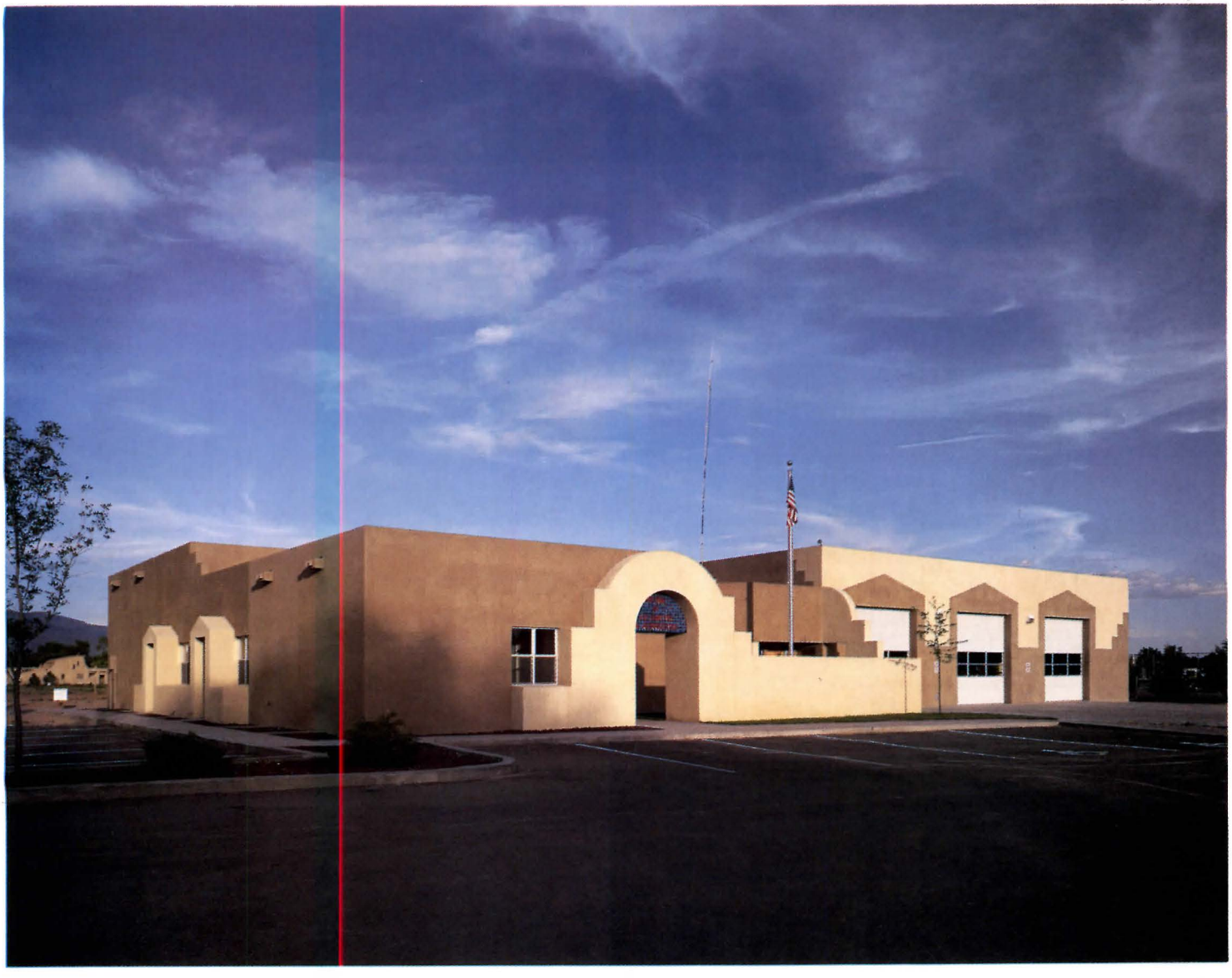
When one hears the phrase *public building,* the images that spring to mind are usually courthouses and city halls, buildings that embody such noble aspirations as universal justice and democratic self-government. The meditative thinker might add schools and libraries, symbols of public knowledge and thought.

In contrast to such high thinking, though, the qualities that make community life bearable, even desirable, seem almost prosaic: good administration and good services.

The mere thought of uncontrolled fire, for instance, causes collective community nightmare. And although fire departments in American small towns and villages are overwhelmingly voluntary associations, they need fairly costly, up-to-date equipment and good housing for it. Moreover, most small towns worry less about heinous crimes than about obstreperous ructions and automotive infractions, but professional police are needed to deal with these offenses, too. To most small towns, it seems logical and cost-effective to combine headquarters for police and fire departments. That's exactly what happened in Los Ranchos de Albuquerque, New Mexico, and Bellows Falls, Vermont. (Idealists might ponder the fact that without pressure for fire and police services Los Ranchos' elected officials—mayor, town meeting, judge—would probably not have got new offices, council chamber, or courtroom.)

The public itself customarily, even inevitably, accepts the costs and responsibilties of administering some commonly shared services like water and sewers—see herein the building for the Commissioners of Public Works in Charleston, South Carolina—and like the control of automobile ownership and operation—see the Registry of Motor Vehicles in Worcester, Massachusetts. The most evident need in the case of such services is sufficient space for extensive records and for the staff that keeps them. At the same time, these are the public buildings most often seen close-up by the actual tax-paying public, which comes in numbers to settle bills, take tests, submit forms, and ask questions.

Yet another area of public ownership involves recreation, which often calls for size, improvements, and equipment beyond the reach of the private purse. But even if every family in Southside Park, Texas, had had money enough and backyard enough for individual swimming pools and bathhouses, such possession would be beside the point. The point of common recreation is sociability, another quality inseparable from a sense of happy community. *Grace Anderson*



Near Albuquerque, a 9,000-square-foot building houses a multiplicity of public services for the town of Los Ranchos de Albuquerque: village hall, mayoral offices, volunteer fire department, and police. A variety of portals designates the numerous entrances needed, including an arch in front (above). Windows flank a lunette at one end of the village hall (opposite at center). The small windows that penetrate thick stuccoed walls to illuminate the fire department's apparatus room (opposite top) typify the region's pueblo architecture, while lighting fixtures recall the style's protruding wood vigas.

Firehouse I: Southwest

Village Hall and Fire Station
Los Ranchos de Albuquerque, New Mexico
Westwork Architects

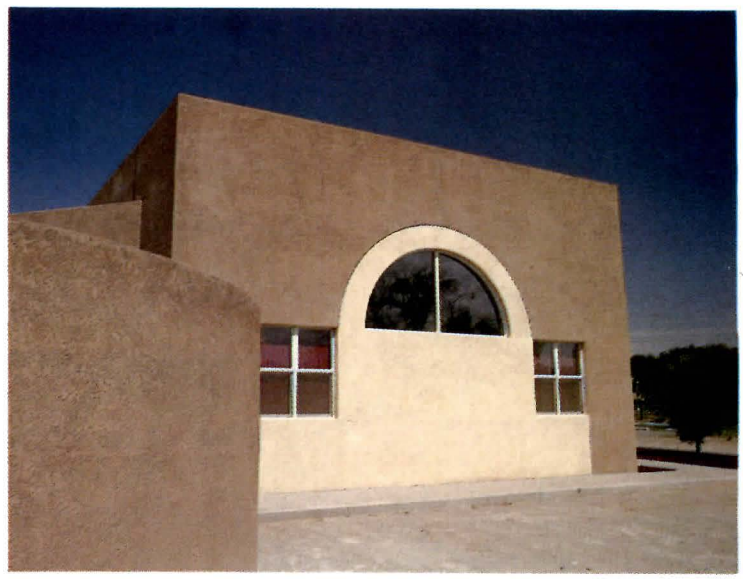
The rural village of Los Ranchos de Albuquerque has only 3,000 inhabitants or so and, like other small towns with limited tax bases, thought first of the cheapest structure possible when it elected to build a combination fire station and village hall along a busy highway that runs through town. The district does, however, contain many fine examples of traditional adobe architecture, and the road itself has been proposed as a linear historic district. The village was thus more than willing to follow the suggestion of Westwork Architects that its only public building make an impressive regional architectural statement—particularly if it cost no more than $400,000 (a figure that included, as it turned out, architect-designed office furniture).

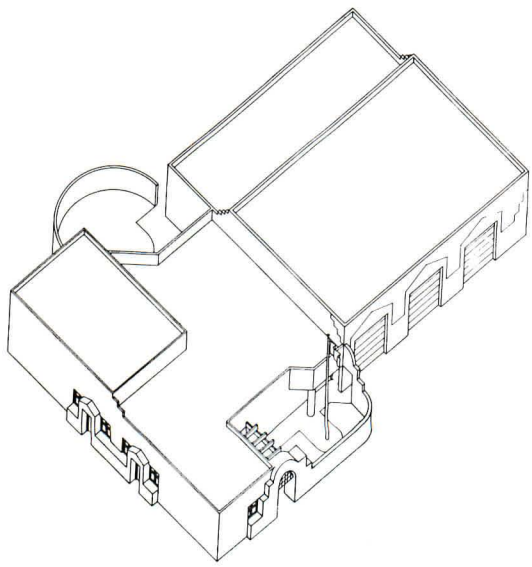
The New Mexican pueblo style is a truly indigenous architecture that embraces building types ranging from courthouses to gas stations to dwellings for both rich and poor. Drawing on Indian, Spanish, and Territorial origins, the rather loosely defined style uses such recurrent elements as flat roofs, thick heat-retaining walls with little windows, stepped eroded corners (a visual motif also seen on Indian pots), and protruding wood *vigas* (beams). Changing construction methods have had their effect on the form—modern buildings like this one, for instance, are not of adobe but of concrete block faced with stucco. But even seeming anachronisms like rolling doors cannot bar instant recognition of the strong form.

Working with the earth colors characteristic of the desert, architect Glade Sperry pulled light-colored wall sections forward of the darker main building as entrance portals. Though the single-story building is unpretentious, Sperry emphasized the portals with three-dimensional symbols of governmental majesty: an arch over the front entrance, which faces the highway, and pediments over two side entrances, one opening to the village hall, the other to mayoral offices.

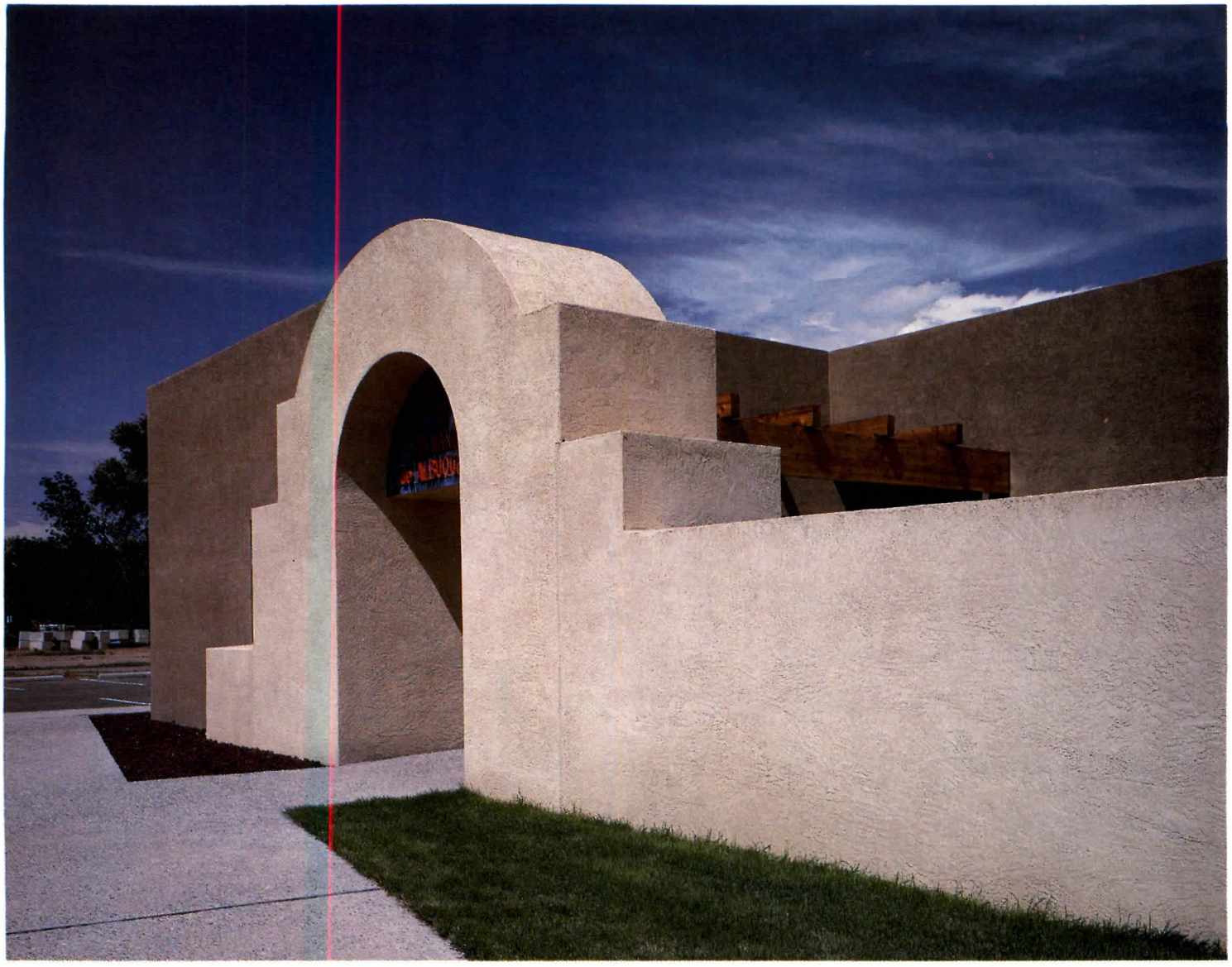
By sitting forward of the building, the front wall establishes another device typical in pueblo architecture: an enclosed forecourt, complete with pergola, that welcomes the visitor into a shadier, quieter, more private setting than the one outside. A similar walled courtyard at the back of the building, accessible from both the village hall and the fire department's training room, serves as a break-out space for staff as well as a gathering place for the village at large.

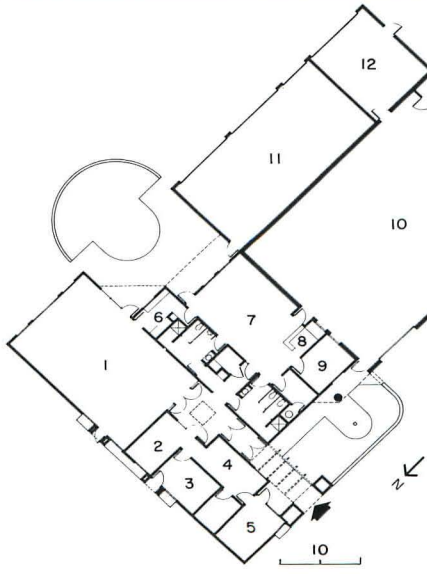
The facades of the building's elementary working spaces—the high apparatus room and the adjacent garage—also got symbols of governmental majesty, though less elaborate than the portals for the village hall: two-dimensional pediments over the rolling doors for fire engines, and a lunette with symmetrical sidelights, a motif distinctly of the 1980s marking the back of the village hall.





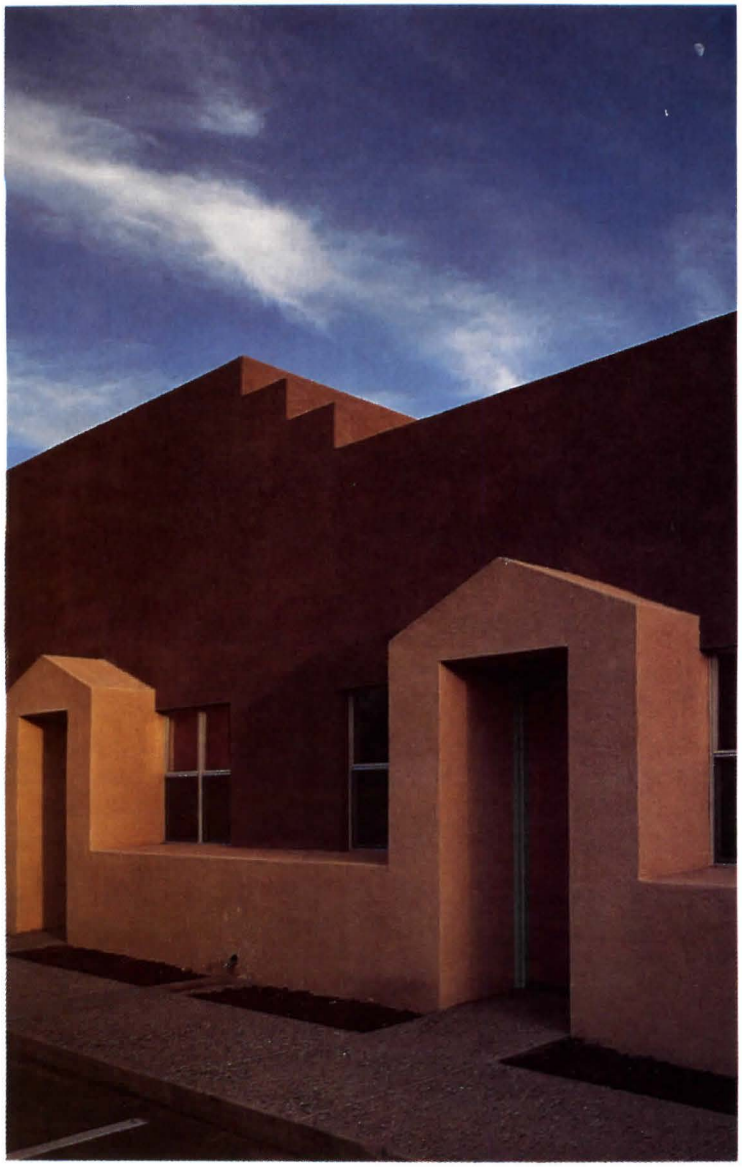
To intensify the ceremonial nature of public entries at the village hall, Sperry thickened the wall at three places, building an arch at the main portal (left) and pediments over doors at one side for the village hall and mayor's office (center). A skylit lobby (right) extends the shaded forecourt inside the building. The turquoise around doorways continues a tradition in the region, where shades of blue are believed to ward off evil spirits. In addition to accommodating town meetings, the village hall becomes a courtroom once a month to handle cases involving local ordinances concerning such matters as leaf-burning and animal control (traffic and criminal cases go to courts in the city of Albuquerque). The hall also accommodates displays and monthly meetings of the local preservation society.

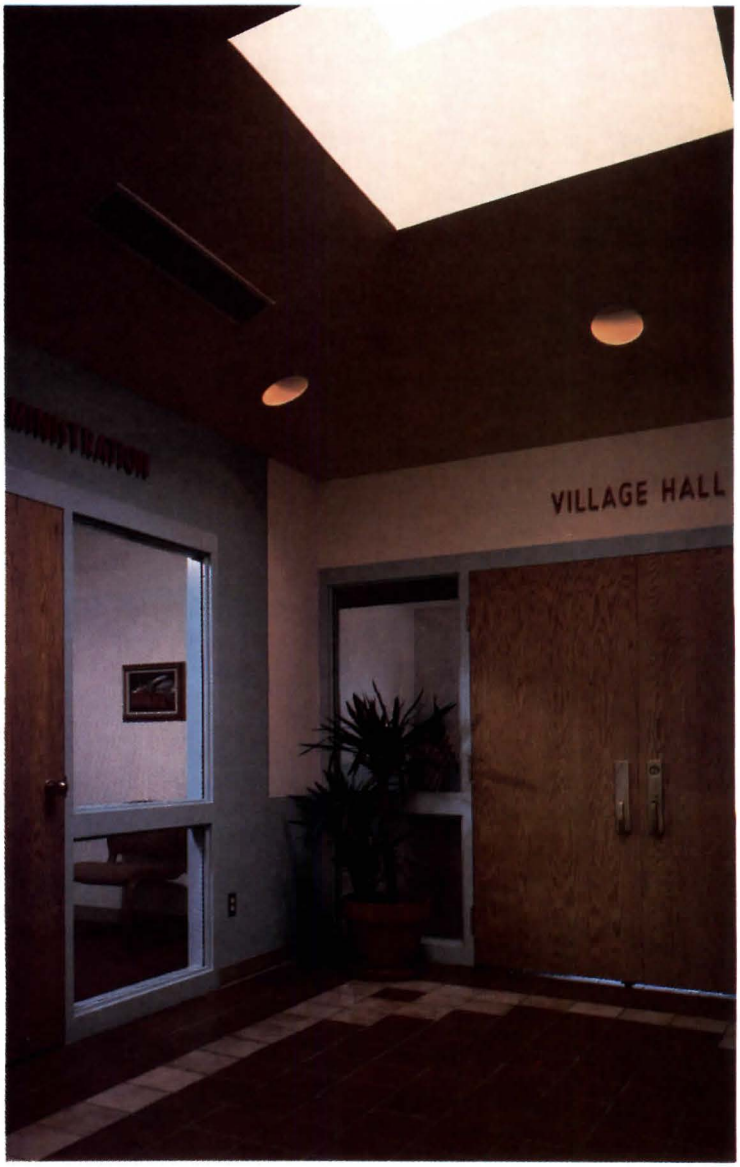




1. *Village Hall*
2. *Reception*
3. *Mayor*
4. *Office*
5. *Police*
6. *Kitchen*
7. *Training room*
8. *Alarm*
9. *Chief*
10. *Apparatus*
11. *Garage*
12. *Vehicle maintenance*

Village Hall and Fire Station
Los Ranchos de Albuquerque, New Mexico
Owner:
Village of Los Ranchos de Albuquerque
Architects:
Westwork Architects, P. A.—Lawrence W. Licht, project architect; Glade Sperry, Jr., design architect; Stanley G. Moore, site design
Engineers:
Chavez-Grieves (structural); Four Seasons (mechanical); Tierra del Sol (electrical)
General contractor:
Jim Bishop





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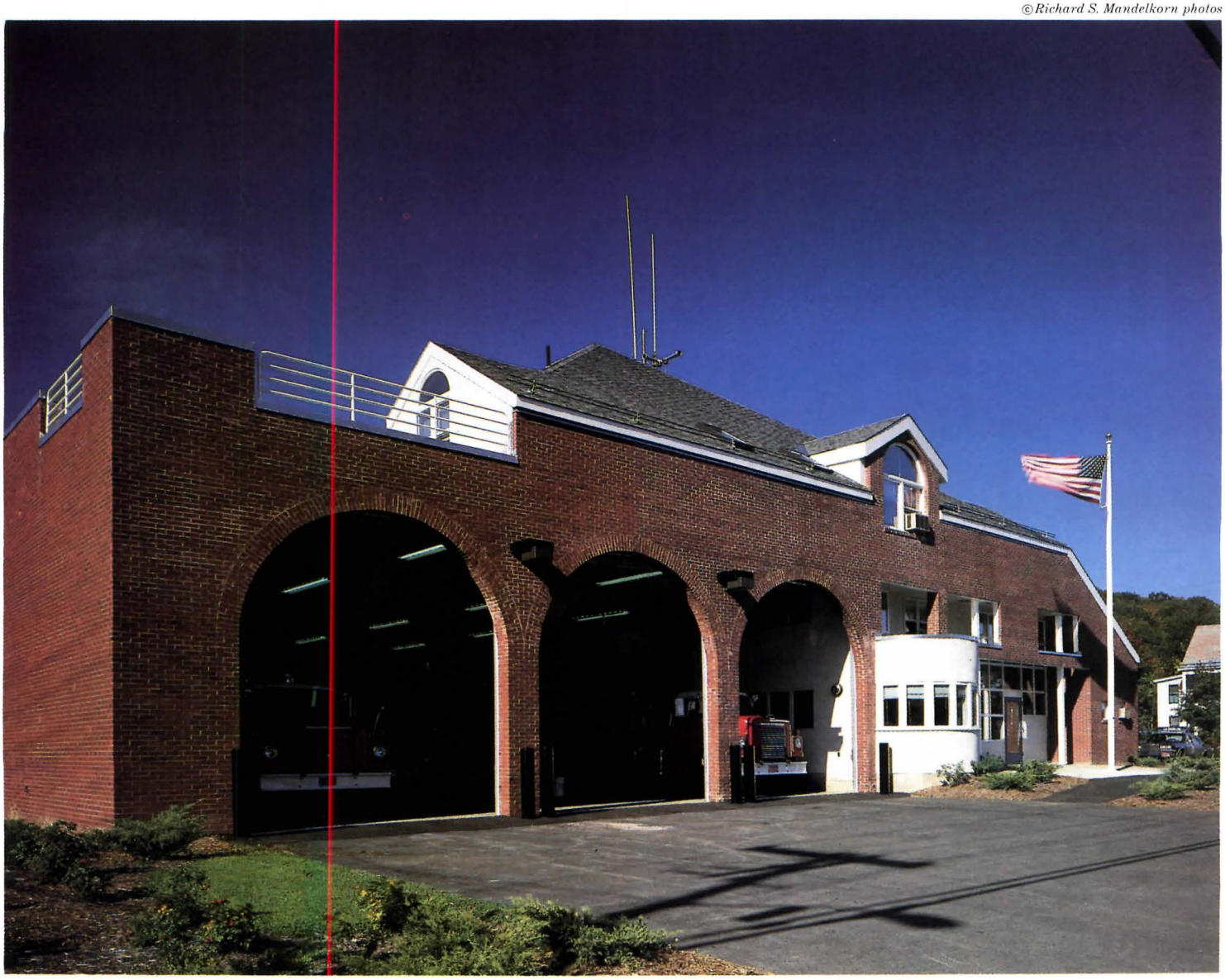


Bellows Falls Fire/Police Facility
Rockingham, Vermont
Owner:
Town of Rockingham
Architects:
John Sharratt Associates, Inc.—John Sharratt, principal-in-charge; Robert Egan, Lawrence Cheng, Alice Sung, project team
Engineers:
David R. Cobb & Associates (structural); N. F. Laurence & Associates (mechanical/electrical)
General contractor:
Ingram Construction Corp.

Firehouse II: Northeast

Bellows Falls Fire/Police Facility
Rockingham, Vermont
John Sharratt Associates, Inc., Architects

The similarities between Bellows Falls, Vermont, and Los Ranchos de Albuquerque, New Mexico (see preceding pages), are striking. Bellows Falls has about 3,000 inhabitants, too; it lies in a distinctive, almost stereotypical topography; its region maintains a pervasive, particular architectural idiom. And it urgently needed a new and larger firehouse.

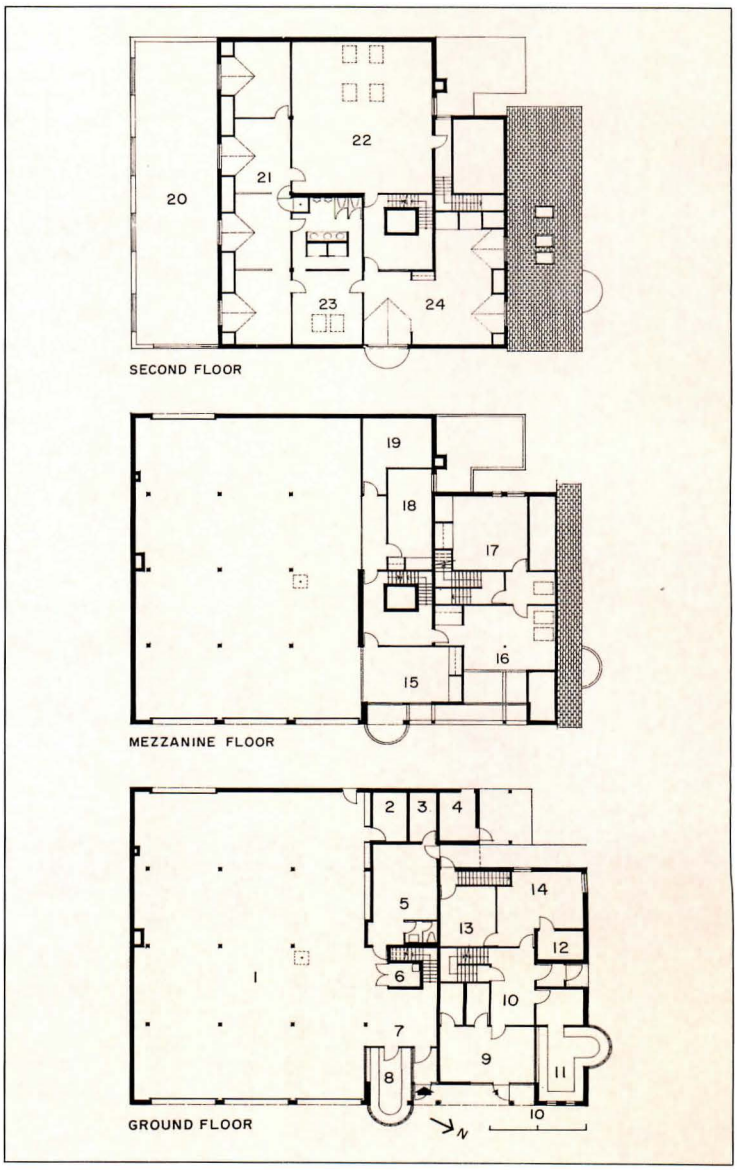
But differences are also striking. Bellows Falls is a village within the Town of Rockingham and is currently fighting the effects of industrial and railroading decline with redevelopment and preservation. The site of the fire/police facility—architect John Sharratt calls the site "a spectacular natural setting"—backs into a steep, forested hill, fronts a road along the Connecticut River, and offers a view upstream of the 51-foot waterfall that gave the village its name. Moreover, Bellows Falls's architectural style departs from the expected New England white clapboard. "This is a *brick* town," Sharratt says pointedly. (The architect has also completed an adaptive-use building for a brick Victorian hotel in the village's central business district about half a mile from the fire/police station.)

The professional loyalty of policemen to the force and to each other is legendary, but anyone from a small town can vouch for the still stronger bonding of volunteer firemen and for the clubby feeling that ties them to training, maintenance, and extracurricular activities after they've finished their regular employment. Sharratt acknowledges that "the strongest design influence was the village's participation through its extensive volunteer fire department." At the same time, he recognized the unarguable importance of the police force and made clear the two departments' "equal but separate relationship." Each of the departments has its own entrance, and each has a salient for dispatchers, the fire department's bow window commanding a view of two-way traffic on the road, the police department overlooking the parking lot and squad cars.

The new facility echoes the downtown architecture with brick veneer on the steel-frame and concrete-block building. Other recollections of Bellows Falls buildings include slate roofs and the high brick arches that open to the apparatus room, the arches straightforwardly mimicking an arcade downtown. More familiar Yankee vernacular is seen in the dormer windows and in the white-painted wood bow windows that enclose dispatchers.

Nor did Sharratt forget firehouse traditional. Witness the dormitories lit by dormers. Witness the hose tower. Witness the brass sliding pole that connects dormitories with engine room.

The total cost of construction for the new building was $688,000, or roughly $41.45 per square foot.



1. *Apparatus*
2. *Cascade unit*
3. *Electrical generation*
4. *Mechanical*
5. *Day room*
6. *Hose tower*
7. *Fire lobby*
8. *Fire dispatch*
9. *Police lobby*
10. *Inner lobby*
11. *Police dispatch*
12. *Secure room*
13. *Conference/interview*
14. *Officers' room*
15. *Fire chief*
16. *Police chief*
17. *Supervisor*
18. *Fire prevention*
19. *Alarm/storage*
20. *Roof deck*
21. *Dormitories*
22. *Training room*
23. *Lockers*
24. *Living room*

Gordon H. Schenck, Jr., photos

Facing a palmetto-lined street in a transitional neighborhood, the new public works office building (above) assumes the demeanor of a row of Charleston single houses—an assumption successful enough to have fooled some passers-by into thinking it new condominiums. A pointed corner of the building (above and opposite) opens up a line of sight between two of the city's cherished church towers (see location plan).

The building was designed to accept an additional fourth floor; to minimize impact on the street facade, extra space would not extend over the projecting bays but continue flush with the reflective-glass curtain wall. Mechanical equipment is located in the basement to clear the roof of impedimenta.

