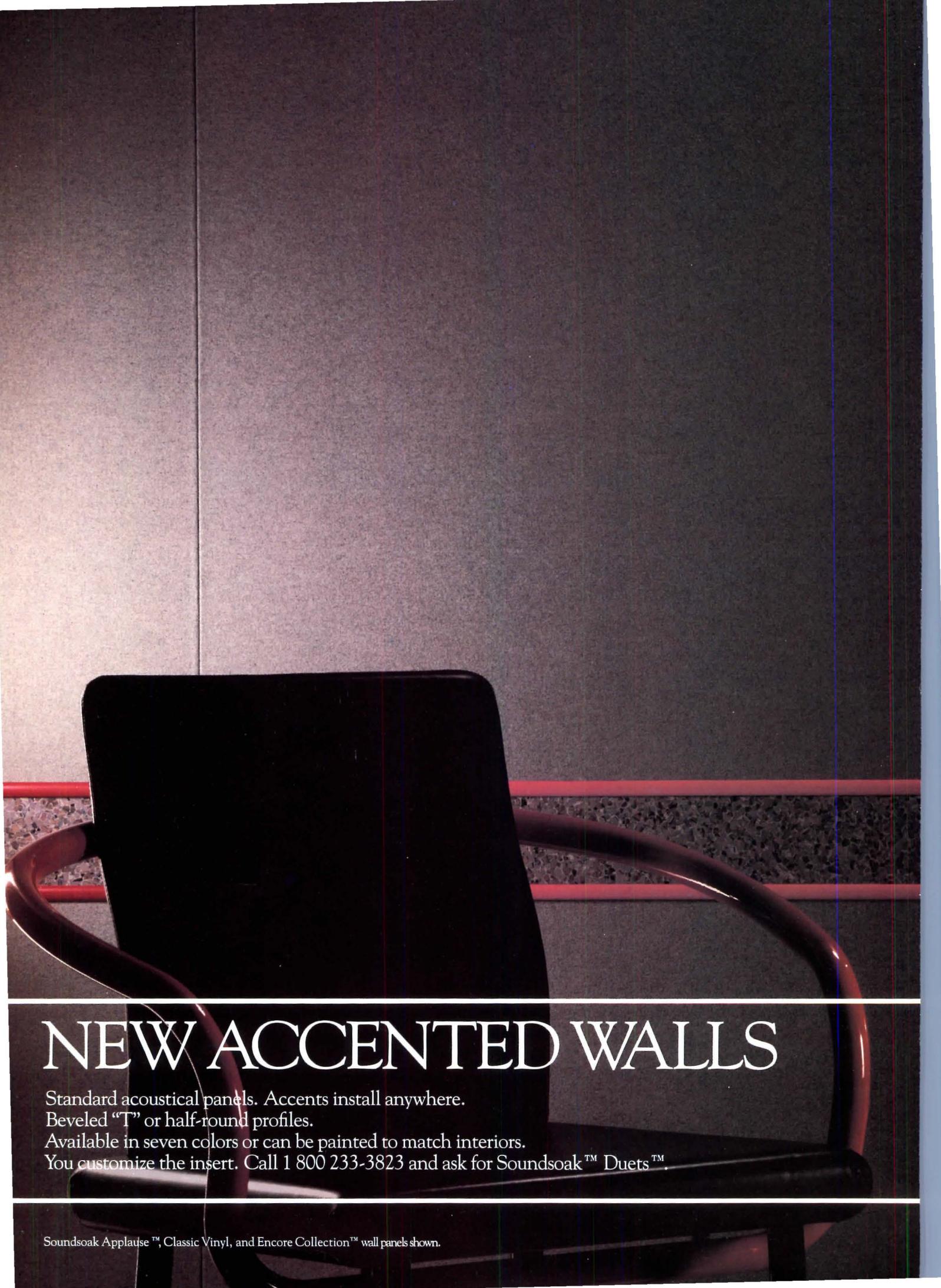


ARCHITECTURAL  
**RECORD**

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



**In the Public Interest Awards: Recreational Buildings**



# NEW ACCENTED WALLS

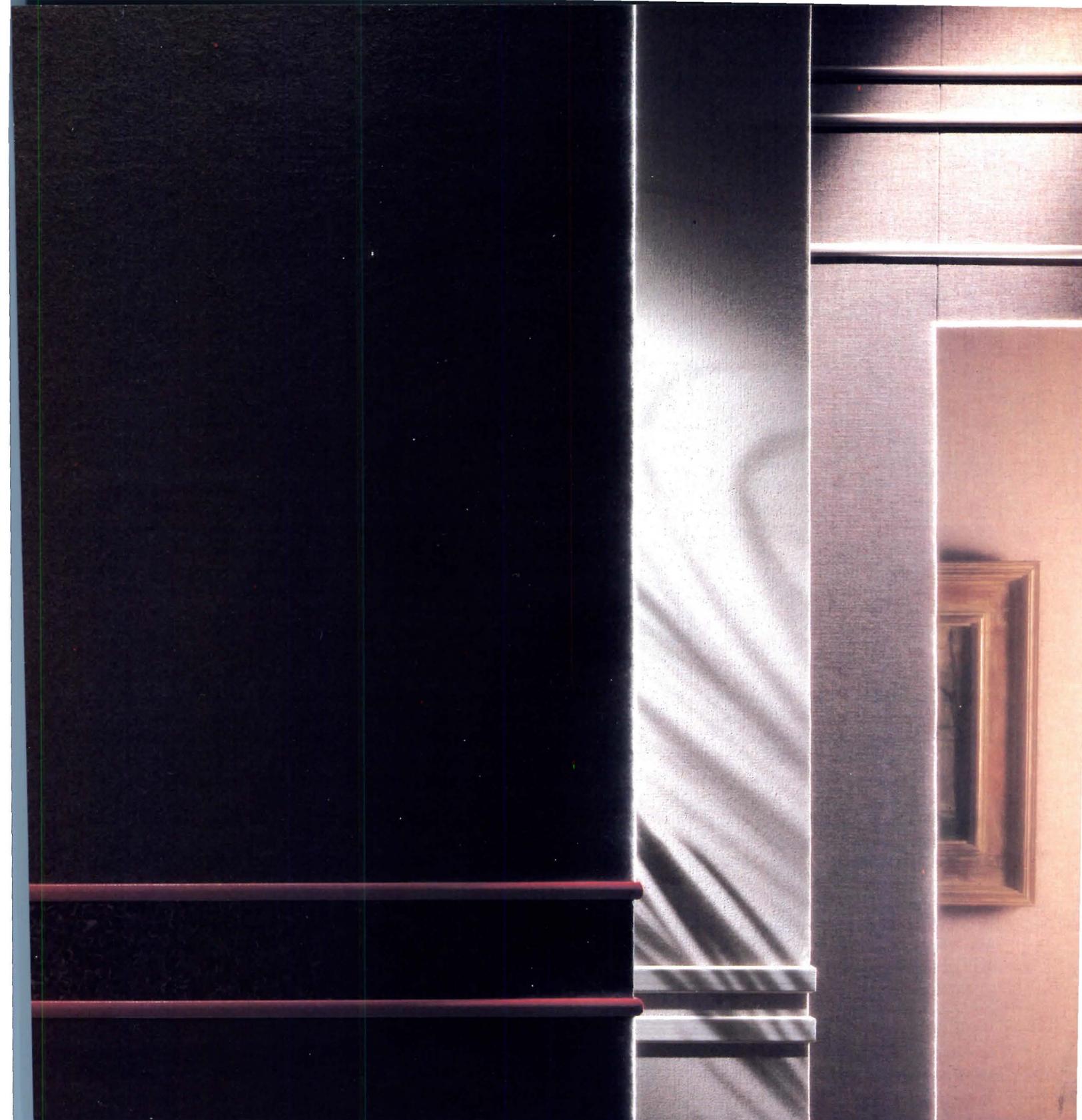
Standard acoustical panels. Accents install anywhere.

Beveled "T" or half-round profiles.

Available in seven colors or can be painted to match interiors.

You customize the insert. Call 1 800 233-3823 and ask for Soundsoak™ Duets™.

Soundsoak Applause™, Classic Vinyl, and Encore Collection™ wall panels shown.

