

ARCHITECTURAL  
**RECORD**

Business Design Engineering  
A McGraw-Hill Publication, Seven Dollars  
March 1989





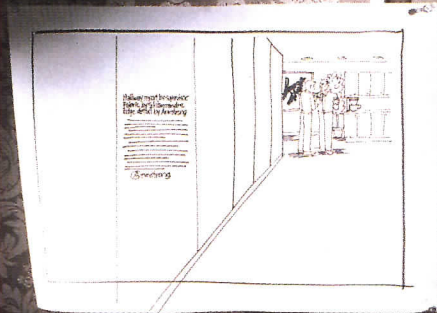
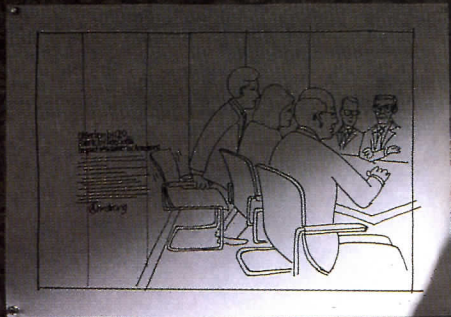
The image shows a close-up of a ceiling system composed of square tiles. Each tile has a grid pattern of lines. Overlaid on this grid are various embossed geometric shapes, including rectangles, squares, and irregular polygons, some with multiple parallel lines. The lighting creates a subtle gradient from dark on the left to light on the right, highlighting the texture and depth of the embossed patterns.

# CUSTOM CEILINGS

New 2' x 2' Syllables® ceiling system. Seven systems available. Each offers unlimited custom opportunities. For our brochure, call 1 800 233-3823 and ask for Custom Ceilings.

Ceiling designs copyrighted by Armstrong.





# ARMSTRONG CONTRACT INTERIORS

WALLS  
FLOORS  
CEILING  
CARPETS

**Armstrong**

Circle 2 on inquiry card



Everyone connected with the Hole in the Wall Gang Camp is to be congratulated [ARCHITECTURAL RECORD, January 1989, pages 86-91]. We are going to start buying Newman's Own products.

*Clifford Abrams  
Abrams Associates, Inc., Design  
Evanston, Illinois*

I enjoyed your November 1988 issue and its features on affordable housing. The opening editorial, "Serving the larger public," underscored well the importance of the public nature and role of architecture. I applaud ARCHITECTURAL RECORD's commitment in focusing attention on this area through the new awards program.

*David P. Habib, AIA  
Managing Principal  
Dewberry & Davis  
Fairfax, Virginia*

This is a much too late note of appreciation for ARCHITECTURAL RECORD's "In the public interest" award for our Washington Elms Development [RECORD, November 1988, pages 100-103]. I can't tell you how pleased and proud the commissioners and staff of the Cambridge Housing Authority and the residents of Washington Elms are to have garnered such valued recognition.

Too frequently public servants hear nothing but criticism for their efforts, and iteration upon iteration of failed policies or practices. To have been recognized for a job well done by a publication of such stature as ARCHITECTURAL RECORD will motivate us for some time.

Similarly, public housing residents must constantly live with an undeserved reputation regarding their environment. To see one's home and community so featured provides an enormous sense of self-worth, which is so often denied our residents.

Rest assured that as a team we will do our best to preserve the goodness of Washington Elms and to replicate its concepts in our efforts to rehabilitate other public housing developments.

Your issue "In the public interest," its recognition of public housing as an invaluable housing resource to the poor, and the Washington Elms award itself will always be cherished at the Cambridge Housing Authority.

*Daniel J. Wuenschel  
Executive Director  
Cambridge Housing Authority  
Cambridge, Massachusetts*

In misidentifying Jože Plečnik as Czech [ARCHITECTURAL RECORD, January 1989, page 4], you do an injustice to would-be students of Central European history, culture, and architecture, as well as to his memory. Although a few early works following tutelage under Otto Wagner were built in Prague, Plečnik was a proud native and citizen of Slovenia, now the small northwestern republic in Yugoslavia.

His unique genius arose in large part from the struggle to give the relatively young and developing Slovene society a strong footing and voice in the fertile mix of Adriatic and Alpine cultures surrounding it. He did so through a profound and reverent yet modern interpretation of historic forms particular to the region's past.

*Gregory Tung  
Freedman Tung & Associates  
Urban Design  
Mountain View, California*

## Through March 31

A retrospective of the works of 12 French architects who received the Delano and Aldrich/Emerson Fellowships in the years 1933 through 1985; at the American Institute of Architects, Washington, D. C.

## Through April 2

"Robert Mills, Designs for Democracy," an exhibit of drawings by the Greek Revivalist architect; at the Octagon Museum, Washington, D. C.

## March 11 through April 28

"Greene and Greene," an exhibit of the architects' work in photographs by Marvin Rand; at the Kirsten Kiser Gallery for Architecture, Los Angeles.

## March 16 through May 13

An exhibition of new works by Ricardo Bofill, Zaha Hadid, Arata Isozaki, Rem Koolhaas, Bernard Tschumi, and others; at Max Protetch, New York City.

## March 20-22

Lighting Conference for Architectural Consultants, sponsored by Philips Lighting Center, Somerset, N. J. For information: Sherry Bachman, Lighting Center Coordinator, Philips Lighting Company, P. O. Box 6800, Somerset, N. J. 08875-6800 (201/563-3600).

## March 21-23

"The Big Show '89," seventh annual Northeast Construction Expo, with special sessions on linkage funding and affordable housing; at World Trade Center, Boston. For information: Meg Bowen, The Northeast Construction Expo, 1502 Providence Hwy., Norwood, Mass. 02062 (617/769-7676).

## April 8 through July 12

"Inigo Jones: The Complete Architectural Drawings," an exhibit of 100 of the architect's drawings assembled from British sources, plus Van Dyck's portrait of Jones; at the Drawing Center, 35 Wooster St., New York City.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X) March 1989, Vol. 177, No. 3. Title© reg. in U.S. Patent Office, copyright © 1989 by McGraw-Hill, Inc. All rights reserved. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science and Technology Index, Engineering Index, The Architectural Index and the Architectural Periodicals Index.

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

*Executive, Editorial, Circulation and Advertising Offices:* 1221 Avenue of the Americas, New York, NY 10020.

*Officers of McGraw-Hill Information Services Company:* President: Walter D. Serwatka. Senior Vice President: Robert D. Daleo, Finance; Vice President-Circulation: George R. Elsing. Executive Vice Presidents: Russell C. White, Construction Market Focus Group; Kenneth E. Gazzola, Aerospace and Defense Market Focus Group; Brian H. Hall, Legal and Accounting Market Focus Group; Ira Herenstein, Computers and Communications Market Focus Group; Robert P. McGraw, Healthcare Market Focus Group; Vice President-Group Publisher, Construction Magazines: Ted R. Meredith.

*Officers of McGraw-Hill, Inc.:* Chairman, President and Chief Executive Officer: Joseph L. Diome. Executive Vice President, Office of the Chairman: Richard B. Miller. Executive Vice President, General Counsel and Secretary: Robert Landes. Senior Vice President, Treasury Operations: Frank D. Penglase. Senior Vice President, Editorial: Ralph R. Schulz.

*Associated Services/McGraw-Hill Information Services Co.:* Sweet's Catalog Files (General Building, Engineering, Industrial Construction and Renovation, Light Residential Construction, Interiors), Dodge Building Cost Services, Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).

Subscription rates for personnel of Architectural, Engineering, Interior Design, Design and other directly related firms and students thereof, are as follows: U.S. and U.S. Possessions and Canada \$42.50; Europe: \$150.00 (incl. Air); Japan: \$160.00 (incl. Air); all other Foreign: \$125.00. Single copy price for Domestic and Canadian: \$7.00; For Foreign: \$10.00. For Subscriber Services (U.S. only): 1-800-525-5003; (Canada & Foreign): 609/426-7070.

*Change of Address:* Forward changes of address or service letters to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 566, Hightstown, NJ 08520. Provide both old and new address; include zip code; if possible attach issue address label.

*Guarantee:* Publisher agrees to refund that part of subscription price applying to unfilled part of subscription if service is unsatisfactory.

*Copyright and Reprinting:* Title© reg. in U.S. Patent Office. Copyright © 1989 by McGraw-Hill, Inc. All rights reserved. Where necessary, permission is granted by the copyright owner for libraries and others registered with the Copyright Clearance Center (CCC) to photocopy any article herein for the base fee of \$1.50 per copy of the article plus 10 cents per page. Payment should be sent directly to the CCC, 21 Congress Street, Salem, MA 01970. Include code with request: ISSN0003-858X (\$1.50 + .10). Written permission must be secured for any other copying. Write Reprint Manager for such permission at address below, or to obtain quotations on bulk orders.

*Subscription List Usage:* Advertisers may use our list to mail information to readers. To be excluded from such mailings, subscribers should send a request to: ARCHITECTURAL RECORD, Mailing List Mgr., P.O. Box 555, Hightstown, NJ 08520.

*Publication Office:* 1221 Avenue of the Americas, New York, NY 10020. ARCHITECTURAL RECORD (ISSN0003-858X) published monthly with additional issues in April and September by McGraw-Hill, Inc. Second-class postage paid at New York, NY and additional mailing offices. Postage paid at Windsor, Ontario, Canada. Registration Number 9617.

*Postmaster:* Please send address changes to: Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 566, Hightstown, NJ 08520. THIS ISSUE is published in national and separate editions. Additional pages or separate editions numbered or allowed for as follows: Eastern Section 32Ea through 32Eb; Western Section 32Wa through 32Wd; Sunbelt Section 32Sa through 32Sd.





Editor  
Mildred F. Schmertz, FAIA

Managing editor  
Carolyn De Witt Koenig

Executive editors  
Paul M. Sachner  
Deborah K. Dietsch

Editor-at-large  
Herbert L. Smith, Jr., FAIA

Senior editors  
Grace M. Anderson  
Margaret F. Gaskie  
Charles K. Hoyt, AIA  
Karen D. Stein

Associate editors  
James S. Russell, AIA  
Joan F. Blatterman

Design director  
Alberto Bucchianeri  
Anna Egger-Schlesinger, senior associate  
Muriel Cuttrel, illustration  
J. Dyck Fledderus, illustration

Design consultant  
Massimo Vignelli

Editorial production manager  
Annette K. Netburn

Editorial consultants  
George A. Christie, Jr.  
Steven S. Ross

Group circulation director  
Richard H. Di Vecchio

Circulation manager  
Phyllis Josselsohn

Director of business  
and production  
Joseph R. Wunk

Director of marketing  
Camille H. Padula

Assistant to publisher  
Elizabeth Hayman

Associate publisher  
Roscoe C. Smith III

Publisher  
Ted R. Meredith

Inquiries and submissions of work for publication may be addressed to any editor, though the editors listed below have a special responsibility for the subject areas named:

Deborah K. Dietsch, houses  
Karen D. Stein, interior design  
Grace M. Anderson, design news and competitions  
Charles K. Hoyt, business  
Joan F. Blatterman, new products and product literature

Letters/calendar, 4  
Editorial: In the public interest—Recreational facilities, 9

## Business

News, 27  
Practice: The market for American architectural services in Japan comes of age, by Abner A. Layne, 33  
Construction finance: In search of that elusive comfort zone, by Phillip E. Kidd, 37

## Design

News, 41  
Design awards/competitions, 52  
Observations/books, 63

In this issue, 77

**Software Engineering Institute, Carnegie Mellon University, Pittsburgh, 78**  
*Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittelmann Associates, Architects*

**Mashpee Commons, Mashpee, Massachusetts, 84**  
*Various architects and planners*

**Karaza Theater, 92**  
*Tadao Ando Architect & Associates*

**The Royalton Hotel, New York City, 94**  
*Philippe Starck, Designer*  
*Gruzen Samton Steinglass Architects, Planners*

**Rivercenter, San Antonio, Texas, 100**  
*Urban Design Group, Master Planners and Architects*

**Building Types Study 663: Urban schools, 106**  
*Portfolio of New York City schools, by Ellen Posner*

## Engineering

**A veneer too thin?, 116**  
*Brick veneer with metal-stud backup: new research*

**Computers: Practice, 130**  
*Emerging trends in architectural CAD software, by Ken Sanders*

**Computers: Technology, 137**  
*Software reviews for architects, by Steven S. Ross*

New products, WestWeek, 120  
Product literature, 122  
Manufacturer sources, 153

Classified advertising, 161  
Advertising index, 176  
Reader service card, 179

Cover:  
*Software Engineering Institute, Carnegie Mellon University, Pittsburgh*  
*Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittelmann Associates, Architects*  
*Photographer: Karl A. Backus*





# MACS II\*

## The communications system that's never too busy. Even if you are.

Let's face it. An intercommunications system is supposed to make work easier. And the staff more productive. Yet most school intercom systems aren't equipped to handle multiple stations in use simultaneously. And that means people are waiting to use the system, instead of communicating.

### **At Dukane, the lines are open.**

The MACS II\* was designed around the realities of school operation. The hardware package is amply equipped for multiple,

simultaneous communications and user-programmable functions. Because a communications system that makes people wait, ends up being a system that isn't used.

### **Add as many new stations as you need. Quickly and easily.**

The Dukane MACS II features built-in flexibility that lets the system grow as quickly as your communications needs. Fire alarms, security systems, classroom emergency calls and up to 128 stations are all easily programmed into the system.

And with the MACS II Networking Option, you can have over 1,900 stations with 128 simultaneous communication paths.

**Call your authorized Dukane distributor today.**

\*Modular Administrative Communications System



**DUKANE**

312-584-2300  
2900 Dukane Drive  
St. Charles, IL 60174



---

# In the public interest: Recreational facilities

Last year at this time we launched a new awards program, "In the Public Interest," to serve a neglected concept—the role of "publicness" in architecture. Although public subsidies have been drastically reduced, and the typical architect's clients come from the private sector, good architecture is still being done for the public realm. It is the purpose of this awards program to find and honor the best of it.

In last year's awards program we invited submissions in the category of affordable, appropriate housing. From over 100 entries we premiated 11 outstanding projects and made them the subject of our November 1988 issue. The winners of this year's awards program—which focuses on recreational facilities—will be featured in our November 1989 issue. Aiming to gather as many good projects within this category as possible, we developed an extensive list of recreational building types. Architects are invited to submit park buildings (e. g., visitors' centers, public shelters, camping facilities, buildings for sports); public playgrounds; community centers; public-service organizations (e.g., YMCAs and YWCAs, boys' and girls' clubs); public gymnasiums; public swimming pools; arenas; and stadiums. Eligibility, submission requirements, and other details are to be found in our formal announcement (page 166). All entries must be postmarked no later than May 1, 1989.

As editors we were very pleased with the outcome of our first "In the Public Interest" awards program. Client groups—government agencies, private developers, public/private-development sponsors—as well as architects, were encouraged to see the kind of good, yet modest, design work that affordable appropriate housing represents acknowledged and honored in the architectural press. As editors we were delighted to see so much excellent work submitted from firms new to us. We look forward to your submissions this year with justified high hopes.

*Mildred F. Schmertz*



“Our business is built on long-term relationships, not just orders. We’ve found that the only way to keep our customers satisfied over the long run is through dealers who take good care of them—whenever, for whatever reason.

“Sometimes, prospective clients ask: ‘Why can’t I deal with Steelcase<sup>®</sup> directly? Why do I have to go through a dealer?’

“I tell them: ‘Sure, we could get you the furniture. But next week, next year, if something breaks or you need to reconfigure, where do you go?’

“If we told you we could serve you out of Grand Rapids, we’d be lying. So would anybody else who told you they could do it long distance.

“But your Steelcase dealer is down the street. You call them up, they send

somebody right over. They’re your office environment resource.

“We work together with our dealers and our customers as a team. If you’ve got a complaint against the dealer, you’ve got a complaint against Steelcase.

Whatever the problem, we’ll solve it together.

“Every so often one of our competitors will redo their whole distribution system, trying to find our secret. The secret is having a dealer in your hometown whose livelihood depends on servicing your business.

“And that’s why, if someone puts it to me, ‘Either take our order direct or we don’t do business,’ I have to say, ‘Well, it’s been nice talking with you...’

“That’s it, chapter and verse.”

**Being frank.**



**Frank H. Merlotti**  
President & CEO



## Cloudy forecast for housing starts doesn't dampen NAHB's Atlanta convention

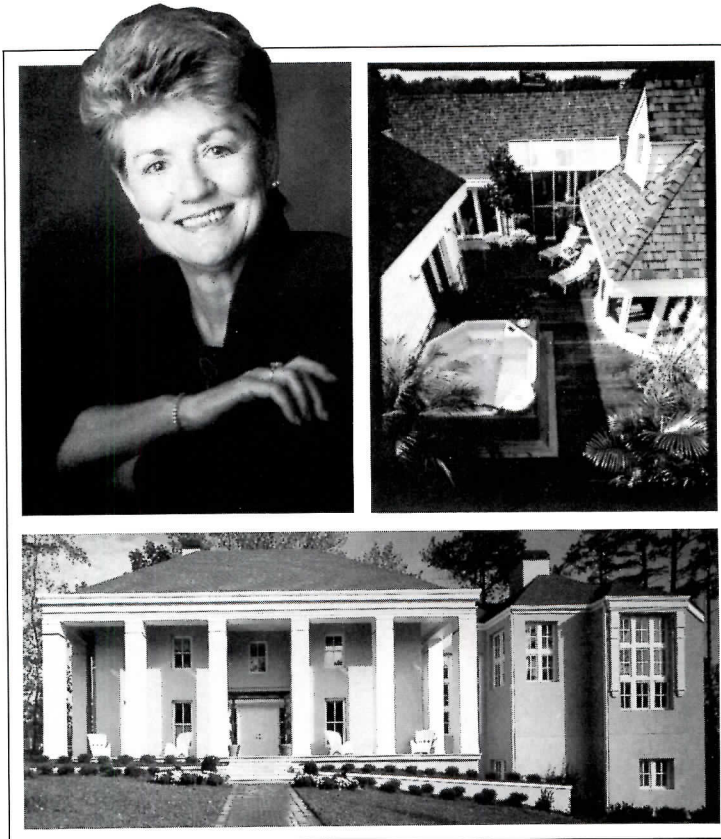
Hordes of builders—65,000 strong—crowded the exhibit halls and concourses of the Georgia World Congress Center at the recent National Association of Home Builders show in Atlanta. Their numbers, however, were not a bellwether for housing construction.

NAHB instead predicts that 1989 will see 1.38-million housing starts, off 100,000 from 1988's estimated 1.48 million and down considerably from the peak of 1.8-million starts in 1986. Builders polled at the show seemed to agree, with 78 percent expecting housing starts to be the same or somewhat less than last year.

### NAHB has become a showcase for groups that build new houses in the host city

This year Charles Moore designed one for the luxury-home buyer as part of a New American Home '89 promotion by two builder magazines and by the manufacturing arm of NAHB. Project architect Arthur Andersson called it "a combination of an antebellum Southern mansion and a late-19th-century Arts and Crafts home," a 5,400-square-foot house created to give builders ideas on how to appeal to the \$120,000-plus-income buyer who anticipates spending \$300,000 or more for a new home. It was the sixth year of the cooperative venture. In previous years, Booth/Hansen, Fisher-Friedman, and Robert A. M. Stern, among others, designed houses to appeal to first-home and "move-up" buyers.

The NEST '89 house, the fifth in a series of modular display homes erected on the exhibit floor, consisted of six modules linking entry, kitchen, and living, dining, and bedrooms by a series of accordion-like vestibules. A seventh detached module served as an office/guest suite and entertainment center. NEST (New Expanding Shelter



*New NAHB president Shirley McVay Wiseman; seven-module NEST/Smart house (top);*

*Charles Moore's New American Home '89 for the luxury market (above).*

Technology) also featured a single-cable closed-loop wiring system developed by NAHB and other organizations (called the Smart House system).

A third house, the British Show House, was constructed in Atlanta with building materials from the U. K. Millwork, cabinetry, and furnishings were also British-made.

*Better Homes and Gardens* executive building editor Joan McCloskey gave builders her predictions on how changing family lifestyles are affecting housing now and in the future. She talked about the needs of Accordion Families (families whose living arrangements demand that one room do double or triple duty throughout the week); Empty Nesters (those homeowners who are in their 50s and 60s and may be in the market for second homes); and the Sandwich Generation, baby

boomers, mainly females, who are raising their children on their own as well as caring for their parents and probably need "mother-in-law" apartments added to their single-family homes. McCloskey stressed that the '80s has become the decade when the "home is once more all-important, where we choose to focus our lives on our children, our spouses, and our close friends" a stark contrast to the '70s when "we ate yogurt from hand-thrown pottery bowls," and "architects and builders rejected the traditional housing of the past and created a new generation of houses that honored technology."

Shirley McVay Wiseman, a home builder and owner of two businesses—in Kentucky and Florida—became the 1989 president of NAHB, the first woman ever to hold that office. *Carolyn De Witt Koenig*

## Marketing survey produces answers — and questions?

A survey of architectural firms' marketing practices has been conducted by the AIA with the Georgia State College of Business Administration. The resulting report indicates:

- Ninety percent of principals believe that marketing is essential and 85 percent believe its importance will increase.
- Still, most consider firm reputations and referrals from their clients are most important in attracting new business.
- Firms with 19 or more employees in the hard-hit Southern oil states are spending the greatest percentage of their revenue on marketing right now (6.6 percent), while their counterparts in New England are spending the least (4.1).
- The percentage of revenue firms spend increases with firm size—3.8 percent in firms under 10 employees to 6.2 percent in firms with 35 or more.
- Principals are generally dissatisfied with their marketing efforts though, in larger firms, they tend to be more satisfied.
- Nearly a quarter of firms with 10 or more employees have hired consultants; 7 percent plan to.
- Higher levels of marketing activity tend to result in modest increases in revenue per employee, but significant gains in principals' satisfaction levels.
- Nearly a third of firms now have marketing plans and another 20 percent plan to.

The report comes under fire from at least one marketing consultant, Clare Ross, based in Phoenix. It is liberally peppered with comments by well-known marketing consultants meant to give it focus. But Ross—while praising its high statistical value—finds that some of his colleagues' conclusions actually garble it. He perhaps overstates his case when he says that the report thus raises more questions than answers. But he finds the result especially disappointing because "there is a

*Continued on page 29*



**Specify color  
with confidence.**

**Ceiling solution:  
Color-matched  
ACOUSTONE® Panels  
and DONN® Grids.**

A continuous sweep of color that complements your complete design. At last, it's effortless. Total. And predictable.

Match any of 24 standard colors in ACOUSTONE Panels to the same colors in DONN Grids. Or choose custom colors.

Order confident color—with no reservation. Contact: USG Interiors, Inc., 101 South Wacker Drive, Chicago, IL 60606-4385, Dept. AR389

**Interiors from every angle.**

**USG Interiors, Inc.**

**USG**

© 1988 USG Interiors, Inc.  
Trademarks owned by USG Interiors, Inc.: ACOUSTONE, DONN.



## Lease-buy, lease-out, and friendly condemnations: The federal government tries new approaches on its new buildings

real need for architects to get answers about the status of marketing and how to measure their efforts against others'.

What questions does he cite? "The attempt to explain marketing, its place, and the role of strategy-planning in it," he maintains, "is littered with inconsistencies and outright errors by consultants who should know better." For instance? Survey comment: "Every firm

should go after. Another comment states: "Strategic marketing doesn't break new ground, rather it attempts to commit to paper the thoughts of a firm's principals on the future of the industry and the direction their firm should take." "What," Ross asks, "is the purpose of strategic thinking and marketing if it isn't to break new ground?"

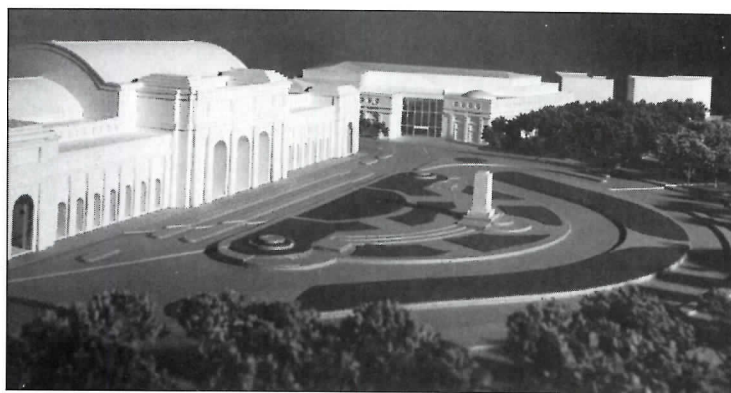
Ross finds his colleagues' comments leading to "fuzzy marketing planning, marketing plans, and, hence, fuzzy results," and says such confusion could lead firms to launch into sales without planning—"like doing working drawings for a building without any programming or design activity." Not surprisingly, he particularly faults a conclusion that "the impact of marketing consultants does not appear that dramatic." He finds that an examination of the statistics reveals that, measured by revenue per employee, it is true that firms with 10 or fewer employees did realize only a 2.2-percent increase when they hired consultants, while those with 20 to 30 employees as well as more than 35 employees actually saw declines. However, firms with 10 to 19 employees averaged a hearty 27-percent increase. "It's risky to draw conclusions on averages," he says, without looking into such factors as what the one really successful group did differently. He picks out one final report comment: "These findings seem to indicate that the most significant contribution consultants make to a firm is generating greater comfort with marketing as opposed to greater revenue." "If this is true," responds Ross, "then marketing consulting is in serious need of new blood." *Report on the AIA Marketing Architectural Services Survey* is available for \$95 through the AIA Press, 1735 New York Ave., N. W., Washington, D. C.  
*Charles K. Hoyt*



Says marketing consultant Clare Ross of the AIA survey: "The focus got blurry."

has a marketing strategy either by design or default." Responds Ross: "Firms have an *image* either by design or default, but to suggest that they have a strategy by default is not to understand what a strategy is."

Another quote differentiates between strategic marketing and business development: "Strategic marketing [alone] is an orderly, methodical process." Ross counters: "An orderly approach is not what differentiates them. To be effective, they both need to be orderly methodical processes." He criticizes a comment for first describing marketing planning as beginning once a firm's goals have been agreed to—then properly describing it as *including* the goals step plus a previous one of determining what jobs a firm



Washington's Union Station (left) set the design ground

rules for the Federal Judiciary Building by Barnes (rear).

Even such a sophisticated politician as Senator Daniel Patrick Moynihan of New York cannot resist occasional hyperbole. In an early-February oversight hearing by the Senate water resources, transportation, and infrastructure subcommittee, which the senator chairs, he described three current building proposals as "the most important federal development projects of our generation." Well maybe, even though the senator might have been overreaching a bit. What is certain is that the three—the International Cultural and Trade Center and the Federal Judiciary Building, both to be built in Washington, and the Courthouse Annex and Federal Building to be built at Foley Square in New York City—are to be landmarks of sorts in innovative approaches to new federal construction.

As an example of how federal buildings may be speeded along to completion in the future, the Foley Square project may use "friendly condemnation" to bypass local ordinances and approvals, saving an estimated year in the process. The two buildings containing 1.6 million square feet of office and courts plus parking and retail space became the subject of concern some time ago because, according to Moynihan, with the exception of the Federal Bench in New York's Southern District

and Mayor Edward I. Koch, "no one else locally seemed in the least interested." He relates that basic agreement on the project was reached in Koch's office at Christmas 1987 and a formal contract was signed last March a year ago. But not much seems to have happened since then.

Accordingly, both the feds and key city officials are in kahoots to bypass the cumbersome local permit process. The way New York deputy mayor for policy and physical development, Robert Esnard, explains friendly condemnation: "The GSA would sue us" in, as he put it, a "friendly, nonofficial way" to condemn the required land, thereby overriding eight to nine slow-moving city permits covering, e.g., a change of zoning, air-rights transfers, and special parking requirements. According to Esnard, the concept is not new. "Friendly condemnation" has been used to speed up Post Office construction and housing for the homeless in a project run by Governor Cuomo's son.

Washington, D. C.'s new Federal Judiciary Building (photo), to go up next to Union Station on federal land that is part of the Capitol Grounds, will be innovative because it is being built by a private developer who will turn the building over to the government after a period of  
*Continued on page 31*



# A ROOF MEMBRANE IS ONLY AS GOOD AS THE INSULATION BENEATH IT!

With the ALL-FOAMGLAS® Insulation

## PC PLUS SYSTEM 1

that's very, very good!



Kenwood High School, Baltimore County Public School System, Baltimore, Maryland

**Our 20-year warranty says a lot about our insulation. That means a lot for the entire roofing system ... and for you.**

When we guarantee our insulation, we're doing more than insuring the insulation's integrity. We're also providing reassurance for *your* selection and specification of our insulation.

That's because we know that insulation failure can lead to *membrane* failure. And that, in turn, can lead to the loss of integrity for the whole building. Not a good situation for the occupants and owners—or *your* integrity!

Our All-FOAMGLAS® Insulation PC PLUS SYSTEM 1 comes with a 20-year Performance Warranty!

### **Dimensional Stability— GUARANTEED!**

With a reversible coefficient of expansion of 0.0000046 in/in/°F, thermally caused movement is virtually nonexistent with PC PLUS SYSTEM 1. There is no movement by the FOAMGLAS® insulation which will tear apart the system and damage the membrane.

### **Compressive Strength— GUARANTEED!**

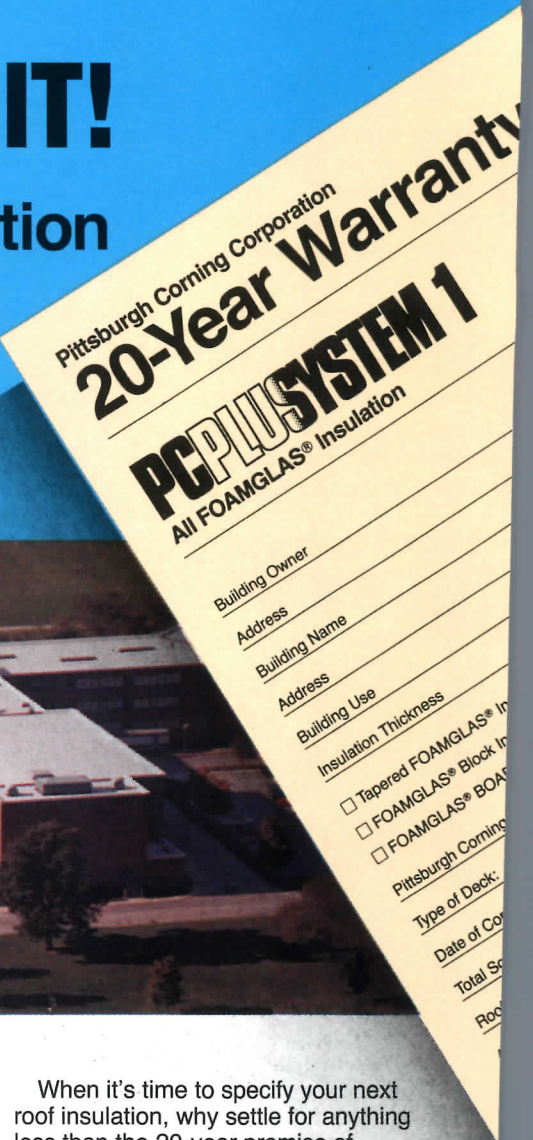
PC PLUS SYSTEM 1's high compressive strength ensures against insulation compaction. And that helps to eliminate membrane failure caused by foot traffic or equipment sitting on the roof.

### **Impermeability— GUARANTEED!**

Its 100% closed cellular glass composition won't absorb moisture. So, PC PLUS SYSTEM 1 can't retain or transmit water should there be a faulty membrane installation or failure. And PC PLUS SYSTEM 1 can't swell with water to stress and weaken the membrane.

### **Efficiency—GUARANTEED!**

Because of these outstanding physical properties, the insulating efficiency of PC PLUS SYSTEM 1 can be guaranteed for 20 years. This means there's never a need to remove an otherwise sound membrane to replace inefficient insulation.



When it's time to specify your next roof insulation, why settle for anything less than the 20-year promise of PC PLUS SYSTEM 1? The insulation that helps to protect the building *below* as well as the membrane *above*!

For more information on our PC PLUS SYSTEMS, or a copy of the warranty, call (412) 327-6100, extension 356. Or write Pittsburgh Corning Corporation, Marketing Department FB-9, 800 Presque Isle Drive, Pittsburgh, PA 15239. In Canada, 106-6 Lansing Square, Willowdale, Ontario M2J 1T5, Tel: (416) 222-8084.





Business news continued from page 29

time in exchange for regular "rent" payments that would be less than leasing commercial space elsewhere. It will house several judiciary agencies (mostly the Administrative Office of the U. S. Courts), possibly other federal agencies, and, if there is leftover space, private tenants.

Due for completion in mid-1992, the building will be built at no initial cost to the federal budget—a big plus at a time of huge budget deficits. An analysis by a real-estate and economic-consulting firm, which participated in the architect-developer selection process, GA Partners, of Washington, D. C., said the winning Boston Properties' proposal provides a "fair and reasonable overall occupancy cost" and it provides "substantial economic savings to the government." GA Partners noted that Boston Properties was one of only two competitors that offered this benefit.

The analysis also said that Boston Properties offers two "significant" cost-reduction options. One is to "prefund the construction loan and thereby establish the construction and permanent-financing interest rates simultaneously." The second is to have the developer amortize the permanent mortgage over 15 instead of 30 years. This would increase the government's annual lease payments but lower total interest costs and permit government ownership in a much shorter period. The estimated building cost to the government is \$126.7 million. At a permanent financing rate of 10 percent, it would produce a fixed rental payment (without operating or building-management costs) of \$13.3 million annually over a 30-year term, equivalent to an average of \$21.85 per rentable square foot. This, said the analysis, compares to a projected annual rental cost for the government by the time the building is built of \$25 to \$27 in comparable commercial space.

The selection process from among five finalist teams of architects and developers was made by jury. Winning Boston Properties was teamed with architect Edward Larrabee Barnes and Associates. (The other finalist teams: Kohn Pedersen Fox Associates,

Architects of New York City with Oliver Carr Company of Washington, D. C.; Skidmore, Owings & Merrill, Architects of New York with Trammell Crow Company of Washington, D. C.; Kevin Roche John Dinkeloo Associates, Architects of Hamden, Conn., with Gerald D. Hines Interests of Houston; and I. M. Pei and Partners, Architects of New York with Quadrangle Development Corp. of Washington, D. C.

All of the proposals were limited by the design ground rules to 520,000 square feet above ground and to 80 feet in height by the D. C. Buildings Act

of 1910, an act meant to assure that any nearby new structure complements and does not compete with Union Station. White granite cladding was also dictated. Accordingly, there is a certain sameness in all five designs, obliquely acknowledged in the official analysis: "All proposals were excellent designs," it says, and each has "strengths and flaws." Moynihan committee member Senator John H. Chafee of Rhode Island mused in the hearing over the "remarkable similarities." Responded Architect of the Capitol George M. White: "We gave very tight

guidelines." The Barnes design, said the report, "not only satisfied the functional requirements . . . but most sensitively responded to the context within which it is to be located." But there was support for other designs, some of which were more literal in their beaux-arts inspiration. *The Washington Post* headlined its account, "The Congressional Compromise," and went on to say the winning proposal "is pre-eminently a compromise pick."

Finally, the new International Cultural and Trade Center, together with 1.4 million square  
*Continued on page 162*

## Lighting the private office...



Elliptipar's high-powered Ensconce® series provides all the benefits of indirect lighting without overhead obstructions. Even with relatively low ceiling heights the surface appears evenly luminous, and the space free of harsh glare. Wall mounting enables concealment within decorative sconces from Elliptipar or others.

### elliptipar inc.

Performance in and From Lighting

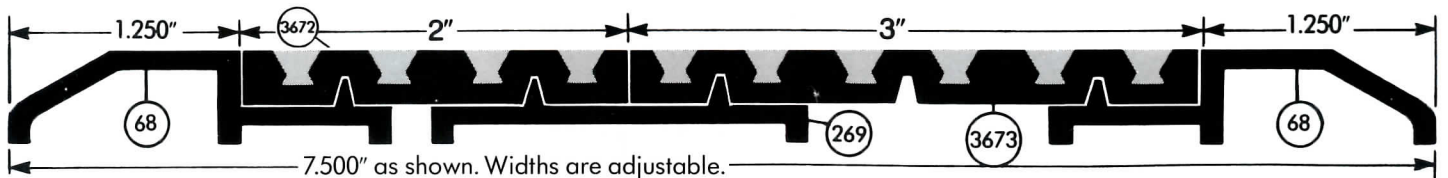
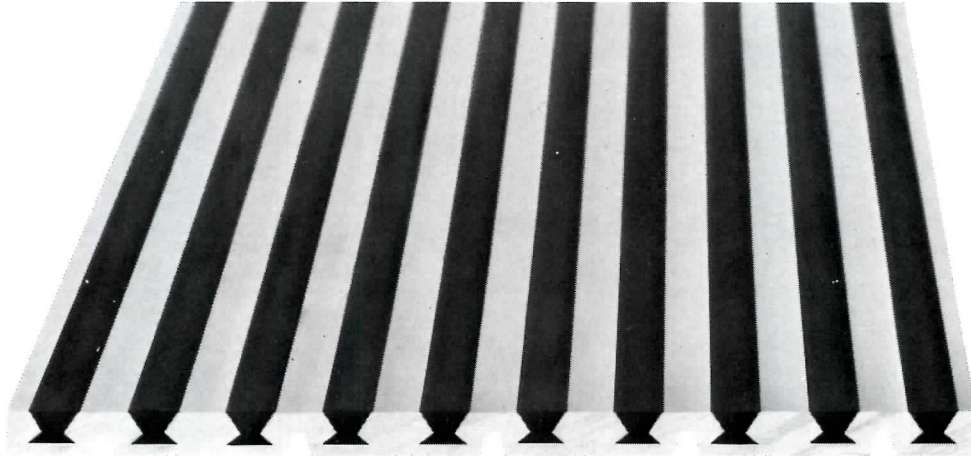
145 Orange Avenue, West Haven,  
Connecticut 06516 (203) 932-2266

Sylvan R. Shernitz® Designs  
© elliptipar, inc. 1988



# New TRACTION TREAD<sup>®</sup> from ZERO.

The best thing to happen to saddles and nosings since feet.



When you specify **Traction Tread**, you've crossed the threshold into better door and stairway design. **Traction Tread** comes from a 65-year tradition of constant innovation, construction integrity and solid design excellence.

You'll actually be able to see the quality construction in the gauge of the metals and the high degree of finish. Our specially formulated rubber inserts are fitted within rugged profiled aluminum saddle grooves. So metal and rubber wear evenly. And since the treads are closed, water, dust and contaminants can't collect. That simplifies maintenance. And increases customer satisfaction.

Unlike abrasive-coated treads, **Traction Tread** can be easily cut, shaped and drilled with hand-tools for fast, problem-free, on-site installations.

## Slam the door on sealing problems with Zero advanced technology.

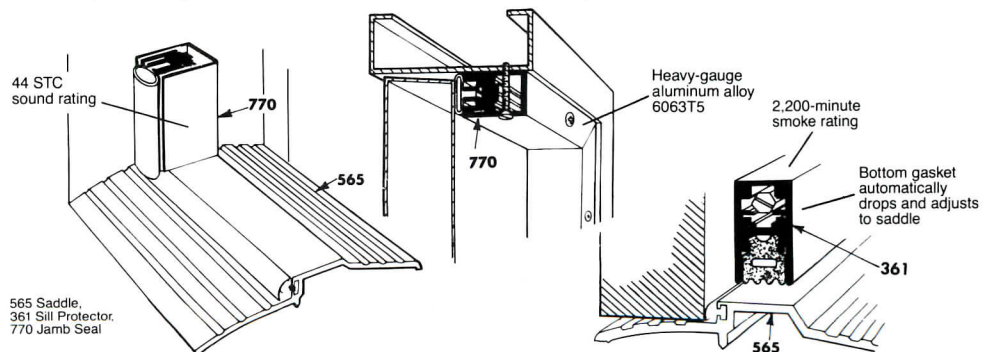
Dust, smoke and fire, contaminants, noise, light, temperature and air loss problems need never challenge you again. The solutions are waiting for you on our shelves, and in our new 28-page, fully illustrated **1989 Catalog**.

From smoke-stopping head and jamb systems, to automatic door bottom seals, all the information you need is included. Plus, you'll find precisely scaled, detailed

drawings that make specifying saddles, sills, seals and stiles even easier and more accurate. Virtually everything in our catalog can be custom tailored to your specifications.

When Zero becomes part of your plans, you *know* the completed project will be as safe and as well-made as possible.

Write or call our sales engineers for our 1989 catalog or more information and technical assistance today.



ZERO INTERNATIONAL, INC.  
415 Concord Avenue, Bronx, NY 10455-4898  
**1-800-635-5335**  
In NYC, call 212-585-3230  
FAX 212-292-2243  
TELEX 239777 ZERO UR

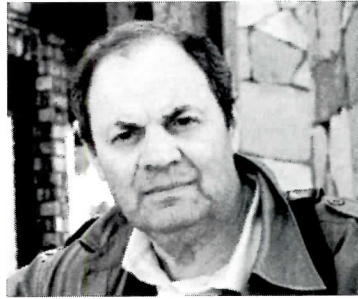


WHEN NOTHING ELSE  
IS GOOD ENOUGH  
FOR LONG ENOUGH.



## Practice: The market for American architectural services in Japan comes of age

By Abner A. Layne



The door to the Japanese market is ajar, enough to allow nearly two dozen Western architects, including over a half dozen Americans, to do their creative thing in the private sector. And, in the large and lucrative public sector, the door has recently been pried open at least a crack.

Even in the private sector, limitations to a truly professional practice still prevail. A Japanese entrepreneur, developer or contractor may buy a U. S. architect's concepts and schematics with a grateful smile and a graceful bow. But inevitably—no project to the contrary has been reported—the sketches are turned over to Japanese architects who will do the working drawings. The Japanese architect may, of course, be a joint venturer with the American. Or, to avoid that nation's arcane licensing procedures, the American may be in the background as an architectural consultant or advisor. Clearly, at this time, a Western architect cannot plan to follow in Frank Lloyd Wright's 1916 footsteps to Tokyo to create in minute detail another Imperial Hotel.

### The big break could be in public work

For public work from the government, the door had been slammed shut years ago by the Japanese to thwart competition by foreign architects, engineers, and construction contractors.

Mr. Layne is a free-lance writer and former senior editor/finance of Engineering News-Record.

But, following the signing of a recent agreement between the U. S. and Japan, the sound and fury of the U. S. construction community's bitter struggle to gain entry into that Japanese market is on *diminuendo*. The agreement, effective May 25 last year, gave U. S. firms a chance at 14 major public projects worth an estimated \$16.9 billion over the next 15 years. More than two dozen large U. S. firms, proposing to provide both design and construction, have already slipped through the crack and begun the process of registering to compete on various projects, taking special aim at the Kansai airport and a project known as "science city."

However, the first Kansai airport awards did not go to the Americans among the entrants. They went to French design-builder Paul Andreu of Aeroports de Paris, who provided a planning concept. Subsequently, in December of last year, Italian architect Renzo Piano was selected to design the main terminal building. The selection was made by a nine-member international jury that included U. S.-based architect Helmut Jahn. Despite this loss for the U. S., the May agreement appeared to be working.

### Dare we say sour grapes?

Appearances aside, a federally ordained investigation of the situation began late last year. Section 302 of the Omnibus Trade Act of 1988 (signed into being by President Reagan on August 23) mandates an investigation of "acts, policies, and practices" of the Japanese government that could have the effect of deterring U. S. firms from supplying architectural, engineering, construction, and related consulting services to Japanese clients. There was some discussion in public and private as to whether or not the investigation was appropriate. But U. S. trade representative

*A U. S. architect with a yen for a fee in yen, with ken, can do.*

Bonnie Richardson says, "The act directs us to initiate the investigation. That's why we're doing it and doing it now." The results may not be known for a year.

That year may see the end of the long Japanese contract drought for both U. S. design and construction firms. And it will clearly be architects or firms that offer architecture with their construction services that will have the edge.

### There is only modest optimism among firms that offer construction alone

According to Mark D. Chalpin, vice president of the National Constructors Association, before the May agreement, "contractors had not been awarded a major building contract since 1965." In fact, he added, the only break came in 1986, when a U. S. contractor built "a total of one Mrs. Fields cookie stand in Japan."

The cookie crumbled right, however, for Chicago-based Schal Associates, Inc. late last year. In December, it became the first U. S. firm under the May agreement to participate in a major public-works project. But not alone. Some eight Japanese firms will join Schal to design and build a \$148-million hotel and convention center in Yokohama. Schal's role is most likely to be construction manager. Says vice president Michael Lane, "We are a construction firm. We do not practice architecture." Schal may have broken the drought, but few U. S. pure-construction firms expect an outpouring of projects.

### Architects are in a position to call the shots here

In comparison to firms that offer only construction, architects and firms that offer architecture are in a better situation. Says Chalpin: "The Japanese want to use the experience of U. S. architects. That's different from construction—one of their

winner industries that they're riding heavily. After expanding in their domestic—and closed—market, they've been exporting it. That's not happening in architecture. Japanese architecture is not as competitive as construction, just not a winner industry. Construction is and they won't let anyone compete."

The roots of the Japanese architectural shortcomings and the potential flowering of opportunity for U. S. architects could go back to the two countries' differences in professional training. Two years ago, the University of Reading in England was commissioned by a real-estate firm to study the Japanese construction industry. Says the report: "A few Japanese architects have well-deserved international reputations for brilliant imaginative design, but the vast majority of Japanese buildings are, frankly, dull. [Here, the report speaks of buildings built to Western standards, as most larger ones are.] They are the product of engineering rather than esthetic principles. This is perhaps not surprising as Japanese architects are educated and trained as architectural engineers. Indeed, most architects refer to themselves as engineers."

An American architect who has a lot of experience working with Japanese architects in Malaysia and Singapore says, "Don't quote me by name, but that analysis is right on target." In the private sector, the Japanese developer seems to be sensitive to the surplus of stodginess in his compatriot architects' approach to buildings. In contrast, the developers "have a tremendous respect for what's going on in America in terms of the architectural scene," says a U. S. architect who is about to close a contract for a Japanese project.

*Continued on page 35*



IMPROVE BUSINESS WITH SUNBRELLA® FABRIC.



It's easy to improve almost any business by using Sunbrella awnings, canopies or other treatments. Because there's no prettier way to give a facade a facelift or make an interior more inviting.

And using Sunbrella is good for your business, too. Because nothing pleases your clients more than our beautiful looks, tough performance and long-lasting style.

**No Wonder It's The #1 Acrylic Canvas In America.** The fact is, no other awning or marine canvas sells as well as Sunbrella. Or equals our 108-year reputation for quality. Furthermore, Sunbrella offers these unique acrylic advantages:

- Our stripes, solids and patterns are colorfast so they won't fade for years.
- Both sides are identical. So awnings, patio covers, room dividers—you name it—look great from every angle.
- Tiny pores let the fabric breathe. This means moisture and hot air don't get trapped, so the fabric stays fresh and new looking.
- The same tiny pores let light through while providing protection from the elements.
- Sunbrella is made from man-made fabric, so it resists rot and mildew.



**SUNBRELLA**

Glen Raven Mills, Inc. Glen Raven, NC 27215  
 ® Registered trademark Glen Raven Mills, Inc.

Plus it's easy to clean—all it takes is soapy water and a brush. Sunbrella comes with a five-year limited warranty that no other acrylic fabric can beat!

**Choose From The Broadest Selection In The Industry.** From bold, bright stripes, solids and patterns to subtle pastels, Sunbrella also has the right look for any business. In all, we offer 88 choices, far more than any other acrylic canvas. Which means whatever look you want, we have a fabric to fit. So improve business after business by using Sunbrella. Look in the Yellow Pages under "Awnings & Canopies" for the name of the dealer nearest you.



*"You are under pressure from your Japanese associates and, with a slight nudging here and there, you can easily wind up with something they could have produced themselves. You have to have a real sense of why you are there."*

**In the private sector, a respect for brand names and Western standards**

That respect led to commissions early last year when three U. S. architects—the first after many years—were retained by Japanese developers for private projects worth \$300 million. The three—the Jerde Partnership, Los Angeles; Stanley Tigerman of Tigerman McCurry Architects, Chicago; and Michael Graves, Princeton, N. J.—were asked for concept, schematic, and development drawings for a shopping center, and recreation and experimental residential projects on reclaimed land in the city of Fukuoka on the southern island of Kyushu. The projects are part of the Asian-Pacific Exposition due to open this month.

According to Jerde associate Edward S. Y. Wong, their conceptual-design contract was signed after a year of negotiation through Tokyo-based Hamana Institute. Hamana is a planner and promoter, responsible for recruiting for the Japanese construction market. Since that contract, Jerde has picked up another project in Osaka—"a kind of new town," says Wong.

And do Wong and firm principal John A. Jerde find working with Japanese developers an exotic relationship? "Not at all," says Wong: "Some entrepreneurial types make up their minds on the spot, and that makes the process easy; or you may deal with corporations and have to go through committee after committee—just like here. We're enjoying the relationship, right now."

Paul Gates, a Tigerman senior associate, says they, too, enjoy the relationship, pointing out that "it's very prestigious from the developers' point of view to hire a world-class Western architect." But isn't Tigerman's sort of creativity and

imagination important? "Well, yes," says Gates, "but, to be quite honest, it's also a matter of marketability, which," he adds, "is not a bad reason at all. In fact, they are planning a symposium to coincide with the opening of the projects in which Stanley Tigerman and Michael Graves will speak. That's the sort of thing the Japanese developers believe will add to the importance of the whole event."

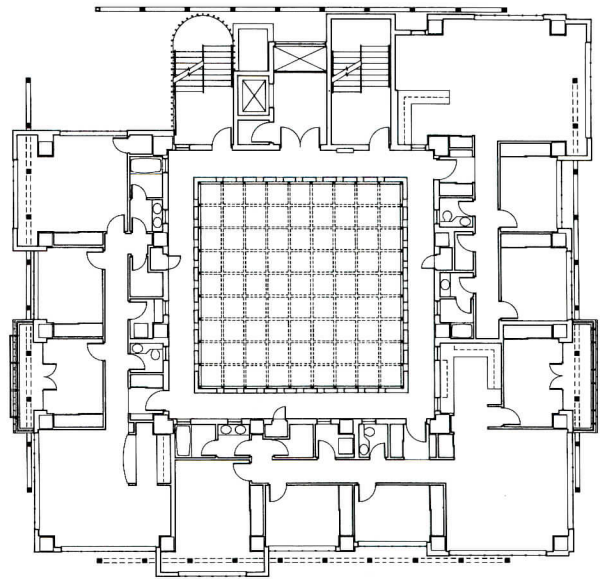
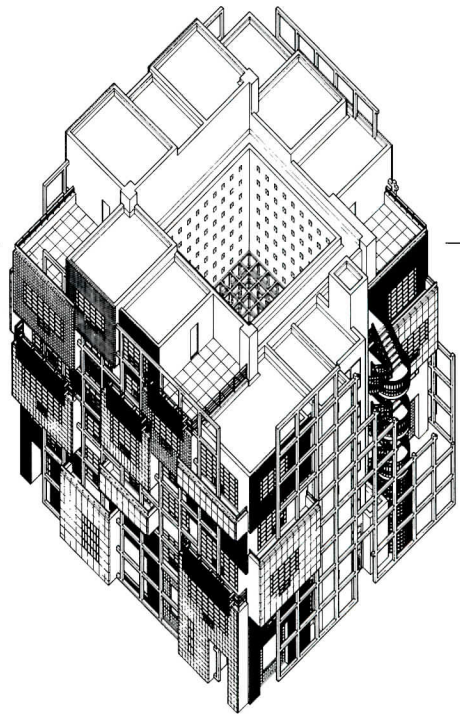
Michael Graves, who also picked up an additional condo project that is under way in Yokohama, says that the Japanese believe that Western ideas are best executed by Westerners.

And Peter Lukacic, a senior associate and landscape architect in The Architects Collaborative in Boston agrees: "The clients say, for example, they want to see an American-style aquarium and not one that a Japanese architect would produce."

To reflect a realistic sense of design that is specifically American is a "tough thing to do far away from home," Lukacic says. "You are under pressure from your Japanese associates and, with a slight nudging here and there, you can easily wind up with something they could have produced themselves. You have to have a real sense of why you are there."

Of course, Lukacic thinks one reason TAC is there is simple economics. Given the state of the dollar, "the Japanese are getting a bargain and TAC is earning higher fees." TAC does most of its work with Tobishima, a large engineering, architectural, and construction firm.

"Our work with them follows the usual pattern of Japanese business relationships," says Lukacic. The pattern includes a long period of cultivation. But, once achieved, "they continue that relationship and you don't have to repeat some formalities you first had to go through."



*Two adjacent condominium apartment buildings in Fukuoka, due for substantial completion this month, illustrate Japanese developers' fascination with Western standards. One building (isometric and plan) was designed by Stanley Tigerman and the other, by Michael Graves. Tigerman describes the value of his design as only he can: It is centered on "an effectively inaccessible" open cube meant as a metaphor of the Garden of Eden (hardly an Eastern concept) and is based on "failed attempts at healing an irreparable wound . . . an*

*optimism intrinsic to architecture presented in the context of contemporary dislocative tendencies." Associate Paul Gates is a bit more pragmatic about the value to the Japanese clients' in having well-known American names attached to projects: "It's also a matter of marketability. It's very prestigious from the Japanese point of view to hire a world-class architect." Graves is pragmatic as well: "The Japanese believe that Western standards [which Tigerman's plan clearly shows] are best executed by Westerners."*



# Whisper Walls<sup>®</sup>

*the sound answer*

*... the leading edge of technology*

## Acoustical Fabric Wall & Ceiling System

As seen in Sweet's 9500 W.H.I., manufactured and installed by I.C.S., Inc.

**1-800-527-7817**

Circle 29 on inquiry card

Architects: HTB., Inc., Oklahoma



# Construction finance: In search of that elusive comfort zone

By Phillip E. Kidd

These days the financial markets are fascinated by the shape of the yield curve and its likely meaning for future economic growth. While the short end of the curve (up to three-year maturities) flattened significantly during the second half of 1988, interest rates in the middle (seven- to 10-year maturities) actually rose above those at the long end (20- to 30-year maturities). Now the dilemma is whether short- and intermediate-term rates will proceed to rise faster than long-

term rates. Or will the opposite occur? Either way, economic growth is likely to slow in coming months.

Normally, when the economy is advancing at a sustainable pace, the daily spreads between three-month Treasury bills and 30-year Treasury bonds will develop a comfort zone. For example, the zone was roughly 225 to 300 basis points (hundredths of percents) from early 1983 to the middle of 1988. However, there were times during that period when the

*Among other factors, the current aberration in the usual balance between long- and short-term interest rates means more expensive money—and a resulting moderation of economic growth.*

spreads were either larger or smaller than that range.

In the comfort zone, borrowers and lenders willingly transact business all along the yield curve. Outside of that range, imbalances develop.

When the spread increases beyond 300 basis points in favor of intermediate- and long-term financial instruments, investors usually enlarge their holdings, while borrowers seek much cheaper, shorter-term, credit. When the spread shrinks below 225 basis points, investors generally shift into shorter-term investments, while borrowers search for longer-term loans. The actions and reactions of borrowers and lenders alter the supply/demand conditions enough to drive the yield spreads back into the comfort zone.

The rapid rise in short-term rates in relation to intermediate- and long-term rates since the middle of 1988 has shattered the comfort zone. To re-establish it means either short-term rates must decline sharply, or long-term rates must climb much higher. Unfortunately, the outlook for a quick improvement in short-term rates is poor, because the Federal Reserve is not likely to ease monetary policy in the next three months.

Beginning this past summer, the Federal Reserve has steadily firmed monetary policy. At first, it was primarily concerned with heading off any surge in inflation brought on by the acceleration in industrial output and the severe summer drought that hurt agricultural production. Late in the year, the Federal Reserve also acted to support the dollar, because the value tumbled immediately after the presidential election.

Inflationary tendencies are still present. Industrial production is strong and growing. Capacity utilization in many industries is at the point (85 percent or above), where attempts to expand output

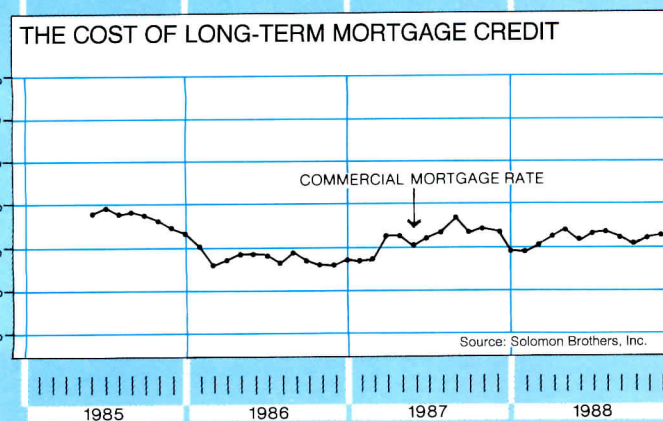
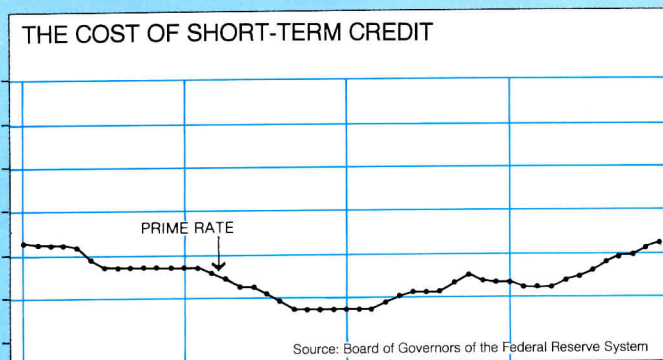
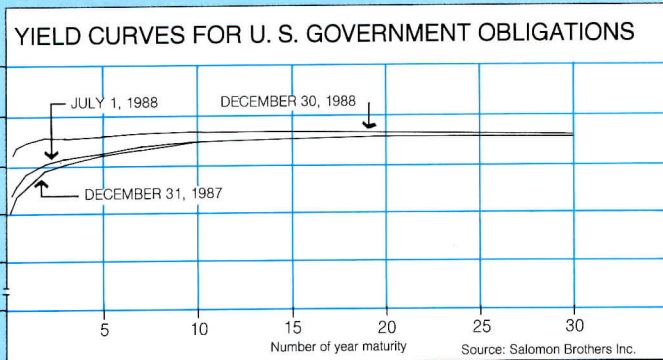
increase price pressures.

Unemployment is low, meaning greater difficulties in attracting skilled and semiskilled workers for manufacturing. That could push wage rates upward. In addition, agricultural shortages, although farm output is on the rebound, are still raising food prices. Furthermore, foreign investors remain skeptical about the ability of a Republican Administration and a Democratic Congress to develop and implement quickly an effective federal-deficit reduction program. Consequently, the persistent forces for lowering the dollar's value will continue.

Meanwhile, several demand factors will be working with poor supply to push up intermediate- and long-term rates in the second quarter. The opening of the spring house-buying season is just a month away. Next, manufacturers are in the midst of enlarging capacity. However, their flow of internal funds (profits and depreciation) is falling, forcing them to borrow more to expand. And, federal assistance for troubled savings and loan associations will rise.

The firming of monetary policy, the ebb and flow of foreign funds, and our own poor savings performance will boost interest rates in the second quarter. The largest gains will occur in the intermediate- and long-term part of the yield curve. Rates on quality assets will range between 8.75 and 9.50 percent for short-term instruments; 9.50 to 10.25 percent for seven- to 10-year Treasuries; and 11.50 to 13 percent for mortgages.

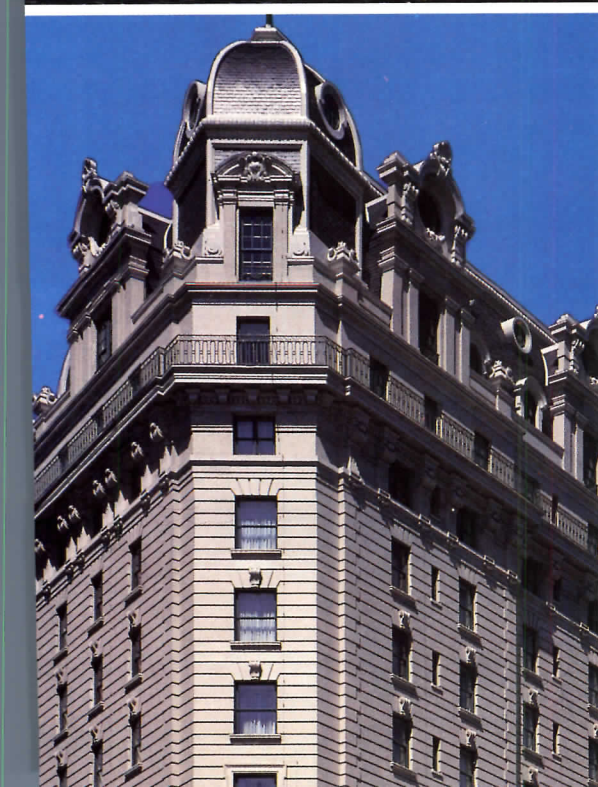
The hike in mortgage rates will take some of the luster out of house buying, pushing starts down from current levels. Factory building will climb, but the pace will weaken slightly. And, higher rates will increase the problems in the overbuilt office and multifamily markets.











# Washington's famous Willard Hotel is a masterful marriage of the classic and the new.

## And a masterwork of custom Pella Windows.

It had been called the Unofficial White House. Crown Jewel of Pennsylvania Avenue. Center of Washington's political and social life. Then, in 1968, this enormous Second-Empire landmark closed. For 15 years, what remained of ebullient plaster cornices, intricate Italian floor tiles, scagliola columns and fine moldings swelled in steamy summers and shrank in winter chills.

Now the historic Willard Hotel has been gloriously restored as the Willard Inter-Continental. Matching it in form, detail and spirit, a new office and retail infill complex has been designed as a series of stepped pavilions. It stands behind a columned plaza to give Henry Hardenbergh's 1901 hotel center stage.

For this labor of love, nothing but the best would do. And, at the architect's insistence, that meant 1,675 custom Pella windows. For historic fidelity outside, wood beauty inside, and a lifetime of low-maintenance Pella quality.

### Custom color, custom profile

Because of the hotel's historical significance, windows had to meet National Park Service approval for design, exterior profiles and installation details, with exterior cladding and vinyl jamb liners duplicating the original green trim color. Pella custom-finished the aluminum cladding in baked enamel that needs no painting.

Exterior glass-to-masonry profiles of the new units matched the original with special sash dimensions, various exterior jamb extensions and perimeter trim extrusions which Pella modeled after pieces of the original wood trim. This also compensated for endlessly variable masonry opening sizes.

Pella designed and built 1425 Traditional Double-hung (TD) units with insulating glass, including arch-tops with integral, clad muntins. Enormous fixed windows with venting casements above them match original 7x14' double-hungs. From go-ahead until delivery, all window design, testing and manufacture took only seven months. The Pella distributor installed all windows in floor-by-floor sequence, right on schedule. A great benefit from a construction management standpoint.

### New Large Double-Hung Window

About 300 openings at the Willard required nine-foot-tall double-hung windows in varying widths, with full Pella performance and structural integrity. The resulting Large Double-hung (LD) windows are now available in custom dimensions for your commercial projects. Clad LD windows are especially appropriate for landmark buildings, with authentic-looking aluminum exterior muntins and Pella's rotating sash for cleaning from indoors.

Your Pella distributor can tell you more. For information, look for Pella in the Yellow Pages under "Windows". Call Sweet's BUYLINE or see Sweet's General Building File. Ask about our Pella CAD library. Or send the coupon.

-----  
Please send me the latest literature on Pella for replacement and new construction.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

**This coupon answered in 24 hours.**

**Mail to:** Pella Windows and Doors, Commercial Division, Dept. T31C9, 100 Main Street, Pella, IA 50219. Also available throughout Canada.  
© 1987 Rolscreen Co.

## Pella. The significant difference in windows.

Willard Inter-Continental  
Owner/Developer  
The Oliver T. Carr Company, Washington DC  
Architect  
The Office of Vlastimil Koubek, Washington DC  
General Contractor  
George Hyman Construction Company, Bethesda, Maryland



Circle 30 on inquiry card



# GenFlex helps keep Mother Nature's unpredictable personality from going through the roof.

Maternal she's not.

Especially when she decides to unleash her special magic with a dancing snowstorm or symphony of rain, wind and sleet.

But there is a way to help keep Mother Nature's wizardry out of harm's way.