In the tradition

Commissioners of Public Works
Administrative Office Building
Charleston, South Carolina
Lucas Stubbs Pascullis Powell
& Penney Ltd., Architects (LS3P)

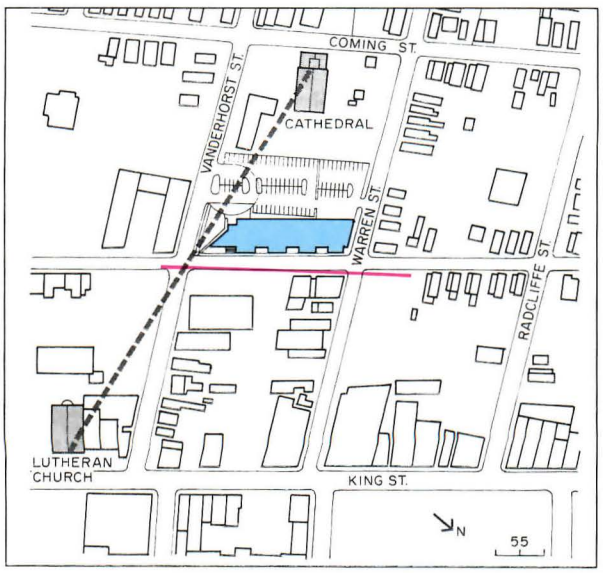
Some public services, like potable water, seem to call for—at least they generally get—less majestic buildings than courthouses and city halls. What they need, in fact, closely resembles an ordinary office building to be used for billing, inquiries, and record storage. When the Charleston, South Carolina, Commissioners of Public Works (water, waste water, and storm drains) decided to move from their two-to-a-desk quarters to new offices, however, they took to heart the city's tradition of fine civic buildings. Moreover, architect Thompson Penney's early approach to building design was complicated by the site's context: a mixed neighborhood of houses and small commerce in transition, the outcome of the transition uncertain although the street has been designated an entry corridor to the city.

The form and the scale of the building evolved from Penney's affinity for Charleston's pervasive single-house style, which typically offers a 40-foot-wide house directly on the sidewalk, with a 20-foot-wide sideyard overlooked by railed piazzas. To reduce apparent bulk and to accord with the neighborhood, the architect projected the offices' 40-foot bays to the sidewalk, suggesting houses, and separated the projections with 20- by 13-foot "sideyards." The back of these indentations is faced with a reflective-glass curtain wall, which appears to double the length of aluminum "piazza railings" (opposite).

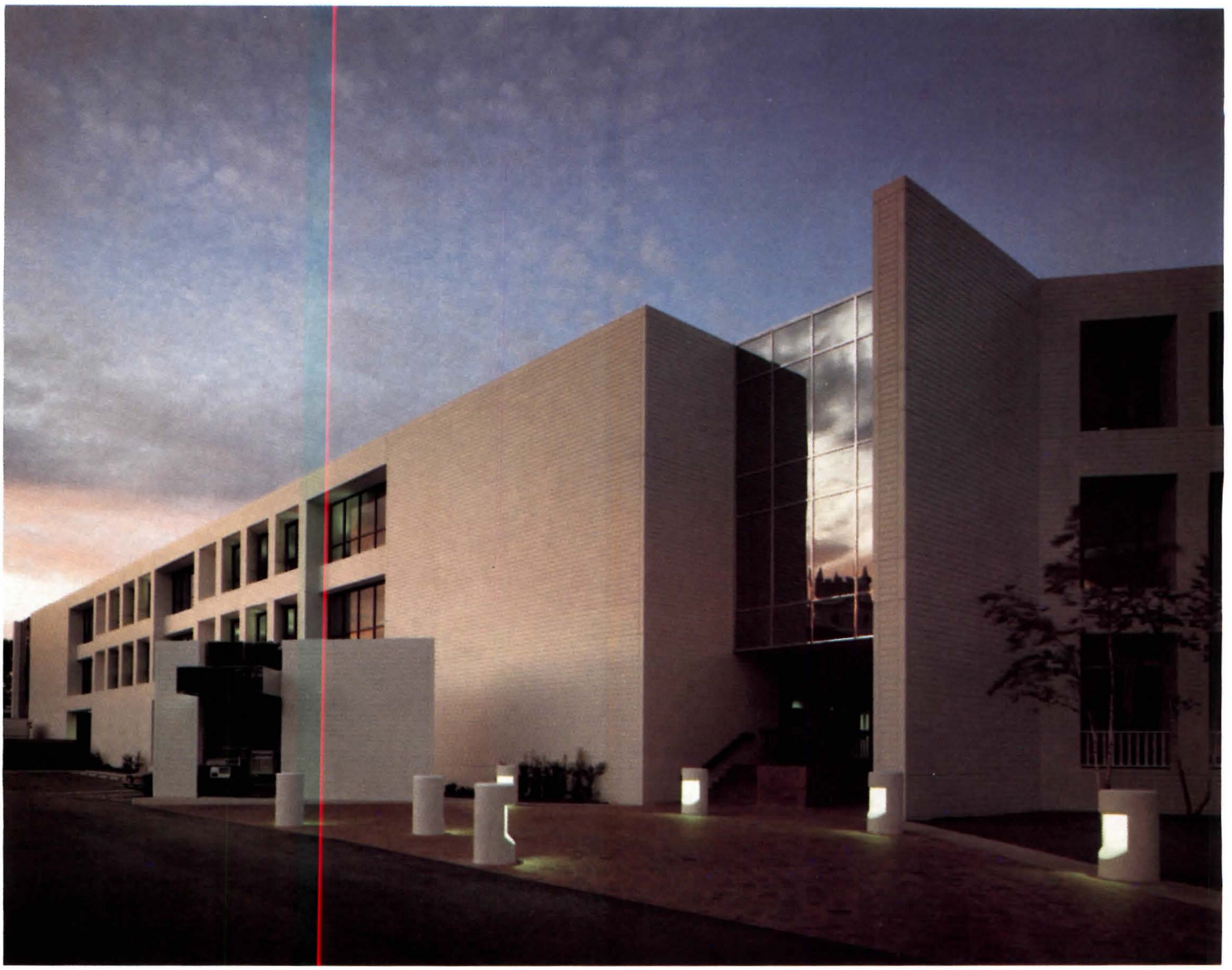
The trapezoidal plan of the building also took shape because of contextual concerns. At one street corner, an obtuse angle simply follows the sidewalk. The acute angle at the other corner was more deliberate. Charleston remains very much a low-rise city with a skyline accented by church spires, two distinguished examples of which bracket the new public works building. Anxious not to impede the relationship of the towers, Penney beveled the southern end of the building sharply, opening up views from the corner in both directions. The space inside the triangle, too narrow and irregular for mundane office use, becomes an entrance atrium (following pages). The deep reveals of the tall windows that punctuate the back wall protect the glass wall set within from the southern sun.

In another reference to the white-painted facades that characterize Charleston, the public works building has a gleaming white exterior. In this case, however, the wall is concrete, precast with furrows that suggest tongue-and-groove wood siding. Even the "cornerboards" were cast as part of the horizontal panels, which typically measure 40 by 13 1/3 feet, with a depth of 8 inches. An opaque pigmented sealer ensures whiteness.

Construction cost $6.2 million, including open-office furniture but not the computer.

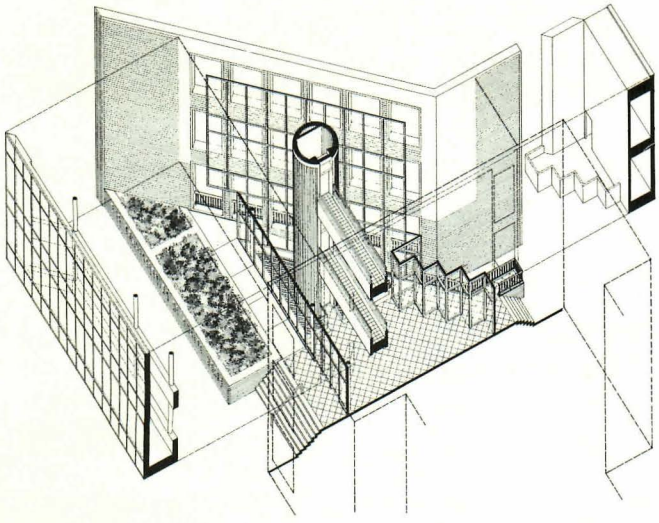


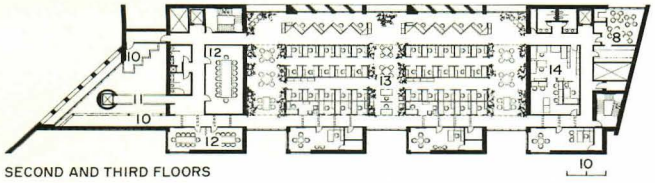
The back of Charleston's public works building (directly below) faces the parking lot, from which most of the public enters. Lighted brick pavement sweeps past an outdoor drive-in window for bill payments; since most visitors will walk, however, the bricks also offer a more formal surface under foot than parking-lot blacktop. The back portal also contains the lower end of a ramp that leads across an open railed piazza to the front door. Both public and staff enter the building through the lobby atrium (far right), the public to pay bills at the counter (opposite bottom) or for consultation in the service offices behind, the staff to enter the columnar elevator and cross open bridges to office space. In a Charleston public building, the reference made by the fluted concrete sheathing around the elevator shaft is quite clear.



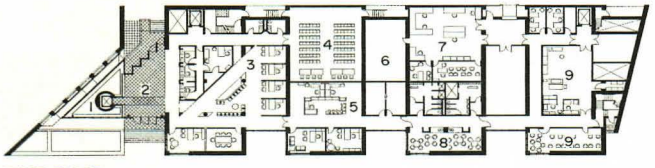
Commissioners of Public Works Administrative Office Building
Charleston, South Carolina
Owner:
Charleston Commissioners of Public Works
Architects:
Lucas Stubbs Pascullis Powell & Penney Ltd. (LS3P)—Thompson E. Penney, AIA, principal-in-charge

Engineers:
Johnson & King Engineers (structural); Rosser White Hobbs Davidson McClellan Kelly Inc. (mechanical/electrical)
General contractor:
D. R. Allen & Son, Inc.





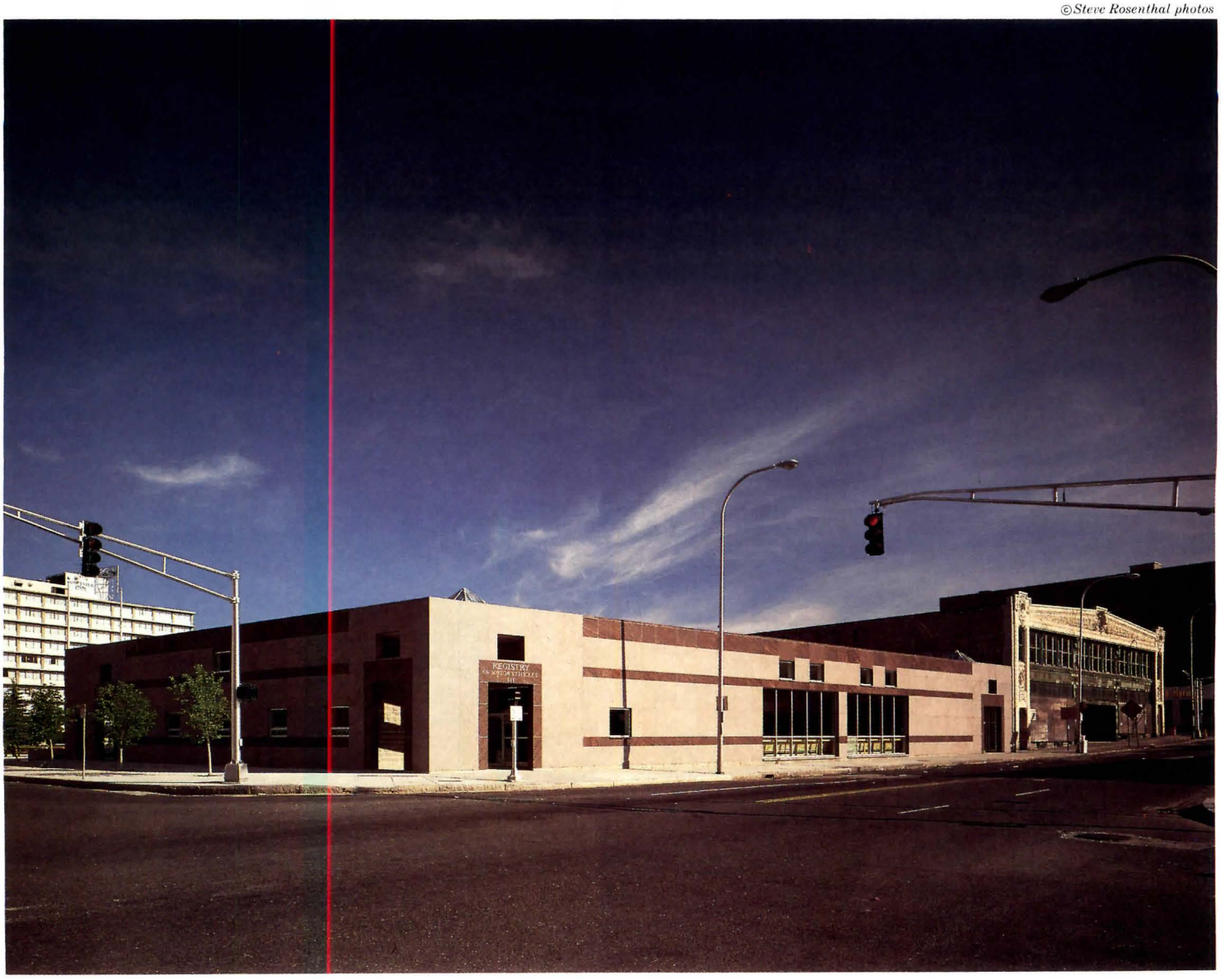
SECOND AND THIRD FLOORS



FIRST FLOOR

1. Pool
2. Lobby
3. Customer service
4. Meeting room
5. Personnel
6. Storage
7. Meter service
8. Lounge
9. Meter operations
10. Display
11. Bridge
12. Conference
13. General offices
14. Drafting

©Steve Rosenthal photos



Corner "towers" for the new Registry building carry on the composition of the historic Worcester Market next door to mark entries from the street (above) and from the parking lot (opposite). The open-air vestibules receive daylight from pyramidal skylights and high windows above the dark granite gateways. To achieve definition in lieu of carving on the facade's single plane, Leers left the heat-treated Dakota mahogany granite plain, using the same stone polished for darker banding and for borders around the entries. The building cost $1.8 million.

"A ritual of life"

Registry of Motor Vehicles
Worcester, Massachusetts
Leers, Weinzapfel Associates, Architects, Inc.

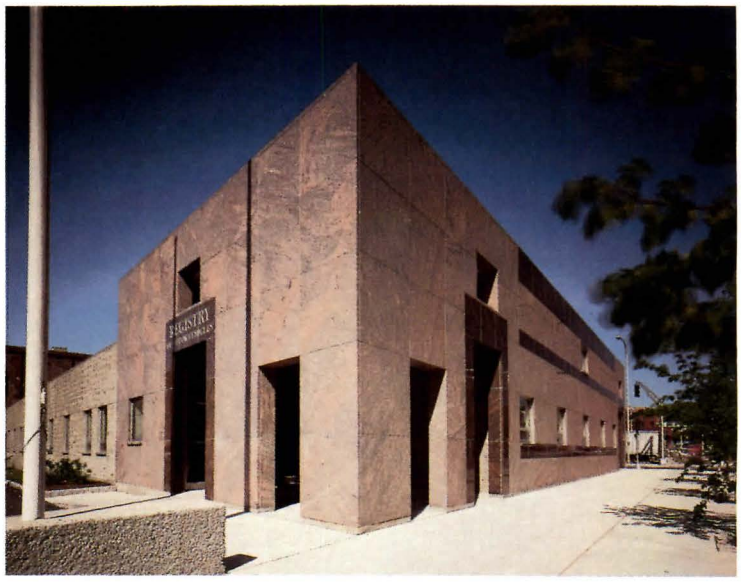
Still another area of governmental activity requiring public buildings involves the legislated control of nearly universal private ownership and activity—to wit, the automobile and driving. True enough, few people think of this legislated control as a service; in the resigned observation of the manager of Worcester's Registry of Motor Vehicles, "Waiting in line is a way of life." Architect Andrea Leers takes a more hopeful attitude, however, seeing the activities as "significant rituals of contemporary life."

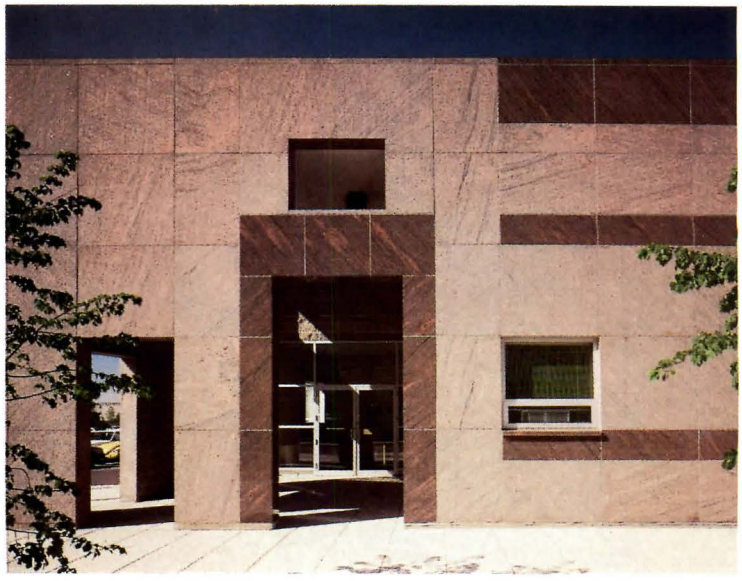
In addition to accommodating 1,500 motorists a day, this building as architecture has equally important urban functions. Like many cities, Worcester has watched business and commerce flow to the suburbs, leaving the central business district all but dried up. The city, strongly abetted by the Commonwealth of Massachusetts, strived to restore downtown liveliness. This site on Main Street was ripe for development, flanked on one side by an imposing stone federal office building and on the other by the appealing terra-cotta Worcester Market (currently being restored as retail space). The motor vehicle agency, while it might have preferred a suburban location with simple parking, had sought a new facility for 15 years and was more than ready to move from the former supermarket it had occupied.

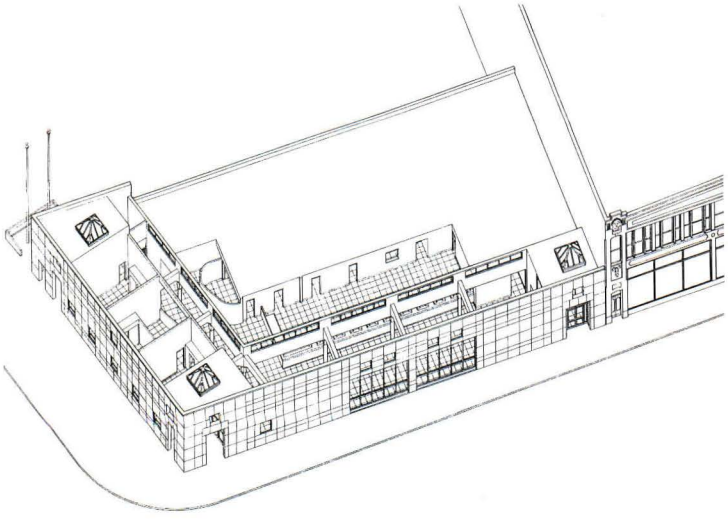
The agency's building program imposed one difficult condition for downtown architecture: the single story it called for does not allow an impressive urban scale. Leers managed to increase the building's apparent size and strengthen its presence by wrapping it with public space springing from the sidewalk to a story and a half. The device also gives the queuing public high space so that it can wait in line as in "a dignified banking room."

Despite the modesty of vehicle registration as a symbol of public power, tradition does mandate an architectural statement: in Worcester, government buildings are stone while commerce rates only brick. The low steel-frame building thus gets a granite facade, the pale surface banded with darker stripes of the same granite polished. Echoing Worcester Market, immediately adjacent along the sidewalk, the registry has "towers" at three corners, an illusion suggested by plain granite without coping and by surmounted pyramidal skylights. Entrances in each tower are marked by official-looking surrounds of dark granite embellished with incised epigraphs.

The reception of 1,500 people a day, with bunching at lunchtime and after half-past three, raises the elementary architectural issue of circulation. Though the public will mostly use the doorway from the parking lot behind, the registry building has two entrances on the 150-foot front, obligatory by the standards of small-city streetscape.

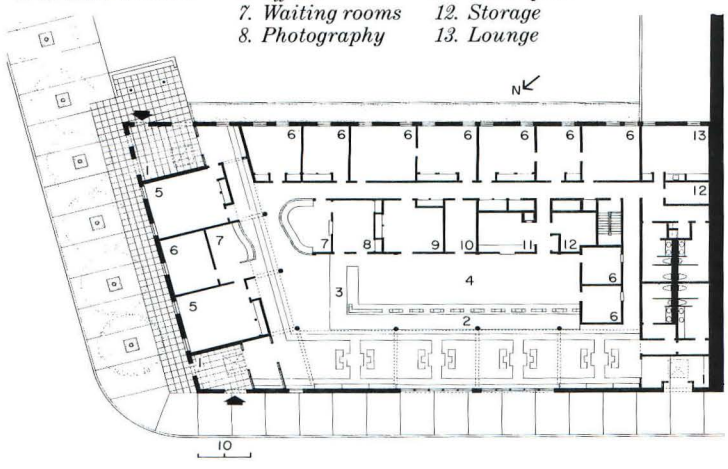






Upon entering the new facility to register their vehicles, acquire license plates, or apply for drivers' licenses, most people will acquire willy-nilly the waiting-in-line syndrome. But architect Leers's design offers spatial and coloristic variations as anodyne. Public space for driver's license applications (directly below) and for automobile registration (opposite) occupies volume a story and a half high wrapped around two sides of the one-story central office space. To give the ceiling weight and dignity, the steel tie beams are sheathed with gypsum board forms painted a darker tan than the walls. The spaces are lighted with uplights on the tops of the beams and by sunshine through southward facing clerestories. The linearity of the driver's license area is relieved by two freeform waiting booths: in the photograph below, the

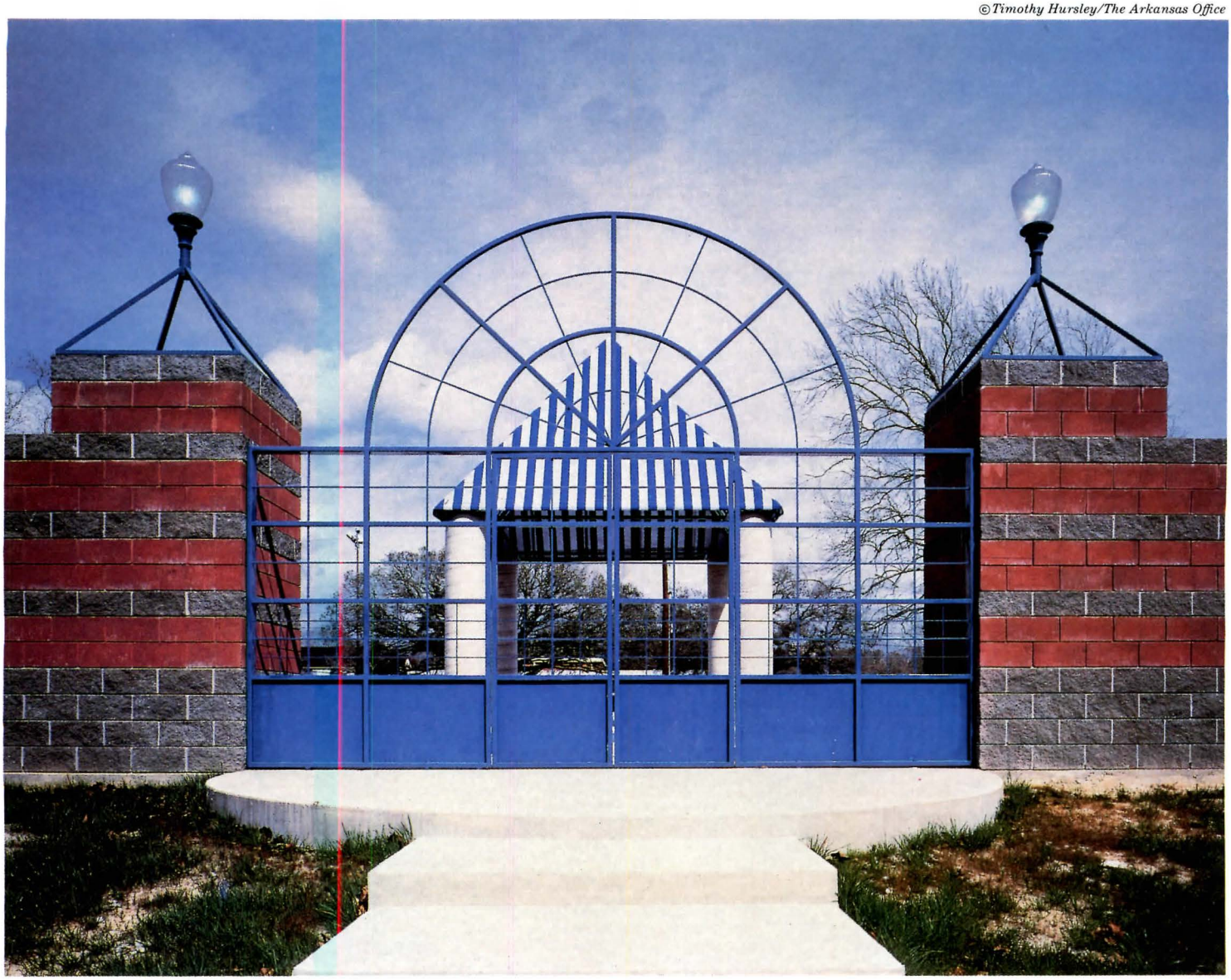
1. *Entry*
2. *Auto registration*
3. *Drivers' licenses*
4. *Clerical*
5. *Classrooms*
6. *Offices*
7. *Waiting rooms*
8. *Photography*
9. *Meeting room*
10. *Records*
11. *Work space*
12. *Storage*
13. *Lounge*



curved bench on the left accommodates applicants waiting to have their pictures taken, and the sinuous bench on the right seats student drivers waiting for classes. At the registration counter, the business area is delineated by a change of color on the patterned resilient-tile floor at the column line, and a drop in ceiling height at the same location gives a feeling of privacy at the edge of the counter.

The meeting room within the administrative area is currently used as a computer classroom in preparation for the CRTs expected as counter equipment.

Registry of Motor Vehicles
Worcester, Massachusetts
Owner:
The Commonwealth of Massachusetts
Architects:
Leers, Weinzapfel Associates, Architects, Inc.—Andrea P. Leers, principal-in-charge; Karen A. Moore, project architect
Engineer:
Sippican SCI (structural, mechanical/electrical)
Landscape architects:
Mason & Frey
General contractor:
Crowley Corporation



Southside Place Bath House
Southside Place, Texas
Owner:
Southside Place Park Association
Architects:
Taft Architects—John J. Kasbarian, Danny Samuels, Robert H. Timme, partners; Larry Dailey, project manager; Suzanne Labarthe, Robert Bruckner, support
Engineers:
Cunningham Associates, Inc. (structural)
General contractor:
Renaissance Builders, Inc.

Wall as building

Southside Place Bath House
Southside Place, Texas
Taft Architects

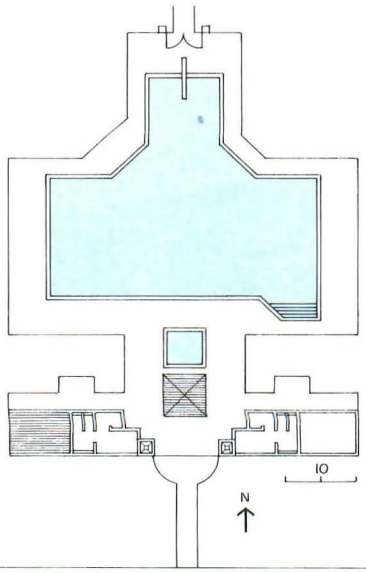
The bathhouse at Southside Place is functionally and structurally as minimal as can be. "Really, it's only a wall," Taft Architects confess. And it cost only $35,000, an enviable figure in the minds of taxpayers. (The pool itself cost another $75,000.)

The pool and bathhouse are in fact replacement facilities for the City of Southside Place, a small suburban enclave surrounded by inner-city Houston that houses about 400 families. Though its 50-year-old public swimming pool had developed an incapacitating crack and though at least one resident allows that its swimming team had come to be "a joke" in Houston, the residential community felt it needed such a recreational facility for its many children and teenagers. Thanks largely to Taft's festive design, the pool has, among other things, raised the performance and ambitions of the swimming team.

Because the front of the bathhouse faces houses directly across the street, the wall needed to be residential in scale and to have a more gracious countenance than the chainlink fence that surrounds the rest of the area in order to protect small children and animals from accident. Using the simplest low-cost materials, Taft Architects nonetheless invested the facade with appropriate consequence. The wall is composed of deeply raked courses of concrete block, the split-face gray block striped with smooth red block. Visible through the arched metal gate, a blue-and-white canvas pavilion, supported by four exposed concrete columns, provides shade for parents watching small children in the wading pool. At the same time, the pavilion gives the facility the sprightly image of a public garden. Gate, pavilion, and diving pool are all on axis with a community clubhouse at the far end of the site, which the pool shares with a playground and other recreational areas.

Even though little more than a wall, the bathhouse is capacious enough to contain all necessary functions. Boys and girls have changing rooms, showers, and toilets on either side of the entrance gate, while stored gear has a room at the west end and pool equipment a room at the east end. The architects further reduced costs by virtually eliminating doors and roofs. Only the storage room has a roof to keep out the rain, though both storage and pool equipment have doors. The interlinking concrete-block walls act as privacy baffles at changing-room entrances, and the showers, located within the gateway towers, have standard shower curtains. (Taft calls this exposure to the elements "solar sanitation.")

The project contains very little electric light, again on behalf of both construction and operating costs. Lanterns crowning the gateway towers—conventional streetlight globes supported by metal sections—provide sufficient illumination for tardy dressers.




HOOD

In retrospect

Hood Museum of Art
Dartmouth College
Hanover, New Hampshire
Centerbrook, Architect

When the Hood Museum of Art at Dartmouth College opened last fall, it inherited a varied collection that began in the 1770s with a grant to purchase "philosophical apparatus," a donation of "a few curious elephant's bones," and the gift of a silver bowl for chilling wine glasses. Happily, diversity remains the keynote of Dartmouth's treasures, and the museum designed by Charles Moore and Chad Floyd of the architectural firm called Centerbrook in a sense only continues the reinvention of a philosophical apparatus for the study of man's varied works. "The Museum is far more than a place to go and see art," reads the formal statement of purpose for the Hood drafted by its director, Jacquelynn Baas; "it is a place where one can learn *how* to see art." Faithful to that mission, Centerbrook has created a building that eludes ready comprehension as an autonomous artifact with its own esthetic code. This ambiguity only reminds one of the limitations of any single metaphor as a means to understanding the visual arts. Within the domain of current architecture in particular, there are so many structures that shout of the virtuosity of the designer or cry out to be read for social or cultural import, that one values all the more a building that seems to withhold precious secrets for the patient inquirer to discover on his own terms. A subtly composed demeanor of uncommon reserve, and an equally uncommon air of tangible substance, give the Hood extraordinary presence as a new work of architecture. In a museum, these qualities shape memorable, protective spaces where very different artistic identities can coexist in eloquent silence.