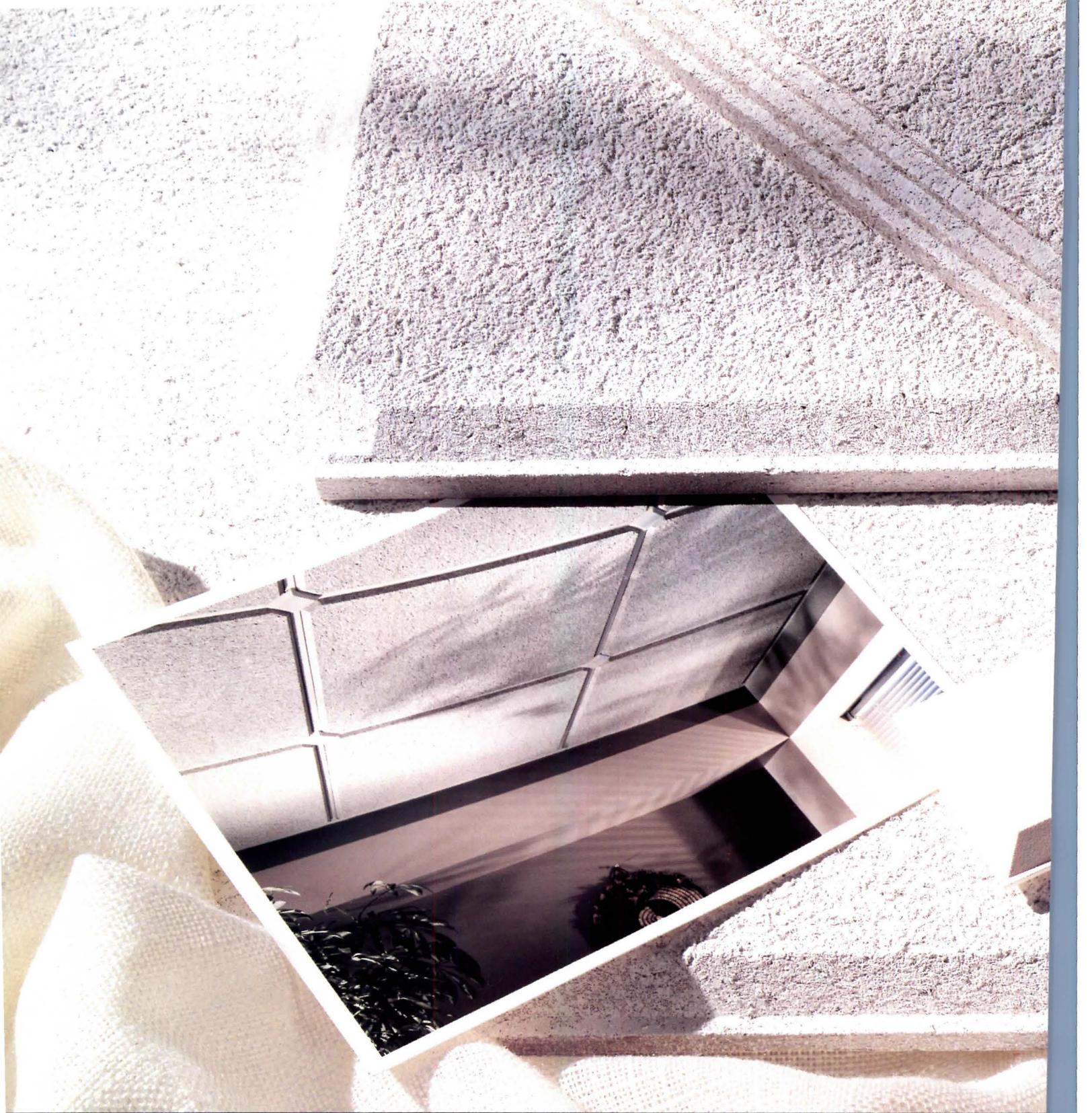


ARMSTRONG  
CONTRACT  
INTERIORS

WALLS  
CARPETS  
CEILINGS  
FLOORS

**Armstrong**

Circle 1 on inquiry card



## CIRRUS®. SOFT-SPOKEN CEILINGS WITH AN ACCENT.

The only lightly textured ceiling panels available with grid accents. Choose classic step or beveled detailing in white, onyx, platinum, or haze. For a brochure on all your design options, call 1 800 233-3823 and ask for Cirrus.



# ARMSTRONG CONTRACT INTERIORS

CEILINGS  
CARPETS  
FLOORS  
WALLS



Circle 2 on inquiry card

Really folks, enough is enough. It is one thing to publish the outlandish and the idiosyncratic, but to place Stern's Disney Casting Center [ARCHITECTURAL RECORD, September 1989, pages 66-71] on the cover implies that there may be some inherent design merit here. This graceless, boring facade should have been assigned to the in-house Disney cartoonists who have historically provided us with more appropriate, whimsical, and charming buildings.