We call it a GenFlex Roofing System.

You'll call it durable. Dependable. And innovatively designed to add a measure of protection that will be the envy of all. Even Mother Nature.

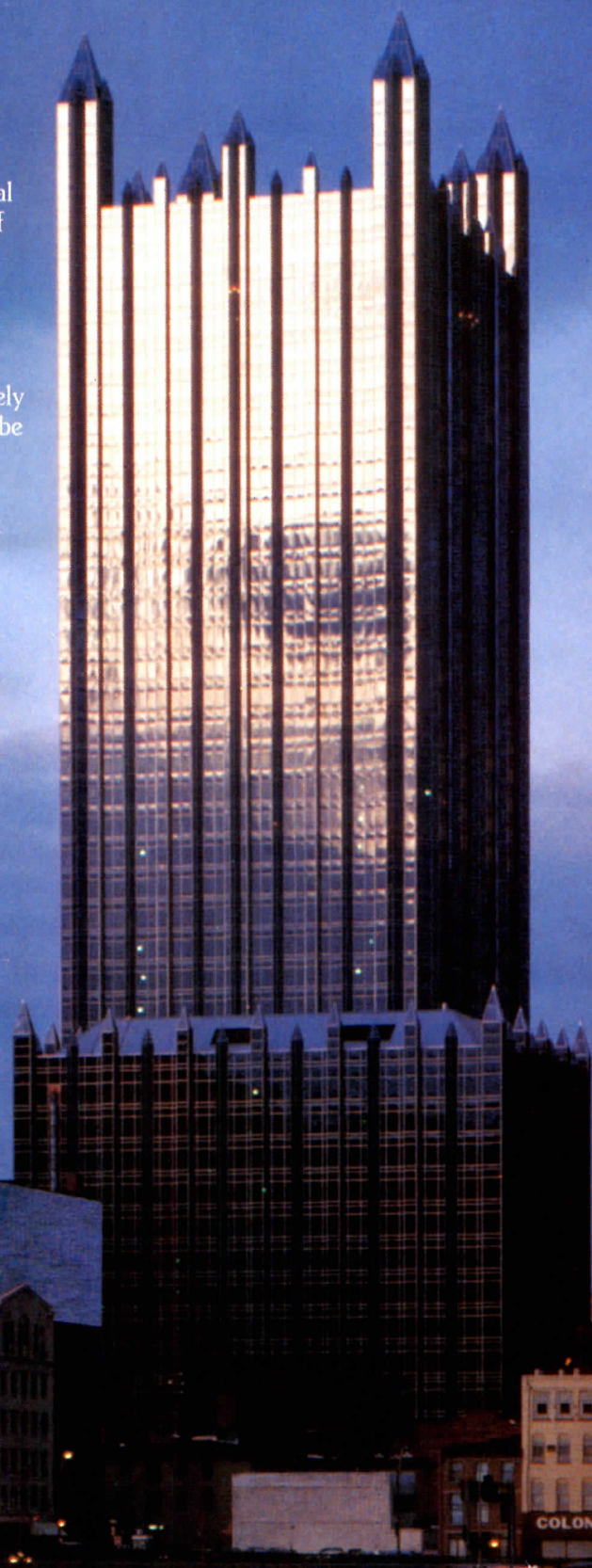
Best of all, it also includes the ultimate back-up system: sales and service people who are the best in the industry.

For more details, see your GenFlex Sales Representative. Or call (419) 729-7560.

GenFlex  
Roofing  
Systems

Taking quality to new heights.

GENCORP  
POLYMER PRODUCTS



COLONIAL SUPPLY CO.

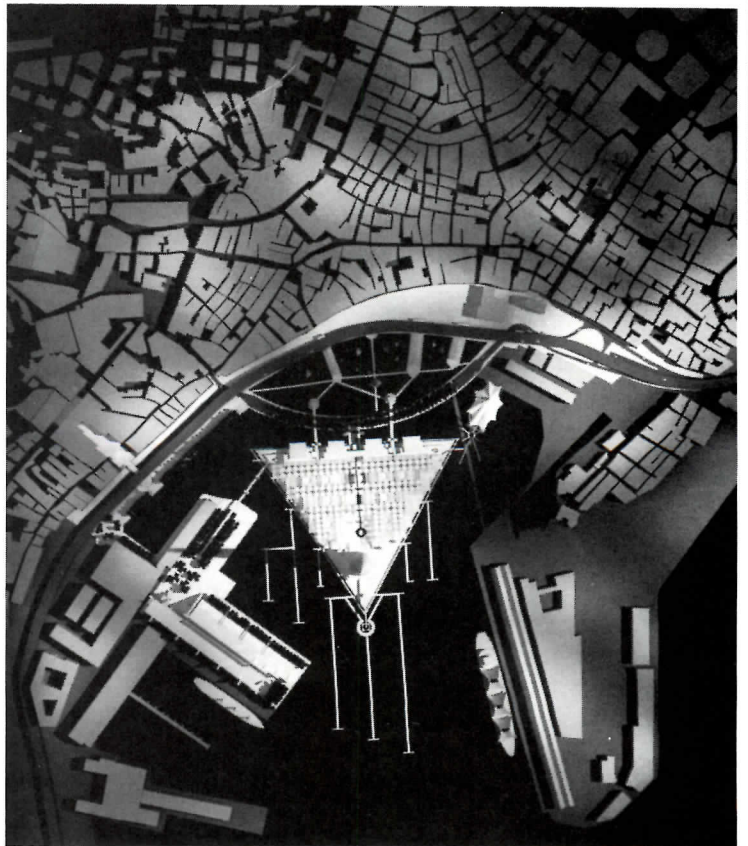
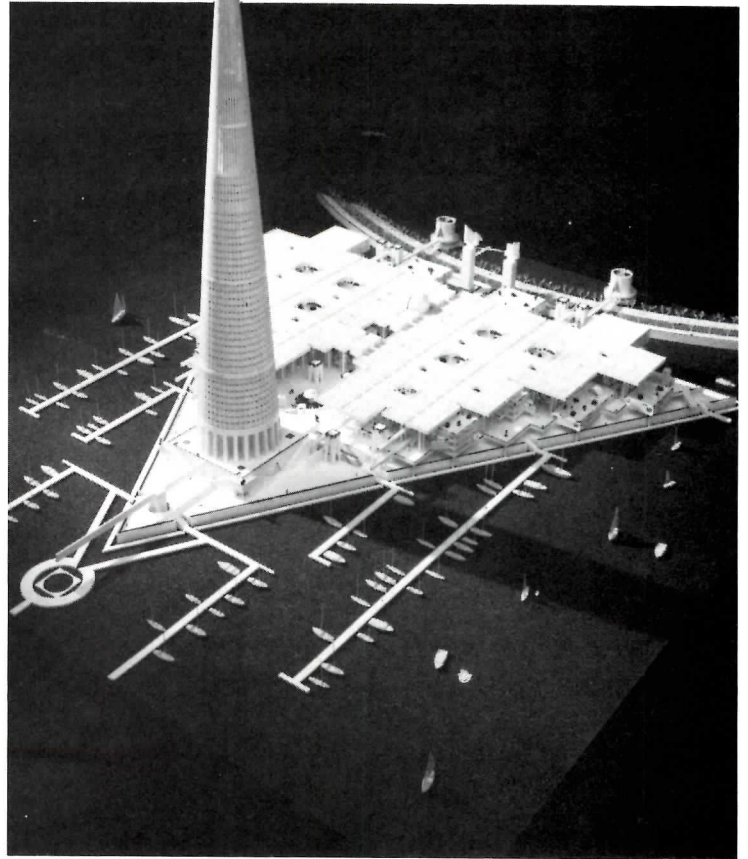


## Landfall ho!


Around the Mediterranean, there have been no great manmade landmarks since the Colossus of Rhodes and the Pharos at Alexandria. But now the city of Genoa contemplates an 854-foot cone that would clearly announce the harbor's presence to seafarers. The urban planning complex, to be known as Il Porto Vecchio, was designed by John Portman and Associates at the behest of an Italian developer. Plans are to have the project in place by 1992, coincident with the city's exposition celebrating the 500th anniversary of the discovery of the New World by a Genoese sailor, as well as the opening of an economically united Europe and the dismantling of customs barriers between its nations.

Though the conical hotel tower is the most visible element of the design, the triangular island that would become the tower's podium and the new roadway that would curve across the water from the city's edge are urbanistically at least as important. The road, in addition to giving vehicular access to the podium, is intended as a pedestrian promenade serving both shore and island; the project would thus be rather less hermetic than some of Portman's other hotels. The podium will have six stories—the lower three for parking and other services, the upper levels incorporating two- and three-story office buildings and shops connected by pedestrian arcades. The entire podium will be covered by a pierced concrete sunshade.

The project will include two other major elements. One will be a university of humanities—four floors of lecture halls covered by a sculptural roof jutting into the harbor. The second will be an elliptical aquarium bounded by the shore and the curved roadway; pyramidal skylights protruding from the water will illuminate the submerged facility.







**For nearly  
three decades,  
companies  
have drawn  
on Houston  
Instrument.**

**Now it's  
your turn.**

Select a Houston Instrument™ plotter, and you're not only opting for the best price/performance on the market—you're choosing an industry leader with a proven track record. For nearly 30 years, companies have relied on HI for quality products, reliable service, and attractive prices.

Take HI's sleek new DMP-60 Series plotters—they're designed to impress even the most demanding CAD professional. Industry experts agree:

*"Houston Instrument's DMP-61 delivers a remarkable combination of high speed, gorgeous plots, and very competitive price."*



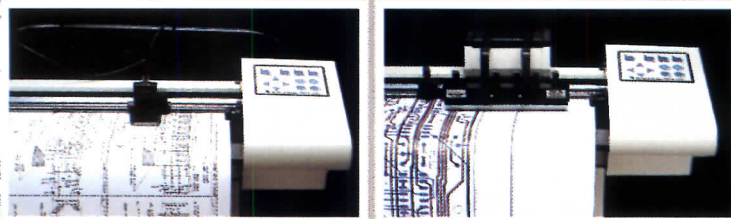
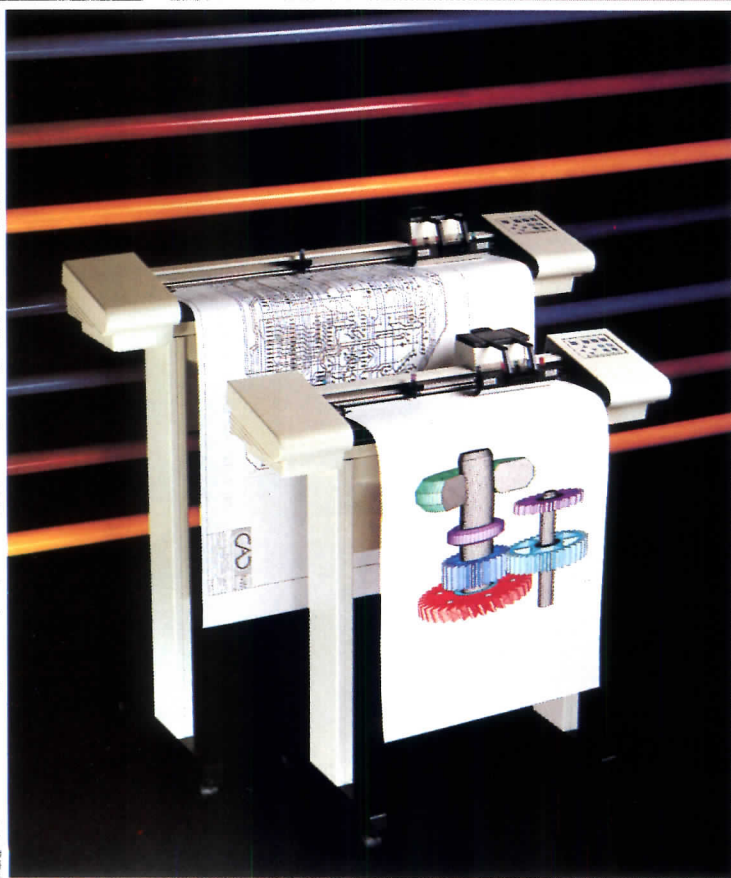
*Editor's Choice  
Dec 22, 1987*

HI's commitment to solid, innovative products is underlined by designed-in versatility. The SCAN-CAD™ option lets a DMP-60 Series plotter double as a scanner. The Multi-Pen accessory speeds colorful, complex drawings. And HI's one megabyte buffer board lets the DMP-60 Series plot several originals—without tying up your computer.

Proven performance, proven value—that's HI plotters. Flexible. Fast. Accurate. Software compatible. Reliable. And backed by HI's PRIORITY RESPONSE™ customer support programs which include overnight product-replacement service, leasing, and warranty coverage.

All this from an industry leader that companies have drawn on for nearly three decades—Houston Instrument.

Now it's your turn. Begin by calling 1-800-444-3425 or 512-835-0900 or writing Houston Instrument, 8500 Cameron Road, Austin, Texas 78753.



*Houston Instrument, PRIORITY RESPONSE, and SCAN-CAD are trademarks of AMETEK, Inc.*

Circle 32 on inquiry card

**HOUSTON  
INSTRUMENT**  
A DIVISION OF **AMETEK**



## News briefs

## Third time's a charm, maybe?

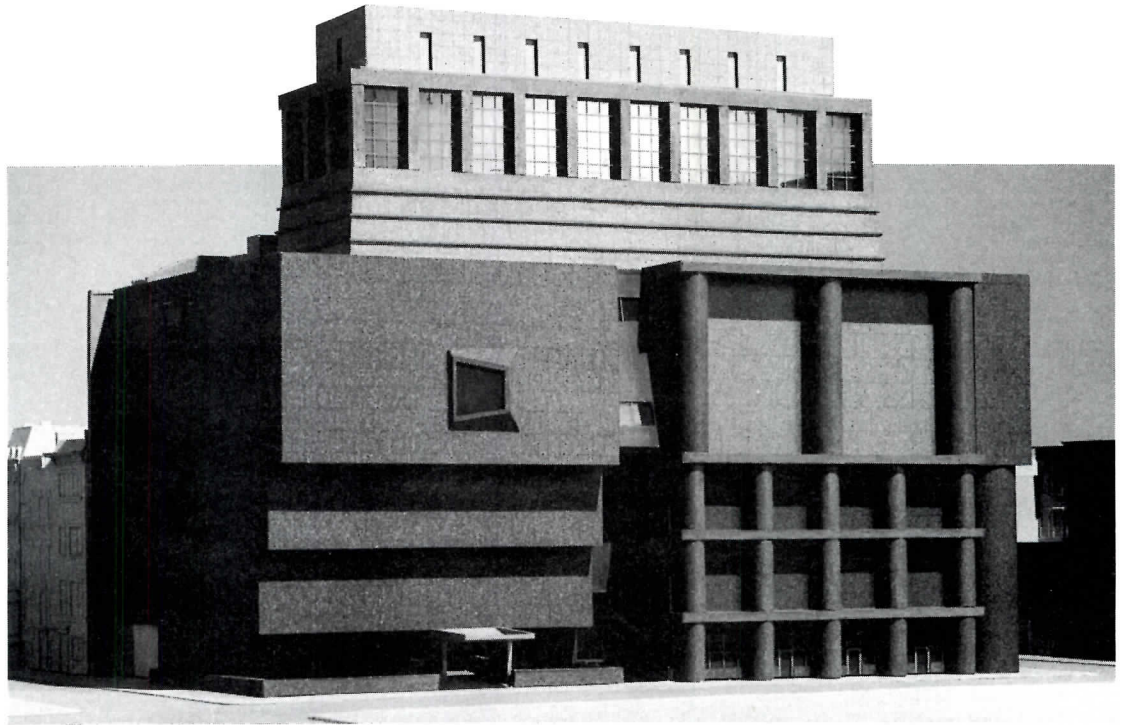
**Charles W. Moore** will receive this year's Topaz Medallion for Excellence in Architectural Education, awarded by the AIA and the Association of Collegiate Schools of Architecture. Besides designing a distinguished body of architecture, Moore has served on the faculties of Princeton, Yale, the University of California at Los Angeles and Berkeley, and the University of Texas at Austin.

**The End.** Even the least bookish *New Yorker* loves the bronze and glass front of Scribner's Book Store on Fifth Avenue. But the building's owner recently tripled the rent, and the store closed in January. The city had already declared Ernest Flagg's facade an architectural landmark, and the elaborate interior, wholly visible from the sidewalk, will come before the landmarks commission shortly.

**Construction as performance art:** *Moving Circles*, a steel and wood sculpture, will be installed in a two-and-a-half-day performance at the National Building Museum in Washington starting April 6. The sculpture, by artist/journeyman carpenter Linda Wysong, will combine "the choreography of construction and the strong geometry of the completed structure."

**Group One Design**, a joint-venture architectural/engineering firm comprising Perkins & Will, Heard & Associates, Inc., and Consoer Townsend Associates, has been commissioned to design Terminal 5, the permanent International Terminal at Chicago's O'Hare International Airport.

**Senator Daniel Patrick Moynihan (D.-N. Y.)**, known as an architecture buff, will receive the third annual Honor Award of the National Building Museum. The citation particularly mentions the senator's introduction of the Public Buildings Act, the Rebuilding of America Act, and the National Infrastructure Development Act.



For the third time since 1985, architect Michael Graves has designed an expansion for the Whitney Museum of American Art in New York City; in the face of clamorous criticism, the client had requested the redesigns [RECORD, October 1985, page 113, and April 1987,

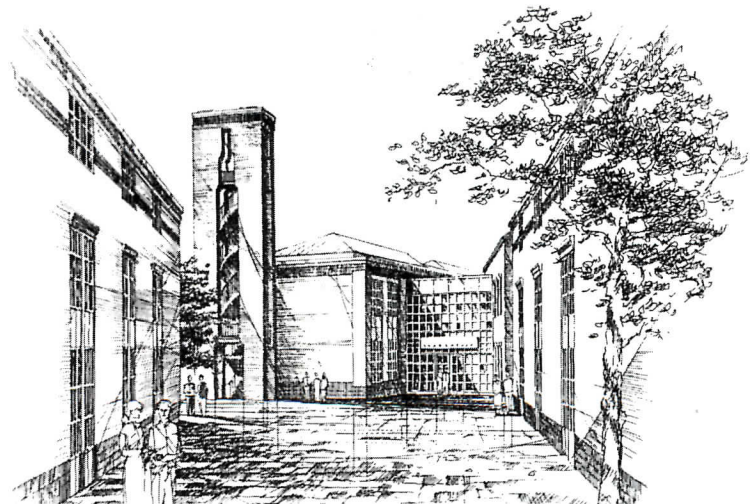
page 45]. Graves describes this design as "less figurative and more abstract" than the earlier ones, and certainly it defers more to Marcel Breuer's original next door. Gone is the trapezoidal cartouche on the Madison Avenue facade, and gone is the "hinge" between the

wings. Instead of the cartouche, gray granite cornices supported by red granite colonnades match Breuer's setbacks. And instead of the hinge, a deep recess separates old and new and marks the Breuer stairway, the effacement of which had been a major source of earlier criticism.

## Competition calendar

•The National Peace Garden in Washington, D. C., will occupy four acres along the Potomac River south of the Jefferson Memorial. A design competition, sponsored by a private citizens' group and partly funded by the National Endowment for the Arts, will be open to all designers who are citizens or bona fide U. S. residents. Registration forms are due by May 26, and proposed designs will be due August 25. For information: Paul D. Spreiregen, Professional Advisor, Peace Garden Design Competition, P. O. Box 27558, Washington, D. C. 20038-7558.

## Think tank expands for neuroscience



The Cold Spring Harbor Laboratory on Long Island, New York, known for biotechnological research, plans a three-phase expansion of its campus to accommodate neuroscientists. Designed by Centerbrook Architects, who planned earlier facilities here, Phases I and II

will include site work and a 150-car parking garage. Phase III, scheduled for construction in 1990, will incorporate a 32,000-square-foot lodge for visiting scientists and a 44,000-square-foot laboratory. The new facility will cost an estimated \$16 million.





## **TCS**

creative response in beauty and durability

Surrounded by cropland on the outskirts of a farming community, this private residence is, as stated by the architect, "a response to the historical and physical characteristics of its site. Its sloped roof areas are covered with silver gray TCS (terne-coated stainless steel), suggesting the color and form of traditional rural architecture."

In addition, TCS satisfied the owner's stated need for, "a maintenance-free roofing material that will last several lifetimes."

Architects everywhere are finding that TCS is singularly adaptive to all types of structures, superbly functional as a design component—important advantages which provide maximum creative latitude at relatively modest cost.

We will be happy to send you more detailed information about TCS. Call us toll-free, 800-624-6906.

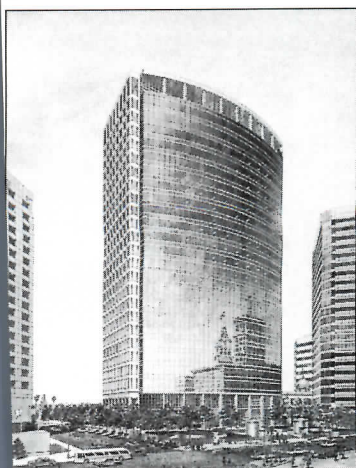
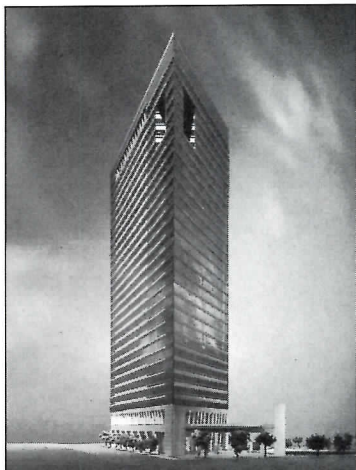
Lee Residence, Northeast Arkansas  
Architect: Polk, Stanley, Gray, Architects, Ltd.  
Little Rock, Arkansas  
Roofer: Gerald Rooks Contractor  
McCrory, Arkansas  
Photographer: Hursley & Lark

**FOLLANSBEE**  
FOLLANSBEE STEEL • FOLLANSBEE, WEST VIRGINIA  
(304) 527-1260



News briefs

Up-to-date old-fashioned stylishness



After many years of building office towers higher and higher—50 stories and up—the American business community seems prepared to settle, at least temporarily, for more modest 20- and 30-story skyscrapers.

**515 North State Street** in Chicago (1), designed by Kenzo Tange with Shaw and Associates, Inc., as coordinating architects, will become the headquarters of the American Medical Association when it opens in 1990; the AMA will move from the Chicago headquarters it has occupied since 1902. The new 30-floor glass and aluminum building will be the first phase of a large multiuse complex planned for the North Michigan Avenue-River North area, a district seen as a new neighborhood by the developers, the John Beck Company and Miller-Klutznick-Davis-Gray Co.

**U. S. Trust Corporate Headquarters** (2) will occupy a building now under construction on a midblock site in Manhattan's booming West Side business district. Architects Fox & Fowle, quite conscious of U. S. Trust's "image of understated dignity," designed a 25-story building of gray granite and two colors of iron-spot brick flanked by a pair of towers with zinc-clad domes. The building, developed by the Durst Organization, will be completed later this year.

**1111 Broadway, in Oakland, California** (3), designed by Gensler and Associates/Architects, will have a 5-foot-high granite base echoing other structures in the 10-block City Center. Three sides of the 25-floor tower will be faced with precast stone, while the east elevation will have a curving facade of blue-green glass. Scheduled for 1991 occupancy, the building, developed by Bramalea Pacific of Oakland, will have the American President Companies as its major tenant.



Like a well-tailored garment, New York's beloved Plaza Hotel has weathered many alterations for size and fashion. Now its newest owner, Donald Trump, has commissioned two architects for still another set of alterations: Hardy Holzman Pfeiffer Associates for exteriors (rehabilitation and roof additions) and Lee Harris Pomeroy Associates for interiors (new guest rooms and operating facilities and restoration of the

lobby and other public spaces). Roof alterations, which will modify proportions on the 59th Street facade, are the changes most likely to attract objections from preservationists (see small photo for "before" and large one for the rendered "after"). Guest rooms on the upper floors will occupy former servants' quarters and will add a 19th floor of bedrooms for duplex suites. HHPA will enlarge dormer windows and add new ones, and will lower the top of the mansard to open views for new fenestration. Most of the alterations, however, will try to undo recent "improvements" to Henry Hardenbergh's 1907 original and Whitney Warren's 1920 additions. Pomeroy's in situ researches have already revealed carved and gilded ceilings above the banal dropped ceiling, and HHPA will re-create the tall ballroom windows that used to grace the 59th Street facade.





# FROM SKYLINE STEEL TO METRO BROWN, WE CREATE THE COLORS OF YOUR WORLD.

*ColorAnswers™ puts a world of color at your fingertips. The steels and grays of urban America. The sun-bleached shades of Africa. The muted greens and teals of Venice. Rich, sophisticated tones.*

*As progressive and daring as your designs.*

*With ColorAnswers you get the industry's most complete system for specifying color. In addition to over 800 fresh new interior colors, we're now introducing over 400 exciting exterior colors. All organized in a compact, easy-to-use system, complete with large color samples, perfect for everything from pencil concepts to final elevations and paint color specifications.*

*Get tomorrow's color answers today with the Sherwin-Williams ColorAnswers System. Call 1-800-321-8194, in Ohio 1-800-362-0903, and start coloring your world.*

**COLORANSWERS™**



Circle 34 on inquiry card

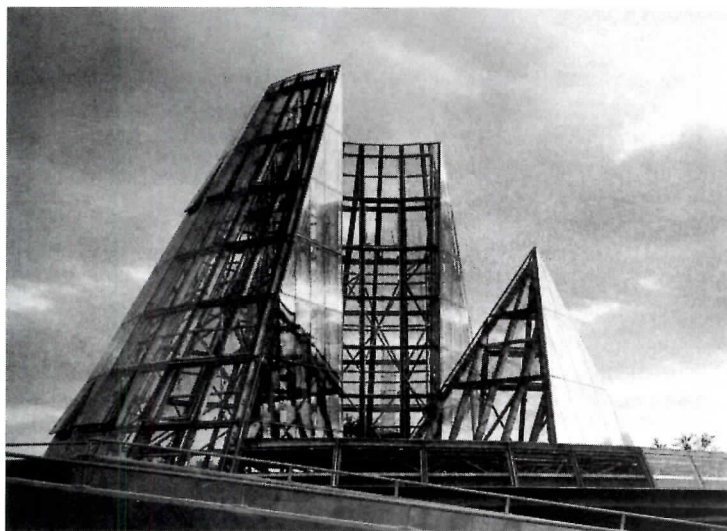
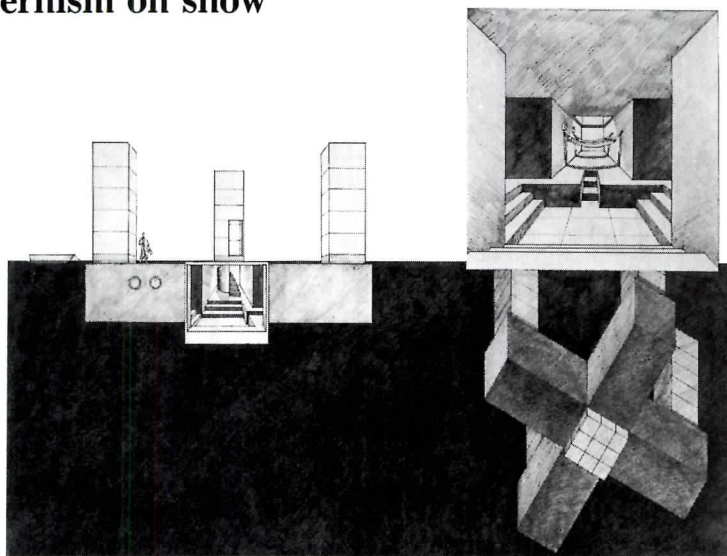


## The new faces of Modernism on show

In a current exhibit, New York City's Museum of Modern Art overleaps such architectural movements as Postmodernism and Deconstructivism. Rather, it sees in the works of Emilio Ambasz and Steven Holl an effort to "revitalize the mythopoetic side of Modernism."

"Emilio Ambasz/Steven Holl: Architecture," the fourth in MoMA's Gerald D. Hines Architecture Program, can be seen through April 4. Each architect is represented by 15 projects, both completed and visionary. The curator, Stuart Wrede, director of MoMA's Department of Architecture and Design, feels that "both architects have been drawn to the Modernist tradition that sought inspiration in the anonymous and primitive vernacular." And he adds that both "have retained a sense of social idealism."

Moreover, "it is probably not a coincidence that each has



designed 'mythic retreats' placed below the earth's surface." One example of this proclivity is Holl's design for an underwater house in St. Tropez (top left). Though four glass-block towers rise above the water, the building floats just below the surface so that its tenant must wade from his dory to the entrance tower (see section). Ambasz's design for the Lucille Halsell Conservatory in San Antonio (bottom left) is only partially underground, the glass greenhouses emerging from the earth to surround outdoor gardens.

Differences in architectural personalities can be discerned in each architect's influence on presentation. Ambasz's projects, for instance, include seductively romantic models of landscapes into which buildings insinuate themselves, while Holl punctuates his collection with samples of real materials and real details used in real projects.

## Affordable offices



Greater Boston Community Development, Inc., is a nonprofit developer of affordable housing and a consultant to similar corporations. One of its major areas of expertise entails the weaving together of available public monies with affordable private loans. For the renovation of 95 Berkeley Street, which GBCD will develop as affordable long-term offices for itself and other nonprofit groups, it assembled funds that include borrowed money from six lenders, both public and private, and outright grants from seven foundations, as well as some of its own corporate funds.

Architects for the renovated building are ADD Inc., who plan cleaning and restoration of the patterned masonry exterior. The interior, which will be entirely gutted, will contain office floors as well as facilities to be shared by the tenants: conference rooms, training rooms, reception areas, kitchens, and lunch rooms, as well as a 1,000-square-foot deck at the third level. A 36-car parking garage will be located in the basement.

The \$17.3-million building, sited within walking distance of the Back Bay railway station, is scheduled for completion later this year.

## Superluxury hotel



For a consortium of New York, Hong Kong, and Tokyo investors and hoteliers, I. M. Pei & Partners have designed the Regent of New York, a hotel whose rooms will rent for a reported \$400 a night. The 46-story building, on Manhattan's East 57th Street between Madison and Park avenues, will have a limestone tower with floor-to-ceiling windows illuminating extra-large rooms. To be managed by Regent International, it is scheduled to open in late 1991. Associate architect is Frank Williams & Associates; John F. Saladino will design the guest rooms.



# WHEN IT RAINS IT DRAINS.

Miradrain™ 6000 prefabricated drainage is the economical, highly efficient alternative to costly aggregate drainage. It's ideal for foundation walls, retaining walls, under floor slabs and other subsurface applications.

With a long term flow capacity of 15 gpm per one-foot width\*, Miradrain 6000 provides superior drainage. And due to its 15,000 psf compressive strength, it withstands a wide

range of installation stresses and lateral earth pressures. In addition, because Miradrain 6000 is so much lighter than gravel and available in easy-to-handle rolls, installation is simplified. This results in significant time, labor and bottom line savings.

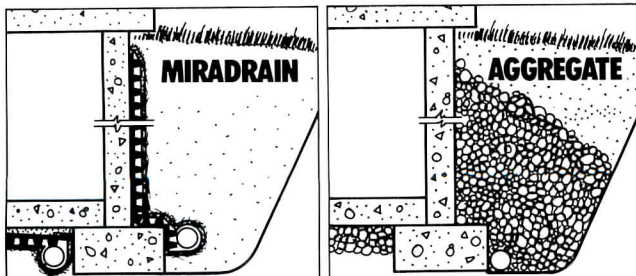
What's more, by reducing hydrostatic pressure, Miradrain 6000 enhances your waterproofing system.

To find out more, just contact your Mirafi Representative or call us toll-free. In the U.S., 800/438-1855 (704/523-7477 in NC, HI and AK). In Canada, 800/267-0182 or 613/632-2788.

Miradrain 6000. When it rains, it drains.

**MIRAFI®**

Mirafi Inc, Box 240967, Charlotte, NC 28224



\*@ 3600 psf & Hydraulic Gradient of 1 for 300 hrs, ASTM D-4716-87

A member of the  **DOMINION TEXTILE** group

\*Patent Pending Mirafi™ and Miradrain® are trademarks owned by Mirafi Inc



vacuumcups, SuterVish/Vogel/Meitz/Carboz PC

and theaters that require row seating.  
Selected for its robust tubular steel frame,  
heavy wire mesh construction and  
durable synthetic coating.

Charles Square, Suite 300  
Cambridge, Massachusetts 02138

Telephone 617 492-4000  
Telefax 617 492-4901



Circle 6 on inquiry card



# R E S T O R A T I O N



 **Wolverine Technologies**  
The Restoration Collection  
1-800-521-9020



# C O L L E C T I O N



Restoration  
Cumberland Mill™  
3" Dutch Lap style is  
one of five distinctive  
profiles that make  
up the new Restoration  
Collection of premium  
vinyl sidings and  
coordinated architec-  
tural accents.

"From the beginning of the design process, Restoration was the siding of choice. Appearance and durability were the reasons. This house would be difficult to maintain without Restoration vinyl siding to help alleviate painting problems. And the smooth, matte finish looks authentic. In fact, this house mixes Restoration with painted wood to achieve a very appealing, genuine — and saleable — look."

William A. Bentz  
Designer  
Design Group West, Inc.  
Palmetto, Florida

Before beginning your next design, take a closer look at the five new Restoration Collection panels. Call 1-800-521-9020 now for product information, specifications, and case studies.



## Design awards/competitions: The Georgia Association/AIA 1988 Design Awards

*In its 1988 Design Awards Program, the Georgia Association of the American Institute of Architects commended eight buildings. Of the eight, only two were Awards for Excellence in Architecture—and both of them went to the same firm: Lord & Sargent, Inc., of Atlanta.*



1

©Jonathan Hillyer



3



2

Gordon Percy



4

Wayne N. T. Fujii

**1. Trinity School, Atlanta;** Lord & Sargent, Inc., Architects (Award for Excellence in Architecture). The private school needed two additions—one for performing arts and assemblies, the other for administration—as well as playground space [RECORD, August 1988, pages 94-99]. Moreover, a 40-ft-deep ravine divides the site. The architects designed the building to create a “Kindergothic environment” of bridges and ramparts. “Controlled chaos,” the jury enthused. “Marvelous imaginative mix of contemporary imagery,” it added. “An exuberant composition of basic

forms . . . with some truly original twists. A happy, optimistic place about which kids can develop affection and memory.”

**2. Delta Airlines Marketing and Reservations Office, Salt Lake City;** Lord & Sargent, Inc., Architects (Award for Excellence in Architecture). For an essentially utilitarian building with a six-month schedule from design to occupancy, the architects concentrated on the double brick wall for sound control to protect 350 agents on telephones within. “An extraordinary gift wrapping for an ordinary box . . . The few

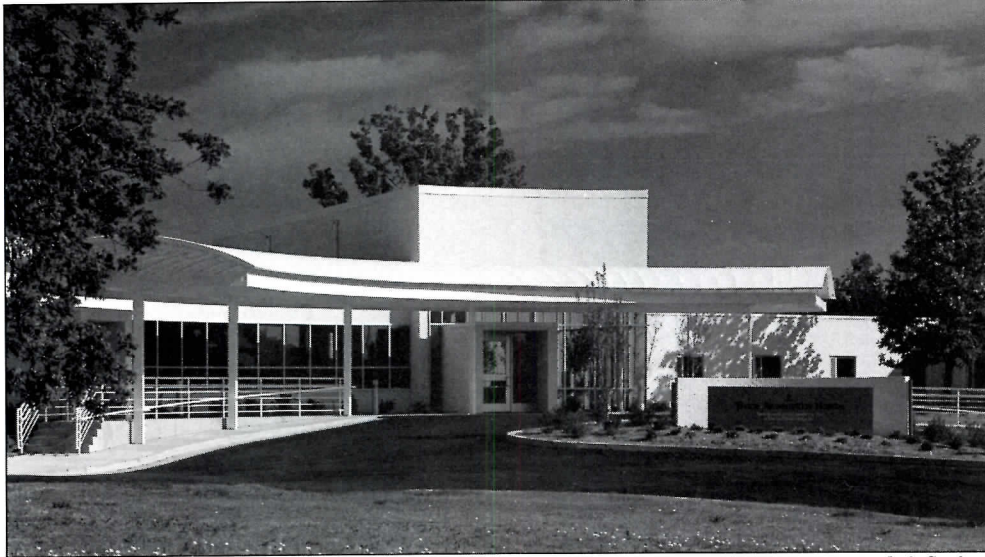
sculptural objects standing free of the big box provide rich counterpoint. The brick striations, geological in feeling, were inspired.”

**3. Young Architect Award** went to Richard Rauh & Associates/Architects, of Atlanta, for four completed buildings (including the Atlanta computer-product showroom for Micro Mart shown above) and two projects. The award may be given, at the discretion of the jury, to a young architect with no more than five years in practice. Remarking that the firm had two buildings in serious contention for major awards, the jury commended the

architect’s “versatility and diversity” and thought that “the work shows quality and much promise for the future.”

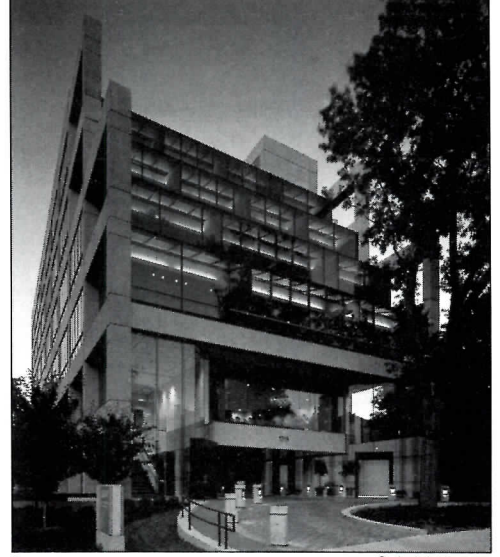
**4. Hulse House, Atlanta;** Anthony Ames Architect (Citation). The four-story house, built of stucco and glass block on a narrow site, reflects the architect’s admiration for early 20th-century architecture as embodied in the Bauhaus School and International Style. The jury found the design “thoughtful and rich . . . a tour de force in late Modernism,” and “a sophisticated [and well-detailed] exercise in plan and spatial manipulation.”





5

Jack Gardner



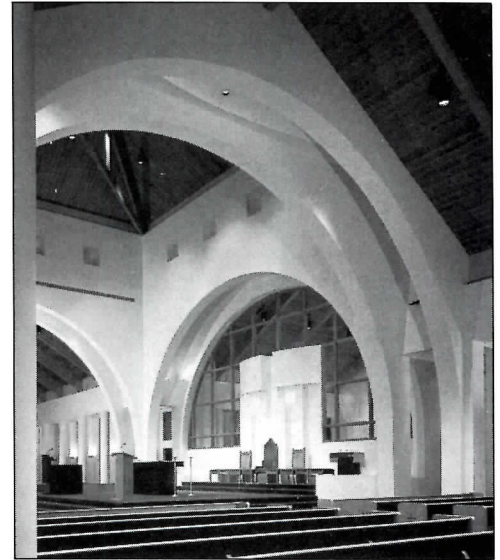
7

Gabriel Benzur



6

Christopher Lark



8

Jack Gardner

**5. Walton Rehabilitation Center, Augusta, Georgia;** Nix, Mann and Associates, Architects, with The Woodhurst Partnership/Elmer L. Perry, Jr., AIA, associated architects (Citation). The hospital comprises both a recycled building and an addition, the two “stitched” together with a curved fabric canopy and a new vocabulary of materials including white-painted brick and green-tinted fenestration. “Unpretentious, light in spirit, a mild, appropriate scheme, refreshing contrast to devious historical exercises which are common today,” was one jury comment. “The yellow

airplane wing at the entrance takes it out of the mundane, despite an obviously low budget . . . .”

**6. The Mall at Lexington Green, Lexington, Kentucky;** Cooper Carry & Associates, Architects (Citation). For this specialty food center with restaurants and shops, the architects drew on Lexington’s equestrian imagery, using white cupolas, a high turquoise “horse barn” roof, and flooring patterns derived from racing silks. The jury commented on the “beautiful public space, both warm and lively,” and thought this was “festive retail at its

best . . . the overall spatial feeling of the great halls revives the best of the 19th century.”

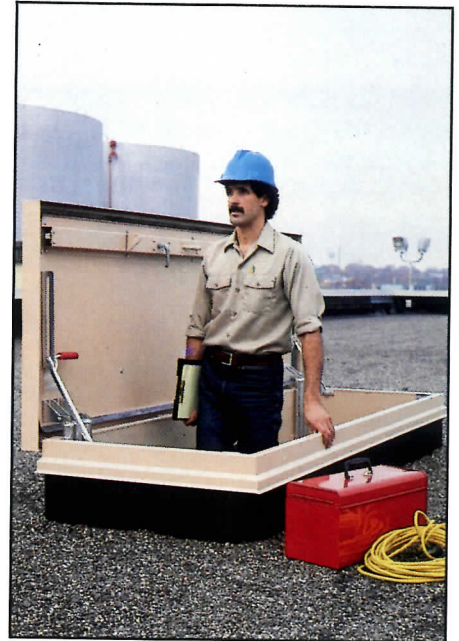
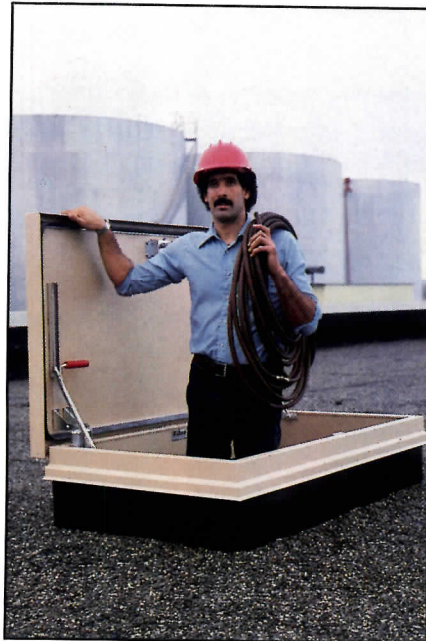
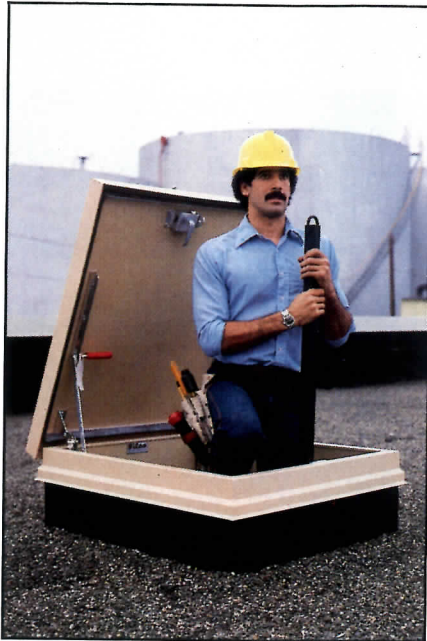
**7. 1315 Peachtree Library/Office Building, Atlanta;** Thompson Ventulett Stainback & Associates, Architects (Citation). A mixed-use building, for which the county provided the land and the developer provided the building, has parking at ground level, a library on the second floor, and offices on the upper stories. Referring to the “strong concept on a site slightly too small for it,” the jury said the building had “perhaps *the* strongest parti in the submissions . . . treats the

automobile with refreshing dignity.”

**8. St. Andrew’s Parish Church, Roswell, Georgia;** Nix, Mann and Associates, Inc., Architects (Citation). The church and its education building occupy 14 acres of farmland. The sanctuary was planned as a Greek cross for liturgical reasons, drawing the congregation’s attention to the altar. The jury commented that “the crossing of the nave is a powerful space,” and called the church “a lesson in Italian Renaissance facade design . . . a study in diminished classical vocabulary in plan and elevation.”



# three ways to come out on top...



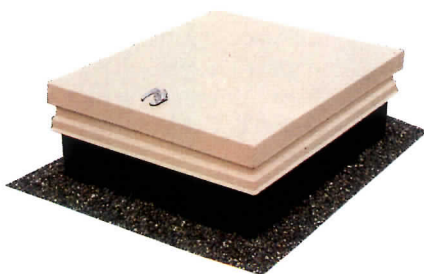
## with quality Bilco Roof Scuttles

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.

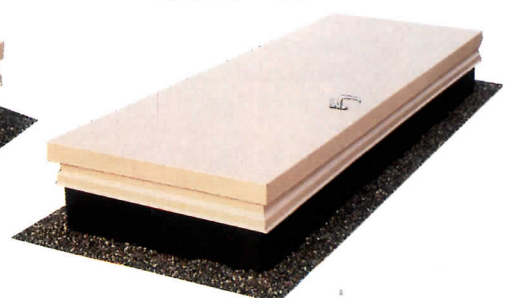
Size: 2'6" x 4'6"



### Type L for service stair

The ultimate in roof access. This size Bilco scuttle allows a service 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.

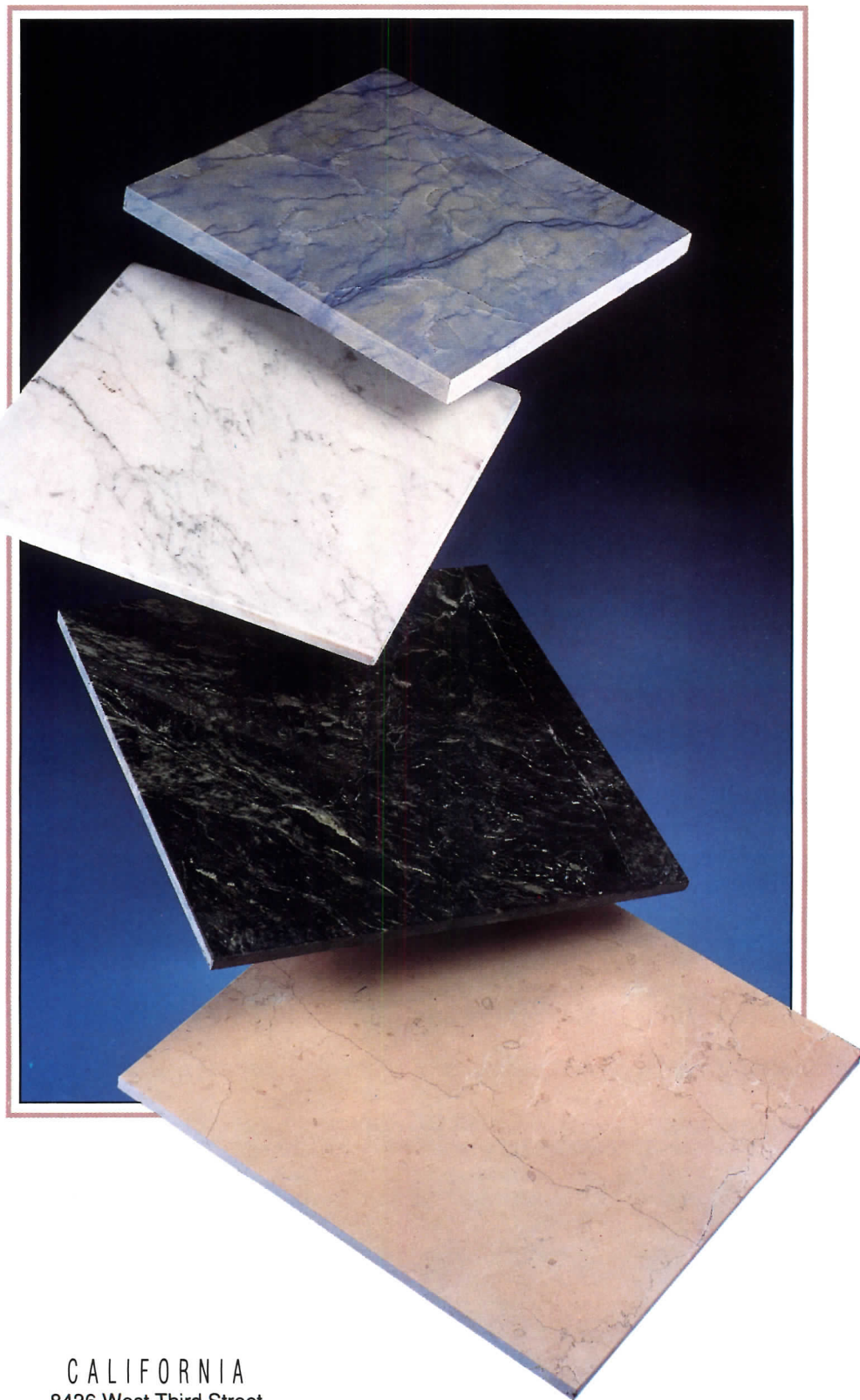


The Bilco Company, Dept. RS-103, P.O. Box 1203, New Haven, CT 06505

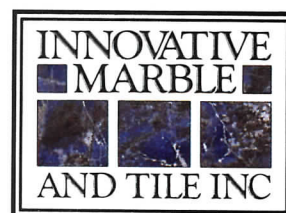
Circle 37 on inquiry card



# ELEGANCE IN PROFILE



ENJOY  
THE  
RICHNESS  
THAT ONLY  
FINE  
MARBLE  
AND  
GRANITE  
CAN  
ACHIEVE



CALIFORNIA  
8436 West Third Street  
Los Angeles, CA 90048  
(213) 653-5533 • Fax# (213) 653-6072  
1-800-62 STONE

NEW YORK  
470 Smith Street  
Farmingdale, NY 11735  
(516) 752-0318 • Fax# (516) 752-0411  
1-800-62 STONE

EUROPEAN HEADQUARTERS  
Florence Italy  
Circle 38 on inquiry card



# A NEW SLANT FOR IMPROVED DRAINAGE



*Contech Slotted Drain intercepts water from the parking lot before it can enter the street.*

**Contech® SLOTTED DRAIN** is a high-performance inlet that installs flush with the pavement to quickly remove water from parking lots and other paved surfaces.

**MORE EFFICIENT PERFORMANCE.** One of the design features that makes Slotted Drain so hydraulically efficient is the unique slant of cross spacer bars in the drain's 1 3/4"-wide slot. A standard 20' length of Slotted Drain will intercept up to 50% more runoff than standard 2' x 2' grate inlets.

**LOWER COST.** With Slotted Drain, the parking lot does not have to be warped in four directions for each grate. That translates to a lower cost installation and less stakeout time for the engineer.

**FEWER DEBRIS PROBLEMS.** Debris is

less likely to wedge in Slotted Drain's trapezoidal 1 3/4"-wide slot openings. Anything large enough to fit through the top of the slot will fall through to the bottom of the drain.

**SAFER.** With Slotted Drain, the grade does not have to be warped in four directions which would result in a hazardous depression in the parking lot. Slotted Drain reduces the hazard to two-wheel and four-wheel vehicles, as well as to pedestrian traffic.

**FREE CATALOG.** Call your local Contech Sales Engineer, or write Contech Construction Products Inc., Dept. 5409, P.O. Box 800, Middletown, Ohio 45042-0800. Or call toll-free 1-800-338-1122 (in Ohio: 1-800-752-8899).

**CONTECH**  
CONSTRUCTION PRODUCTS INC.

Circle 39 on inquiry card



# The One

o f t o M i s s !



**June 5-8,  
1989  
Anaheim,  
California  
Convention  
Center**

Next June more than 30,000 architects, engineers, contractors, facilities managers, interior designers, mapping professionals, process/power engineers, specifiers, project managers, computer consultants, CADD specialists, and other design and construction professionals will attend A/E/C SYSTEMS® '89.

In fact, they wouldn't miss it.  
Should you?

**Quick  
Registration  
Form —  
See Back  
Panel.**

## A/E/C SYSTEMS® '89



## An Unprecedented Seminar Program

Other shows offer canned presentations, sales come-ons, and other poor excuses for seminar programs. Not A/E/C SYSTEMS.

Each 60- to 90-minute seminar or panel discussion is a unique expression of our commitment to professional excellence through education. First, we prepare a conference overview based on key topics identified by our past attendees. Then, we invite the most knowledgeable practitioners from throughout the world to speak on each one, guaranteeing you practical, first-hand information direct from the trenches. Next, we organize sessions into specific educational tracks such as Marketing and Management, Computer Graphics, and Desktop Engineering & Publishing. Finally, we code them for Beginners, Intermediates, or Advanced Users



so you'll know precisely which sessions are appropriate for you.

Consider the possibilities.

Tuesday, June 6

### 8:30 a.m.

The Future of Personal Computing in Design and Construction  
Moderator: Steven S Ross  
*Architectural Record*

Making CADD Work through Effective Management  
Moderator: David A Jordani, AIA  
*David A Jordani & Associates*

System Compatibility: Translators, Interfaces and Other Exchanges  
Moderator: Kristine K Fallon  
*Computer Technology Management Inc.*

Automating the Marketing Function for Maximum Effectiveness  
Moderator: David Dretzka, PE  
*Catalyst Marketing Group*

How to Select Project Management Software  
Moderator: Marsha D Lewin, CDP, CSP, CMC  
*Marsha D Lewin Associates, Inc.*

Using Computers in the Small Contractor's Office  
Moderator: Randy Blake  
*Southern California Chapter ABC*

**Bonus:**  
**Free admission to the exhibit hall**



### An Unbeatable Price

For just \$195, you can attend 6 seminars or panel discussions of your choice – an unbeatable \$150 off the on-site seminar program price – if you pre-register by April 24. The badge we mail you in May will admit you to one seminar of your choice in each of six time periods. Just present it at the seminar room door.

Wednesday, June 7

### 8:30 a.m.

Computer Integrated Design: The Real Payoff  
Moderator: Thomas R Fisher  
*Progressive Architecture*

Future Directions in MicroCADD  
Moderator: Eric Teicholz  
*Graphic Systems, Inc.*

How Computers Help Small Firms Compete  
Moderator: Charles Carroll, Jr, FCSI  
*Carroll Associates*

Maintaining Effective Management Controls  
Moderator: Clare G Ross  
*A/E Business Review*

Artificial Intelligence and Expert Systems in Design and Construction  
Moderator: Elizabeth Bollinger  
*University of Houston*

Contractor Profits from Integrated Job Cost Control Systems  
Moderator: Carleton Coulter III  
*JAC Ltd.*

### 12:00 Noon

Developing Office Standards and Procedures for CAD Management  
Michael K Schley  
*FM:Systems*

The Computer-Assisted Design Charrette: Planning a New Town in Seven Days  
Mark M Schimmenti  
*Andres Duany & Elizabeth Plater-Zyberk*

Plotting for Results: Solving the CADD Bottleneck  
R Darrell James, PE  
*Barge, Waggoner, Sumner and Cannon*

Personal Computers for Design Office Principals  
Frank Mascia  
*Collaborative Design Group*

How to Recruit and Retain CADD Personnel  
CM "Chuck" McReynolds  
*CM McReynolds*

Computer Generated Animation for Architecture and Urban Design  
Tsuyoshi Sasada  
*Osaka University*

New Tools for Specifiers  
Timothy F Kirby, AIA Assoc., CSI  
*Ventulett, Stainback & Associates Architects*



Thursday, June 8

**3:00 p.m.**

Computer-Assisted Architecture:  
Advanced Techniques in Computer-  
Aided Design

Gary S Whitney  
The Whitney Group

Scanning, Laser Plotting, Macro-  
Retrieval Systems and Reprographic  
Integration

Moderator: James C Gaither, Jr  
The DuPont Company

Building Computer-Aided Facilities  
Management Databases

Bruce Kenneth Forbes  
Lung/Brannen Research &  
Development Corp.

Computer-Aided Engineering for  
Civil and Structural Design

Christopher J Holt  
Envirodyne Engineers

Building Modeling and Procedural  
Design: A Punchlist for the '90s

Ken Sanders, AIA  
Pomeroy Associates

The Use of Computers in Japan

Muneki Ikegami  
US Inc.

Change Estimating: Conquering Cost  
Overruns

Michael W Curran  
Precision Sciences Corporation

Developing Integrated Drawing  
and Product Information Data Bases

Charles Chief Boyd, FCSI, CCS, AIA  
The Boyd Group



**8:30 a.m.**

CAD: On the Threshold of the '90s  
Moderator: E Forrest, PE  
A-E-C AUTOMATION NEWSLETTER

Structuring CADD Layering: Tips for  
Success

Moderator: Michael K Schley  
FM:Systems

Graphic Workstation Trends for  
the '90s

Moderator: Daniel S Raker  
Design & Systems Research, Inc.

Using Computers in Power & Process  
Engineering

Moderator: Nadine Post  
ENR

CAD for Contractors: It's Here

Moderator: Glenn P Williams, PE  
Wayne Homes, Inc.

Innovative Uses for Personal-  
Computers in Construction

Moderator: Craig Savage  
Savage Co.

**12:00 Noon**

Marketing Your CAD Capability

Mark F Thomas  
Everett I Brown Company

Using CADD in the Small Firm:

A Case Study  
W Millet Salter  
W M Salter & Associates, Inc.

Computers in the Engineering

Office: A Case Study  
Blake R Eckerle  
Cash & Associates Engineers

Automated Scanning for Design and  
Facilities Management

Richard D Schulman  
AUDRE, Inc.

Finding New Uses for Computers

Moderator: Oliver R Witte  
Management Consultants

Desktop Publishing for A/E's and  
Contractors

Sharon Reynolds  
Fluor Daniel, Inc.

**Program subject to change**

## An Unparalleled Exhibit

The largest architectural, engineering, and construction computer/management exhibit in the world is waiting for you in Anaheim . . . 1400 booths staffed by representatives of nearly 500 companies in these key areas:

- Computers and Peripheral Devices
- Communications and Interfaces
- Computer Graphics and 3D Modeling
- CADD and CAS (Computer Assisted Specifying)
- Reprographics and Micrographics
- Office and Project Management
- Design/Technical Software
- Drawing Equipment and Supplies
- Specialty Products and Services

No other show can match the quality and size of this spectacular exhibit. No other show even comes close! That's why A/E/C SYSTEMS has become the place where vendors serving this market make their new product releases.

And there's more: For the convenience of attendees wishing to focus on specific hardware platforms and software packages, A/E/C SYSTEMS '89 will include four big vendor-hosted expositions:

**Autodesk Expo** – the fourth consecutive exposition featuring the products of dozens of independent developers as well as Autodesk, Inc.

**Intergraph MicroStation Mall** – product displays by dozens of MicroStation vendors serving the architectural, engineering and mapping markets

**Apple Exposition Center** – Mac-related applications and peripherals developed by third-party vendors, plus Apple's latest products and enhancements

**IBM's Business Partners** – a brand new exposition showcasing third-party applications designed around the IBM platform

**Attend them all plus related DesCon '89 shows happening simultaneously at the Anaheim Convention Center for just \$10 if you pre-register by April 24. See back panel for details. Bonus: Free one-hour seminar pass**

o t t o M i s s !



## Quick Registration Form

Complete this form and mail it with your check to:

A/E/C SYSTEMS, Inc.  
PO Box 11318  
Newington, CT 06111

- Payment by check only made out to A/E/C SYSTEMS, Inc. (Canadian registrations at par)
- Mail by April 24 to qualify for this special discount.
- All badges will be mailed to one address - specify below.



**You pay \$195 (a \$345 value) if you register by April 24**

Registrant's Name	\$195 Seminar Program*	\$10 Exhibit Only**
1		
2		
3		
4		

\*Includes admission to exhibit hall

\*\*Includes complimentary one-hour seminar pass

### Address to which Badges Will Be Mailed

Name		
Firm		
Street or PO Box		
City	State	Zip

Please send information on hotels.

A B C D E F G

### Special Note

Consider attending one of the 31 three-hour Tutorials or one of the 13 Concurrent Conferences (one day or more in length) also happening June 5-8 in Anaheim. For a complete 24-page preview of all of the educational offerings available, call 1.800.451.1196. For unbeatable discount airfares, call 1.800.525.7888.

## Unmistakably, The One Not To Miss

**For architects, engineers and other design professionals . . .** the one event that's more than just a computer show, more than a CADD show, more than a reprographics or office automation show - the one exhibit/conference where you can get your mind around all the latest systems, software and peripherals geared to your professional needs!

**For contractors and other construction professionals . . .** the one opportunity to check out the latest software for estimating, budgeting, scheduling, and project management plus systems designed specifically to manage your jobs, your office!

**For facility managers, owners, and developers . . .** the one place to see how computer and high tech system can help you plan, construct and operate your complex facilities!

**For every design and construction professional . . .** the one annual event for everyone involved with any aspect of designing, constructing or managing capital facilities, where you can see and learn about the latest techniques, products and services which will help you be more effective!

### Don't wait any longer Register Today!

Pre-register today, and next June, when thousands of others are waiting in line, your waiting will be over! Just complete and return this form by April 24, and your badge, good for admission to A/E/C SYSTEMS® '89 and all of the other DesCon '89 shows happening concurrently at the Anaheim Convention Center, will be mailed to you in May

**A/E/C SYSTEMS, Inc.**

PO Box 11318  
Newington, CT 06111

1.800.451.1196



# Kroy Wants Your Name.

Mail This Coupon For Your FREE Desktop Nameplate, Produced With The Kroy 360 Digital Lettering System.

We own a \_\_\_\_\_ lettering system.  I'm interested in using the Kroy 360 with a PC.

Please carefully print or type your name and title exactly as you want them to appear on your nameplate.

Name \_\_\_\_\_

Title \_\_\_\_\_

Business Phone ( ) \_\_\_\_\_ (Required)

Business Name \_\_\_\_\_

Business Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

MAIL TO: Kroy Inc., 14555 N. Hayden Road, Scottsdale, Arizona 85260

One nameplate request per company, please (Subject to availability. Void where prohibited.)  
Kroy and Kroy 360 are registered trademarks of Kroy Inc.

3026-A

## (We Promise To Send It Back. Free.)



Even if you already use desktop publishing, you'll be amazed at what the Kroy 360 digital lettering system can do for you. In fact, we're so confident you'll like what you see, we'll send you a personalized nameplate produced with the 360, *absolutely free*. Simply mail us the coupon above.

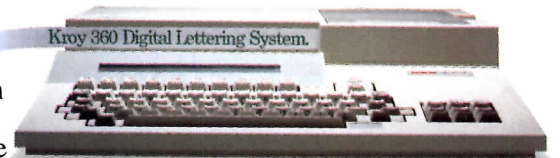
Not only can the Kroy 360 letter names, its laser-printer quality lettering makes it perfect for creating report covers, flyers, badges, bar codes, file

labels, overhead transparencies, signs—you name it.

And operating it is as simple as typing. With the easy-to-understand instructions, you can create lettering in a wide range of sizes and styles in seconds. Plus there are over a dozen color combinations to choose from. As well as a library of drop-in typestyle cartridges.

So send us the coupon, and we'll send you back your name...along with more information on all the amazing

capabilities of the 360. Your nearby Kroy dealer will contact you soon for a hands-on demonstration.



# KROY®

Winners Use It.

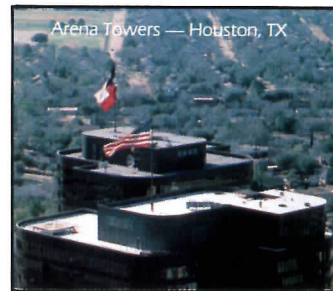
Circle 40 on inquiry card



# Your Duro-Last Roof Will Be Known By The Company It Keeps.



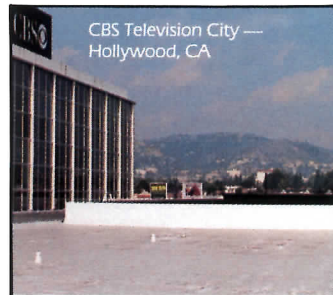
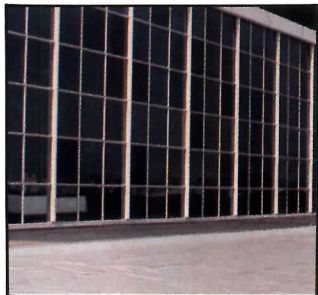
Lake County Village Shopping Center — Phoenix, AZ



Arena Towers — Houston, TX



Con-Rail — Altoona, PA



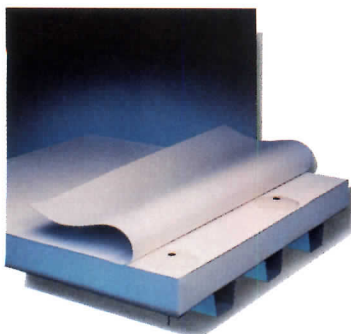
CBS Television City — Hollywood, CA

**W**ith a Duro-Last single-ply roofing system, you're joining some pretty good company . . . like CBS Television City, The Wall Street Journal, Con-Rail, Transwestern Property Company, Lake County Village Shopping Center, just to name a few.