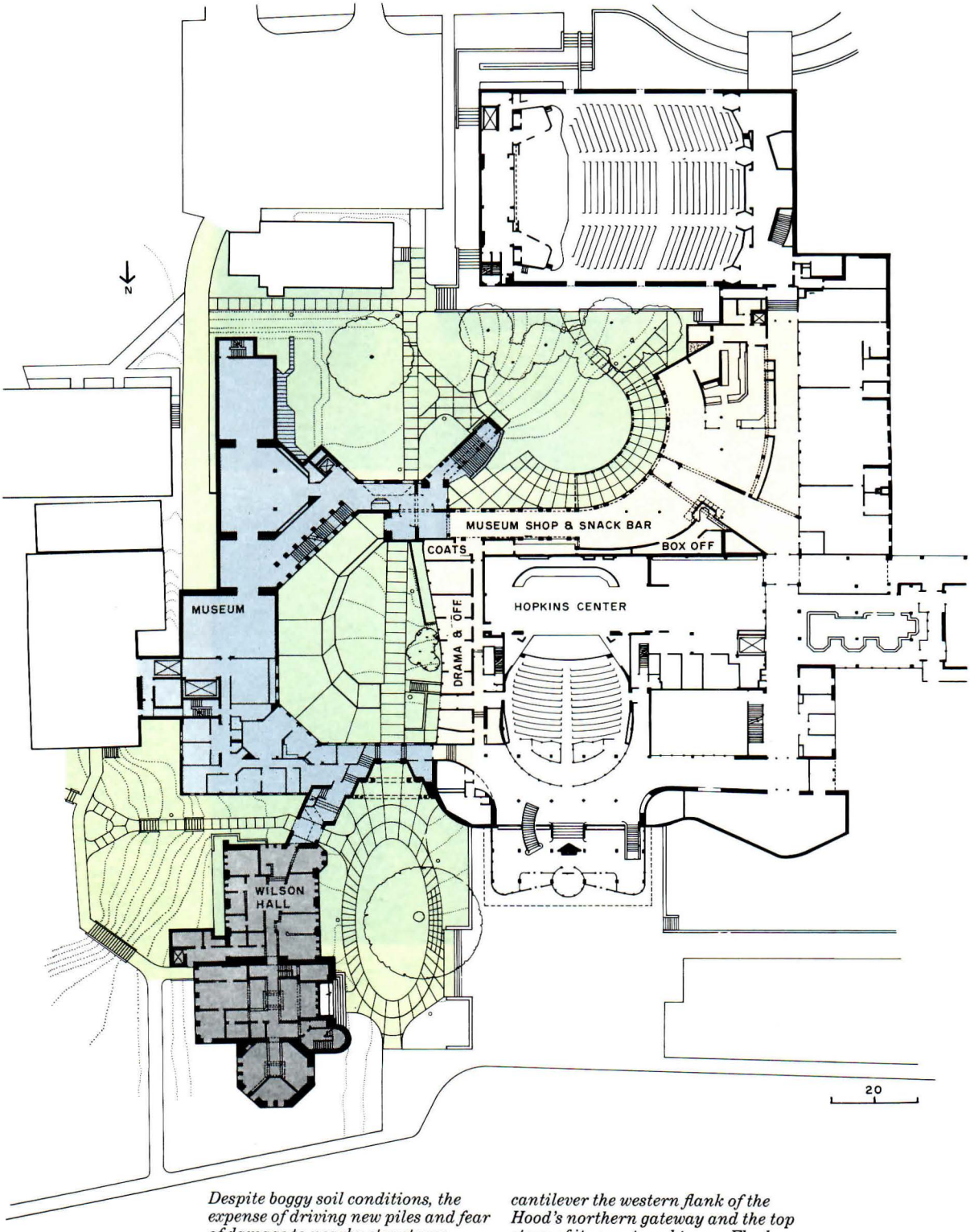
The idea of respectful coexistence is basic to Moore and Floyd's design for practical reasons, too, since the Hood necessarily occupies a narrow strip of ground hemmed in by some of Dartmouth's most conspicuous landmarks. Though the college did not assign the architects an exact site for new construction, concern for symbolic decorum, coordinated programming, and sheltered passage in a northern climate virtually required that the art museum adjoin the Hopkins Center, a 24-year-old performing arts complex on the southern edge of the hallowed Dartmouth green. Widely beloved as the cultural hub of New Hampshire's Upper Valley, "The Hop" also houses the busy college snack bar and post office. No one seems to mind very much that the gargantuan modernist culture palace designed by Wallace Harrison is unfashionable or alien to the scale and style of its next-door neighbors, the early American Hanover Inn and the Richardsonian Romanesque Wilson Hall—or to the rest of the campus, which is predominantly white clapboard with green shutters. The challenge of fitting a new building of any size, in *any* style, into this oddly assorted company would be formidable. Nonetheless, from the logistical standpoint of bringing a previously scattered and underexposed art collection to an already eager audience, linking the Hood to the Hop made perfect sense.

Through a series of on-site charettes, held near the Hop snack bar, Moore, Floyd, and managing partner Glenn Arbonies invited the entire community to join in exploring the options for the museum. Schematic models and plans were prepared for seven possible locations, and discussed intensively with a 30-member building committee in a three-stage review process. The ingenuity of the scheme finally selected was underscored by the improbability of its setting, a back-lot no-man's-land beside the college boiler plant, which is tucked away behind the turrets of Wilson Hall and the windowless hulk of the Hopkins Center stage house. At the most schematic level, Centerbrook deployed the museum galleries as a hollow wall along the eastern margin of the site, concealing the boiler plant and angling out to face the green. Bridges connect the galleries to Hopkins and to Wilson (which Centerbrook restored and converted into offices, classrooms, and studios) and define three courtyards along a north-south pedestrian route. The northernmost bridge, which forms a critical junction for staff circulation, also became a ceremonial gateway for the Hood upon the green. Reminiscent of the portals to ancient academic quadrangles, the gateway gives onto a sculpture court. A second bridge links the museum lobby to the snack bar, which Centerbrook enlarged. The new café curves around the back of the Hopkins Center to help shape an amphitheaterlike garden that welcomes visitors arriving from the south. While the overall logic of the layout is evident in plan, its effect in the round is tantalizingly fragmentary. One experiences the Hood as an unfolding sequence of pathways, nooks, and open spaces, like glimpses of a medieval townscape or interiors in a Dutch painting.

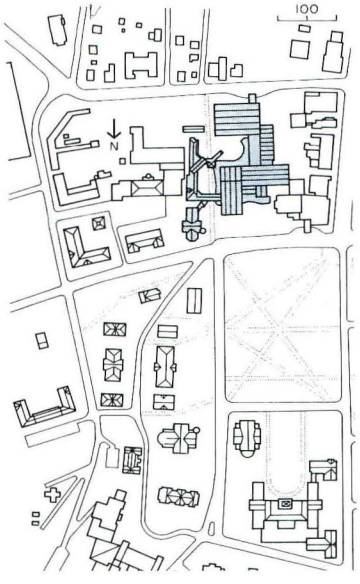
As befits a museum, the Hood is a three-dimensional study in the power of memory to isolate, rearrange, and transform the past. To effect this peculiar harmony Moore and Floyd have echoed decorative elements of the older buildings nearby—arches, clustered columns, Flemish-bond brickwork, cyma-moldings—but avoided pastiche in favor of more allusive historical reminiscence. (One feels spiritually closer here to the Charles Moore of Sea Ranch than to the Moore of the Piazza d'Italia and the New Orleans Wonderwall.) Depending on the perspective from which one views it, the Hood vaguely resembles an outpost of the late Roman Empire, a Romanesque monastery, or (seen against the backdrop of a nearby smokestack) a 19th-century New England mill. The closest analog that comes to mind is the work of early 20th-century Scandinavian architects such as Gunnar Asplund and Eliel Saarinen, who seemed to distill centuries of Western tradition into clear, smooth, modern forms. In a similar manner, Centerbrook contrasts hues and patterns of brickwork and varies fenestration to enrich the wall plane rhythmically without breaking its taut surface. The counterpoint of robust plasticity comes from concrete piers and lintels, cornices that shift dimensions and profiles as they move around the building, and the interplay of bridge, buttress, tower, and cupola. This is not a vulnerable modernism whose esthetic purity diminishes with every weather stain. The Hood is meant to improve with age. Concrete has been sandblasted to the texture of worn granite, and the green paint on cornices has been keyed to the patina that the copper roofs will eventually acquire. Early sketches for the Hood display more overtly ornamental flourishes, such as polychrome glazed brick, dormers, and elaborate finials. Fortunately budget, climatic considerations, and ruling campus taste reinforced the elegant restraint that gives the building its strength.

The sequence of spaces within the museum similarly evokes archetypal surroundings for viewing art, but pares them down to spare modern lines. Though much of the interior is meant for changing displays, and many partitions can be dismantled or moved, extended vistas and a pervasive grisaille palette instill a sense of tectonic permanence. Moore and Floyd deliberately avoided the effect of art works adrift in a neutral, white continuum, preferring to furnish a variety of room shapes and degrees of luminosity congenial to different kinds of art. Several chambers distantly evoke collectors' cabinets, chapels, or reliquaries. In the sort of disjunction characteristic of 20th-century sensibility, the skylighted barnlike loft assigned to contemporary art slices diagonally through an enfilade of cove-ceilinged spaces modeled loosely on the long galleries of English country houses. Striking a successful compromise between the architect's desire for natural illumination to articulate interior volumes and the curator's fear of exposing art works to damaging ultraviolet rays, Centerbrook concentrated direct sunlight in circulation areas or deflected light away from walls hung with paintings, graphics, or textiles. The only place where the light seems harsh is in the vestibule rotunda (photo page 114), a zigzag pavilion that Moore and Floyd painted in a spectrum of colors to celebrate the Hood's opening. Whether regarded as an individual work of art, or as a component of the museum building, this architectural jeu d'esprit stands out as an obtrusively "postmodern" contrivance. But perhaps, as a reminder that no period in art history is more problematic than the present, it too is a timely bit of philosophical apparatus. *Douglas Brenner*

The Hood gateway and a new oval plaza visually unite the museum with the Dartmouth green and with its neighbors (opposite above). To left and right, respectively, stand Wilson Hall, built in 1884 as a library and president's office, and the Hopkins Center, designed by Wallace Harrison and completed in 1962. Over the centuries, Dartmouth landmarks have always been erected around the green, on the pattern of a town common. Borrowing from different, though no less venerable, prototypes, Centerbrook used the linear ranges of the Hood to shape a courtyard reminiscent of those at English universities (opposite below). The ramp to the gallery entrance inside the courtyard has a stepped parapet that architects Charles Moore and Chad Floyd envision as a pedestal for sculpture.

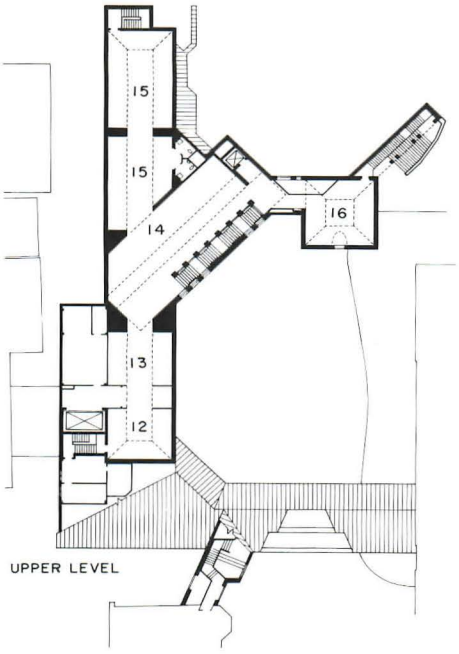


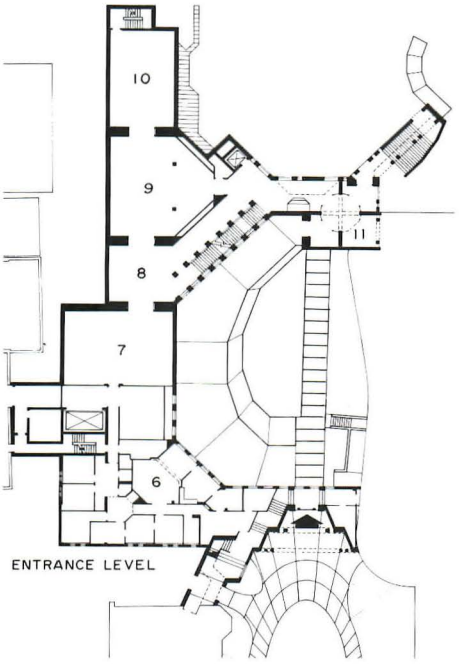
Despite boggy soil conditions, the expense of driving new piles and fear of damage to nearby structures prompted Centerbrook to lay a conventional foundation for the Hood's cast-in-place concrete frame. To create the impression that the new museum interlocks with the Hopkins Center, while accepting the variable imposed by their separate structural systems (Hopkins does *rest on piles) it was necessary to cantilever the western flank of the Hood's northern gateway and the top story of its courtyard tower. Flush detailing reflects the modernism of the Hopkins Center, as new brickwork continues its Flemish bond. At the same time, waterstruck brick with dark headers, bullnose stringcourses, and stack-bond blue-gray friezes add a layer of textural and chromatic density more akin to Wilson's Victorian esthetic.*

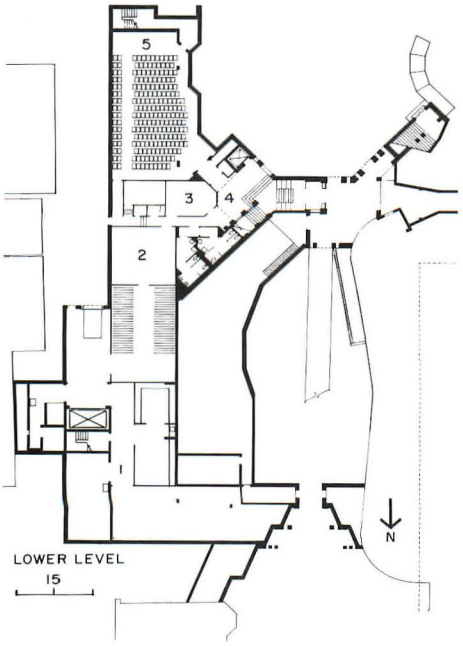


Looking from the inner courtyard toward the green, a turret on Wilson Hall forms a mate to the Hood Museum cupola (top above). Viewed from the opposite end of the complex, Centerbrook's copper-domed finial announces the point of entry for visitors approaching from off-campus. A buttresslike stair tower simultaneously extends a grand canopy to the museum and bounds a grassy amphitheater for open-air entertainment and ceremonies. A higher terrace, embraced by the curve of a new snack bar, transforms a back lot into a convivial campus gathering place. In the warmer months, café patrons move outside. The Hood galleries effectively block the view of the college heating plant, except for a smokestack that intensifies the new building's picturesque resemblance to an old New England mill.

1. *Storage/preparation*
2. *Print room*
3. *Seminar*
4. *Lobby*
5. *Auditorium*
6. *Offices*
7. *American gallery*
8. *Indian gallery*
9. *Ancient gallery*
10. *European gallery*
11. *Museum shop*
12. *African gallery*
13. *Friends gallery*
14. *20th-century art gallery*
15. *Temporary gallery*
16. *Dartmouth artifacts*







All routes to the museum converge on a multicolored rotunda (opposite), intended as a festive gesture for the museum opening. Etched into the glass doors is a logo designed by Brenda Huffman. The modified H incorporates the stepped motif that recurs as a decorative device at every scale: in exterior window lintels, interior sign frames, and in furniture such as oak gallery seating and the lobby reception desk.

Metal gates beside the staircase and set into the doorway embrasure can be closed after hours to complete the security perimeter without blocking access to a basement lecture hall-movie theater and art study rooms. The gallery directly beyond the lobby is the only room planned specifically to house a particular work of art, the Hood's rarest treasure, a group of 9th-century B. C. Assyrian reliefs. The open bridge above leads to the square gallery atop the entry tower.

Windows are segregated beyond the range of paintings, graphics, or objects that might be harmed by ultraviolet rays in daylight. The northerly stair windows contain two layers of thermal glazing, with a 9-inch air pocket in between (their concrete frames also have a 3-inch styrofoam core to maintain the insulation barrier). Skylights help to articulate the lofty gabled hall devoted to large-scale contemporary works such as Frank Stella's Shards III *(opposite), but the radiance overhead is diffused by a catwalk carrying electrical lighting tracks. Throughout the museum, other mechanical apparatus, such as telephones, fire alarms, and diffusers, is gathered in niches between galleries (see doorway at right in top photo this page), keeping display backgrounds clear.*

Centerbrook exploited the play of light to modulate the atmosphere in which art is shown, and bring to life the architect's own juxtapositions of linear patterns, reliefs, and built-up wall masses. In the stairway, for example, reflection from painted glazing bars gives concrete the greenish cast of old cathedral stone. Sunlight or the glow of torchères reveals the parallax of overlapping mullion grids in double windows, and isolates the steps as a floating ribbon. Shifts in tonal values lend individual character to exhibition spaces such as the tower room (opposite), without upstaging the art they house (in this instance, a bust of Daniel Webster and other Dartmouth mementoes). The architects obeyed a curatorial request for plain wallboard-over-plywood display surfaces, similar to those that the college has used for years. Centerbrook refined these materials into a system of raised panels mounted against a continuous medium-gray background. Panel colors can be selected from a spectrum of grays to suit changing exhibitions, without interrupting the chromatic harmony of their surround.

Hood Museum of Art
Dartmouth College
Hanover, New Hampshire
Architect:
Centerbrook—Charles Moore and Chad Floyd, partners-in-charge; Glenn W. Arbonies, managing partner; Richard L. King, James C. Childress, project managers; James A. Coan, Julia H. Miner, James R. Martin, Jennifer Tate, design team
Engineers
Besier Gibble Norden (structural); Helenski-Zimmerer, Inc. (mechanical/electrical)
Graphic design and color consultants:
Brenda Huffman Graphic Design
Lighting consultants:
Systems Design Associates
Landscape design consultant:
Lester Collins
Security consultant:
Ralph V. Ward, Ltd.
Construction cost control:
Freeman and Roberts Associates
Construction manager and general contractor:
Jackson Construction Co.

Chicago style

© Timothy Hursley/The Arkansas Office photos except as noted

"Stormy, husky, brawling,/ City of the big shoulders."
—Carl Sandburg, *Chicago*

For a century Chicago architecture has embodied an individuality and éclat born less of consistency or even congruity of style than of a common attitude blending heartland conservatism and sobriety with the irrepressible vigor and audacity of a never-quite-closed frontier. Few latterday examples, though, have so clearly recalled the spirit of the early Chicago School—which clung on in the city's humbler commercial and industrial districts even through the post-Columbia-Exposition sway of neoclassicism and the later triumph of Modernism—as Holabird & Root's recent pairing of a low-rise building for Northwestern University's Law School with a superposed office tower housing the American Bar Association.

The law center's direct antecedents, according to design partner Gerald Horn, were the low-scale Collegiate Gothic of the adjoining law school and the stripped-down chunky masses of other nearby university buildings, all rendered in warm greige Indiana limestone whose tone reappears with added richness in the new building's granite-outlined base. The shift to a deeper gray palette for the curtain wall, by contrast, was cued by other prominent elements in the immediate surround, notably the graystone one-time furniture mart whose cerulean-crowned turret rises beyond the office tower on the south (far left in photo above) and Mies van der Rohe's famed Lake Shore Drive apartments just to the north. Nonetheless, the rhythm of the staunch piers that climb the dual structure's facade, attenuating as they rise to the pure lattice of the upper curtain wall, and the resolution of vertical with horizontal in lightly etched but strongly proportioned bays unified by the repetitive grid of window and spandrel, seem to speak also of city predecessors both more remote and more universal.

If it is tempting to trace in the law center facade a formal confluence of differing but quintessentially Chicagoan models, it is irresistible to posit an affective role for the inland sea at the new building's foot. By accident or design, the plum-gray glass and metal skin faithfully mirrors the elemental moods of Lake Michigan as it responds to Chicago's notoriously fickle climate and the sweep of sun and season—now steely and dour, now serenely aloof, now warmly glowing. And there is surely a "water sign" in the cascading projections that mediate between the higher and lower volumes while bringing to each an added quotient of light and views.

For all its commanding presence on the lakefront, however, the project originated as but a modest addition to the law school library, mutating to its present form when the university entered a long-term lease agreement with the American Bar Association, which was seeking for its national offices, then headquartered near the University of Chicago in Hyde Park, more space in a more central location. As a result of the pact, the *quondam* library expansion grew to include improved classroom, courtroom, and other teaching and administrative spaces for the law school, 210,000 square feet of office space for the ABA as prime tenant, and replacement of an auditorium then on the site with a new facility to be shared by the school, the association, and, on occasion, the community.

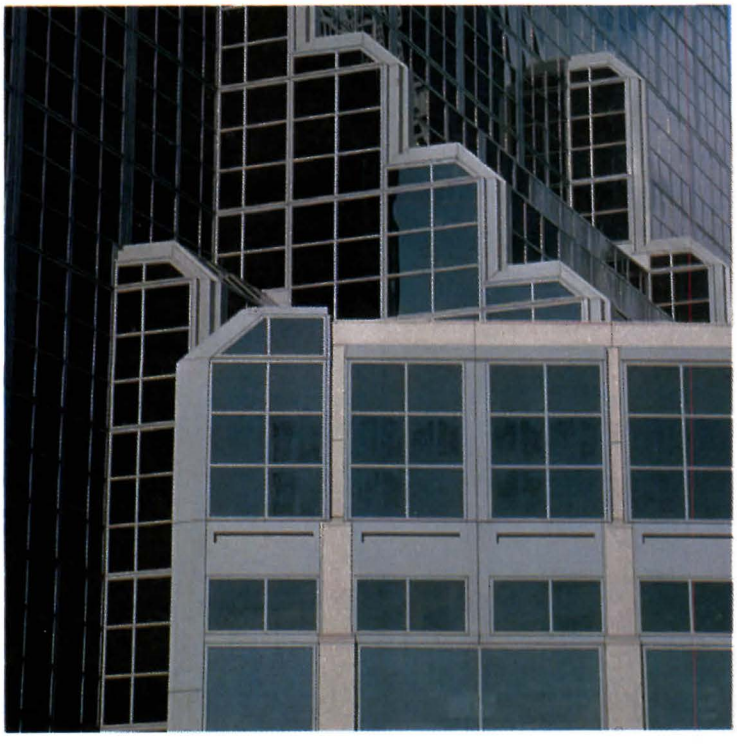
True to the dictum of an earlier Chicago architect, the form of the combined structures expresses the built-in functional conflicts rising from the elaborated program as well as the orientation of the trapezoidal site. The library, for example, called for large unbroken floor areas—"They would have had it all on one floor if they could," Horn observes—while the ABA and the university as landlord wanted office floors in the standard 22,000- to 24,000-foot range. Hence the site-blanketing expanse of the law school's three floors and the slimmer mass of the surmounting tower, which was offset to the south to preserve continuity of scale with the law school's low neo-Gothic buildings along Chicago Avenue to the north. The tower placement relative to the lower structure also assured unbroken views to the north and toward the lake, logically answered the question of discrete access and circulation paths for the structure's dual occupants, and, not least, permitted dropping a cross-axial well in the form of the billowing tower projections to bring light to the interiors of the bulky library and classroom floors.

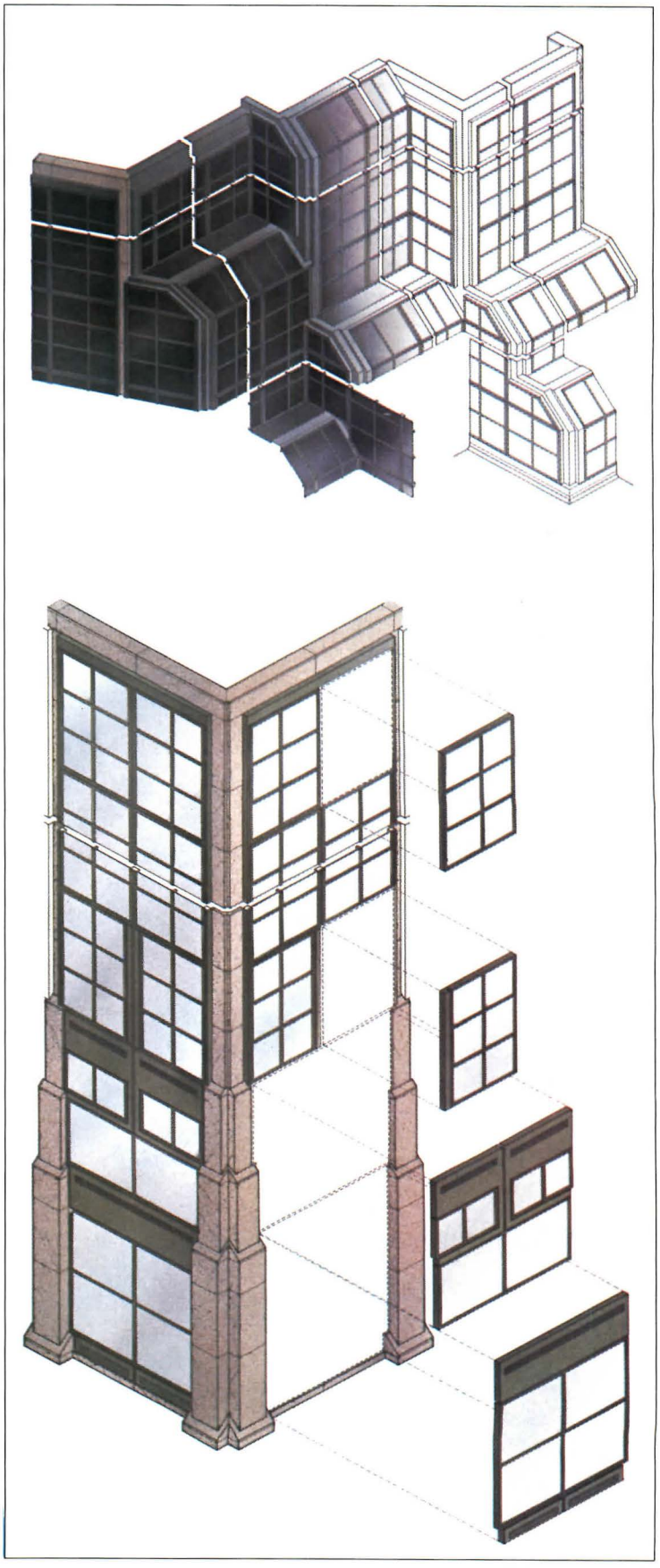
The hybrid building's smooth interweaving of unwieldy masses only tangentially related—itself no mean accomplishment—also fosters a sharper focus on the force of conception and finesse of execution that bring to the structure that combination of sophistication and energy so eloquently expressive of Chicago's *genius loci*. *Margaret Gaskie*

Northwestern University Law
School/American Bar Association
National Headquarters
Chicago, Illinois
Holabird & Root, Architects

"The first four stories tell the whole story," says designer Gerald Horn of the law building curtain wall. "The rest is repetition." Though briefly broken by an entry heralded by a setback five-level atrium between the existing law school and the new structure, the scale and proportion of the older building are promptly picked up by the low-rise podium that merges with the tower, while the neo-Gothic pilasters punctuating the facade of the original building reappear in a highly stylized version that extends their march around the structure's base, doubling to negotiate corners. Clad in warm mahogany-toned Carnelian granite, the pilasters recede and narrow as they rise, falling back from the plane of the metal and glass skin on the upper stories "to convey the message that the structure is behind the curtain wall." Similarly, the glazing

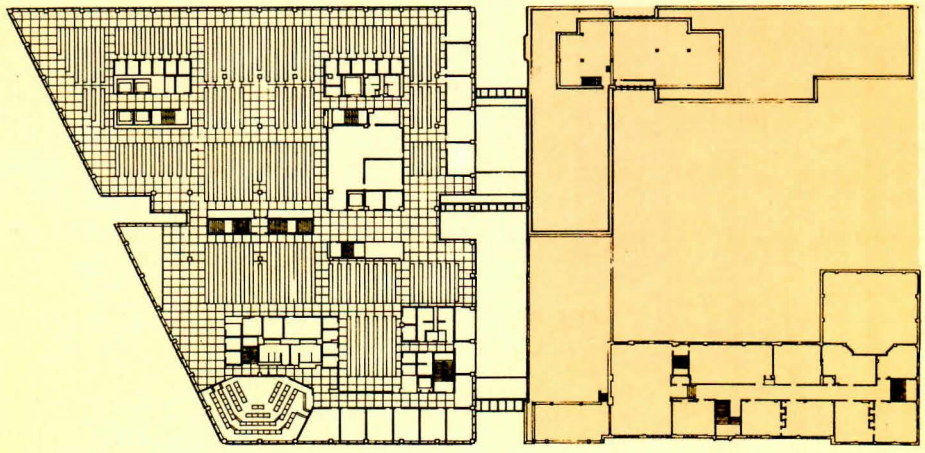
shifts from broad expanses of light gray set off by distinct spandrels on the first two floors to a tauter grid emphasized by fat 10-inch mullions on the transitional third floor but framed only by subtly sketched joinings between the strongly defined columns from the fourth to twelfth floors of the tower proper. The curtain wall's aluminum frame, painted in gull gray, is keyed to a deep gray glass chosen for its close tonal match between spandrel and vision glass and its near-elimination of the mirror effect that so often obscures night views from within—a feature particularly important for a school oriented to ten-o'clock (p.m.) scholars. Hardy night and weekend workers are also cosseted by grilles, demarked by "decorative" niches in the spandrels, that can be opened from within faculty offices for ventilation during off-hours.



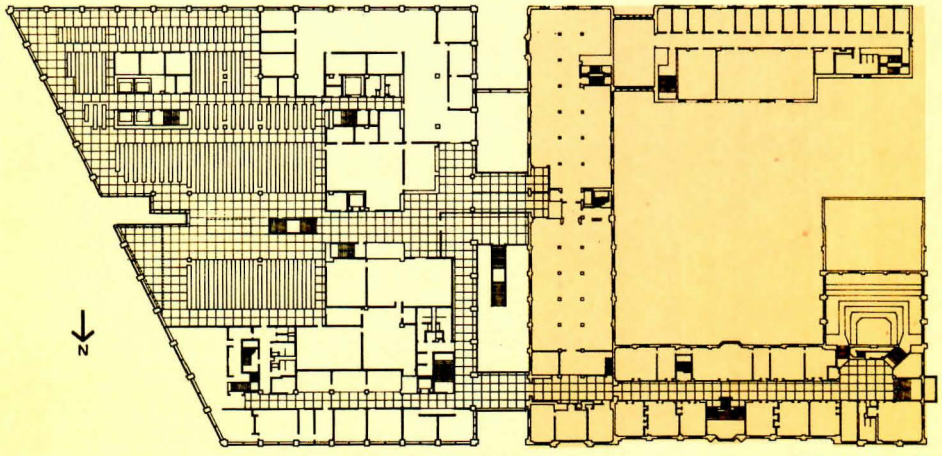


A key feature in the plan of the law school addition—both an organizing and circulatory device and what Gerald Horn calls "unprogrammed free space" that "gave" the school a spacious student lounge—is the atrium formed by drawing the new structure back from the existing building and spanning the bay-wide gap with a backstepping clear glass roof that soars through five stories. In addition to providing entry at ground level, the spine physically joins the old and new buildings via second-story bridges while forming a visual link between the original neo-Gothic limestone facade with its elaborate pilasters and the new structure's arcade, which is framed by their abstract counterparts. Apart from the office tower lobby and shared service areas, the first floor of the building is given over to classrooms, including a moot

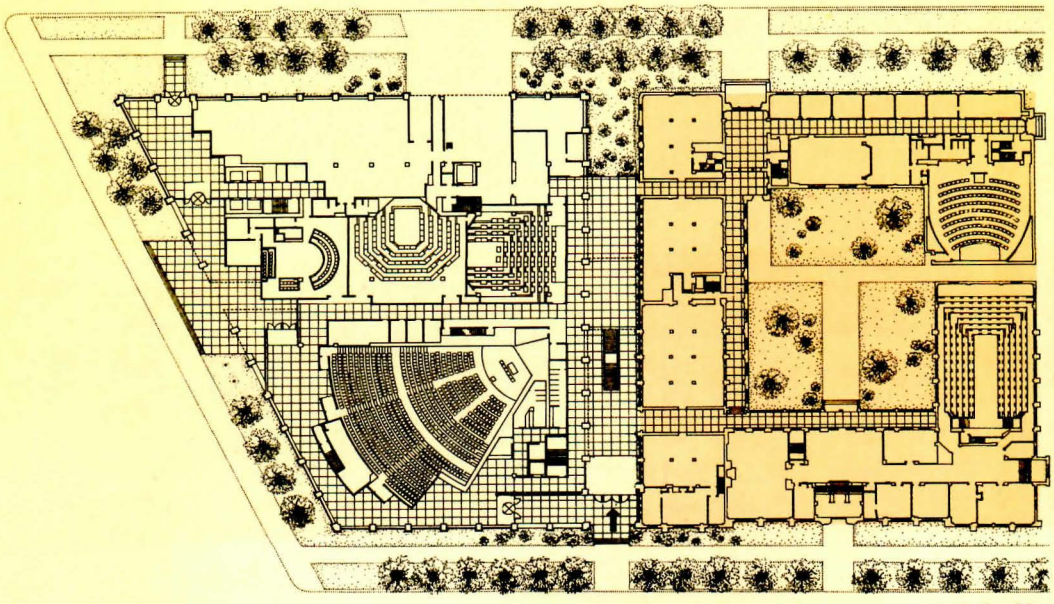
courtroom, and to the shared 800-seat auditorium. The second floor is dominated by the library but also houses perimeter faculty offices and administrative areas supporting the office of the law school dean, and the third floor again is devoted to library space, save for a corner classroom, faculty offices, and a wedge-shaped faculty lounge overlooking the lake. To maintain separation of the two occupants' functions and identities, there is no mutual access except to the auditorium: the ABA enters from the side opposite the law school's "front door" on Chicago Avenue or from a more imposing (but less frequently used) vestibule fronting on blustery Lake Shore Drive at the seam between the low-rise and tower elements. Like the similar vestibule to the atrium, this outer lobby also provides for public access to the auditorium.



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

Basking in light borrowed from elaborated clerestory extensions of the fourth and fifth tower levels, the library floors below play the clubby but dignified fittings of, well . . . a law office against a neutral shell punctuated by boundless views of city and lake. The presiding nut-brown luster of polished wood is spiced by row on row of books in coats of many colors, among which sing out those bindings of crimson, black, and hunter green against tobacco-colored leather commonly associated with legal tomes. For the classrooms and courtrooms, the deepest and brightest tones of the palette are carried over to backgrounds and furnishings of gleaming wood and metal sparked by vibrant red upholstery—a color choice in keeping with the client's attention-assuring request for "not too comfortable" seating.