Your role in publishing a major architectural magazine suggests that the buildings shown therein have some value to the body architecture.  
*Robert G. Currie, AIA  
Currie Schneider Associates  
Delray Beach, Florida*

You recently featured the Disney Casting Center, a particular style of architecture that central Floridians have grown to know as "cartoon architecture." Florida is growing at a rate reminiscent of California's explosive growth of 15 years ago. Unfortunately, we have not necessarily learned from their experience and continue to find ourselves subjected to architecture that is neither indigenous nor reflective of our environment, nor that makes any attempt to contribute to our quality of life. I hope Stern goes back to designing historical residences, preferably away from Florida.

*I. S. K. Reeves, AIA  
Architects Design Group  
Winter Park, Florida*

Your mid-September issue presents a look at the America Restaurant [RECORD INTERIORS, pages 80-85]. The restaurant is provided with a sprinkler system; however, the sprinkler in the foreground has been covered to prevent paint damage. The cover apparently has not been removed and therefore will

interfere with sprinkler actuation by introducing a delay in response.

You may wish to notify the architect of this problem. All in all, the magazine is another outstanding effort on your part.  
*Gerald R. Schultz, PE  
Deerfield, Illinois*

I do not as a habit write magazines expressing my opinion, but there are exceptions to everything. Your RECORD INTERIORS issue [Mid-September 1989] is the weirdest presentation of design that I have viewed in many a day. I did not renew my subscription to *Progressive Architecture* a number of years ago because of just this type of article. I'm wondering if the folks at PA were let go and now work for your magazine. The other 13 issues of RECORD are rock solid and do not have the flavor of this issue. After reading through my magazine, I checked the address on the cover to see if I had someone else's magazine.

My experience would indicate that real world, mainstream clients would not tolerate or pay for some of the designs, e.g., heavy metal, playing the angles, and infinite pattern spaces, that you feature and hold up as the standard of excellence. They lack warmth and user-friendly ambience. In my view, the restaurant, community center, and office-space designs shown were excellent.

I look forward to receiving my next issue of the "good old" ARCHITECTURAL RECORD.  
*Arthur W. Schwartz, AIA  
Plano, Texas*

**Correction**

In the article on new offices for Capital Research Company [RECORD INTERIORS, Mid-September 1989, pages 103-108], Raul Morillas of Robert A. M. Stern Architects should have been credited as the interior-design associate.

**Through December 8**  
"Housing the Airship," an exhibition on airship sheds; at the Columbia University Graduate School of Architecture, Planning, and Preservation, New York City.

**Through December 17**  
Dean Hoffman's "Grand Design," an exhibition on the landmarked buildings of the General Theological Seminary; at the seminary, 175 Ninth Ave., New York City.

**Through December 23**  
"Scalamandré: Preserving America's Textile Heritage 1929-1989," a retrospective of the company's work; at the Philadelphia College of Textiles and Science.

**November 21-25**  
"Forum '89," annual meeting of the American Institute of Architecture Students, hosted by Tulane University; at the Hilton Riverside Hotel, New Orleans.

**December 12-14**  
AEC EXPO, annual show and conference on automation, management, and reprographic systems for the building, design, and construction marketplace; at the Javits Convention Center, New York City. To register: call 800/873-3976.

**February 20-May 6, 1990**  
"Sir Christopher Wren and the Legacy of St. Paul's Cathedral," an exhibition on Wren's design of the cathedral; at The Octagon, Washington, D. C.

**March 21-23**  
"Mondo Materials," the use of materials in the built environment (both interior and exterior); at West Week 1990, Pacific Design Center, Los Angeles. Architects and designers must submit entries by January 15 to: Steelcase Design Partnership, 305 E. 63rd St., New York, N. Y. 10021.

**April 10-12**  
"Lightfair," an international lighting exposition and conference for the lighting industry; at the New York Hilton, New York City.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, and WESTERN ARCHITECT AND ENGINEER) (ISSN0003-858X/89) November 1989, Vol. 177, No. 13. 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: John W. Fink, Finance; Vice President-Planning and Development: Elisabeth K. Allison; 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 Market Focus Group; Ira Herenstein, Computers and Communications Market Focus Group; Robert P. McGraw, Healthcare Market Focus Group; Group Vice President-Energy/Process Industries Market Focus Group: Norbert Schumacher.

*Officers of McGraw-Hill, Inc.:* Chairman, President and Chief Executive Officer: Joseph L. Dionne. 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. Fenglass; 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): 1-800-825-8093; (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 unfulfilled 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, 27 Congress Street, Salem, MA 01970. Include code with request: ISSN0003-858X/89 (\$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 566, Hightstown, NJ 08520.