These satisfied customers know Duro-Last is the top single-ply performer. And for a variety of reasons:

- Duro-Last **custom** fabrication to your specifications gives you a roofing system big on performance and low on waste.
- A Duro-Last roof goes down quick and that means a savings of time and money.
- Duro-Last means durability with our exclusively designed Celanese Fortrel™ polyester high tenacity fabric, coated on each side with a specially formulated thermoplastic polymer.
- Duro-Last gives you double protection with a 20-year warranty and \$6,000,000 liability insurance policy.

Those are just a few reasons why more and more Duro-Last roofs are being seen in some pretty good company. Shouldn't you join the long list of satisfied Duro-Last customers who are buying the "system" and not just roll goods?



**Call today.** It's your first step to putting . . . and keeping . . . your roof in some pretty good company.

**1-800-248-0280**

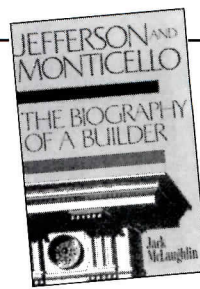
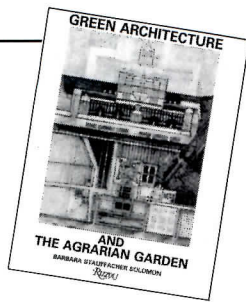
**1-800-356-6646** (West of the Mississippi)

**DURO-  
LAST®**  
Roofing, Inc.

Circle 41 on inquiry card



# Books



**Green Architecture and the Agrarian Garden**, by Barbara Stauffacher Solomon. New York: Rizzoli, 1988, \$40.

Reviewed by  
Margaretta J. Darnall

Barbara Stauffacher Solomon has been well known since the 1960s for her architectural graphics and signage, including the ram's horn logo for Sea Ranch, in California. In the 1980s she has turned her attention to repairing the split between architects and landscape architects that she claims occurred in the 18th century. This is the subject of *Green Architecture and the Agrarian Garden*, an expansion of her earlier publication, *Green Architecture: Notes on the Common Ground* (1982), which accompanied an exhibition of her drawings at the Walker Art Center in Minneapolis. While building on the earlier catalog, the new volume is presented as a notebook in which the graphic layout (complete with blue-pencil construction lines) and typography, as well as sketches and the text, are all by Solomon.

In separate sections the author looks at historic origins, meanings, and present-day implications of formal garden planning, ideas of the picturesque, and the nominally undesigned agrarian landscape, summarizing her points in sketched 1-inch by 1-1/2-inch matrices. These grids of little drawings, in which trees and columns are virtually indistinguishable, are reminiscent of the registers of architectonic types in the early 19th-century theoretical work of Jean-Nicolas-Louis Durand.

Solomon's work as a graphic designer has made her acutely aware of the abstract

patterns visible in both gardens and agriculture. She analyzes magnificent historical examples of geometrically formal garden designs in such wonders as the Villa Lante, in Italy, and Ancy Le Franc and Marly, in France. Examples of picturesque garden planning are shown at Castle Howard and Rousham, in Britain, Ermenonville, in France, and Stow Lake, in San Francisco's Golden Gate Park. Palladio's Villa Barbaro, at Maser, the Portico di San Luca, in Bologna, and the town and fields of Sonoma, Calif., demonstrate the great beauty inherent in agricultural landscapes. These historic selections are all superb, and the principal ones are given full-page sketches, discussions, and chronologies.

"Green" architecture, according to Solomon, is the transformation of the agrarian landscape into the urban plan: "Furrows deepen into streets, trees become columns, and cleared fields become plazas. Grids of orchards become the ground plans of buildings. Buildings are planned in conjunction with streets. Green walls reinforce inhabited corridors. Farmsteads are perimeter blocks." This is the essence of her landscape-graphic paradise, an attractive alternative to typical suburban sprawl, but it is ill-defined in relation to existing landscapes.

The strength of the book is its attempt to bring architecture and landscape architecture into synchronicity; its weakness is that the *ideas*, as well as the drawings, layout, and text, are only roughly sketched. The notebooks of accomplished masters like Michelangelo, Picasso, or Le Corbusier are fascinating in retrospect because they illuminate their finished work. Solomon's notebook would be more compelling if the polemic and the designs were visible in built projects.

**Jefferson and Monticello**, by Jack McLaughlin. New York: Henry Holt and Company, Inc., 1988, \$29.95.

Reviewed by  
Richard Lavenstein

For those who have followed the perfdy of the Reagan years as portrayed by former advisors, Cabinet officers, and disgraced friends in their various astonishing memoirs, Jack McLaughlin's *Jefferson and Monticello* will be a happy antidote. It reminds us that our national leaders have had true learning and intellect, and a vision of what might make a great society and a noble culture. McLaughlin, who heads the Humanities Division at Clemson University, has written a biography of our third president as seen through the building of a great house. It was in this case a 50-year enterprise that sputtered on and off in the midst of a historic and tumultuous life, and, like so many obsessive building projects, ultimately bankrupted its owner.

The binary division of the title (as opposed to *Jefferson's Monticello*, for example) is subtly revealing. What becomes clear is the intertwining of the house-building project and Jefferson's life. Begun in 1769 as little more than a one-room honeymoon shack, Monticello was extended during the early years of Jefferson's marriage and the birth of his five children, but languished and fell into disrepair during his years in France as American ambassador.

Major alterations and additions were again undertaken in 1796. This work lasted through Jefferson's terms as Vice President and President, until his death in 1826. Having, according

Richard Lavenstein is an architect practicing in New York City.

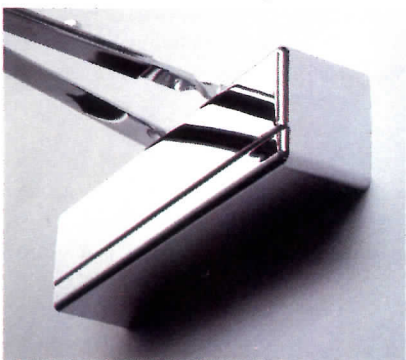
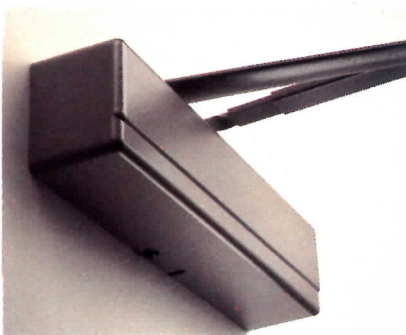
to McLaughlin, "a professional understanding of the construction crafts and their craftsmen," Jefferson struggled to realize his high artistic and mathematically exacting standards in spite of the rudimentary state of early-American building arts. Without benefit of skilled artisans or today's building-supply emporiums, Jefferson had to fulfill the dual roles of architect and contractor during these 30 years, even developing methods of fabrication previously unavailable. Plagued by a constant scarcity of materials, unreliable (or, more often, drunk) workmen, and an array of interminably delaying disasters, Jefferson nonetheless pressed on.

This inquiry attempts considerably more than a history of building in colonial America, fascinating though this is. McLaughlin says that Monticello represents the two halves of Jefferson's psyche: the tightly controlled—even icily reserved—18th-century rationalist, and the intensely domestic man who craved love, comfort, and ease. Physically the house exhibits a combination of Palladian rationalism in its plans and elevations, and homegrown American inventiveness in its delightful accouterments: the double-acting French doors, the dumbwaiter in the fireplace, the alcove bed on pulleys. Monticello is at once commanding and inviting, a public house for a private man.

While concentrating on Jefferson's architectural obsessions, McLaughlin is also able to analyze attitudes toward slavery (and how it pertained to the building of Monticello), the effect of Jefferson's years abroad, and his relationship to friends and family. In attempting to locate and assess the competing factors of seriousness and playfulness that Jefferson alternately displayed,

Margaretta J. Darnall is an architectural historian in Oakland, Calif.





## Elements of style. Hardware classics by Sargent.

Choose a design that's always right. Demand door closers engineered to perform and endure. Specify Sargent and get elements of style that include a century-long record of craftsmanship, service and on-time delivery.

For enduring qualities in door closers, locks and exit devices, choose the complete Sargent line. And get classic architectural hardware.

**SARGENT**  
**ESSEX**  
INDUSTRIES INC.

Sargent, New Haven, Connecticut 06511  
Sargent of Canada Ltd.

Circle 42 on inquiry card



## Briefly noted

McLaughlin keenly observes, "... it is precisely the obsessive person who requires the spontaneity of play as a counterweight to psychological necessity." One of the book's leitmotifs is the irony of Jefferson the compulsive record-keeper (who constantly reminded those around him of the dangers of debt) coming to the end of his own life in penury. This might be explained, as the editors of Jefferson's Memorandum Books have observed, in that "the daily ritual of recording pecuniary events gave Jefferson an artificial sense of order in his financial world." On the other hand, among Jefferson's favorite self-deprecations was, apropos of Monticello: "Putting up and pulling down is one of my favorite amusements."

McLaughlin weaves together social history, eyewitness accounts, psychological biography, and architectural analysis; *Jefferson and Monticello* is a spirited tour through the life and times of a great-souled man. In a sometimes wayward attempt at immediacy, however, the author occasionally falls into pseudo-novelistic conjecturing: "But as he ran his eyes over the freshly plastered and painted room with its new windows in strange locations, he could not help but experience a loss..." But more often McLaughlin maintains in his prose the lively pace of his hero's life. This is an admirable study which in the end reminds us that contradictions and diversity are often a spur to greatness and achievement.

**Terrazzo.** New York: Rizzoli, 1988, \$20. In the clogged racks of architecture and design magazines, this new offering—to be published twice yearly—is distinguished by unusual attention to the drawings and photographs displayed: even the paper is matched to the artwork. The first issue includes remarkably Memphis-like photos by Ettore Sottsass from India and North Yemen, Herbert Muschamp on avant-gardism, and an article describing particularly rare and exotic types of stone. The magazine is seen by editor Barbara Radice as a "sophisticated object," having something of the same effect as "slipping into a perfumed bath and then [putting] on a beautiful new dress."

**The Architecture of John Wellborn Root,** by Donald Hoffman. Chicago: The University of Chicago Press, 1988, \$16.95. To read this volume, first published in 1973, is to realize that though Root, along with Daniel Burnham, was a pioneer of the large commercial office building, many of the issues faced in Chicago in the last two decades of the 19th century are not so different from those faced by the architects in commercial practice today. Hoffman deftly portrays Root's handling of technical problems posed by ever-larger buildings, and he describes Root's dealing with clients unresponsive to the architect's vision of a "suitable architectural expression" of commerce.

**Antonio Saint'Elia, the Complete Works,** by Luciano Caramel and Alberto Longatti. New York: Rizzoli, 1988, \$65. Though no built works can be "definitely attributed" to Saint'Elia, the power of his seminal images of the futurist "new city," produced in 1914-15, remains undimmed. His small output is overpackaged,

however, in this coffee-table volume, in which the authors (either underedited or poorly translated by a writer unnamed) use excessively complicated locutions to portray Saint'Elia's cameo role in the standard history of Modernism.

**Emerging European Architects,** edited by Wilfried Wang. Cambridge and New York: Harvard University Graduate School of Design with Rizzoli, 1988, \$20. This modest volume, a documentation of a symposium that took place at Harvard last fall, does not quite do justice to the work covered, but it performs an important service in bringing to light the work of many practitioners previously unseen on these shores. The projects are typically small, yet thoughtful, and frequently transcend difficult circumstances: the stone repaving of streets in a historic Spanish village, by Josep Lluís Mateo, for example, or a metal-paneled envelope for a desulfurization plant, in Salzburg, by the Swiss architects Marie-Claude Béatrix and Eraldo Consolascio. Many of these architects are working on the edge of European cities, a landscape as bleak in its own way as the commercial strips and parking lots in the U. S.

**Sedad Eldem: Architect in Turkey,** by Sibel Bozdoğan, Suha Özkan, and Engin Yenil. Singapore/New York: Concept Media/Aperture, 1988, \$40. Eldem was raised in Europe, trained in Turkey, and apprenticed with well-known figures of the Modern Movement. This volume documents the architect's often-extraordinary synthesis of traditional planning and expression with modern programs and building techniques. At its best, Eldem's work is neither sentimentally historicist nor heroically

internationalist. Whether in government offices tucked into the urban hodgepodge of Istanbul (for which he won an Aga Khan award) or in private villas along the Bosphorus, it is refreshingly emblematic of the struggle to define a new/old architectural—not to mention *cultural*—identity for his rapidly changing country.

**Theater Technology,** by George C. Izenour. New York: McGraw-Hill, 1988, \$195. A companion to the author's comprehensive *Theater Design*, this book is a compendium of the gadgetry that makes theater magic happen. Dozens of theaters are illustrated, and scores of fascinating, if unlikely, contraptions are lovingly described. Sections of the book, however, are only for the historian of technology.

**The Landmarks of New York,** by Barbaralee Diamonstein. New York: Harry N. Abrams, 1988, \$45. There is no dearth of volumes on New York City's architectural history, but this work is unique in its documentation only of buildings *designated* landmarks in the last 23 years by the city's pioneering Landmarks Preservation Commission. It says as much about what is valued by architecturally conscious residents (both in buildings that have been selected and those that have not) as it does about history, or about architecture itself. Among the book's rewards are entries on many little-known structures in out-of-the-way corners of the city. Landmarks described range from exceedingly modest 17th-century houses and graveyards to familiar structures, such as Grand Central Station and Carnegie Hall, and include structures erected as recently as the early 1950s—the final entry, Skidmore, Owings & Merrill's Lever House.

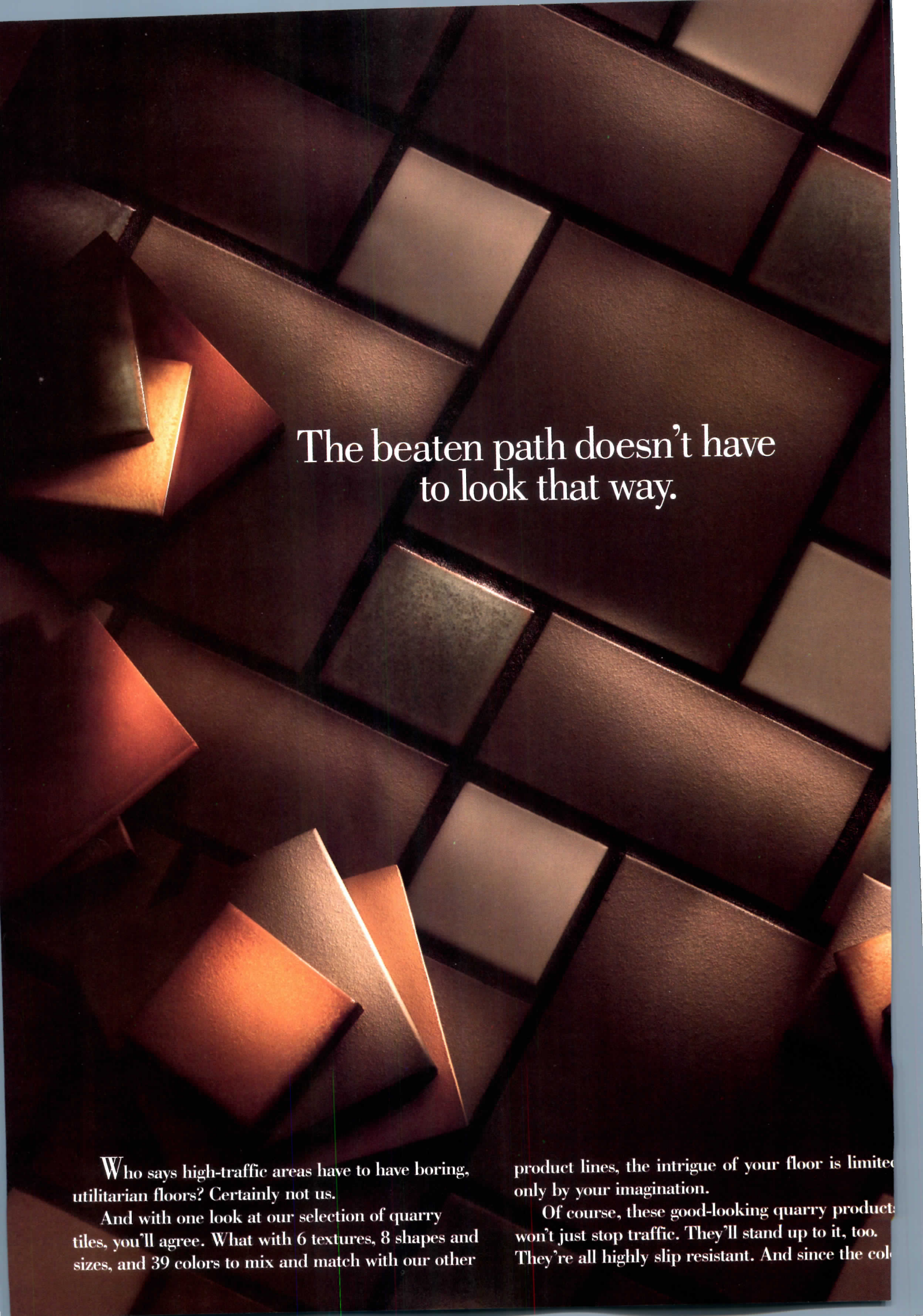












The beaten path doesn't have  
to look that way.

Who says high-traffic areas have to have boring, utilitarian floors? Certainly not us.

And with one look at our selection of quarry tiles, you'll agree. What with 6 textures, 8 shapes and sizes, and 39 colors to mix and match with our other

product lines, the intrigue of your floor is limited only by your imagination.

Of course, these good-looking quarry products won't just stop traffic. They'll stand up to it, too. They're all highly slip resistant. And since the col-





Circle 44 on inquiry card

all the way through the tile, the distinctive look you  
ate today will still look that way years from now.  
Take a closer look by requesting our quarry design  
l pattern books. Call 1-800-541-TILE, Ext. 218.  
write to 3501 Cannon Ave., Lansdale, PA 19446.

But hurry, before everyone beats a path to our door.  
American Olean. The brightest choice  
in ceramic style.™



**American Olean**  
an **Armstrong** company

©1989 American Olean Tile Company, Lansdale, PA 19446



# GUESS WHO WON THE RACE IN INDIANAPOLIS THIS YEAR?



*The 29-story First Indiana Plaza in downtown Indi  
used 439,440 square feet of Vulcraft 3<sup>rd</sup> compo*



te conditions put the 29-story First Indiana Plaza project five weeks behind schedule. So the contractors and engineers found themselves in a race against time. But it was a race they won, thanks in large part to Vulcraft composite deck. That's because composite deck is a lot easier to put down than poured-in-place concrete, which requires the installation and later removal of cumbersome forms.

It's more economical too, because it's less labor-intensive. And the decking's 3" depth adds strength which allows for fewer steel beams. That saves money too.



Installing Vulcraft composite deck is faster and more economical than poured-in-place concrete.

But the nature and the quality of the deck weren't the only factors that put the project on time and on budget. The attitude Vulcraft people had a lot to do with it too. We were required to meet a very exacting, very coordinated delivery schedule, arriving at specified times with specified materials to be off-loaded by crane. We met that schedule, and in doing so avoided costly downtime on labor and crane rental.

So before you start your next project, consider Vulcraft composite deck. It's strong, it's economical. And it beats poured-in-place concrete to the finish every time.

For more information, contact any of the Vulcraft plants listed below. Or see Sweet's 05300/VUL.

**VULCRAFT**

A Division of Nucor Corporation

186, Grapeland, TX 75844 409/687-4665, \*PO Box 59, Norfolk, NE 68701 402/644-8500, \*PO Box 1000, St. Joe, IN 46785 219/337-5411.  
manufacturing locations. Developer: Duke Associates; Architect: CSO Architects, Inc.; Design Architect: 3DI International; Construction Manager: Duke  
on Management, Inc.; Structural Engineer: Walter P. Moore & Associates; Steel Fabricator: Ferguson Steel Company.







# TRUSSWALL

## T H E · S H A P E S · O F T H I N G S · T O · C O M E

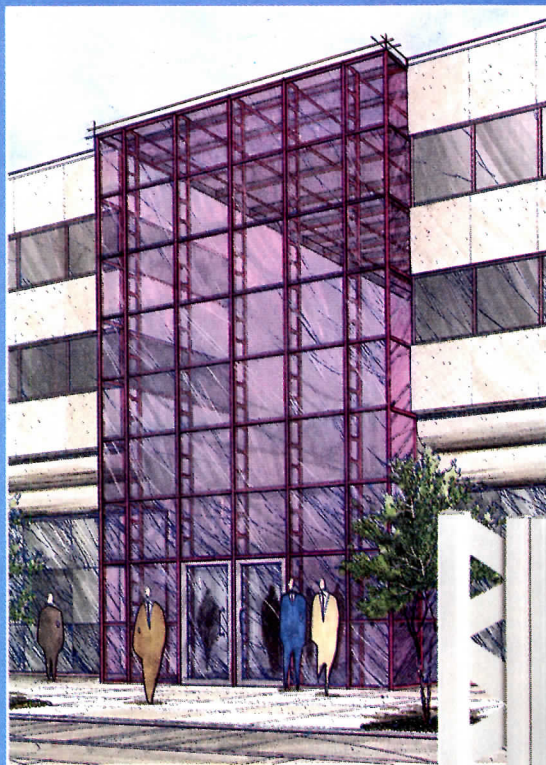
Trusswall from Kawneer introduces the rounded look to the high span entrance. Trusswall spans the clear story entrance area with the structural strength and the desirable aesthetic appeal of the rounded mullion. Formed by circular extruded aluminum chords connected by a separating web that adds stability, strength, and variety, Trusswall becomes a real design alternative.

### **There are two sides to every story.**

On the outside, Trusswall presents a number of faces. One is the innovative circular cover for the sculpted look. Another is the more austere approach, silicone glazing, for an uninterrupted line. And the rectangular cover presents a third more traditional light.

On the inside, Trusswall offers a customization limited only to the imagination. The two-piece construction allows the exterior finish to mix or mate with the building exterior while the interior chords can complement the interior attitudes. The color palette of Fluropon® finishes suggests even more design alternatives.

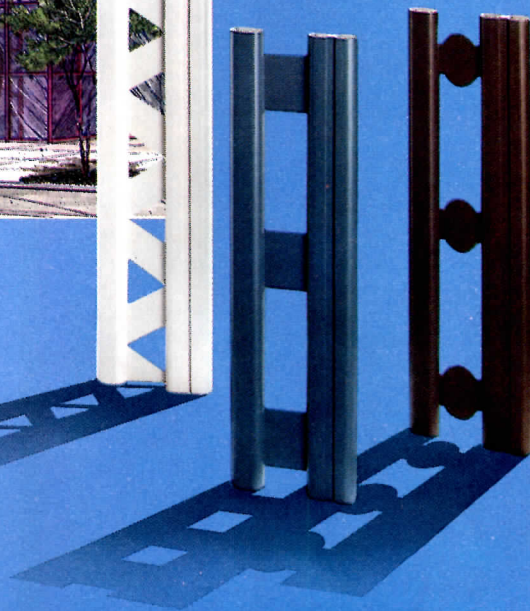
With four web options to choose from, design flexibility increases. The choices are offered. The choices are yours.



But while the design options offer flexibility, the integrity of the structure remains inflexible. A thermal break, and the flexibility of either 1/4" or 1" glass attest to Trusswall being ready and willing to take on nature's harshest elements.

Trusswall. Further evidence of Kawneer's commitment to space.

**Kawneer**  
THE DESIGNER'S ELEMENT.



For product information on Trusswall contact:  
Kawneer Company, Inc. Department C  
Technology Park—Atlanta 555 Guthridge Court Norcross, GA 30092  
Circle 46 on inquiry card

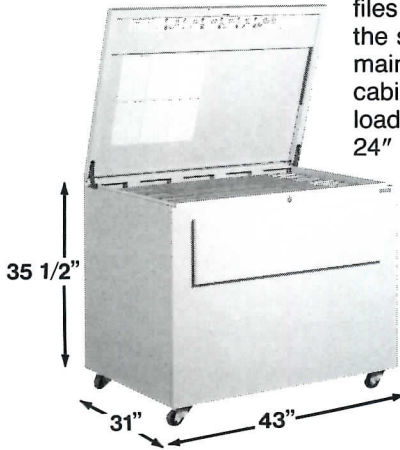


# Buy Ulrich Planfile and Get FREE Office Space

When you choose the right kind of large document filing system you can actually get extra office space for free. Ulrich's vertical filing cabinets not only keep your drawings organized in perfect condition, they take up far less space than any alternative. In fact it takes 6 five drawer flat

files to store 3,000 drawings — the same number that can be maintained in just one Ulrich cabinet. And Planfiles are top loading so they only require 24" of aisle space. Flat files need 50" of clearance. There are other advantages besides free real estate. Planfiles are cas-

ter mounted for easy relocation. Flat files are not designed to be moved. Ulrich cabinets offer fire protection. Flat files don't. The list goes on — easy filing access, water protection and more. For all this you would think Ulrich Planfiles cost more, but they don't.

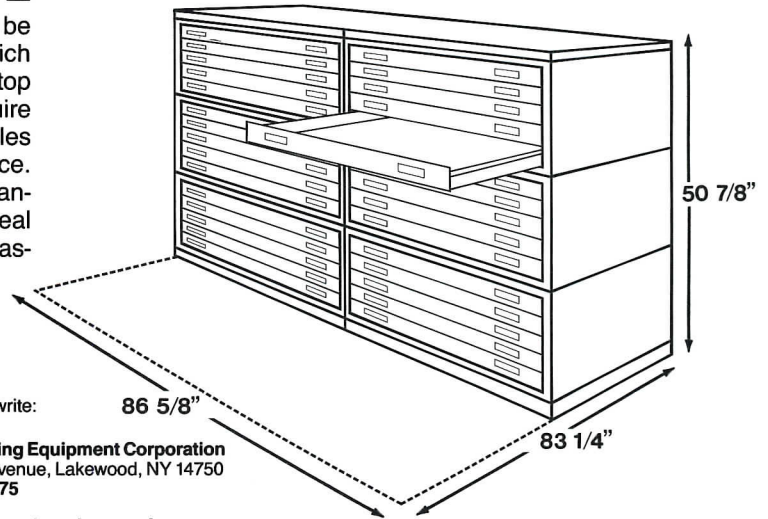


For free brochures that detail the entire product line, call or write:



Ulrich Planfiling Equipment Corporation  
2120 Fourth Avenue, Lakewood, NY 14750  
1-800-346-2875

Circle 47 on inquiry card

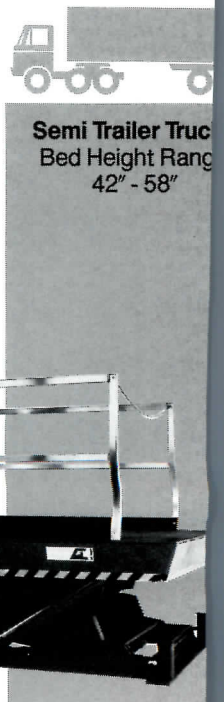
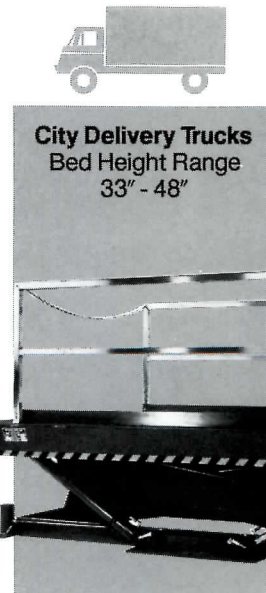
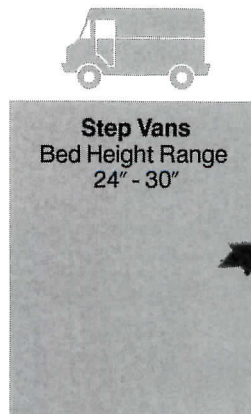
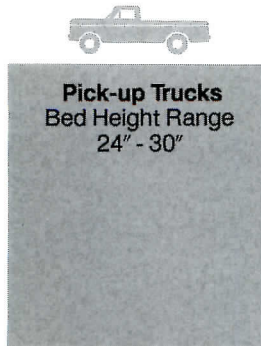


## Every dock

### One Superdok gives you total design flexibility

No other dock leveling equipment gives designers the flexibility to meet all of the client's demanding needs. While dock levelers can handle only 18" of variance in truck bed heights, Superdoks provide 58" of flexibility for everything from mini-vans to semi-trailers.

With capacities to 20,000 lbs and built in ramping capability, Superdoks are the best way to ensure every design element is covered.





## VIP products are tops in waterproof protection!

VIP products topped the list when Sugar Top Resort of Banner Elk, North Carolina began looking for a waterproofing system.

Because VIP elastomeric sealants and coatings have been specified for over 30 years, they were the obvious choice. Easy to apply, flexible through extreme temperature changes, and guaranteed, VIP products offer complete protection you can depend on. Sugar Top Resort chose VIP Last-O-Coat® #8100 and #8300 finish coating. Now, the choice is yours.

VIP waterproofing systems are guaranteed for up to 10 years.



### Flexible Solutions to Concrete Problems.®



Call Toll Free

**1 800 321-3444**

In Canada, call collect (216) 650-4070

VIP Waterproofing Systems are manufactured by

**THE FLOOD COMPANY**

P.O. Box 399

Hudson, Ohio 44236-0399

©1989 The Flood Company

764-046

Circle 48 on inquiry card

## Meet the Only Answering Machine You'll Swear By, Not At



### Dave Mahowald.

Every week, our team of experts gives hundreds of architects and spec writers answers to all types of coatings questions. Answers that save time and prevent costly mistakes.

So, when you need answers in a hurry, call

our toll-free Paint DataBank® 1-800-321-8194, in Ohio 1-800-362-0903, from 8:30 a.m. - 5 p.m. EST, Monday-Friday. No canned messages. Just candid advice from experts like Dave Mahowald.



Circle 49 on inquiry card

# needs a lift

#### Design flexibility — from the ground up

Superdoks give your dock design the ground level access of a concrete ramp — in a fraction of the space. (And for thousands of dollars less than concrete.) Heavy loads can be moved quickly from the ground up or dock down without the hassles and hazards of a ramp.

Put in a stored position, a Superdok virtually disappears to give your dock a clean, seamless look.

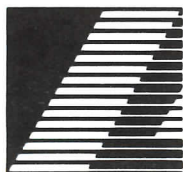
#### Design flexibility — for remodeling too

Superdoks fit anywhere, even into existing dock leveler pits, so they're ideal for architects remodeling overworked or outmoded dock areas. A single Superdok can make that dock far more workable in far less space.

Best of all, Superdoks fit into tight budgets. (A Superdok can pay for itself in just a year.)

Call or write for more information and design specifications on the one element that meets all the demands of the dock.

## Superdoks. More than versatile, Universal.



# ADVANCE LIFTS

Advance Lifts, Inc., 3575 Stern Ave., St. Charles, IL 60174 312-584-9881 TOLL FREE 1-800-843-3625 FAX 312-584-9405

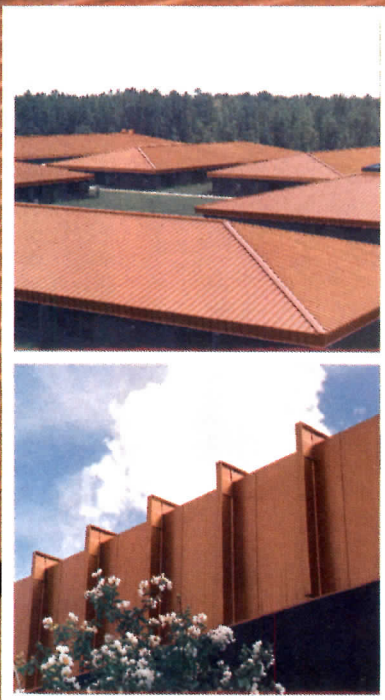
Circle 50 on inquiry card



# The flexible strength to make smooth transitions

## Steelite's RS-18<sup>®</sup> Standing Seam Roof System: Structural strength, architectural appeal, longer lengths, continuous transitions.

Design flexibility is a strong reason for specifying Steelite over any other standing seam metal roof system. Steelite structural roof panels have the strength to go to greater lengths—reaching uninterrupted from ridge to eave, eave to fascia, and fascia to soffit. The esthetic result: architecturally attractive lines that stay clean and smooth. The enduring result: weathertightness, secured by full length, factory-caulked, mechanically field-seamed battens.



Steelite has unique strengths to give you more freedom and flexibility in total building design. Consider us as your single source for new or retrofit building enclosures, from roofing and siding, vents and louvers, through service and support of the same superior quality as our products. Call or write Steelite, to find out more.

**Marion County Public Schools**  
K-8 School, Fort McCoy, Florida  
**Architect:** J.P. Christoff & Assoc.  
**Contractor:** Peter Brown Contracting  
**Roofing Installation:** Crown Corr, Inc.



**STEELITE, INC.**



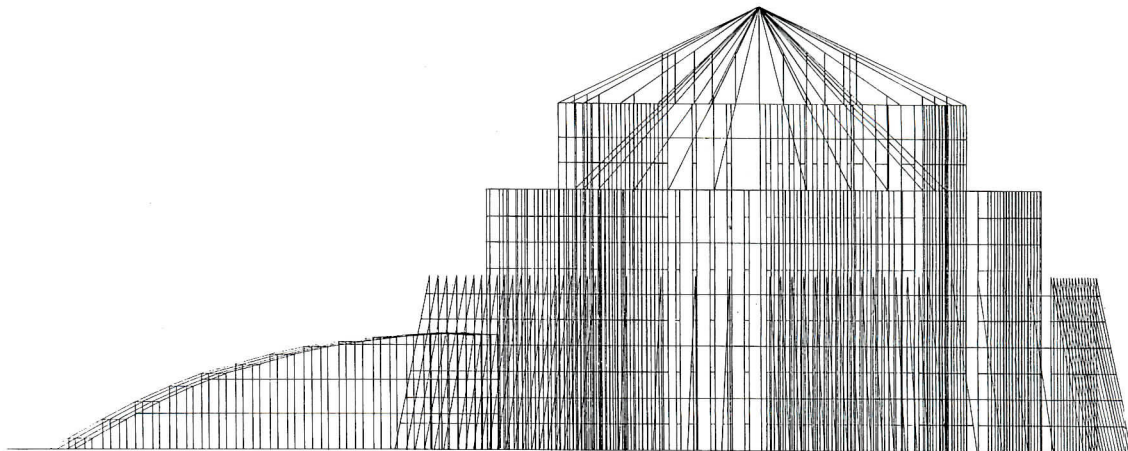
# In this issue

Urbanity in design is an elusive quality many architects hope to achieve, but only a few attain. Whether working in a cultural capital like New York or Tokyo, a large American city like San Antonio or Pittsburgh, or a small town on Cape Cod, the architects of the projects featured on the following pages all share a keen awareness of urbanity and a well-mannered sensibility for the complexities of metropolitan life.

The team of Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittlemann, for example, has designed the Software Engineering Institute in Pittsburgh (cover and pages 78-83) to reflect the building's late 20th-century function as a post-industrial research center while respecting the scale and style of its neighbors, a pair of early 20th-century Pittsburgh landmarks.

A more basic, but no less significant, educational program motivated four architects commissioned by the City of New York to devise a new generation of buildings for the nation's largest public-school system. In our Building Types Study (pages 106-115), critic Ellen Posner examines their work—one completed school in lower Manhattan and a system of modular prototypes adaptable for various sites in the city—and concludes that the initial results represent “a small miracle of humanity.” Nearly as crucial to any city's sense of self-worth as its school system is an attractive, financially viable commercial district. In San Antonio, the Urban Design Group has carefully interwoven old and new buildings to create a mixed-use downtown complex, Rivercenter, that transcends typical shopping-mall banality by embracing an extension of San Antonio's popular River Walk (pages 100-105). On Cape Cod, two developers, working with several area architects, have gracefully utilized the planning lessons of the past to transform a rundown shopping center into the first stage of a new town, Mashpee Commons (pages 84-89).

The demountable Karaza Theater by Japanese architect Tadao Ando (drawing below and pages 90-93) exhibits a formal and technical sophistication not often associated with portable buildings. Back in New York, French designer Philippe Starck has transformed the aging Royalton Hotel (pages 94-99) into a stylish new meeting place for the city's smart set—an eclectic creation that Starck calls “a cultural cocktail.” What, one might ask, could be more urbane?

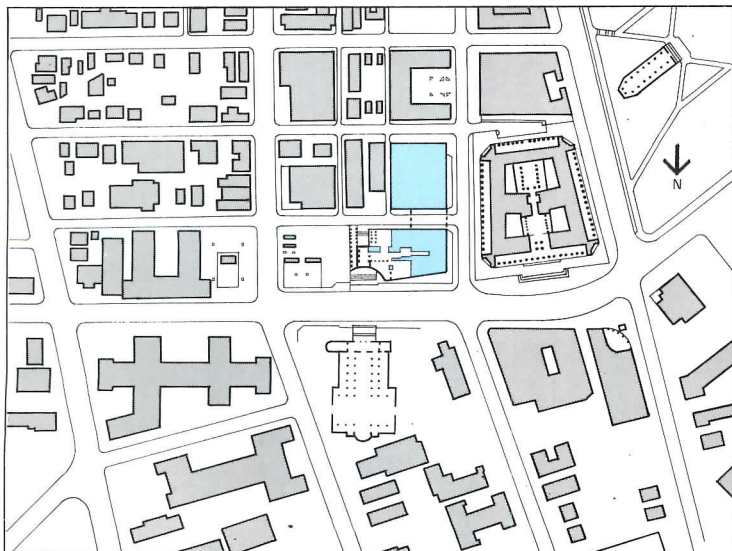
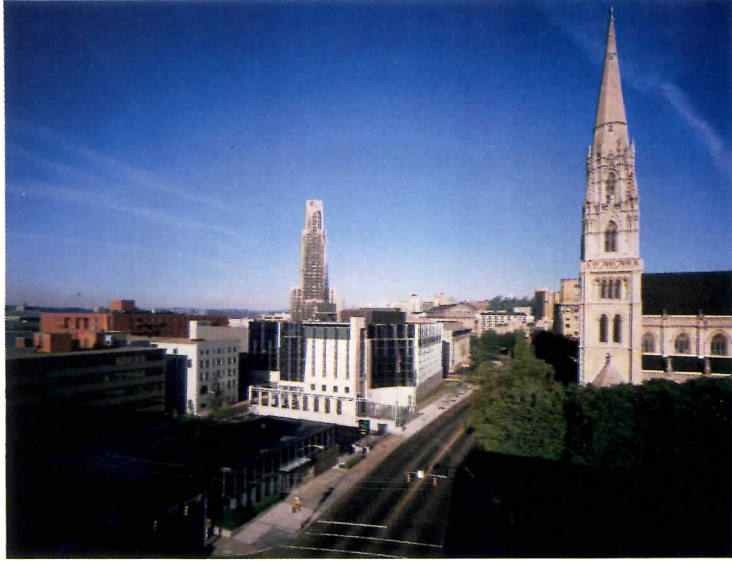


*Karaza Theater, Tadao Ando Architect & Associates*



*The modestly scaled Software Engineering Institute holds its own within the heroic architectural heritage of Pittsburgh's academic and cultural heart.*

## Soft machine



The mythology of software development lionizes nerds with pale complexions tinkering in the garage, or envisions post-adolescent gadget freaks laboring within anonymous reflective-glass slabs in Silicon Valley. An image *not* usually conjured up is Pittsburgh's historic Oakland section, home of an eclectic assortment of academic, cultural, and religious structures built in a dizzying variety of early 20th-century revival styles. Yet here, amidst monumental buildings memorializing the creators of Pittsburgh's industrial might, is the setting of Carnegie Mellon University's Software Engineering Institute (SEI). Sponsored by the U. S. Department of Defense, the facility undertakes research on problems related to the armed forces' multifarious technologies (devising a common visual interface for electronic jet-fighter navigation screens, for example).

In shaping the SEI, the Pittsburgh office of Bohlin Powell Larkin Cywinski, teamed with local architect/engineer Burt Hill Kosar Rittelmann, addressed the Institute's introverted program and its urbanistically important site. The structure is articulated as three parts that express a hierarchy of public to top-secret spaces. A small but prominent pavilion, set behind a semicircular plaza, lies on axis with the 1906 Cathedral of St. Paul across Fifth Avenue (opposite and page 81), housing such public rooms as the entrance vestibule, library, conference suite, and boardroom. Reflective glass encloses the secure office/laboratory block, which has been detailed in elevation to echo the heroic scale of the Mellon Institute, a column-ringed 1930s temple to applied research that lies to the west (pages 80 and 81). Mellon's street wall is extended by the skewed massing of this lab wing. SEI's third element, a 400-space parking structure, has been placed across an alley south of the building's main body (site plan).

The Institute's 154,400-square-foot plan is "thick and fat," in Peter Bohlin's words—an economical arrangement of building bulk consistent with zoning-code exigencies. Its parapet is deliberately aligned with the top of the Mellon Institute (middle). Inside, SEI's technicians perform most of their work in sound-insulated 10- by 13-ft office/laboratories that line the building perimeter. Offices are served by user-accessible wiring systems (diagram page 81), permitting harried researchers to quickly reconfigure equipment. Each work space is supplied with 2,000 watts of electrical power, enough to support engineering workstations and an assortment of personal computers and peripheral equipment. The enormous heat generated is swept directly into the return-air system through custom casework.

Though relationships among program elements were established with an eye fixed on the bottom line (a big chunk of the \$97-per-square-foot cost was allocated to mechanical systems that serve the structure's high density of equipment), the architects were also able to provide visual relief outside the confining individual labs. Coffee-break alcoves are located at major intersections, encouraging casual interaction among researchers whose work is often solitary; expansive corridors terminate in glazed conference rooms that bring the architects' exterior strategy inside, reintroducing even those occupants buried deep within the floor plate to their context (page 82). Neither high-tech nor even high-style, the SEI is respectful of both place and program; there is a kind of architectural hum as aspects of its heterogenous neighbors resonate throughout. Bohlin explains, "We wanted the building to look at the past as well as to the future. I think we got it right." *James S. Russell*



Software Engineering Institute  
Carnegie Mellon University  
Pittsburgh  
Bohlin-Powell Larkin Cywinski  
and Burt Hill Kosar Rittelmann  
Associates, Architects





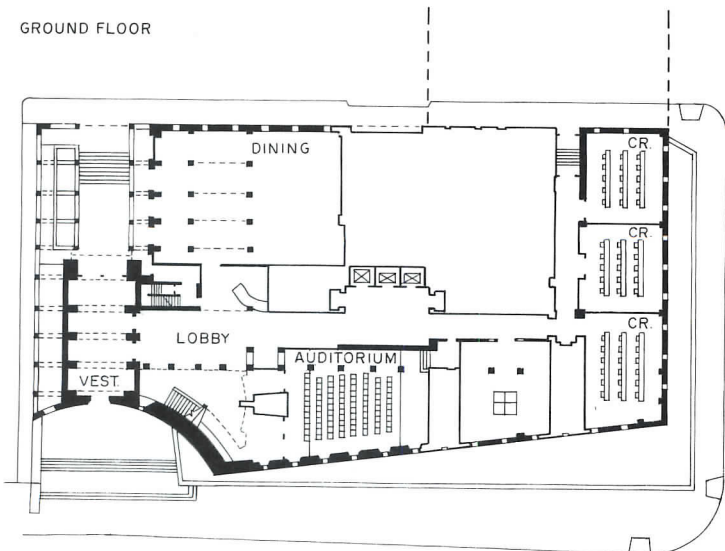


Though undeniably contemporary, the SEI's Fifth Avenue elevation responds to the rhythm of the neighboring Mellon Institute (left), itself built on such a heroic scale that its 65-ton columns were each carved from a single block of Indiana limestone. The SEI's

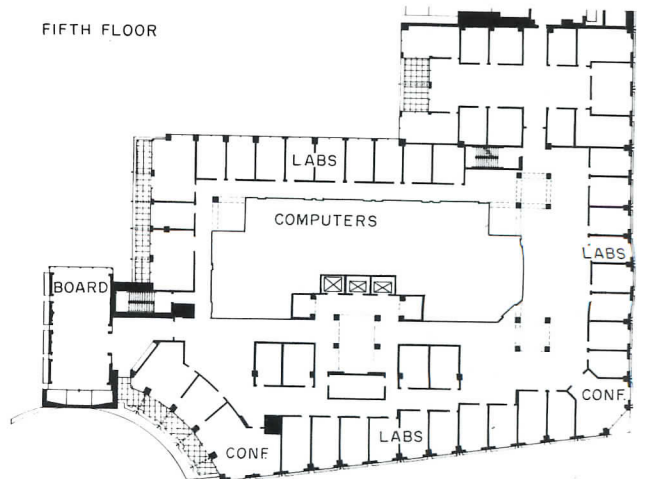
window wall rises out of a matching stone base and changes both in pattern and color at the level of Mellon's entablature (photo below and axonometric opposite). Aluminum extrusions attached to the curtainwall deepen shadow lines. The limestone-



GROUND FLOOR



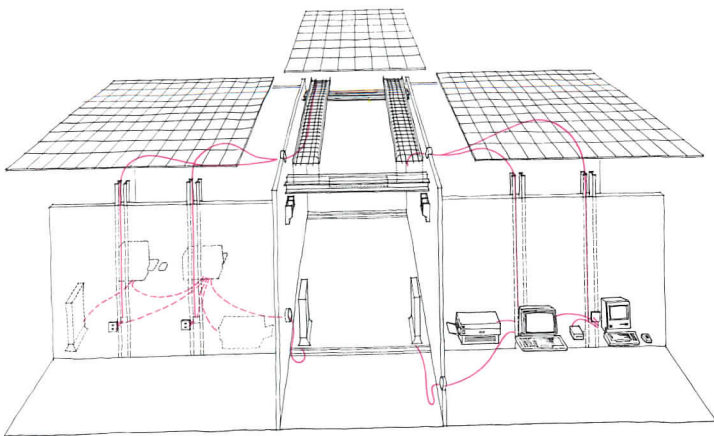
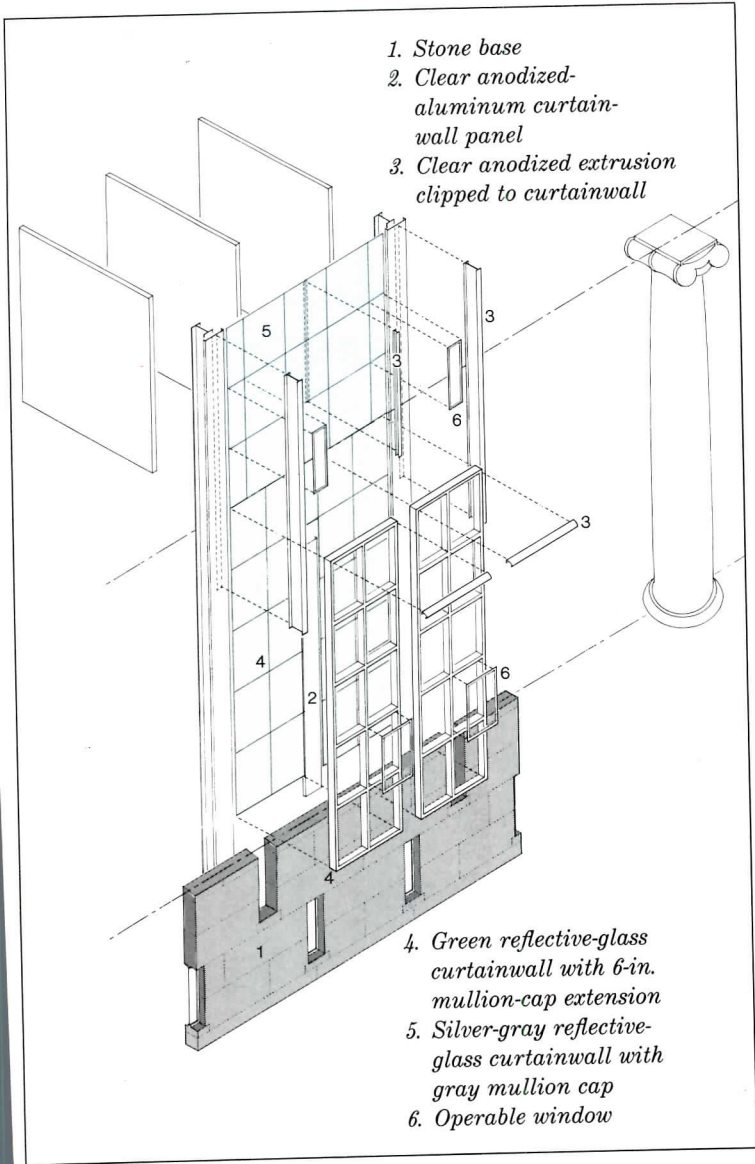
FIFTH FLOOR





clad entrance pavilion (below right) anchors the eastern edge of the building, its verticality reflecting the neo-Gothic St. Paul's Cathedral across the street. Computer wiring has been made entirely accessible to users: matched C-studs form chases to accessible ceilings,

which in turn lead to cable trays below the corridor ceiling (bottom). Workstations can be linked to other workstations, off-campus networks, file-serving computers on each floor, the basement computer room, or a nearby supercomputer.







The SEI's deep plan motivated the creation of special interior places. An extruded-aluminum light fixture—evocative of the city's industrial roots—marks the ground-floor auditorium (left). Where corridors intersect, coffee alcoves encourage casual discussion (background in photo below). In the top-floor boardroom, diffuse light enters on all sides (bottom left). Originally slated for a mainframe computer, the

basement computer room (bottom right) now houses a series of special-use minicomputers. Lining the building's corridors, easily accessed cable trays are supported on U-shaped aluminum extrusions and brackets incorporating light fixtures (opposite). On the floor, processing units—their fans whirring—their LEDs winking—resemble nothing so much as ranks of tiny robots.



*Software Engineering Institute  
Pittsburgh*  
**Owner:**  
*Carnegie Mellon University*  
**Architects:**  
*Bohlin Powell Larkin Cywinski  
and Burt Hill Kosar  
Rittelmann Associates—Peter  
Q. Bohlin, P. Richard  
Rittelmann, David L.  
Henderson, principals-in-  
charge; John C. Jackson,  
associate; Robert S. Pfaffmann,  
Richard H. Forsythe, Peter A.*

*Matthews, D. Joe Wendling,  
Jeffrey T. Davis, Paula R.  
Maynes, Mike Rajchel, staff*  
**Engineers:**  
*Dotter Engineering, Inc.  
(structural); Burt Hill Kosar  
Rittelmann Associates  
(mechanical/electrical);*  
**General contractor:**  
*Turner Construction Company*







# Common sense



Although Fields Point Limited elected to incorporate its 1962 New Seabury Shopping Center (top) into Mashpee Commons, using part of the earlier complex to define the southern edge of Market Street

(background of photo above), most of the old building's mansard crown has been concealed behind new peak-roofed parapets.

In a small but growing number of cities and towns, enlightened public officials and private developers are attempting to reverse planning decisions that have desecrated America's urban and rural landscape over the past 30 years. Boston, for example, is engaged in a 10-year megaplan to reconnect the city's historic core to its waterfront by replacing the elevated Central Artery with a subterranean highway. A sweeping zoning ordinance in San Francisco strictly limits downtown development and attempts to legislate the architectural character of those structures that do get built. And along Florida's Gulf Coast, Robert Davis's much-publicized new resort town of Seaside [RECORD, mid-April 1986, pages 90-97] continues to evolve according to a master plan that eschews current methods of suburban development in favor of the time-honored principles of 19th-century American urbanism.

The impulses that moved Seaside's planners to create a low-rise, high-density town of picket fences, front porches, and generous public amenities likewise motivated Arnold Chace, Jr., and Douglas Storrs, partners of Fields Point Limited, the development company responsible for the ongoing conversion of a mansard-roofed shopping center erected by Chace's family in 1962 (shown in a 1965 photo, top left) into a 30-acre new town center on Cape Cod, Mashpee Commons. Like Davis, Chace and Storrs are part of a new generation of developers in their late 30s and early 40s who fondly recall the small towns of their youth and contend that the qualities that made those places so appealing can be profitably incorporated into today's commercial and residential projects. "We want to make money," explains Storrs, a trained environmental planner, "but we don't feel that you have to put up a strip shopping center or enclosed mall to be financially successful."

For its part, the town of Mashpee seemed an ideal place for Chace and Storrs's urbane brand of development. Founded in 1870, late by Massachusetts standards, Mashpee never had the cohesive village core characteristic of many small New England towns. During the 1960s, the chaotic roadside commercial boom that afflicted other parts of Cape Cod largely bypassed Mashpee, leaving the town a semirural outpost of pitch-pine and oak forests midway between Falmouth and Barnstable, the Cape's two most populous towns. Development in Mashpee was further inhibited during the late 1970s and early '80s when a protracted land-ownership suit by the Wampanoag Indian Council put all property sales in the town on hold. Although Mashpee eventually won that suit, it saw what uncontrolled growth had done to neighboring towns, and in 1979 it drew up a master plan that called for new commercial, civic, and religious buildings at the intersection of routes 151 and 28—the Mashpee Rotary—on land adjoining the Chaces' shopping center. Since 1980 the town has moved its public library and police and fire headquarters to the area, and Christ the King parish is currently building an imposing new church on land adjacent to the Chace property (plan opposite).





The first phase of a projected 275-acre new town on Cape Cod, Mashpee Commons offers small-town virtues as an alternative to the ad hoc suburban development that has eradicated much of the Cape's 19th-century charm.

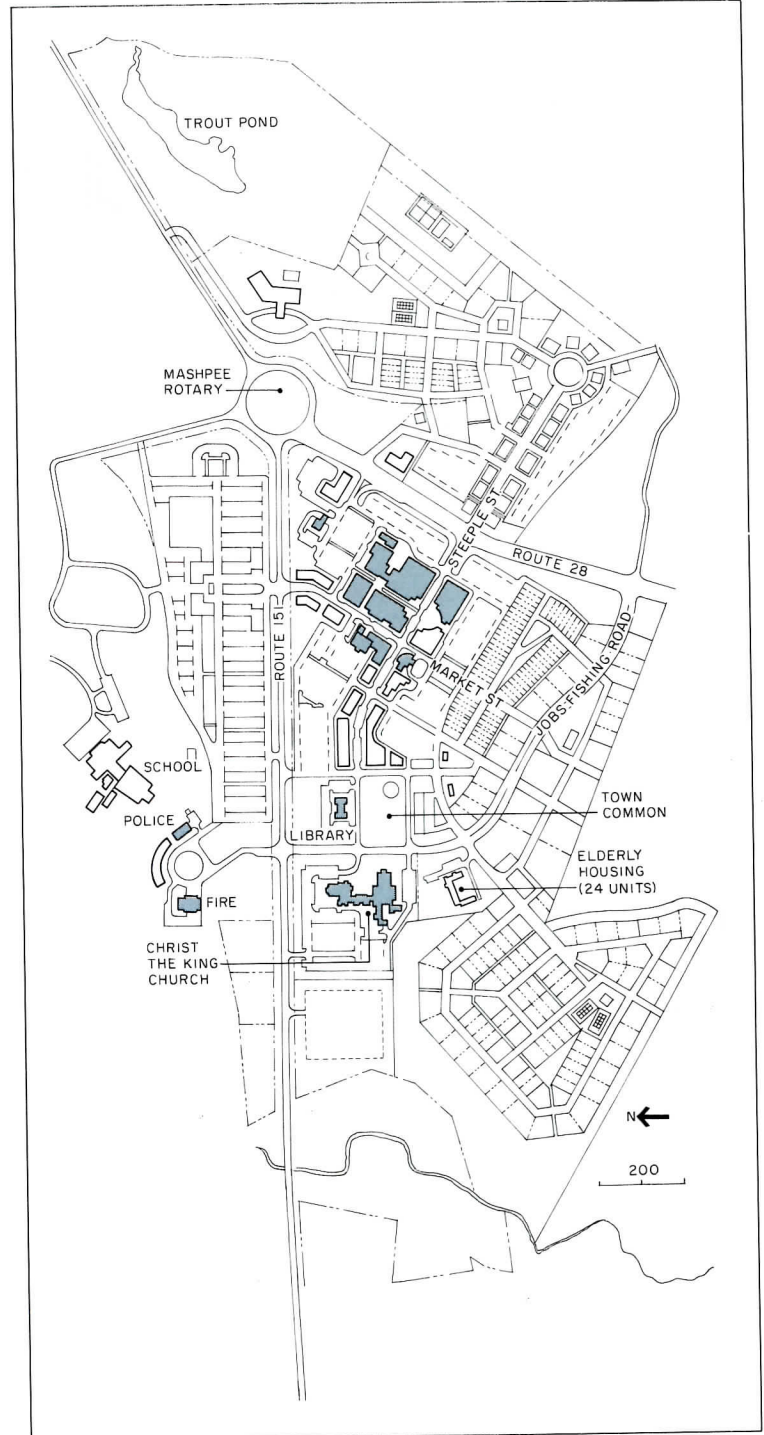


Paul M. Sachner

In 1984 Storrs and Chace began revisiting some of the nearby villages they knew growing up on the Cape, as well as more distant towns like Hanover, New Hampshire, and Woodstock, Vermont. In addition to cataloging such obvious physical characteristics as granite curbs, street trees, and small-scale buildings constructed of brick and clapboard, they measured street and sidewalk widths, and returned to Mashpee to lay out a new town center that would incorporate the elements that give New England villages their distinctive sense of place. Recognizing that even the best urban intentions were futile if, as Storrs puts it, "a K-Mart moves in across the street," Fields Point assembled 275 acres on both sides of routes 28 and 151; last summer, moreover, the developers brought in Andres Duany and Elizabeth Plater-Zyberk, the Miami architects who designed Seaside and the leading American proponents of small-town planning, to conduct a week-long charette that produced architectural guidelines for six mixed-use neighborhoods surrounding Mashpee Commons's commercial core (a few of the residential building types that emerged from the charette are shown below).

Although Mashpee Commons is a market-driven work-in-progress whose completion date is still undetermined, enough buildings have been constructed (shaded areas on plan right) to justify a preliminary examination. The project as it now exists is something of a hybrid, far better than the shopping center it replaces, but not yet the small town of one's dreams. As the photographs on the following pages reveal, the structures erected thus far are deliberately unassertive, ranging from a pair of two-story red-brick buildings by Ellenzweig Associates, located at the principal intersection of Steeple and Market streets (page 86), to a gracefully arched clapboard building, designed by Orr & Taylor, that houses six movie theaters, shops, and offices (page 87). Mashpee Commons's chief visual drawback is, not surprisingly, its expanse of asphalt parking lots, a necessary evil Storrs claims will be masked by proposed buildings on the two major access roads connecting the complex to routes 28 and 151. A less serious problem is the iconography of the project's street signage, which, with its understated scallop-shell logo, reinforces the feeling of a *private* realm (standard street signs used elsewhere in Mashpee would be better).

In the end, it seems clear that Mashpee Commons will improve over time, especially when work begins next year on the first of its residential neighborhoods. Still, expectations must be tempered by the fact that it's one thing to replicate past architectural form, quite another matter to recapture a Cape Cod way of life that no longer exists. If Chace and Storrs can somehow find a way to infuse their late 20th-century commercial venture with 19th-century small-town innocence, Mashpee Commons will be more than just a comely exercise in thoughtful urban planning; it will be a sociological miracle. *Paul M. Sachner*



COURTYARD APARTMENTS



GREEK REVIVAL



HALF CAPE



*The Sentry Federal Savings Bank (below) and Great Hay Building (bottom), designed by Randall Imai of Ellenzweig Associates, were inspired by anonymous red-brick background buildings erected in small towns throughout the United States during the 19th*

*century. Just down Steeple Street, a classically articulated 55,000-square-foot building designed by Orr & Taylor (top and bottom opposite) houses six movie theaters, street-facing shops and restaurants, and second-story office space. One of the architects' urbanistic*

©Nick Wheeler photos except as noted





*triumphs was convincing the theater operator that the building entrance should be in the curved arcade facing Market Street, rather than off the parking lot in the manner of a conventional mall. The arcade forms half of a semicircular plaza that lies on*

*direct axis with a pedestrian shopping allée (not shown). Later this year work will begin on a companion building by an as-yet unnamed architect that will complete the plaza, which Fields Point envisions as Mashpee Commons's major public gathering place.*





Fields Point commissioned small firms to design Mashpee Commons's early buildings, including local architect Tony Ferragamo for the town's new post office (below), and Prellwitz/Chilinski, of Cambridge, for a two-story retail and office building (top

opposite). Though the post office is the sole civic building in the complex to date, the developers and local officials are discussing a proposed new town hall at the southern edge of the project's common. In laying out Mashpee Commons's streets and sidewalks (bottom

photos this page and opposite), the developers doubled the town's 30-foot building-height limit to arrive at a building-to-building dimension of 60 feet. Roadways are narrow (12-foot car lanes plus eight feet on each side for parallel parking), 10-foot-wide sidewalks are

embellished with lindens planted in red-brick strips, and curved street corners have shorter-than-standard radii meant to make pedestrian crossings more user-friendly. "None of this is rocket science," admits Douglas Storrs. "It's mostly just common sense."