Barbara Karant

Northwestern University Law School/American Bar Association National Headquarters
Chicago, Illinois

Owner:
Northwestern University

Architects and engineers:
Holabird & Root—Eugene Cook, managing partner; Gerald Horn, design partner; Jeffrey Case, project manager; Frank Castelli, project architect; Priscilla Barclay, Thomas Sze, James Saibic, Mark DiGanci, Lee Schwerin, Dennis Vovos, project team; Ralph Lindberg, mechanical engineer; Tom Benson, electrical engineer; David Ekstrom, structural engineer

Interior design:
Holabird & Root; Powell/Kleinschmidt, Inc.

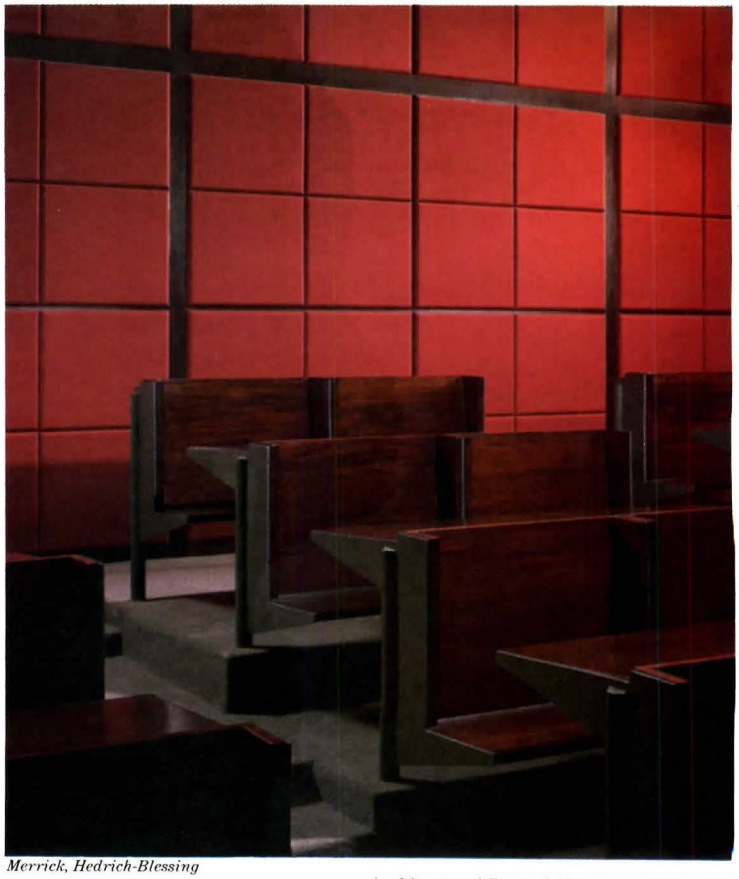
Consultants:
L. Kirkegaard & Associates (acoustics); Schal Associates (cost estimating); James Read (lighting); Heitmann & Associates (curtain wall); Joe Karr & Associates (landscape)

Construction manager:
Schal Associates

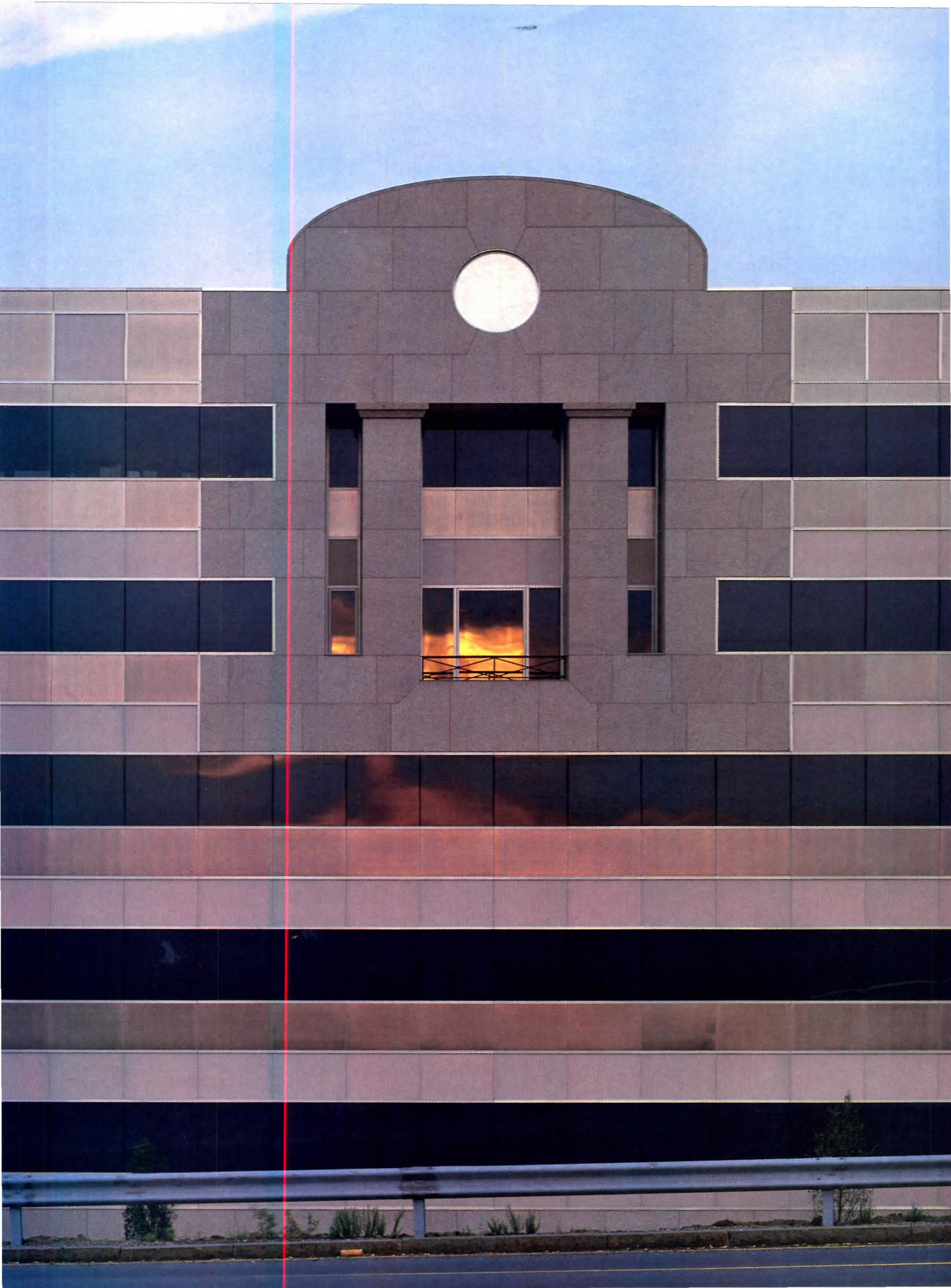
General contractor:
Northwestern University

Barbara Karant

Merrick, Hedrich-Blessing

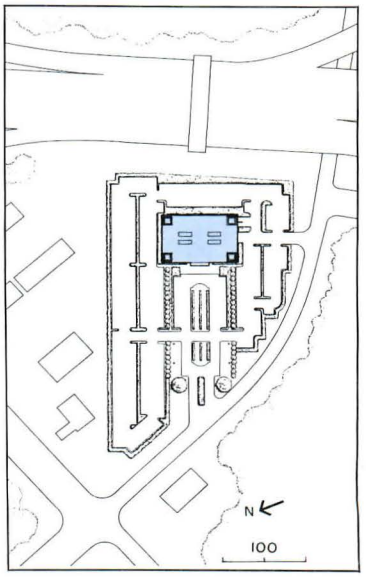


Merrick, Hedrich-Blessing



Turnpike palazzo

Point West Place
Framingham, Massachusetts
Robert A. M. Stern Architects
in association with
Drummey Rosane Anderson



Hovering rather majestically over its neighboring strip-development—much as a Renaissance palazzo within its clustering village—this roadside, speculative office building is a sort of postmodern apotheosis of the glass box.

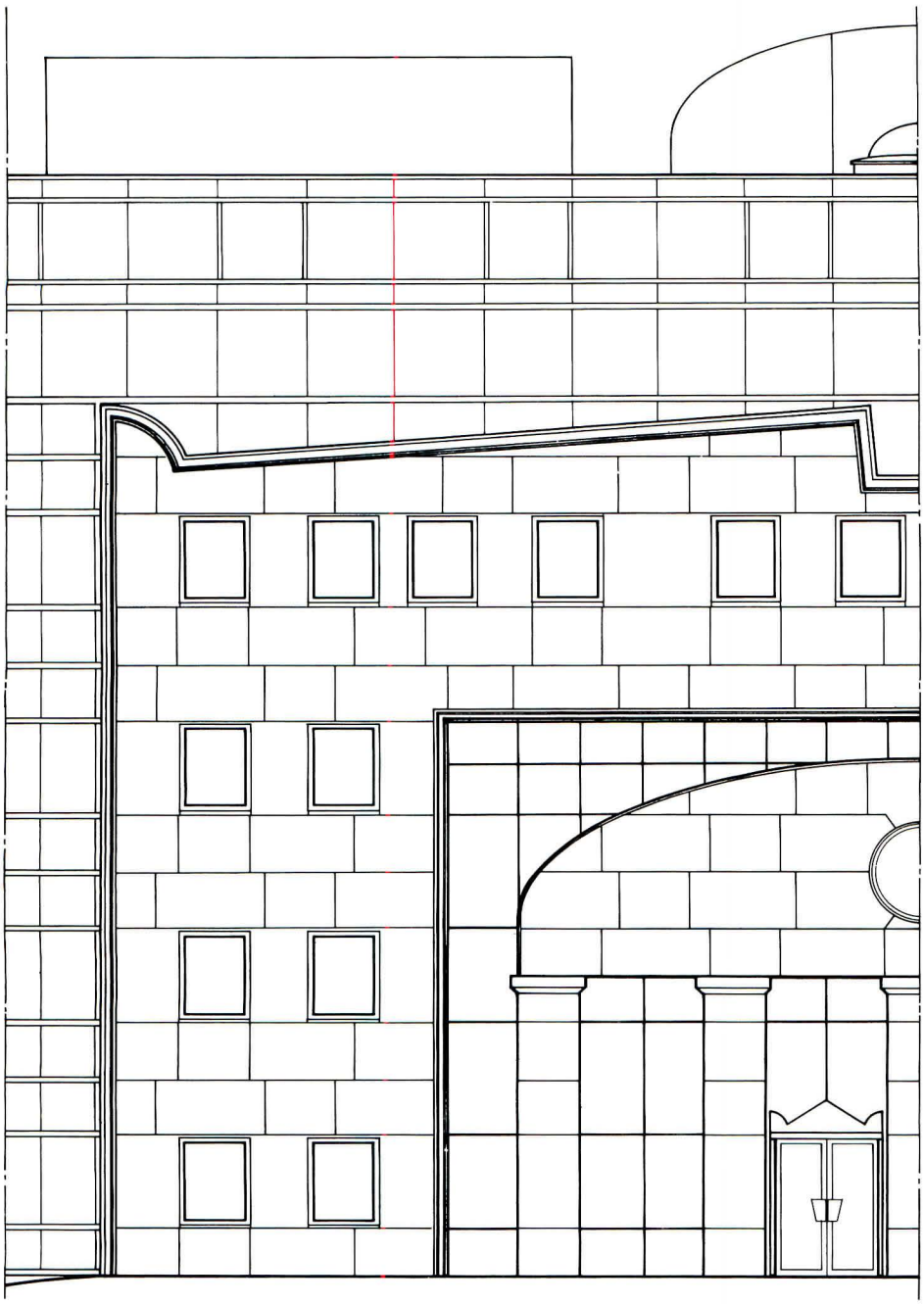
The structure is a basically simple and familiar one: five stories, steel-framed, open plan with a compact, central service-core—and curtain-walled with well-detailed, horizontal strips of rose and gray glass. Yet an overlay of a few simple, but exuberant allusions gives it a classically palatial, almost Napoleonic air. Indeed, the architects have dubbed it a "palace of work."

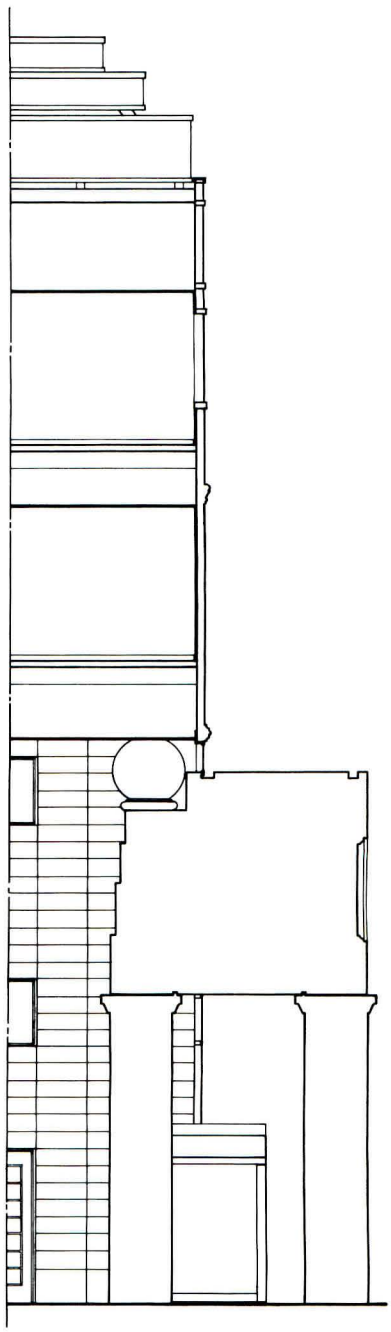
For speeding turnpike motorists, the rear facade gives a fast-track illusion of a great bastion of striated stone courses—so beloved by Romanesque devotees—capped by rows of false attic windows, and by truncated step-pyramids at the corners. It is dominated by a pink-granite-veneer "balcony of appearances," where one can review the late 20th-century "mounted troops," if one so desires. At a quick glance, the balcony is a bold projection, with a curved, oculus-centered pediment supported by paired columns, and joined to the facade by quoin-like stone flanges; actually it is flat, with a shallow, inset standing area, and squared "proto-Doric" capitals on the inner "columns."

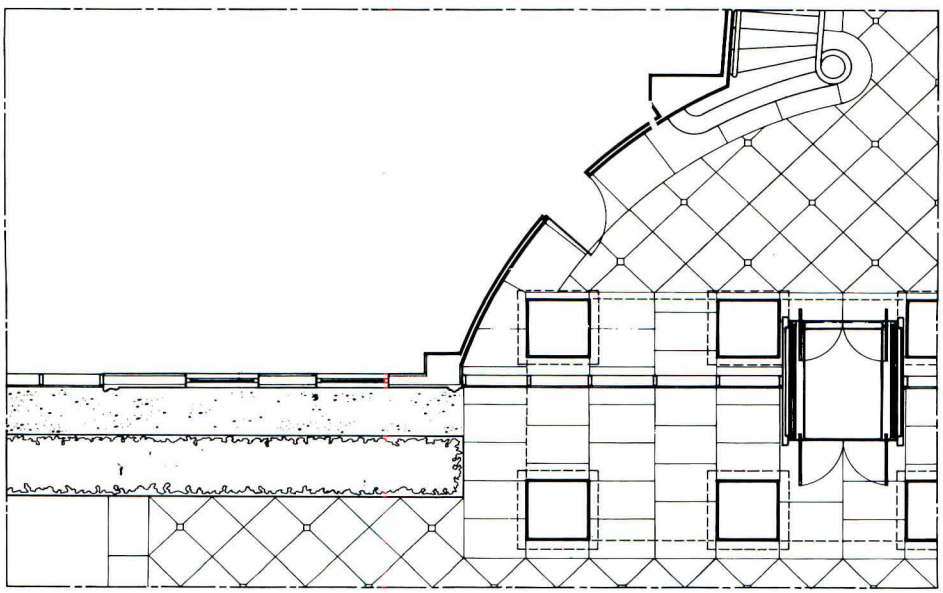
The front facade is a slightly more intricate affair (see overleaf). The approach is via a stone-paved *Cour d'Honneur* surrounding a tidily planted, formal *parterre,* and flanked by an *allée* of tree-screened parking. At the entrance itself, a big pink granite section with different fenestration suggests an extending wing—fronted by a massive *porte cochère.* The "wing" is also a flat curtain wall, like the balcony on the opposite side of the building. Its sense of extending relief is created simply by a surrounding molding, as in some Egyptian temples, and defines a shallow pediment, with an aluminum-leaf oculus, "negative" keystone, and an abstracted acanthus finial at each end (an *acroterion*—I looked it up in my battered "Bannister Fletcher"). The *porte cochère* actually extends only a few feet inside and outside the building, thrusting through a big glass panel, and leads to a shallow-curved, wood-paneled, and stately lobby with a false perspective making it seem even bigger.

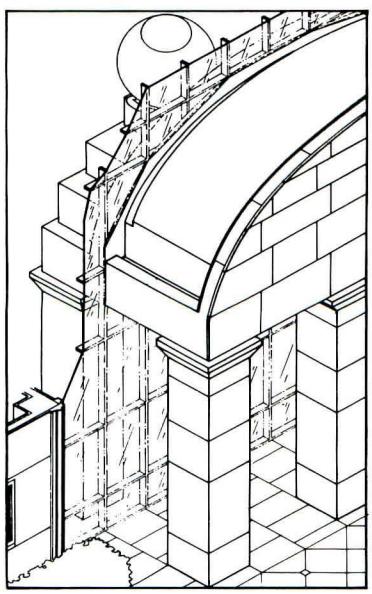
All in all, the building is extremely arresting, fun, and elegantly detailed. And it has some deft applications of design techniques perhaps too long ignored. One occasionally wonders, though, with all this postmodern exploratory abstraction of Egyptian-Greek-Roman motifs (and all their later mutations), when someone is going to turn to another chapter of "Bannister Fletcher" and discover a *really* fun style, say South German Rococo or, perhaps, Dravidian? *Herbert L. Smith, Jr.*

Photos © Timothy Hursley/The Arkansas Office







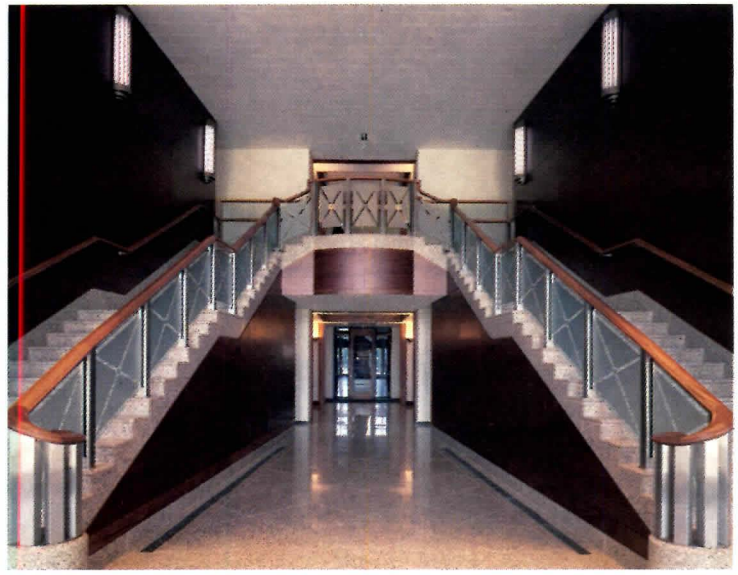


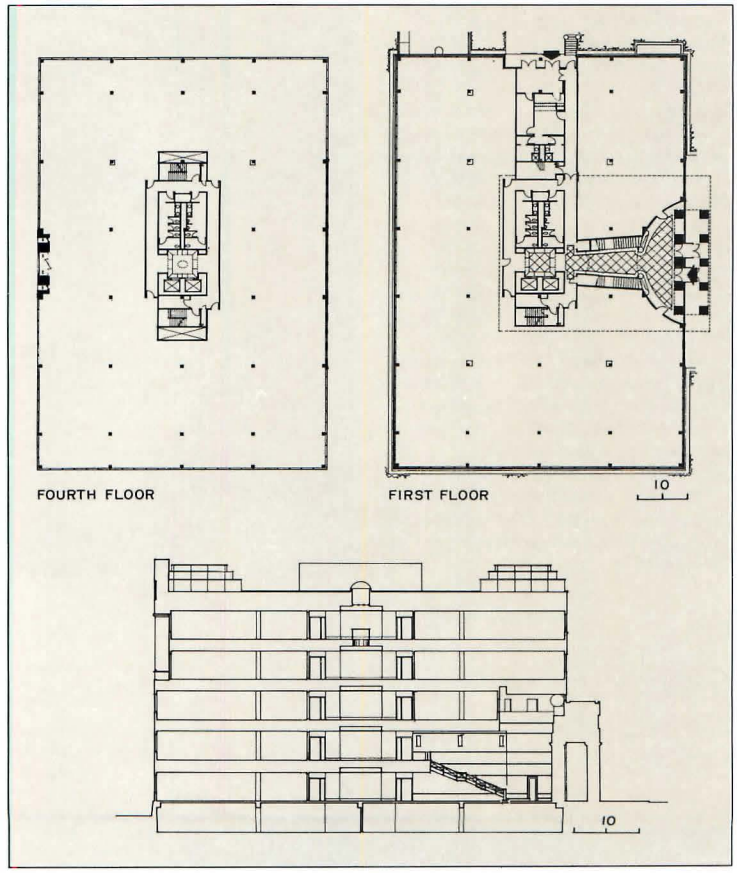
0 5 10 15

Careful, elegant detailing and handsome, sympathetic materials create a much higher level of quality and esthetics here than in the typical spec office building. Nor is it simply a pleasant combination of paint and pastiche. Its decorative appeal comes from the colors of the materials themselves, and from a studied interplay and repetition of simple geometric forms. Rectangles and squares dominate—in the basic building and in the fenestration; in the step-pyramid finials, repeated on the interior of the portico; and inverted at smaller scale as capitals. The triangular pediment is echoed at the stainless steel entrance doors; the trapezoidal shape of the keystone becomes door pulls. And arcs, circles, and globes (even some clipped trees in the Cour d'Honneur) complete the roster of simple shapes. Constantly looking—and finding them—is very pleasurable.

The main purpose (from an owner's point of view) of a speculative, suburban office building is, of course: maximum rentability, and flexible floor space with an efficient but minimal service core. But it is also a big plus if the building has some strong, individual "appeal" to augment rentability. As can be seen from the section and typical (fourth floor) plan at right, the 110,000 square feet of floor space in this building has been used to very good advantage. The added "plus" (usually a wisp of an atrium, these days) is to create the illusion of the "old-fashioned" grand, mahogany-paneled lobby. "Illusion," because it is not as big as it looks—there are false perspectives created by the inward slant of the double staircase, and the shallow arc of the "rotunda" (an echo of the exterior curved pediments?) which abuts in glass wall pierced by the massive, temple-like portico. A bit of glitter is added by the aluminum-leaf-covered orbs (which conceal structural columns), and by the etched glass stair-rails.

Point West Place Office Building
Framingham, Massachusetts
Owner:
Hines Industrial Corporation
Associated architects:
Robert A. M. Stern Architects
—John Ike, associate-in-charge; Graham Wyatt, Stephen Falatko, Peter Merwin, Thai Nguyen, Mariko Takahashi, assistants
Drummey Rosane Anderson—Owen Beenhouwer, principal-in-charge; Maurice King, project manager; Carl Franceschi, project architect; Joseph Kelleher, construction contract administrator
Engineers:
Weidlinger Associates, (structural); R. G. Vanderweil (mechanical/electrical); Boston Survey Consultants (civil)
Lighting:
Cline, Bettridge, Bernstein Lighting Design, Inc.
Landscape architects:
SWA Group
General contractor:
Vappi and Company, Inc.





Architectural strategies in seismic design

By Marcy Li Wong
Department of Architecture, University of California, Berkeley

Earthquakes do not often kill people, but buildings that fail in earthquakes do. The unpredictability and suddeness with which earthquakes strike can make them more dangerous than other natural disasters. Such a catastrophe recently occurred in Mexico's devastating earthquake of September 19, 1985, in which thousands of people were killed when both old and new buildings collapsed. Inevitably, comparisons were made to hypothetical earthquake scenarios in California, our most seismic state, but the possibility of seismic damage to buildings actually extends across much of the United States.

The source and distribution of U. S. earthquakes

The population on the West Coast of the United States has a high level of earthquake awareness prompted by the region's frequent and sometimes massive tremors. Although an earthquake disaster has not occurred in other parts of the country in modern times, written accounts from up to 300 years ago show that the eastern and central portions of the United States have had significant though sporadic seismic activity. With the realization that buildings, especially old masonry ones designed under minimal seismic provisions, create very vulnerable cities even in "moderate" earthquake zones, concern about building hazards during earthquakes is increasing in all areas of the country.

The amount of earthquake energy release and degree of earthquake impact on the environment have two different scales of measurement. The former measurement is of "magnitude," the latter is of "intensity." In the United States, the most commonly used systems to describe earthquake magnitude and intensity are Richter Magnitude and Modified Mercalli Intensity. Magnitude is calculated from scientific instrumentation measurements and is expressed in decimal numbers: earthquake energy release is limited by the strength of rocks in the earth's crust to a maximum Richter Magnitude of about 9.0. Each unit (1.0) increase in magnitude corresponds to an approximately 30-fold increase in seismic energy release. Intensity is a more subjective scale derived from observations of the physical effects from an earthquake. An earthquake typically generates regions of intensity increasing toward the epicenter. Intensity is expressed in Roman numerals from "I," where shaking is not even felt, to "XII," where building destruction is complete.

There is abundant scientific evidence that the crust of the earth is broken into numerous "plates." The shifting of plates is referred to as "continental drift" or "plate tectonics." A vast majority of quakes happen at plate boundaries. In North America, earthquakes associated with plate boundaries occur in Alaska, the Pacific Northwest, California, the Caribbean, and Mexico. Aside from California and Alaska, much of the United States has a history of "intraplate earthquakes," which occur away from plate boundaries. Three regions of the U. S. where the general population is not very conscious of the potential for intraplate earthquakes, but where there is dramatic evidence of previous earthquakes, are the Mississippi River Valley, and the Northeast and Southeast of the United States. The cities of Memphis, Tennessee; Boston, Massachusetts; and Charleston, South Carolina, have surprising potential for damaging earthquakes.

The most spectacular series of earthquakes in the U. S. destroyed the town of New Madrid, Missouri, in 1811 and 1812. One quake in the series, which had an estimated magnitude of 7.8 and an intensity of XII, was felt over an area of 2 million square miles (extending to Boston). In a three-month period after the first major shock, more than 1,600 aftershock earthquakes occurred in the Mississippi Valley, a greater number than occurred in southern California from 1932 through 1972.

A century ago, the Charleston, South Carolina, earthquake of 1886 caused widespread damage in the city and killed 60 people. Its peak intensity based on geological effects was about X and estimated magnitude around 7.0. The seismicity of the area was quite low prior to and after this earthquake and its aftershocks. The area of eastern Massachusetts and New Hampshire seems to have been seismically active between 1725 and 1826. In 1750, an earthquake of about VIII intensity, followed by months of aftershocks, caused substantial building damage in Boston. Clearly, a similar earthquake today would incur substantially greater damage and casualties.

The dilemma in these parts of the U. S. is that damaging earthquakes rarely occur and are therefore easy to ignore, especially since seismic resistance in design has its price. The education of architects and engineers, better materials and detailing, additional design effort, and implementation of public policy can be costly.

California, the nation's most seismic state, has recently had remarkably little life loss in earthquake-related building failures. Part of this good fortune can be attributed to the current excellence of engineering design in California; part is due to the fact that few large earthquakes have hit modern California cities. In this century, earthquakes which have resulted in more than 50 deaths have occurred only twice in southern California (the 1933 Long Beach Earthquake, and the 1971 San Fernando Earthquake) and just once in northern California (the 1906 San Francisco Earthquake). If another earthquake equal to 8.3 magnitude and XI intensity were to recur in San Francisco today, the certain loss of old, under-engineered buildings, and the probable damage to modern structures, would be staggering. The 1906 quake took 700 lives and caused 400 million 1906-dollars-worth of damage (80 percent of the financial loss was due to the ensuing fire). It is difficult to say what the impact of such an earthquake would be on San Francisco in 1986. One estimate places losses between 20 and 40 billion dollars and up to 11,000 deaths.

Principles and methods of earthquake engineering

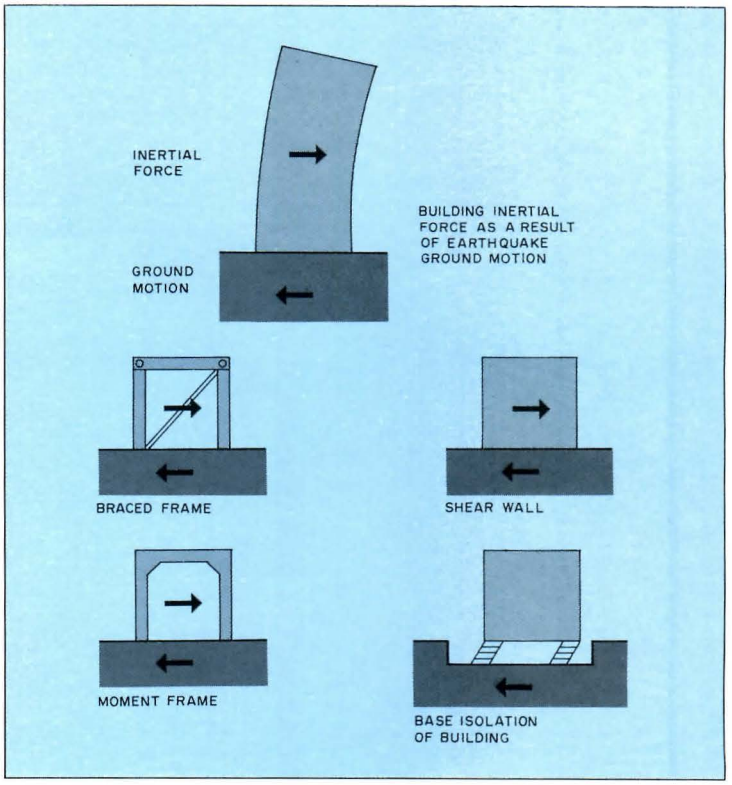
The damaging force inflicted upon buildings in an earthquake is a result of ground displacement, velocity, and acceleration. The ground moves, but the inertia of the building mass resists the earth's motion, thus causing distortion of the structure, which creates stresses and strains in the building (top diagram opposite page). The way a structure reacts to an earthquake depends upon several conditions, such as the properties of the earthquake itself, soil type, and the mass, shape, period, flexibility, and damping of the building. Modern building codes were written with the recognition that it is not economically feasible to design every structure to resist the greatest probable earthquake without damage. The codes' foremost goal is to protect occupants of buildings, not property values. Its criteria were written with the intention that buildings resist moderate shaking without damage, and permit yielding and structural damage in the event of a very strong shaking, provided the damage is not unduly hazardous to people.

Methods of seismic resistance

The standard methods of seismic resistance are based upon the usual anchoring of a building to foundation and ground, and can be categorized into three simplified concepts: 1) the shear or "box" system (shear walls are often used in conjunction with a moment-resisting frame system, or a braced frame system); 2) the moment-resisting frame, and; 3) the braced frame. A *shear wall*, which ideally is directly connected to the foundation, can be envisioned as a very deep cantilever beam relative to lateral forces. It is thus very stiff, very resistant to bending moment and shear. The diaphragm works on the same principle, but it is the floor or roof that acts as a deep beam, transferring lateral loads to the shear walls to which it is connected. The sides of a shoe box can be considered analogous to a set of four shear walls; the addition of the cover is like a roof, which acts as a diaphragm. The box is stronger and stiffer with all shear walls and the diaphragm working together under lateral load. Holes cut out of the

The photograph at right shows the remains of the San Francisco City Hall after the 1906 Earthquake. Diagrams shown on this page indicate the inertial force on buildings as a result of earthquake ground motion; and four basic structural configurations that resist inertial force.

Courtesy of Bancrof Library, U. C. Berkeley; Terrill & Miller photographers



box (analagous to doors, windows and skylights) would progressively reduce lateral resistance. When large areas of unobstructed space are needed, the shear wall system poses a serious functional drawback. The other problem is that shear walls can be heavy, especially when made of concrete, which leads to high inertial forces.