*Publication Office:* 1221 Avenue of the Americas, New York, NY, 10020. ARCHITECTURAL RECORD (ISSN0003-858X/89) published monthly, except semi-monthly 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: ARCHITECTURAL RECORD, Attn: Fulfillment Manager, 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: Central Section 32Cb through 32Ch. Western Section 32Wa through 32Wd. Sunbelt Section 32Sa through 32Sd. Special Section 32Ra through 32Rb.

**Editor**  
Mildred F. Schmertz, FAIA

**Managing editor**  
Carolyn De Witt Koenig

**Executive editor**  
Paul M. Sachner

**Editors-at-large**  
Donald J. Canty, Hon. AIA  
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  
Clifford A. Pearson

**Assistant editor**  
Anne S. Ting

**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

**Art/production assistant**  
Mary Ann Albanese

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

**Circulation director**  
Richard H. Di Vecchio

**Director of business and production**  
Joseph R. Wunk

**Advertising production manager**  
Laura Marchisio

**Director of marketing**  
Camille H. Padula

**Assistant to publisher**  
Elizabeth Hayman

**Publisher**  
Roscoe C. Smith III

*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:*

Paul M. Sachner, houses  
Karen D. Stein, interior design  
Grace M. Anderson, design news and competitions  
Clifford A. Pearson, observations and book reviews  
Charles K. Hoyt, business  
James S. Russell, engineering  
Joan F. Blatterman, new products and product literature

Letters/calendar, 4  
Editorial: Responsibility equals market opportunity?, 9

## Business

News, 33  
Practice: How to get the best from your consulting engineers, by Richard B. McMichael, 35  
Construction economy update: Three roads to recovery, by George A. Christie, 37

## Design

News, 53  
Design awards/competitions, 62  
Observations/books, 75

### Building Types Study 673: In the Public Interest, 83

Activities Center, Camp Algonquin, Elgin, Illinois, 84  
*Tigerman McCurry Architects*

Pilot Field, Buffalo, New York, 88  
*Hellmuth, Obata & Kassabaum Sports Facilities Group, Architects*

Lake Harriet Band Shell, Minneapolis, Minnesota, 92  
*Frederick Bentz/Milo Thompson/Robert Rietou, Architects*

Moody Gardens, Galveston, Texas, 94  
*Morris Architects*

Commerce City Recreation Center, Commerce City, Colorado, 100  
*Barker Rinker Seacat & Partners, Architects*

City Park Recreation Center, Westminster, Colorado, 104  
*Barker Rinker Seacat & Partners, Architects*

Imperial Beach Pier Plaza, Imperial Beach, California, 108  
*Campbell & Campbell, Architects*

Steinhardt Conservatory and Palm House Restoration, The Brooklyn Botanic Garden, Brooklyn, New York, 110  
*Davis, Brody & Associates, Architects*

Coalinga Community Swim Complex, Coalinga, California, 116  
*Edwin S. Darden Associates, Architects*

Petaluma Community Center, Petaluma, California, 120  
*Roland/Miller/Associates, Architects*

Newcastle Beach Park, Bellevue, Washington, 124  
*Jones & Jones, Architects & Landscape Architects*

## Engineering

The Toronto SkyDome, Toronto, Ontario, 128  
*The RAN Consortium, Architects/Engineers*

Software reviews for architects, by Steven S. Ross, 149

New products, 138	Classified advertising, 184
Product literature, 146	Advertising index, 190
Manufacturer sources, 171	Reader service card, 193

Cover:  
Newcastle Beach Park, Bellevue, Washington  
*Jones & Jones, Architects & Landscape Architects*  
Photographer: Michael Ian Shopenn



# THE ART OF REFRIGERATION

Forty years of refining and redefining, pride of craftsmanship, dedication to quality, and the latest technology have made Sub-Zero the unsurpassed leader in built-in refrigeration for homes of distinction. Winner of the "Design Excellence Award," the 500 Series offers exciting eurostyled white and glass interiors, 24" depth, capacities to 30 cu. ft., several combination model choices with widths ranging from 30" to 72", exterior beauty and the reliability of a high performance system, backed by our exclusive 12-Year Protection Plan.

Offer your customers and clients the Sub-Zero difference. For more information contact your Sub-Zero distributor or Sub-Zero directly.

SUB-ZERO FREEZER CO., INC.,  
P.O. Box 4130, Madison, WI 53711, 608/271-2233

**Circle 5 on inquiry card**



Models 550 combination over-n-under refrigerator freezer.