*Mashpee Commons  
Mashpee, Massachusetts*

**Owner:**  
*Fields Point  
Limited Partnership—  
Arnold B. Chace, Jr., president;  
Douglas S. Storrs, vice  
president for planning and  
development*

**Architects:**  
*Prellwitz/Chilinski Architects  
(Steeple Street Building,  
Building 7 renovation)—David  
Chilinski, Berry Stafford,  
project architects; Ellenzweig  
Associates (Great Hay  
Building, Sentry Bank, Market  
Street Shops)—Randall Imai,*

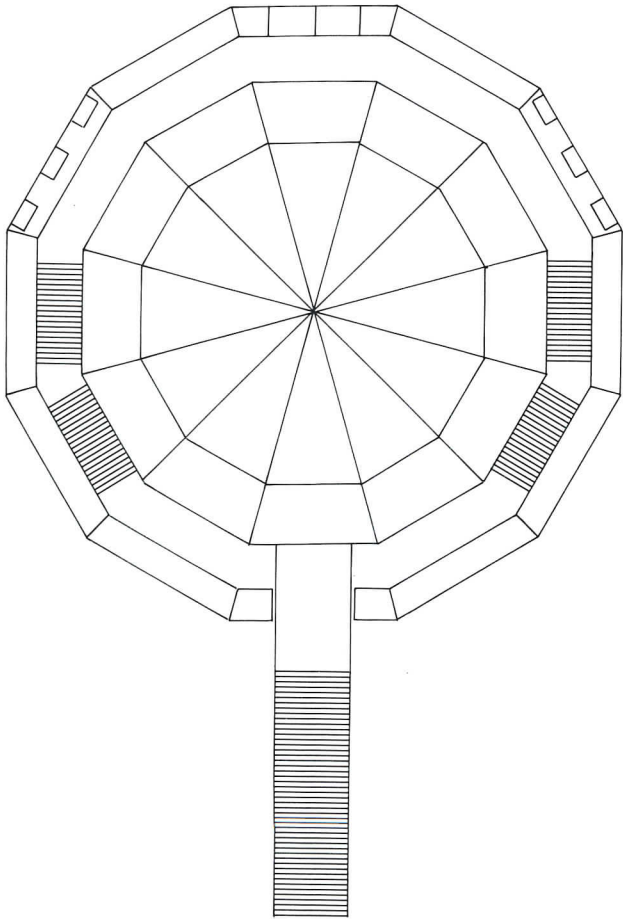
*project architect; Orr & Taylor  
Architects (Theater Building)—  
Melanie Taylor, project  
architect; A. E. Ferragamo  
Architect (Post Office Building)*  
**Structural engineers:**  
*Foley & Buhl Engineers; John  
Born & Associates; Allen Jones  
& Associates; Souza & True*

**Consultants:**  
*Andres Duany & Elizabeth  
Plater-Zyberk (master-plan  
architects); Freer Associates  
and The Cavendish Partnership  
(streetscape design); Clifford  
Selbert Design (signage)*  
**General contractor:**  
*Woodside Park Corporation*





# Traveling show



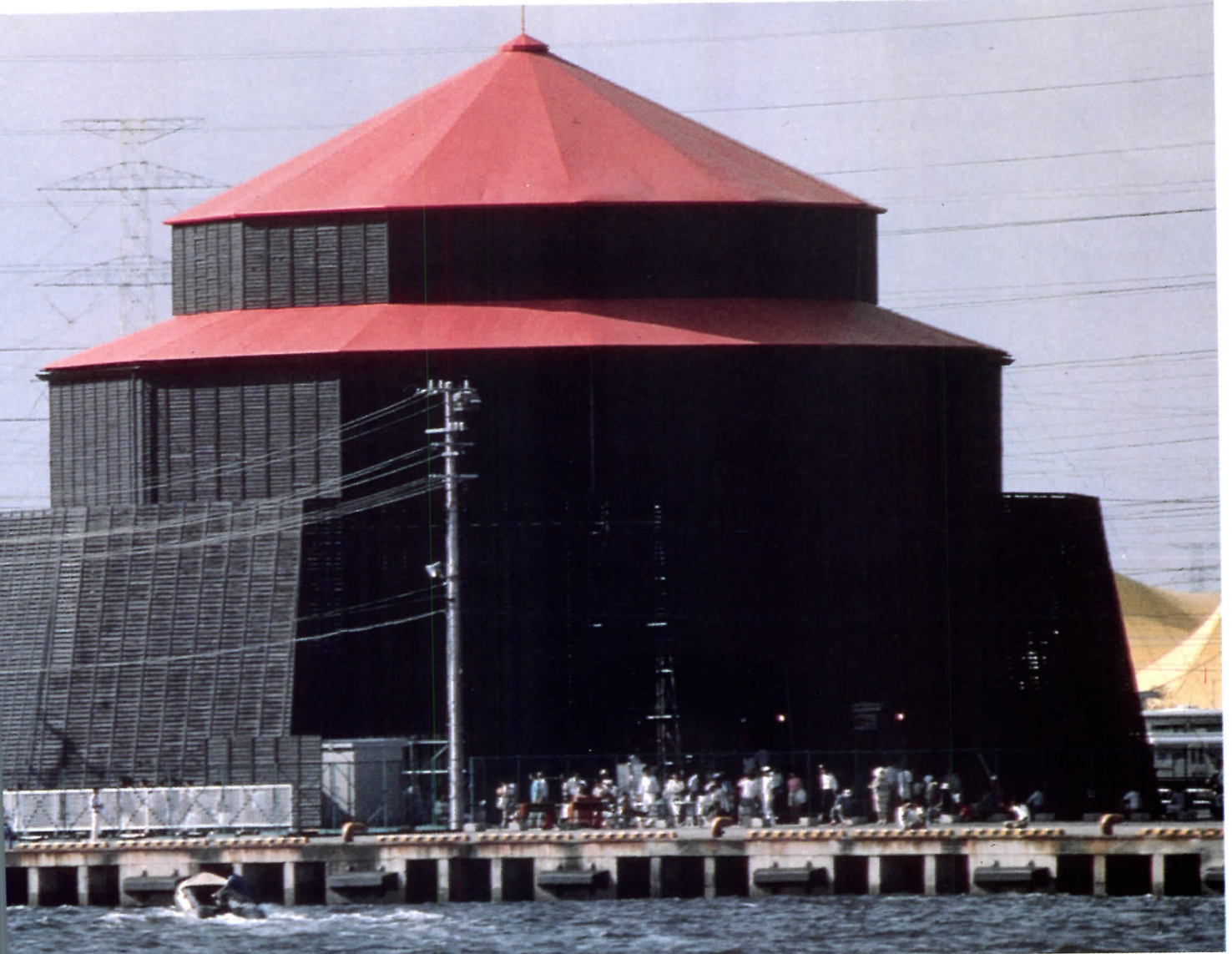
Japanese architect Tadao Ando is best known for his austere concrete structures—hermetic forms with a finish as smooth as marble [RECORD, November 1985, pages 116-125]. In what appears to be a radical departure from his previous oeuvre, however, Ando's demountable Karaza Theater, temporarily on display in the northern Honshu city of Sendai in 1987 and in Tokyo's Asakusa district last spring, has an exposed structure. The theater, home of the traveling performance company Kara Juro, is constructed from a kit of steel and wood parts that comes complete with computer-generated drawings, which explain how the structure can be assembled in just two weeks.

Ando's unexpected stylistic turn is yet another example of his continuing challenge to Western preconceptions about Japanese architecture and architects. Practicing in Osaka, away from the stimulation of Tokyo's supercharged design community, the 48-year-old architect is a professional loner. Although Ando was interested in design as a child, he received no formal architectural training. Instead, he devised a disciplined program of self-instruction, combining independent study with international



Tadao Ando's Karaza Theater, assembled from a  
 pit of steel and wood parts, is the new portable  
 home of a traveling Japanese drama troupe.

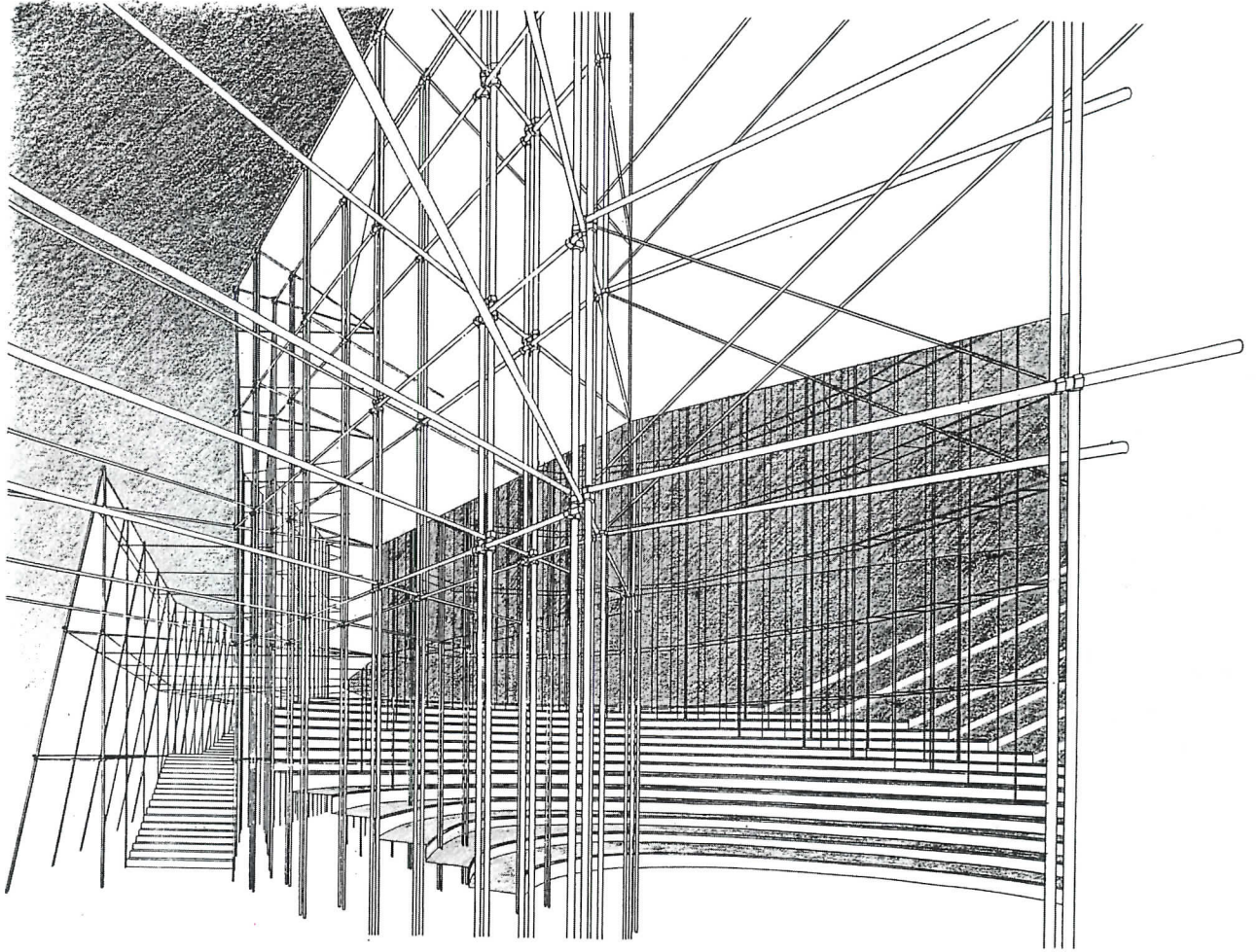
©Yoshio Shiratori photos except as noted



vel, which he interrupted briefly to pursue a career as a  
 professional boxer. Not surprisingly, Ando's Hemingway persona  
 invades his work, and his withdrawn, monolithic forms,  
 fashioned from handcrafted materials, have a haunting presence.  
 Though materially distinct from earlier projects, Karaza exhibits  
 Ando's ongoing fascination with shape as metaphor. Its 12 sides  
 present the cosmos," in the architect's words, and its entrance  
 stage "symbolizes the path from reality to illusion." Constructed  
 of plywood panels secured to scaffolding pipes by clamps, the  
 hexagon is approximately 120 feet wide and 81 feet high. The  
 woven fabric roof is a reference to Kara Juro's previous  
 accommodations, a red tent. The requirement that the new theater  
 be movable inspired rather than constrained Ando, whose  
 design of Karaza harbored in New York (above left) recalls Aldo  
 Rossi's floating Teatro del Mondo of 1979. Although the sketch  
 reveals the architect's more whimsical side, it does not represent  
 pure fantasy, since plans to transport Karaza to the United States  
 for an upcoming festival celebrating Japan are afoot. Perhaps  
 fiction and reality will meet again, in Manhattan. *Karen D. Stein*

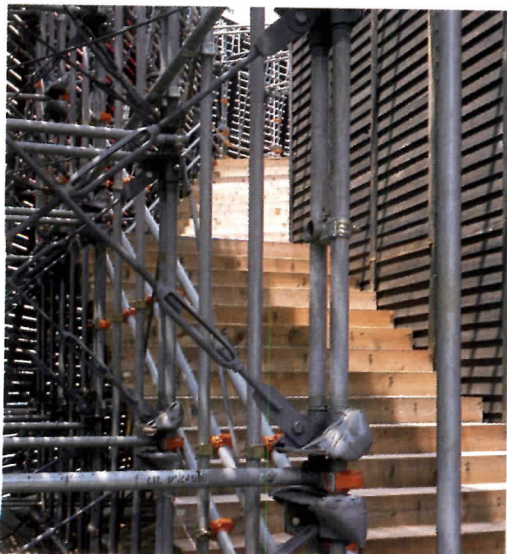




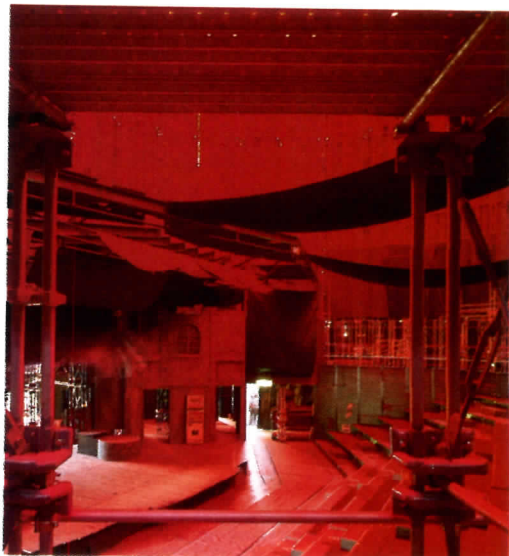


*Initially designed entirely in wood, the Karaza Theater was reconfigured with metal pipes when the program required that it be demountable. According to Tadao Ando, the combination of a steel structure and plywood cladding gives the Karaza Theater "a simultaneously traditional and futuristic image." Inside the theater the dichotomy is even more apparent. Bleacher-style risers*

*(also constructed of plywood) wrapped in carpeting accommodate an audience of up to 600 and are positioned amid a complex web of scaffolding (drawing above and photo below left). Kara Juro mounts its offbeat dramatic productions on a small platform (below right), which is bisected by a water-filled "river"—a stylized set for the performance of Japanese comedy and tragedy.*



©Richard Bryant

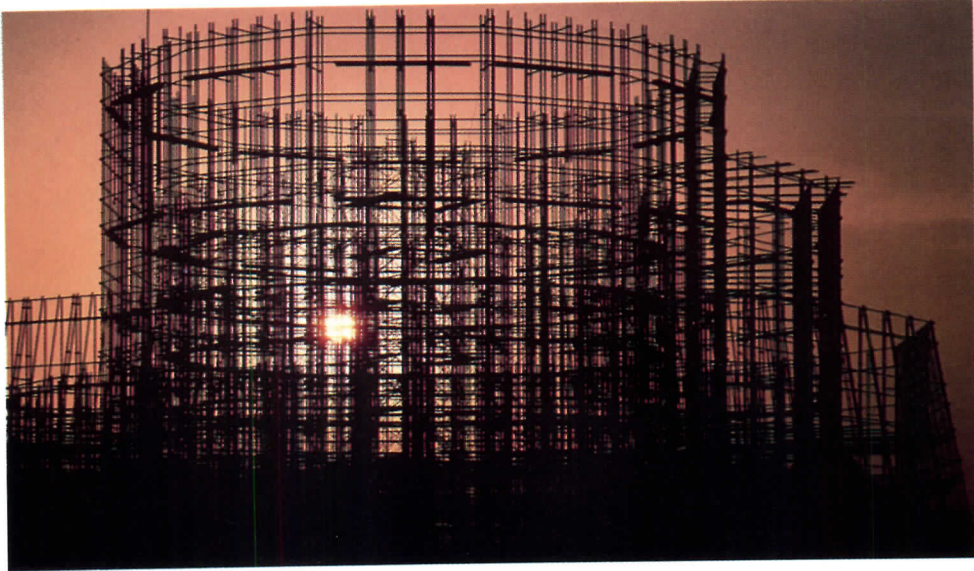


©Richard Bryant



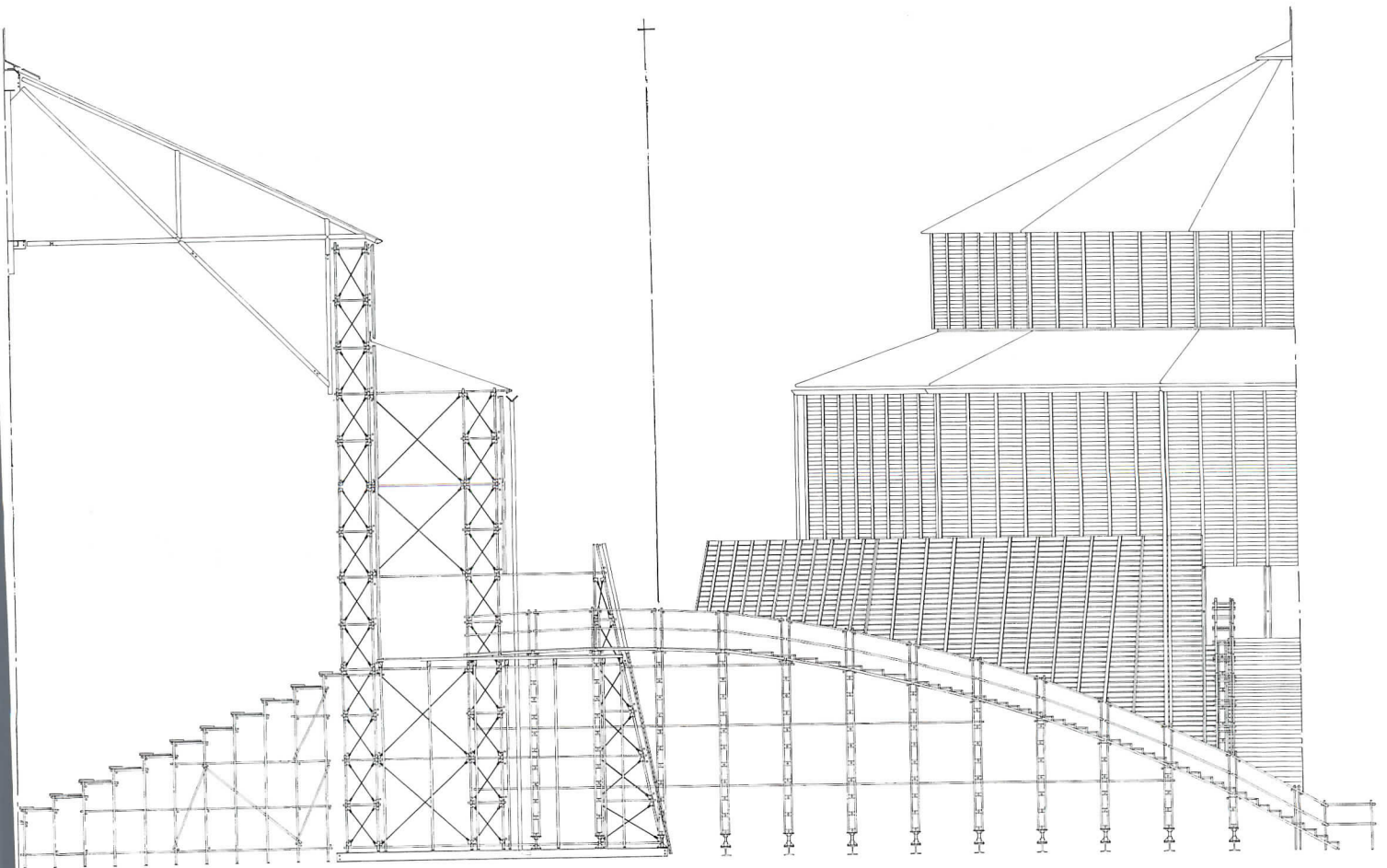
*Accompanying the package of scaffolding pipes, plywood panels, specially designed clamps, and bleacher-style benches that comprises Karaza Theater are a set of computer-generated drawings and instructions that claim "construction is possible*

*anywhere" within a two-week period. Although structurally more sophisticated than a typical circus big top or the red tent that served as Kara Juro's previous quarters, Karaza is meant to celebrate similar rituals of assembly (photo below) and disassembly.*



*Karaza Theater  
Tokyo and Sendai, Japan  
Owner:  
Seiyo Corporation*

**Architect:**  
*Tadao Ando Architect &  
Associates—Tadao Ando,  
principal-in-charge  
General contractor:  
Tobishima Corporation*





The Royalton Hotel  
New York City  
Philippe Starck, Designer  
Gruzen Samton Steinglass  
Architects, Planners

# Rags to riches

©Richard Bryant photos except as noted



Over the past 50 years Manhattan's Royalton Hotel has not exactly lived up to its name. Built in 1897, this once-exclusive bachelors' residence had declined into a second-rate hostelry by the mid 1930s. But when entertainment impresarios Steve Rubell and Ian Schrager and partner Philip Pilevsky purchased the derelict building in 1985, the new owners made it clear that they would restore a measure of dignity to the Royalton's structure and a ring of truth to its regal-sounding name.

Since serving 13-month jail terms on charges of tax evasion, former nightclub owners Rubell and Schrager have built more respectable reputations as developers of luxurious lodgings—and perhaps more significantly, as patrons of architecture. After opening Morgans Hotel, Andrée Putman's essay in quiet good taste [RECORD, March 1985, pages 144-151], the duo decided to raise the visual volume for their next venture, the Royalton. They turned to 39-year-old Philippe Starck, of Paris, a world traveler and hotel connoisseur himself, whose current star status among international designers made him an ideal spokesman for the fast lane crowd the hotel hopes to attract. With local architects Gruze



*Philippe Starck, darling of the international design world, has restored the sparkle of youth to Manhattan's 92-year-old Royalton Hotel.*



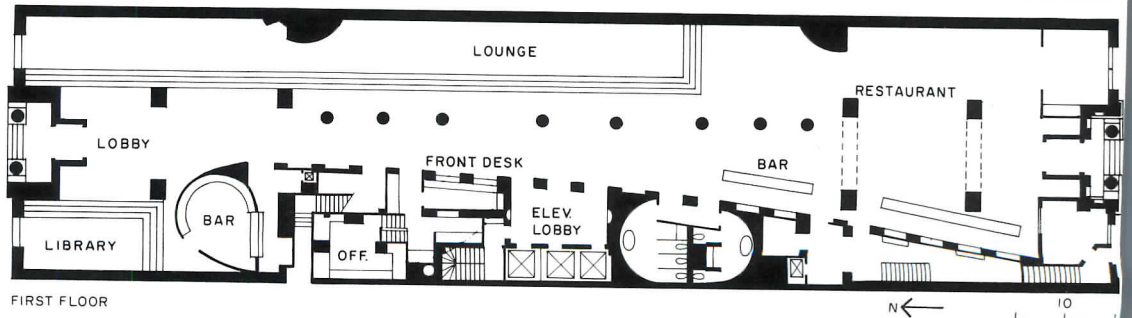
Samton Steinglass ensuring the buildability of his idiosyncratic ideas, Starck set out to break as many rules of conventional hotel design as his clients would allow. In the lobby, for example, the designer emphasized its awkward length by running a royal-blue rug down its center. He tucked what is typically a lobby's most prominent feature, the registration desk, behind a tapering mahogany wall highlighted with horn-shaped sconces. Opposite, steel-legged chairs and sofas slipcovered in white, apricot, apple green, and amethyst provide a suitably dramatic lounge for well-heeled guests. Upstairs, 90 units were gutted and replaced by 171 rooms. Elegantly appointed in mahogany, slate, and subtly shaded gray carpeting, the rooms are comparatively restrained, except for vintage Starck lavatories, where standard fittings were rejected in favor of glass-topped vanities, round tubs, and mirrored showers. Starck's unusual obsession with bathrooms probably won him the commission. "When I saw Philippe's early fixture designs," recalls Schrager, "I thought, 'A guy that does this kind of bathroom must be capable of a lot.'" As the Royalton's cosmopolitan glamour reveals, he certainly is. *Karen D. Stein*



*The Royalton's 180-foot-long lobby is subdivided into several distinct areas (plan below). Near the main entrance, a lower-level lounge contains Philippe Starck's variation on classic wingback chairs. Intentionally impractical white slipcovers ("No other hotel will*

*dare copy them," says co-owner Ian Schrager) give the effect of draped sheets, while sinuous chrome-plated steel makes delicate legs and armrests. Seemingly medieval in purpose and inspiration, a purple bookstand and candle holder framed in crimson add color*

*to a gray wall whose waxed-plaster finish emits a subtle gleam (below left). In the restaurant, banquettes and blond wood chairs upholstered in apple green are reflected in a massive mirror that appears to be supported solely by brightly colored cordons and*

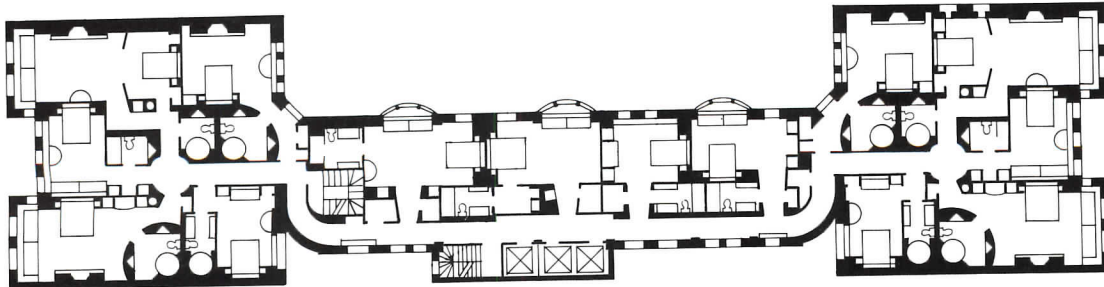




tassels (opposite right). It is here that Schrager and partner Steve Rubell hope Manhattan's literary crowd will establish a new lunchtime Round Table, which was once conducted across the street in the more traditional dining room of the Algonquin Hotel. For further

evidence of the Royalton's bookish aspirations, one must only look to the "library," where a mahogany table piled high with monographs on architecture, art, garden design, and fashion occupies a streetfront showcase (below left). For more intimate

occasions, there is a 192-square-foot circular bar, padded from floor to ceiling in tufted cerulean velvet (below right). Defying stylistic classification, the lobby's eclectic *mélange* is perhaps best summed up by Starck, who calls it a "cultural cocktail."



TYPICAL FLOOR



Elliot Kaufman

What began as a simple renovation turned into a complete gutting when financial considerations required that the Royalton's 90 original rooms be transformed into 171 units of various sizes. All of the new rooms contain custom-designed furniture and light fixtures and some, including a penthouse suite (bottom), have slate fireplaces. Instead of commissioning permanent artwork, Philippe Starck created a candle stand that holds a postcard, which is changed daily (right).

*The Royalton Hotel  
New York City*

**Owner:**  
*44th Street Hotel Associates*

**Designer:**  
*Philippe Starck*

**Architect:**  
*Gruzen Samton Steinglass  
Architects, Planners—Ralph  
Steinglass, partner-in-charge;  
Jury Alvarez, project architect;  
Anda Andrei, project designer;  
Robin Bernstein and Richard  
Rosinski, senior technicians*

**Engineers:**  
*Stanley H. Goldstein  
(structural); Ambrosino  
DePinto & Schmieder  
(mechanical/electrical)*

**Consultants:**  
*Jules Fisher & Paul Marantz,  
Inc. (lighting); Purchasing  
Associates—Pam Weinzapfel,  
associate-in-charge (fixtures,  
furnishings, and equipment);  
John A. VanDeusen &  
Associates (elevators)*

**Construction manager:**  
*Herbert Construction  
Company—Don Denardo, field  
supervision*

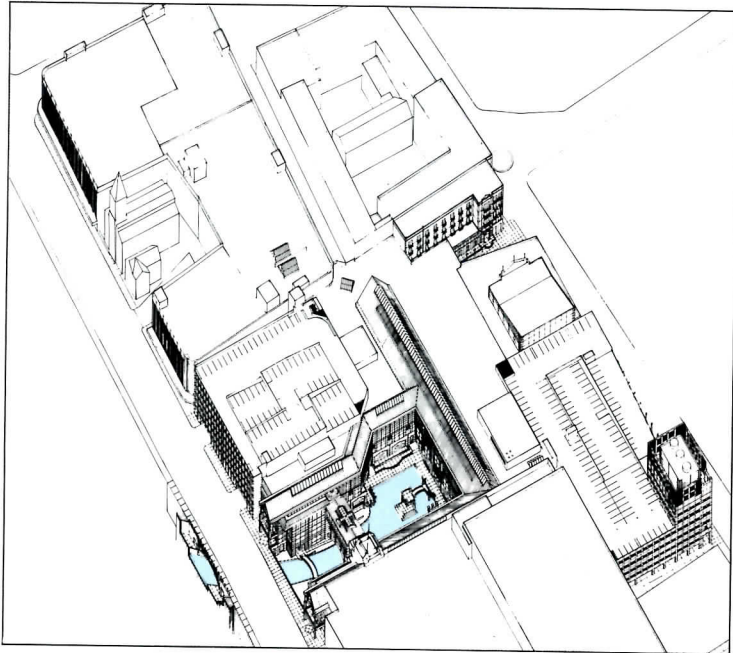








## Just add water



*Among the elements tight-packed on Rivercenter's 13-acre site (above), the signature feature is not a building but an open space—an inland Texas version of a waterfront. To tie the complex into the River Walk, the city channelled a new branch of the twisting San Antonio River to a horseshoe-shaped lagoon wrapped by the retail arcade that connects the project's several anchors (opposite). The liveliness of the*

*basin, which is embellished by elegant bridges (one forms a "Ponte Vecchio" for local crafts), airy terraces and boat landings, and exuberant landscaping, is heightened by contrast with the rigor of the curtainwall enclosing the shopping streets within.*

"Just add water," the promotional slogan for San Antonio's Rivercenter, only hints at the full recipe behind an instant commercial success that must to its beneficiaries seem the product of nothing short of alchemy. In the 14 months since its opening, sales in the downtown shopping and entertainment center have outstripped even the most optimistic projections; its stores, restaurants, and hotels have generated some 3,000 jobs, many among under-employed elements of San Antonio's populace; and significant increases have been registered both in the number of visitors drawn to the city and the length of their stays.

Like most overnight triumphs, this one was long in coming. The project's descent can fairly be traced to the 70-year-old vision of San Antonio as an archipelago of cultural and commercial centers joined by a seamless riverside garden. This image of the city has informed the ongoing downtown revitalization plan set in motion by the 1968 HemisFair exposition, the later construction of a convention center on its site, and the concomitant development of the city's much-acclaimed River Walk. But its more direct genesis was an effort joined in 1979 to gentrify the down-at-heels area just east of the central business district, between the new convention center and the hallowed precincts of the Alamo. A multiuse complex firmly tilted toward retail, the center as built includes a three-level shopping arcade, three major department stores, and two attendant parking garages in addition to two hotels and an IMAX theater, with more to come. Happily, though, the planners did not mistake the site for another cornfield ripe for paving, but recognized and nurtured the latent commercial vigor beneath its crumbling surface.

If "urban shopping mall" strikes some as an oxymoron, Rivercenter nonetheless achieves a convincing, if laid-back, urbanity by engaging and emulating the surrounding community, smoothly insinuating its 3 million gross square feet into a mixed and changing neighborhood. The casual visitor, in fact, sees the mall proper as simply the brightest thread in a dense tapestry woven from buildings of old, new, and uncertain vintage (see photos overleaf). The former Joske's department store at the center's southeast corner, for example, dates to the late 1800s and embraces an only slightly more modern church. Yet its restored facade, which now houses two smaller anchor stores along with an interior extension of the arcade, is every bit as fresh as the bandbox-new Lord & Taylor's down the block. Across a one-time alley turned pedestrian street, the historic 333-room Menger Hotel, spruced up and expanded, similarly holds its own against the 42-story Marriott that is now the city's tallest building.

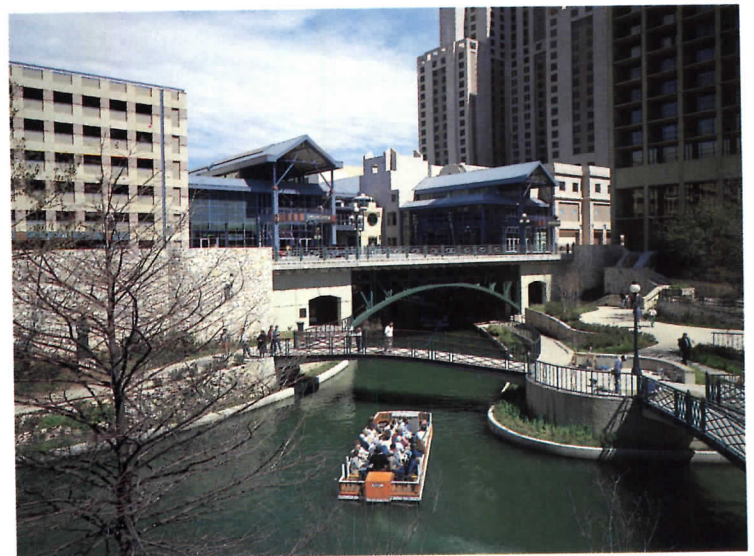
A more subtle tie to the larger metropolis rises from the refusal to snub that notorious city slayer, the car. To welcome auto-reliant San Antonians as well as transients, Rivercenter's parking is not only plentiful, safe, and convenient but downright spiffy. In addition, the arcade's interior layout concentrates offerings geared to tourists and conventioners at the river level, with those more attuned to a local clientele on the upper floors. The crucial symbiosis with the city was achieved, however, by wrapping the arcade around a lagoon (opposite) that brings the river to the project's doorstep, creating an ebullient front yard for the center and adding a lively destination to the River Walk.

Whether the complex will, as intended, also serve as a catalyst for a full-fledged retail revival in the sagging city core remains to be seen. Meanwhile, its carefully cultivated "street smarts" yield urban lessons of their own. *Margaret Gaskie*



*Channeling San Antonio's popular River Walk to Rivercenter's doorstep was just one of the not-so-secret ingredients that give the new complex both its lively presence—and a past.*

©Nick Wheeler photos

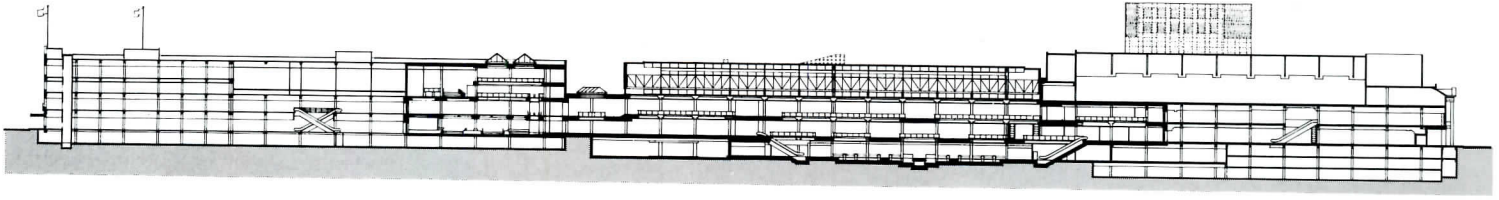




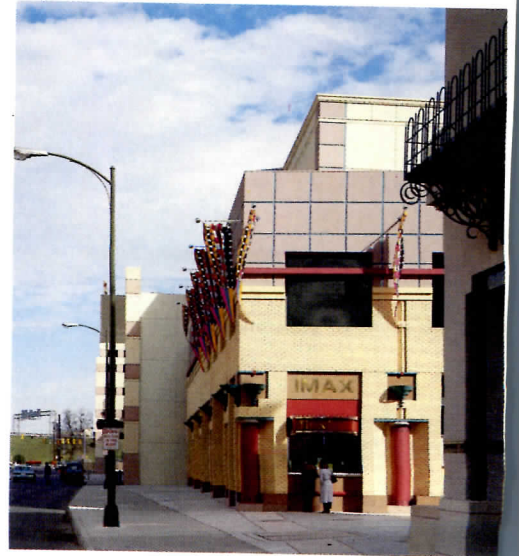
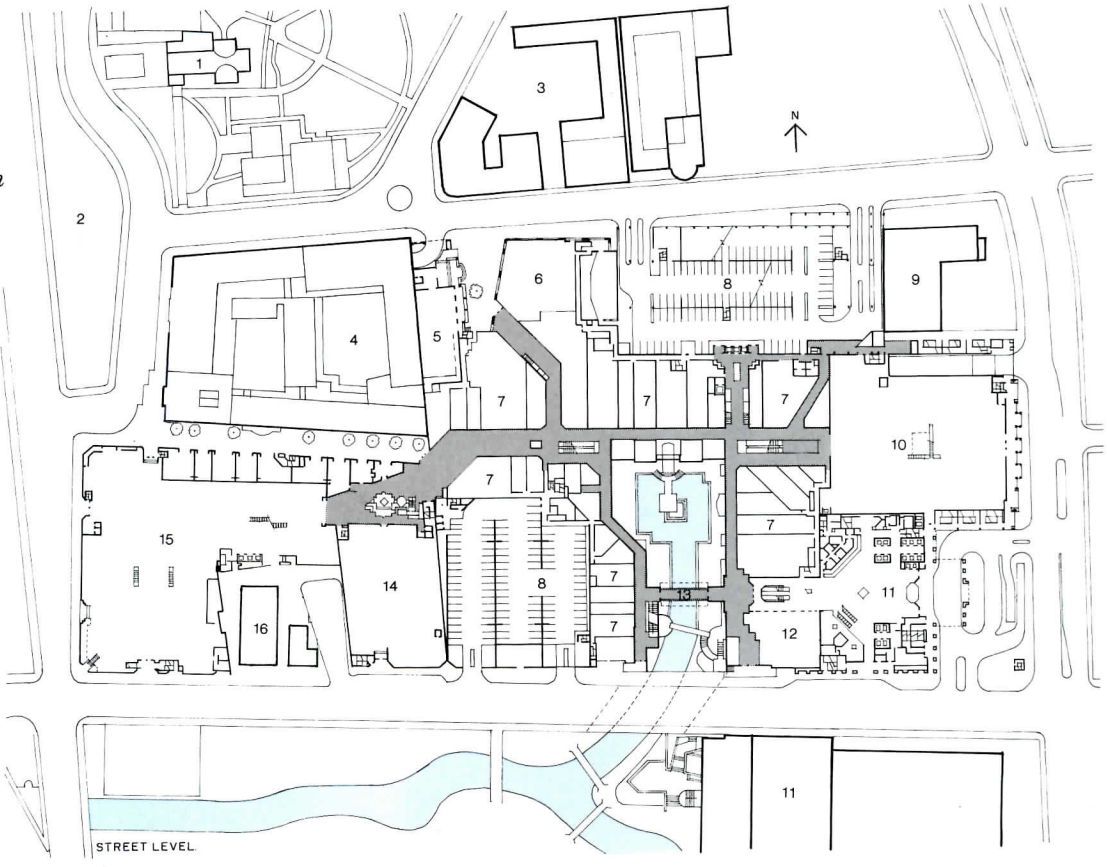
Though its cynosure is the water garden fronting the retail arcade, the project as a whole is no less remarkable for its largely persuasive guise as infill. Actually, only the Menger Hotel and the shell of the neighboring department store at the western edge of the

site were retained and restored. But the center's just-built pieces are equally at home in the old neighborhood, even before the "new" wears off. Realizing that variety is the area's chief attraction, as well as its "context," Urban Design Group wisely resisted imposing

a "consistent" style on the various buildings, instead trying for the individual reticence and collective appeal of a true urban ensemble. The garages look unapologetically like garages; the new Lord & Taylor's (bottom left) is a classic downtown store, lent



- 1. Alamo
- 2. Alamo Plaza
- 3. Crockett Hotel
- 4. Menger Hotel
- 5. Menger Hotel expansion
- 6. IMAX Theater
- 7. Retail
- 8. Garage
- 9. Future hotel
- 10. Lord & Taylor
- 11. Marriott Hotel
- 12. Hotel restaurant
- 13. Retail bridge
- 14. Neiman Marcus
- 15. Dillard's
- 16. St. Joseph's Church

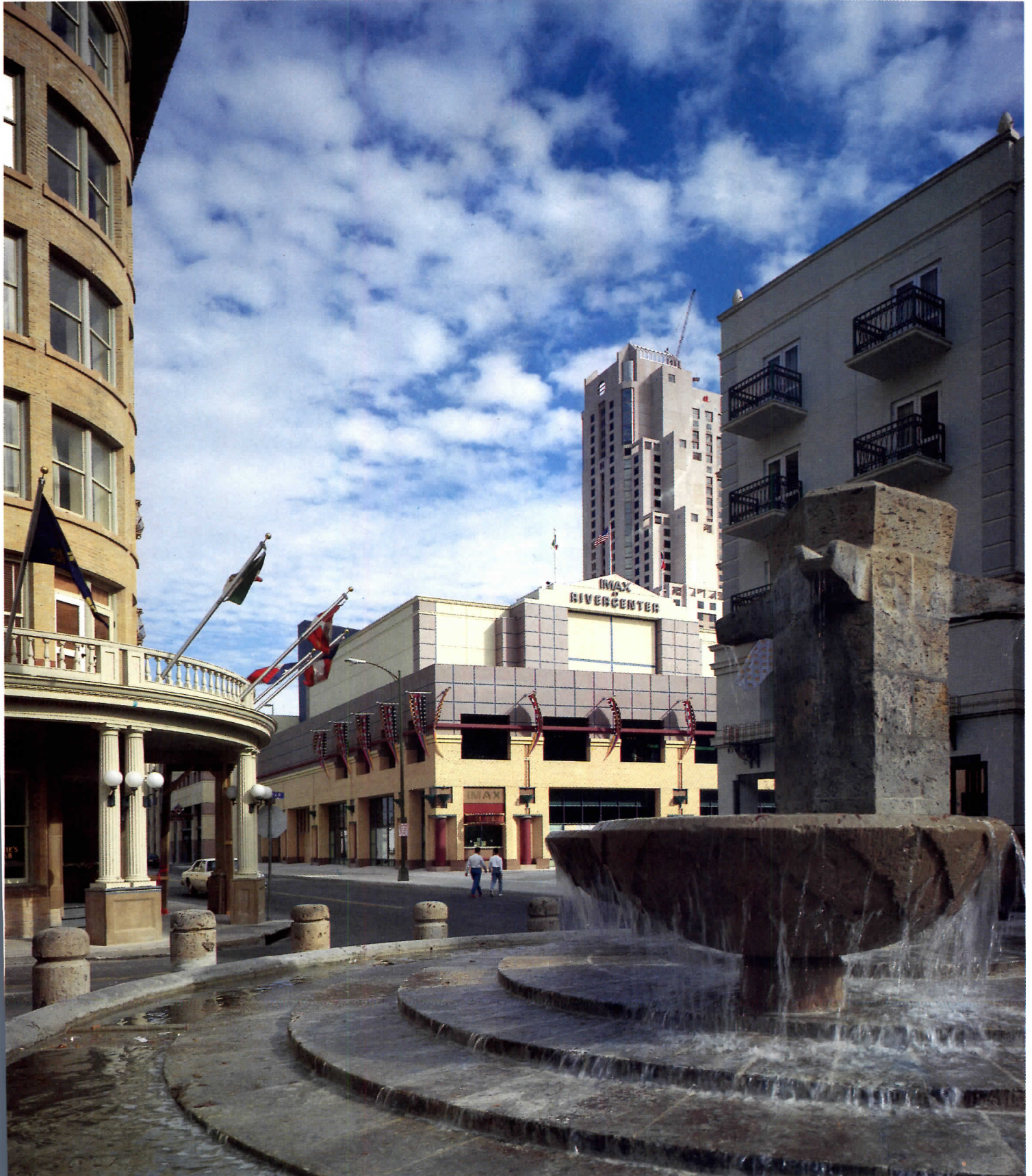




added stature by carrying the Marriott's ballroom on its roof; the IMAX theater (bottom right below and opposite) could only be a theater—and only in San Antonio. Even the 1,000-room Marriott Hotel (designed by RTKL) looks like a hotel. The picture-postcard street

scene below is a capsule summary of Rivercenter's mostly gentle presence. The fountain, installed during earlier improvements to the Alamo Plaza, introduces the facade of the copycat addition to the Menger Hotel (far right). In the center of the photo are

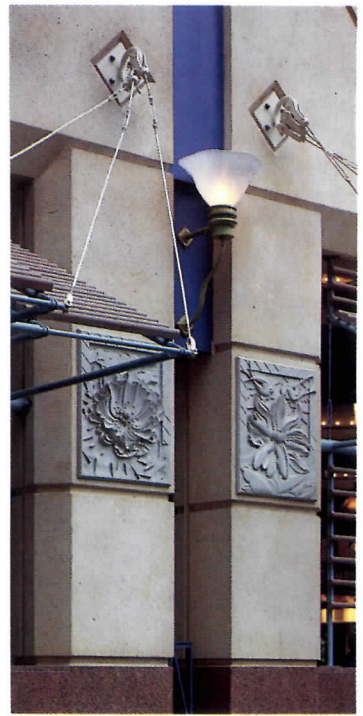
the IMAX Theater and behind it the Marriott, both new. The historic Crockett Hotel glimpsed at left is neither new nor part of the Rivercenter complex, but was recently renovated and restored in an early example of the project's hoped-for trickle-down effect.





The disciplined structure of the "market shed" that edges Rivercenter's lagoon (below and upper left opposite) places single-loaded shops in receding tiers as it rises from river level to street level and the upper "Fashion" level. Combined with skylights and clerestories above,

the glass front opens the mall to daylight and views, and provides an airy expansiveness without loss of orientation. Taking advantage of San Antonio's gold-flecked sunlight, the steel frame is outlined in vivid blues and greens that would elsewhere seem harsh.



*Rivercenter  
San Antonio, Texas*

**Owner:**

*The Edward J. DeBartolo Corp.*

**Architects/master planners:**

*Urban Design Group—John M. Novack, principal-in-charge; Donald C. Buenger, master planner/design coordinator; Ronald D. Armstrong, technical coordinator/construction administrator; Randy Hart, John Foster, Tom Gandee, Randy Brown, Leisa McNulty, Randy Johnson, Whit Todd, Brad Buchanan, Jan Delaney (retail/parking); Jack McSorley, Finley Skocdopole, Laird MacDonald (Menger Hotel); Kent Utsurogi (IMAX)*

**Architects for river extension and landscaping:**

*Ford, Powell & Carson*

**Architects for Marriott Hotel:**

*RTKL Associates, Inc.*

**Engineers:**

*Walter P. Moore & Associates (structural); Smith & Boucher, Inc., Goetting & Associates (mechanical/electrical/plumbing); K. M. Ng & Associates (civil and bridge)*

**Consultants:**

*Communication Arts (retail interiors/graphics); Maurice Kley (L&T image); DeShazo, Starek & Tang (traffic/parking); Learch, Bates & Associates (vertical transportation); Barath Acoustics, Sonic Associates (IMAX); Day & Zimmerman (city contract managers)*

**General contractor:**

*Manhattan Construction Co.*



The comparative restraint of the arcade's upper floors (not a clock tower in sight) gives way to exuberant Hispanic motifs at the tourist-oriented river level. Mahogany lattices, for example, screen the deep portals that open from landscaped terraces to inner

concourses (below right), allowing light to penetrate their dense shade. In the central food court (bottom right), colorful tiles, bas reliefs of chili peppers, sturdy oak furniture, and metal ruffles as light shields create a space that is gay but not gaudy. The

ruffled baffles reappear in a colorful lobby for garage elevators (bottom left) that exemplifies Rivercenter's attentiveness to motorists.





# Learning curve

By Ellen Posner

New York City's public-school system has become a metaphor for disaster. Disorder, violence, and drug use are well-documented, as are the less blatant but equally discouraging problems of overcrowded classrooms and deteriorating structures—the result of what one New York State assemblyman calls “systematic underinvestment.”

But improvements are underway. Two years ago, the city began a program to build 12 new schools, four of which are scheduled to break ground in December 1989. The architects of these projects are four New York City firms—Gruzen Samton Steinglass, Perkins & Will, The Ehrenkrantz Group & Eckstut, and Richard Dattner. Each firm has designed one modular prototype that will be adapted for various sites in the boroughs of Manhattan, Queens, Brooklyn, and The Bronx.

One of those architects, Richard Dattner, has also designed the first primary school to be built in New York City in over a decade. Public School 234 was begun four years ago as part of the 10-block Washington Market Urban Renewal Area in lower Manhattan, a project of the New York City Public Development Corporation, a quasipublic agency. Many of the same people now involved in the prototype program, particularly at the Board of Education, were responsible for the successful completion of the school, and Dattner reports exemplary cooperation among architects, school board members, and community residents. In a city like New York, such a story can be hard to believe. In fact, if P. S. 234 hadn't already turned out so well, the city's current initiative might just seem too good to be true.

*Ellen Posner writes about architecture for The Wall Street Journal.*

**Building Types Study 663: Urban schools**



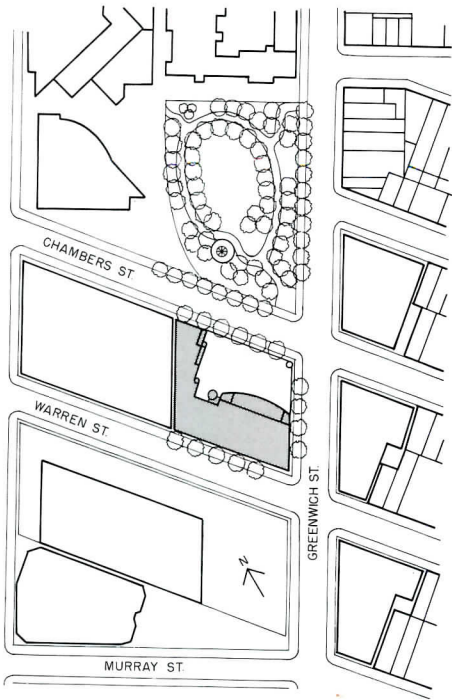
©Norman McGrath photos except as noted







## Primary consideration



*P. S. 234 faces Washington Market Park, which serves as a visual extension of the school's courtyard (site plan). On the southeast corner of the building, a turret houses a reading alcove for the school's second-story library (above).*

In another city it might qualify as just one more well-designed school building, but in New York City, P. S. 234 stands out as a small miracle of humanity. In 1984, the school was offered as a tradeoff to residents of the lower Manhattan neighborhood of Tribeca, who reluctantly consented to have an office tower built amidst the neighborhood's mostly low-scale 19th-century industrial buildings (many of which have been converted to residential lofts). Opened last September, P. S. 234 accommodates children in grades K to 5 who previously were being taught in leased space on the ground floor of an apartment building.

Architect Richard Dattner successfully joined the school to its surroundings by slipping a sawtoothed form with strip windows into a red-brick envelope, which is pierced by narrow arched windows and enlivened by pale belt courses. (The architect in fact has been complimented by a number of local residents on what they think is a sensitive renovation of an older structure). At the intersection of Chambers and Greenwich streets, the entrance of the school is demarcated by a series of red-brick piers and arches, connected by decorated steel gates (bottom left opposite) designed by artist and neighborhood resident Donna Dennis. These elements enclose a courtyard/play area that has been raised above street level to provide youngsters with privacy and protection. A quartet of sentry-box-like towers, including one containing a bell that the children can ring, is meant to encourage a sense of security. Although overtly quaint, the towers help to portray the school as a welcoming place—a significant improvement over the bleak asphalt-and-chain-link-enclosed playgrounds or nonexistent play areas at older institutions.

Inside P. S. 234, Dattner struck a balance between straightforward organization and visual interest. In keeping with the current "return-to-basics" pedagogy, as well as his own belief that children should experience the school as a place where they are expected to work, the architect maintained a pale, neutral palette (he was limited in his choice of materials by the school board's requirements for maintenance and safety) and arranged fixed, rectangular classrooms. Although Dattner designed the classrooms as traditional units, he eschewed lining them up like cells. Instead, by means of slight chamfers and jogs, he gave each room its own distinct entrance along the corridors. They benefit from large windows at child's eye level, high ceilings, and exposed or exaggerated structural elements that are meant to be subtly instructive.

Despite the Board of Education's highly specific program, with nearly every inch of space accounted for, Dattner was able to work with the agency's staff architects "to steal a little from this and a little from that" and create a stack of informal, nonspecific areas. He treated the corridors not merely as circulation routes, but as important gathering places where the life of the school is conducted. Alcoves were inserted, windows with good views provided, and wood strips applied to the walls for an orderly display area for student artwork. The ground-floor entrance hall is furnished with simple wooden benches and referred to as the "community area." On the second and third levels, curved wooden platforms rise to a series of varied windows, including an oculus.

Considering the city's web of bureaucracy and the limited means available for public projects, Richard Dattner calls P. S. 234 a "victory," and he's right. The children attending this school deserve no less. *E. P.*



New York City's newest public school is located near the Hudson River and World Financial Center in Battery Park City (below). Architect Richard Dattner designed the primary-grade facility around a courtyard with recessed brick courses and patterned pavers in

scale with the children (below right). Artist Donna Dennis (whose work was made possible by the city's Percent for Art program) stressed a maritime association in her design for the gates (below left), depicting ships that, at one time or another, would have sailed the Hudson.



©Jeff Goldberg/ESTO



©Jeff Goldberg/ESTO

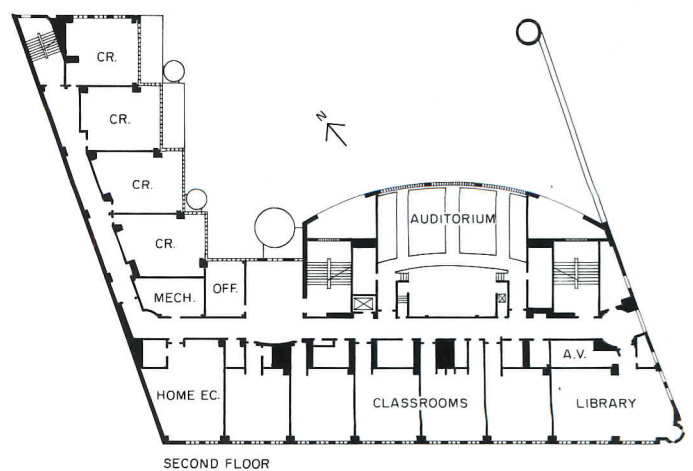
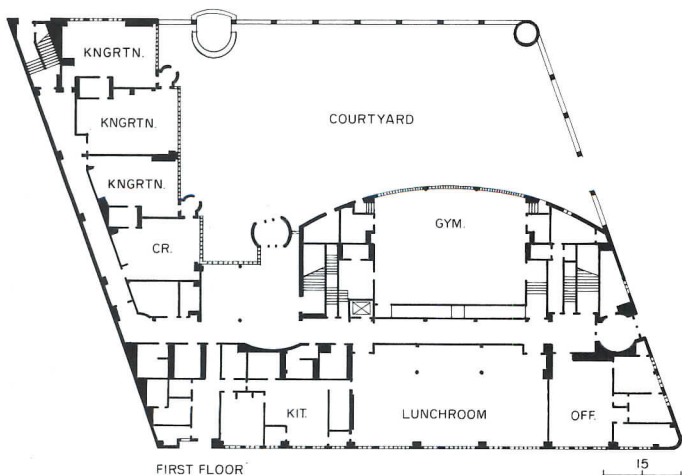




*In P. S. 234's classrooms, exposed concrete beams (below) and brick window arches reveal the school's structure to the students. Shared public spaces exhibit a warmth and dignity not always associated with city-funded projects. Richard Dattner designed the oak-paneled*

*auditorium (opposite) with a large bay glazed with decorative glass block. The shallow domes in the corridors (bottom opposite) are intended to house representations of constellations created by artist Donna Dennis, which have not been realized as of yet due to budgetary*

*constraints. Though most of the classrooms are generic in size and shape, special provisions were made for the ground-floor kindergartens. Slightly larger than the other classrooms, they incorporate bathrooms and private entrances from the courtyard towers.*



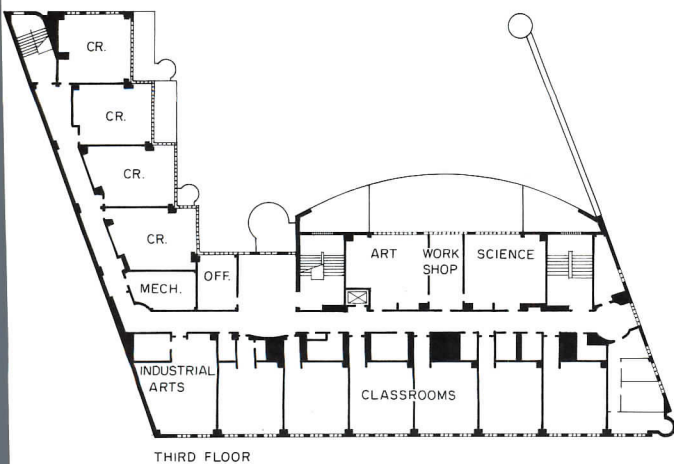


P. S. 234  
New York City

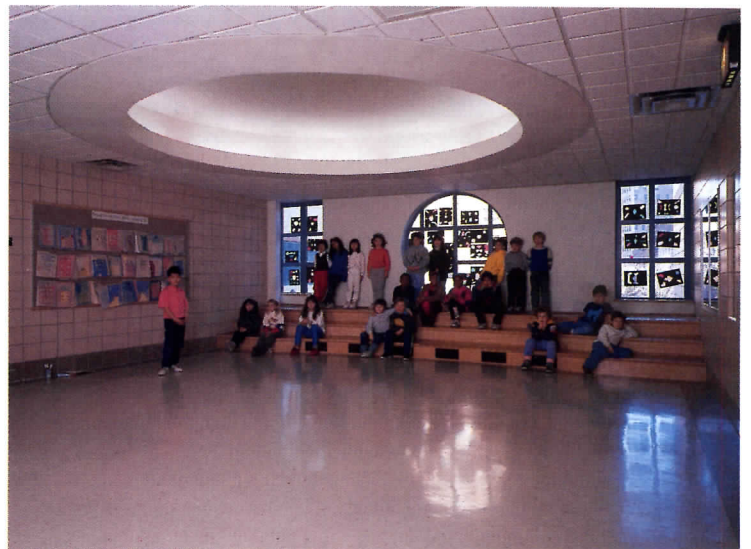
**Architect:**  
Richard Dattner Architect—  
Richard Dattner, principal-in-charge; William Stein, associate-in-charge; Songsri Chang, Kevin Dakan, Craig Abel, Jeff Kieffer, Naomi

Lieseroff, William Kelm,  
Donna Taraschuk, Michelle  
Noe, Michael Daniels,  
project team  
**Engineers:**  
Goldreich, Page & Thropp  
(structural); Robert Derector  
(mechanical)

**Landscape architect:**  
Miceli-Kulik & Associates  
**Consultants:**  
Peter George (acoustics);  
Nissim Zelouf (cost); Donna  
Dennis (art)  
**General contractor:**  
Arnell Construction  
Corporation



THIRD FLOOR





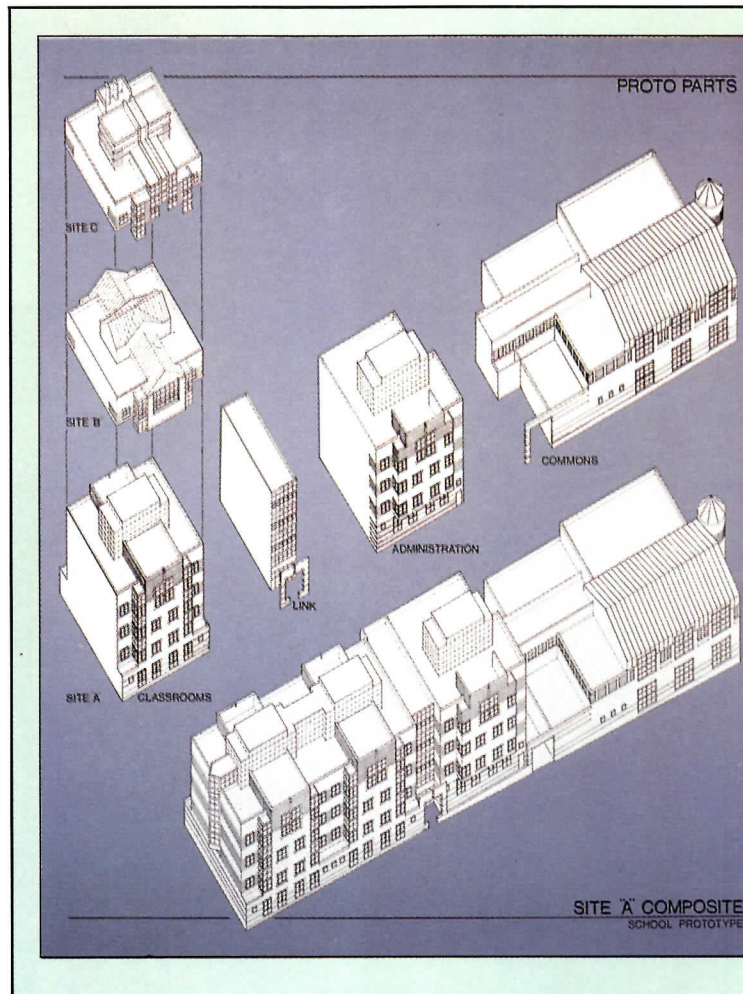
# Building blocks

Over the past two decades, New York City has not supported wholeheartedly architectural intervention as a means of solving the problems that confront its public-school system. During the city's fiscal crisis in the 1970s, for example, projects under construction were abruptly terminated, with dug foundations abandoned and steel frames left standing. More recently, as the school-age population dwindled in some districts and bulged in others, problem-solving techniques consisted of closing or demolishing scores of schools, while allowing students in other locations to be taught in converted closets or bathrooms. The Board of Education's staff architects struggled with meager financial resources to do whatever maintenance and modernization work they could. By 1987, conditions had deteriorated to such an extent that a Mayor's task force began looking into building new schools, designing them better, and constructing them more quickly. The result is a school-construction program that is expected to produce 189 new buildings over the next 10 years—about the same number built per decade in the Board of Education's post-World War II heyday. Most elements of the new program already are in place, including a newly formed New York City School Construction Authority, created by the state legislature, and a streamlined, anti-bureaucratic method of site selection and acquisition initiated by Mayor Edward Koch. The pivotal allocation from the city's capital budget for the program's first five years is expected to be decided this spring.

Meanwhile, the first 12 schools in the program (9 primary, 3 intermediate) are already going ahead. Early last year, four New York City firms—Gruzen Samton Steinglass, Perkins & Will, The Ehrenkrantz Group & Eckstut, and Richard Dattner—were commissioned, each to design one flexible, modular prototype school building that will be reconfigured for three different sites. Initially, when the Board of Education sent out its request for proposals to 23 New York firms in 1987, the agency was looking for one firm to design one prototype for the 600-to-900-student primary schools they were first planning to build. A presubmission meeting was held, attended by representatives of such prominent firms as Edward Larrabee Barnes, Ulrich Franzen, Hellmuth Obata & Kassabaum, Mitchell/Giurgola, James Stewart Polshek, Hardy Holzman Pfeiffer, Skidmore, Owings & Merrill, Tod Williams, and Steven Holl, along with those architects who ultimately were commissioned. It was during the group's discussion, recalls Rose Diamond, deputy director for management at the Board of Education's division of school buildings, that "interesting ideas began to emerge, including the idea of a 'kit of parts' rather than a 'cookie-cutter' design." The Board suddenly began to see "more possibilities and more needs" and decided to commission more than one firm. An innovative approach to the program evolved, eventually affecting larger primary and intermediate schools of 1,200 to 1,800 students. Sites were selected in residential neighborhoods where school overcrowding was worst—a continuing process that requires the city to condemn property for the first time in 25 years.

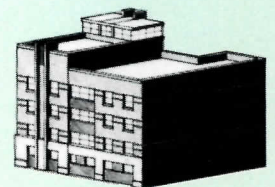
The design process, from pre-schematics to design development, evolved in three, six-month intervals, which allowed the four firms to devise a variety of configurations and facade treatments. The Ehrenkrantz Group & Eckstut, for example, arranged gabled buildings around courtyards, which appear almost suburban in

*Text continued on page 114*

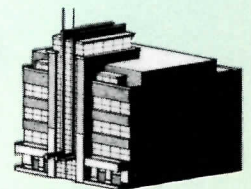


## Perkins & Will

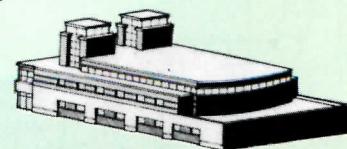
Perkins & Will worked with the same program as Gruzen Samton Steinglass to design 300-student classroom modules for three different schools in the Bronx. Aaron Schwarz, partner-in-charge of design for the project, says the firm decided against creating "a bunch of townhouses." Instead, the architects took their cues from Modern sources, employing a stripped-down esthetic sympathetic to the Art Deco character of the neighborhood, which gives the complex a civic presence. Within each school, the major public entrance is located in the administration module (right). The wing containing the lunchroom/assembly room is separated from the gymnasium (1, 2) but the two areas may be connected as a single block (3), depending upon the size and configuration of the site.