One alternative that mitigates these problems is to use a *moment-resisting frame* system. A moment-resisting frame consists of columns and beams that are rigidly connected at their intersections. These connections permit the distribution of stresses among beams and columns, preventing excessive distortion of the overall system under lateral loads. The frame absorbs large amounts of energy through the bending of columns and beams. Ductility, which is loosely defined as the ability to undergo great deformation without failure, is an inherent characteristic of a good moment-resistant frame. A problem with moment-resisting frames is that they can be too flexible. Although energy absorption is excellent, the excessive distortion of the building can damage building components attached to the frame, and cause a hazardous rain of falling building fragments such as cladding. The use of some shear walls or bracing in moment-resisting frames may alleviate this problem.

A method which has been undergoing research for several years, and is just beginning to be implemented in U. S. buildings, is *base isolation.* As the term implies, the building is isolated from the ground by a carefully devised system of hardware; thus the isolated building has limited contact with the earth, limited acceleration transmitted to the structure from expected maximum ground motion, and limited distortion from the opposing forces of its own inertia and the ground motion.

Architectural issues in seismic resistance

Architects can unwittingly affect the seismic resistance of buildings. A so-called "good" architectural configuration can result in a safer building for little if any additional cost. On the other hand, architecture ideally responds to a great number of functional and esthetic goals: earthquakes should not dictate that we design windowless boxes of steel shear walls. A balance between architectural and engineering design requirements can be achieved in such a way that the building is not overly expensive in seismic engineering for the probability of damaging earthquakes, nor insensitive to architectural issues of function and style.

The renovated historic, and three modern, California buildings featured on the following pages are architecturally and structurally diverse. Although an enormous earthquake has yet to test their ultimate performance, each has already experienced moderate shaking without damage. The comparison of these buildings, all low- or mid-rise and all constructed or reconstructed within three years of one another, illustrates that, although seismic design is important, it must be considered in the context of other design objectives. The creative ways in which each building provides seismic resistance to a building should be shaped by the goals of its architecture. The earthquake resistance of old, unreinforced masonry buildings is of great concern. Aside from often having irreplacable historic value, old buildings pose great hazards in the event of moderate to severe earthquakes. Often, the upgrading must be as inconspicuous as possible, to preserve the building's original appearance. The renovation of Stanford University's historic Quadrangle shows typical reasons why the upgrading of historic buildings takes disproportionately greater effort compared to modern building, where seismic resistance is one of the design goals from the start. The new buildings, which consist of a leading university's engineering school, a state office building, and a computer software laboratory, had high standards of architectural and seismic design. Their successes are evidence that good, creative architecture can comfortably co-exist with earthquake-resistant design.

History Corner
Stanford University Quadrangle
Palo Alto, California

Renovation of the History Corner (facing page, top left photograph) of Stanford University's Quadrangle was handled in a manner common to seismic upgrading of old masonry and timber structures. The building's stone walls were shored (photo below) so that the interior could be gutted (interior photos on facing page). Wood floors were replaced with reinforced concrete slabs that act as diaphragms; roof

Only two years after it was completed, Stanford University's Main Quadrangle was severely damaged in the 1906 San Francisco Earthquake. In the following years, the Romanesque, sandstone-faced Quad was repaired and strengthened; however, seismic upgrading did not commence until 1962. Seismic upgrading of the Quad's History Corner began in 1977. Unlike previous reconstructions in the Quad, which "stuffed" the building shell with extra but shorter floors, the History Corner retained its original floor-to-ceiling height and, although the organization of rooms and circulation was revised, the interior design attempted to preserve the original Quad.

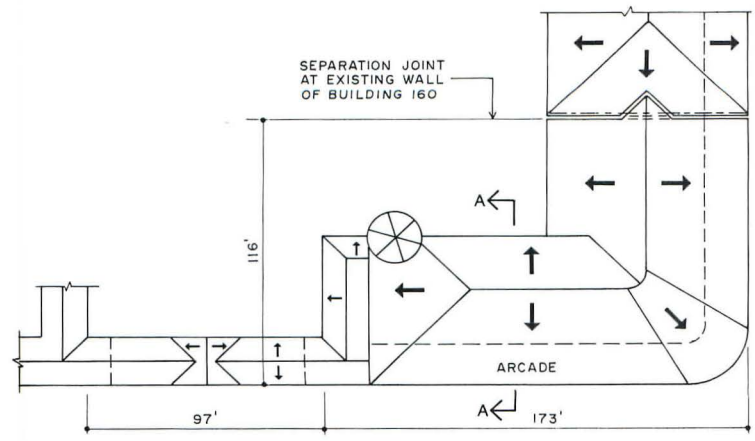
The History Corner had seismic deficiencies typical of the rest of the Quadrangle as well as of many masonry buildings in general. The two-foot-thick, unreinforced exterior masonry walls were not adequate as shear walls, nor were wood floors effective as diaphragms in the transfer of shear forces. Therefore, the History Corner was completely gutted and a supporting steel and concrete structure was built within the shell (facing page right, and lower left photographs). Steel was used to frame the new roof. To save on the cost of formwork required by cast concrete, sprayed concrete or "shotcrete" was used on the interior of the History Corner shell to solve the out-of-plane bending and in-plane shear problems as well as provide additional vertical load-carrying capability and lateral stiffness. Vertical discontinuity of the interior arcade masonry wall was corrected with a concrete shear wall placed in the basement under the inner arcade (see before and after sections, facing page).

Another seismically weak aspect of the History Corner was the connection between legs of the "L"-shaped plan. Introducing a joint would have affected the external appearance of the building. Therefore, reinforced-concrete ties were provided between the legs of the "L" at the re-entrant corner (i.e., the inwardly directed corner). A full building-height atrium and stair were designed around these ties.

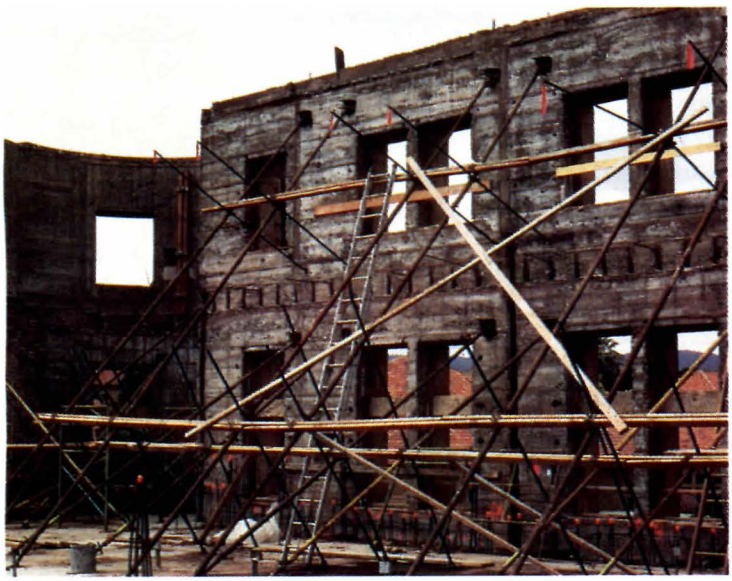
Another problem was the connection of the History Corner to other seismically inadequate buildings not in the scope of the project. The History Corner, Buildings 160 and 120, are essentially one structure. The engineers believed the added stiffness in the rehabilitated History Corner could have caused it to behave very differently in an earthquake from the adjacent unrehabilitated buildings. If no separation were provided to accommodate the divergent behaviors of these adjacent buildings, both structures could be badly damaged. Therefore, seismic separations were provided for Building 160 with a joint placed on the History Corner side of the pre-existing two-foot-thick party wall (roof plan of History Corner showing designed seismic separations).

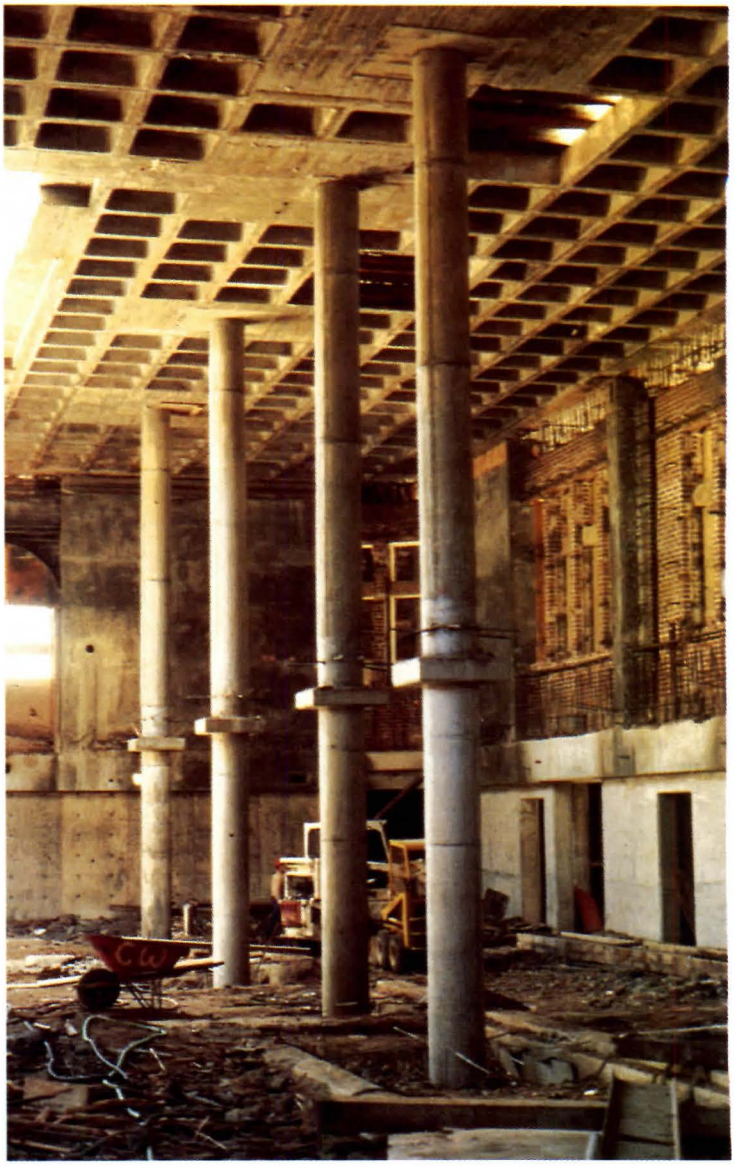
Renovation of the History Corner
Stanford University Quadrangle
Palo Alto, California
Owner:
Stanford University
Architects:
Esherick Homsey Dodge and Davis with Stone Marraccini & Patterson Architects & Planners
Engineers:
Rutherford & Chekene

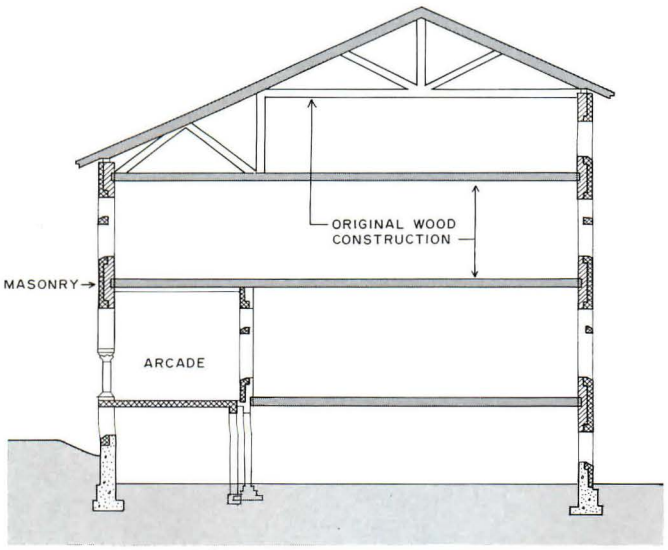
Photos courtesy Rutherford & Chekene



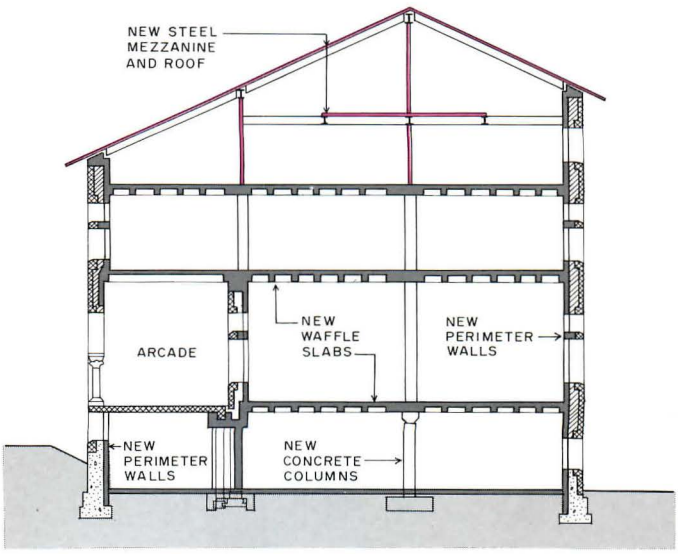
timbers were replaced with steel sections; and exterior masonry was reinforced from inside. The sections below show before (at left) and after renovation conditions. Since the buildings adjoining the History Corner have not been upgraded, a separating joint has been designed that improves seismic resistance on both sides of the joint (location of the separating joint indicated on roof plan).







SECTION A-A "BEFORE"



SECTION A-A "AFTER"

Frederick E. Terman Engineering Center
Palo Alto, California

Stanford's Terman Engineering Center, completed in 1977, is an unorthodox yet highly appropriate building for its function. It is an outstanding example of a building design whose expression and structural strategy were largely affected by budget, but which resulted in award-winning architecture and one of Stanford's best new buildings.

Originally, the Chicago architects, Harry Weese & Associates, envisioned the 152,000-square-foot building to have a steel frame and concrete shear wall structure; however the preliminary cost estimate greatly exceeded the budget. (In 1975, when the Terman Building was being designed, the price of steel was escalating but the wood industry was in an economic depression.) A heavy-timber framing system offered an extremely inexpensive alternative which the architect and engineer took advantage of. The heavy-timber building not only provided a savings of 20 percent under the cost of a steel and concrete structure, but also set a precedent for the University by coming in under budget at $7 million.

The building has a unique combination of structural systems and materials. There are five stories above grade and two stories below grade. The architecturally expressed heavy-timber framework of the above-grade levels is made of glulam beams and four-inch laminated decking exposed from below (top photo, facing page). On the exterior walls, stucco infill panels, wood shutters, and the glulam structure, present a uniquely warm and humanistic quality to this type of facility (photo at right). At the lower two levels, the structure is concrete, and is partly open to a reflecting pool within a landscaped area.

The use of wood for this size building is rare, both for fire and earthquake design reasons. The five-story glulam superstructure exceeds the Uniform Building Code's limit of four stories for heavy-timber buildings, which exists for fire safety reasons. By working with a fire protection engineering firm, Gage-Babcock of Chicago, and the Santa Clara County fire marshal, on the sprinkled structure's design, fire protection requirements were met to the county's satisfaction.

The heavy-timber structure carries only gravity loads. Since moment-resisting connections cannot be easily made between wood members, most of the lateral resistance is provided by internal poured concrete or concrete block shear walls that also provide four-hour fire-rated enclosures around the library, lecture hall, laboratory spaces, elevators, and stairwells (highlighted walls in plan at right). A seismic joint separates the "L"-shaped building into two rectangular wings—the Center's two wings are designed to take lateral loads separately. Seismic loads in the main section are carried to the foundations by the shear walls of the central core. The floor slabs act as diaphragms. In the east wing, forces are primarily carried into foundations by shear walls around the elevators at one end, and stairways at the other.

Frederick E. Terman Engineering Center
Palo Alto, California
Owner:
Stanford University
Architects:
Harry Weese & Associates
Engineers:
Martin, Middlebrook & Nishkian

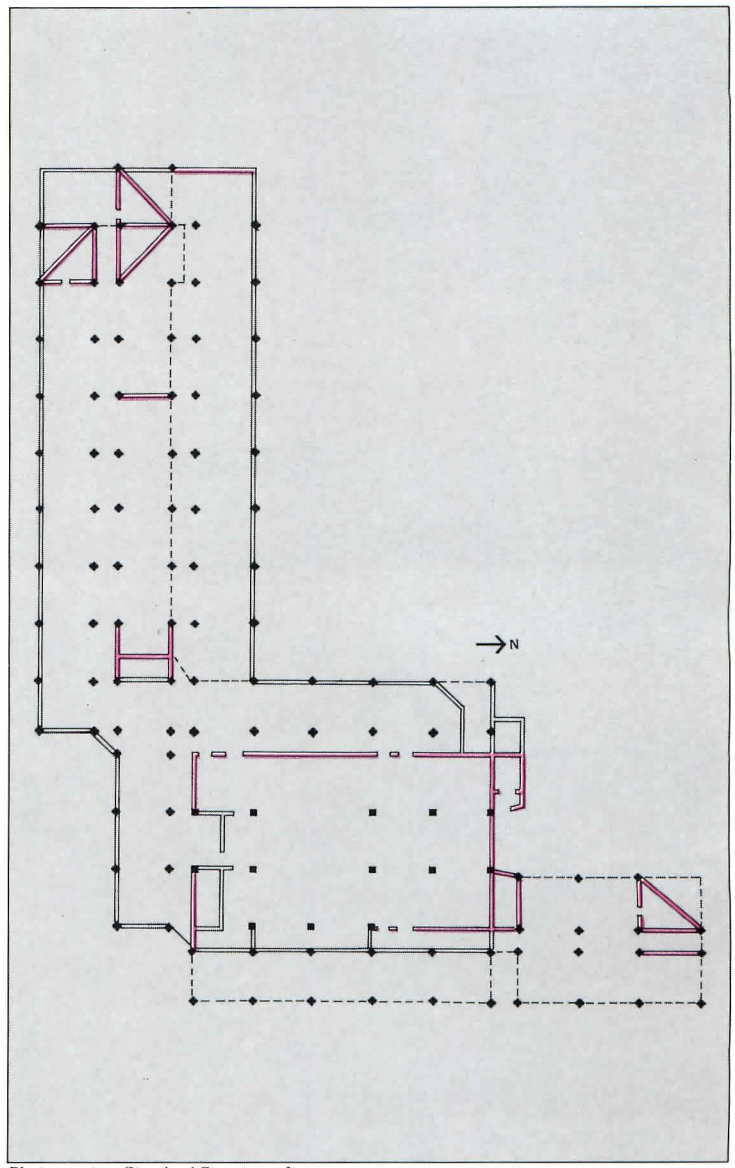


Photo courtesy Standard Structures Inc.

Photo courtesy Standard Structures Inc.

Mark Citret

The San Jose State Office Building,
San Jose, California

The San Jose State Office Building, completed in 1980, was designed under the energy-efficient office-building program run by the California Office of the State Architect. A principal consideration of the architects, as presented in the program, was to house 22 state agencies with maximum flexibility to accommodate changing needs. The solution was to create a series of landscaped courtyards within the three-story, 132,000 square feet of building (plan at right).

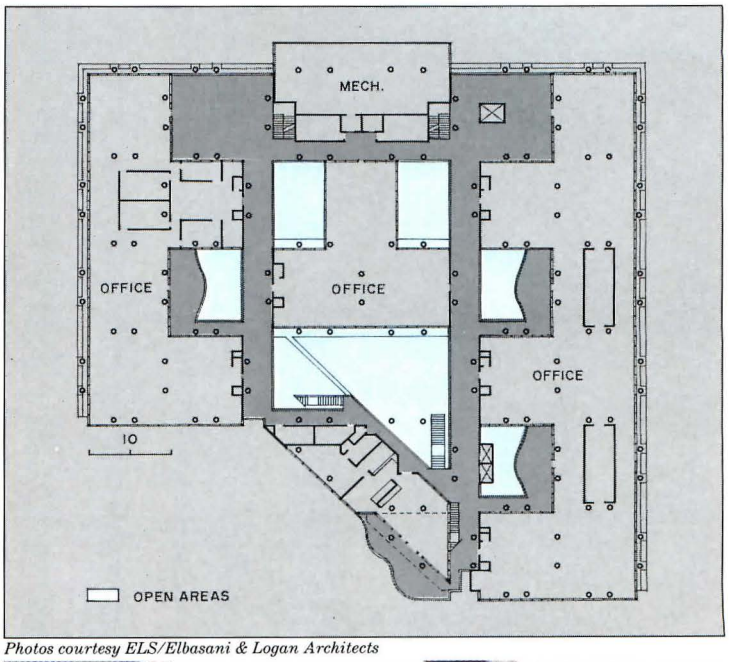
The structural solution to providing earthquake resistance was limited by the need for great user flexibility (which suggested a moment frame over shear walls), and also for a high thermal mass (which indicated a structure of concrete rather than steel). Engineer Ephraim Hirsch worked closely with the architects to produce a ductile, moment-resistant, concrete frame structure that conformed to the energy, programmatic, and architectural goals of the scheme.

The thermal mass for energy efficiency was largely provided by the 16.5-inch-deep concrete waffle floor slabs, the slab on grade over a rock bed, and the moment frame itself, which is carefully and generously detailed with steel reinforcement that provides the ductility to the frame (bottom photo, right). Pairs of 30-inch diameter columns set 10 feet on-center form bays up to 45 feet square to provide program flexibility. The pairs of columns are placed away from the girder-to-girder intersection to alleviate reinforcement congestion. A grid of grade beams ties the columns together and augments the seismic resistance of the frame. The engineer also required that the column rebar cages be constructed to their full 50-foot height, and anchored in the concrete below the grade beam to add "fixity."

It is important to note that moment-resistant, ductile frames of concrete like those at the San Jose State Office Building require an advanced degree of engineering sophistication, code enforcement, and good construction practice. California's technology and enforcement of stringent construction standards permit the luxury of many structural options, which allow a variety of architectural expressions while maximizing energy efficiency and seismic resistance. The visually exposed, reinforced concrete structure of the San Jose State Office Building is an example of such an option; the building structure is an ideal choice not only for seismic resistance but also for energy efficiency and architectural expression.

A potential configuration problem arose where a major courtyard was placed close to the building perimeter, leaving a tenuous connection between two parts of the structure. The solution was to incorporate stiffening beams that diagonally brace the courtyard from corner to corner (top photo, right). Hirsch noted that the orientation of the diagonal beams was chosen for architectural reasons. Structurally, it may have been marginally better to have oriented the tie beams in the other possible bracing direction.

State Office Building
San Jose, California
Owner:
State of California
Architects:
ELS/Elbasani & Logan Architects with SOL-ARC
Engineers:
E. G. Hirsch & Associates



Photos courtesy ELS/Elbasani & Logan Architects

IBM Laboratories
Santa Teresa, California

The IBM Santa Teresa Laboratories is a software development center containing an extensive network of computers. Constructed in 1977, it was designed for seismic loads predicted to result from a 7.5 magnitude earthquake on the nearest section of the San Andreas fault, ten miles away.

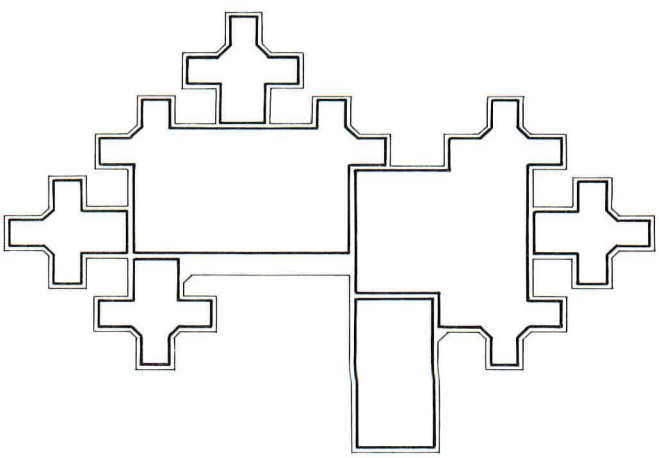
The owner's preference for a campus-like setting rather than a monolithic building block resulted in complex building shapes that presented seismic engineering difficulties (plan below). The design consisted of eight four-story "towers" rising from a common one-story structure. The cruciform plan of the towers created projecting wings, re-entrant corners, and an asymmetrical plan which, during an earthquake, could cause parts of the building to have twisting and stress concentrations. As in the case of the Terman Building (page 140), but on a much expanded scale, the facility was divided into smaller and more symmetrical buildings by the use of steel-constructed seismic expansion joints (lower photo at right).

The design of the seismic-resisting structural system considered the cruciform-shaped building plans and the need for flexible interior space-planning options. Shear walls would have impeded the latter requirement, so a moment frame was selected. It was decided that a moment frame of steel would be lighter and more ductile than reinforced concrete, and would therefore require a less expensive foundation as well as result in smaller seismic inertial forces. The architectural form and structural system lent themselves naturally to the use of a metal cladding envelope (top photo at right). The architects used the metal panels as bright planes of color in a composition that makes a strikingly successful contrast with the green or amber hills of California.

In April, 1984, the 6.2 Morgan Hill Earthquake, with maximum intensity of VIII, struck on the outskirts of the heavily populated San Jose, California, area, which is located about 10 miles north of the shock's epicenter. This was the first test of the seismic design's performance. (It is estimated that the recurrence interval for a 6.2 event in this region is about 75 years.) During design, the engineers and architects were concerned with how well the seismic expansion joints would perform in a major earthquake and how well the curtain walls would accommodate the severe building drift of a steel moment-resisting frame. Although personnel in the main building found it hard to remain standing during the quake, all aspects of the building escaped significant damage due to the excellent seismic design and construction.

IBM Laboratories
Santa Teresa, California
Owner:
IBM
Architects:
MBT Associates
Engineers:
Forell/Elsesser Engineers, Inc.

Photos courtesy Forell/Elsesser, Inc.



New products

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In rotation
In order to relieve traffic congestion in loading dock areas, the engineering firm of Olaf Sööt Associates has designed and developed the *Rotolift* rotating truck-lift system in collaboration with the Lake Shore manufacturing company. The system, which consists of a hydraulic lift mounted inside a rotating structure, can move delivery trucks down from street level into position in front of designated loading docks. The lift cab is supported by a rotating tower that extends from the dock level through the street level. An anti-friction bearing at the tower's base supports the structure, and another bearing mounted on the top holds the tower in a vertical position. After a truck enters the lift cab at street level, the cab descends into the cylindrical structure at the lower level, and rotates to the desired loading dock. The truck exits through the biparting doors. *Rotolift* has a lifting speed of 50 feet per minute and a maximum turning speed of 1.5 rotations per minute. During a five-minute cycle the system is said to be able to lower one average-size truck to the loading dock level and raise another to street level. The *Rotolift* system can also be adapted to specific site requirements, including applications in which loading docks are located above street level. Lake Shore, Inc., Iron Mountain, Mich.
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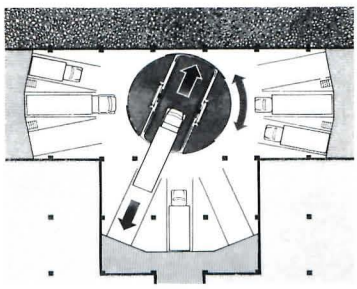

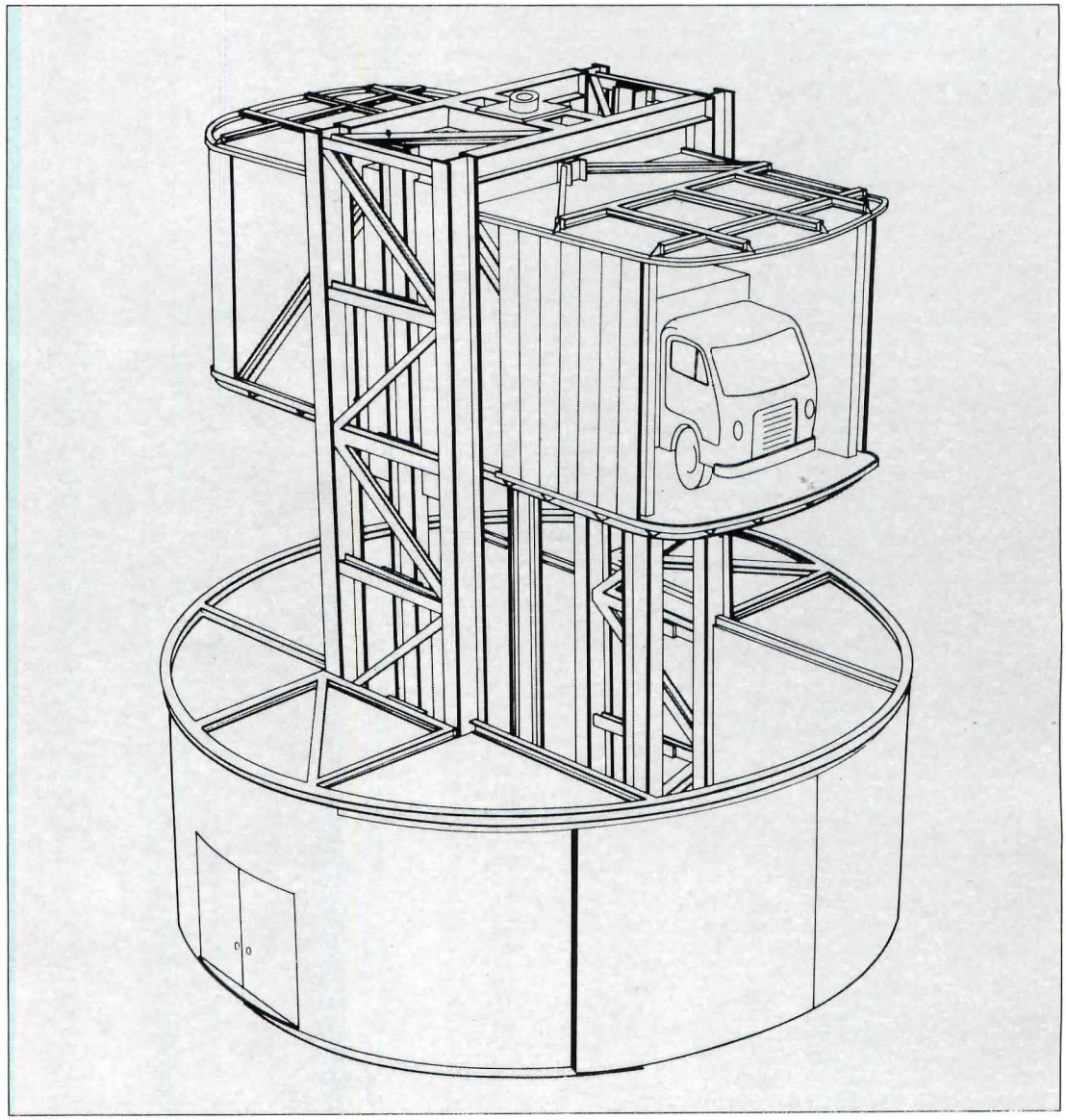

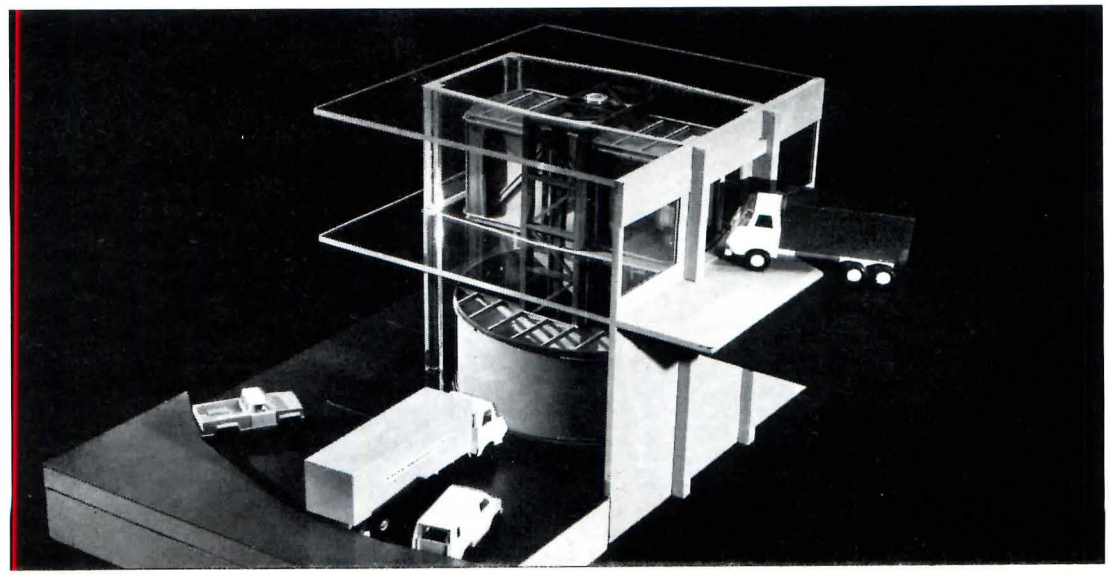

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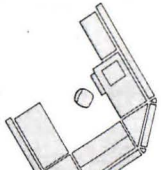

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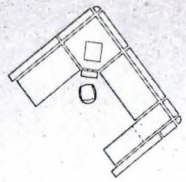

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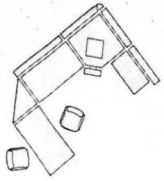

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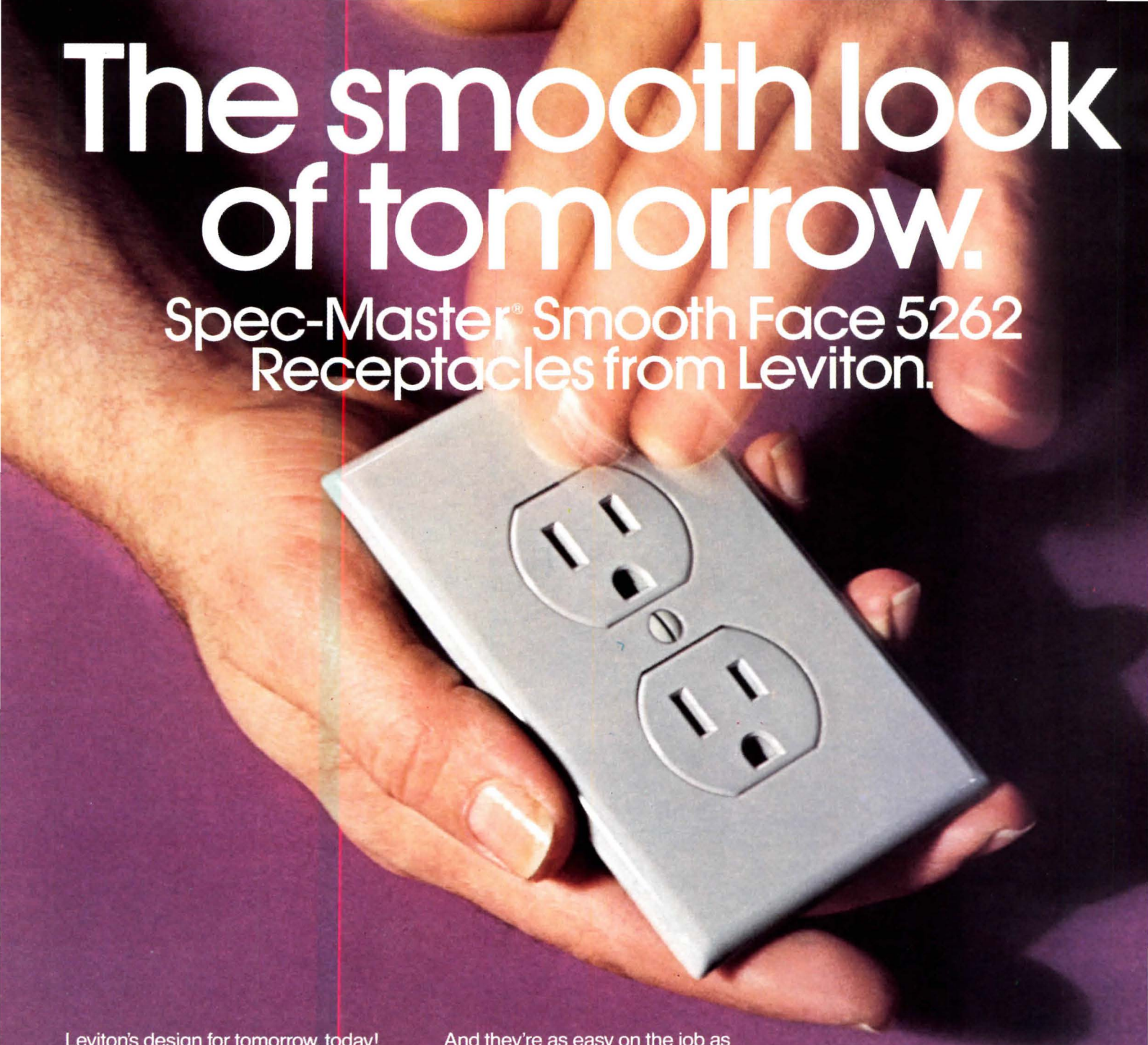

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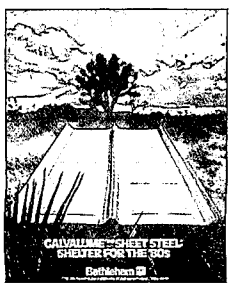
Product literature

For more information, circle item numbers on Reader Service Card

Ergonomic chairs
A 6-page fold-out brochure describes 13 ergonomic office chairs. The literature details the chairs' features, including adjustable backrests and seats, waterfall edges, five-star bases, and short arms for keyboard work. Photographs illustrate each chair, and diagrams give dimensions. Harter Corp., Sturgis, Mich.
Circle 400 on reader service card.



Sheet steel
Aluminum-zinc alloy-coated sheet steel is described in a 6-page color fold-out brochure. Photographs show siding and roofing applications. The product's heat reflectivity, strength, and ability to tolerate exposure are discussed in the literature. Bethlehem Steel Corp., Bethlehem, Pa.
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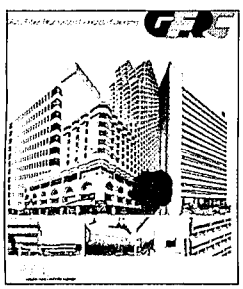

Reinforced concrete
A 16-page color booklet features glass fiber-reinforced concrete that is said to have greater flexural, tensile, and impact strength than ordinary concrete, without the weight of steel reinforcement. Photographs show applications in office buildings, banks, and a department store. Prestressed Concrete Institute, Chicago.
Circle 402 on reader service card

Panel systems
Portable and trolley-mounted operable wall-panel systems are featured in a 12-page color brochure. The literature describes six different systems, including hinged-pair and electrically operated continuous panels. Diagrams show construction details and a chart gives specifications. Kwik-Wall Co., Springfield, Ill.
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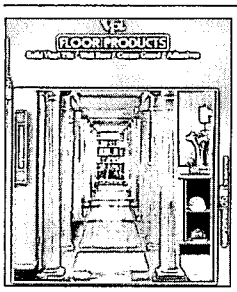

Vinyl flooring
Solid vinyl flooring tiles for institutional and commercial use are described in an 8-page color brochure. Patterns, specifications, and colors are given for five tile lines and for compatible wall and corner guards. Photographs show applications in several existing buildings. VPI, Sheboygan, Wis.
Circle 404 on reader service card

Sunrooms
Prefabricated glass sunrooms are featured in an 8-page color brochure. The literature details such features as tubular aluminum framing and 1-in. insulated tempered glass. Photos of several configurations and diagrams of construction details are included. Sunbilt Solar Products, Div. of J. Sussman, Inc., Jamaica, N. Y.
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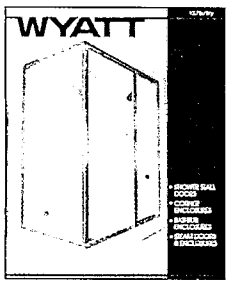
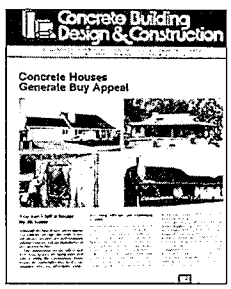
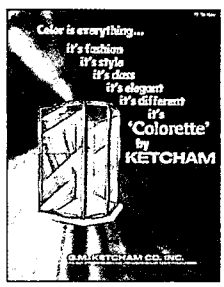


Bath and shower enclosures
A variety of prefabricated bathtub and shower enclosures is described in a 6-page color brochure. Drawings show details of door tracks and hinges for each model. Specifications are given for standard and medium construction in brass and aluminum. R. B. Wyatt Manufacturing Co., Inc., Brooklyn, N. Y.
Circle 406 on reader service card

Building products
A range of building products, including wood panels, lumber, gypsum products, roofing, and insulation, is listed in a 128-page color catalog. Each section of the literature contains diagrams, photographs of product applications, and specification charts. Georgia-Pacific Corp., Atlanta.
Circle 407 on reader service card



Concrete houses
A 4-page brochure describes three prefabricated concrete houses, constructed with a patented cellular concrete floor system and designed to be energy efficient. Photographs trace the construction sequence, and sectional drawings detail energy-efficient features. Portland Cement Association, Skokie, Ill.
Circle 408 on reader service card



Bath enclosures
Bath enclosures made from solid brass or aluminum extrusions with a painted, baked-on finish are described in a 4-page color brochure. The units, which are custom-fabricated, are illustrated in several configurations and colors. G. M. Ketcham Co., Inc., Richmond Hill, N. Y.
Circle 409 on reader service card

Ceramic cladding
A 12-page color brochure details the features of the manufacturer's exterior ceramic tile, including its keyback design that is said to improve bonding. Photos show applications and the fabrication process. Diagrams compare the weight and insulation of ceramic tile with other wall materials. Gail International Corp., Tustin, Calif.
Circle 410 on reader service card

Solar design guide
A 128-page catalog of the manufacturer's thermal windows is also a guide for solar and energy-efficient design. Individual chapters review such topics as thermal mass and heat transfer. Drawings show energy-efficient adaptations of standard house designs. Andersen Corp., Bayport, Minn.
Circle 411 on reader service card
Continued

Dear Architect:

Here's a truly versatile design element that's worth looking into: The Atrium Door®

Superbly crafted of high quality materials, it allows you to design more style, more efficiency and more security into all your plans.

For example, special features include a durable Polycron™ prefinish backed by a 10-year warranty, high performance Comfort-E™ glass and solid brass mortice lockset. Depending on your needs, you can start with a single 3′0″ panel and link as many as six panels up to 18′ wide and 6′8″ or 8′0″ high.

Completely assembled and ready to install, The Atrium Door can be used as a dramatic entryway, room divider or an entire wall. For real design versatility, it's part of a complete system of matching fixed panel units, transoms and removable grilles.

So, to build more interest into every blueprint, consider The Atrium Door. It's definitely worth a look. For our free architectural kit, write or call us toll free.

Sincerely,
Moulding Products, Inc.

The Original **The Atrium Door**

P.O. Box 226957 • Dallas, Texas 75222-6957 • 800/228-7486
In Texas call 214/438-2441

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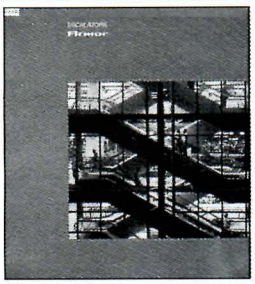
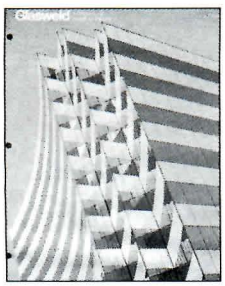
Product literature *continued*

For more information, circle item numbers on Reader Service Card



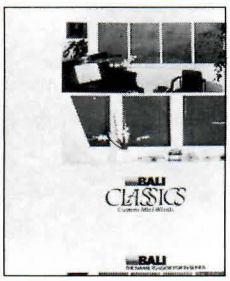
Escalators
The design features of the manufacturer's line of escalators, including one-piece steel box truss construction and minimal operation noise, are reviewed in a 12-page color brochure. Models for interior and exterior use are shown in a variety of sizes. Armor Elevator Co., Inc., Louisville, Ky.
Circle 412 on reader service card

Lighting
A coordinated line of aperture recessed and HID lighting is described and illustrated in an 80-page color catalog. Candle power distribution curves, footcandle spacing charts, and lighting calculations for each product are included in the literature. Halo Lighting, Elk Grove Village, Ill.
Circle 413 on reader service card

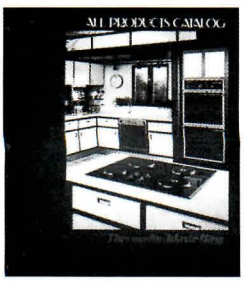


Cement panels
Glasweld nonasbestos fiber-reinforced cement panels can be used for curtain-wall applications or interior wall surfacing. A 16-page color brochure includes diagrams of panel installation details and a specification guide. GII Corp., Reading, Pa.
Circle 414 on reader service card

Redwood lumber
The performance characteristics of several grades of redwood lumber are discussed in a 4-page color brochure. A variety of applications is reviewed and illustrated. Wood grain and texture information is included in the literature. California Redwood Association, Mill Valley, Calif.
Circle 415 on reader service card



Blinds
Arched, cylindrical, circular, triangular, and inclined blinds are illustrated in an 8-page color brochure. Measuring instructions and ordering information are included in the literature. A selection of 96 standard colors and additional metallic and custom colors is shown. Marathon Carey-McFall Co., Montgomery, Pa.
Circle 416 on reader service card



Kitchen equipment
The manufacturer's line of ovens and ranges, gas and electric vented cooktops, gas-fired barbecues, waste disposers, trash compactors, dishwashers, hoods and ventilators is reviewed in a 12-page brochure. Dimensions and features are listed. Thermador/Waste King, Los Angeles.
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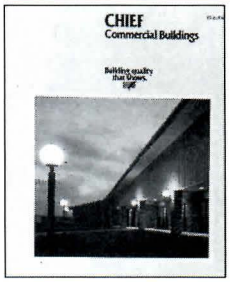


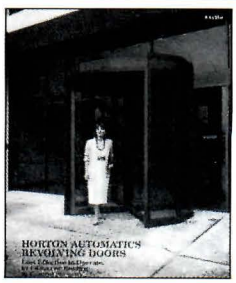
Building systems
Pre-engineered commercial and industrial buildings are featured in a 4-page color brochure. A variety of multistory building systems and the manufacturer's *Lock-Tight Construction* standing seam roof system are reviewed in the literature. Chief Industries, Inc., Grand Island, Neb.
Circle 418 on reader service card

Tile-setting products
An 8-page brochure provides technical information on a line of tile-setting products including unsanded grouts, dense grouts, thin-set mortars, latex additives, and the manufacturer's new quick-set latex additive. Suggested uses and application intructions are included in the literature.
W. R. Bonsal Co., Charlotte, N. C.
Circle 419 on reader service card

Vinyl windows
Single-hung vinyl windows are described in a 4-page color brochure. The features of the windows, including energy efficiency and low maintenance requirements, are described. A diagram shows the windows' rigid chambered construction, welded corners, and beveled frame. Vinyl Building Products, Oakland, N. J.
Circle 420 on reader service card

Laboratory furniture
A 36-page color catalog provides specifications for the manufacturer's line of wood and laminate modular laboratory furniture. A variety of units is shown, including cabinets, wall and floor cases, fume hoods, tables, and workstations. Fisher Scientific, Pittsburgh.
Circle 421 on reader service card

Wall panels
Alply wall panels, available in widths of up to 5 ft and lengths of up to 18 ft, can be formed into a variety of shapes. An 8-page color brochure includes information on the product's strength, durability, and resistance to weathering. Bally Engineered Structures, Div. of Allegheny International, Bally, Pa.
Circle 422 on reader service card



Revolving doors
A line of automatic and power-assisted revolving doors is reviewed in a 4-page color brochure. The manufacturer's *9100 Control Flow Revolver*, available with programmable two-way traffic control devices, is featured in the literature. Horton Automatics, Div. of Dallas Corp., Corpus Christi, Tex.
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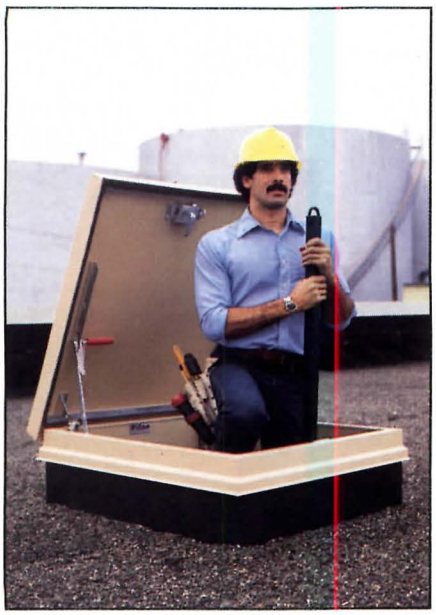
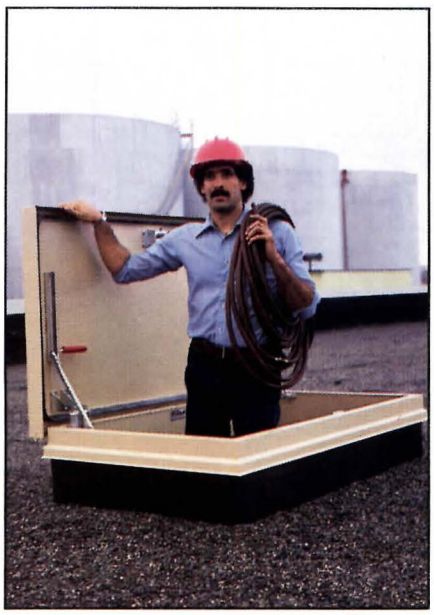
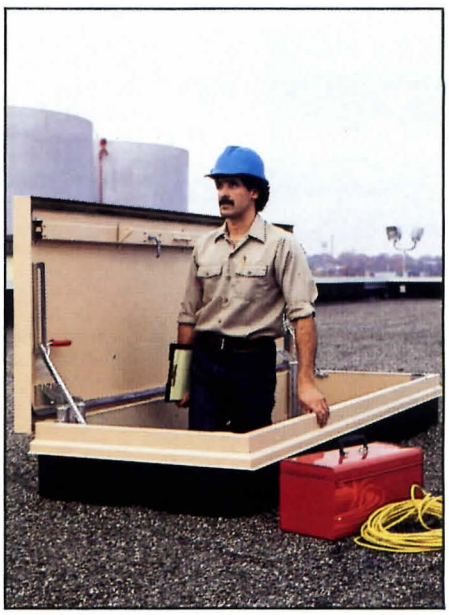
three ways to come out on top...







with quality Bilco Roof Scuttles

When your specifications call for performance proven Bilco roof scuttles in any size, standard or special, you call for the design, the workmanship and the ease of operation that are uniquely Bilco. Of heavy gauge material throughout, Bilco scuttles are insulated and gasketed for complete weathertightness. Their overall quality of construction combined with built-in compression spring mechanisms for smooth, easy operation assures your client's lasting satisfaction. Standard sizes shown in steel or aluminum are normally in stock for prompt shipment. Special scuttles can be fabricated in single or double leaf, in a wide range of sizes to meet your special needs.

Type S
for ladder access*

Every building needs at least one ladder access size Bilco roof scuttle. It provides easy, safe, economical access to the roof in all kinds of weather.

Size: 2'6" x 3'0"

Type NB
for ship stair

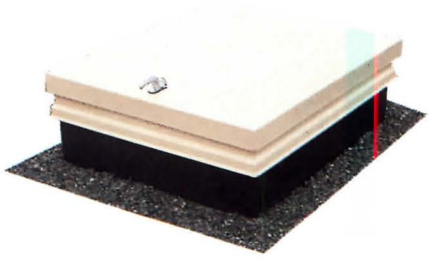
This size Bilco scuttle is ideal for installations where frequent use may be indicated. It permits easier movement of maintenance personnel, tools and equipment.

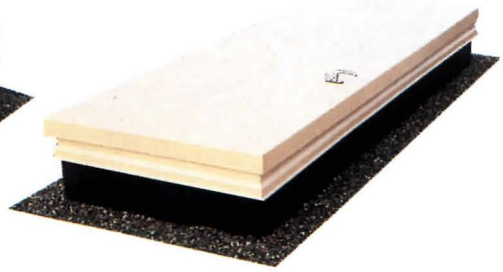
Size: 2'6" x 4'6"

Type L
for normal stair

The ultimate in roof access. This size Bilco scuttle allows a normal stairway. It takes the place of costly penthouse construction. Helps maintain a clean roof line.

Size: 2'6" x 8'0"





* *Shown with the new Bilco LadderUP Safety Post. For safer, easier ladder use.*

For complete information, details and specifications see Sweets General Building, Industrial Construction and Engineering Files, or send for a copy.

Bilco® DOORS FOR SPECIAL SERVICES

The Bilco Company, Dept. , P.O. Box 1203, New Haven, CT 06505

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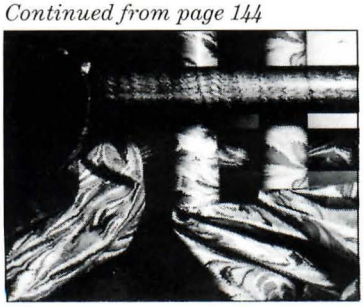
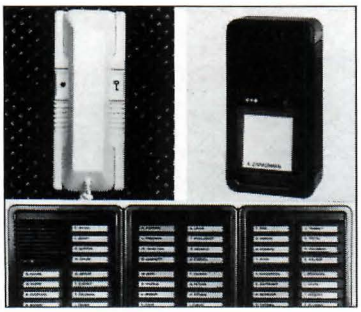
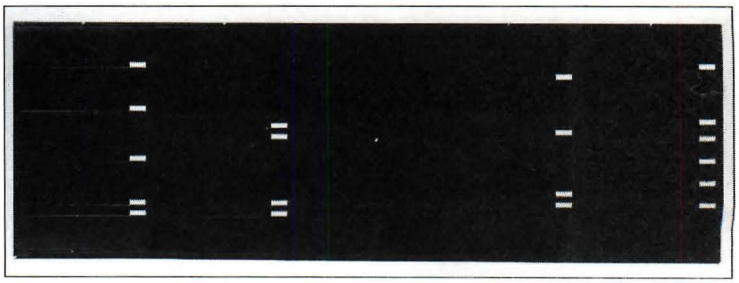
Continued from page 144



Fabric and wallpaper
Phoebe, Cybele, Aphrodite, and *Phaedra* are included in the *Marbles II* collection of printed fabrics and wallpapers. The patterns, based on hand-marbling techniques, were designed by Ellen Smith Ashley. Each pattern is available in a variety of colorways. Lee Jofa, Carlstadt, N. J.
Circle 301 on reader service card

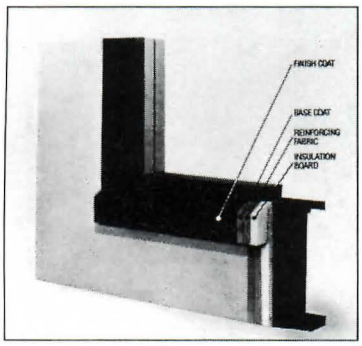


Intercoms
A two-wire modular door entry/intercom system consists of three components: a telephone in each residence, a lobby speaker, and a lobby panel. The system is said to service up to 2,000 apartments. Seidle-Intercom/USA, Wynnewood, Pa.
Circle 304 on reader service card



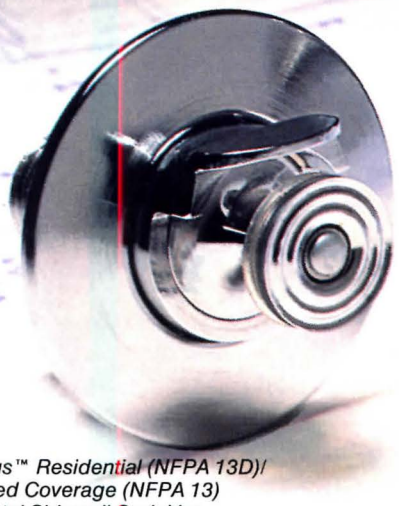
Office storage
The *Storage Center* coordinated office storage system consists of welded steel units that can be fitted with a variety of modular storage components including lateral files, hinged-door cabinets, shelves, PC cabinets, and printout binder storage units. The components are finished in enamel or laminate, and can be specified in a range of colors. Office Specialty, Chicago.
Circle 305 on reader service card
Continued on page 155

Woven wallcovering
Tek-Wall wallcovering is designed for commercial applications, including offices, schools, hotels, and health-care facilities. The wallcovering is constructed from a polyolefin fiber, and is available in five weaves and 98 colors. Maharam, Hauppauge, N. Y.
Circle 302 on reader service card

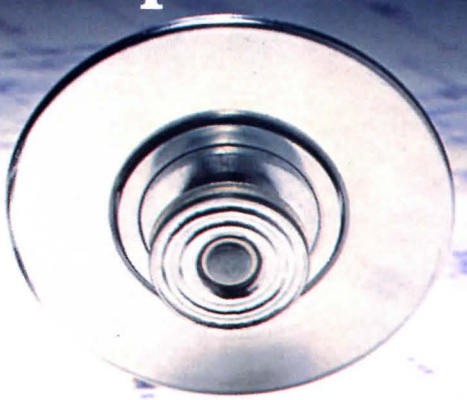


Wall insulation
An exterior insulation system for new or retrofit applications consists of polystyrene insulation board and a fiberglass reinforcing fabric coated with a mixture of synthetic plaster and Portland cement. The system is available with three finish options: standard and sand-cast stone or natural aggregate. Syenergy Methods, Inc., Cranston, R. I.
Circle 303 on reader service card

Introducing Aquarius™... attractive low-profile, fast response fire sprinklers.



Aquarius™ Residential (NFPA 13D)/ Extended Coverage (NFPA 13) Horizontal Sidewall Sprinkler



Aquarius™ Residential (NFPA 13D) and Extended Coverage (NFPA 13) Pendent Sprinklers

The Aquarius Series sprinklers from Grinnell are designed to blend in with their surroundings. Small in size and attractive in appearance, these sprinklers combine a pleasingly low profile with automatic, fast response operation.

The sprinkler portion has a chrome finish, and the escutcheon plate is available in your choice of chrome-plated or painted finish. In addition, the escutcheon plate is adjustable to assure easy ceiling or wall installation.

For technical assistance and more information on these aesthetically pleasing sprinklers, call (401) 456-5600.

GRINNELL

GRINNELL FIRE PROTECTION SYSTEMS COMPANY, INC.
SUBSIDIARY OF TYCO LABORATORIES, INC.
10 Dorrance Street, Providence, RI 02903

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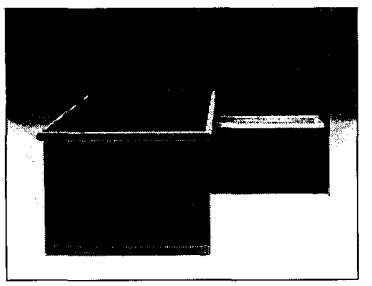
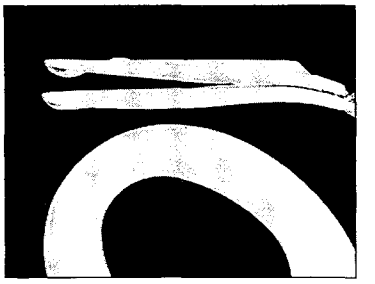
Continued from page 153

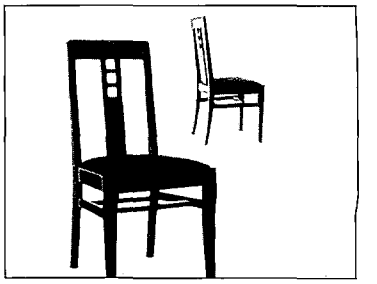
Kitchen appliances
The *Continental* line of modular built-in kitchen appliances is designed for retrofit applications. The units, which fit flush with countertops, can be installed side-by-side or stacked. The line includes a refrigerator-freezer, a dishwasher, an oven, a cook-top, and a trash compactor. Admiral Home Appliances, Schaumburg, Ill.
Circle 306 on reader service card



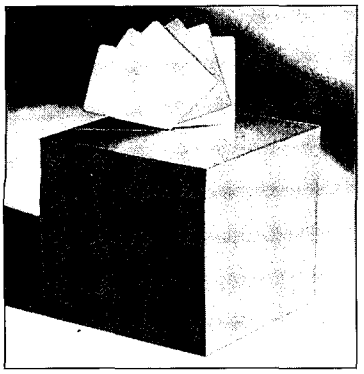
Desk
The *Mobila* series of executive desks features storage components and work surfaces that can be rolled under the desks when they are not in use. The line includes double-pedestal desks and tables with matching credenzas. The sectional table tops can be specified in wood, leather, and marble. iil international, Atlanta.
Circle 309 on reader service card



Toilet seat
The *Pressalit* ergonomically contoured toilet seat is molded of duroplast and available in a selection of colors. The stainless-steel hinges come in white or with brass, bronze, and gold finishes. The seat can be ordered with custom-specified logos. Pressalit, Inc., Poughkeepsie, N. Y.
Circle 310 on reader service card



Chair
The *Twenties* Art Deco-style side chair is intended for commercial use. Constructed with mortise and tenon joints and inset cross rails, the chair is 17 1/2 in. wide, 19 in. deep, and 37 3/4 in. high, and has a seat height of 17 1/2 in. Loewenstein Oggo, Pompano Beach, Fla.
Circle 311 on reader service card
Continued on page 157



Laminates
The manufacturer has added *Glyphix I* and *Glyphix II* geometrical designs and *Armure* tweed design to its line of patterned laminates. *Glyphix I* is available in rose, beige, and blue; *Glyphix II* in mauve, mint, and green; and *Armure* in lilac, rose, and beige. Nevamar Corp., Odenton, Md.
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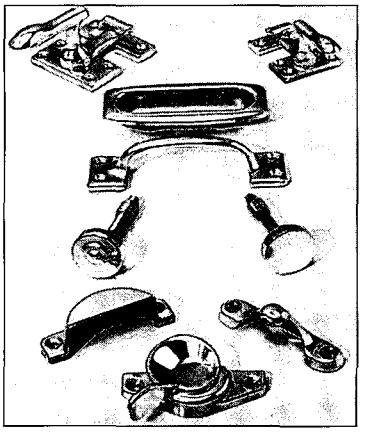

Window hardware
A new line of brass window hardware for casement and double-hung windows is available in a variety of contemporary and traditional styles and a range of finishes. The hardware includes locks, pulls, lifts, and sash bolts. The sash bolts are said to meet the security needs of high-risk areas. Baldwin Hardware Corp., Reading, Pa.
Circle 308 on reader service card

128 MILLION SQ. FT. OF BRAI ROLLED OUT ACROSS AMERICA IN 1985

U.S. Intec is the world's largest producer of A.P.P. modified bitumen, used to manufacture our Brai single-ply roofing systems. And Brai is being used more everyday.

There are loads of reasons for Brai's acceptance, from its extraordinary heat resistance and low-temperature flexibility, to the exceptional warranties and ease of application and inspection. But what's made us the tops is Brai's performance.

Our roofing systems have proven they can stand up to virtually all climates and the most difficult design projects. Brai is a clean, cost-effective choice.