TEACHING CLUSTER



ADMINISTRATION / RESOURCE



LUNCHROOM / ASSEMBLY

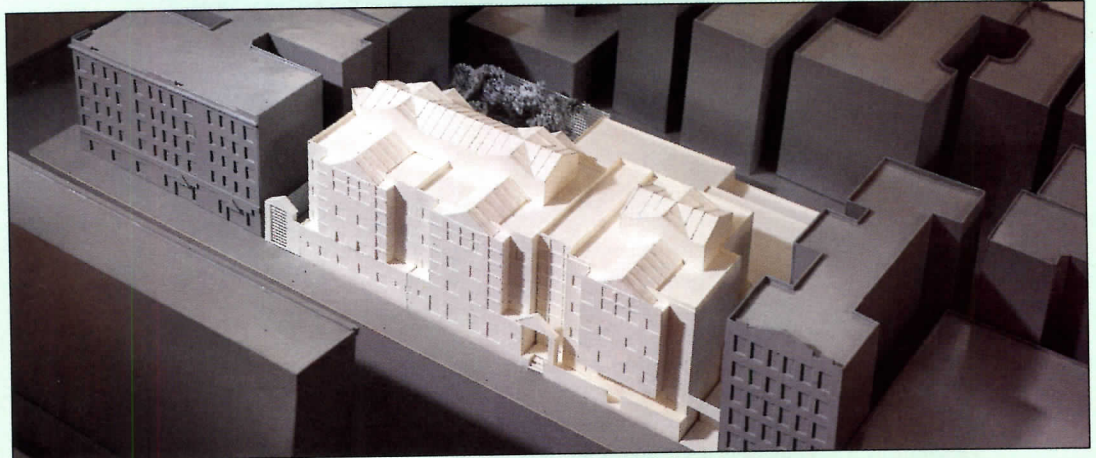


GYMNASIUM

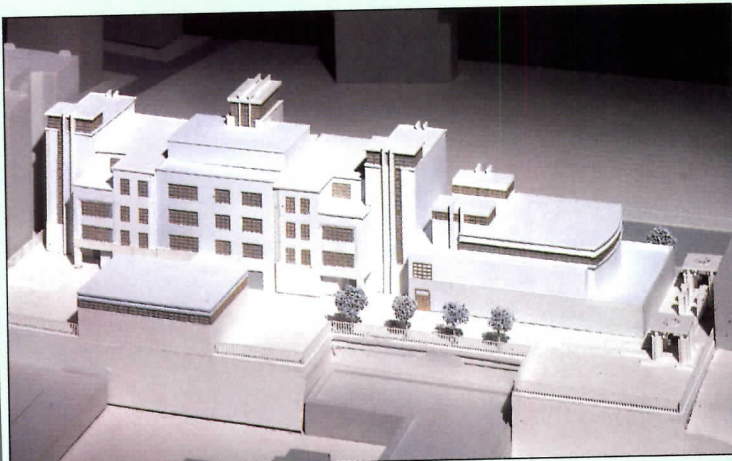
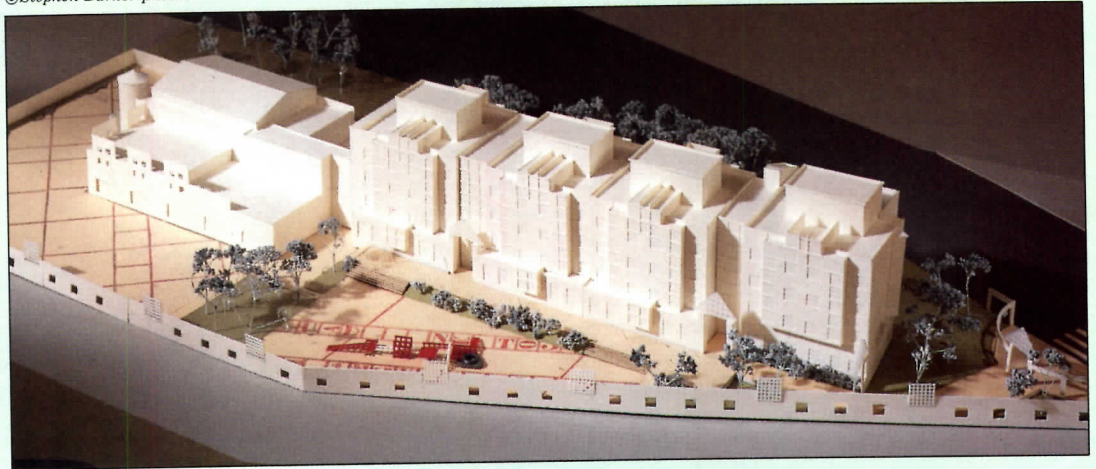


## Gruzen Samton Steinglass

The bays of the 300-student classroom modules designed by Gruzen Samton Steinglass are joined by "link" modules that contain shared vertical circulation, including entrances from the street and playground (left). To accommodate 900 students at the Sherman Creek school located at the north end of Manhattan (bottom right), an extra link was added for support facilities, while the program for the Broadway and West 204th Street site (top right) was condensed and the "commons" placed at the rear. The spaces within the commons module (the auditorium, gymnasium, and cafeteria) can be reconfigured while the structure retains the same long spans. The architects separated the public spaces from classrooms with security gates so that the community can use the school's facilities in the evenings.



©Stephen Barker photos



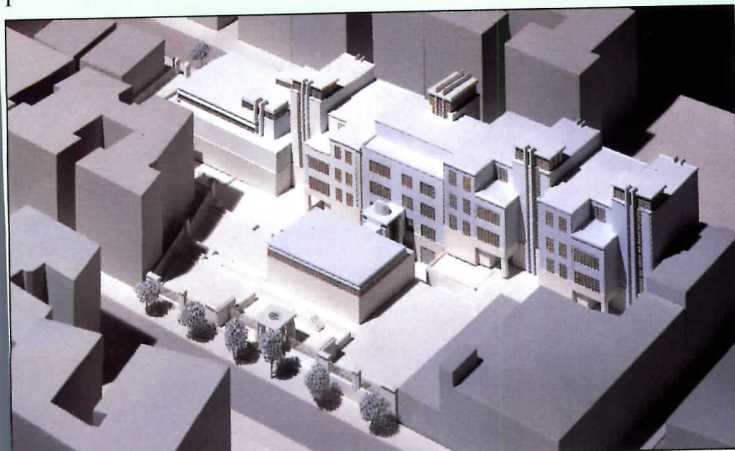
1



©Wolfgang Hoyt photos

3

1. Washington Avenue, The Bronx
2. Walton Avenue, The Bronx
3. LaFontaine Avenue, The Bronx



2



*Text continued from page 112*

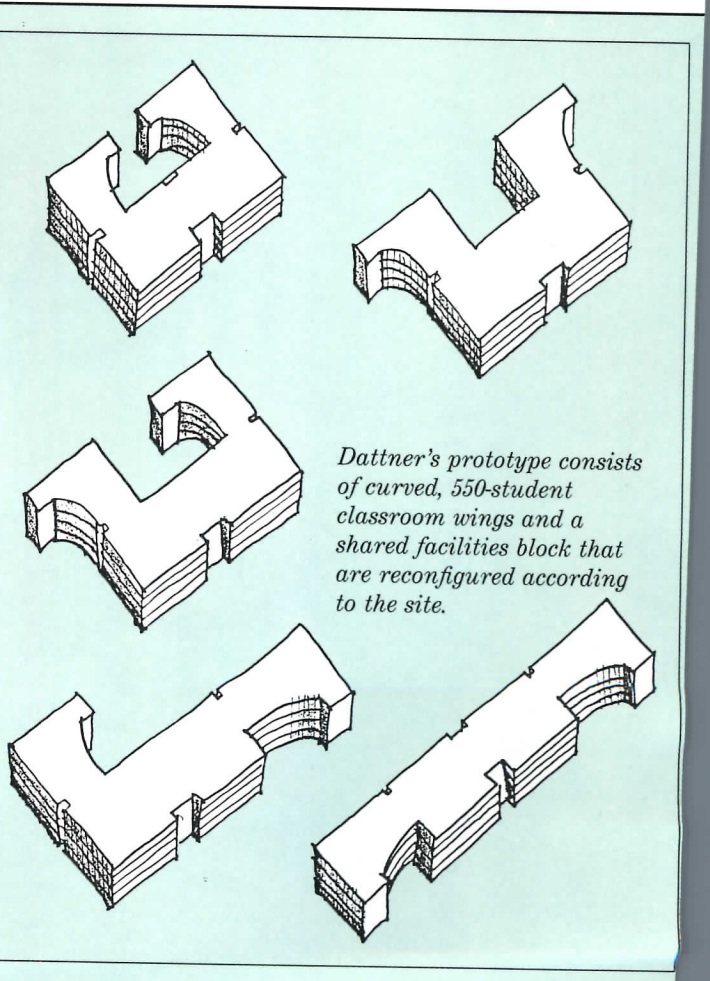
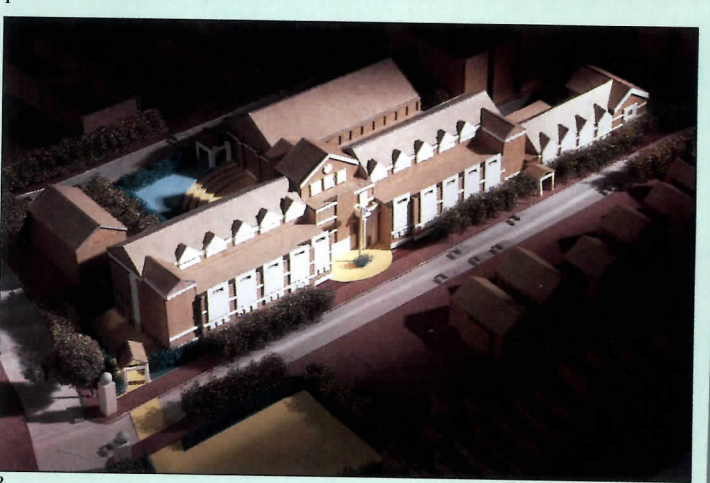
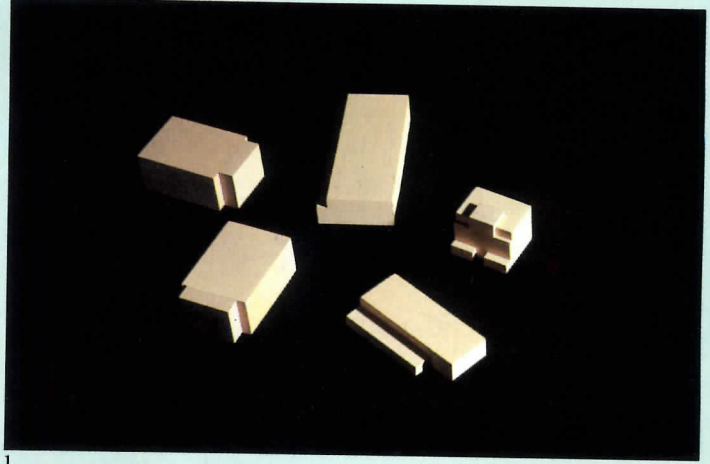
character, while Gruzen Samton Steinglass drew upon urban townhouses for the tightly-knit building blocks of its scheme. To accommodate various student-population sizes, the four firms designed multiple classroom modules that respond to recommended student capacities: intermediate schools no larger than 750 students and primary schools no larger than 600. Some architects subdivided the assigned school population into 300- and 550-student wings, and incorporated vertical elements—stairtowers, gables, and projecting bays—to break up the large scale and horizontal massing. Portions of the projects can be perceived—to greater and lesser extents, depending upon positioning and facade treatment—as sub-schools of their own, so that even in 900- or 1,200-student-capacity schools, the children will not, presumably, feel overwhelmed. And, as insisted upon by the New York City Art Commission, which approves designs for public buildings on city-owned land, all of the proposals achieve some balance between civic and residential scale.

The Prototype School Program has given the Board of Education the opportunity to start from scratch and entirely rethink its program for such buildings; to refine and streamline the site selection, acquisition, and design and construction processes; and to explore the changing role of schools in the community. The immigrant population in New York, for example, has been surging, and is expected to exceed all previous records by the year 2000. The public school is likely to be the first sustained interaction with the official structure of this country (and its more subtle rites and symbols) by these families, not just their children. It will suggest what values our society places upon education and whether or not children are considered to be important. New York City schools also have come to have a greater *in loco parentis* role: children are attending school at an earlier age and spending more time there (some schools now serve three meals a day). And schools have supplanted other civic buildings as focal points in the community, as places for meetings, cultural events, adult-education programs, and other social activities.

The prototypes address these realities and others. All include self-contained auditoriums and community rooms, pre-kindergarten classrooms, and separate workrooms, as well as private areas for teachers. Space for computers is allocated in every classroom, provisions have been made for the mainstreaming of handicapped children wherever possible, and there are outdoor play areas with plantings in each design.

There is much cause for cautious optimism in the new government legislation and procedures. By utilizing flexible prototypes, the Board of Education saves time in the design stage and gains greater flexibility in selecting sites—an urgent matter given the dense urban context of New York. The school construction agency will be exempt for at least five years from the Wicks Law, which requires separate contractors for each construction task; representatives of all city agencies involved are meeting once a month to make sure that site acquisition is moving along; and the Board of Education is being allowed to commission designs while the sites are being acquired. Crucial to the implementation of the program and its future success is the involvement and commitment of the three project managers at the Board of Education—Ken Karpel, the agency's chief architect and his architect-trained colleagues, Rose Diamond and Prakash Nair. They are helping to provide one of the magic ingredients of any successful architectural project: a good client. *E. P.*

©Dan Cornish/ESTO photos



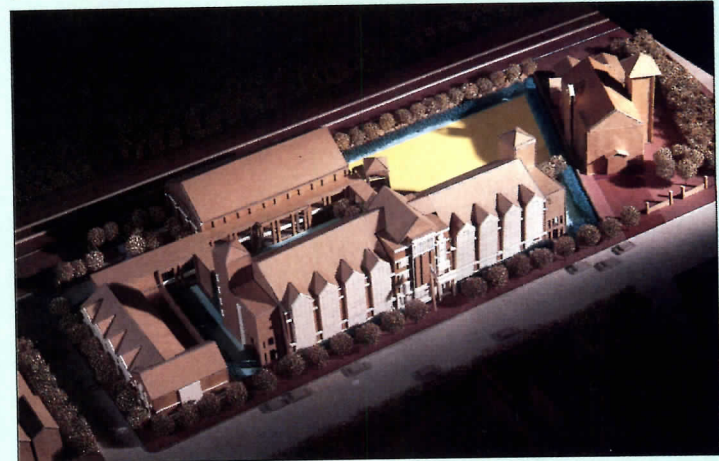
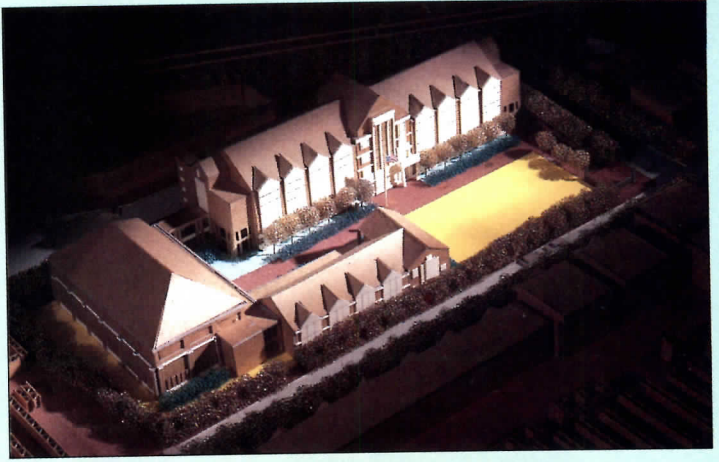


## The Ehrenkrantz Group & Eckstut

In the early 1960s, Ezra Ehrenkrantz was instrumental in the California-based School Construction Systems Development project, an experimental program to devise systematic design and construction methods for building new schools. His involvement in SCSD is reflected in his modular designs for two, 1,200-student primary schools in Queens and one in The Bronx. The components of the Ehrenkrantz Group & Eckstut's scheme include two identical, 4-story classroom modules that each accommodate 550 students (top left photo); a 2-story block for 100 special education students enrolled in a program for the disabled; an administrative wing containing offices, guidance counseling, a medical clinic and library; and a gymnasium/auditorium. To distinguish each module with a

strong individual identity, the architects housed the functions within a series of gabled bays. In addition to locating the main door in the administration wing, they furnished each classroom module with its own entrance. The links between the various wings will be custom-designed, so that the modules can be pulled apart and placed at different angles to accommodate specific site considerations. These corridors are intended to be fully glazed, thereby offering views to courtyards, play areas, and the adjacent streets.

1. *Prototype building blocks (clockwise from lower left): classroom modules, special education, administration, gymnasium/auditorium*
2. *Loring Place, The Bronx*
3. *Barnwell Avenue, Queens*
4. *Webster Avenue, Queens*



## Richard Dattner

Richard Dattner was assigned a program for 1,200- to 1,800-student intermediate schools at Edgecombe Avenue and Jumel Place in upper Manhattan (top right); Queens Boulevard and Hillyer Street in Queens (bottom right); and Parkside and Nostrand avenues in Brooklyn (not shown). Of the four firms selected, he developed the fewest components: a pair of classroom wings to accommodate 550 students each, a third classroom module to house 600 students, and a centrally located structure containing shared facilities such as administration, gymnasium, and lunchroom. Special-education classes for the most acutely

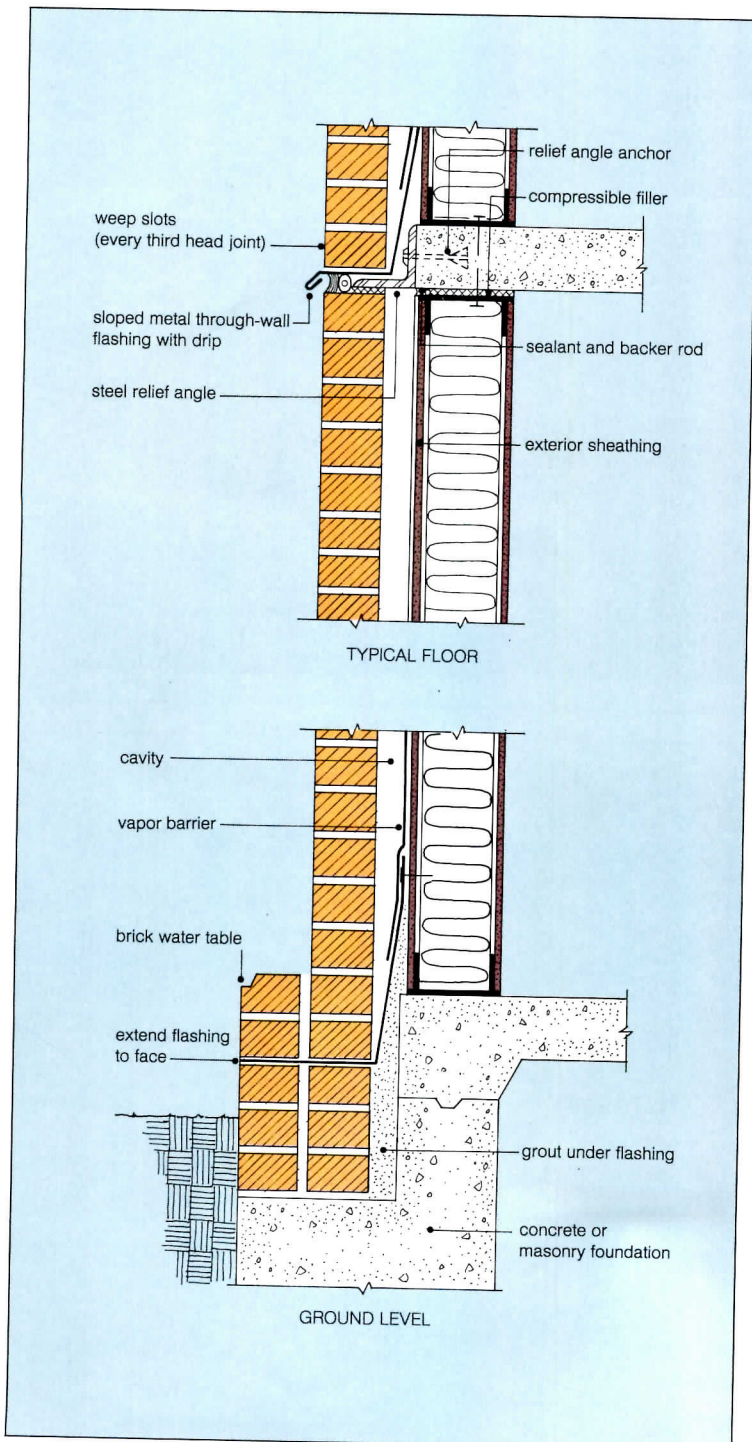
disabled are to be integrated throughout the schools. Dattner designed the 550-student classroom modules as curved forms in order to differentiate entrances to the individual subschools. The monumentality, strong cornice lines, and decorative brickwork of his proposed structures are intended to be reminiscent of the Collegiate Gothic imagery of the public schools built by New York City at the turn of the century.





Because of recurring questions about water penetration and long-term stability, brick veneer with steel stud backup remains controversial. Recent research by principals of Simpson, Gumpertz & Heger sheds new light on these questions.

# A veneer too thin?



Relief angles at each floor allow the top of the brick wythe to move, reducing stresses (top). Bell and Gumpertz propose forming through-wall flashing into a drip at the exterior to avoid moisture migration

under the flashing. An additional wythe of brick at the base can protect the flashing (bottom).

Persistent structural-performance and corrosion problems have nagged the wall system of brick veneer with metal stud backup. Employed for decades in small-scale residential construction, the combination has been promoted on much larger projects as an economical alternative to solid masonry or masonry cavity-wall construction, even though questions raised by such technological inflation have yet to be laid to rest. Although industry groups have sponsored tests intended to set standards for performance, "all failed to provide a rational model for [the system's structural] behavior," according to Glenn R. Bell and Werner H. Gumpertz, associate and principal, respectively, in the engineering firm of Simpson Gumpertz & Heger. These conclusions are based on analysis of the tests as well as diagnosis of more than a dozen problem-plagued brick veneer/metal stud buildings. Worse, many of the analyzed buildings suffered substantial leakage and corrosion damage due merely to sloppy detailing or construction.

## Rigid bricks, ductile studs: incompatible?

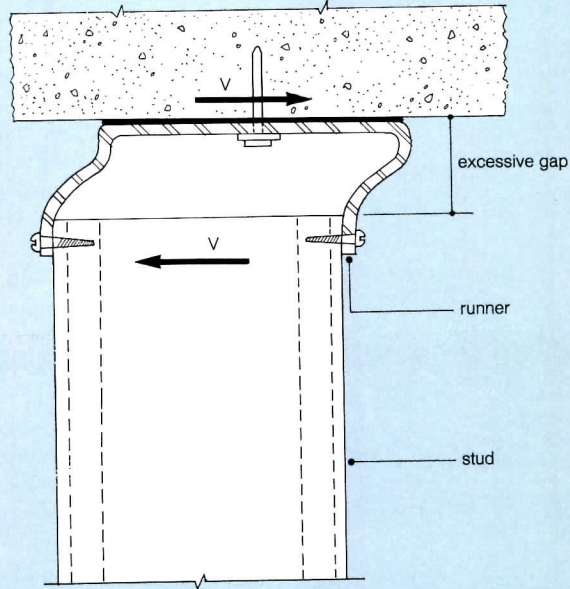
The system is composed of a metal stud wall sheathed on the inside with gypsum wall board; the cavity side is faced with gypsum sheathing, and is linked across an air space to the single wythe of brick by metal ties. The assembly is a curtainwall—supporting only itself—but must still resist both positive and suction wind pressure. In theory, this occurs by composite action of the brick veneer and the studs. In fact, because of the dramatic difference in rigidity between the veneer and the stud wall, there is no consensus that such action takes place. Much of the controversy has focused on design of the stud wall for deflection. Bell and Gumpertz note that groups that have sponsored testing have drawn different design criteria from the results: The Metal Lath/Steel Framing Association (MLLSFA) defends L/360 as an adequate deflection criterion under full design load, while the Brick Institute of America (BIA) has revised its technical note on the subject to reflect a recommended deflection limit of L/600. What Bell and Gumpertz have found is that the emphasis on stiffness of the backup may be misplaced. They note that "Onset of veneer cracking does not necessarily represent the safe load limit of the wall. Test results by others show substantial reserve load-carrying capacity after cracking." They argue that brick veneer/metal stud systems should be accepted in an analogous way to reinforced concrete, the metal stud wall acting in effect as the steel reinforcement. In reinforced concrete design, cracking is allowed at ultimate strength. Under design (unfactored) loads, *serviceability* limits are set, describing maximum crack width and deflection. Unfortunately, no research has focused on how much cracking can be considered to be acceptable in brick veneer. Bell and Gumpertz advise using L/600 or L/720 under full design load until research definitively establishes criteria.

Another area of uncertainty in the performance of the walls is the likely difference in span lengths of the studs and the veneer. When the structural frame of the buildings has deep spandrel elements, or the veneer has no relief angle at the floors—to take two examples—the individual deflected shapes of the veneer and back-up are not compatible (wall section, opposite). Since the backup studs cannot contribute to the bending resistance at the much more rigid structural frame, there is, according to the engineers, potential for substantial load redistribution and concomitant high bending moments concentrated in the veneer, causing unpredictable veneer cracking.

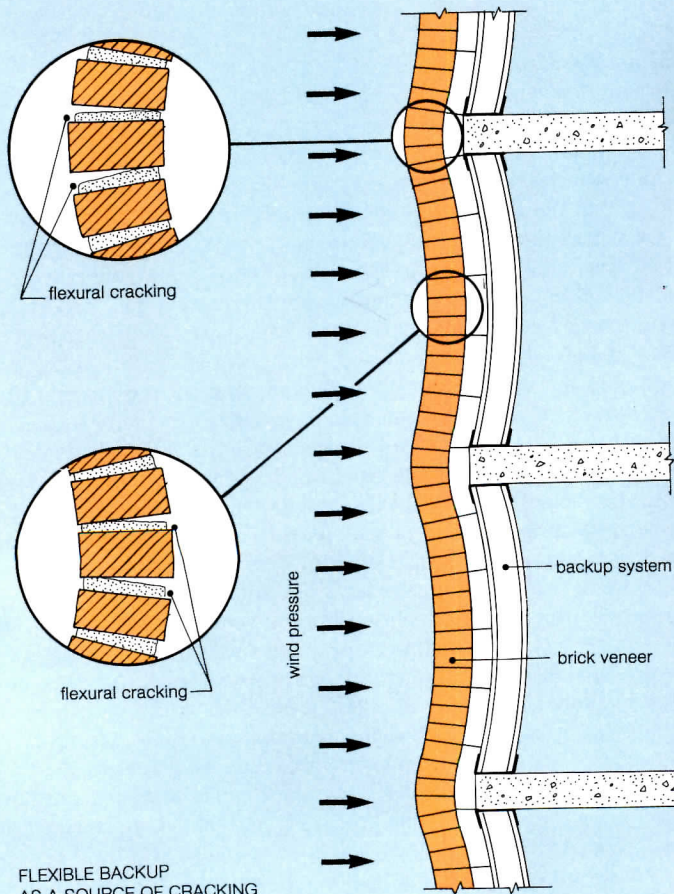


Because the metal studs are far less rigid than either the brick veneer or the building structure, stress incompatibilities can develop and cause cracking in the veneer (bottom left). Movement in the building frame can buckle the studs or deform the

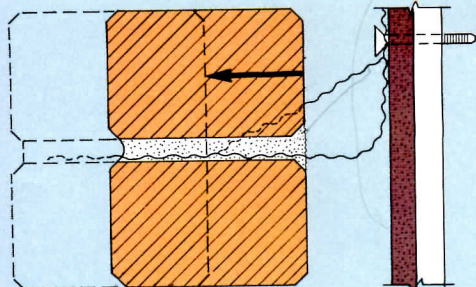
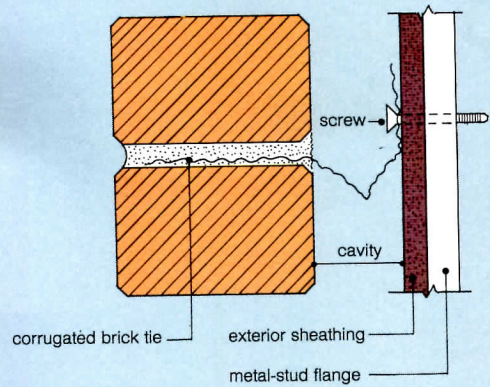
top runner if not detailed properly (top and recommended detail, opposite). Improperly installed ties can introduce flexibility into the system, another source of veneer cracking. Particularly vulnerable are corrugated metal ties (bottom right).



DEFORMATION OF STEEL RUNNER AT STUD ATTACHMENT



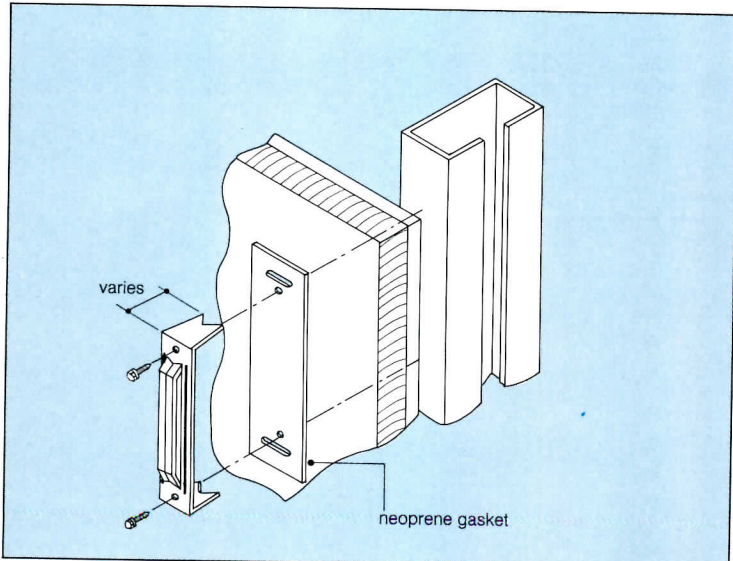
FLEXIBLE BACKUP AS A SOURCE OF CRACKING



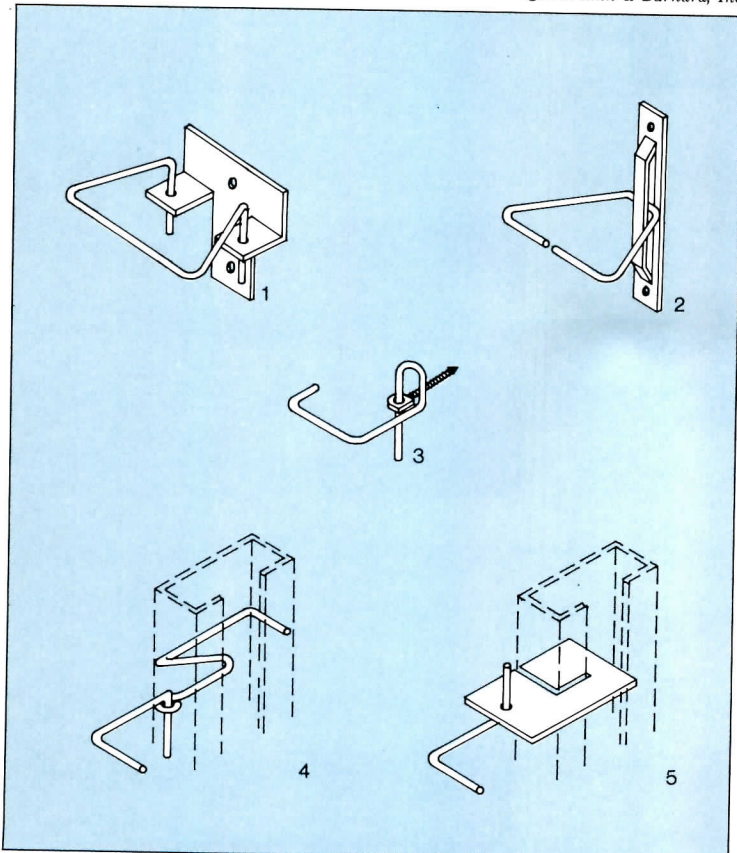
IMPROPERLY INSTALLED TIES



The box formed by the brick tie as well as free movement between the tie and its flange can approximate the expected maximum deflection of a very stiff backup, allowing veneer cracking exclusive of other sources of flexibility in the system. Of designs



©Hohmann & Barnard, Inc.



©Brick Institute of America

recommended by the BIA, Bell and Gumpertz have found that 1 and 3 (bottom) best solve this problem. One flange design (top) takes into account possible crushing of a layer of insulation introduced on the cavity side to reduce thermal bridging of the studs.

### Perils of poor detailing and installation

Improper detailing or sloppy construction readily causes problems in the metal-stud backup. Brick ties, for example, are critical to performance of the system because they transfer loads between the veneer and the stud wall. While designers commonly specify spacing and size based on a simple tributary area approach, the engineers' research showed that this is inappropriate, since tie loads can vary considerably within a single story height (some ties were found to be in tension and others in compression under a given wind load). Corrugated ties are discouraged because incorrect installation (all too typical) negates their function (page 117). Not all adjustable wire ties accepted by the BIA (bottom left) are appropriate since some designs are an additional source of unwanted flexibility. Bell and Gumpertz recommend that brick ties at each floor level, or at other load-bearing framing, be designed to support the entire span of the veneer, and to assume that the veneer carries the full design wind load. Tie design between floors should be governed by the greater of the following: forces derived from the assumption that the stud wall carries the full design wind load, or the distribution of veneer forces based on elastic uncracked analysis. Though exterior sheathing cannot be relied upon to contribute to composite action with the stud wall, it does help the studs resist buckling, *if* installed properly and not degraded by moisture penetration.

A great deal of attention has been paid in recent years to movement problems in masonry walls. This is of particular concern in the brick veneer/metal stud system in two areas. In tests at Clemson University, sponsored jointly by the BIA and the MLSFA, substantial horizontal movement of the top of the unrestrained brick wythe was detected, which is believed to have relieved stresses considerably. Thus shelf angles with "soft" joints underneath—clear of mortar and caulked with sealant—must be placed at every story. Movement damage due to shrinkage creep in concrete framing, or thermal movement in a steel structure, could cause buckling of the metal studs as well, if provisions for such vertical movement are not made. Even minor stud deflections can be transferred to the veneer through ties, another cause of veneer cracking (page 117, top).

### Moisture damage

Preventing water damage is critical to the longevity of the brick and metal stud combination. Clayton T. Grimm, among the most vocal critics of the system, has focused attention on corrosion of the screw fastener, which may be engaged with only a single thread in the light-gauge metal studs. He notes that even heavy zinc coatings can be removed in the process of installing the fastener, leaving the connection open to attack by mortar salts dissolved in moisture present within the cavity. Bell and Gumpertz found some corrosion in a majority of installations they had examined, with complete consumption of the cross section of some (in this case prime-painted) studs and runners in one 10-year-old structure. Moisture can also degrade the gypsum board sheathing, preventing it from bracing the metal stud frame. Emphasizing that a single wythe of brickwork is fundamentally water permeable, Bell and Gumpertz urge detailing the cavity to positively protect the stud wall as well as convey collected water to the exterior (wall sections, page 116, window details, opposite). The brick veneer/metal stud system unfortunately has little tolerance for poor detailing or sloppy workmanship. All of the following have been found in problem walls the engineers have examined: mortar droppings clogging weep holes (the BIA now recommends a 2-in. gap as a minimum that workmen can readily keep clear); improper provisions for thermal, moisture, and structural-frame movement; inappropriate or damaged flashing (see selection chart opposite); and improperly installed or poorly maintained sealants. These problems contributed to cracked or dislocated bricks, corroded studs and runners, and the degradation by water penetration of sheathing, drywall, and insulation.



## Condensation

Energy-driven requirements for higher insulating values have caused condensation within the wall system to become a greater problem, since the leakiness of older buildings equalized moisture content within and outside. If the dewpoint falls within the stud system, as it can on cold days with high interior humidity, or on hot humid days with dry air conditioning inside, moisture is deposited, damaging fasteners, studs, and insulation. Thus, an analysis must be undertaken, according to criteria set out in the *ASHRAE Handbook of Fundamentals*. While a vapor barrier on the exterior side of the studs should keep water from migrating inward on hot days, the stud wall backup is not appropriate as an enclosure for high humidity rooms, due to the difficulty of installing an effective barrier on the inside of the studs.

## Conclusion

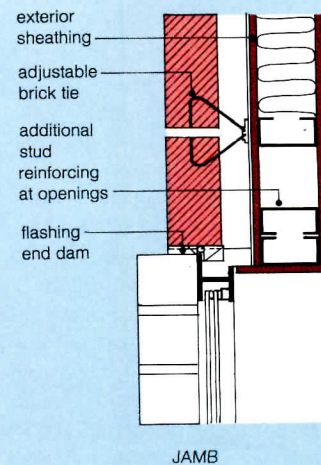
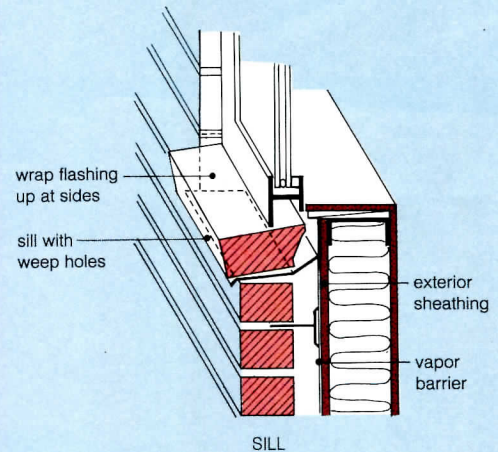
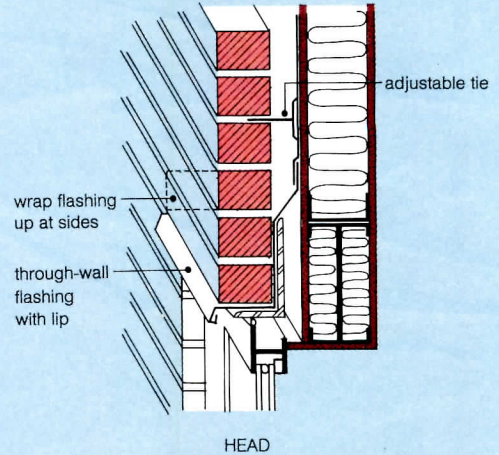
Bell and Gumpertz continue to harbor reservations about the long-term viability of the assembly: "The system should be used in new construction only with the understanding that its behavior is not well understood, its experience record is limited, and the life of the walls may be limited." The MLSFA shrugs off the controversy as equal to that surrounding the introduction of interior drywall systems in place of plaster. The comparison is invidious. As Bell and Gumpertz argue, "even slight defects in design, material and construction can cause substantial expenses which are certain to be disproportionate to the savings achieved by careless design, use of inexpensive materials unsuitable for their intended purpose, or negligent construction." The engineer's findings were first published in the proceedings of the Third North American Masonry Conference (1985). Other sources of information are the BIA's *Technical Notes on Brick Construction*, No. 28B, February 1987 revision, and the MLSFA brochure, "Here are the Facts about Steel Framing-Brick Veneer Systems Design." *James S. Russell*

## PROPERTIES OF FLASHING

Material	Advantages	Disadvantages and Limitations
Stainless steel 2D, dead soft, annealed. Minimum thickness 0.015"; installed cost 100%.	Hard, impervious, strong, very durable.	Difficult to form and join; stiff, poor bond to mortar. Labor-intensive.
Cold-rolled copper. Minimum thickness 16 oz.; installed cost 90%.	Impervious, flexible, durable, easily formed and joined.	Damaged by excessive flexing; runoff can stain other surfaces.
Lead-coated Copper. Minimum thickness 16 oz.; installed cost 95%.	Similar to copper; runoff does not stain other surfaces.	Similar to copper; requires care in soldering.
Aluminum. Minimum thickness 0.032"; installed cost 60%.	Fairly durable; can be formed, corrosion resistant (except in presence of lime).	High thermal coefficient; cracks easily when bent; cannot be field sealed; corroded by lime.
Galvanized steel. Minimum thickness .0217"; installed cost 80%.	Hard, impervious; easily formed and joined; low thermal coefficient.	Subject to early corrosion.
Lead. Minimum thickness 2#; installed cost 75%.	Easily formed and joined.	Easily torn; affected by lime in mortar; creeps.
Zinc. Installed cost 80%.	Easily formed and joined.	Creeps; destroyed by corrosion; cracks easily in thermal cycling.
Copper fabric. *Minimum thickness 5 oz. (copper); installed cost 50%.	Easily formed and joined; good bond to mortar.	Easier torn than metal.
Neoprene. *Minimum thickness 0.045"; installed cost 55%.	Easily formed and bonded; reliable, flexible.	Can be punctured; strength limited; requires protection against sun.
PVC. *Minimum thickness 0.040"; installed cost 25%.	Easily formed and joined; impervious when new.	Aging deterioration and hardening; easily punctured and cut; weak.
Fiber-reinforced bituminous fabric.* installed cost 35%.	Effective when intact; easy to form.	Easily damaged; weak; needs multiple plies; cracks in thermal cycling.

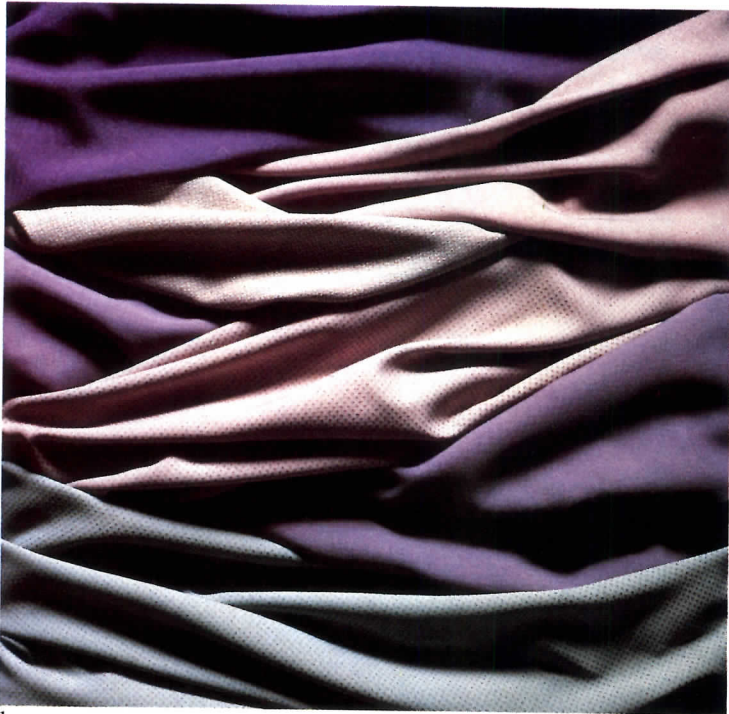
Requires metal flashing for exposed drip edge

*Additional reinforcement is called for in the stud wall at openings to maintain stress resistance. To prevent water penetration, elastomeric gaskets should be used with brick ties and the vapor barrier should be continuous, lapping over the flashing.*





# New products: WestWeek



The first of 1989's major contract shows takes place in the Pacific Design Center, in Los Angeles, March 29-31, under the existential theme "Critical Choices: Intuition and Reason in the Design Process." Concurrent with the design awards, business sessions, and architectural presentations, Italian artist Mauro Staccioli will create an environmental sculpture in the outdoor Plaza of the Design Center. Here is an advance look at some of the new products. *J. F. B.*

## 1. Pick a color . . .

A California-based manufacturer of systems furniture, Pleion, will launch a new, no-extra-charge custom-color program for five types of Dacron-polyester panel fabric, woven in worsted wool or silk-linen textures. For a minimum 300-yard order, the contract specifier may match or coordinate the piece-dyed panel fabric with any color of interior finish. Swatches are lab-dyed for designer approval, and the entire custom order will be shipped within Pleion's lead time for standard fabrics, six weeks. Pleion Corp., Santa Ana, Calif. *Circle 300 on reader service card*

*Maje Waldo* 4

## 2. Downsize sofas

Part of a collection Stendig calls The American Business Sofa and manufactures in North Carolina, the Venice is 78 in. wide by 33 1/2-in. deep, a smaller scale designed to fit more easily into the not-quite-so-big executive office. It is, however, very heavy, made of plywood and bent steel. Designed by Lella and Massimo Vignelli with David Law, Venice is available in leather and fabric. Stendig International, New York City. *Circle 301 on reader service card*

## 3. Oriental woodwork

Renamed during last year's WestWeek, the KnollStudio

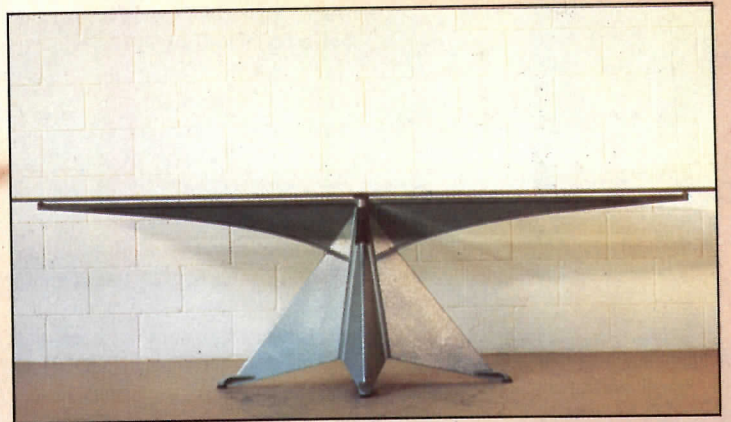
division of Knoll International expanded its line of architect-designed furniture with Gianfranco Frattini's Kyoto table. A handmade beechwood lattice, the low table and companion étagères come in natural or ebony stain with red lacquer details. Knoll International, New York City. *Circle 302 on reader service card*

## 4. Damask upholstery

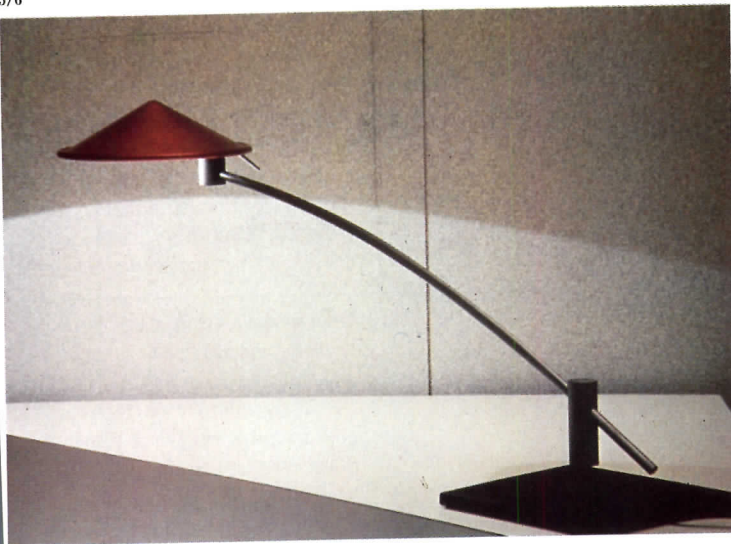
A spectacular silk damask, Georgian has a traditional floral pattern in single colors of deep blue, red, green, or copper placed against a black background. The 50-in.-wide fabric is also suitable for use as a wallcovering or



For more information,  
circle item numbers on  
Reader Service Card



5/6



window treatment. Scalamandré,  
New York City.

Circle 303 on reader service card  
5/6. **European flair**

The curved frame of Alberto Meda's Softlight chair is made of an aluminum/carbon-fiber composite, with seat and back of tensioned elastic webbing. Also new from ICF is Spanish architect Oscar Tusquets' Montserrat Table, which has a pyramid-shaped base of cast aluminum supporting a glass top sand-blasted in an intricate diagonal pattern. International Contract Furnishings, Inc., Orangeburg, N. Y.

Circle 304 on reader service card

**7. Canadian cantilever**

Made in Italy but Canadian at heart, architect Steven Copeland's China Lamp is the first nonItalian design for AI Lighting. The metallic, cone-shaped shade is carried by a wand-like adjustable stem. Atelier International Lighting, Long Island City, N. Y.

Circle 305 on reader service card

**8. Wool upholstery**

An all-wool worsted from England, Onate upholstery incorporates a soft, small-scale (8 1/2-in. repeat) contemporary pattern available in six warm colors. The fabric is 54 in. wide, and also may be used on vertical

9



surfaces. Schumacher,  
New York City.

Circle 306 on reader service card

**9. Conference tables**

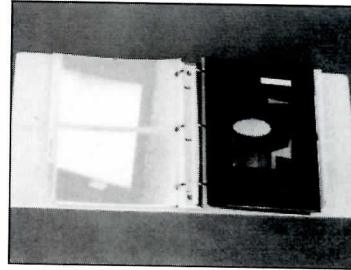
Shaw-Walker is entering the conference market with a full-blown product line of 36 different Radius Tables. Offered in 4 hardwood veneers and 11 laminate colors, the tops come in round, rectangular, oval, and boat shapes. An optional wire-management grommet leads wires from table-top equipment down through the column base. Shaw-Walker, Muskegon, Mich. Circle 307 on reader service card  
More products on page 125



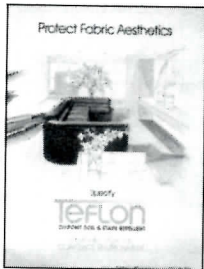
For more information,  
circle item numbers on  
Reader Service Card



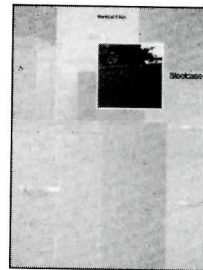
**Executive seating**  
Both high- and low-back versions of this Canadian manufacturer's leather-upholstered office chairs are shown in a four-page catalog. Nienkämper, Scarborough, Ont.  
*Circle 400 on reader service card*



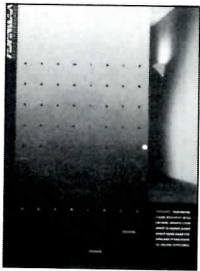
**Office furniture guide**  
A full-line catalog for architectural specifiers contains color product photography, fabric and finish samples, and prices for this maker's office systems, seating, casegoods, and desks. CorryHiebert Corp., Irving, Tex.  
*Circle 406 on reader service card*



**Contract fabric treatment**  
A brochure highlights the benefits of Teflon topical fabric finish in a contract environment: it repels soil and stains without impairing the original appearance of the material. E. I. duPont de Nemours & Co., Wilmington, Del.  
*Circle 401 on reader service card*



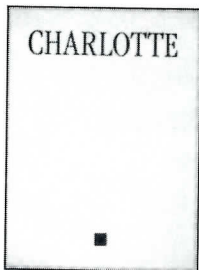
**Files and office storage**  
All Steelcase vertical and lateral files, overhead storage, and storage cabinets—in standard and PerfectMatch colors—are shown in new catalogs. Construction features are detailed. Steelcase, Inc., Grand Rapids, Mich.  
*Circle 407 on reader service card*



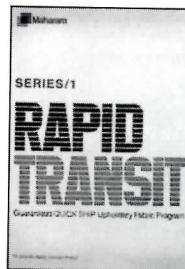
**Office design guide**  
Floor-to-ceiling walls, panels, office systems, and components can create flexible solutions to unique office configurations, according to a layout guide. Adanlock Office Environments, Inc., Jamestown, N. Y.  
*Circle 402 on reader service card*



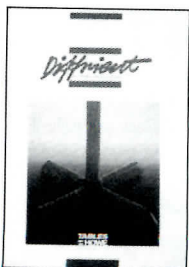
**Insulating window shades**  
An architectural brochure on the Duette dual-pleated window treatment details thermal ratings, fabric types, and such standard and special systems as flexible curved-track installation. Hunter Douglas, Broomfield, Colo.  
*Circle 408 on reader service card*



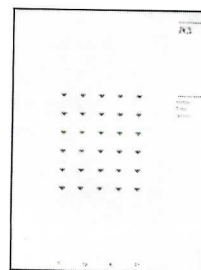
**Hardwood furniture**  
Contemporary bentwood seating and furniture designs for hospitality, office, institutional, healthcare, and retail use are highlighted in a color catalog from this Michigan maker. Charlotte, Inc., Belding, Mich.  
*Circle 403 on reader service card*



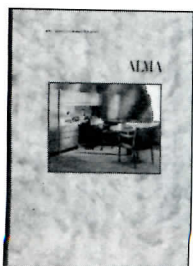
**Quick-ship upholstery**  
A new program, offering guaranteed four-day availability for 28 upholstery patterns in 140 colors and a range of fabric, is described in a sample binder. Maharam, Hauppauge, N. Y.  
*Circle 409 on reader service card*



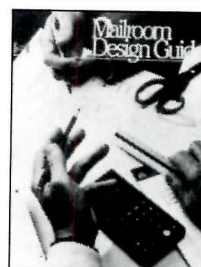
**Contract tables**  
New wood and laminate-surfaced folding and fixed-leg tables, designed by Niels Diffrient with a variety of edge and base details, are introduced in a 20-page color catalog. Howe Furniture Corp., Trumbull, Conn.  
*Circle 404 on reader service card*



**Ergonomic seating**  
A 12-page brochure contains photographs and schematics that demonstrate the user-responsiveness of German-made Physio-Class seating, offered in both leather and fabric. Voko U. S. Inc., Pittsburgh.  
*Circle 410 on reader service card*



**Wood-panel system**  
A 24-page color brochure highlights the Arris System, which features nonhanded panel connections and modular casegoods for both open-plan and private offices. Alma Desk Co., High Point, N. C.  
*Circle 405 on reader service card*



**Mailroom design**  
A 24-page guide includes a space-planning grid, worksheet, and survey forms to help the designer achieve the most efficient mailroom workflow. Hamilton Sorter Co., Inc., Fairfield, Ohio.  
*Circle 411 on reader service card*  
*Continued on page 127*



# Steel joists help turn on the speed at new ITT-TEVES, anti-lock brake-system assembly plant.

Architect:  
Danie A. Johnson, AIA, Asheville, N.C.  
General Contractor:  
Beverly-Grant Incorporated, Asheville, N.C.

Developers:  
ITT-TEVES, Asheville, N.C.

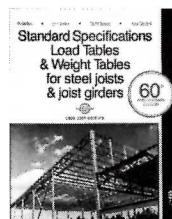
Requirements for ITT-TEVES' new antilock brake systems manufacturing facility in Asheville, N.C. were familiar to Beverly-Grant Construction Company. The client wanted a well-built plant—quickly and cost-effectively.

So steel joist construction was the natural selection.

According to Henry Watts, Beverly-Grant Project Manager, steel joist construction has been the choice for many of the company's clients.

A major reason is the fact that steel joists save 5% to 10% over beam type construction. Erection is more rapid, and steel joist construction allows for easier location and installation of joint-mounted conveyor systems and heating/cooling systems.

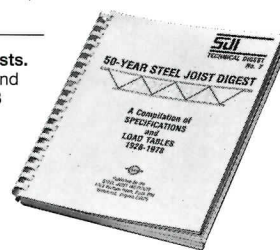
Send the coupon for your copy of New Specifications, Load Tables and Weight Tables and 50 Year Digest.



**NEW! 60th ANNIVERSARY issue.**  
64 pages of facts and figures with new instructions for designating and specifying the new K-Series joists. \$8.50 (\$9.50 outside U.S.).

No. of copies \_\_\_\_\_

**50 years of Steel Joists.**  
220 pages of specs and load tables from 1928 to 1978 to help you determine load capacities in existing structures; plus time saving tips. \$34.00 (\$44.00 outside U.S.).



No. of copies \_\_\_\_\_

Total enclosed \_\_\_\_\_ (Remittance with order, please)



Managing Director  
Steel Joist Institute  
Chamber A  
1205 48th Avenue North  
Myrtle Beach, SC 29577

Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

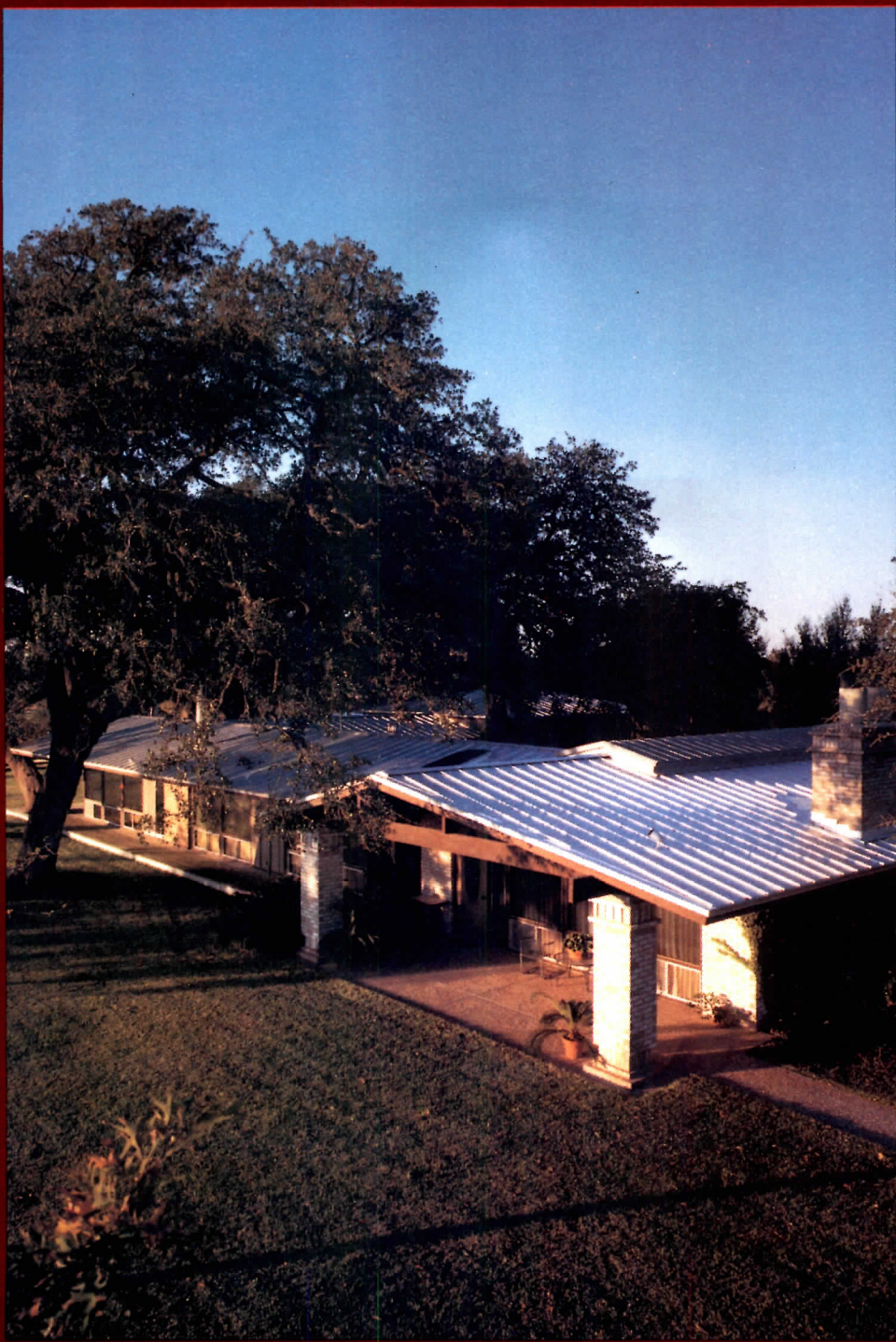
City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

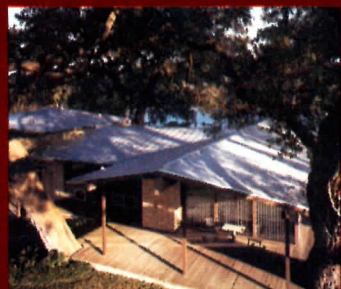
Circle 52 on inquiry card



# Would You Trust Metal To Perform On Your Own Home?



*Architect & Owner: Travis Broesche, AIA  
Brenham, Texas*



"As an architect, I have had the opportunity to work with MBCI on several projects, and did not hesitate to specify their materials on my own home. MBCI delivers fine, quality product, and I am well pleased with the end result," says architect Travis Broesche, AIA.

When you specify an MBCI roof system, we want you to be satisfied. We will work with your design team to insure the proper product selection for your design.

For a copy of the MBCI design manual, call or write the nearest MBCI plant. Metal is our only business and we want you satisfied.



Houston 713/445-8555  
Lubbock 806/747-4291 Atlanta 404/948  
Oklahoma City 405/672-7676 Tampa 813/752  
San Antonio 512/661-2409 Richmond 804/526  
Dallas 214/988-3300 Indianapolis 317/398



**1, 2. Pre-K constructionists**

TotTime shapes let preschool children assemble furniture, locomotives, and other indoor play structures by themselves. For example, the train, 1, is constructed of 14 bright, geometric blocks, made of dense foam covered in vinyl-coated nylon, held together by Velcro strips. Sturdy enough to sit and climb on, the play structures and animal shapes, 2, encourage the young child to reach, stretch, and stack neatly. GameTime, Inc., Fort Payne, Ala.

*Circle 308 on reader service card*

**3. Ergonomically fixed**

An extension of a line introduced in 1982, Artacula II seating (shown here in a beam-mounted tandem version) now incorporates a range of passive ergonomic features: a flexible frame; an articulated seat and back; and a waterfall front edge for the upholstered seat. Jury chairs will be the next model added to the Artacula series. JG Furniture Systems, Inc., Quakertown, Pa.

*Circle 309 on reader service card*

**4. Metal architectural molding**

New HollowForm aluminum moldings may be used as a ceiling cornice, casement trim, chair rail, or light soffit (pictured). This #8 style is 6 1/4-in. deep, and projects 4 5/8 in. from the wall. The concealed suspension rail, which can carry light fixtures and wiring, allows for vertical as well as horizontal installation. Pre-coped and mitered corners are available; straight runs are said to be easily cut to fit on-site.

Appearance options include gold specular, clear anodized, satin, and bronze finishes, as well as a durable coating for exterior use. The firm also makes a line of metallic-laminate-covered wood-core moldings. Cullar/La Cuesta, San Francisco.

*Circle 310 on reader service card*



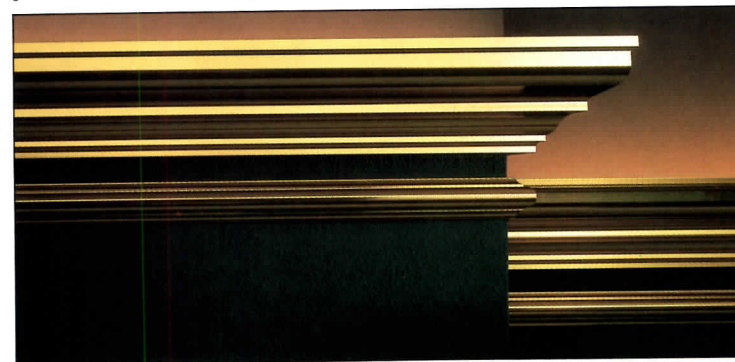
1



2



3



4



5



6



7

**5. Low-voltage track fixture**

Designed by Richard Sapper, the Argo System consists of an aluminum spotlight set on an extruded track; the lateral connection of track and fixture is said to facilitate the integration of the system with the ceiling or wall. The counterbalanced light can revolve in any direction.

Artemide litech, Inc., Farmingdale, N. Y.

*Circle 311 on reader service card*

**6. Steel stacking chair**

Rodney Kinsman's OMKstack Chair, made in Italy by Bieffeplast, is constructed of perforated and tubular steel in red, white, green, yellow, black, or gray. The version pictured has a folding tablet arm and under-seat book rack.

Gullans International, Long Island City, N. Y.

*Circle 312 on reader service card*

**7. Office-system additions**

Domore has added new features to the Neo7 office, designed by Don Albinson to accommodate an increasing variety of computer-related equipment. Enhancements include pull-out work surfaces, counter-level power outlets, gray-tinted curved glass partitions, and two new shapes of run-off conference work surfaces. Domore Corp., Elkhart, Ind.

*Circle 313 on reader service card*

*Continued on page 149*



ANOTHER GREAT OFFER FROM  
THE EMPLOYEE-OWNERS\* OF AVIS, INC.

# Drive An Elegant Bargain.

**\$49** a day. Cadillac Sedan de Ville. 100 miles/day included. 30¢/mile thereafter. Optional Collision Damage Waiver \$9/day in Cal., \$10.95-\$12.95/day elsewhere. Rate not available in Illinois and New York.

The employee-owners of Avis, Inc. want you to experience the elegance of a Cadillac Sedan de Ville or similar luxury-group car at a very economical rate. With SuperValue Rates and fast

service, we're trying harder than ever to give you what you want in a rental car.

To get this low rate, here are some things you should know. The rate is available at select U.S. corporate and participating licensee locations.

It is nondiscountable and may change without notice. These cars are subject to availability. Blackout periods and additional seasonal charges may apply. There is no refueling charge if you return your tank full. There's a \$5-\$10/rental charge for additional drivers (no extra charge in Cal.). Renters under 25 pay \$5-\$10 extra/day where applicable. Cars must be returned to renting location. Local taxes and Personal Accident Insurance, Personal Effects Protection and Additional Liability Insurance are extra.

To drive this elegant bargain, call Avis at **1-800-331-1212** or your travel consultant.



We're trying harder than ever.<sup>SM</sup>



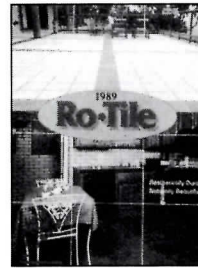
\*Employees at all corporate locations. © 1989 Wizard Co., Inc.