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We're on a roll

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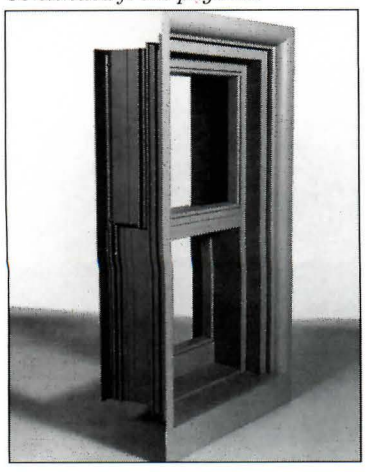
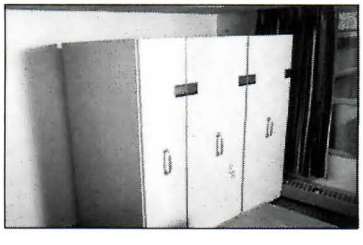
Continued from page 155

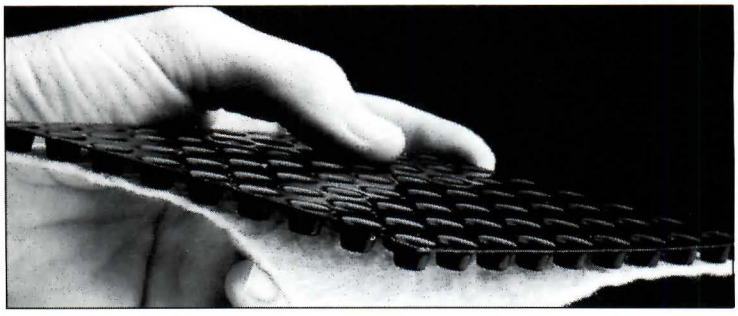


Window
A fixed-light window designed to look like a double-hung window has been added to the *ProComm* line. Available with thermal and nonthermal aluminum frames, the window is 6 1/4 in. deep with double-insulated glazing. Standard and custom colors are available. Season-all Industries, Inc., Indiana, Pa.
Circle 312 on reader servce card

Wood veneer plank
A wood veneer plank for interior applications consists of two sheets of red oak veneer laminated to a hardboard core. Two surface types are available—a scored surface and a two-inch beaded groove—designed to resemble turn-of-the-century paneling. A patented tongue-and-groove joinery system is intended to permit installation without visible fasteners. Masonite Corp., Dover, Ohio.
Circle 313 on reader service card



Storage modules
The manufacturer's *S-Series* high-density mobile storage system consists of pre-assembled floor modules with leveling feet, rails, and floor panels that support storage units. The modules, which are 3 to 5 ft long, have interlocking rails and can be hooked together. Spacesaver Corp., Fort Atkinson, Wis.
Circle 314 on reader service card



Drainage
The *Miradrain 6000* prefabricated drainage system consists of a lightweight, high-impact polymeric drain core with flow channels that direct water to only one side and a filter fabric bonded directly to the core's molded dimples. Intended as an alternative to aggregate drains, the 4-ft-wide panels or rolls can be installed as a continuous drainage blanket or a series of chimney drains. Mirafi, Inc., Charlotte, N. C.
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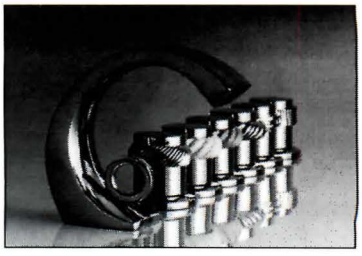

Faucets
The *Principe Plus* collection of brass and chrome fixtures includes tapered and flared faucets and handles in a range of styles. The handles come with decorative metal rings in chrome, brass, or one of 12 ceramic colors. The handles can be installed 8 to 12 in. apart. Hastings Tile & Il Bagno Collection, Freeport, N. Y.
Circle 316 on reader service card
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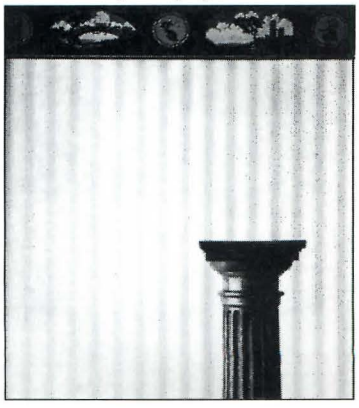
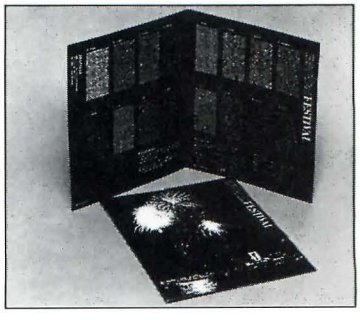
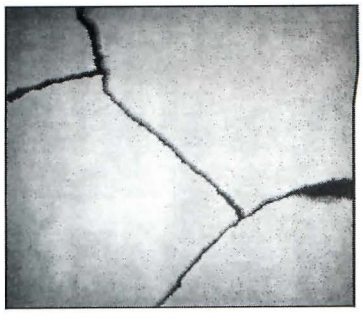


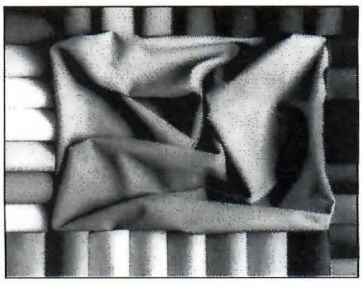
Fabrics and wallpapers
A collection of historic wallpapers and fabrics, most of which were copied from samples found in 18th- and 19th-century houses, is now available. The collection also features several early 20th-century designs, including one by Le Corbusier. Brunschwig & Fils, New York City.
Circle 317 on reader service card



Textiles
A line of wool and synthetic upholstery and wallcovering fabrics comes in 54-in. widths and a selection of colors. Included in the collection are *Savoy,* said to be woven to aircraft specifications for flame resistance and low toxic emission, and *Sound Off,* a nonwoven acoustical wallcovering. Ben Rose, Inc., Chicago.
Circle 318 on reader service card

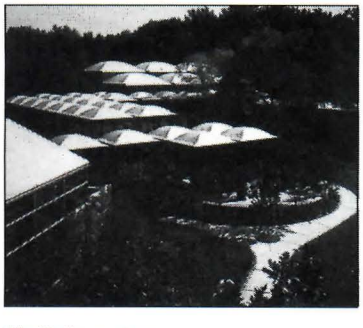


Rug
Crack is an addition to the manufacturer's collection of architect-designed rugs. The wool rug was designed by Shelton, Mindel & Associates, and features a cement-colored square with a blue border and a red "crack" running through the center. V'Soske, New York City.
Circle 319 on reader service card



Fabrics
Five new upholstery and wallcovering fabrics are available in a range of patterns and colors. *Billiard Plus, Cheque Mate, and Petit Point* are made of wool; *Courtney* is a wool blend; and *Olympic Suede* is an imitation suede. The fabrics are intended for wall, panel, and furniture applications. Atlanta Architectural Textiles, Inc., Atlanta.
Circle 320 on reader service card

Wallcoverings
Collections of woven and nonwoven wallcoverings are available in linen and a polyester, cellulose, and cotton blend. The *Classic Linen* collection comes in neutral tones and 27 textures, the *Colorwoven* collection in four patterns and 72 colors, and the *Linen Warp* collection in 24 tones and two textures. OJVM, Marlboro, N. J.
Circle 321 on reader service card



Skylight system
A prefabricated, cross-arched skylight system consists of a structural steel frame sheathed with a coated fabric that is said to allow up to 60 percent light transmission. Thermal transmission can be regulated by the use of two layers of fabric with an airspace or batt insulation in between. The skylight units are available in barrel vaults, pyramids, and segmented domes. ODC Skylight Systems, Norcross, Ga.
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Continued on page 161

MICRO-COTTA™

If the beauty is timeless, it should be made to last over time.

If the architectural detail and ornamentation called for on your new building or restoration project is of timeless beauty, create (or re-create) it with Micro-cotta.

Micro-cotta is a lightweight, proprietary, polymer-based composite concrete that can be used to create the delicate relief work, color, interior and exterior ornamentation and subtle patterning of terra-cotta. The molds and tooling for any shape or detail you can imagine are derived directly from your originals or blueprints, reproducing them in detail.

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Micro-cotta composite concrete goes beyond fine duplication of originals. It is also resistant to fire and environmental conditions. Inert pigments are used to achieve a durable color match that will last without yellowing or other color deviations. There is no surface glazing to crack or delaminate.

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Molding technology and the proprietary physical makeup of Micro-cotta make fast delivery times possible – often within a matter of days – from prototype to the last finished part.

Santa Fe Railroad Exchange Building, Chicago, IL
Metz, Train and Youngren, Architects.

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To find out more about how Micro-cotta can help make timeless beauty last over time, contact Simplex Products Division. Or consult our 1985 Sweet's catalog, 6.9/Sim.

Simplex Products Division
P.O. Box 10
Adrian, MI 49221
(517) 263-8881

The Wrigley Building, Chicago, IL
Dr. Stephen Carr, Dept. of Materials Science and Engineering, Northwestern University, Consultant.

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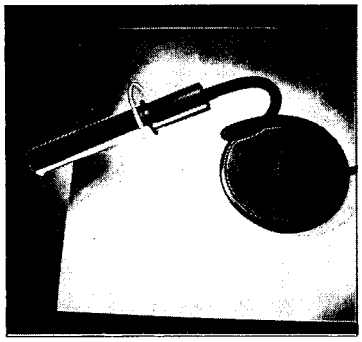
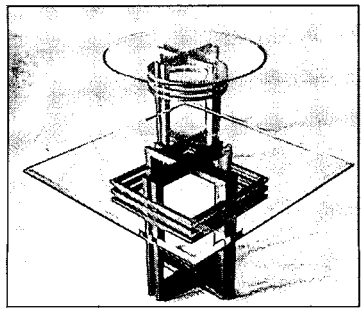
10	General Electric
11	Gulf Oil
12	Atlantic Richfield
13	Shell Oil
14	Occidental Petroleum
15	U.S. Steel
16	Phillips Petroleum
17	Sun

Continued from page 159



Desk lamp
The *Zero* desk lamp has a flexible neck that can be twisted into curves as tight as 1 in. and a shade that rotates 360 deg. An edge-lit, acrylic disk around the base makes the shade appear to pierce a halo of colored light. The base is available in black and can be specified in custom colors. Lumanetics, Emeryville, Calif.
Circle 323 on reader service card

Oak ceiling
This ceiling system is composed of solid oak tambours installed over a standard T-grid suspended ceiling frame. The system is designed to create the effect of a monolithic oak ceiling. Several different styles are available, including linear and grid patterns. Winona Industries, Inc., Winona, Minn.
Circle 324 on reader service card



Glass-topped tables
The *Triate* collection of glass-topped pedestal tables features bases made of Honduras mahogany with reinforced miter joints. Three styles are available, including lamp tables, single pedestal dining/conference tables, and double pedestal racetrack tables, in a variety of sizes. Standard finishes include bleached, pearl gray, or ebonized mahogany. Agati Designs, Chicago.
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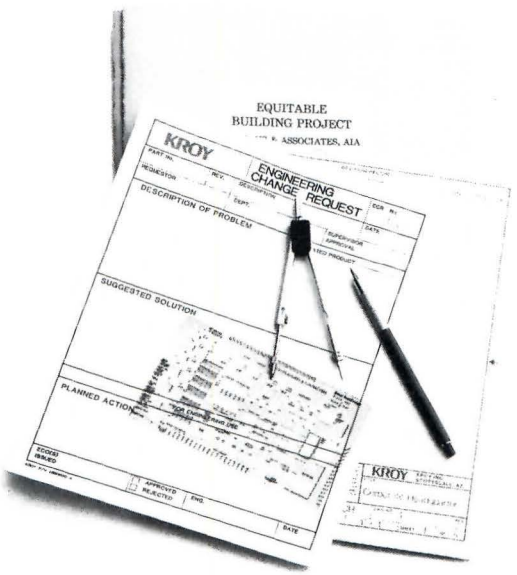
It's how y



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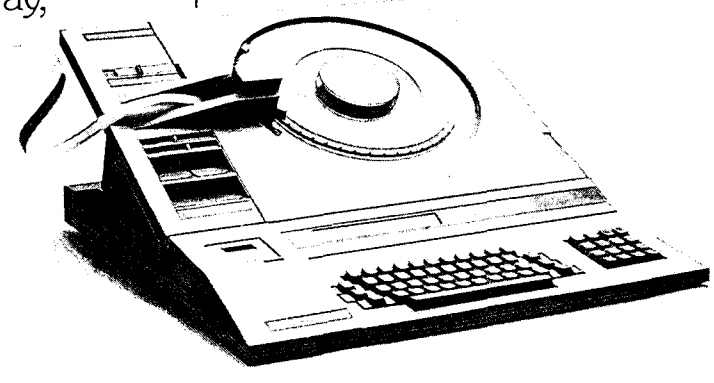

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AT ANDERSEN, NOTHIN
ESCAPE OUR KEE

IT SHOULD PLEASE YOU TO KNOW THAT WE'RE NEVER SATISFIED.

Every day the people in our research and development department take a long, hard look at our windows.

They go over every Andersen® product inside and out, searching for ways to make them more useful for your clients.

It's this constant striving for innovation that has made Andersen the leader in window technology.

And whether it's a new operating picture window or a more serviceable window operator, each and every innovation furthers our commitment to a better and better product.

OUR NEW PICTURE WINDOW IS MORE THAN A PRETTY PICTURE.

Picture windows have always been nice to look through. But they didn't do much, such as open to provide ventilation.

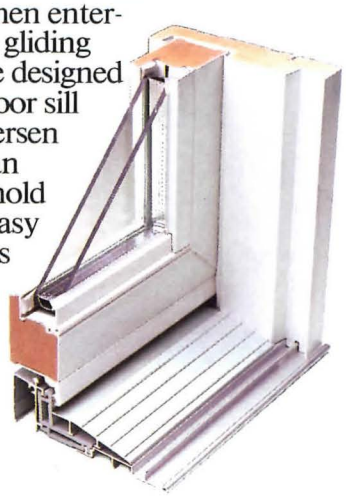
So Andersen designed a big picture window that is an awning unit. One that opens to nearly 11 inches to provide fresh air.

What's more, this new window opens a full 9 inches at the top. Which means both sides of the glass can be cleaned from the inside.

And this Perma-Shield® venting picture window comes in seven sizes, matching widths and heights of Andersen® Perma-Shield awning and casement windows.

WE OVERCAME AN OBSTACLE WITH OUR GLIDING PATIO DOOR.

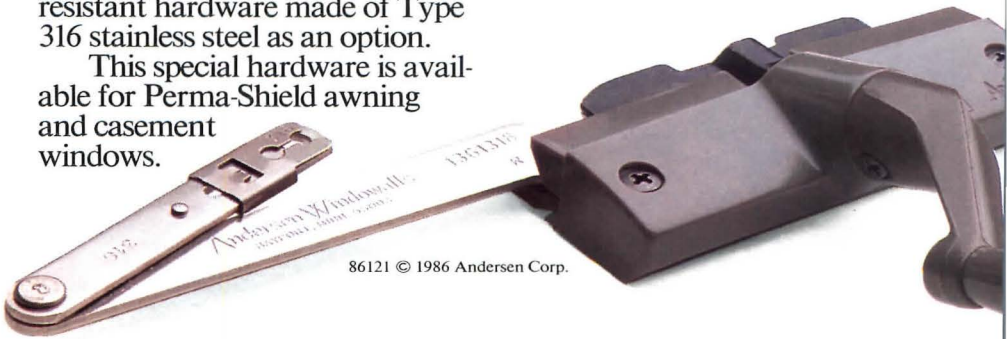
Someone in a wheelchair faces a hurdle when entering and exiting a gliding patio door. So we designed a handicapped door sill adapter for Andersen patio doors. It's an aluminum threshold ramp, allowing easy wheelchair access without all the wear and tear.



SOMETHING IN THE AIR TOLD US TO MAKE STAINLESS HARDWARE.

In seaside and heavy industrial areas, ordinary window hardware can corrode quickly. To combat the problem, Andersen offers corrosion-resistant hardware made of Type 316 stainless steel as an option.

This special hardware is available for Perma-Shield awning and casement windows.



S SO INSIGNIFICANT AS TO YE FOR DETAIL.

Andersen decorator blinds, on the other hand, are much more practical. They fit nicely between the moveable sash and insect screen. So when the sash is opened, the blinds stay in place. Beautifully.

THE DEMAND FOR ODD ANGLES HAS RESHAPED OUR THINKING.

Andersen windows are manufactured in hundreds of standard sizes and styles. But we've seen enough openings that require a triangular, trapezoidal—even an octagonal—window.

So we developed our Flexiframe® window components. Offering a low-maintenance Perma-Shield system for low upkeep and high energy efficiency.

There is virtually no limit to the angles with Flexiframe windows.

And they are now available with new High-Performance and High-Performance Sun insulating glass.

OUR NEW BLINDS ARE OUT OF THE WAY, NOT OUT OF SIGHT.

Some window blinds aren't the convenience they're supposed to be. Such as the ones that are attached to the moveable sash. Consequently, when the sash is opened, the blinds go with it—defeating the purposes of having them.

SOME ANDERSEN WINDOWS OPEN AT THE TOUCH OF A FINGER.

Awning and roof windows in high-up and hard-to-reach places are difficult to open and close. Which is why Andersen came up with an electric window opener.

A touch of a button on the remote-control command center is all the effort anyone needs. Up to four windows can be operated with one command center. What's more, a built-in sensor automatically closes windows if it begins raining, eliminating that age-old problem.

Electric openers are easily added to existing Andersen Perma-Shield awning and roof windows or installed in new construction. They're a convenience a lot of people shouldn't be without.

THIS STORY IS CONTINUED BY YOUR ANDERSEN DISTRIBUTOR.

There's a lot more to know about what we're doing to make our products more valuable to architects and their clients. Your Andersen distributor is your best source.

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Architect: Smallwood, Reynolds, Stewart, Stewart & Associates, Inc., Atlanta, Georgia.

It involves many painstaking hours to design an intricate stone exterior. However the job doesn't end there.

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Nothing tops a Hi-Tuff™ roof.

Building owner: Capital Improvement Board of Managers of Marion County, Indiana; Architect: Howard Needles Tammen and Bergendoff; Roofing contractor: North American Roofing Co., Inc.

The 122,000 square-foot roof atop the massive Market Square Arena in Indianapolis, Indiana, home to the Indiana Pacers of the NBA, is now protected from the elements by a new Hi-Tuff single-ply roofing system.

Hi-Tuff is the ideal roofing for the unusual dome-shaped structure. Its brilliant white surface greatly improves the appearance of the Arena and the downtown skyline. The reflective surface provides energy savings, too.

Hi-Tuff is securely fastened to the Arena roof deck by mechanical attachment. It was laid down over an old foam roof, adding very little weight and retaining the insulating value of the foam.

And Hi-Tuff, based on weather-resistant Hypalon* synthetic rubber from Du Pont, has seams that are fused by automatic hot-air welding, forming one continuous watertight skin over the entire Arena dome. The simplicity of the system helped the contractor complete the job on schedule.

So, when you're looking for a new roof, look to Stevens. Because nothing tops a Hi-Tuff roof.

For more information about Hi-Tuff, and an actual hot-air welded sample, write to J.P. Stevens & Co., Inc., Stevens Elastomerics/Roofing Systems, Easthampton, MA 01027, or call 413/527-0700.

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*Registered trademark of Du Pont

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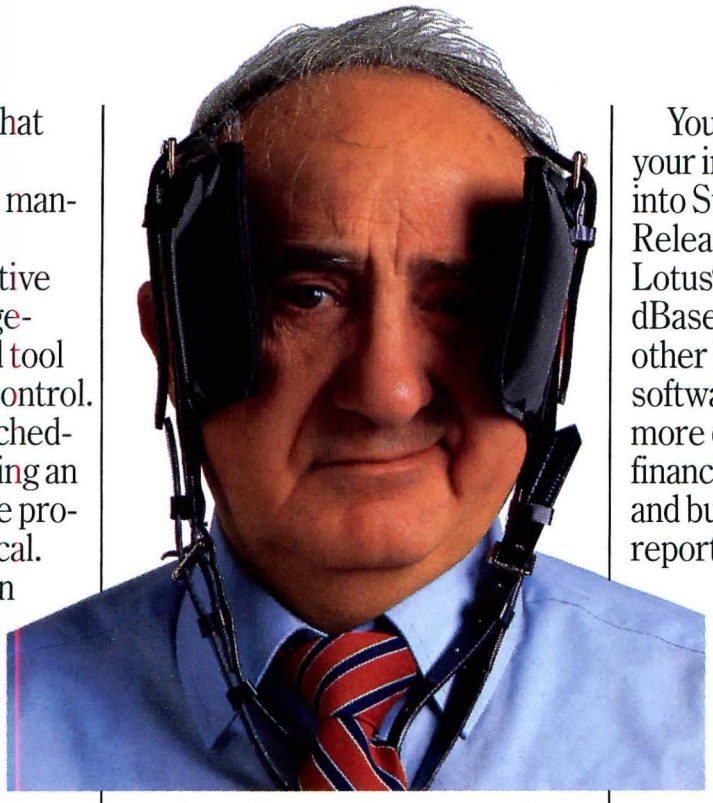

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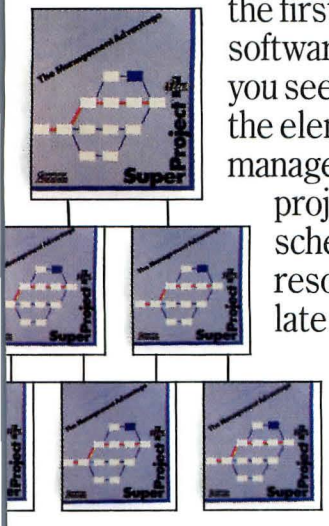

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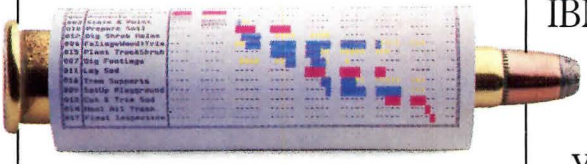

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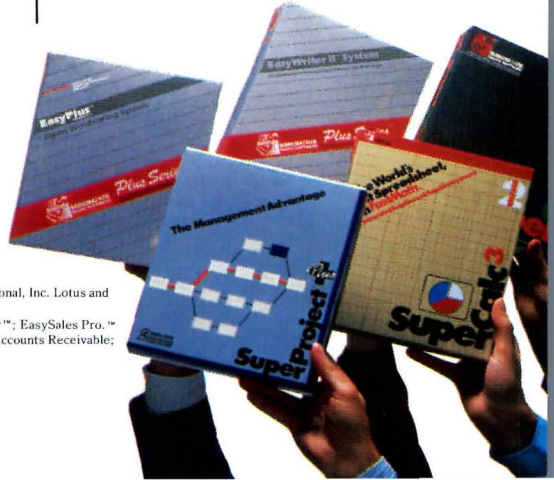

Computer Associates productivity software: SuperCalc®3 Release 2; SuperCalc®3a; SuperProject™; EasyWriter II® System; EasyPlanner™; EasyFiler™; EasySales Pro.™ EasyBusiness Systems™ accounting software: EasyPlus™; EasyPlus™ Network Manager; General Ledger and Financial Reporter; Accounts Payable; Accounts Receivable; Inventory Control and Analysis; Order Entry; Payroll; Retail Invoicing; Time, Billing, and Client Receivables; Job Costing.

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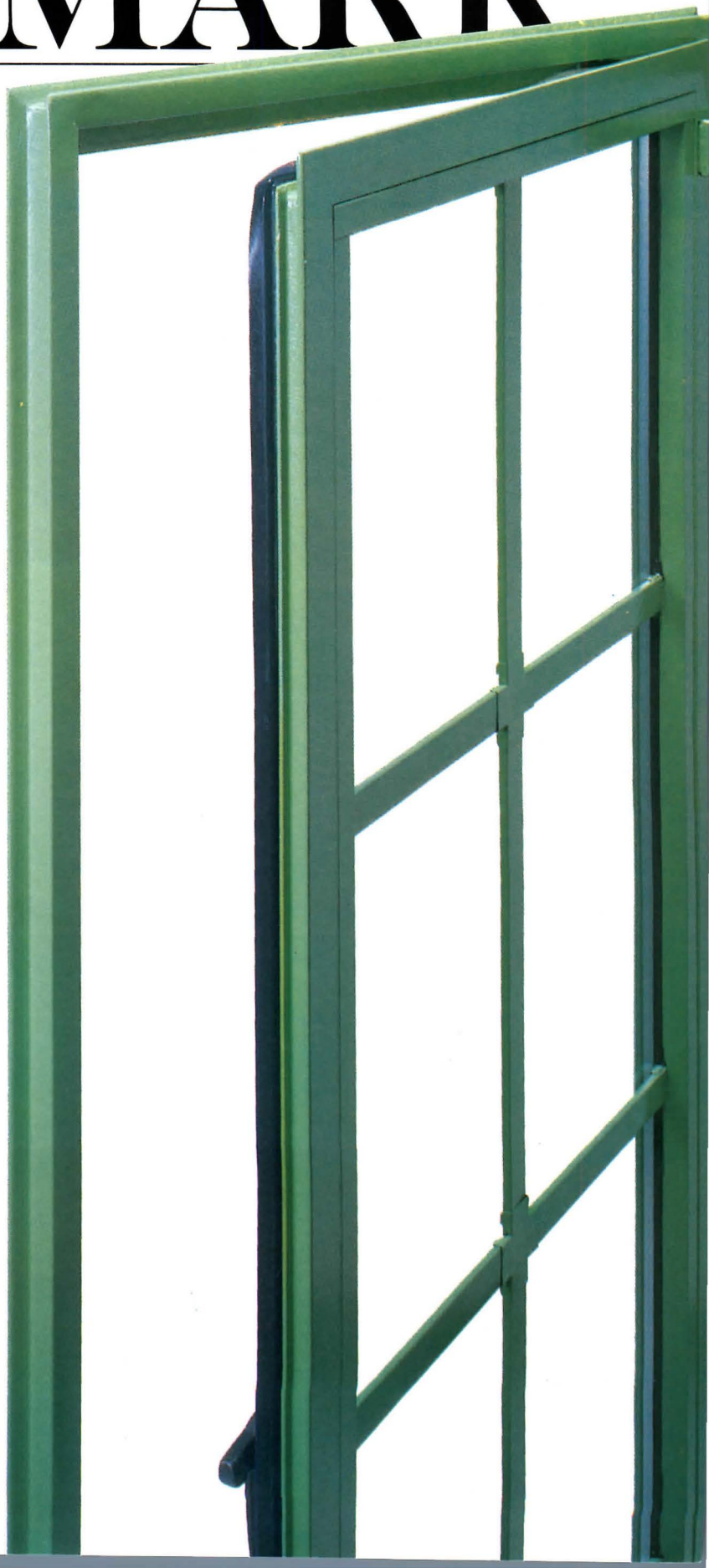

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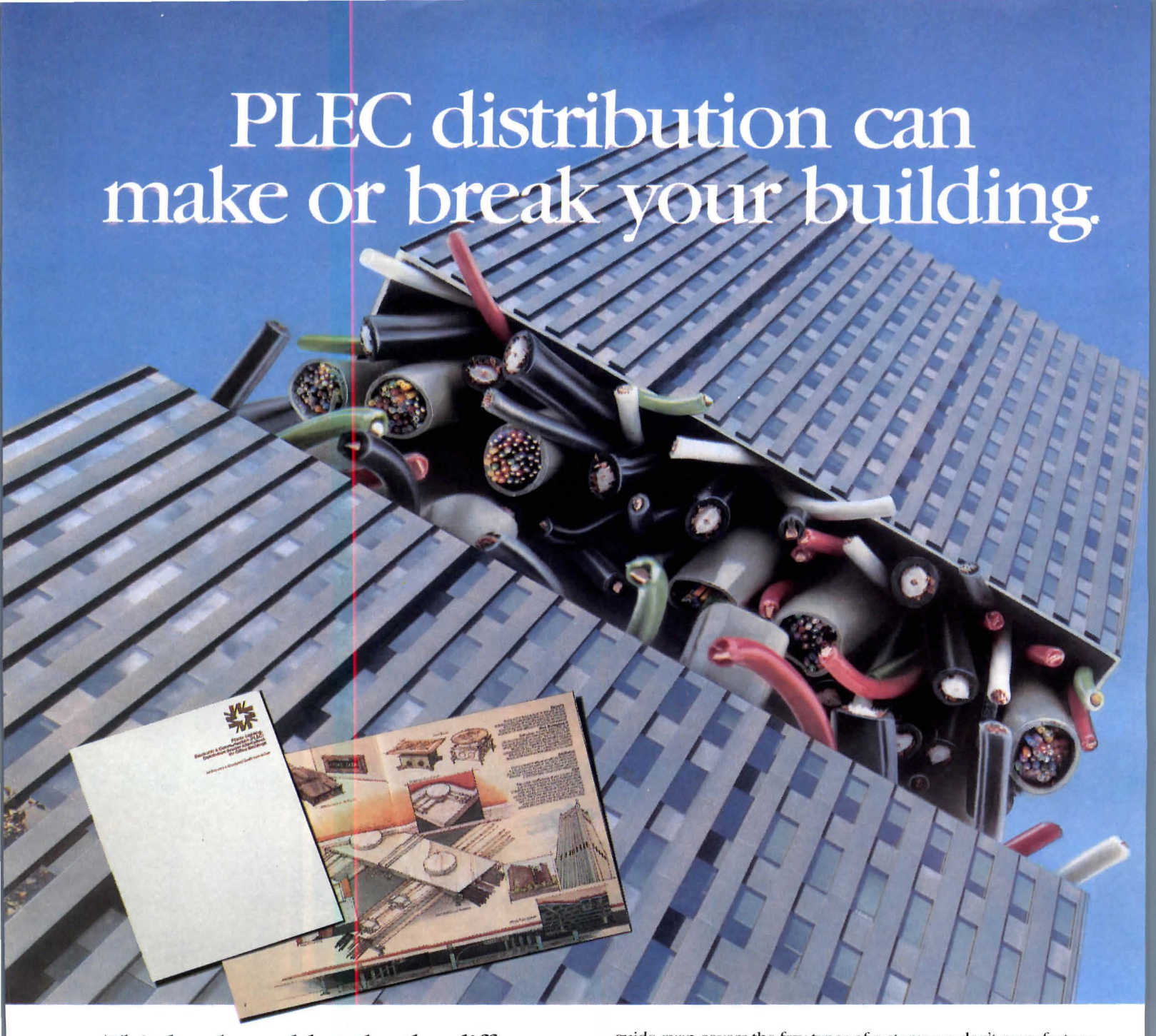

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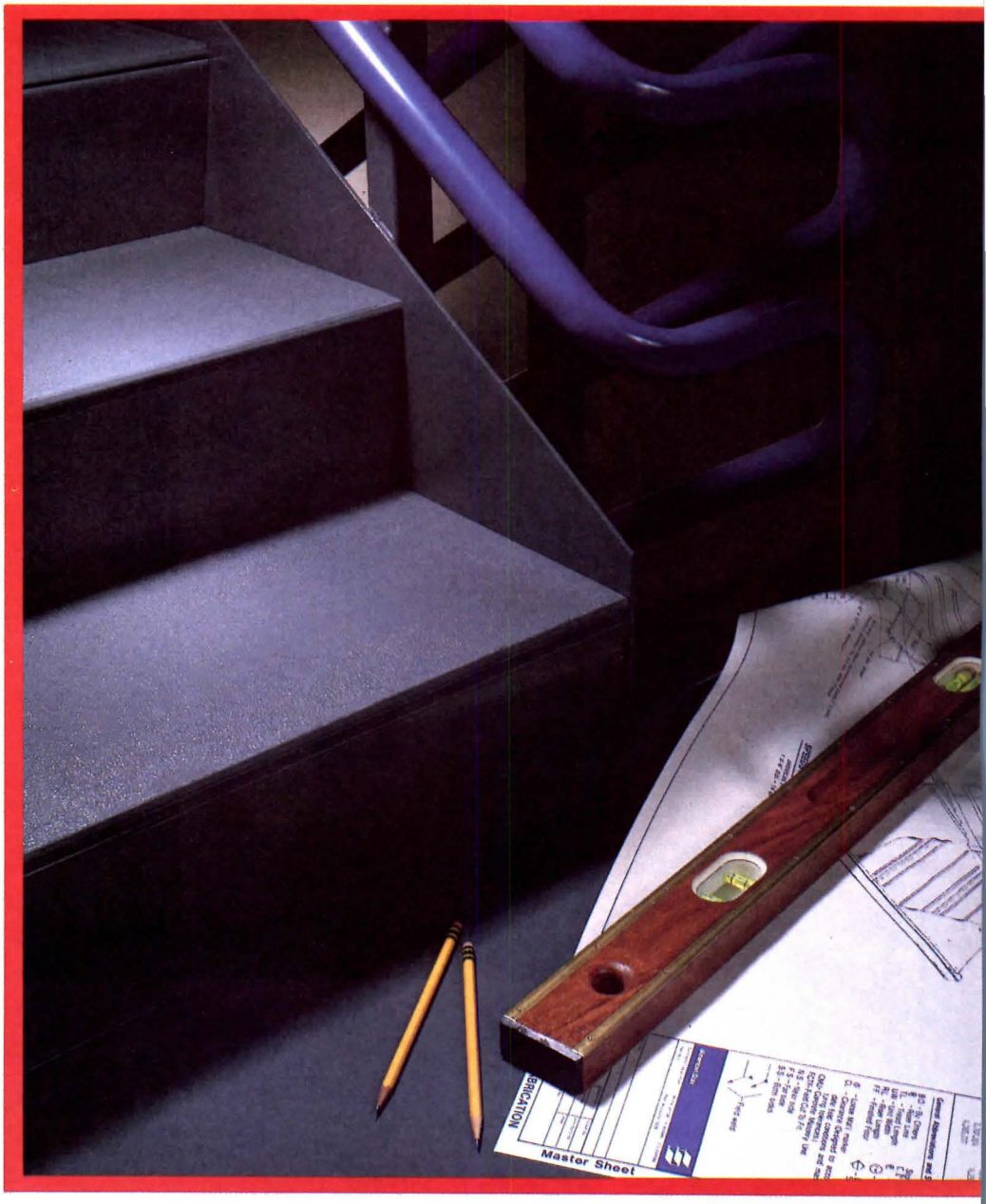

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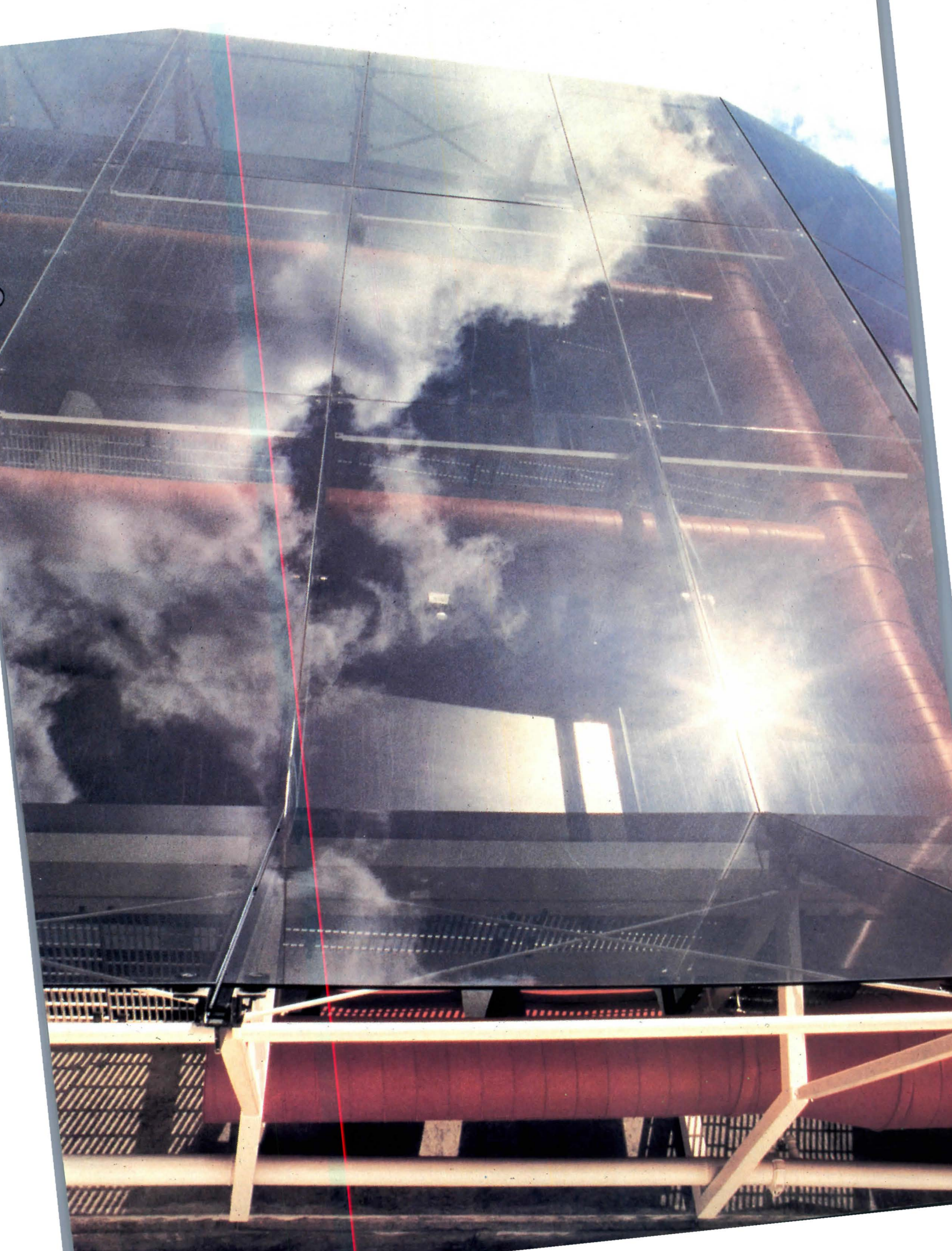

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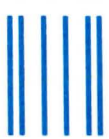

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Hubbell announces System PDC. Undercarpet wiring made simple.