Avis features GM cars. Cadillac Sedan de Ville





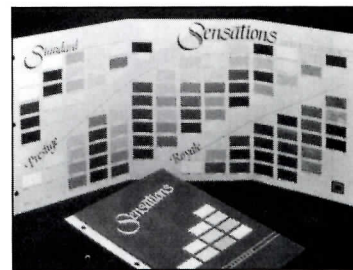
**Earth-retention system**  
A brochure describes how Soil Nailing combines short in-situ reinforcement and shotcrete to tie back excavations and cuts, building from the top down in a minimum of space. Schnabel Foundation Co., Bethesda, Md.  
*Circle 412 on reader service card*



**Cement tile products**  
Cement-bodied tile, stone, and veneer brick, for interior and exterior use on walls and floors, is shown in a 12-page color architectural catalog. Ro-Tile, Inc., Lodi, Calif.  
*Circle 418 on reader service card*



**Site furniture**  
The 1989 Ultrum Catalog has over 500 new designs for chairs, benches, tables, and receptacles in powder-coated perforated metal and wire, and traditional and contemporary wood styles. GameTime, Inc., Ft. Payne, Ala.  
*Circle 413 on reader service card*



**Ceiling grid**  
A color selector folder supplies samples of over 100 available grid colors, prematched to products offered by acoustical panel, fabric, and carpeting manufacturers. Chicago Metallic Corp., Chicago.  
*Circle 419 on reader service card*



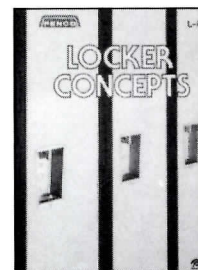
**School carpeting**  
A six-page brochure compares carpeting to hard-surface flooring in schools, citing such benefits as student comfort and safety, energy cost savings, and improved acoustic performance. BASF Corp., Williamsburg, Va.  
*Circle 414 on reader service card*



**Architectural windows**  
Custom designs for new, historic, and retrofit applications, shown in an 18-page design brochure, are achieved by specific modifications to eight basic window types. Graham Architectural Products Corp., York, Pa.  
*Circle 420 on reader service card*



**Washroom equipment**  
Both standard and vandal-resistant accessories are shown in a 52-page color catalog. A new quick-reference chart provides product-mounting guidelines for the physically handicapped. Bobrick, North Hollywood, Calif.  
*Circle 415 on reader service card*



**Storage lockers**  
A 20-page catalog features 2- to 18-person locker configurations, coat racks, special-use lockers, and accessories such as baskets, locks, and mirrors. Specification and finish data are included. Penco Products, Oaks, Pa.  
*Circle 421 on reader service card*



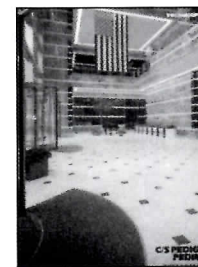
**Task/utility lighting**  
A brochure introduces the Versamate twin-tube fluorescent fixture, which provides high-level, low-angle diffuse illumination for damage-prone institutional, industrial, and commercial areas. Kenall Mfg. Co., Chicago.  
*Circle 416 on reader service card*



**Locks**  
All Schlage mechanical and electronic security products are illustrated in a 1989 architectural catalog. Hardware is keyed with the relevant ANSI number and grade classification. Schlage Lock Co., San Fernando, Calif.  
*Circle 422 on reader service card*



**Emergency fire access**  
A UL-listed, high-security key vault system, designed to provide emergency personnel with rapid entry to locked buildings, is described in an eight-page booklet. The Knox Co., Newport Beach, Calif.  
*Circle 417 on reader service card*



**Customized floor mats**  
A catalog explains how Pedigrid/Pedimat entrance mats and foot grids can incorporate special graphics; drawings show surface-mounted and recessed systems. The C/S Group, Muncy, Pa.  
*Circle 423 on reader service card*  
*Continued on page 154*



# Not just another power trip.

## The IBM PS/2 Model 70 386 with Micro Channel.

A desktop system with 386 power, loaded with memory, racing through complex applications at up to 25 MHz, is where the Personal System/2<sup>®</sup> Model 70 386 *begins*.

What it offers you beyond its sheer power, is where it begins to make a difference.

Model 70 386			
Available models	A21	121	E61
Microprocessor	80386 25 MHz, 64Kb memory cache (30ns)	80386 20 MHz	80386 16 MHz
Optional Math Co-Processor	80387 25 MHz	80387 20 MHz	80387 16 MHz
Memory (RAM)			
Standard	2Mb (80ns)	2Mb (85ns)	1Mb (100ns)
Maximum on system board	8Mb	6Mb	6Mb
System maximum	16Mb	16Mb	16Mb
Diskette storage	1.44Mb 3.5-inch standard (2 maximum).		
Fixed disk storage	120Mb (23ms)	120Mb (23ms)	60Mb (27ms)
Built-in features	Video Graphics Array (VGA) and display port; diskette controller; serial, parallel, keyboard and pointing device ports; clock/calendar.		
System expansion	Three option slots (two 32-bit, one 16-bit).		
Operating systems	DOS 3.3, 4.0; IBM OS/2; AIX™ PS/2.		

The Model 70 386 features Micro Channel,<sup>™</sup> a 32-bit bus created to take full advantage of 386 technology. Micro Channel is designed for multitasking and multiprocessing. It allows the PS/2<sup>®</sup> to operate several intelligent processors and subsystems simultaneously. So you can do several jobs at once and still get truly balanced performance.

With the Model 70 386, complex spreadsheets go faster than ever. So do sophisticated graphics. Even networking is no sweat. And Micro Channel ensures a platform for future applications, such as imaging and advanced communications.

By combining Very Large-Scale Integration, advanced Surface Mount Technology and built-in features, PS/2s deliver state-of-the-art reliability and design sophistication. The Model 70 386 runs most current DOS applications and is ideal for the new OS/2<sup>™</sup> applications.

Here, then, is a system that recognizes your need for power today, and helps protect your investment for years into the future. All at a price you'd expect to pay for 386 machines with "yesterday's" bus architecture.

For a demonstration of the PS/2 Model 70 386, see your nearest IBM Authorized Dealer or IBM marketing representative. Call 1 800 IBM-2468, ext. 119 for a dealer near you.

It'll be well worth the trip.





**IBM**®



# Emerging trends in architectural CAD software

By Ken Sanders

The PC-CAD "revolution," while dramatically reducing entry-level system costs for architects, has also indirectly suppressed new CAD software development over the past several years.

Established turnkey vendors, caught off guard by the rising popularity of PC-CAD, have focused on bringing new versions of their software to PC platforms. At the same time, PC-CAD vendors have focused on copying features of the older, larger systems and reselling them at low-end prices.

The pace of architectural CAD software innovation has slowed considerably as a result. The basic structure and functionality of today's PC-based CAD systems—based on overlay drafting techniques and rudimentary 3-D modeling and rendering algorithms bear a striking resemblance to the turnkey systems of several years ago. CAD systems have certainly become a lot cheaper, but not much smarter.

The affordability trend will continue, of course, with overall price/performance of computer hardware doubling every 18 to 24 months. Improved desktop power will not only increase the speed of software, but continue to present opportunities for CAD developers to investigate new approaches to CAD tools for architects. Because developers are constantly struggling with the tradeoffs between breaking new ground and staying compatible with older versions of their software, the best architectural CAD software of tomorrow may not evolve from yesterday's turnkey systems or today's PC systems, both of which carry heavy compatibility

*Ken Sanders, AIA, is director of Computer Services for Leason Pomeroy Associates, an architecture, planning, and interior-design firm with offices in Los Angeles and Orange County, California.*

baggage. Rather, it will be created with a new vision about what architectural software should do for its users, and designed to fully leverage the improved desktop computing and graphics power available.

## Building modeling

Most vendors, for example, stress productivity as the primary benefit of using CAD. But more important than the speed with which architectural drawings are produced is the quality of information they convey. Toward this end, the notion of deriving 2-D CAD drawings directly from a 3-D building model has long intrigued architects as a means to assure the accuracy and coordination of their working drawings. This conceptual approach is most commonly known as building modeling.

Many architects long for the ultimate building-modeling system, which "automatically" generates 100 percent working drawings from a 3-D model, as well as provides code-checking, interference checking, and accurate material takeoffs. However, creating a 3-D building model in enough detail to accomplish this is most likely a self-extinguishing proposition. The time invested in developing the fine-grain of the 3-D computer model would most likely eclipse the time saved by extracting the drawings automatically.

Architectural working drawings, after all, are very schematic documents. Architects do not really care—nor should they—where each 2 by 4 stud is precisely placed in a wood-frame building. (What is important is conformance to applicable building codes.)

Architecture is a multidiscipline effort that reflects the economic realities of building construction. The subdivision of labor between many parties has evolved to

expedite construction of complex, one-of-a-kind projects. Every building is a prototype.

Despite these constraints, the concept of building modeling provides fundamental advantages to the architect over traditional, drafting-oriented CAD systems. Although no architectural CAD system marketed today provides robust, easy-to-use building-modeling tools for both design and production, such systems should see the light of day by 1990 and may well be the future direction of all architectural CAD systems (see sidebar, page 131).

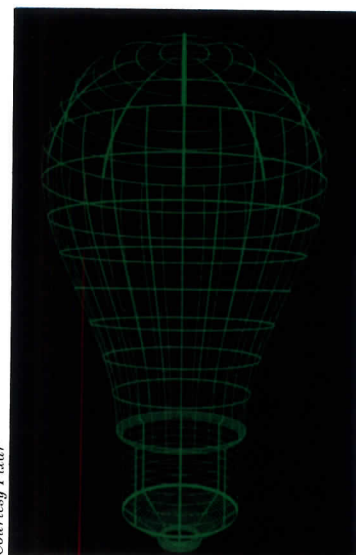
## The building is the database

The organization of drawings in building-modeling systems is fundamentally different from traditional CAD drafting systems based on overlay drafting techniques. In building modeling, the building is the database, not the drawings. A drawing is defined as a graphic report of a building model, and is described by a "view" of the model, a scale, selection filters, and an overlay of annotations, such as text, dimensions, and targets. The view of the model must accommodate clipping, so that enlarged partial plans can be developed without losing their associative connection to the

model. If necessary, multiple drawings at different scales are composited to create a complete working drawing. Automatic cross-referencing can be provided because drawings "understand" their connection to the overall building database. For example, if a drawing is renumbered or moved between sheets, all targets or notes which refer to that drawing's number or sheet location are updated automatically.

The primary advantage of defining drawings as reports of overall building models is assuring dimensional consistency between details at large scale and overall drawings, even if drawn at different scales and on different sheets. For example, if a change is made to an overall floor plan—say a column dimension, a wall thickness, or a door location—that change is automatically propagated to all drawings on all sheets which show that part of the floor plan.

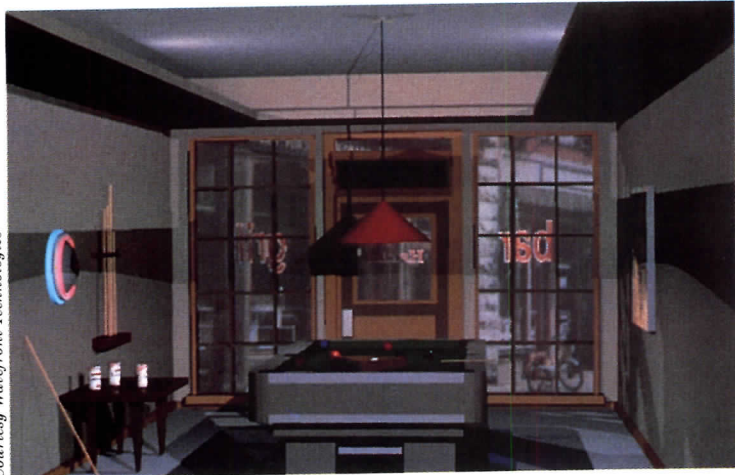
*Image-synthesis technology bridges a modeling system with a rendering system. The RenderMan interface (below) creates a light bulb in (left to right) wire-frame display; facet-shaded surfaces; smooth shaded surfaces; and composite of photorealistic techniques.*



Courtesy Pixar



## What's ahead in CAD for architects? A punchlist for 1990



*High-resolution ray-traced images provide impressive realism but require expensive*

*hardware. Lower-cost hardware will bring these capabilities to the desktop in the 1990s.*

Although many 3-D CAD systems allow generation of outline working drawings using views of a 3-D model, the vast majority are not building-modeling systems, because the connection between model and drawing is not associative. A key question to ask: After the drawings are generated from the model, will the drawings automatically reflect changes to the model? If not, the system is not a building-modeling system.

It is important to note that the building-model database from which drawings are extracted need not be a single 3-D

database, but instead can be a collection of 2-D databases. As usual, there are tradeoffs to each approach. Small-scale tenant-improvement or interior architecture projects can often be done more efficiently by using a 3-D model to derive working drawing plans, elevations, and sections. Many complex projects, however, simply do not lend themselves to a single 3-D building model, and are better developed using multiple 2-D models, or "slices" through a building. The disadvantage of multiple 2-D

*Continued on page 133*



Listed below are the features that distinguish true project-oriented architectural design systems from generic drafting systems. Although few CAD systems today provide any of these features, the best architectural design software in 1990 and beyond should provide all of them.

### **Associative drawings**

Can drawings be imparted as clipped views within larger 2-D or 3-D building models, overlaid with annotation and dimensions specific to the drawing? Are the drawings associative? In other words, when the model is changed, do all drawings that are covered by that part of the model reflect the change?

### **Sheet paste-up**

Can several drawings at different scales be pasted up on a sheet without losing their associative connection to the model(s)? Can the sheet be previewed on the screen, and the drawings interactively rearranged? Can the drawings be rotated to orientations different than the model?

### **Automatic cross-referencing**

If a partial plan or detail is moved between sheets and/or renumbered, will cross-reference bubbles and notes which refer to that partial plan or detail, even if on different sheets, automatically reflect the change?

### **Associative dimensioning**

If an object is moved in a model, will its dimensions shown in the drawings, even if on different sheets, also change?

### **View-dependent objects**

Can objects be defined which are displayed differently depending on the way they are

viewed? For example, can a door be defined which is automatically displayed with an open leaf and swing arc in plan, but displayed closed in elevation?

### **Scale attributes**

Do objects have scale attributes, controlling at which scales they will be displayed, and at which scales they will not be displayed? (Architectural drawings always show different levels of detail at different scales; good modeling systems will allow users to easily control this using scale attributes.)

### **Pictorial, symbolic, and annotative objects**

Does the system distinguish between these three types of objects and their behavior? For example, can the scale of a drawing be changed on a sheet without affecting the displayed size of annotative or symbolic objects (grid bubbles, targets, dimension text, etc.)?

### **Intelligent models**

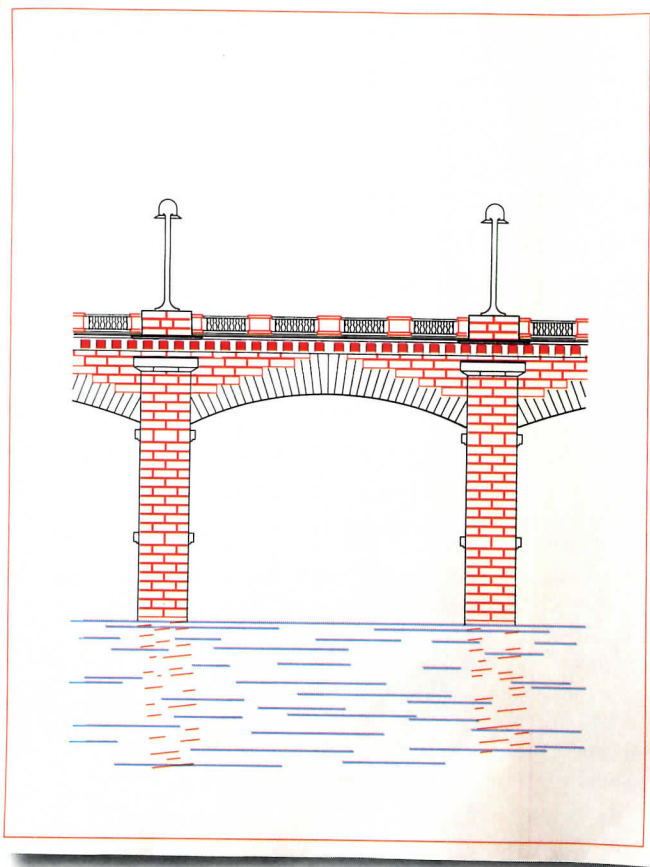
Can graphic objects be defined in terms of other objects and project-design parameters? Will these objects automatically (or optionally) reflect changes to related objects? Will they reflect changes to project design parameters? Can building performance criteria be established, and the performance results displayed interactively as changes are made to the building model?

### **Image synthesis**

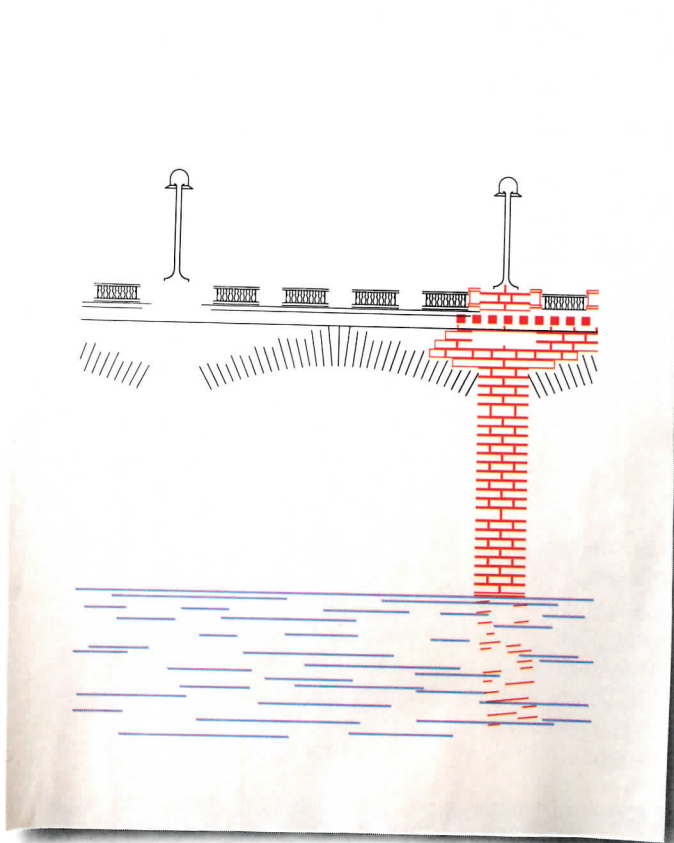
Does the system support photorealistic rendering tools, including texture mapping, transparency, ray-tracing, and shadows? If not, does the system interface to a third-party rendering package that supports those capabilities?



# How to cross your bridges 47% faster.



The HP DraftMaster plotter.



The other guy.

And not only faster. But with true lines, smooth curves and clean diagonals.

Only HP DraftMaster plotters can give you so much throughput with such high quality. In fact, we cross our bridges a full 47% faster than the 'closest' competitor.

At our acceleration of 5.7 g and pen speed of 24 ips, nobody can match our 0.0002 inch resolution and

0.004 inch repeatability. And our 'smooth curve generator' makes every arch a triumph.

And DraftMaster plotters are so reliable that we give them a one year *on-site* warranty. That's four times longer than the competition.

Small wonder we were PC Magazine's Editors Choice as tops in the large format field. Yet our prices are very competitive. Just \$8495

for the DraftMaster I and \$10,995 for the roll-feed DraftMaster II.

So call **1-800-752-0900, Ext. 303B** for more details, a plot sample and your nearest dealer. Then get the plotter whose reputation keeps building faster and faster.



These plots were created using AutoCAD™ Rel. 9.0. An HP DraftMaster driver and HP-GL were used with the HP DraftMaster plotter. A CC 104X driver and PCI were used with the CalComp 1023 plotter. AutoCAD™ is a U.S. trademark of Autodesk, Inc. HP-GL is a trademark of Hewlett-Packard Company.



## The John Wayne Airport— A case study in building modeling

models is the lack of connection between plan, section, and elevation. Each of these three drawing types must be coordinated manually with one another. But within each drawing type, drawings at different scales and on different sheets are assured dimensional consistency (see the case study at right).

Simply put, single 3-D models are appropriate for small-scale, fairly simple building projects, while multiple 2-D models are appropriate for large-scale, complex projects.

Although a different organizational concept than overlay-drafting techniques which most CAD systems imitate, building modeling more accurately reflects the way architects think. Working drawings are, after all, legal documents describing a building design to the owner and to the third parties who will construct it. They are descriptions of the building design, not the design itself, and are best expressed as reports of a single database, not the database itself. Providing building-modeling tools within low-cost software, while retaining the flexibility of more traditional 2-D drafting software, remains a key opportunity for CAD vendors.

The biggest challenge will be faced by PC CAD vendors, whose systems were originally designed simply as low-cost electronic pencils or "word processors for drawings." By themselves, such systems are appropriate for individual drawings. On medium- to large-scale projects, however, which require more coordination in their construction documents, the vast majority of PC-based systems do not yet fully leverage the information-sharing power of the computer.

### Object behavior

Architectural drawings enjoy other unique characteristics

which CAD systems of the future must recognize. For example, all architectural drawings contain three kinds of graphic objects:

pictorial, symbolic, and annotative.

- Pictorial objects are physical parts of the building that are drawn to closely match their actual appearance, such as interior and exterior elevations and details.

- Symbolic objects also represent physical parts of the building, but aren't drawn as they actually appear. Examples include most mechanical- and electrical-fixture symbols.

- Annotative objects do not represent physical parts of the building, but are included on the drawing to convey additional information. Dimensions, targets, notes, and detail bubbles are examples.

Each of these object types exhibits unique behavior—such as whether the objects change size when they are plotted at different scales. Many pictorial and symbolic objects in architectural drawings appear differently depending on the view—plan, elevation, section, or isometric. Often, these various representations aren't easily derived from the same 3-D model—such as a door shown open in plan, but closed in elevation. Annotative objects, on the other hand, are view-independent.

The level of detail shown on an architectural drawing is also proportional to its scale; in general, the larger the scale, the more detail shown. Clearly, the architect needs an easy and straightforward method to filter the amount of information shown in a drawing based on its scale and view in relation to the overall building database.

Unfortunately, no CAD system on the market today distinguishes easily between pictorial, symbolic, and

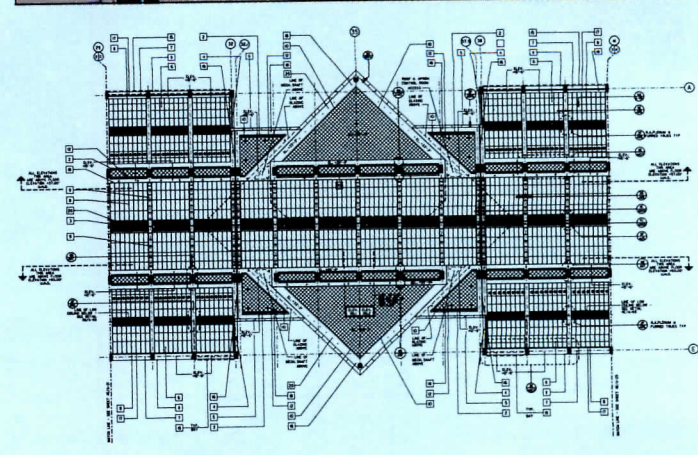
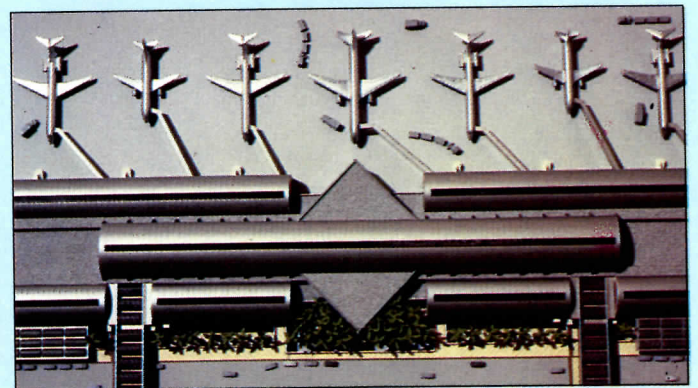
*Continued on page 134*

The John Wayne Airport Terminal is a 1,980-ft-long, 330,000-sq-ft, three-level building currently under construction in Orange County, Calif. Working within the constraints of a demanding schedule, project architects Leason Pomeroy Associates used building-modeling techniques to organize the CAD working drawings for the project. The building database was not a single 3-D model, but a series of 2-D "slices" showing overall plans, sections, and elevations. Enlarged plans, sections, and elevations were created as graphic reports of the overall database files, each defined by a "window" into the database, a scale, and an overlay of annotation, such as notes, dimensions, and targets.

Overall 2-D floor plan models were produced for the arrival, departure, and

mezzanine levels of the terminal building. At 1/16-in. scale, the floor plan of the entire building would have been over 10 ft long, so five partial floor plans at 1/16-in. scale were prepared for each level. (Overall plans at 1 in. = 60 ft were also included for orientation.)

In addition, 1/8-in. and 1/4-in. partial floor plans were produced of key areas. If an overall floor plan model was changed, that change was automatically reflected in all the partial floor plans. The building-modeling approach not only allowed the John Wayne Airport team to quickly produce the partial plans, sections, and elevations of the project by referencing them to the overall model, but also allowed easier accommodation of design refinements and program changes during the working drawing phase.





annotative objects, nor provides scale and view attributes. Most systems do allow users to define layers to segregate information meant for different scales, or create symbol libraries containing alternate representations of view-dependent objects. However, the object types and attributes are not built into the basic frameworks of these systems, placing a significant organizational burden on the user.

**The spreadsheet analogy**

The concept of building modeling—defining architectural drawings as views of a building model—leaves unresolved the issues of what the building model is, how it is described to the computer, and how the user interacts with it. Most importantly, the model must be intelligent—not just a collection of 2-D or 3-D objects, but also a dynamic representation of the design relationships of the building itself.

The spreadsheet is a good example of an intelligent model. Using formulas, users can define

dynamic relationships between the numbers in the spreadsheet, and quickly grasp the bottom-line implications of changes. The spreadsheet is both a time-saver and a true design tool. Its power lies not in the numbers, but in the formulas.

Similarly, the next-generation of architectural CAD systems will focus less on the geometry of drawings, and more on the relationships of building elements. What is architecture, after all, but a complex set of design relationships?

Many of these relationships, of course, are prescribed by code or local ordinance. Others are dictated by client programs and budgets, office standards, or individual experience. Quite a few are not easily quantifiable, and cannot be effectively modeled within a computer. Intuition, insight, and imagination certainly cannot be described by a set of rules. The relationships of proportion, scale, massing, color, and style—esthetic issues involving human judgment and taste—will also remain the proprietary contribution of the designer.

How are these relationships described to the computer? Spreadsheets understand numerical formulas, and allow the user to express them using a language of mathematical operators (+, -, X, /) and functions (sum, average, mean). The language in which building relationships are described, on the other hand, is far more complex, and remains the missing ingredient of truly intuitive computerized design tools. The development of such a language—with which architects can define design issues in any formulaic way—is perhaps the most fascinating area of CAD research and development today.

By using computer tools to dynamically model quantifiable design relationships, the architect is better positioned to experiment with those which are not.

**Image synthesis**

Once they are described to the computer, the realistic rendering of building models remains a time-consuming and expensive task. Limitations of clarity, color, and realism have prevented

widespread application of affordable rendering tools within architectural offices. The vendors' challenge is to introduce higher quality computer-rendering systems not to replace, but to supplement, traditional methods of seeing the unbuilt. Like the pencil and yellow trace, after all, the cardboard model will never die. A model sitting on a desk, or in one's hands, provides a real-time 3-D experience that no computer-generated image will ever reproduce.

Image synthesis—the creation of realistic computer-generated renderings of computer models—is perhaps the only area of CAD research where the software is ahead of the hardware. Algorithms for representing objects in photorealistic detail are well-documented in the public domain. Software is available that portrays textures of carpeting, granite, and concrete; reflective materials, such as ceramic tile and polished marble; translucent materials, such as glass block or sandblasted glass; and materials with nonrandom

# NORTHWEST

## THERE'S AN ART TO ESTABLISHING BUSINESS ROOTS IN TOKYO.

To establish a strong rapport with your Tokyo contacts takes time, patience, insight and more time. A country which considers a 300 year old Bonsai tree an art form, takes a little time to understand.

**DO IT YOUR WAY**

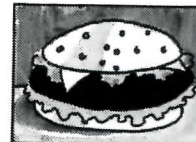
The nightclub can be more important than a meeting, so you'll probably be invited to one. The hottest thing is "Kara-oke." Music and images play on a video



system and you sing along into a microphone. Don't decline an invitation to sing or you'll be rejecting your host. Most songs are Japanese, but don't panic—"My Way" is always available. So before you go, dig out your old records and practice up.

**WHERE TO GET YOUR BASIC BURGERS**

There's a Hard Rock Cafe in Tokyo if you have the wild craving for fries, and the



quality of the hamburgers superb.

**EXCHANGING MEISHI**

(business cards) is an important formality in establishing a relationship. You go first, with a bow handshake and then your card, presented Japanese side up to assist in case where English capabilities are limited. Study the card you receive, repeating surname, the first name the card, to be sure you have the right pronounc

LOOK TO US @ NORTHWEST AIRLINES



but irregular textures, like wood.

Yet producing such realistic renderings in reasonable time still requires the use of powerful hardware. As a result, the most sophisticated imaging systems are still quite expensive, and out of the financial reach of most architectural firms. Mirroring the trend of 2-D drafting systems, however, their costs will decline over the next several years.

The real question is how fast realistic images can be generated from the computer model to suit the interactive design requirements of architects. High-quality rendering software is terrific as a presentation or marketing tool, but suffers greatly as a design tool if architects must wait overnight to see the results.

Fortunately, image-synthesis software is a prime candidate for use in new parallel-processing hardware, in which several CPUs work together to tackle small pieces of a computing problem at the same time. Parallel-processing machines are usually difficult to program, because most computing problems are

not easy to subdivide into tasks that can be evaluated independently. In image synthesis, however, this is easily done.

Most advanced algorithms such as ray-tracing, which portrays shadows and reflections from a user-defined origin, calculate the color of each pixel on the screen independently of all others requiring high computer power. As a result, the arrival of parallel-processing computers on the desktop should greatly increase the speed at which realistic images can be generated. Such high-performance rendering "engines," in the form of both parallel-processing hardware and sophisticated software, should become available during the next several years.

Since the field of image synthesis isn't restricted to architectural design, the best rendering systems most likely will be generic, and not part of architectural-specific CAD software. As a result, the recent development of the RenderMan Scene Description Interface standard is of particular interest.

RenderMan was introduced last year by Pixar, a leading-edge computer graphics company partially owned by ex-Apple Computer chairman Steve Jobs. Just as the PostScript language describes a common interface between laser printers and graphic-oriented software, RenderMan describes a common interface between 3-D modeling systems and rendering systems. Such a widely supported standard will allow architects to select the best modeling tools for their specific applications, and still take advantage of a wide variety of rendering software and hardware.

#### 1990 and beyond

In the next several years, as vendors redirect their resources toward true research and development, CAD systems for architects should evolve away from drawing-oriented drafting systems, and toward project-oriented building modeling systems. Building modeling rewards architects not only with increased productivity benefits but, more importantly, with improved quality, by more easily

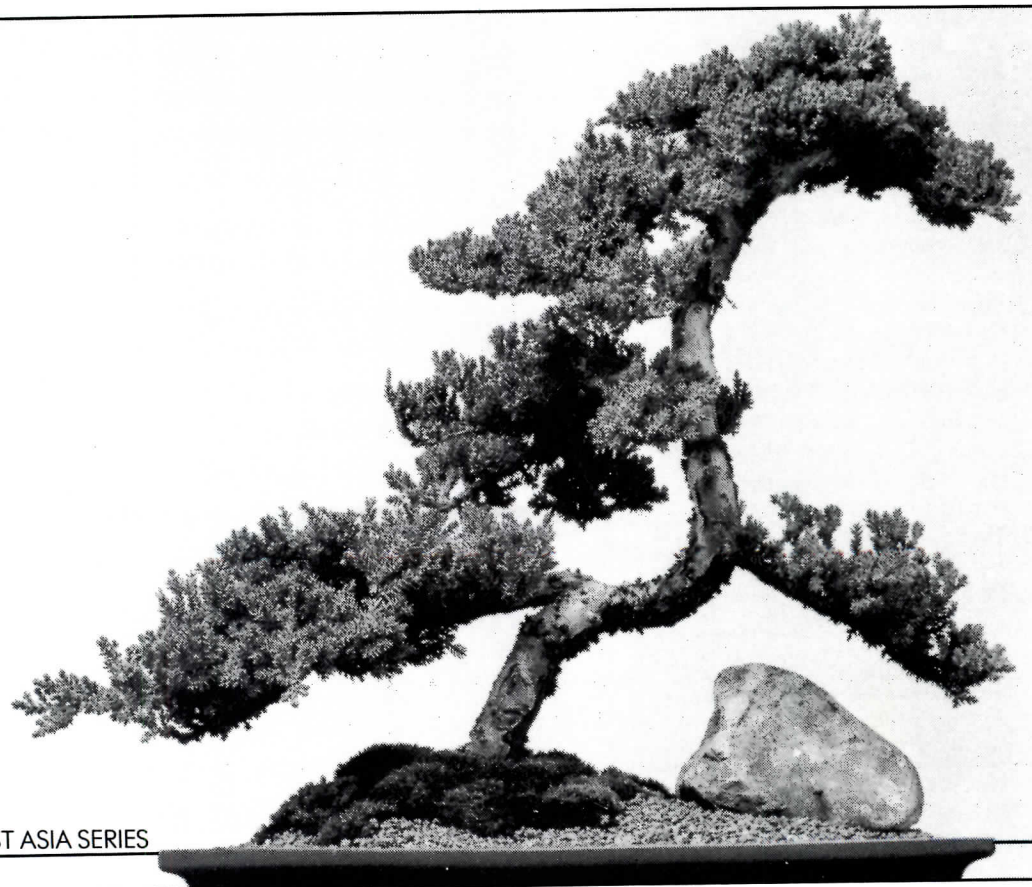
accommodating design refinement and assuring coordinated documents.

More importantly, architectural CAD systems in 1990 and beyond will be measured, not by their ability to model and render two- and three-dimensional geometry, but to dynamically model the relationships of building design. Again, the potential for architects and their clients is not necessarily a faster design process, but a process with higher quality results. By quickly grasping the implications of design choices as they are made, the architect will enjoy greater freedom to experiment with those ideas which are his or her unique contribution.

Clearly, many innovative software development opportunities still lie ahead. Those architects who anticipate and understand the emerging trends of architectural CAD software will be best prepared to choose the right tools and successfully apply them to their practice.

Treat cards with the  
ect you would bestow  
their owners.

**NORTHWEST NOTES** In  
tion to nearly 60 flights  
ek to Tokyo from over  
U.S. cities, a spacious  
utive Class, a First  
with all the luxury  
omfort you deserve—  
ve you something no  
U.S. airline can offer  
knowledge, informa-  
nd insight that comes  
40 years of helping  
le do business in Asia.



NORTHWEST ASIA SERIES

U.S. RESERVATIONS 1-800-225-2525, INTERNATIONAL RESERVATIONS 1-800-447-4747

© 1989 Northwest Airlines, Inc.



# THE CADVANCE/dBASE CONNECTION.



**A NEW MEANING FOR CAD:  
"COMPUTER-AIDED DECISIONS.™"**

## Link Drawings to Data and Data to Drawings.

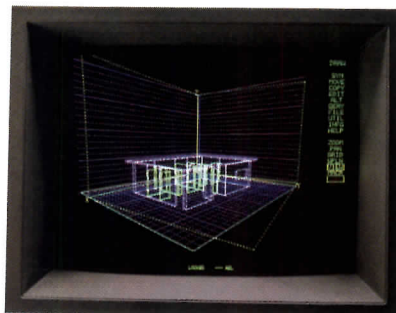
There's more to CAD than fast drawings. At least at ISICAD there is.

Now you can directly link CADVANCE® PC-CAD drawings with non-graphic information in dBASE® files for a total solution to information management.

## CADVANCE Advances.

CADVANCE goes beyond ordinary computer-aided design and drafting on your PC. It allows you to manage the information behind the pictures, and puts you in total control of your project.

By linking drawings with data in a relational database, you increase the intelligence of your drawings. Keep track of inventories, estimates, costs, locations, schedules—and report on



VGS—The new standard in 3D user interfaces.

them easily. Evaluate alternatives quickly, completely and economically. Gain control of project information so you can make better, faster management decisions: "Computer-Aided Decisions."

## Instant Updates.

With the CADVANCE/dBASE connection, your database can be

updated directly from the graphics screen—without exporting, without delay, without repeating steps, and without complication. When you change information in the drawing, it is reflected in your database. And vice versa. Information is always consistent, so you avoid potentially costly errors.

## The Latest in 3D.

In addition to advanced information management capabilities, CADVANCE Version 3.0 offers full 3D drawing and visualization capabilities, including an innovative user interface called the Visual Guidance System (VGS™). The VGS sets a new standard for 3D design and gives you the easiest, most intuitive interaction with 3D available today. See for yourself how easy 3D really can be.

	CADVANCE®	AutoCAD®	VersaCAD Design®
Direct two-way link to dBASE	Yes	No	No
3D VGS user interface	Yes	No	No
AE/IFM application features	Built-in	+\$1,000	+\$1,000

CADVANCE, Computer Aided Decisions, and VGS are registered trademarks of ISICAD, Inc. dBASE is a registered trademark of Ashton-Tate. VersaCAD Design is a registered trademark of VersaCAD Corp. AutoCAD is a registered trademark of Autodesk, Inc.

## TIME FOR DECISION

- Please have a dealer call me.  
 Please send your free brochure that explains how successful companies are making the CADVANCE/dBASE connection.

For immediate response call **800-556-1234 Ext. 281** or **800-441-2345 Ext. 281** (in Calif. only). Or send in this coupon.

Name \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_  
 Title \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_



ISICAD, Inc. P.O. Box 61022, Anaheim, CA 92803-6122



# Software reviews for architects

## Electronic Sweet's

A CD-ROM disk that includes an automated index to the Sweet's General Building and Renovation, and Engineering and Retrofit, Catalogs. There's also an interactive spec-writing system that's designed to automatically query a remote mainframe (via modem and telephone line) holding an expanded version of the AIA's MASTERSPEC files. The system, developed with Heery International, Atlanta, is inexpensive and easy to use.

**Equipment required:** Any computer that uses MS-DOS or PC-DOS, 640K, a hard disk, 1,200 or 2,400 bit-per-second modem, and CD-ROM player (see below) capable of handling the industry-standard High Sierra format.

**Vendor:** Sweet's/McGraw-Hill, 1221 Avenue of the Americas, New York, N. Y. 10020. 800-742-2255. The CD-ROM disk and a demo on floppy disk are included with the latest edition of Sweet's General Building and Renovation and Engineering, and Retrofit, Catalogs. McGraw-Hill is selling the NEC Intersect CD-ROM player in external or internal versions for \$495 plus \$25 shipping and handling.

### Summary

**Manual:** Good—but hardly needed, except to hold the disk and to list local dial-up numbers for the Tymnet and Telenet networks. On-screen instructions and prompts are fine. The NEC equipment manuals do not answer all questions for the CD-ROM player's installation in nonstandard systems, but NEC offers a toll-free hot line.

**Ease-of-use:** Excellent.

**Error-trapping:** Superb. Error messages produced by the

*Mr. Ross is a prominent computer consultant and a regular contributor to RECORD.*

software module that handles the automatic modem dial-up are too cryptic for easy diagnosis of problems, but help is available via Sweet's toll-free number, if a user cannot understand the listing of error messages at the rear of the Sweet's manual.

### Review

First, a statement about conflict of interest: Sweet's is, of course, a division of McGraw-Hill—the same company that publishes this magazine.

That said, let me put my personal reputation on the line: If you currently are eligible to receive the Sweet's Catalog,

virtually any word-processing software. That's about what it costs to hire a typist to type a spec you might write yourself, from scratch.

For this review, I invited two members of a firm that is not currently using CAD software to use the product. The only computers in the shop are two used for word processing and bookkeeping. One of the architects claimed a total of two previous hours of keyboard time. The other architect had used only a word processor. Both attached themselves to Sweet's and wouldn't let go. They figured out how SweetSearch

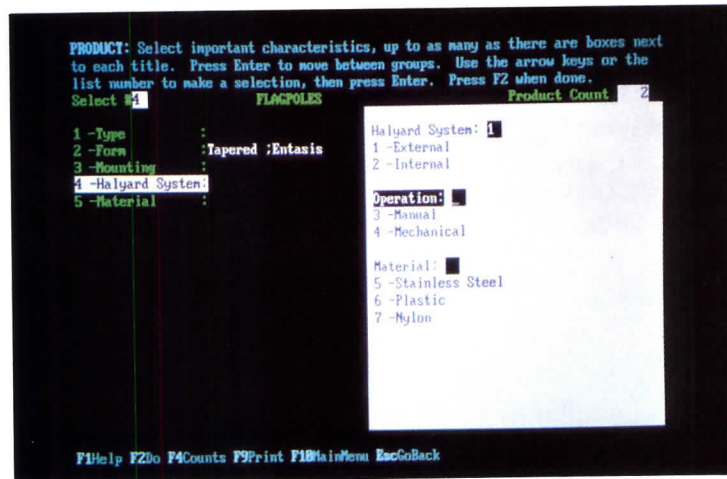
material, the manufacturers' information, everything. The system even prints out an audit trail and a set of notes for coordinating the spec with your drawings.

Even if you never write a spec, the time saved by using only SweetSearch to electronically search the gigantic Sweet's Catalog is probably worth the price of the CD-ROM player.

What is a CD-ROM anyway? The name stands for Compact Disk—Read Only Memory. Physically, these disks are much like the ones used for music. In fact, the NEC CD-ROM player also can be connected to an audio amplifier and used to play records. Most importantly for Sweet's, a CD-ROM can hold a staggering amount of information. In the popular High Sierra format, each disk can contain 540 megabytes. That's the equivalent of 1,500 standard 360K floppy disks.

These CD-ROMs cannot be written on, however. They are thus somewhat similar to prerecorded audio disks in that respect as well. And they do read data slowly, at about a tenth the speed of a good hard disk. Thus, one suffers no degradation in performance by installing the CD-ROM player in an inexpensive PC. The PC will still be faster than the CD-ROM. The CD-ROM player links to the computer with a cable connected from the (included) standard SCSI board. (SCSI is pronounced "scuzzy" by the trade; it stands for Small Computer Systems Interface.) Large Apple Macintosh computers have SCSI ports built in. But the Sweet's system doesn't work with Macintosh—yet—even though the CD-ROM disk can be read by a Mac.

SweetSearch allows users to search for any product in the two Sweet's Catalogs it covers, by product type, manufacturer, *Continued on page 139*



*A product search for flagpoles provides over 65 products to*

*choose from, including those with halyard systems.*

your office must have this. Play with the demo disk. Then run, don't walk, to your nearest computer store and buy a modem if you don't already have one. Buy a CD-ROM player there, too, if the price is anywhere near the bargain McGraw-Hill is offering. If not, and if you are willing to wait six to eight weeks for delivery, order one from McGraw-Hill. All this equipment will cost you about \$600. Each specification section you write with the system will cost you \$24. Each section update will cost you \$12. You end up with a file you can print directly, or modify using

worked in about five minutes. While I turned for 10 minutes to take a phone call, they switched into SweetSpec themselves and started creating a specification. The next day, they showed the resulting work product to their colleagues, and called McGraw-Hill to buy a CD-ROM player for their office.

No, the system is not perfect in operation. And we did find some limitations and even a small error in the product database. But it produces a usable spec with about an hour's work per section. Everything is up-to-date: The ASTM test designations, the MASTERSPEC



# A Greatly Abridged Guide to Silicone Building Materials

When it comes to weathering the elements, and meeting the year-in-year-out problems of upkeep, silicones from Dow Corning can be a building's best friend. For example:

### Blocking fire, smoke and fumes.

Unsealed floor, wall penetrations, and safin slots are built-in paths for flames and toxic smoke. Seal them tight against fumes, smoke, water and fire with the Dow Corning®

Fire Stop System. Either the flexible foam, the caulk-like sealant, or intumescent wrap strip can help assure your building's safety.

Circle 59 on inquiry card

### A transformer liquid that's safe.

Get the performance advantages of liquid-filled transformers plus the safety of silicone. Dow Corning® 561 Silicone Transformer liquid is environmentally compatible. And it has good electrical properties, temperature stability, fire resistance and the proven performance you need.

Circle 60 on inquiry card

### The carpet your nose won't notice.

Dow Corning's Sylgard® treatment on carpeting stops the growth of odor-causing bacteria and mildew. Carpets stay fresh longer, even in high traffic areas, because Sylgard inhibits carpet discoloration and deterioration. Sylgard is bonded to the carpet fibers so the protection lasts.

Circle 61 on inquiry card



### The roof that won't come apart at the seams.

If there is a leak in the roof, it's probably at the seams. The answer:

a Dow Corning® Seamless Roofing System

... a seamless, customized roof that is durable and weather-tight. It's a system that's been going strong on more than 8,000 buildings since 1974.

Circle 62 on inquiry card

### A world of silicones worldwide.

Virtually anywhere in the world, you can call on Dow Corning's experience, technology and production capacity. With thirteen plants and half our sales outside the U.S., Dow Corning silicones, know-how, and service are truly global. For information, call 1-800-346-9882, Ext. 5531. Or write Dow Corning Corporation, Dept. A-8004, P.O. Box 7604, Mt. Prospect, IL 60056-7604.

## DOW CORNING®

DOW CORNING

Dow Corning and Sylgard are registered trademarks of Dow Corning Corporation. DRI-SIL is a trademark of Dow Corning Corp.

### Construction Sealants that shrug off the weather.

Sealants represent only 1/10 of 1% of total building costs, yet sealant failures can cause 10% of new building problems. Which is why Dow Corning's wealth of construction sealing technology and its versatile line of silicone sealing, glazing and weatherproofing products are so valuable. They're your assurance of getting the right sealants in the right places in any building — in any climate.

Circle 57 on inquiry card

### A liquid solution to a concrete problem.

DRI-SIL™ Water Repellents from Dow Corning help concrete and other masonry surfaces from showing their age. They protect commercial buildings, parking decks, stadiums and other structures exposed to harsh weather. And DRI-SIL protects without darkening or altering the appearance of the building.

Circle 58 on inquiry card





*Sweet Search is a great timesaver, but it is Sweet Spec that is revolutionary, similar to the interaction of a designer questioning an experienced spec writer: Each succeeding question is based on answers to previous ones.*

trade name, or catalog section. Trade, professional, and government associations that are sources for more information are also listed. This is absolutely free, once you have the equipment. All the information the system needs is on the CD-ROM disk.

Once you've narrowed the search to the product you want, SweetSearch summarizes product information. Even the Sweet's Buyline identification pops on the screen. That's the number you give the operator when you call Sweet's toll-free to find the nearest manufacturer's distributor.

Let's say you are interested in flagpoles, for instance, and you've never ordered one. Choose the product search technique. Select Division 10 (specialties), then classification section 13 (flagpoles). You'll see a screen that asks you about the exact kind of flagpole you are looking for, to narrow the choice among the 65 products in the catalog. It is a good idea to select the features most important to you first, so as not to narrow the search too far with minor details. In general SweetSearch provides "or better" products. That is, if you specify a flagpole that can withstand a wind of 75 to 90 miles per hour, you'll also get poles that can resist higher winds.

We found an apparent error in SweetSearch. Alucobond preformed wall panels and composite building panels, from Alucobond Technologies, were also listed under the trade name "Alucobone." The error would be an innocent one, except that the specs for each Alucobond listing were slightly different. A user would have to go to the catalog pages themselves to see what is correct.

SweetSearch is a great timesaver, of course. But it is the SweetSpec system that is revolutionary. First, users

prepare a specification by answering questions specific to the MASTERSPEC section involved. About 300 narrowscope sections are in the Sweet's computer as of this writing. The manual includes instructions for tailoring broadscope sections to handle products that may not fit entirely into an existing narrowscope—or for writing a section from scratch. Even the latter is easier to do using SweetSpec than to do manually; at least the code and test references are up-to-date.

Our testers described the process as similar to the interaction of a designer

takes about five minutes a section. The system then combines the new information with data stored on the CD-ROM, and stores a final spec on your hard disk. Included are an audit trail and a set of coordination notes listing such items as details to be added to a drawing.

The spec can be printed out in two standard formats—the AIA's, with each line numbered, or the CSI's, with article numbers and paragraph letters. Or, users can create their own custom formats using a simple word-processing program supplied free on the Sweet's



*NEC CD-ROM player costs under \$500 and holds the*

questioning an experienced spec writer at a large firm: Each succeeding question is based on answers to previous ones. In complicated sections, the SweetSpec process is thus much faster and more intuitive than a manual checklist would be.

The questioning process—and the printing of an audit trail, listing questions and answers—takes place without connecting to the Sweet's mainframe computer. Until that connection is made, everything is free. Once the connection is made, the system uses your answers to pull needed data from the Sweet's computer into yours. It

*equivalent in information of 1,500 standard floppy disks.*

disk. Users can also read the specification into their own word processors for modification.

But how good are the specs? To check, we compared some specs with those written manually. The SweetSpec version was always more detailed—if anything, too much so to suit some tastes. In one case, a spec involving the proprietary Alucobond wall panel system, Sweet's added general information about live loads, even though the manufacturer's data is silent on that point. The manually written spec omitted the wind loading. The system did it even though the spec was being

written in section 07412, Preformed Metal Wall Panels, instead of MASTERSPEC section 07420, Composite Wall Panels (where the manufacturer had placed the product). Section 07420 isn't yet in the SweetSpec system. On the other hand, the manufacturer allows users to vary the thickness of the panels. This did not show up, because the manufacturer had not added that information in precisely that form to the catalog data in Sweet's itself. Sweet's says it has created 500 different templates for manufacturers to use in describing their products. But the system is still being refined—and manufacturers are still being educated.

We tested the system just as material was being loaded into the main computer to reflect the CD-ROM disk released in January with the Sweet's Catalog itself. This produced two error messages—three-digit numbers with notices to call the Sweet's toll-free hot line. The system still produced an adequate spec. Sweet's technical support then added the material and the sections were rerun. This mismatch between CD-ROM and central computer will happen every time Sweet's sends a new disk—about twice a year, under current plans. Data to match the old disk will stay in the central computer for a month after the new disk comes. After that, a section may have to be rerun from scratch to get an updated spec.

The system as a whole requires lots of memory. In fact, until I cleared every other memory-using application except PC-DOS itself out of the system, I had trouble connecting to the remote computer at all. Sweet's customer service pinpointed the problem.

If your computer doesn't have 640K of random-access memory installed, add the cost of a memory upgrade to the overall price. Each 256K of new memory

*Continued on page 141*



# COLOR ME AVONITE®

Yes, we're shouting . . . and you'd shout too if you had the greatest range of granite and gemstone colors in the entire solid surface industry!

AVONITE is not only beautiful—it's durable—and there's a TEN YEAR WARRANTY to back up that claim.

AVONITE is truly a miracle of polymer technology. It is a patented man-made composite that duplicates nature in the rich colors of granite, marble and agate. But, unlike marble and other real stone materials, it has been chemically engineered to resist attack by acids and stains.

ALTHOUGH AVONITE LOOKS LIKE STONE, IT CUTS LIKE WOOD! It is routed, shaped, drilled and sanded with regular woodworking tools! A unique fusion adhesive creates imperceptible

seams. Because the grain goes all the way through, cigarette burns are removed in minutes with light sanding. Accidental nicks are quickly and invisibly repaired with a putty-like patch kit that comes in every Avonite color.

AVONITE is the latest state-of-the-art in solid surfacing materials. It is now being specified all over the world for reception desks, dividers, countertops, wall covering, furniture, floors, signage, accessories and other creative areas of design.

AVONITE can be ordered through conveniently located distributors throughout the United States, Canada, Europe and Asia. Call today toll free, for the name of your nearest AVONITE supplier:

1-800-4-AVONITE  
In California 1-800-554-6503

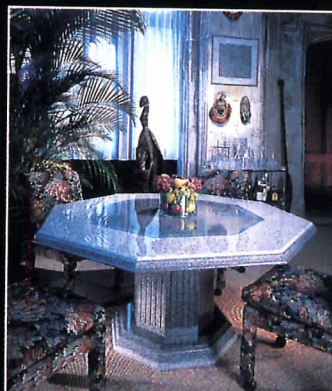
**AVONITE®**  
A NEW  
STONE AGE  
OF ELEGANCE



Reception Area, M.O.N.Y., Honolulu  
Designed by Kraft Kitchens, Honolulu



Cobble Court, New York  
Designed by Michael Love, ASID



Octagonal Table, Plexability, New York  
Designed by Berkowicz/Haller



Marotta Residence, New York  
Designed by We-Add, New York



*This latest AutoCAD release for MS-DOS and PC-DOS systems turns the software into a full-fledged 3-D system.*

costs less than \$100 at current prices, and prices are dropping.

What next? Close examination of the Sweet's CD-ROM reveals that only about 10 percent of the disk is being used. There's still about 500 megabytes left. Already, the disk carries software from Codeworks—the CodeControl and CodeAnalyst system for figuring what codes apply to your building and location [RECORD, August 1988, page 129]. It can be activated by calling Codeworks and paying a separate fee.

Some other logical items for the disk would be manufacturer-supplied details, ready to be picked up by your CAD software. Or local Geographical Information System data ready for insertion into a COGO (coordinate geometry) database.

There are so many possibilities that you'll probably get more use out of the system if you buy a CD-ROM player that sits next to your computer (an "external" model), rather than one that inserts into a disk-drive bay. Then you can install SCSI boards where you need them, and move the CD-ROM player around. There was enough room in 640K to run the Sweet's system along with a PC-NET LAN program for networking several computers together. But there was not enough room to handle Sweet's and Appletalk.

## **AutoCAD Release 10 with ADE 3**

The latest AutoCAD release for MS-DOS and PC-DOS systems. This version smooths out many of the kinks in 3-D implementation that were evident in Release 9. AutoCAD is now a full-fledged 3-D system. It all barely fits into MS-DOS and PC-DOS systems, however, and some system incompatibilities exist. Release 10 is such a tight fit that Autodesk insiders say this will be the last release for DOS systems. Future updates for IBMs and compatibles will run under OS/2 instead. This is an update of reviews of previous releases.

*Equipment required:* IBM XT (not recommended; see below) AT or compatible, PS/2 30, 50, 60, 70, or 80 with 512 kilobytes of random-access memory (640K needed for AutoLISP, and another 512K of extended memory for Extended AutoLISP), hard drive, coprocessor chip (8087, 80287, 80387), graphics monitor. Digitizing tablet strongly recommended. PC-DOS 3.3 (rather than later or earlier versions of DOS) strongly recommended; earlier versions have problems using extra memory, and PC-DOS 4 creates some incompatibilities (see text). *Vendor:* Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, 800-445-5415. \$3,000.

### **Summary**

*Manual:* Better than the manuals included with Releases 2.6 and 9. But do not expect to install this on your own without good dealer support, or without a resident DOS expert. Once installed, however, new users will find the tutorial excellent. *Ease-of-use:* AutoCAD has always been a full-featured package with many options. Release 10 extends these options considerably. Translation:

AutoCAD does a lot of things, requiring a lot of commands. Release 10 requires even more commands. In exchange, the system of pull-down menus has been extended. Using a tablet or mouse to designate points generally does not work if you are working in a perspective view; you must enter coordinates through the keyboard.

*Error-trapping:* Generally good. Users should be careful to keep 2-D drawings even on the X-Y plane, especially if they expect to create 3-D entities by extrusion. Some graphics-accelerator boards, and early EGA boards, are incompatible. As always, users should not try to delete temporary work files while working on a drawing. It is clear that AutoCAD Release 10 is hungry for space inside a personal computer. We had problems accessing extended memory above 640K on a PS/2 Model 30-286 equipped with 1,024K and running PC-DOS 4.01, but not on an IBM AT clone with Phoenix bios running PC-DOS 3.3. The problem appears to be with the computer, not the software, however. At this writing, Microsoft Windows-286 cannot access expanded memory on a PS/2 30-286, either. And the DOS 4.01 SHARE command, which allows access to hard disks larger than 32 megabytes, must be carefully fine-tuned. Thus, we recommend staying with PC-DOS 3.3.

Some memory conflicts that cropped up in Release 9 still exist, with respect to use of a RAM disk in extended memory. Most users seem to have avoided them by not using extended memory at all, but this is not wise with Release 10 (see below).

### **Review**

The CAD world has been experimenting with more intuitive ways to represent 3-D drawings on a 2-D computer screen. AutoCAD uses a straightforward system. First,

there's a "world" coordinate system, fixed in space. Then there's a "user" coordinate system that can be rotated inside the world system, to present a drawing plane that's easy to work on, even if the plane isn't square with the world coordinates.

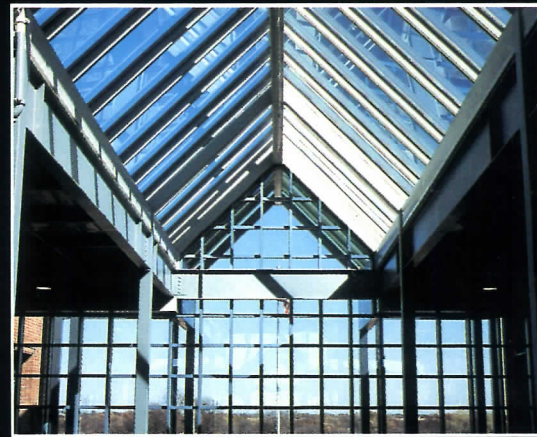
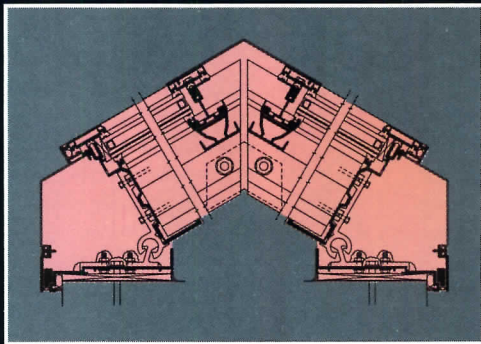
Objects can be viewed in 3-D by specifying a view point and eye point. Up to four views can be displayed on the screen at one time. Drawings can contain as many user coordinates as needed. 3-D images can be built up of extrusions, meshes, and the joining of separate 2-D faces. The meshes can be built up by sweeping a contour through space, or by specifying points in three coordinates and then forcing AutoCAD to smooth their connections. All this happens fairly slowly, however, unless you plan ahead. That means configuring AutoCAD to use as much expanded and extended random-access memory as possible. AutoCAD can use up to four megabytes of such memory for itself and for drawings, in addition to the 640K of memory DOS can normally address. AutoCAD can usually determine what kinds of memory you have, and how much you have. It uses expanded memory first. Every computer has a different way of getting at expanded memory. But once the equipment manufacturer's "driver" software is installed, expanded memory all works the same way as far as AutoCAD is concerned.

Extended memory, on the other hand, cannot be directly accessed by DOS software. Instead, it is used for a RAM disk, or "virtual memory" disk. Use extended memory to store AutoCAD's numerous overlay files, so the overlays don't have to be pulled from a slower, mechanical disk drive when they are needed. Different software uses extended memory in

*Continued on page 143*



# United States Aluminum's Series 3300 Slope Glazing is tops in its class . . . just ask Spring Creek College.



The Series 3300 Slope Glazing System offers the architect single source responsibility for the design, engineering, and manufacturing of your slope and vertical glazing requirements.

This System was especially designed to interface with our popular Series 3200 and 3100 vertically glazed curtain-wall systems.

#### Design Features

**Thermally Broken** — Interior aluminum framing is thermally isolated from the exterior by continuous thermal spacers interlocked with the horizontal and vertical pressure plates.

**Hinge Connections** — Allows for easy stick type installation with overlapping purlin to rafter interlocks without exposed fasteners.

**Condensation Gutters** — Horizontal and vertical condensation gutters provide for positive drainage of infiltrated water.

**Optional Silicone Glazing Purlins** — Allows for two-side silicone support horizontally and two-side conventional pressure bar support vertically.

**Performance** — Certified test reports that meet or exceed AAMA 501 standard test procedure for ASTM: E-283 air infiltration, E-330 structural performance and E-331 water penetration are available.

Available in clear, bronze, or black anodized finish or custom painted to architect's specification.

Shipped worldwide, the quality products of United States Aluminum can be seen in many of today's progressive structures.

United States Aluminum Corporation has been an industry leader for more than 25 years.

See us in Sweets 08400/UMV.



For complete information call 1 (800) 527-6440, in Texas call 1 (800) 442-3247, Fax 1 (800) 962-0468, or write

## United States Aluminum Corporation

### Manufacturing Facilities

3663 Bandini Blvd.  
Vernon, California 90023  
Telephone (213) 268-4230

200 Singleton Drive  
Waxahachie, Texas 75165  
Telephone (214) 937-9651  
or (214) 299-5397 metro

6969 West 73rd Street  
Chicago, Illinois 60638  
Telephone (312) 458-9070

720 Cel-River Road  
Rock Hill, South Carolina 29730  
Telephone (803) 366-8326

750 Cardinal Dr., P.O. Box 333  
Bridgeport, New Jersey 08014-0333  
Telephone (609) 467-5700



1	Exxon
2	General Motors
3	Mobil
4	Ford Motor
5	IBM
6	Texaco
7	E.I. du Pont
8	Standard Oil (Ind.)
9	Standard Oil of Cal.
10	General Electric
11	Gulf Oil
12	Atlantic Richfield
13	Shell Oil
14	Occidental Petroleum
15	U.S. Steel
16	Phillips Petroleum
17	Sun

**27 million Americans can't read. And guess who pays the price.**

Every year, functional illiteracy costs American business billions. But your company can fight back...by joining your local community's fight against illiteracy. Call the Coalition for Literacy at toll-free **1-800-228-8813** and find out how. You may find it's the greatest cost-saving measure your company has ever taken.

**A literate America is a good investment.**

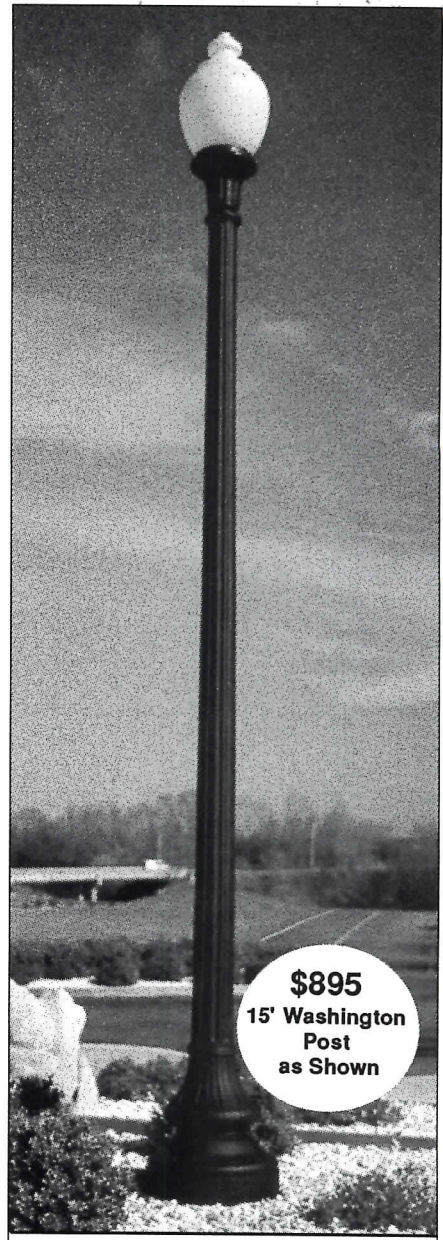


Continued from page 141

nonstandard ways, however, so AutoCAD's own commands (rather than DOS commands) should be used to tell AutoCAD to start its use of extended memory at a memory address above where any DOS RAM disk is placed. AutoCAD also can be speeded up by working on as few drawing layers at a time as possible, and telling the software to update layers only as needed.

AutoLISP can now run in extended memory, allowing add-on programs of almost unlimited size. Previous releases allow AutoLISP programs no larger than 40 kilobytes. But existing add-on programs written in AutoLISP (including AutoSHADE) will almost certainly have to be modified to run with Release 10. Some quick fixes are detailed in literature that comes with the new release. Extended memory manager software from Compaq and Quarterdeck, as well as the Intel Inboard, will not, as of this writing, work with extended AutoLISP at all. Thus, using the Intel board to supercharge an old IBM XT for AutoCAD 10 is not a good idea.

The bottom line: If you are in the middle of a hot project, stay with AutoCAD 9 for the time being, unless you absolutely have to have 3-D—especially if you are using undersized computers and lots of AutoCAD add-on software written in AutoLISP. If possible, wait for your third-party vendors and graphics-board suppliers to provide updates before you convert.



**\$895**  
15' Washington Post as Shown

**BUY FACTORY DIRECT & SAVE!**

Classic Lamp Posts offers the highest quality, lowest cost lighting posts and luminaires for street lighting, parks and parking lots in America. These unique lamp posts are molded of a steel-reinforced outdoor polymer and urethane laminate that we call "Polysteel".

**Our polysteel posts:**

- Never Need Painting
- Easy to Install
- Available in qty's of 1 to 1,000
- Our Objective: 4 week delivery
- Designed for municipal use
- Available in 8' to 15' heights

FREE 12 PAGE COLOR CATALOG!  
CALLTOLL FREE (800) 654-5852  
IN FLORIDA (305) 696-1901  
**Classic Lamp Posts, Inc.**  
3645 N.W. 67 Street Miami, FL 33147

Circle 65 on inquiry card



# Switch!

WORD  
PROCESSOR

ELECTRONIC  
TYPEWRITER

© 1988 Sharp Electronics Corporation.

## You'll be amazed at what Sharp's new typewriter turns out and turns into.

Flick the switch right and you get the new Sharp ZY-1000S electronic typewriter that turns out letter-quality documents. Yet, amazingly enough, the ZY-1000S is as easy to use as a standard typewriter.

It also offers a line-up of automatic features that make the typist's job simpler and more productive. Like Auto Correct for fast, efficient editing. And the Abbreviator that spells out abbreviations.

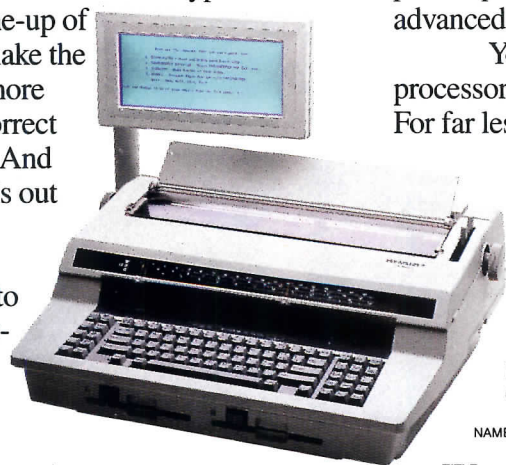
Now flick the switch left and it turns into an easy-to-use word processor. With a memory capacity and editing

capabilities that are big enough to handle the most complex business documents.

And that's not all. It also switches on a compatible personal computer that runs a wide range of advanced IBM\* software.

You get all three—electronic typewriter, word processor, computer—in a compact one-piece unit. For far less money than buying them one-by-one.

For more information on the amazing new Sharp ZY-1000S, mail in the coupon or call **1-800-BE-SHARP**.



**SHARP**  
FROM SHARP MINDS  
COME SHARP PRODUCTS™

\*IBM is a registered trademark of International Business Machines Corp.

**Mr. Bill Maul**  
Electronic Typewriters/Commercial Calculators Division  
Sharp Electronics Corp.  
Sharp Plaza, Mahwah, N.J. 07430

Please send me more information on the Sharp ZY-1000S electronic typewriter.

NAME \_\_\_\_\_

TITLE \_\_\_\_\_ PHONE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_



# ARCHITECTS' BOOK CLUB®

## Membership Order Card

Please enroll me as a member and send me **Time-Saver Standards for Building Types, 2/e,** and **Time-Saver Standards for Residential Development,** (584555-5), billing me only \$14.95, plus local tax, postage, and handling. I agree to purchase a minimum of two additional books during my first year as outlined under the Club plan described in this ad. Membership in the club is cancellable by me any time after the two book purchase requirement has been fulfilled. A shipping and handling charge is added to all shipments.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address/Apt. # \_\_\_\_\_

City/State, Zip \_\_\_\_\_

This order subject to acceptance by McGraw-Hill. All prices subject to change without notice. Offer good only to new members. Foreign member acceptance subject to special conditions.

# ARCHITECTS' BOOK CLUB®

## Membership Order Card

Please enroll me as a member and send me **Time-Saver Standards for Building Types, 2/e,** and **Time-Saver Standards for Residential Development,** (584555-5), billing me only \$14.95, plus local tax, postage, and handling. I agree to purchase a minimum of two additional books during my first year as outlined under the Club plan described in this ad. Membership in the club is cancellable by me any time after the two book purchase requirement has been fulfilled. A shipping and handling charge is added to all shipments.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Address/Apt. # \_\_\_\_\_

City/State, Zip \_\_\_\_\_

This order subject to acceptance by McGraw-Hill. All prices subject to change without notice. Offer good only to new members. Foreign member acceptance subject to special conditions.





NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

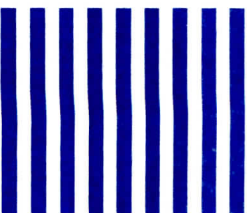
FIRST CLASS MAIL PERMIT NO. 42 HIGHTSTOWN, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

**McGraw-Hill Book Clubs**

**P.O. Box 582**

**Hightstown, NJ 08520-9959**



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

# BUSINESS REPLY MAIL

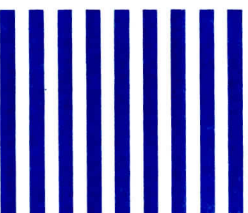
FIRST CLASS MAIL PERMIT NO. 42 HIGHTSTOWN, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

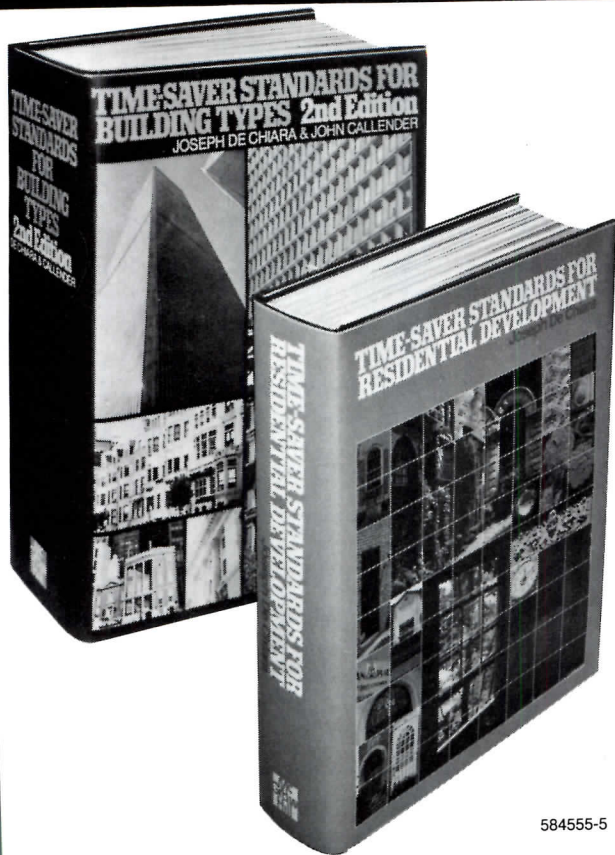
**McGraw-Hill Book Clubs**

**P.O. Box 582**

**Hightstown, NJ 08520-9959**







584555-5

# TAKE THESE TWO GIANT REFERENCES FOR ONLY \$14.95

when you join the Architects' Book Club®  
A \$184.00 Value!

McGraw-Hill's Architects' Book Club offers a wide variety of books to help you in all phases of your work. For example, these two from the renowned *Time-Saver Standards Series* total some 2,000 pages of vital information for architects and planners — including professional building data, design procedures, facts, definitions, and practical examples. Both books will help you design better, more cost-effective buildings. They will also save you time and money — and they are **both** yours for **ONLY \$14.95** when you join the club.

## MORE REASONS TO JOIN TODAY!

**You get the best and newest books from ALL publishers!** Books are selected from a wide range of publishers by expert editors and consultants to give you continuing access to the best and latest books in your field.

**You get big savings!** Build your library and save money, too! Savings range from 20% to 40% off publishers' list prices.

**You get bonus books!** You will automatically begin to participate in our Bonus Book Plan that allows you savings up to 70% off the publishers' prices of many professional and general interest books.

**You get the convenience you deserve!** 12–13 times a year (every 2 weeks) you receive the Club Bulletin FREE. It fully describes the Main Selection and alternate selections. A dated Reply Card is included. If you want the Main Selection, you simply do nothing—it will be shipped automatically. If you want an alternate selection—no book at all—you simply indicate it on the Reply Card and return it by the date specified. You will have at least 10 days to decide. If, because of late delivery of the Bulletin, you receive a Main Selection you do not want, you may return it for credit at the expense.

As a Club member you agree to buy just two more books during your first year of membership. Membership may be discontinued by either you or the Club at any time after you have purchased the two optional books.

Join and get your books, call  
TOLL-FREE 1-800-2-MCGRAW.  
Fill out the attached card and  
mail today! If the card is missing,

write to:

**Architects' Book Club®**  
PO Box 582, Hightstown, New Jersey 08520-9959

## TIME-SAVER STANDARDS FOR BUILDING TYPES, 2nd Ed.

Edited by Joseph DeChiara and John Callender

- plans, dimensions, ideas and data for more than 100 types of buildings
- functional relationships of the components of each building type
- 1,277 information-packed pages with contributions by more than 90 top experts
- over 1,500 illustrations — including floor plans, diagrams, schematics, and tables of technical data

Publisher's Price: \$92.00

## TIME-SAVER STANDARDS FOR RESIDENTIAL DEVELOPMENT

Edited by Joseph DeChiara

- information on all aspects of residential planning and development
- comprehensive design criteria for all types of residences
- essential data for developing preliminary designs and proposals
- over 1,300 illustrations — including floor plans, scale drawings, tables, and specifications

Publisher's Price: \$92.00

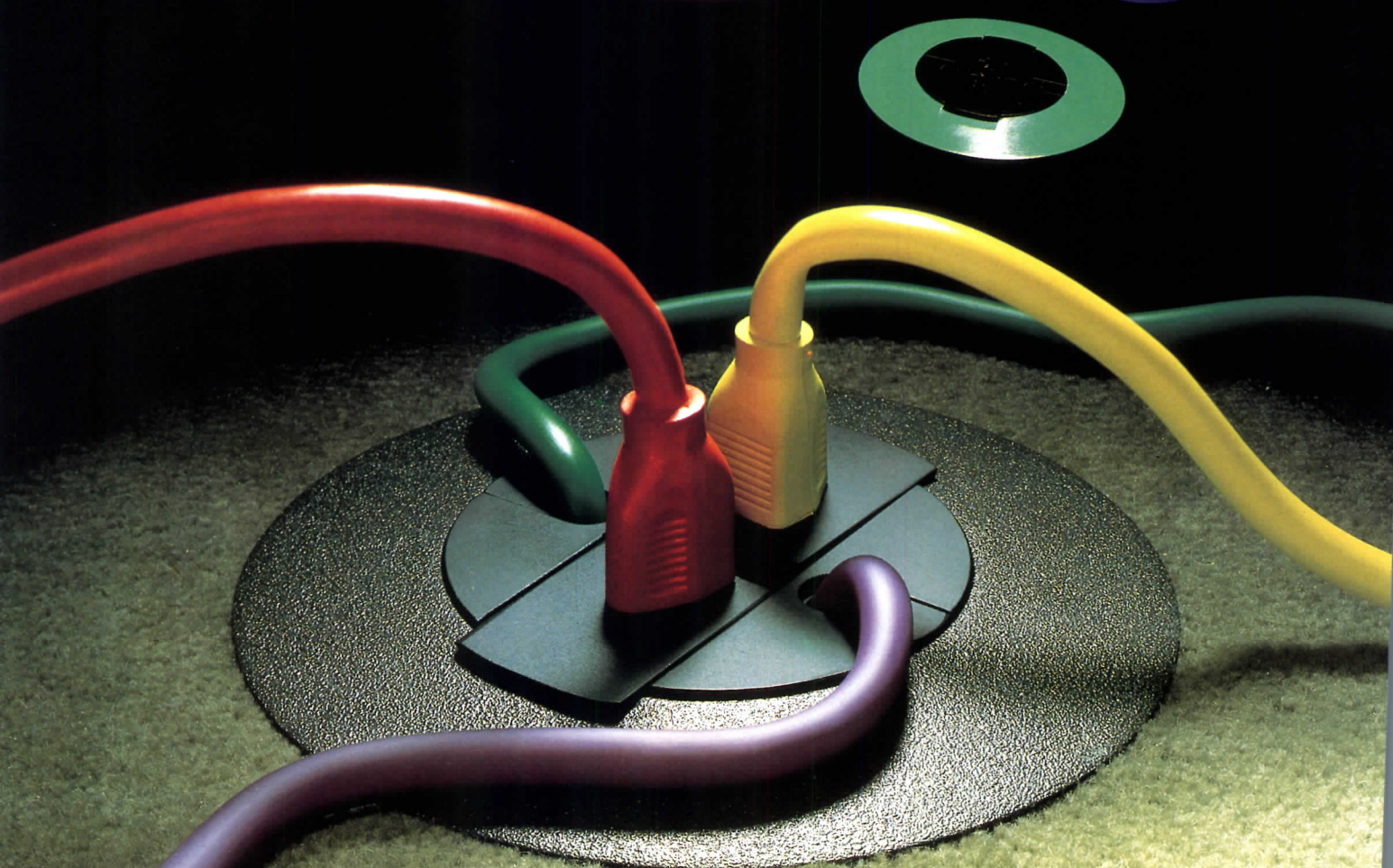
A36616





# FINALLY!

## A FLUSH POKE-THRU



### The Headless Poke-Thru is here.

If you're an architect or interior designer we just "made your day". We finally got rid of the electrical outlet "doghouse".

If you're a specifying engineer, you'll be happy to hear that Raceway has developed the first Flush Poke-Thru with full capacity... two services

in a single 3" hole; 15 or 20 amp, 125V duplex receptacle power. Plus two individual openings for low tension wiring for telephone, signal or data communications. **U.L. Classified and Listed.**

If you're a contractor, put this into your calculator. The Raceway Flush Poke-Thru comes factory pre-wired, terminating in a junction box which is **integral to the fitting.** (Perfect for renovation since it installs over

existing wires.) Just drill the hole... step on it... you're finished.

There are so many more exciting features. Color-coordinated choice of retainer ring... a sliding polycarbonate receptacle cover... but that's why we printed a brochure. It's all in there.

**Send for it. Join the rush to get flush.** Write or call Raceway Components, Inc., 263 Hillside Avenue, Nutley, N.J. 07110. 201-661-1116.



RACEWAY COMPONENTS, INC.

Mfg. I.B.E.W.

U.L. Classified and Listed

Pat. Pending

Circle 67 on inquiry card



Continued from page 125



## NOW AVAILABLE WITH CONDUIT ADAPTER

The Raceway Flush Poke-Thru is becoming a family. Here's a new "baby" with special flexible conduit connections. For modular furniture connections you might just use the center  $\frac{3}{4}$ " connections for power. Or, you might want to use the two outside  $\frac{1}{2}$ " openings for low tension data or communications. Its completely flexible.

An exceptionally ideal application for the "conduit connection" is at the retail point of sale, allowing relocation of the kiosk while leaving behind a clean flush abandonment. There's the power connection to energize the register. One of the data lines runs to the mainframe for sale and inventory records. The other runs to credit check. Both are protected from disconnect and loss of data integrity.

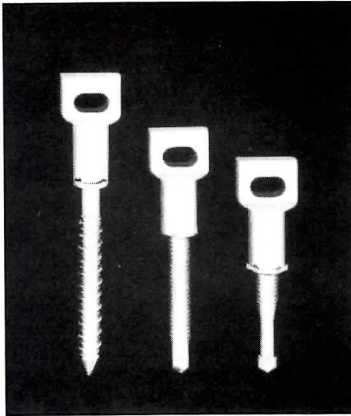
Learn more about the Raceway Flush "Conduit Connection". Write or call Raceway Components, Inc., 263 Hillside Avenue, Nutley, N.J. 07110. 201-661-1116.



**RACEWAY COMPONENTS, INC.**

M

Circle 67 on inquiry card



### Masonry-veer anchors

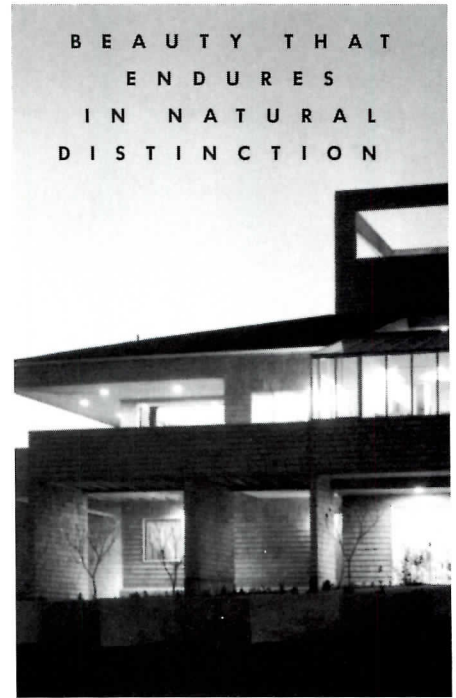
The three types of Pos-i-Tie fasteners are said to provide dependable anchoring of masonry veneers to the structural elements of different backup systems: masonry or concrete, steel studs, and structural steel. The self-drilling or self-threading anchors keep damaging movement between veneer and backup to a minimum, while transferring tension and compression loads and allowing for a small amount of controlled thermal movement. Elco Industries, Rockford, Ill. Circle 314 on reader service card



### Large-drawing printer

A plain-paper printer with zoom optics, the 5080 can make five full-size prints of an E-size (36-in.-wide) document per minute. Smaller D- and C-size prints can be produced at higher speed. Output can be electronically edited: selecting coordinates for as many as eight areas on the original will eliminate these sectors from the copies. Xerox Corp., Rochester, N. Y.

Circle 315 on reader service card  
More products on page 151



Martin Henry Kaplan, Architect AIA

Cedar shakes and shingles are distinctively beautiful. They make an important statement about the architect who designs with them.

Our labels certify that you're creating homes with the finest cedar available. Number 1 CERTIGRADE shingles are rated highest, produced by more than 300 of the top mills in the U.S. and Canada. CERTI-SPLIT specifies Number 1 Grade shakes. And CERTIGROOVE calls out Number 1 Grade shake siding.

Specify them by name to the builder. Because these labels certify code requirements. And without them your clients can't depend on maximum beauty and durability. For a free copy of New Roof Construction, and Sidewall Application manuals, write to:

Cedar Shake & Shingle Bureau, Ste. 275, 515 116th Avenue NE, Bellevue, WA 98004-5294.



Your certification of beauty and endurance.



Cedar Shake & Shingle Bureau. The recognized authority since 1915.

Circle 68 on inquiry card



# Our Chemistry Builds Cities



Whether it's a skyscraper or a parking garage, tunnel or a curb, Master Builders Technologies knows that the right chemistry in construction makes the difference -- the chemistry of the products that go into the project, and the chemistry of the people, research and services behind those products.

Master Builders Technologies has a worldwide network of companies with a complete line of admixtures for concrete, polymer and cementitious

products for surface and abrasion resistance, structural grouts and renovation. And our people are ready to provide their expertise from product selection to proper application.

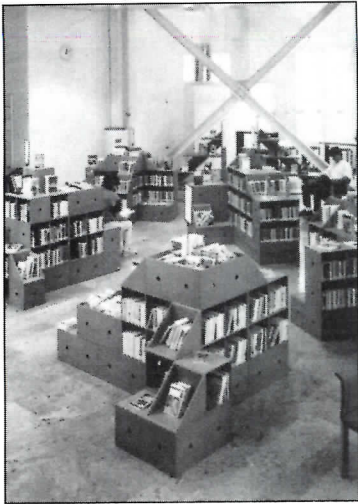
For any project large or small, anywhere in the world, Master Builders Technologies has the solutions. It's our chemistry of products, service, research and people dedicated to meeting the challenges of tomorrow.

**Construction chemicals for the future.**



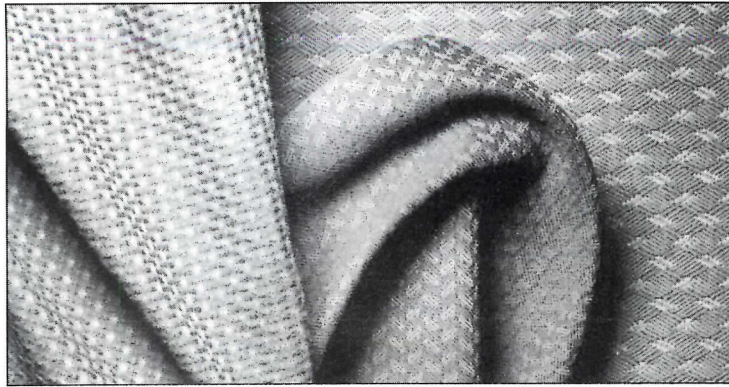
**Master Builders, Inc.**  
23700 Chagrin Boulevard  
Cleveland, Ohio 44122-5554  
(216) 831-5500





**Library display system**

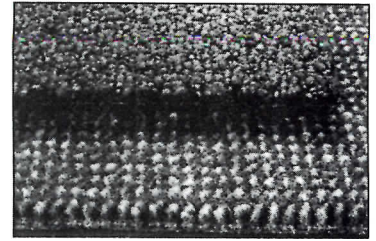
British in origin, the Modulsystem is said to be particularly effective in encouraging young children to browse through displayed reading materials. The shelving consists of open-fronted shapes—boxes, cubes, and a diagonal cube—which fit together with plastic nuts and bolts. Units can create cubicles for seating, and be placed around columns or into alcoves, using all of the space available. Gressco, Ltd., Madison, Wis.  
*Circle 316 on reader service card*



**Flame-retardant fabric**

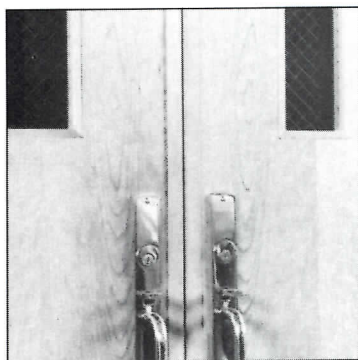
A blend of SEF modacrylic and nylon woven in three different nondirectional patterns, these COM Collection fabrics are

suggested for upholstery and vertical use in hotels, public areas, and offices. Lee Jofa, Carlstadt, N. J.  
*Circle 318 on reader service card*



**Antibacterial carpeting**

The heavy-duty backing of new institutional patterns is said to prevent carpet delamination. A permanent antimicrobial treatment reduces the chance of odor developing in the carpet. Lees Carpets, King of Prussia, Pa.  
*Circle 319 on reader service card*



**Paired fire doors**

The Superfire System, labeled for up to 1 1/2 hours, is now available in a paired-door system without an overlapping astragal. The metal channels on the meeting edges and the glass-light beading are wrapped with the same veneers used on the doors, providing an all-wood appearance. Optional reinforcement for hardware attachment can be specified to allow surface-mounted closers, fire-exit devices, and surface vertical rods to be fastened with screws rather than by through-bolting. Algoma Hardwoods, Inc., Algoma, Wis.

*Circle 317 on reader service card*



**KALCURVE™** The most highly insulating light transmitting curved material for skyroofs and curtainwall systems.

See Sweet's 8.14/Kal, 7.8/Kal, 13.11a/Ka, 13.2c/Stu.

Since 1955  
**Kalwall®**  
 CORPORATION

P.O. Box 237, Manchester, NH 03105  
 Phone 800-258-9777

Kalwall: a High-Tech Building Systems Company.

Cox Cable  
 Richard Fleischman, Architect

U.S. Patent Number 4,557,090

**Circle 70 on inquiry card**



# Put the whole world in your hand.



## Save \$200 on a Radio Shack Transportable or Mobile Cellular Phone.

Start Enjoying the Benefits of a Cellular Telephone. Now you can make and take calls wherever there's cellular service. Stay in touch going to and from work, on a service call or making a delivery. And, if help is needed, the police, a tow truck, a doctor or mechanic is just an *in-car* phone call away.



CT-101  
Mobile  
Phone

A "Car or Carry" Transportable for \$799\*. You can use the CT201 in your car, truck or van, or go portable and carry it with you. Just snap on the Portable Adapter (sold separately) and make calls at a job site, in a rental car or aboard a pleasure boat. The 3-watt output is five times that of many other portables.

A Full-Featured Mobile Phone for \$599\*. A CT-101 lets you make and take calls from your car. You'll be able to confirm meetings and reservations in advance to avoid wasted trips, as well as receive important messages from home, office and clients.

No-Cost, No-Obligation Demonstration. Let us show you how the transportable CT-201 (#17-1005) for \$40 per month<sup>†</sup> or the CT-101 mobile phone (#17-1075) for \$30 per month<sup>†</sup> can make you more productive.



**Radio Shack®**  
**The Technology Store**

A DIVISION OF TANDY CORPORATION

Circle 71 on inquiry card

\*Subject to 90-day minimum new activation with Radio Shack carrier (see store for details). CT-201 requires mobile antenna and portable adapter. Price without activation: \$999. CT-101 requires antenna. Price without activation: \$799. †Radio Shack revolving credit. Payment may vary depending upon account balance. Prices apply at participating Radio Shack stores and dealers.



# 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 78-83

Software Engineering Institute  
Bohlin Powell Larkin Cywinski and  
Burt Hill Kosar Rittelmann  
Associates, Architects

## Pages 78-81—Curtainwall:

Marmet Corp.; E. P. I.  
Architectural Systems, Inc. Tinted  
and reflective glazing: Guardian  
Industries Corp. Terne roofing:  
MTG, Inc. EPDM roofing:  
Firestone Building Products.  
Custom stainless-steel entrance:  
Ellison Bronze Co., Inc.

Aluminum-framed entrances:  
Kawneer Co., Inc.; Amarlite  
Architectural Products. Granite:  
Cold Spring Granite. Limestone:  
Bybee Stone Co.

**Pages 82-83—Wood and glass  
interior doors:** Weyerhaeuser Co.  
Locksets: Schlage Lock Co.  
Hinges: Lawrence Brothers.  
Ceiling tile: Armstrong World  
Industries. Plaster and gypsum  
drywall: Gold Bond Building  
Products. Alkyd paints: PPG  
Industries, Inc. Carpeting: Lees  
Commercial Carpet Co. Corridor  
light fixtures: custom by architect.  
Special wall treatment: EPI Wall  
Systems, Inc.

## Pages 94-99

The Roylton Hotel  
Gruzen Samton Steinglass,  
Architect; Interior Designer:  
Philippe Starck.

**Page 94—Storefront windows:**  
Star Front, Inc. Aluminum-framed  
windows: Wonder Window.  
Entrance doors and custom  
cabinetry: Maville Interiors. Lobby  
plasterwork: S. O. E. Stucce &  
Staffe. Front desk: Bauerschmidt  
& Sons, Inc. Carpet: Crowthers.  
Wall fixtures: Daum Glass.  
Furniture: Yves Hallard; Vinchard.  
Exterior lighting: Omega; Hydrel;  
Edison Price.

**Pages 95-97—Restaurant  
furniture:** Muebles Case. Upholstery  
and panel fabric: Duralee; County  
Interprises; Edmond Petit;  
H. Lelievre. Lighting: Bega; Bergen  
Art Metal. Drywall and wet plaster:  
Argus/Sorbara. Custom metal  
work: Dacheville.

**Pages 98-99—Guest room  
furnishings:** Driade; Disform.  
Lighting: Koch + Lowy, Inc.  
Carpeting: Philadelphia.

## Pages 100-105

Rivercenter  
Urban Design Group, Architects  
**Pages 100-101, 104-105—Steel and  
aluminum curtainwalls:** Wassau  
Metals; Richmond Steel.  
Architectural precast: Redondo.

Aluminum storefronts, windows,  
and entrances: Regal Mfg. Corp.  
Vertical glazing: PPG Industries.  
Laminated skylight glazing:  
Viracon. Operable storefronts:  
F. W. Riesenecker. Elastomeric  
roofing: Carlisle Corp. Standing-

seam metal roof: Burns Sheet  
Metal. Rolling doors: Atlas Door  
Corp. Acrylic paint: Gladwin Paint  
Co. Special coatings: U. S. Paint;  
Du Pont. HID fixtures: Omega.  
Hydraulic elevators: Montgomery.  
**Pages 102-103—Modular face  
brick:** Elgin Butler. Storefronts,  
windows, and entrance: Samuels  
Metal Products. Exterior finish:  
Ispo USA, Inc. (R-Wall).

## Pages 106-111

Public School 234  
Richard Dattner Architect, P. C.  
**Pages 106-109—Red brick:**  
Bowerston Shale Brick. Tan brick:  
Taylor Brick Products. IRMA  
roofing: Manville. Awning and

projected windows: Miami Wall  
Systems, Inc. Metal doors: General  
Fire Proof Door Corp. Upward-  
acting grille: Kinnear Div., Harsco  
Corp. Flagpole: American  
Flagpole, Inc. Cut and welded steel  
fence: Donna Dennis, artist;  
fabricated by Architectural  
Iron Co.

**Pages 110-111—Structural glazed-  
facing tile:** Belden-Stark. Vinyl tile:  
Azrock Floor Products. Paints:  
Wallcote. Fixed seating: Irwin  
Seating. Sheet vinyl: Armstrong  
World Industries. (Corlon).

Northwestern Atrium Center  
developed by  
Tishman Midwest Management Corp.  
Chicago, Illinois  
Architect: Helmut Jahn

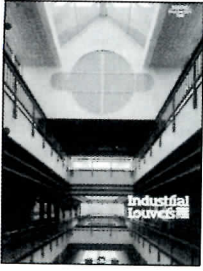
**THE RADII  
WATER  
COOLER.  
DESIGNED  
FOR DESIGNERS.  
BY OASIS, OF COURSE.**

When nothing less will fit, there's  
Radii, the bi-level water cooler  
that serves the handicapped and  
anyone else. See the full line of  
Radii coolers and fountains  
designed to fit your design—in  
Sweet's or Hutton Files. Or check  
your nearest Oasis distributor,  
listed in the Yellow Pages. Ebco  
Manufacturing Co., 265 N. Hamilton  
Rd., Columbus, Ohio 43213-0150.

**WATER COOLERS  
BUILT WITHOUT SHORTCUTS.**

**OASIS®**





**Ventilation louvers**

An expanded, 20-page catalog features extruded-aluminum and formed-metal louvers and penthouses, accessories, decorative screens, and brick and block vents. Industrial Louvers, Inc., Delano, Minn.

Circle 424 on reader service card



**Curved drywall**

A technical data sheet illustrates suggested construction techniques, such as cutting and wetting, used to form drywall to almost any cylindrically curved surface. United States Gypsum Co., Chicago.

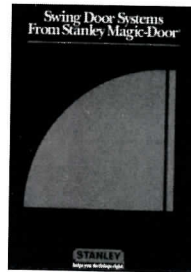
Circle 427 on reader service card



**Plotter materials**

A color brochure matches films, vellums, and opaque and new translucent bond media with hundreds of different flatbed and drum-type digital plotters. Dietzgen Corp., Des Plaines, Ill.

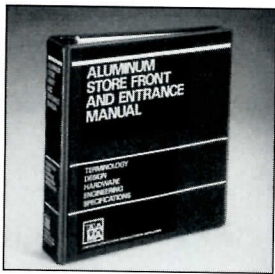
Circle 425 on reader service card



**Automatic swing door systems**

A booklet explains how fire-safety, security, and handicap-access requirements can be met with Magic-Swing and Value Swing door systems. Door control options are described. Stanley Magic-Door, Farmington, Conn.

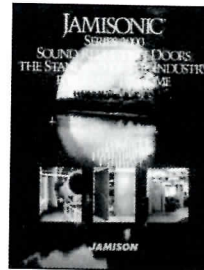
Circle 428 on reader service card



**Store fronts/entrances**

A 140-page manual provides technical information intended to encourage good design, the use of quality materials, and careful workmanship in entry areas. Cost: \$50. American Architectural Mfrs. Assn., Des Plaines, Ill.

Circle 426 on reader service card



**Sound-reduction doors**

A variety of applications for sound-reduction doors are covered in an eight-page catalog. Door types, sizes, key design features, and sound transmission ratings are explained. Jamison Door Co., Hagerstown, Md.

Circle 429 on reader service card

# Every copier company talks We're doing something about

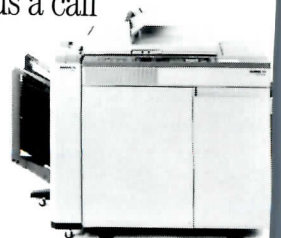
Choosing a new copier isn't easy. You look at copiers, you listen to promises. It all gets very confusing.

Now, you don't have to listen to a lot of talk about promises. You can read ours. Because we put it in writing. If you try to compare it to other copier guarantees, you'll find there's no comparison. Suddenly, a difficult decision becomes a very easy choice to make.

Look at the certificate above. Nobody offers you as good a copier guarantee as Harris/3M. So, while

copier salespeople are all giving you a lot of talk, ours will give you something great to read.

Send in the coupon. Or give us a call at 1-800-TLC-COPY. (In Canada, 1-519-668-2230.) We'll send you our 8-page *Consumer Guide to Copiers*. Then, we can talk about it.



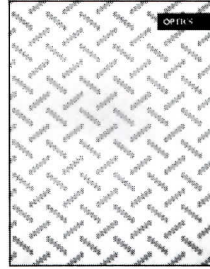
Harris/3M copiers have features for all sizes of offices. That includes the 6070. Seventy copies a minute, guaranteed.



For more information,  
circle item numbers on  
Reader Service Card



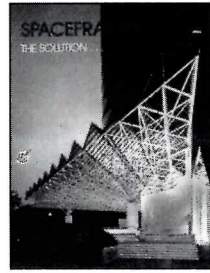
**Etched signage**  
Custom institutional and commercial graphics, from office signs to memorial plaques, are shown in a color foldout. Bronze, aluminum, and nickel-plated finishes are pictured. Medalia Specialties, Inc., Bensenville, Ill. Circle 430 on reader service card



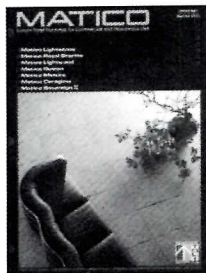
**Customized commercial carpet**  
A specification guide describes new Optics contract carpeting, illustrating 150 patterns and 100 colors offered in any desired combination. Stratton Commercial Carpets, Sub. Shaw Industries, Inc., Dalton, Ga. Circle 433 on reader service card



**Radius corners**  
A system of field-cuttable, paint-ready formed steel is described on a data sheet as a cost-effective way to fabricate curved corners on interior gypsum board walls and ceilings. Radius Corner Systems, Inc., Bloomfield, Conn. Circle 431 on reader service card



**Spaceframe design**  
Architectural design solutions using spaceframes to support curtain-walls, large-span atria, canopies, and amphitheatres are illustrated in a color catalog. MERO Structures, Inc., Germantown, Wis. Circle 434 on reader service card



**Vinyl flooring**  
An architectural catalog on Japanese-made vinyl tile features close-up and installation photos of floors that resemble stone, tile, terrazzo, wood plank, and carpet. Flame-test and other data are included. Matico, Commack, N. Y. Circle 432 on reader service card



**Marble aggregate tile**  
A 1989 design catalog illustrates 15 colors of cast-marble-chip tiles for floors and walls, including a 3/8-in.-thick, 24-in.-square size. Both polished and low-upkeep honed finishes are offered. ArmStar, Lenoir City, Tenn. Circle 435 on reader service card

# about customer satisfaction.

**The Harris/3M Copier Promise**

1. 98% guaranteed up-time or your money back for the time it's down.
2. A free loaner if your copier is out of service for more than 8 hours.
3. An after-hours, toll-free helpline to assist you with minor emergencies.

*C. Lance Herrin*  
C. Lance Herrin  
Vice President—Copying Systems Division

Yes, I'd like to know more about Harris/3M copiers and the Harris/3M Copier Promise.  
Send to Harris/3M, P.O. Box 785, Dayton, OH 45401

NAME \_\_\_\_\_  
COMPANY NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
PHONE # ( ) \_\_\_\_\_

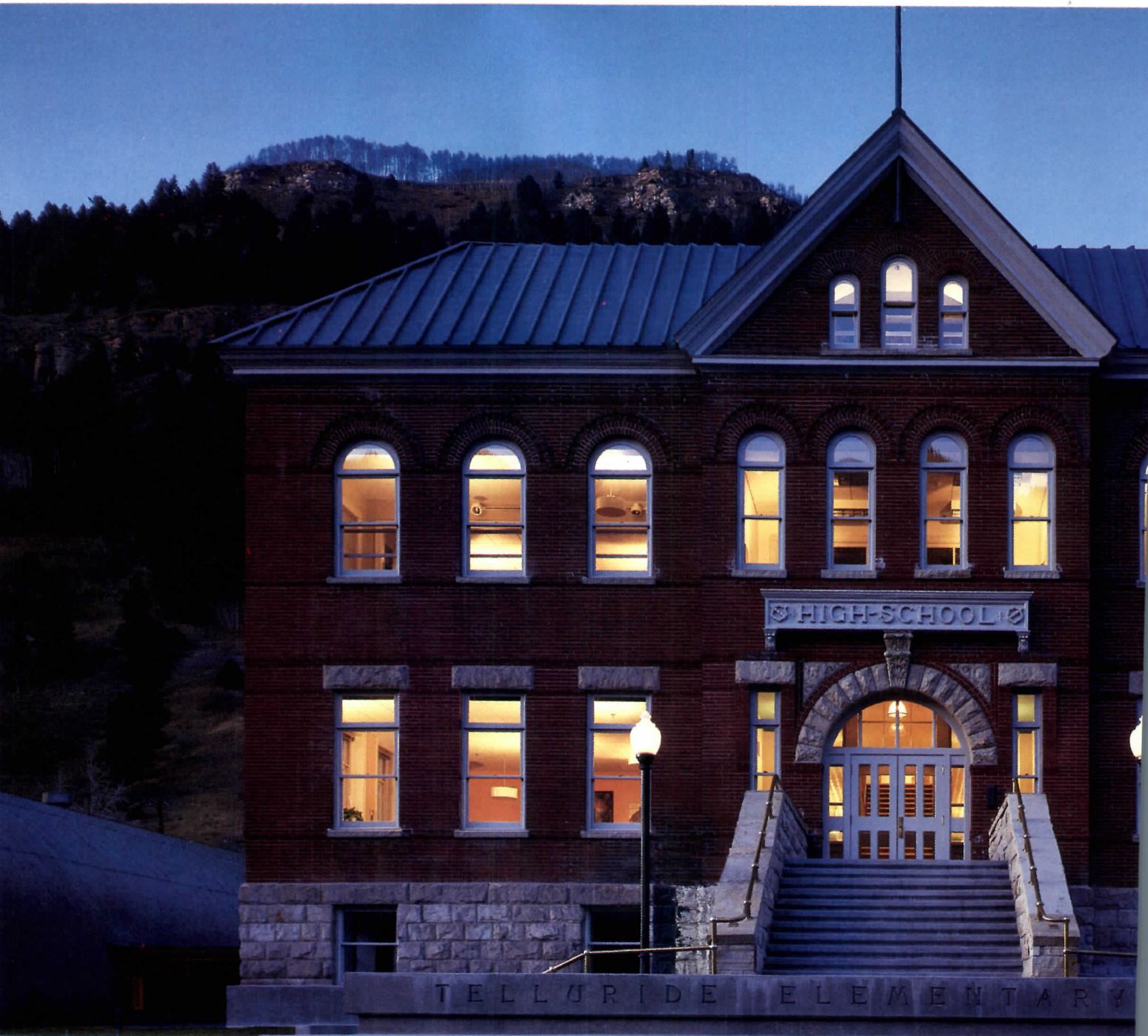
I'd also like information on your fax machines. MH389

## HARRIS/3M

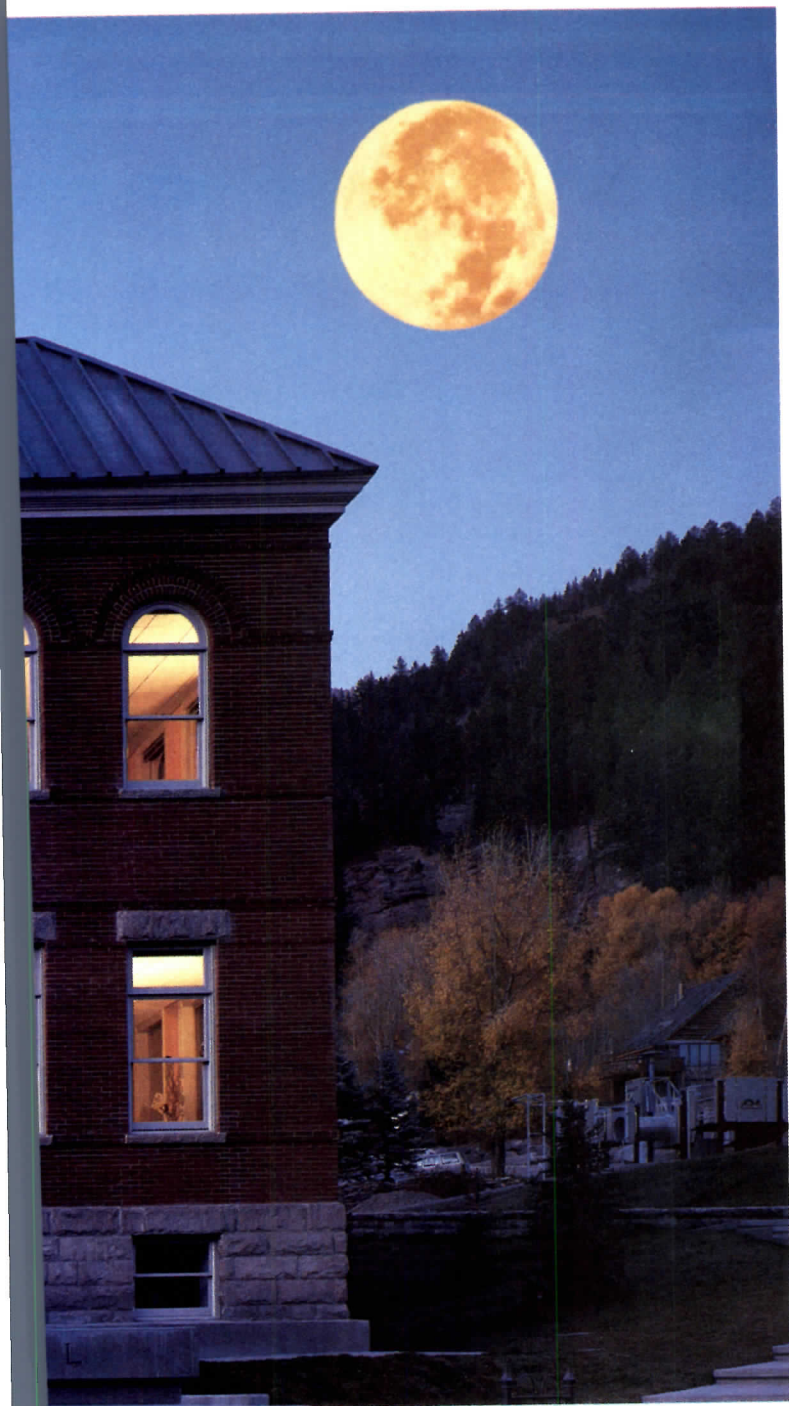
Offer is valid for a limited time and other restrictions and limitations apply; see your Harris/3M sales representative for details. ©1988 Harris/3M Document Products, Inc. Harris is a trademark of the Harris Corporation. 3M is a trademark of the 3M Company.



**THIS SCHOOL OFFERS AN ADVANCED COURSE IN WINDOW TECHNOLOGY.**







When they decided to renovate and reopen the 93 year-old elementary school in Telluride, Colorado, they decided to install Marvin Magnum windows.

Smart. Magnums are among the best-performing wood windows in the world. Whether it's positive wind load, negative wind load, air or water infiltration, they'll handle all the weather the Rocky Mountains can dish out.

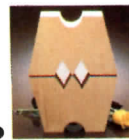
Because we make windows to order, we could incorporate Magnum performance features into historically accurate replicas. At the same time, we could include custom features such as a special brick mold casing and a durable polycron exterior finish.

Our made-to-order approach meant our windows fit better. And, working closely with the contractor, we were able to deliver on schedule.

The entire project was a textbook exercise in the benefits of using made-to-order windows in renovation. And when it comes to making windows to order, we wrote the book.

For more information, call us toll-free at 1-800-328-0268 (in Minnesota, dial 1-612-854-1464; in Canada, 1-800-263-6161). Or just write Marvin Windows, 8043 24th Avenue South, Minneapolis, MN 55425.

**MARVIN WINDOWS  
ARE MADE TO ORDER.**







**Versatility  
you never  
thought  
possible  
with  
exterior  
insulation  
systems.**

*Creating a stunning surface that intrigues the eye with its form and color while providing optimum building protection demands exceptional materials.*

*STO Exterior Insulation Systems and Coatings envelope the outside of your building like a protective shield that insulates and resists moisture, yet remains flexible even in extreme or changeable conditions. And STO Wall Systems may be sculpted and scored into shapes you never thought possible.*

*With over 350 colors and 30 textures, the widest range available, freedom of design is truly at your fingertips.*



**STO INDUSTRIES, INC.**

Quality Lane, Box 219  
Rutland, VT 05701  
Toll Free: (800) 851-5533

A subsidiary of STO Corp.,  
the Systems Technology Organization

**Circle 75 on inquiry card**



### **Tegelerhafen**

Berlin, West Germany  
Architect: Moore Ruble Yudell,  
Architecture and Planning

*Recognized for its design excellence, Phase 1 of the Tegel Harbor Housing Complex was completed in 1987 for the International Building Exhibition in Berlin. Master-planned by Charles Moore, FAIA, and Moore Ruble Yudell, winners of the design competition, it represents classic Post Modernism at its best.*

*Tegel Harbor also exemplifies the extraordinary quality and versatility of STO materials through the project's magnitude and award-winning design. Based on STO's theories of Applied Color Use in Architecture, extensive color analysis and renderings were produced by the STO Color Studio. The final colors and forms of Tegel lend each new housing complex its exquisite appeal and accomplish its playful yet dignified integration into the surrounding environment of old Berlin.*





# AMERICA'S FIRST CHOICE IN MOBILE FILING AND STORAGE SYSTEMS.



## S P A C E S A V E R

**Double filing/storage capacity—or handle client needs in half the space.**

Spacesaver systems can give you room for more offices, terraces, atriums—whatever.

And give your clients more efficiency, accuracy, security... with fewer steps and faster file retrieval.

**From archives to active filing, the ideal choice.**

You can customize systems to store virtually any type of material, and for the full range of business needs: massive records retention, central filing areas—or compact modules, handy for each department.

**Exclusive Nationwide Local Area-Contractor Network.**

And only Spacesaver brings you a coast-to-coast Area Contractor network.

Local installation.

Local service.

Two more reasons why we're America's first choice in Mobile storage systems. And why you can specify Spacesaver with confidence.

**Spacesaver** 

**For more information, circle these Inquiry Card numbers:**

*Free Spacesaver Design Library Subscription*

**Spacesaver Systems for...**

*Business Offices* 77      *Libraries* 78

*Law Firms* 79      *Museums* 80

*Health Care Facilities* 81

*Government Facilities* 82

*Floor Loading Solutions* 83

**The Spacesaver Group**, 1450 Janesville Ave., Ft. Atkinson, WI 53538  
1-800-492-3434. In Wisconsin, call 414-563-5546



## ARCHITECTS

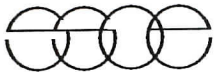
SSOE, Inc., a leading national A/E consulting firm headquartered in Toledo, Ohio, is in the midst of an exciting staff expansion. Our client base of industrial, commercial, and institutional concerns continues to grow and provide new challenges for our office of over 400 employees.

Presently, we are seeking career-minded, degreed architects who can bring their expertise to one of our commercial/institutional or industrial architectural teams. Professional registration is preferred.

As part of SSOE's new philosophy regarding CADD, all architects will eventually be trained to use CADD as a design tool.

SSOE offers a comprehensive benefits package, profit sharing, and outstanding advancement opportunities. Qualified candidates should submit resume, cover letter, and salary requirements to:

Human Resources



**SSOE, INC.**

Engineers, Architects and Planners  
1001 Madison Avenue  
Toledo, OH 43624  
Equal Opportunity Employer

## ARCHITECT

THE SEAR-BROWN GROUP, an employee-owned, full-service design firm, has outstanding opportunities for career professionals.

We are seeking a licensed professional in our Rochester, NY office with experience in programming, planning and design of health related facilities. Includes environment for the aging.

At our Canton, NY office we are seeking an individual with experience in public schools and familiarity with State Education Department requirements.

Please send resume in confidence to:

**SEAR-BROWN GROUP**  
85 Metro Park  
Rochester, NY 14623

An Equal Opportunity  
Employer M/F

**Architect/Engineer. Aggressive 30-person A/E firm** with reputation for design excellence and professional product in fastest-growing Southeastern high tech area on large exciting projects, primarily industrial, educational, and office-government buildings. Design responsibility FY '86 — \$65m, FY '87 — \$70m, FY '88 — \$80m + . Firm seeks motivated, talented, responsible professionals with desire for good design and propensity to work with clients. Long term positions open: Project Architects, Interior Designer, Specification Writer/Cost Estimator/Field Inspector. Registration and CADD interest helpful. Intergraph experience desirable. Minimum five years experience. Salary normally in highest percentile and commensurate with experience. Benefits include profit sharing, retirement, major medical and use of Florida condo. Send resume to: Goodrum Knowles, 626 Clinton Avenue, West, Huntsville, AL 35801. EOE/M/F.

**Architects Full Service real estate** development company in Mid Atlantic State area with architectural firm seeking Registered Architect with proven track record of 5 to 10 years commercial experience well versed in all aspects of architecture; emphasis on design. CADD experience preferred. Excellent salary & benefit package with solid growth potential. Send resume in confidence to: Personnel Administrator, P.O. Box 427, 422 Allegheny St., Hollidaysburg, PA 16648. EOE.

**Health Care Senior Project Manager.** URS Consultants is a leading Architectural/Engineering/Planning firm which is expanding their health care planning group and have an immediate opening in their Cleveland office. The qualified Project Manager must have an Architectural degree, be registered, and have 10 years progressive experience in managing large projects including 5 years in health care facilities. Ability to effectively direct and coordinate all project phases and personnel as well as maintaining excellent client liaison is a must. URS offers competitive employee benefits in a highly professional and stimulating work environment. For consideration, please send resume to: Donald T. Parent, URS Consultants, 3605 Warrensville Ctr. Rd., Cleveland, OH 44122. An Equal Opportunity Employer M/F/H/V.

**Architects — \$25,000-85,000. Group One** Search Executive Architectural Recruiters. Key positions nationwide at all levels with Regional & National firms. Experience in research/development, health care, commercial, criminal justice, educational, institutional, industrial and multi-family projects. Confidential. No fee. Include salary requirements. Group One Search, P.O. Box 5199, Marietta, GA 30064-5199 or P.O. Box 273210, Tampa, FL 33688. 404-423-1827 or 813-969-0544.

**Architects — Type I, III and V. Commercial — Industrial.** Minimum 5 years experience. Send resume in confidence to: Architects International Inc., Attn: Kirsti Anderson, 225 West Broadway, Suite 500, Glendale, CA 91206.

**Michael Latas & Associates, Executive** Search and Professional Recruiting Consultants, Specialists in the architectural and engineering fields. Operating nationally. Inquiries held in the strictest of confidence. 1311 Lindbergh Plaza Center, St. Louis, Missouri 63132; (314) 993-6500.

**Architect. Seattle area firm seeks architect** to design & prepare specifications, estimates & drawings for development of residential & commercial structures. Plan layout of building projects and integrate engineering & electrical elements into unified design. Assist with preparation of contracts. Must be able to use computer aided design (CAD) & prepare layout of electrical plans. Pays \$1,260/mo, 40 hours/week, 8 am-5 pm. Must be willing to work evening hours on rush projects. Requires Bachelor's degree in Architecture, 3 mo training or experience using computer aided design (CAD), and 3 mo experience or college level course which includes study of electrical lighting plan layout. Send resume within 30 days of publication to Employment Security Dept., Employment Service Div., Attn: AEC #111973K, Olympia, WA 98504.

**Now recruiting. For Qualified Federal** Architect GS-05 through GS-12 Levels. Salary Ranges start at GS-05 \$19,654 to GS-12 \$43,753. Higher level positions develop specifications for architectural phases of a wide variety of buildings and structures. Review work performed by private architect/engineering firms. Provide construction support. Must have a degree from an accredited college or university (or equivalent experience) and a minimum of three years of experience. RA preferred. Openings at the lower levels are for Facilities Master Planners with education, training professional background, and experience in areas conducive to the preparation of master plans. Those interested may apply by completing SF-171's and submitting them to the Civilian Personnel Department, Naval Air Station, Patuxent River, MD 20670-5409. For further information contact Molly Balias, 301-663-3545 or 4838.

**Project Manager for established firm** seeking next management generation. Prominent Midwest A/E req. degree and prof. reg. coupled with 8+ yrs. progressive exp. with diverse comm., civil and inst. projects. Ability to effectively direct and coord. all project phases and associated personnel as well as maintaining excellent client liaison is much more important than design talent. Excellent compensation and long term growth track into upper mgmt. will be offered to the person exhibiting clear project mgmt., technical leadership and people skills. Contact our reps with conf. resume to G. Marshall Assoc. - P.O. Box 66083 - Chicago, IL 60666 for full consideration.

### TO ANSWER BOX NUMBER ADS

*Address separate envelopes  
(smaller than 11" x 5")  
for each reply to:*

*Box Number (As indicated)  
Classified Advertising Center  
Architectural Record  
Post Office Box 900  
NY 10108*



## POSITIONS VACANT

**Architect. Tacoma firm seeks architect** to design & adapt elastomeric single membrane polyester resins for industrial applications in thermal and moisture protection. Consult with prospective clients regarding the application of such materials in particular building projects. Pays \$2,000/mo, 40 hours/week, 9 am-5 pm. Requires Bachelor's degree in Architecture, and 3 yrs experience as an architect or instructor in architecture at college level. Send resume with 30 days of publication to Employment Security Dept., Employment Service Div., Attn: AEC #WA112998B, Olympia, WA 98504.

**Architectural Delineator. Key personnel** required in all phases: cars, figures, landscaping, interiors and perspective layout draftsman. Send samples, resume & salary requirements to: Art Associates, Inc., 4635 W. Alexis Road, Toledo, OH, 43623.

**Jr. Estimator. Architectural sculpture** service near Manhattan seeks personable self-starter with strong math and communications skills. This position requires a methodical, creative thinker with the ability to accurately interpret architectural drawings and field-measure from scaffolding. The ideal candidate will be a competent draftsman familiar with both the new construction and restoration industries, conversant in new and traditional ornamental building materials, and will possess some knowledge of the sculpture and moldmaking processes. Salary commensurate with experience. Send resume by April 15 to Jeff Moran, MJM Studies, River Terminal, 100 Central Avenue, Bldg. #89, South Kearny NJ 07032.

## FACULTY POSITIONS VACANT

**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 18, and offers five-year Bachelor of Architecture and Bachelor of Architectural Engineering professional degree program as well as Master's level programs in both disciplines. Appointment is effective September 1, 1989 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 April 14, 1989 to receive full consideration. Send to: School Head Search Committee; School of Architecture; Oklahoma State University; Stillwater, OK 74078. OSU is an Affirmative Action, Equal Opportunity Employer.

**The Graduate School of Architecture and Urban Planning at UCLA** invites applications for a Professor of Architecture at the Senior Level in the Architecture/Urban Design Program, beginning academic year 1990-91 or earlier if available. The successful applicant will be expected to teach in one of the following areas — Architectural Design; Urban Design; Policy Programming and Evaluations; Technology; Design Theory and Methods; History Analysis and Criticism of Architecture. UCLA is an Equal Opportunity/Affirmative Action employer and the Architecture/Urban Design Program especially encourages applications from women and members of minority groups. Applicants are asked to submit letters of inquiry, including curriculum vitae and the names and addresses of at least three references by April 15, 1989, to Professor Lionel March, Head, Architecture/Urban Design Program, Graduate School of Architecture and Urban Planning, UCLA, Los Angeles, CA 90024.

## PROFESSIONAL SERVICES

### NYC DEPT. OF BUILDINGS EXPEDITING SERVICES

Thorough building code & zoning consultation. Reliable & complete service for all types of commercial and residential filings including Certificates of Occupancy.

**HANNIBAL GALIN & ASSOCIATES**  
(718) 783-6052

## SPECIAL SERVICES



### COMPLETE PREPARATION FOR THE REGISTRATION EXAMS

Architectural License Seminars (213) 208-7112  
Box 64188 Los Angeles California 90064

**Cost Estimating, Quantity Surveys, Computer Applications, Corp, DOD, GSA, VA.** Construction Cost Systems, Chicago (312) 858-5441; Tampa — (813) 887-5600.

## BUSINESS OPPORTUNITIES

**Architectural firm for sale. Lucrative** practice Southwest US. 15-18 employees. Owner burnout. Call Paul A. Ramsower, Rober Cox & Associates, 505-842-6400.

**Architect/Studio Owner. Marshall Erdman** and Associates, the designers and manufacturers of Techline, are adding new Techline Studios to those already established. Studio owners use Techline, a sophisticated systems of furniture and cabinetry, in the design of residential, medical and other institutional interiors. At least one Studio partner must be in the design profession. Successful applicants have management skills, enjoy client contact and a hands-on operation. We are an established architectural and building firm. Our goal is to develop mutually beneficial relationships with creative and ambitious individuals. Contact Marshall Erdman, Chairman, Marshall Erdman and Associates, 5117 University Avenue, Madison, WI 53705. (608) 238-0211.

**Partner/Firm. Small architectural consulting** firm with established office in Los Angeles and New York City is interested in finding a financially solvent professional partner or firm to combine ongoing and new projects. Firm specialized in quality retail design, hotels, urban planning and renovation architecture. We have strong design, management, and marketing capabilities and are looking for a unique individual or firm with complementary strength. Present work in the states of California, Massachusetts, Vermont, New York, New Jersey, Pennsylvania, Virginia, and Florida. P-5637, Architectural Record.

**CALL IN  
YOUR  
CLASSIFIED  
ADS**

**212/512-2556**

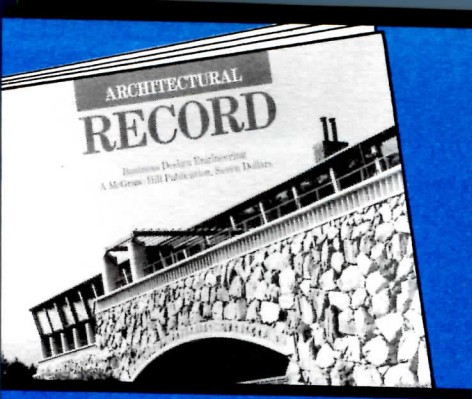
## Business news

*Continued from page 31*

feet of federal office space, proposed for the downtown Federal Triangle site in Washington, would permit the consolidation of federal agencies such as Treasury, Justice, and the State Departments. The Cultural and Trade Center component would add another 500,000 square feet, bringing the total to roughly two-thirds the size of the behemoth Pentagon.

The main uncertainty seems to surround the center. The GSA would like to move large chunks of the Justice Department in on completion (by 1994 at a cost of some \$461 million). However, while the Pennsylvania Avenue Development Corporation, initially charged by Congress with the lead responsibility for the project, has worked up a prospectus and is meeting with interested clients, it has yet to award a design contract. A key issue is tenancy—who will make companionable neighbors under one roof? Some witnesses, including former Senator Charles Percy, chairman of a recently established presidential commission on the center, told Moynihan's committee bluntly that foreign governments are unlikely to move into a building with trade promotion and even perhaps one-stop visa offices if they have to share it with the Justice Department. The United States Information Agency, for instance, he thought would be a different matter. Percy, who said he had explored the idea with both foreign governments and the State Department, said it is his impression that the foreigners would be unwilling to move in if Justice prevails because, among other considerations, it has different security requirements: "If the foreign missions pull out, it would destroy the whole concept," said Percy.  
*Peter Hoffmann  
Washington, D. C.*





**Design ideas that give you a competitive edge!**

**Subscribe now to ARCHITECTURAL RECORD and save...**

Your own subscription to ARCHITECTURAL RECORD keeps you in touch with innovative solutions to the full range of competitive challenges you face. With your own issue mailed to you each month, you don't have to wait for a routed copy that may be months late. And you can build a personal reference library filled with useful ideas that you can turn to at your convenience...

**Order your 1989 A.R.E. Handbook now from NCARB!**

**Volume 1—**  
Divs. B, graphic & C  
**Volume 2—**  
Divs. A, B, written D/F, E, G, H, I

**SAVE UP TO \$42.50**

**YES.** Please send me ARCHITECTURAL RECORD for the period indicated.

Please check the terms you wish:

- 12 months (14 issues) \$42.50
- 24 months (28 issues) \$64—A better buy with \$21 savings!
- 36 months (42 issues) \$85—Your best buy with \$42.50 savings!

Please answer all questions:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Type of firm \_\_\_\_\_

Mailing address \_\_\_\_\_

City/State \_\_\_\_\_ Zip \_\_\_\_\_

This is a:

- Business or  Home Address
- New or  Renewal subscription  Payment enclosed  Bill me
- American Express  VISA  MasterCard
- Account # \_\_\_\_\_ Date card expires \_\_\_\_\_
- Signature \_\_\_\_\_

Allow 4-12 weeks for shipment of first issue. Rates good only in U.S., Possessions, and Canada.

**RECORD**

P.O. Box 564, Hightstown, NJ 08520

Please check appropriate boxes:  
 Architect Registered in state(s) of \_\_\_\_\_

- Engineer
- Owner/principal
- Designer
- Interior Designer
- Draftsman
- Corp. Officer
- Title \_\_\_\_\_

Student/School

Signature \_\_\_\_\_

IDX3919

**SAVE UP TO \$42.50**

**YES.** Please send me ARCHITECTURAL RECORD for the period indicated.

Please check the terms you wish:

- 12 months (14 issues) \$42.50
- 24 months (28 issues) \$64—A better buy with \$21 savings!
- 36 months (42 issues) \$85—Your best buy with \$42.50 savings!

Please answer all questions:

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_ Type of firm \_\_\_\_\_

Mailing address \_\_\_\_\_

City/State \_\_\_\_\_ Zip \_\_\_\_\_

This is a:

- Business or  Home Address
- New or  Renewal subscription  Payment enclosed  Bill me
- American Express  VISA  MasterCard
- Account # \_\_\_\_\_ Date card expires \_\_\_\_\_
- Signature \_\_\_\_\_

Allow 4-12 weeks for shipment of first issue. Rates good only in U.S., Possessions, and Canada.

**ARCHITECTURAL RECORD**

P.O. Box 564, Hightstown, NJ 08520

Please check appropriate boxes:  
 Architect Registered in state(s) of \_\_\_\_\_

- Engineer
- Owner/principal
- Designer
- Interior Designer
- Draftsman
- Corp. Officer
- Title \_\_\_\_\_

Student/School

Signature \_\_\_\_\_

IDX2927

**Order Your 1989 A.R.E. Handbooks from NCARB!**

Detach and mail payment to NCARB, A.R.E. Handbooks, 1735 New York Avenue, N.W., Suite 700, Washington, DC 20006. Make checks payable to NCARB. Delivery takes 4-6 weeks.

Name \_\_\_\_\_ (Please print)

Company \_\_\_\_\_ (If applicable)

Address \_\_\_\_\_ (Daytime—No P.O. Boxes)

City/State/Zip \_\_\_\_\_

NCARB/IDP Council Record No. \_\_\_\_\_ (If applicable)

QTY	VOL	PRICE*	TOTAL
___	SET	\$95	___
___	VOL. 1	\$70	___
___	VOL. 2	\$40	___

D.C. residents add 6% sales tax to total.

TOTAL \$ \_\_\_\_\_

- Payment enclosed
- Charge my:
  - Visa
  - MasterCard
  - American Express

\*Persons with active NCARB/IDP Council records pay: Set: \$80, Volume 1: \$60, Volume 2: \$35. Include your IDP number to qualify.

NCARB USE—DO NOT WRITE IN THIS SPACE

D/R _____	CK/MO _____
IDP/OK _____	AMT _____
AUTH _____	DUE _____

Acct. No. \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_





**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 42 HIGHTSTOWN, NJ

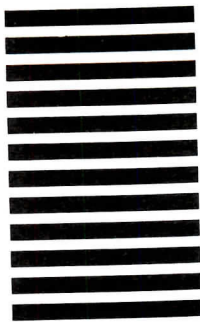
POSTAGE WILL BE PAID BY ADDRESSEE

ARCHITECTURAL

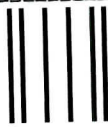
**RECORD**

Subscription Department  
P.O. Box 564  
Hightstown, NJ 08520-9885

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



Please detach card along perforation.