Introducing a revolution in undercarpet power, data and communication systems.

The System PDC™ from Hubbell.

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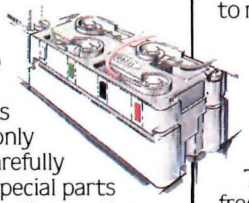


Other undercarpet systems may claim to be simple. But only the Hubbell System PDC is carefully engineered to eliminate the special parts and expensive tools that complicate other systems.

How?

We've engineered a revolutionary transition device which we call the Intrafacer,™ that ties together our entire system.

The Intrafacer mounts just like a receptacle, in a standard 4" wall box.

It's insulation displacement terminals insure positive, secure connections without separate connectors.

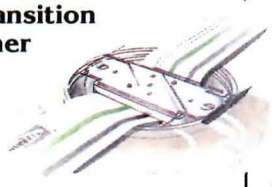
And the Intrafacer connects both three and four conductor cables, while eliminating the need for five wire cable.

So there are no undercarpet taps and splices.

No special tapping and splicing tools.

And none of the custom parts required to fit a wider, five wire cable.

Problem solving transition connections no other system has.



The same innovation that makes the Hubbell system simple to plan also makes it simple to install.

In addition to mounting in a standard wall box, the Intrafacer is designed to mount in three problem-solving transition connections for spaces that don't have accessible walls.

Our Floor Box Intrafacer fits virtually any round floor box that accommodates a duplex receptacle.

Our Fire Rated Poke Through, designed to accept the Intrafacer, can be mounted anywhere in the floor.

And both floor transitions are flush-mounted to lie completely flat beneath carpet squares.

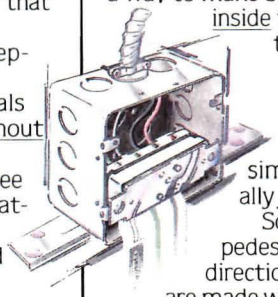
Finally, we've designed a Power Pole Intrafacer that is an industry first. It provides a cost-effective feed to the center of an open space when floor boxes and Fire Rated Poke Throughs are not viable.

Whichever solution you choose, the Intrafacer frees you to place your power transitions wherever you need them. Saving you the cost of running expensive lengths of cable to reach inconvenient power feeds, as in other systems. And increasing your design flexibility overall.

Pedestal housed connections take the place of taps and splices.

The Intrafacer allows you as much freedom to change your transition locations as it does to choose them in the first place.

In fact, we've actually designed a way to make branch connections inside the pedestal, where they are readily accessible.



The Intrafacer—which connects flat cable to round receptacle wiring in every power pedestal—accepts a simple tap adaptor that actually joins flat cables together.

So when you need to add a pedestal, or branch in several directions, all connections are made within the Intrafacer.

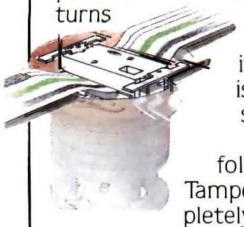
That way you'll always know where your connections are—beneath the protective security of their low profile pedestals.

Advanced technology in our design guarantees freedom and flexibility in yours.

Because we use only one kind of transition device—The Intrafacer—for all our transition connections and power pedestals, all our cable and related cable fittings are also simplified.

One size pedestal fits all applications.

And one size top shield fits all, with no additional top shield connectors, or expensive extra tools for making 90° turns



Cable turns are infinitely simpler because there is no separate bottom shield to lay.

A simple right angle fold redirects the cable. Tamped down flat, it is completely undetectable beneath the carpet square.

No other system so beautifully merges form with function.

The aesthetic value of the Hubbell System PDC is obvious because the system components aren't.

Hubbell pedestals have quiet, graceful lines. They are neutral in color, and keep a clean, low profile.

And because they centralize all three essential wiring functions—power, data and communications—their presence is minimal.

Our flush-mounted wall transitions are subtle, too.

They rest unobtrusively low by the baseboard and present only a simple, wall-plated face.

And if you run your foot along the carpet square you will find no tell-tale bumps or lumps to betray the complete office wiring system beneath.

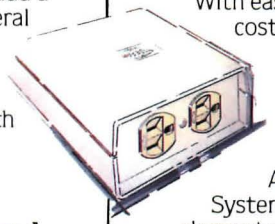
It is hidden not only from view, but from feel.

The simplicity of the Hubbell system preserves the integrity—even the elegance—of your original office design.

Even in the face of change.

So, should you have to add outlets for new data terminals, or work stations, you can.

With ease. And without invasive and costly rewiring.



You will simply peel back the carpet squares and lay a new track of cable, terminating in its clean simple pedestal.

Simplicity. Flexibility. Quality. All combine to make the Hubbell System PDC as effective as a design element as it is a design tool.

If you'd like to know more about the Hubbell System PDC, just fill out the coupon below. Or send us your business card.

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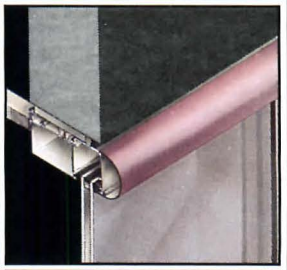

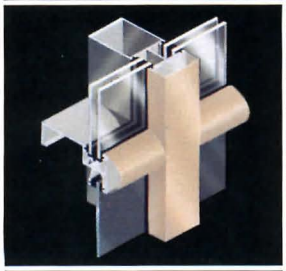

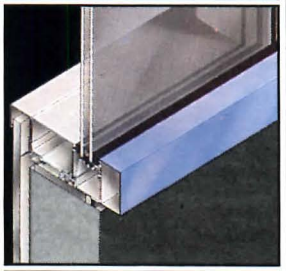

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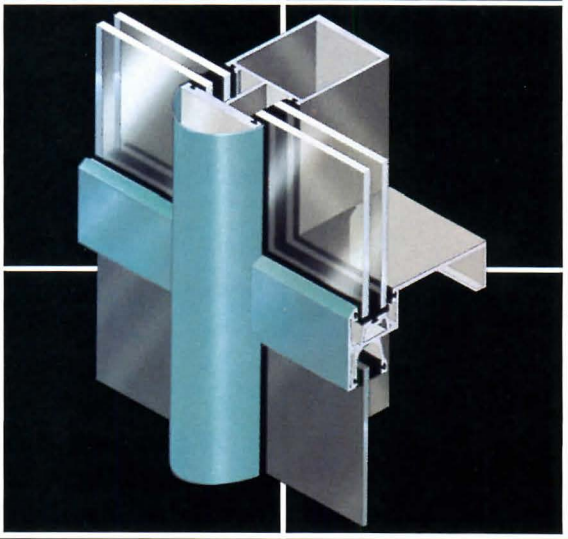

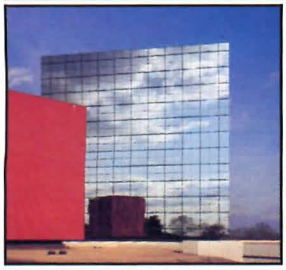

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Roger Williams College, Architecture Division, seeks applications for a teaching position in its Bachelor of Architecture Program starting August 1986. The college campus is located on Mount Hope Bay in Bristol, 15 miles from Providence, RI. Construction of a new Architecture building (design selected through a national design competition) is currently underway. The Architecture Program has 230 students out of a total student population of approximately 2,000 and received its initial accreditation by NAAB in June 1985. Position Description: Undergraduate professional instruction with primary responsibilities for teaching courses in Architectural history and theory and design studio. Candidates should have professional degree in Architecture and a Doctorate in Architecture/Arch. History. Salary negotiable based on qualifications. Send letter of application, including curriculum vitae, selected examples of design work and/or research/publications, names and addresses and telephone numbers of 3 references to: Raj Saksena, AIA Director, Architecture Division, Roger Williams College, Bristol, RI 02809. Closing Date is March 15, 1986. Affirmative Action/EEO.

The School of Architecture at The University of Tennessee seeks candidates to fill up to 2 tenure track positions at the Assistant Professor level — two-thirds teaching time in design and one-third in related disciplines. Appointments will begin Sept. 1, 1986. Qualifications sought are Masters Degree in Architecture or equivalent, experience in practice and teaching. Licensed for practice preferred. Letter, resume and 3 references to; Roy F. Knight, Dean, School of Architecture, The University of Tennessee, Knoxville, Tenn. 37996-2400 by March 1, 1986. The University of Tennessee, Knoxville is an EEO/Title IX Section 504 Employer.

University of Michigan. The program in Architecture seeks candidates for four faculty positions: (1) Two positions, tenure track at any rank, to teach architectural design studio and offer a related elective course in contemporary theory and design. Qualifications: Professional degree in Architecture, licensed to practice, portfolio or published evidence of creative design ability and/or scholarship, and demonstrable capacity to teach design. (2) One position, tenure track at any rank, to instruct at all levels in environmental technology, with emphasis on daylight and artificial light in building design; to supervise doctoral student research, and to initiate and conduct research in lighting, daylighting and solar energy utilization. Qualifications: Doctorate in Architecture or equivalent in education and experience; substantial record of effective teaching, creative research/practice and aptitude and experience in acoustics, simulation techniques and computer applications. (3) Visiting Assistant Professor for a period of one academic year. This rotating position carries the title William Muschenheim Fellow. A promising designer will be selected each year to teach Architectural Design. Recipients will have opportunities to engage in part-time professional work, enter a competition and/or perform design research and writing. Qualifications: Professional Degree in Architecture, portfolio or published evidence of creative design ability. Applications: All positions available in Sept. 1986, with rank and salary commensurate with qualifications. The University of Michigan is a non-discriminatory affirmative action employer and encourages applications from Blacks, Hispanics, Asians, Native Americans, and Women from all groups. Send resume and 3 references by 30 April, 1986 to Professor Gerald Crane, Chairman, Faculty Search Committee, College of Architecture & Urban Planning. The University of Michigan, Ann Arbor, MI 48109-2069.

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The College of Architecture at The University of Oklahoma anticipates faculty openings in Architecture, Construction Science and Interior Design beginning in August, 1986. Application deadline is March 15, 1986. Contact: Faculty Search Committee, College of Architecture, University of Oklahoma, Norman, OK 73019 or Call (405) 325-2444. OU/AAEOE.

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California State Polytechnic University, Pomona Dept. of Architecture: Tenure-Track Faculty Position(s): Sept. 1986. Asst. Prof ($23,112-$27,780) B. Arch or Masters in related area, (or equivalent), 3 yrs related experience; Assoc. Prof. ($29,100-$35,064) (Educ. as for Asst), second professional degree pref. with professional registration or Ph.D. in Arch., or related field, 5 yrs related exper. or research; Full Prof. ($36,744-$44,352) (Educ. as for Assoc.), as well as 10 yrs professional exper. in related area or research / publications. Expertise required in Arch. History, Structures, Env. Control Systems, Design, Computers, Env. Behavioral Factors. Submit resume, application form, and 3 references by March 1, 1986 to be considered. Proof of highest degree and three letters of recommendation required prior to appointment. Application and further info: Selection Committee, Department of Architecture, California State Polytechnic University, 3801 West Temple Avenue, Pomona, CA 91768. EOE/AA Employer.

Head, School Of Architecture, Oklahoma State University. Qualifications sought include: master's degree in architecture or architectural engineering; demonstrated leadership ability; registration as an architect; and a record of activity in appropriate professional societies. Appointment confers tenure as Professor of Architecture, requiring that the candidate qualify for this position also by virtue of recognized achievement in either education or practice. The School has a student body of 250-300, a faculty of 16, and offers five-year Bachelor of Architecture and Bachelor of Architectural Engineering professional degree programs as well as master's level programs in both disciplines. Appointment is effective July 1, 1986, or as soon thereafter as the appointee is available. Applications including detailed resume, minimum of three references, and a statement of qualifications and capabilities should be received prior to March 1, 1986 to receive full consideration. Send to: Professor William Haire, Chairman; School Head Search Committee; School of Architecture; Oklahoma State University; Stillwater, OK 74078. OSU is an Affirmative Action, Equal Opportunity Employer.

Architecture — Ball State University, Department of Architecture invites applications from candidates for possible full-time tenure track and/or temporary faculty positions in its undergraduate architecture program, effective September 1986. Architectural Design: Candidates with strong design abilities must be able to assume responsibility for an undergraduate architectural studio as well as courses in one or more of the following areas: graphics, theory, photography, structures, or computer applications. Environmental Systems: Candidates with skills in building systems must be able to teach this material full time in both lecture and studio contexts. Community Based Projects: Candidates must be able to teach upper level architecture studios and perform service functions related to urban design and participatory community projects. Candidates should have terminal degree in specialty area and recognized achievements in research, scholarship, or creative practice. Talent and ability as a stimulating teacher plus ability to pursue research or creative practice is as important as formal qualifications. Rank and salary dependent upon qualifications. Applicants should send letter of interest, curriculum vita, original transcripts, and three letters of reference. Application deadline: February 14, 1986. Apply to: Professor Marvin Rosenman, Chairman, Department of Architecture, College of Architecture and Planning, Ball State University, Muncie, IN 47306. Women, minorities, handicapped and Vietnam veterans are invited to apply. Ball State University Practies Equal Opportunity in Education and Employment.

Manufacturer sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified

Pages 92-107

Pages 92-95—Village Hall and Fire Station
by Westwork Architects, P. A.
Exterior stucco: El Rey. Masonry: Crego Block. Built-up roofing: G. A. F. Wall lighting: Guth. Rolling doors: Raynor. Windows: Jordan. Metal doors/frames: Amweld. Wood doors: Weyerhaeuser. Locksets: Yale. Hinges: Hager. Closers: Norton. Exit devices: Von Duprin. Paints: Sherwin Williams. Tile flooring: I. A. C. Acoustic ceiling: U. S. G. Air diffusers: Titus; J. & J. Recessed lighting: Prescolite.

Pages 96-97—Bellow Falls Fire/Police Facility
by John Sharratt Associates Inc.
Skylights: Velux. Wall lights: Gardco. Roofing: GAF (Timberline). Hollow metal doors/ windows: E. H. Fridrick. Drywall: U. S. G. Paint: Sherwin Williams. Rolling doors: Overhead Door.

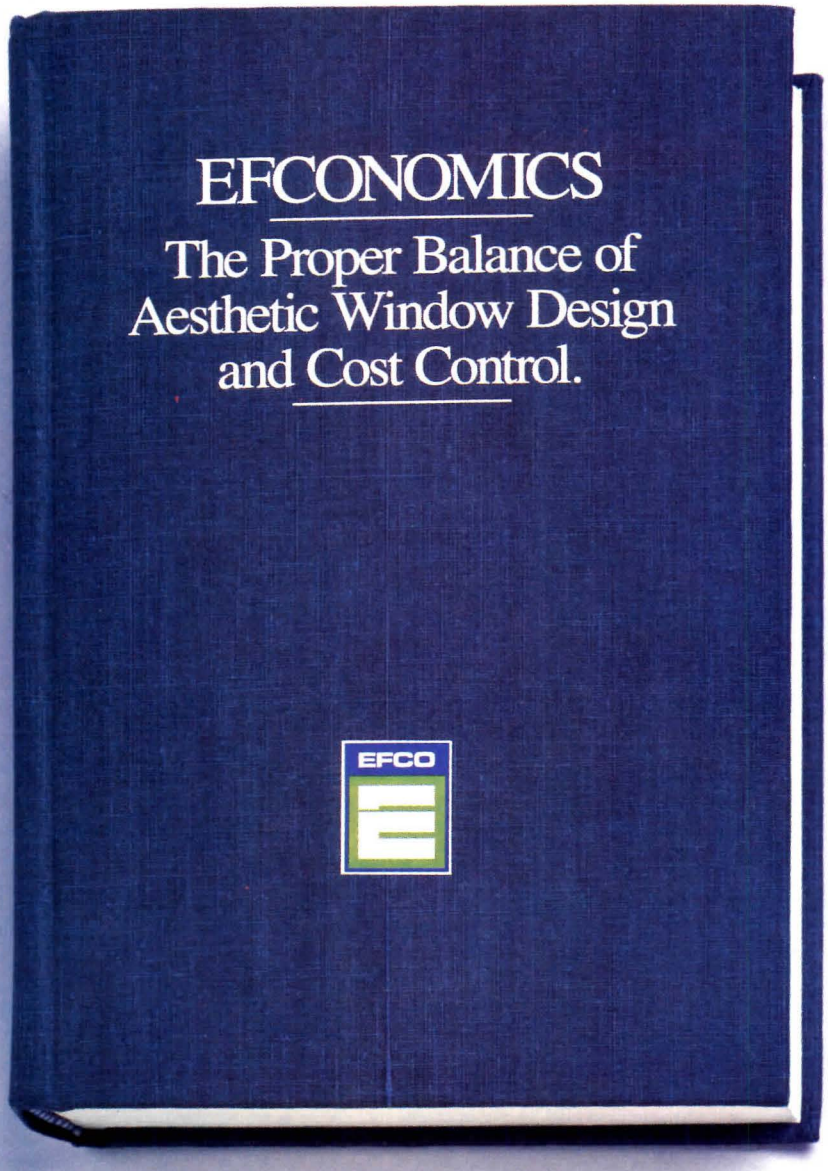
Pages 98-101—Public Works Administrative Office Building
by Lucas Stubbs Pascullis Powell and Penney Ltd.
Curtain wall, entrance: Kawneer. Glazing: PPG. Linear ceiling: Alcan. Paints: Devoe. Elevator: General. Lighting fixtures: GE.

Pages 102-105—Registry of Motor Vehicles
by Leers, Weinzapfel Associates
Masonry veneer: Georgia Granite. Aluminum-framed doors/windows: Miami Wall Systems. Flooring: Kentile. Tile: American Olean. Paints: Benjamin Moore.

Pages 108-119
Hood Museum of Art
by Centerbrook
Pages 108-119—Brick: Morin (College Blend). Copper roofing, gutters: Gracie Roofing. Elastomeric roofing: Carlisle. Windows: Wausau Metals. Glazing: Soule Glass. Entrances: Tubelite. Pole lighting: Architectural Area Lighting. Paints/stains: Devoe; Cabot. Laminate: Nevamar. Carpeting: Stratton; Lees. Lighting: Lightolier. Diffusers: Carnes. Drywall: U. S. G. Sconces: Nutrol.

Pages 120-127
Northwestern University Law School
by Holabird & Root
Pages 120-127—Glazing: PPG. Masonry veneer: Cold Spring Granite. Curtain wall: Crescent. Coating: Pratt & Lambert. Terrazzo: Marbellete. Seating: Metropolitan. Stacks: Andrew Wilson Chairs: Harter. Suspended lighting: Lam. Wood grille, seating/tables: Kister Wood Products.

Pages 128-135
Point West Place
by Robert Stern Architects
Pages 128-135—Curtain wall, railings: Harmon Contract Glazing. Rose ceramic frit, reflective spandrel glazing: Environmental Glass. Gray: PPG (Solarcool). Paving: Interlock. Granite flooring: Moliterno Stone. Steel/glass entrance, pulls: Ellison Bronze Custom fixtures: Winona Studio Lighting. Custom wood paneling: The Anthony Galluzo. Heat registers: Titus. Ceiling tile: Armstrong.



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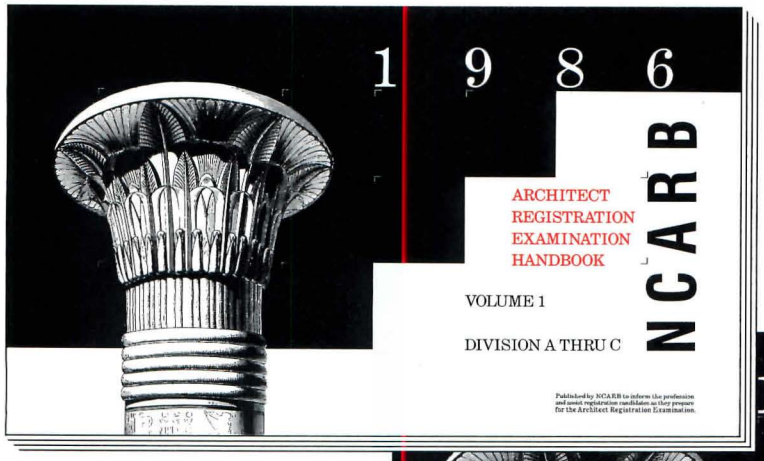

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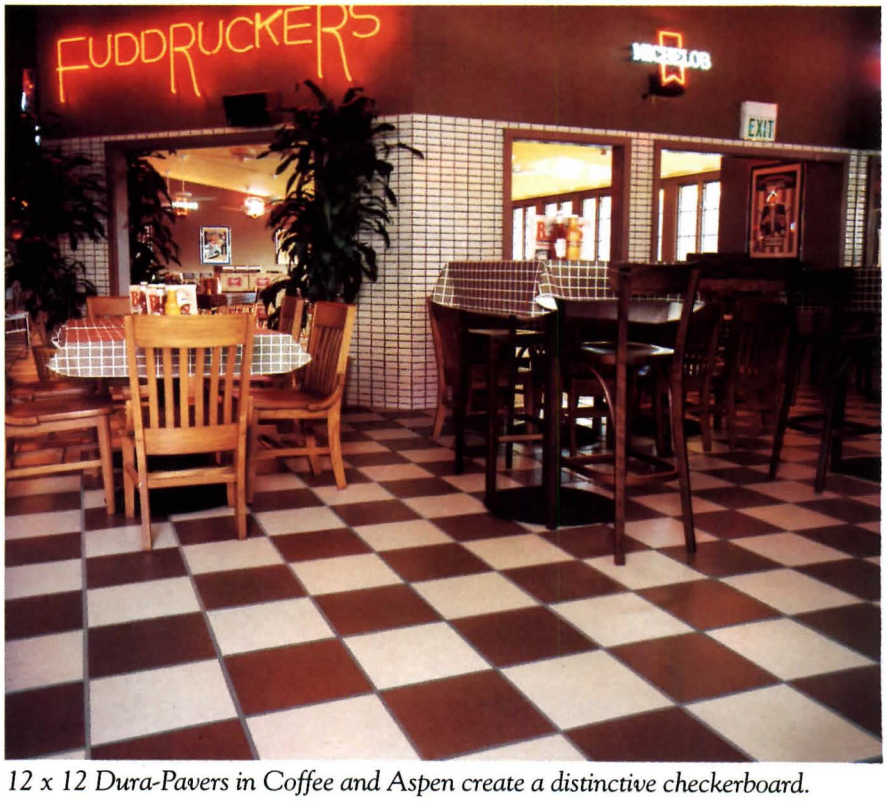

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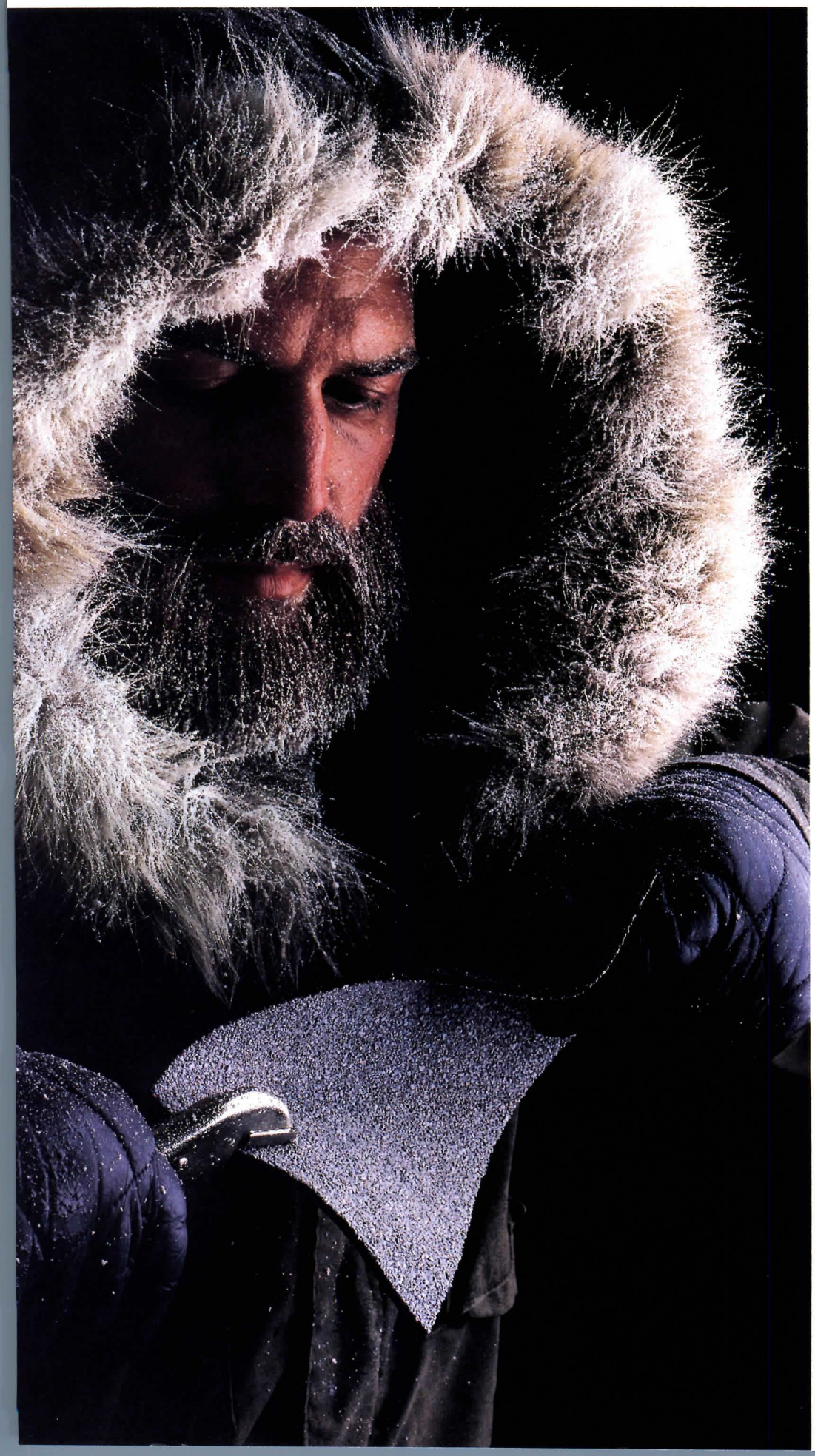

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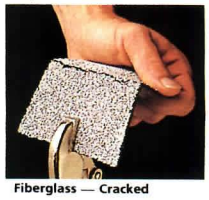

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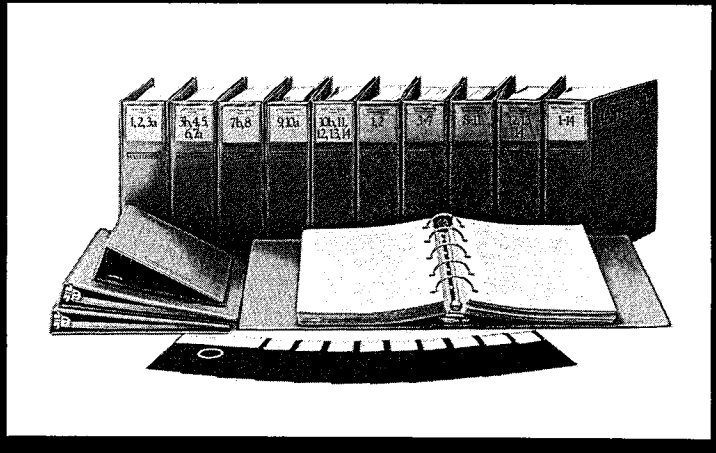

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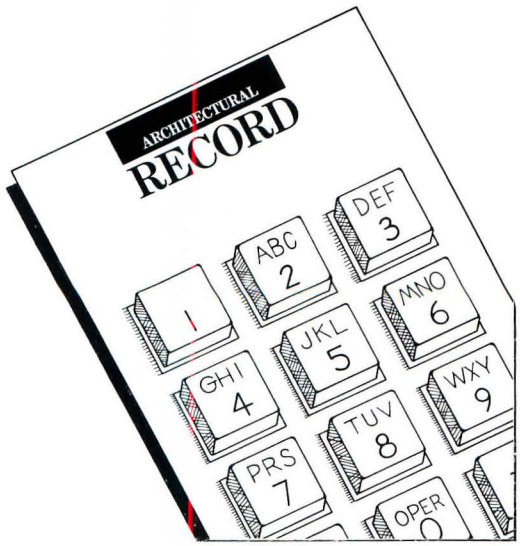

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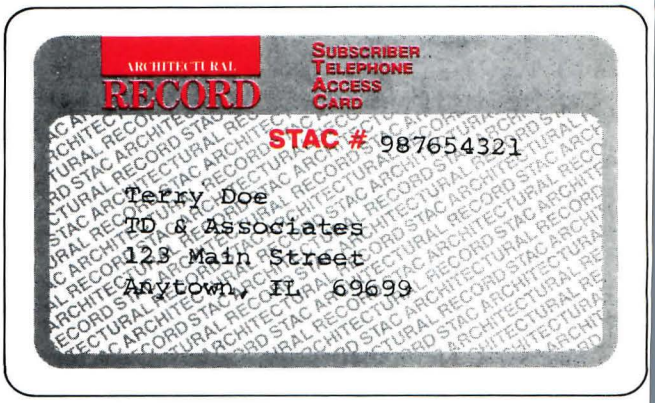

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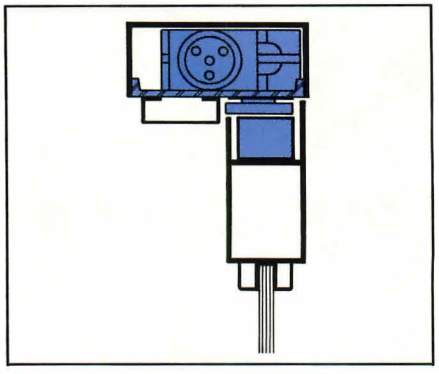
For complete information, see Sweet's Section 8. Or contact LCN Closers, Princeton, IL 61356; (815) 875-3311. In Canada, Ingersoll-Rand Door Hardware, Mississauga, Ontario L5E-1E4; (416) 278-6128.



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