**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 42 HIGHTSTOWN, NJ

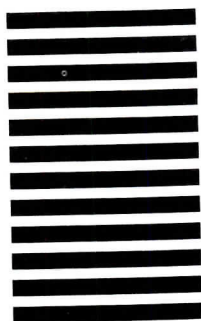
POSTAGE WILL BE PAID BY ADDRESSEE

ARCHITECTURAL

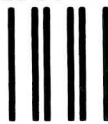
**RECORD**

Subscription Department  
P.O. Box 564  
Hightstown, NJ 08520-9885

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



Please detach card along perforation.



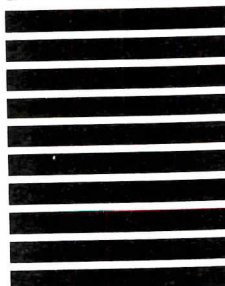
**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 10541 WASHINGTON, DC

POSTAGE WILL BE PAID BY ADDRESSEE

**National Council of Architectural  
Registration Boards**  
A.R.E. Handbooks  
1735 New York Avenue, N.W.  
Suite 700  
Washington, DC 20006

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



Please detach card along perforation.

Mail your subscription  
order card today! (**Pass  
along the extra cards  
to associates.**)

**Big savings on  
2- and 3-year  
subscriptions!**

By subscribing to  
**ARCHITECTURAL RECORD**  
for more than one year, you  
save money and be assured  
of receiving a steady flow of  
valuable information and  
ideas...

- **Record Houses** (mid-April) —award-winning residential designs.
- **Record Interiors** (mid-September)—the latest trends in interior design.
- **Building Types Studies** (monthly)—colorful visual reports in each issue.
- **Engineering Application** (monthly)—basic reports in non-technical language
- **New Products** (monthly)—what's happening in the marketplace reported in each issue, plus total-issue coverage in December.



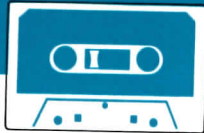
# 1989 A.R.E. CANDIDATES!

NCARB's Handbook Essential to Comprehensive Exam Preparation

1989  
NCARB

## A.R.E. HANDBOOK VOLUME ONE

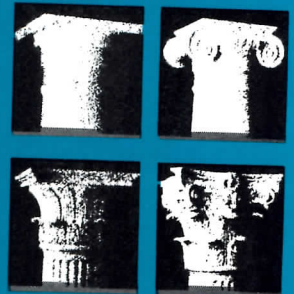
Division B: Site Design, Graphic  
Division C: Building Design



1989  
NCARB

## A.R.E. HANDBOOK VOLUME TWO

Division A: Pre-Design  
Division B: Site Design, Written  
Division D/F: Structural Technology—General and Long Span  
Division E: Structural Technology—Lateral Forces  
Division G: Mechanical, Plumbing and Electrical Systems  
Division H: Materials and Methods  
Division I: Construction Documents



Order your 1989 A.R.E. Handbook now to enhance your preparation for the Architect Registration Examination. Updated and improved, the 1989 edition offers a comprehensive overview of all divisions of the exam.

Actual design solutions and sample A.R.E. questions give you firsthand knowledge of the A.R.E. An audiocassette of design critiques is included with Volume 1. Follow along point-by-point to understand the practical application of the grading criteria as they are applied to graphic solutions from the 1988 A.R.E.

New up-to-date narratives include developing a strategy to successfully complete the graphic exams as well as current information on new computerized testing technology developed by the NCARB.

Volume 1 covers the graphic portions of the A.R.E.: Division B: Site Design, Graphic and Division C: Building Design. Volume 2 covers the written portions: Division A: Pre-Design; Division B: Site Design, Written; Division D/F: Structural Technology—General and Long Span; Division E: Structural Technology—Lateral Forces; Division G: Mechanical, Plumbing and Electrical Systems; Division H: Materials and Methods; and Division I: Construction Documents and Services.

Order your Handbooks now by sending your check or money order in the correct amount with the order form to the address indicated. You may charge your Handbook on your Visa, MasterCard or American Express. Persons with active NCARB/IDP Council records qualify for a discount. Please specify a complete daytime address; no post office boxes please.

### VOLUME 1

(Divisions B, Graphic and C)

- Expert critiques of design solutions from the 1988 A.R.E.
- Strategy for completing the Building Design test
- Contents of the Exam Information Booklets and Juror's Manual
- Updated bibliographies for graphic divisions

### VOLUME 2

(Divisions A, B, Written, D/F, E, G, H and I)

- Sample exam questions and answers from previous exams
- Official test information booklets
- Updated bibliographies for written divisions

### Order Your 1989 A.R.E. Handbooks from NCARB!

Detach and mail payment to NCARB, A.R.E. Handbooks, 1735 New York Avenue, N.W., Suite 700, Washington, DC 20006. Make checks payable to NCARB. Delivery takes 4-6 weeks.

Name \_\_\_\_\_  
(Please print)

Company \_\_\_\_\_  
(If applicable)

Address \_\_\_\_\_  
(Daytime—No P.O. Boxes)

City/State/Zip \_\_\_\_\_

IDP Council record no. \_\_\_\_\_  
(If applicable)

QTY	VOL	PRICE*	TOTAL
	SET	\$95	
	VOL. 1	\$70	
	VOL. 2	\$40	

D.C. residents add 6% sales tax to total.

\*Persons with active NCARB/IDP Council records pay: Set: \$80, Volume 1: \$60, Volume 2: \$35. Include your IDP number to qualify.

Payment enclosed

Charge my:

Visa

MasterCard

American Express

Acct. No. \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

NCARB USE—DO NOT WRITE IN THIS SPACE

D/R \_\_\_\_\_ CK/MO \_\_\_\_\_  
IDP/OK \_\_\_\_\_ AMT \_\_\_\_\_  
AUTH \_\_\_\_\_ DUE \_\_\_\_\_



# Long-Range Forecast: Clear, Warm And Beautiful.



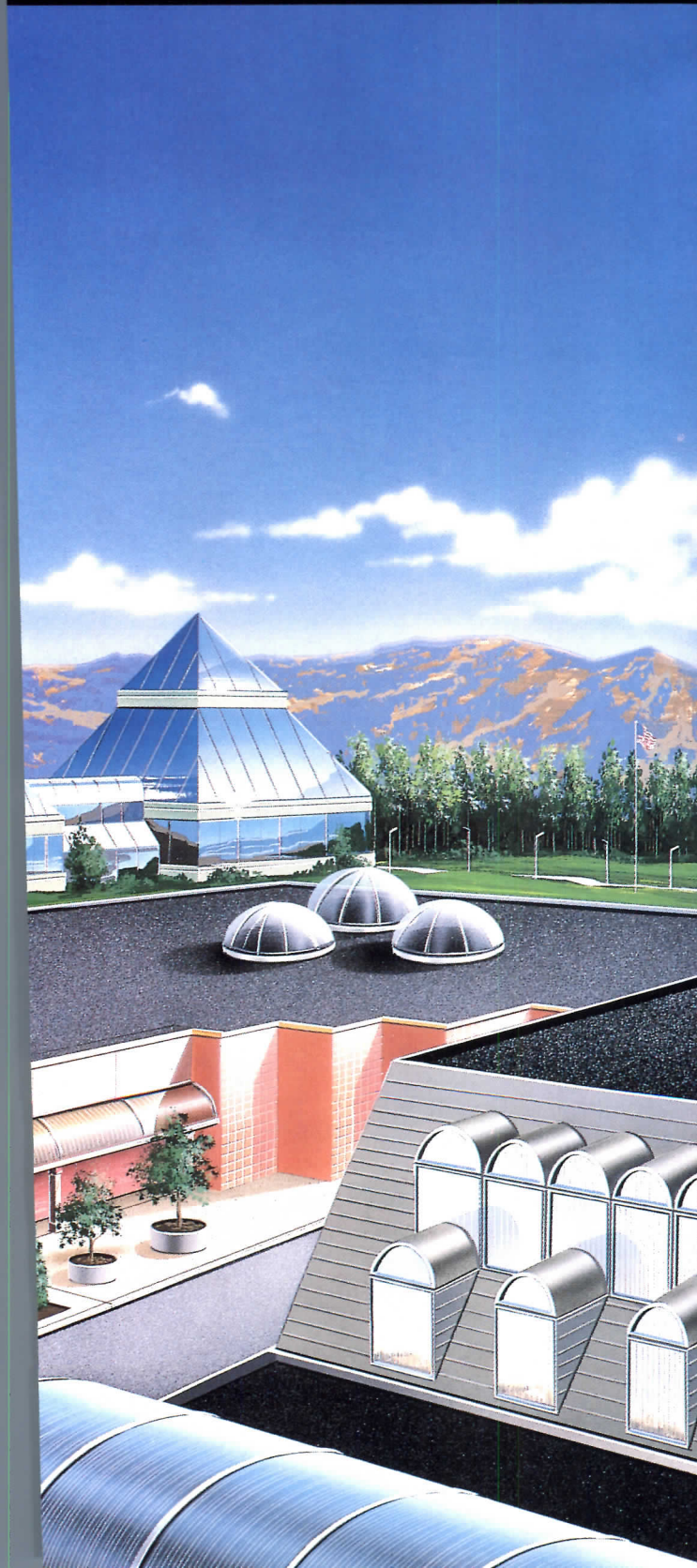
® Registered Trademarks of General Electric Company.  
\* Details of limited warranty available upon request.



**LEXAN® XL Sheet:** versatile overhead glazing with unique surface protection against punishing sun and weather. Virtually unbreakable. Easily cold-formed on site. Tough, UV-resistant XL sheet—the brilliant solution for long-term weatherability in advanced architectural design. Or for added thermal insulation, specify double-layered LEXAN THERMOCLEAR® sheet. For enduring beauty backed in writing\*—the family of high-performance LEXAN polycarbonate glazing products from GE. See Sweets Catalog 08840 GVD or GEN, or call (800) 845-0600.



Translucent LEXAN THERMOCLEAR sheet provides up to 40% better insulation than single-pane glass.

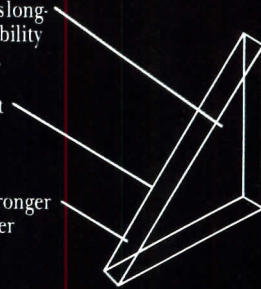


With a proprietary UV-resistant surface, LEXAN XL sheet is ideal for barrel vaults, covered walkways and skylights.

*UV surface treatment*—ensures long-term durability and weatherability without special maintenance.

*Transparent*—offers high light transmission and excellent appearance.

*Impact resistant*—250 times stronger than glass and 30 times tougher than acrylic.



General Electric Company  
One Plastics Avenue  
Pittsfield, MA 01201

XL • MR5 • LEXGARD® LAMINATES  
LEXAN THERMOCLEAR® SHEET

Circle 84 on inquiry card



**GE Plastics**



# In the Public Interest

ARCHITECTURAL RECORD announces its second annual **In the Public Interest** awards program, aimed at encouraging and recognizing excellence in the design and planning of public architecture. Each year RECORD's editors select a relevant building type and solicit entries in that category from architects, private developers, government agencies, private/public development consortiums, and community design centers for building projects completed during the past three years.

The building type for 1989 is **RECREATIONAL FACILITIES**, which includes, but is not necessarily limited to, the following categories:

1. Park buildings (e.g., visitors' centers, public shelters, camping facilities, buildings for sports)
2. Public playgrounds
3. Community centers
4. Public service organizations (e.g., YMCAs, boys' and girls' clubs)
5. Public gymnasiums
6. Public swimming pools
7. Arenas and stadiums

**Eligibility:**

All entries must be new or remodeled construction designed by registered architects and completed since January 1, 1986. Work previously published in other national design publications will be considered.

**Submissions:**

More than one project may be submitted. There are no entry fees or forms, but each submission should include color photographs of the completed project, reproductions of plans, and a one-page project description—all bound firmly in an 8 1/2- by 11-inch folder. A brief statement from the client or user, a report from a civic body, and articles from local newspapers attesting to the significance of the project to the community may be included in support of the submission.

**Deadline:**

All entries must be postmarked no later than **May 1, 1989**.

Submissions should be mailed to:

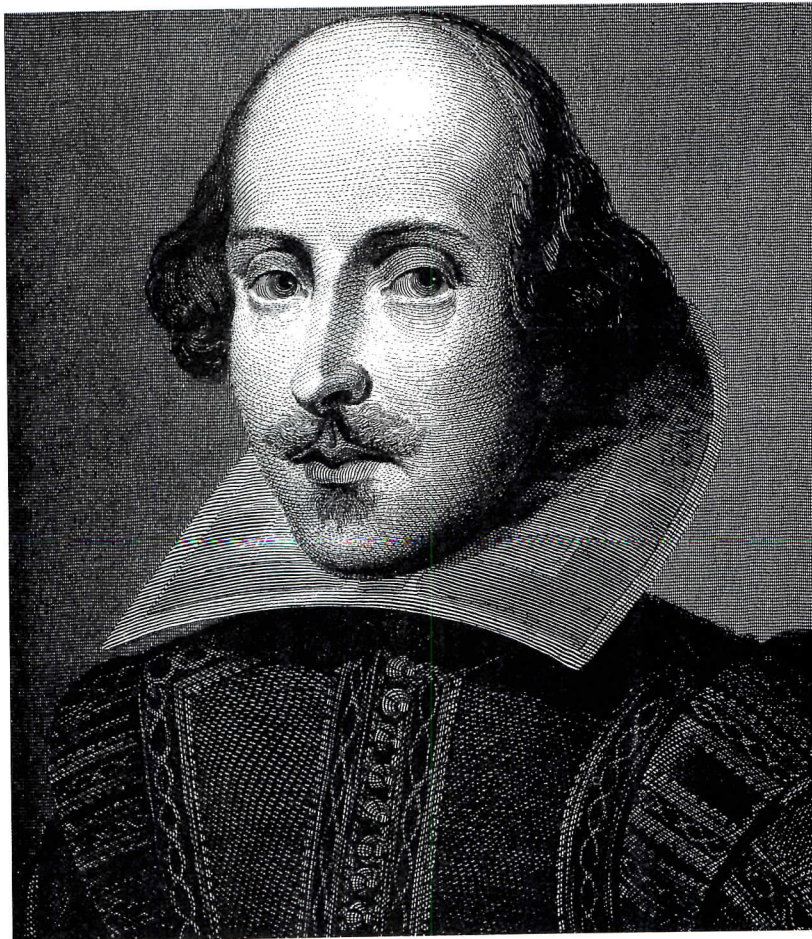
Deborah K. Dietsch  
ARCHITECTURAL RECORD  
1221 Avenue of the Americas  
New York, N. Y. 10020

**Publication:**

Winning entries will be featured in the November 1989 issue of ARCHITECTURAL RECORD. Other submissions will be returned or scheduled for a future issue.

For additional information, call Deborah K. Dietsch at 212/512-2409.





## The greatest apartment salesman of our time

To most of us, William Shakespeare is the quintessential playwright.

But when the Ballard Realty Company of Montgomery, Alabama, needed tenants for a new apartment complex, Mr. Shakespeare proved to be a top-notch salesman as well. With every signed lease, Ballard Realty offered a free membership to the Alabama Shakespeare Festival. Soon, over 80% of the company's units were leased before construction was even completed.

Nationwide, small and medium-sized businesses, like Ballard Realty, are discovering what blue-chippers have known for years: that the arts can help create a positive public image, increase a company's visibility and improve sales.

For information on how your company can benefit through a partnership with the arts, contact the Business Committee for the Arts, Inc., 1775 Broadway, Suite 510, New York, New York 10019, or call (212) 664-0600.

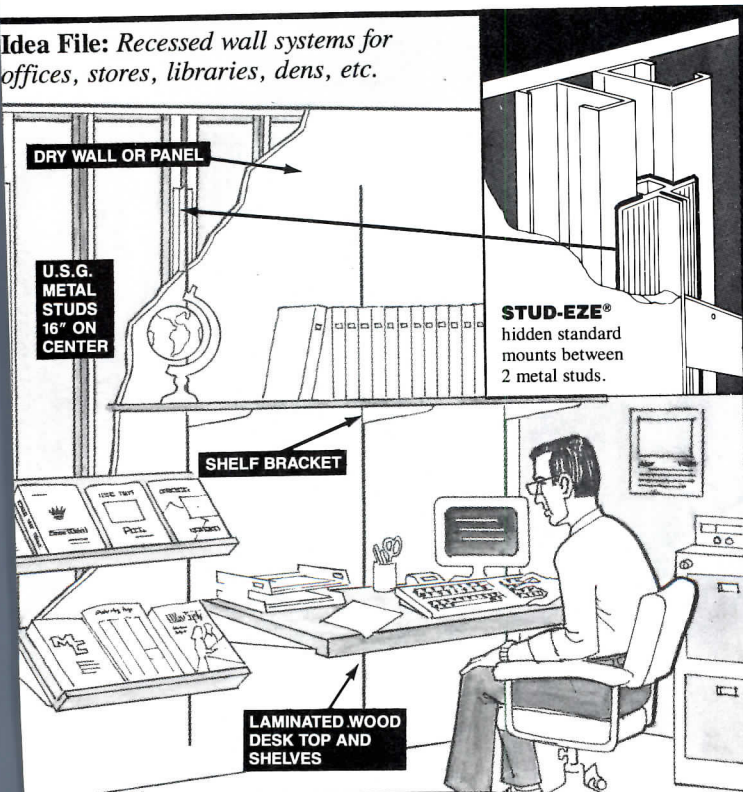
It may just be the factor that decides whether this year's sales goals are to be or not to be.



BUSINESS COMMITTEE  
FOR THE ARTS, INC.

This advertisement prepared as a public service by Ogilvy & Mather.

**Idea File:** Recessed wall systems for offices, stores, libraries, dens, etc.



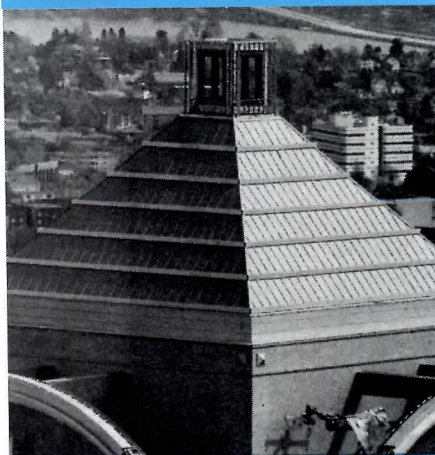
**Crown Metal**

FOR MORE INFORMATION:

CROWN METAL MFG. CO., INC.  
5925 SOUTH LOWE AVENUE  
CHICAGO, ILLINOIS 60621-2896  
TELEPHONE: 312/873-3833 FAX NUMBER: 312/873-8878

An office set-up in a home in New Jersey is shown here as an effective use of Crown Metal studs and hardware.

## Metal Roofing Systems



Overly Manufacturing's batten roof systems can cover any situation. Equally suitable for domed or pitched roofs, Overly's proprietary mechanical system of interlocks allows for severe expansion and contraction. And Overly's unique anchoring system gives the added economy of greater distance between battens. For over 50 years Overly has fabricated and installed aluminum, copper, and stainless steel roofs on some of America's most beautiful buildings. Overly roofs are over and above the rest.

**overly**  
MANUFACTURING CO.

(East)  
P.O. Box 70  
Greensburg, PA 15601  
(412) 834-7300  
TWX: 510-468-0539  
FAX: 412-834-8221

(West)  
P.O. Box 947  
Fallbrook, CA 92028  
(619) 723-1105  
FAX: 619-728-7512

Circle 85 on inquiry card

Circle 86 on inquiry card



# Because you trust Steelcraft with your kids... you can trust us anywhere.



Steelcraft products are used in more schools than any other. This tells you something about the strength and dependability throughout the extensive line of every Steelcraft door and frame. That's why you can trust Steelcraft anywhere for durability, selection, appearance and on-time delivery. There's no greater economy than Steelcraft value.



## Steelcraft

9017 Blue Ash Road  
Cincinnati, OH 45242  
(513) 745-6400



ELECTRONIC SWEET'S...**It's About Time.**



# Now, even the heaviest pocket doors can have the ultra-smooth Accuride movement.



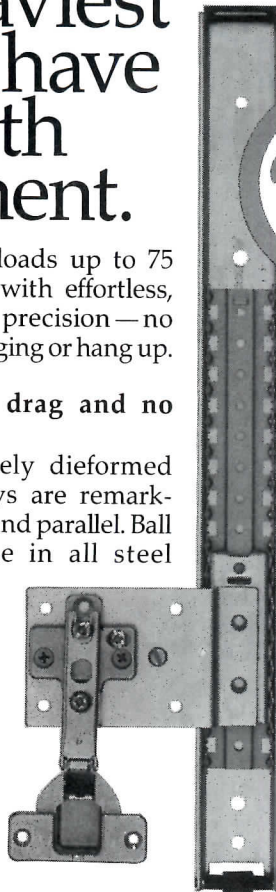
The Accuride 1332 Flipper Door Slide® is specifically designed to carry and conceal doors up to 60" or more.

An exclusive new cable system enables the Accuride 1332 to handle

cantilevered loads up to 75 lbs. per pair with effortless, synchronized precision — no drooping, sagging or hang up.

**No sag, no drag and no wobble.**

The precisely dieformed steel raceways are remarkably straight and parallel. Ball bearings ride in all steel bridged retainers. Tolerances that virtually eliminate wear are achieved by keeping all processes that others "job out" under total



Accuride control. The result is a door that moves very smoothly.

Fully compatible with the 32mm System.

The slide and bracket mounting holes are spaced at 32mm increments from 297mm to 713mm. Model 1332 can be mounted with wood screws or euro screws. And, the model 1332 does the same job as other specialized slides that easily cost 15 times more!

For more information write Accuride, Attn: Customer Assistance, 12311 Shoemaker Ave., Santa Fe Springs, CA 90670. Phone (213) 903-0373. Fax (213) 903-0208.

To Close the Sale,  
Open the Door.

**Accuride®**

Circle 88 on inquiry card

**Slow Dangerous Hand carrying**

**Expensive Fork Truck**

**Inefficient Inclined Belt**

**Why move loads between levels the wrong way!**

**DO IT THE RIGHT WAY WITH PFLOW VERTICAL CONVEYORS**

Pflow Vertical Reciprocating Conveyors (VRCs) are specifically designed and engineered to economically, efficiently and safely lift and lower goods and products between levels, to basements or mezzanines. They are available in hundreds of types and sizes with . . . .

- Vertical rises from inches to 100'
- Speeds from 15 to 90 fpm
- Capacities from 100 lbs. to 12,000 lbs.
- Carriage sizes 3' x 3' to 10' x 12'
- From simple pushbutton operation to fully automatic multi-unit and multi-level systems

Get all the facts from Pflow, the world's largest producer of VRCs. More than 2,000 documented installations in operation.

**Pflow**

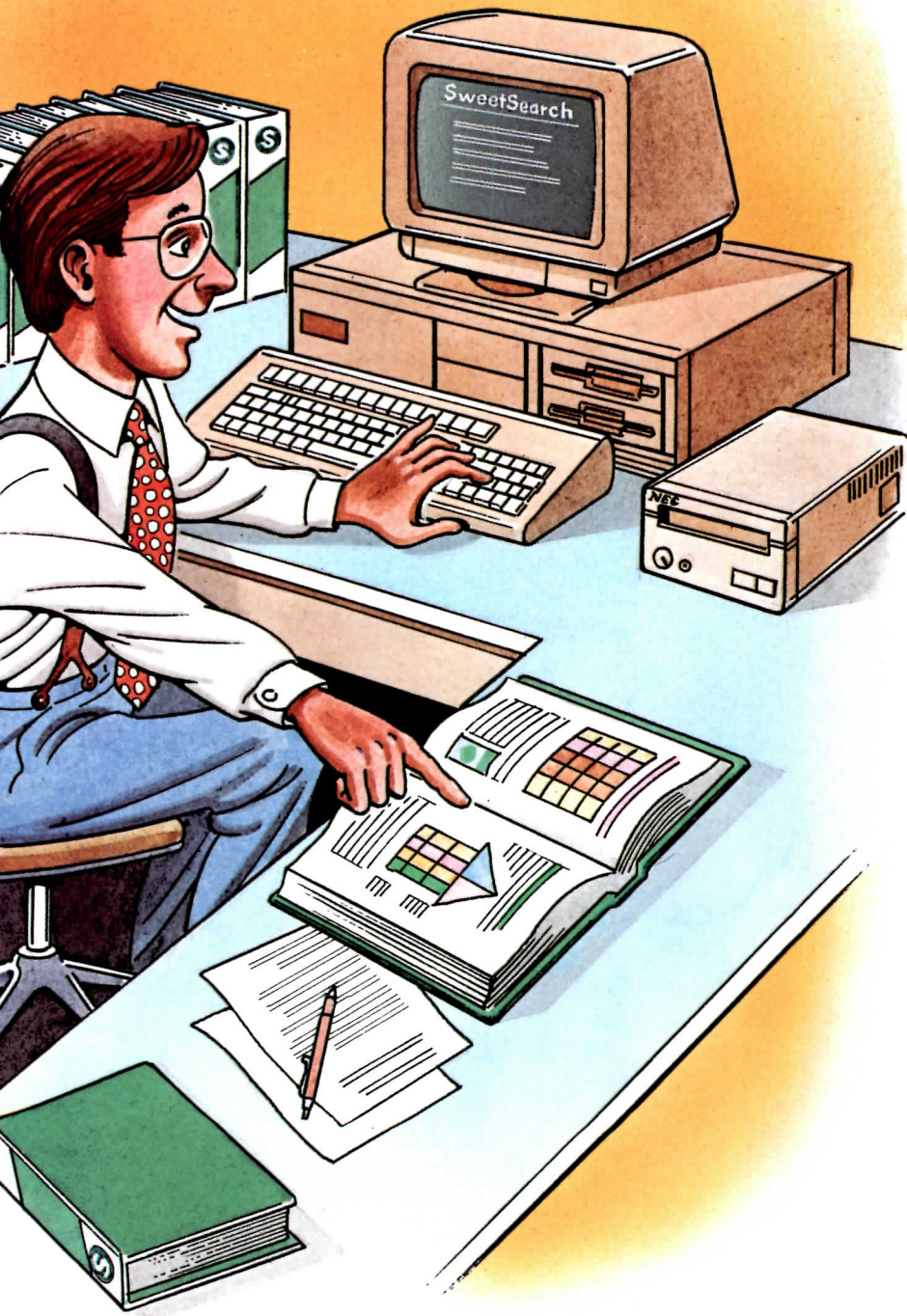
**PFLOW INDUSTRIES, INC.**  
 5045 North 35th Street  
 Milwaukee, WI 53209-9977  
 Phone: 414-462-8810  
 FAX: 414-462-2673

22-118R

Circle 89 on inquiry card



# Make a more thorough building products search. Do it in less time with Electronic Sweet's...



Time. Busy architects and engineers know how valuable it really is.

So it doesn't pay to spend a lot of time searching for the building product information your projects require. That is, if you don't have to.

Now, you don't. Because Electronic Sweet's—the "R•Evolutionary" new information service on compact disc from Sweet's—is here.

And Electronic Sweet's is all about time. **Your** time. And how to make the most of it with *SweetSearch*, an "electronic search" database of the products in the Sweet's Catalog Files which:

- Finds product by criteria of **your** choice;
- Assures that **every** product in the Sweet's Catalog Files relevant to your project needs is found;
- Uses product search characteristics developed by and for design professionals;
- Displays uniform product profiles for easy product comparisons;
- Finds products by manufacturer, trade name or catalog;
- Enables you to make product selections with electronic ease—**in seconds!**

No wasted time. No missed opportunities. You get a comprehensive search of Sweet's Catalog Files. *SweetSearch* makes you aware of every design option open to you—easier, faster and better than ever before.

And *SweetSearch* is just the beginning. Electronic Sweet's also features *SweetSpec*—an interactive, expert specification writing system which creates correct, current and fully customized specification documents in a matter of minutes. Documents which, upon your professional review, can go right into your project manual.

For more information on how Electronic Sweet's can help you save time by "R•Evolutionizing" the way you find products and write specifications, call 1-800-848-9002. After all, time is money. And Electronic Sweet's can help you make the most of both.

Join the Electronic Sweet's R•Evolution. We've changed with the times. Shouldn't you?

**R•EVOLUTION**  
**ELECTRONIC SWEET'S**  
**It's About Time.**



**SWEET'S MCGRAW-HILL**

**Information To Build On**

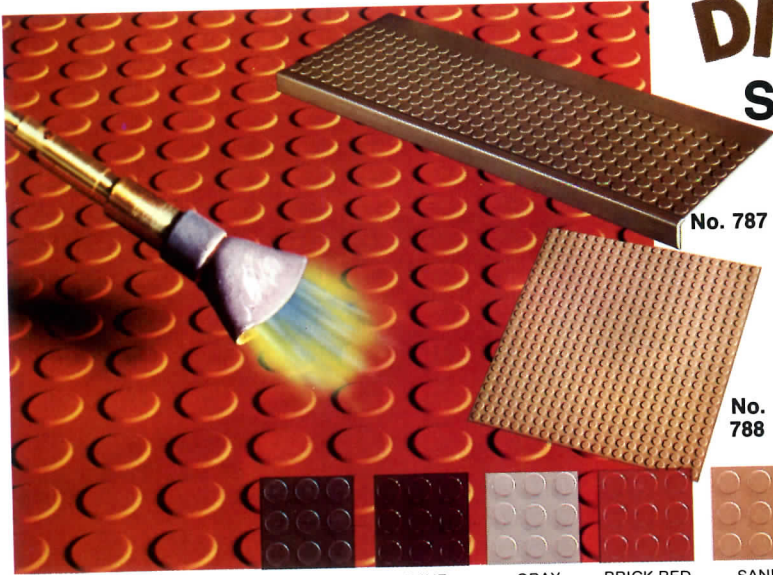
Sweet's Group • McGraw-Hill Information Services Company • 1221 Avenue of the Americas, New York, NY 10020



# MUSSON

## DISC-O-TILE™ Safety rubber flooring and

## DISC-O-TRED™ Safety stair treads



Musson Flame-Retardant Flooring & Treads meet ASTM-E84 Flame Spread Rating of 25 or less.

DISC-O-TRED — Stair treads 1/4" thick at front, 1/8" at tapered back. Long square nose fits pan-filled or molded concrete steps. Sanded backs. Durable, easy cleaning, nonfading. Prime prerequisite for fire-safety in public buildings or complexes. Matching coved risers.

DISC-O-TILE — 24" Square for quick installation. Full 3/16" thick with sanded back. Raised circular discs afford better traction, easier cleaning for lobbies, entrances, hallways, elevators. Resistant to stain and discoloration.

meets ASTM-E84 flame spread rating of 25 or less



Write For Free Brochure & Samples:

**MUSSON RUBBER CO.**

P.O. Box 7038 • Akron, Ohio 44306 • 216/773-7651

Circle 90 on inquiry card

## BEFORE AFTER



## Cooustic-Glo®

We Clean, Restore & Deodorize Acoustical Ceilings by Removing Dirt, Stains, Nicotine, Pollution, Pollen & Bacteria

CALL  
**1-800-333-8523**

WE MAKE YOUR CEILINGS LIKE NEW AGAIN

Circle 91 on inquiry card

## this publication is available in microform



Please send me additional information.

**University Microfilms International**

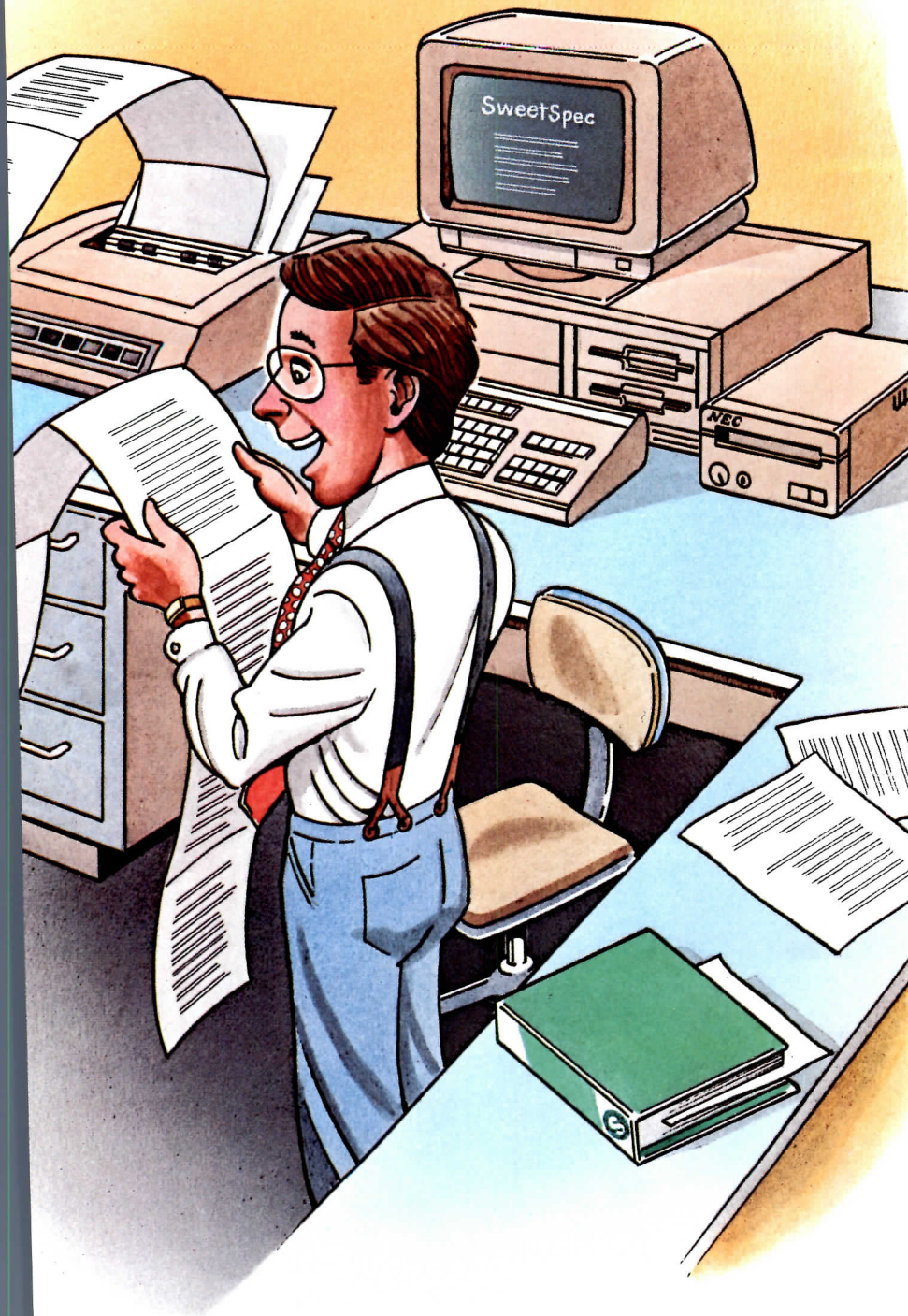
300 North Zeeb Road  
Dept. P.R.  
Ann Arbor, MI 48106  
U.S.A.

18 Bedford Row  
Dept. P.R.  
London, WC1R 4EJ  
England

Name \_\_\_\_\_  
Institution \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_



# Write a better spec. Do it in less time with Electronic Sweet's...



At one time architects did all their specification writing by hand. It took a lot of time.

The word processor made the job easier, with electronic "cutting and pasting" of specs from earlier projects.

Today, there's a better way: Electronic Sweet's—the "R•Evolutionary" new information service on compact disc from Sweet's that's all about time. **Your** time. And how to make the most of it with *SweetSpec*—an interactive, expert specification writing system.

Based on MASTERSPEC®, under special license from the American Institute of Architects, *SweetSpec* provides you with:

- Fully customized specification documents printed in your choice of page formats (AIA, CSI, your office format);
- The most current specification data available—*SweetSpec* is updated continuously!;
- "Tutorials" which offer decision-making assistance;
- An "audit trail" of every question asked and the answer you gave in the development of each specification section;
- A set of "coordination notes" to help ensure that your specification sections are fully coordinated with project drawings and schedules;
- Printed specification documents on your desk in a matter of minutes.\* Documents which, upon your professional review, can go right into your project manual.

Spec writing was never easier. Never faster. Never more up-to-date. And never this complete.

And *SweetSpec* is just the beginning. Electronic Sweet's also features *SweetSearch*—an extensive product search database of the printed Sweet's Catalog Files that can help you find the exact building products you're looking for with electronic ease...**in seconds**.

For more information on how Electronic Sweet's can help you save time by "R•Evolutionizing" the way you find products and write specifications, call 1-800-848-9002. After all, time is money. And Electronic Sweet's can help you make the most of both.

Join the Electronic Sweet's R•Evolution. We've changed with the times. Shouldn't you?

## R•EVOLUTION

# ELECTRONIC SWEET'S It's About Time.



## SWEET'S MCGRAW-HILL

Information To Build On

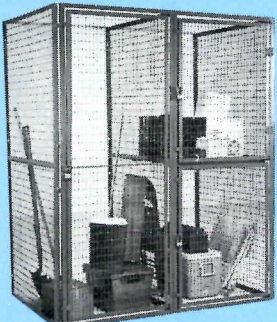
Sweet's Group • McGraw-Hill Information Services Company • 1221 Avenue of the Americas, New York, NY 10020

\*There is a modest per use charge for *SweetSpec*. The service requires use of a Hayes-compatible modem.



# The Marketplace

**Tenant Storage Lockers**



- Industrial Grade
- Quick Set-up • Economical
- Single or Double Tier

**WireCrafters, Inc.**  
1-800-626-1816  
Fax 502-361-3857 KY 502-363-6691

Circle 93 on inquiry card

**BIRD BARRIER**  
NIXALITE BIRD CONTROL



- Humane and ecological
- Virtually maintenance free
- Inconspicuous stainless steel spikes
- Commercial, institutional or residential
- Proven reliable for 39 years


**NIXALITE of AMERICA**  
1025 - 16th AVE. • BOX 727  
EAST MOLINE, IL 61244 • 309-755-8771  
800-624-1189 • FAX 309-755-0077

For more info., see Sweet's section 10290/NIX

Circle 94 on inquiry card

**MANUAL OF PRACTICE**

**Just Published!**  
**The 1988 Edition of Masterformat.** This updated publication contains section titles and numbers, notes and a key-word index. Masterformat is accepted as the standard for the organization of construction information in project manuals, and technical data filing. It can be adapted to a variety of purposes to meet the needs of professional disciplines and office practices. Prices: CSI Member \$24; Non-Member \$30. VA Residents add 4.5% tax.



Circle 95 on inquiry card

**Plaster in a Roll Dresses Up Partitions in One Step.** Plaster in a roll™ attractively covers damaged surfaces of existing office partitions. This tackable gypsum-coated fabric adheres to most substrates, covering problems in just one step. Available in 50 colors and 3 weaves. Goes up like wallpaper, cures hard as plaster. From Flexi-Wall® Systems, P.O. Box 88, Liberty SC 29657. Phone 803-855-0500.



Circle 96 on inquiry card

**Beautiful, efficient ventilation**

Specify Shinglevent, the patented ridge vent engineered for year round protection against damaging heat and moisture in residential attics. For roofs up to 16/12 pitch. Cap shingles install over vent so it's virtually invisible. Send for a free catalog: Air Vent Inc., A CertainTeed Company, 4801 N. Prospect Rd., Peoria Heights, IL 61614.



ridge filter  
**Shinglevent**™  
Keeps the weather out

Circle 97 on inquiry card

**Planning a Laundry? Free File Tells How.** Milnor's laundry planning file explains why efficient laundries can save your clients money. It also includes case histories, space requirements, equipment specs, plus laundry planning questionnaires. It's free from Pellerin Milnor Corporation, P.O. Box 400, Kenner, LA 70063. Phone 504-467-9591, Ext. 227.



Circle 98 on inquiry card

**Residential & Commercial LANDSCAPE LIGHTING**  
Wood - Metal - Ceramic



Complete selection of "architectural quality" contemporary outdoor residential and commercial lighting fixtures. Over 100 design variations of garden, driveway, post and wall-mount lights available in a choice of quality materials. Low-voltage, incandescent, fluorescent and high-pressure sodium options are offered direct from the factory. Call toll-free 1-800/458-2505 for catalog and prices.


**LITEFORM DESIGNS**  
Dept. A, Post Office Box 3316 Portland, Oregon 97208 503/257-8464

Circle 99 on inquiry card

**Fenestration 2000. The complete transcript of the year's most important architectural roundtable.**

On October 3, 1988, an international panel of architects and industry leaders met for an Architectural Record roundtable on curtain wall and fenestration. They discussed the best in current practice, developments in materials, performance-based engineering of components, and emerging technologies. The complete transcript of the roundtable can be yours for just \$399. Send your check for \$399, payable to Architectural Record. Send to: Marketing Director, Architectural Record, 1221 Ave. of the Americas, N.Y., NY 10020.

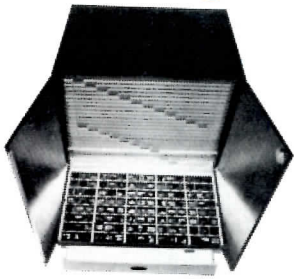
**Frank Lloyd Wright's Timeless Essays**  
**IN THE CAUSE OF ARCHITECTURE.** A collection of essays (until 1927) written by Wright, has retained the agelessness of his ideas. Edited by F. Gutheim and reprinted as a 246 page, high-quality paperback. \$12.95 (includes postage & handling.) Send to: ARCHITECTURAL RECORD BOOKS - 41ST FLOOR - 1221 Avenue of the Americas - New York, NY 10020.





To Advertise Call  
1-800-544-7929

slide  
storage



abodia

elden the slide storage system  
enterprises 304-344-2335  
1 Ramu Road, Box 3201, Charleston, WV 25332

Circle 100 on inquiry card

Self Insurance for the A/E Firm  
and  
Strategic Planning

New Orleans  
April 20 & 21



Seattle  
May 18 & 19



Presented by  
The Financial Managers' Group  
Endorsed by  
The Louisiana Architects Association/AIA

For more information and a complete brochure, please contact  
The Financial Managers' Group  
425 West Wilshire  
Oklahoma City, Ok 73116  
or call 405/848-1111 or FAX #:405/848-4FAX

Circle 101 on inquiry card

Custom  
Colors and  
Wood Finish Now  
Options with SUNSHINE ROOMS!

Now you can custom match a Sunshine Room solarium to any decor. We can match the finish of our high-strength aluminum frames to any color in addition to standard bronze or white. Our new Wood-borough Edition offers a choice of wood veneers laminated by our exclusive Woodloc Bonding. Available in three designs and 60 different models. Free Spec and Tech catalog.



SUNSHINE ROOMS™, INC.  
P.O. Box 4627  
Wichita, KS 67204-4627

1-800-222-1598  
In Kansas  
1-316-838-0033



Circle 102 on inquiry card

CUSTOM  
ALUMINUM  
WINDOWS

Operable and fixed aluminum systems, for new construction and replacement applications. Window series, characteristics and performance criteria are outlined in JORDAN's 1989 SWEET'S CATALOG FILE 08500/JOR. Look us up in Sweet's, or send for your personal copy.

JORDAN  
ARCHITECTURAL PRODUCTS

2460 FRISCO AVE. • MEMPHIS, TN • 901/744-1177

Circle 103 on inquiry card

The  
PAVE-EL®  
Pedestal System

A practical solution to  
roof paver applications

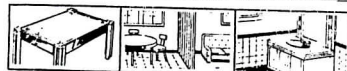
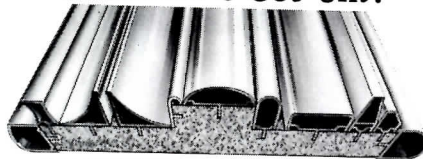
Write or call for specification brochure  
ENVIROSPEC INCORPORATED  
Ellicott Station Box 119, Buffalo, New York 14205  
(416) 252-2090

Circle 104 on inquiry card

40 GREAT SHAPES

40 GREAT SHAPES to get you thinking about columns, edgings or accents. Brass finished anodized aluminum on tuff PVC extrusion Rounds, "C"s, Triangles and more... 1/2" to 2 1/2". 12' lengths with matching end caps.

Outwater's Got 'em!



Call toll-free: 1-800-631-8375  
OUTWATER  
PLASTIC/INDUSTRIES Inc.   
4 Passaic Street, Wood-Ridge, NJ 07075  
(201) 340-1040 TELEX: 133-526 FAX: (201) 916-1640  
Write For Samples And Our Latest Free Catalog

Circle 106 on inquiry card



Decorative Grilles  
in Color. Add a new dimension to your designs with these decorative grilles which can be used to make striking unusual effects. Choose from an array of custom colors to match or contrast existing grilles. Designers can also create numerous metal forms for interior or exterior applications. Write for catalog: Register & Grille Mfg. Co. 202 Norman Avenue, Brooklyn, NY 11222. 718-383-9090.

Circle 105 on inquiry card

The Record Houses  
Collection.

A compilation from 1984/1985/1986. Everyone loves RECORD HOUSES! And we have put three years' worth into a single

volume. Over 260 pages, in full color, with plans and text directly from the pages of ARCHITECTURAL RECORD's RECORD HOUSES issues. Just \$16.95 (includes postage and handling.) Send to: ARCHITECTURAL RECORD BOOKS - 41st FLOOR - 1221 Avenue of the Americas, N. Y., NY 10020.

RECORD

Looking For More  
Ideas?

Back Issues of  
Architectural  
Record While They  
Last!

Add to your idea file by ordering previous issues from 1986 back to

1971! The price per issue is only \$4.50 (includes postage and handling). Not all issues are available and the supply of others is limited. For a free list of back issues with the major subject covered, write to: ARCHITECTURAL RECORD, 1221 Avenue of the Americas, New York, NY 10020, Attn: Back Issues Department.



# Advertising index

## A

Accuride, 170; 88 [D]  
(213) 944-0921  
Advance Lifts, Inc., 74-75; 50 [G]  
(312) 584-9881  
A/E/C Systems, Inc., 57 to 60;  
(800) 451-1196  
AllianceWall Corp., 12-13; 8 [G]  
(404) 447-5043  
American Olean Tile Co., 68-69; 44  
[G-D]  
(800) 541-TILE  
Andersen Corp., 66-67; 43 [G-L]  
(800) 635-7500  
Architect's Book Club, 145 to 147  
(800) 2-MCGRAW  
Armstrong World Industries, Inc.,  
Cov. II-1; 1, 2-3; 2 [G-E-D]  
(800) 233-3823  
Avis, 126  
(800) 331-1212  
Avonite, 140; 63 [G-D]  
(800) 4 AVONITE

## B

Best Lock Corp., Cov. III; 112 [G]  
(317) 849-2250  
Bilco Co., 54; 37 [G-E-I-L]  
(203) 934-6363

## C

Carey-McFall (Bali), 22-23; 13 [G-D]  
(800) 433-7136  
Cedar Shake & Shingle Bureau, 149;  
68 [G-L]  
Chemstar, Inc., 32Wc; 23  
(800) 523-8977  
Cheney Co., 178; 110 [G]  
(800) 782-1222  
Classic Lamp Posts, Inc., 143; 65  
(800) 654-5852  
Contech Construction Products, Inc.,  
56; 39 [G]  
(800) 338-1122  
Coustic-Glo International, Inc.,  
172; 91  
(800) 333-8523  
Crown Metal Mfg. Co., 167; 85  
(312) 873-3833  
Custom Building Products, 32Sd; 27  
[G-L]  
(213) 582-0846

## D

Dow Corning Corp., 138; 57 to 62  
[G-E-I-D]  
(800) 346-9882

Dukane Corp., 8; 5  
(312) 584-2300  
Duro-Last Roofing, Inc., 62; 41  
[G-E]  
(800) 248-0280

## E

Ebeo Manufacturing Co., 153; 72  
[G-E-I]  
Elliptipar, Inc., 31; 18  
(203) 932-2266

## F

Flood Co., 75; 48 [G-L]  
(800) 321-3444  
Florida Power & Light, 32Sa; 25  
(305) 227-4324  
Follansbee Steel Corp., 44; 33 [G]  
(800) 624-6906

## G

Gametime, Inc., 5; 3 [G]  
(205) 845-5610  
General Electric - C&I Lamps,  
24-25; 14 [G-E-I-D]  
(800) 523-5520  
General Electric Plastics - Lexan  
Sheet, 164-165; 34 [G-I]  
(800) 845-0600  
Genflex Roofing Systems, 40; 31  
(419) 729-7560  
Glen Raven Mills, Inc., 34; 28 [G]  
(919) 227-6211  
Gory Roof Tile, 32Ea; 20 [G-L]  
(800) 223-8453

## H

Harris/3M Document Products, Inc.,  
154-155; 73  
Hewlett-Packard, 132; 55  
(800) 367-4772  
Houston Instrument, Div. of Ametek,  
42; 32  
(800) 444-3425

## I

IBM Corp., 128-129; 54  
(800) IBM-2468  
Innovative Marble and Tile, Inc.,  
55; 38 [G]  
(516) 752-0318  
ISICAD, Inc., 136; 56  
(800) 556-1234  
Italian Trade Commission, 32Wa; 22  
(213) 286-9963

## K

Kalwall Corp., 151; 70 [G]  
(603) 627-3861

For detailed data, prefilled cata-  
logs of the manufacturers listed  
below are available in your 1989  
Sweet's Catalog File as follows:

Kawneer Co., Inc., 72-73; 46 [G]  
Kohler Co., 17; 10 [E]  
Kroin, Inc., 49; 6 [G]  
(617) 492-4000  
Kroy, Inc., 61; 40  
(800) 328-KROY

## L

Lees Commercial Carpet Co., 20-21;  
12 [G-D]  
(800) 523-5647

## M

Manville Roofing Systems Div.,  
14-15; 9 [G-E-I]  
(303) 978-4900  
Maruhachi Ceramics of America, Inc.,  
32Sc; 26 [G-L]  
(714) 736-9590  
Marvin Windows, 156-157; 74 [G]  
(800) 328-0268  
Master Builders, Inc., 150; 69  
(216) 831-5500  
MBCL, 124; 53  
Mirafi, Inc., 48; 35 [G-E]  
(800) 438-1855  
Musson Rubber Co., 172; 90 [G-I]

## N

NCARB, A.R.E. Handbooks, 163  
Northwest, 134-135  
(800) 447-4747  
Nucor Corp., 70-71; 45 [G-E]

## O

Overly Mfg. Co., 167; 86 [G-I]

## P

PAF Chartwell, 26; 15  
Pella Rolscreen Co., 38-39; 30 [G-L]  
(512) 628-1000  
Pflow Industries, Inc., 170; 89  
[G-I]  
(414) 462-8810  
Pittsburgh Corning Corp., 30; 17  
[G-E]  
(800) 992-5769

## R

Raceway Components, Inc., 148-149;  
67  
(201) 661-1116  
Radio Shack, 152; 71  
Register & Grille Mfg. Co., Inc.,  
177; 108 [G-E-D]  
(800) 521-4895

(G) General Building & Renovation  
(E) Engineering & Retrofit  
(I) Industrial Construction &  
Renovation  
(L) Homebuilding & Remodeling  
(D) Contract Interiors

## S

Sargent & Co., 64; 42 [G]  
(203) 562-2151  
Sharp, 144; 66  
Sherwin-Williams Wholesale, 46; 34,  
75; 49 [G-E-I]  
(800) 321-8194  
Sloan Valve Co. -Plumbing Div.,  
Cov. IV; 113 [G-E-I]  
Southern California Edison, 32Wd; 24  
(800) 952-5062  
Spacesaver Corp., 160; 76 to 83  
[G-I]  
(800) 492-3434  
Steel Joist Institute, 123; 52  
Steelcase, Inc., 10-11; 7  
(800) 447-4700  
Steelcraft Mfg. Co., 168; 87 [G]  
(513) 745-6400  
Steelite, Inc., 76; 51 [G-I]  
(800) 824-1371  
Sto-Industries, Inc., 158-159; 75  
[G]  
(800) 851-5533  
Sweet's Div. -McGraw-Hill  
Information Systems,  
169, 171, 173

## T

Tilcon, 32Eb; 21

## U

Ulrich Planfiling Equipment Corp.,  
74; 47  
(800) 346-2875  
United States Aluminum Corp., 142;  
64 [G]  
(800) 527-6440  
USG Interiors, Inc., 28; 16  
[G-E-I-L-D]

## W

Weather Shield Mfg., Inc., 18-19;  
11 [G]  
(715) 748-2100  
Whisper Walls, Innerspace Control  
Systems, Inc., 36; 29 [G]  
(800) 527-7817  
White Home Products, Inc., 177; 109  
Wolverine Technologies, Inc.,  
50-51; 36 [G-L]  
(313) 337-7100  
Worthington Group, Ltd., 178; 111  
(404) 872-1608

## X

Xerox, 6; 4  
(800) TEAMXRX

## Z

Zero International, Inc., 32; 19 [G]  
(800) 635-5335



## Sales offices

### Main Office

McGraw-Hill, Inc.  
1221 Avenue of the Americas  
New York, New York 10020

Publisher  
*Ted Meredith (212) 512-4685*

Associate Publisher  
*Roscoe C. Smith III (212) 512-2841*

Director of Business and  
Production  
*Joseph R. Wunk (212) 512-2793*

Director of Marketing  
*Camille Padula (212) 512-2858*

Classified Advertising  
*(212) 512-2556*

### District Offices

**Atlanta**  
4170 Ashford-Dunwoody Road  
Atlanta, Georgia 30319  
*Gregory Bowerman (404) 252-0626*

**Boston**  
607 Boylston St.  
Boston, Massachusetts 02116  
*Louis F. Kutscher (203) 968-7113*

**Chicago**  
645 N. Michigan Ave.  
Chicago, Illinois 60611  
*Anthony Arnone, (312) 751-3765*  
*Thomas P. Kavooras, Jr., (312) 751-3705*

**Cleveland**  
55 Public Square  
Cleveland, Ohio 44113  
*George Gortz (216) 781-7000*

**Denver**  
7400 S. Alton Ct. Suite 111  
Englewood, Colorado 80112  
*John J. Hernan (303) 740-4630*

**Houston**  
7600 W. Tidwell, Suite 500  
Houston, Texas 77040  
*Lockwood Seegar (713) 462-0757*

**Los Angeles**  
Media Sales Associates  
23232 Peralta Drive  
Laguna Hills, Calif. 92653  
*William W. Hague (714) 859-4448*  
*Richard Ayer*

**New York**  
1221 Avenue of the Americas  
New York, New York 10020  
*Laura Viscusi (212) 512-3603*

**Philadelphia**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
*Frank Rose (203) 968-7112*

**Pittsburgh**  
6 Gateway Center, Suite 215  
Pittsburgh, Pennsylvania 15222  
*George Gortz (412) 227-3640*

**San Francisco**  
Media Sales Associates  
*William W. Hague (415) 345-0522*  
*Richard Ayer*

**Stamford**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
*Louis F. Kutscher, (203) 968-7113*

**The Marketplace**  
*Darryl Hudson*  
*Lou Ruwane*  
*1-800-544-7929*

Vice President Market  
Development  
Federal Government  
Paul R. D'Armiento  
1750 K Street NW  
Suite 1170  
Washington, D.C. 20006  
*(202) 463-1725*

### Overseas Offices

**Frankfurt/Main**  
LiebigstraBe 19  
Frankfurt/Main, Germany

**Sheffield**  
146 West St.  
Sheffield S14ES, England

**Milan**  
Via Baracchini No. 1  
Milan, Italy

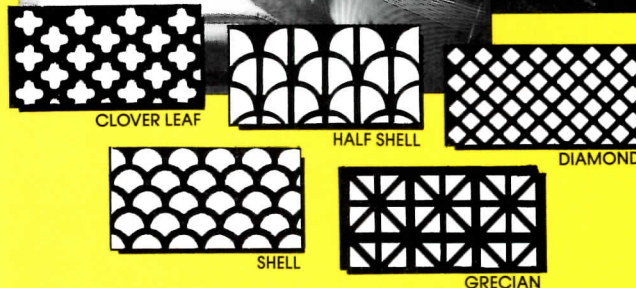
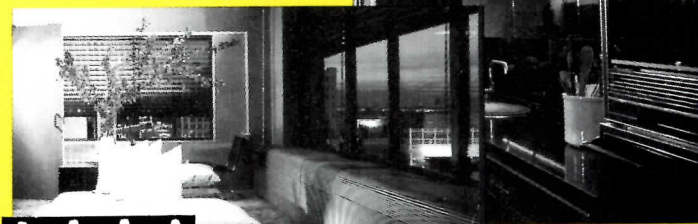
**Paris**  
128, Faubourg St-Honoré  
75008 Paris, France

**Tokyo**  
2-5, 3-chrome  
Kasumigaseki, Chiyoda-ku  
Tokyo, Japan

**South America**  
Empresa Internacional de  
Comunicacoes Ltda.  
Rua da Consolacao, 222  
Conjunto 103  
01302 Sao Paulo, S.P. Brasil

## Decorative Grilles in Color

Adds a new dimension to your designs. Unusual visual effects emerge when our grilles are used for area effects. Choose from an array of custom colors that will match or contrast your grilles. As an innovative industry leader we see beyond black and white.



Write for color catalog for ideas on the use of decorative grilles

**REGISTER & GRILLE MANUFACTURING CO., INC.**  
202 NORMAN AVENUE, BROOKLYN, NY 11222 (718) 383-9090  
CALL TOLL FREE 1-800-521-4895

Circle 108 on inquiry card

## HERE'S HOW TO GAIN 40 SQUARE FEET AT THE PUSH OF A BUTTON!



Install The Closet Carousel® and bring your clothes to you. Carousel closets store just as much as larger closets, but they eliminate the need for walk-in closet aisles, returning valuable square footage to living areas. Carousels fit spaces from 4'6" x 7', come in nine sizes and run on standard household current. For more information on Carousel Designed Closets, call or write. Today.

See *The Closet Carousel®* in action  
April 1-3 at NKBA/MHW Booth 1044.

**WHITE HOME PRODUCTS INC.®**  
2401 LAKE PARK DRIVE  
ATLANTA, GEORGIA 30080  
PHONE: (404) 431-0900  
FAX: (404) 432-3778

Circle 109 on inquiry card



## New Cheney Victory® Wheel n' Chair Lift offers sleek, hi-tech accessibility to public buildings.



- Many unique features never before available.
- Carries wheelchair or a seated passenger up to 3 flights of most stairway configurations.
- Accelerates to 25 ft. per minute and automatically slows to 12 ft. per minute on turns and before stations.
- Coded Key Card access and call and send controls.
- Factory pre-programmed to suit installation.
- Check Sweets Catalog for more details.

FOR FREE BROCHURE, WRITE OR CALL:

**1-800-782-1222.**

In WI 1-800-552-7711.

The Freedom of Movement®

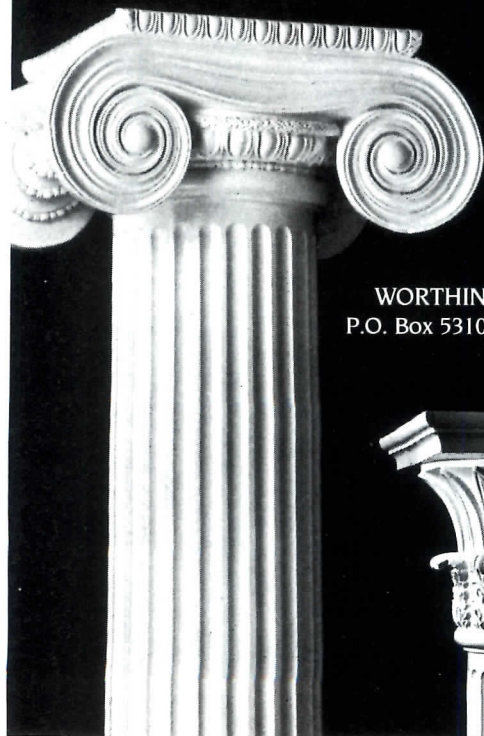
**CHENEY** 

A Mediquip Healthcare Company

Dept. AR, P.O. Box 188, 2445 South Calhoun Road, New Berlin, WI 53151.

Circle 110 on inquiry card

## WORTHINGTON THE PREMIER NAME IN COLUMNS



Catalog Available

WORTHINGTON GROUP, LTD.  
P.O. Box 53101 • Atlanta, GA 30355

404-872-1608

Circle 111 on inquiry card

# Use your STAC number!

XXXXXXXXXXXX5-DIGIT 69699

6400 009876543 FEB90 S07  
TERRY DOE, TD & ASSOCIATES  
128 MAIN STREET  
ANYTOWN IL 69699

**N**eed product information fast? Your Architectural Record *Subscribe Telephone Access Card* number can help speed information to you about any product or service (advertised or new products/manufacturers literature items) described in this issue.

Architectural Record's exclusive STAC number system enables you to call and key your "more information" requests directly into our computer via touch-tone telephone. Your personal STAC number is conveniently listed above your name on the mailing address label for each issue. **IMPORTANT!** Your STAC number starts *after* the first four numbers and is separated from them by a space. If your STAC number starts with one or more zeros, ignore them. (For example, the STAC number on the above label is 9876543.)

Soon after your call, advertisers can access your requests by phone from our computer, and start speeding information to you. So when you need information fast, free help is as close as your STAC number. And STAC service is available to you 24 hours a day, seven days a week.

### BEFORE YOU DIAL:

1. Write your STAC number in the boxes in Step 4 below. Do not add leading zeros.
2. Write the Reader Service numbers for those items about which you want more information in the boxes in Step 6. Do not add leading zeros.

### CALL STAC:

3. Using a standard touch-tone telephone, call 413/ 442-2668, and follow the computer-generated instructions.

### ENTER YOUR STAC NUMBER AND ISSUE NUMBER:

4. When the recording says, "Enter your subscriber number..." enter your STAC number by pushing the numbers and symbols on your telephone keypad. Ignore blank boxes. Enter:

# #

5. When the recording says, "Enter magazine code and issue code..." enter these numbers and symbols:

2  5  #  3  9  #  #

### ENTER YOUR INQUIRIES:

6. When the recording says, "Enter (next) inquiry number..." enter the first Inquiry Selection

Number, including symbols from your list below. Ignore blank boxes. Wait for the prompt before entering each subsequent number (maximum numbers).

- |     |                          |                          |                          |                          |   |   |
|-----|--------------------------|--------------------------|--------------------------|--------------------------|---|---|
| 1.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 2.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 3.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 4.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 5.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 6.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 7.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 8.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 9.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 10. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 11. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 12. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 13. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 14. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 15. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 16. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |
| 17. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | # | # |

### END STAC SESSION:

7. When you have entered all Inquiry Selection Numbers the recording prompts, "Enter next inquiry number." End call by entering:

# #

If you are a subscriber and need assistance, call 212/512-3442. If you are not a subscriber, fill out the subscription card in this issue, or call Architectural Record Subscription Services at 1-800-525-5003.



## Why not go first class?

Go with BEST locks. Once you've seen and touched them, you'll agree that they reflect the quiet elegance, the uncompromising design and quality that you've come to expect from BEST. Each style has been meticulously designed with intelligent aesthetics and functional practicality for all types of architecture decor.

At Best Lock, our service team is also First Class. No other company in the world has the ability to provide such all-encompassing, comprehensive services. During design and construction, all your special needs will be quickly and effectively met by a BEST Contract Construction Representative. No questions will be left unanswered.

Once the building is occupied, everyone benefits from BEST's cost and time efficient Interchangeable Core. This customized masterkeyed security system can be easily expanded and altered to satisfy your present and future needs. To assure continued quality service, the building is assigned a permanent BEST Factory Authorized Representative to help monitor and control the system.

Go First Class. Go with the BEST team. Check the Sweet's Buyline for your Best Lock Representative, or contact Best Lock Corporation, P.O. Box 50444, Indianapolis, IN 46250, 317-849-2250.



From concept to completion, architects and owners have always appreciated the aesthetic quality, security and versatility of BEST locks, as well as the best service team in the business.



BEST LOCK CORPORATION

Circle 112 on inquiry card



# Metamorphosis:



**S**ome changes take only a few hours. Others continue for more than 80 years. In fact that's how long Sloan Valve Company has been a leader in the plumbing industry.

Today our new look is evidence of an evolution

from a single product supplier into a world

class company.

Sloan—a product of change but dedicated to those traditions which have been the foundation for our position of leadership.



# SLOAN

SLOAN VALVE COMPANY  
10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131