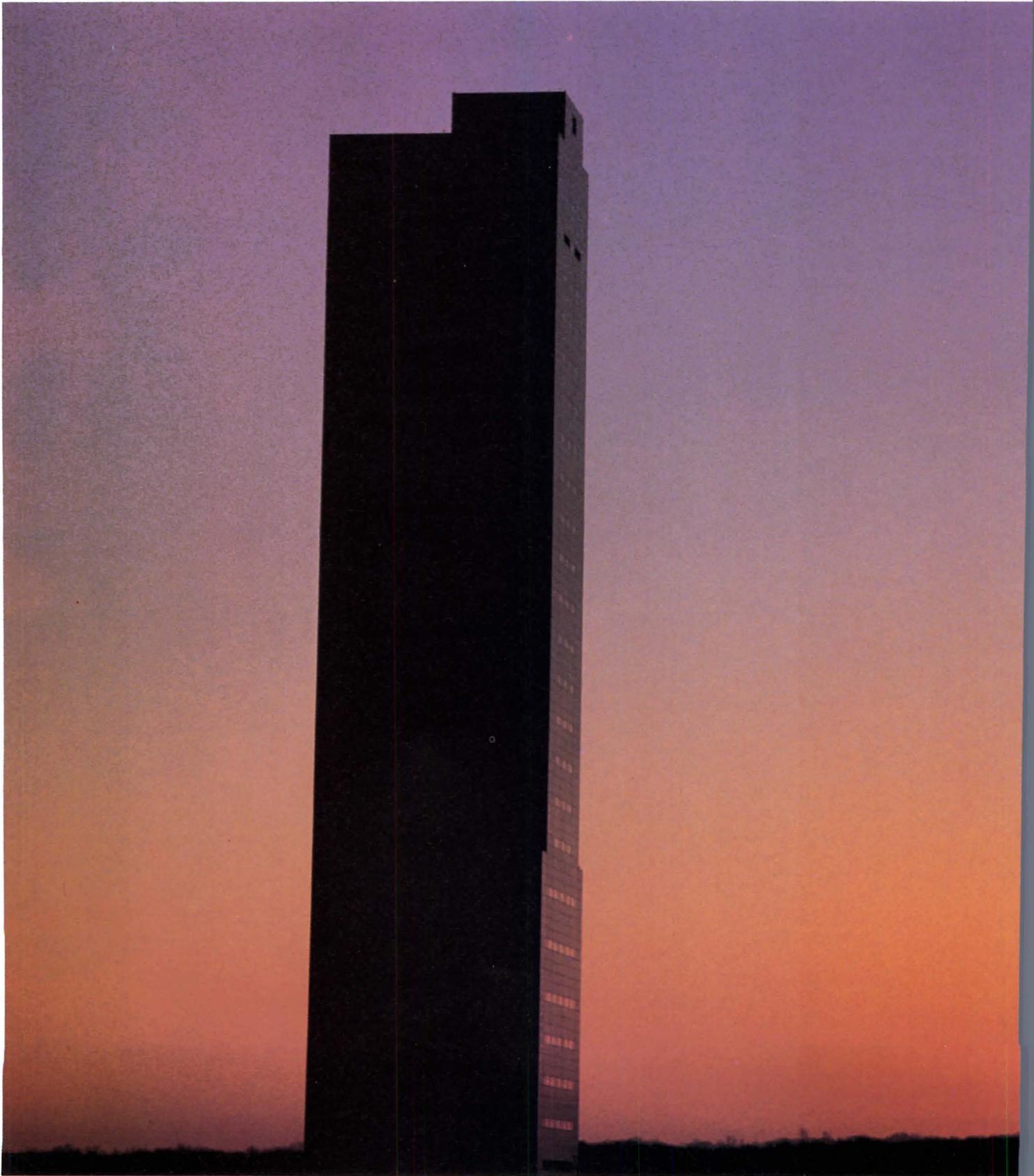
---

# Responsibility equals market opportunity?

One of my recent editorials, "Architects, engineers, and the 'practice overlap'" [RECORD, July 1989, page 11], which addresses the increasing encroachment of interior designers and engineers into the profession of architecture, with a critical commentary on the efforts of the AIA to exclude the former while welcoming the latter, inspired a welcome and provocative response from Louisiana architect/engineer John L. Webb, who has recently completed 10 years, including two as chairman, as a member of the AIA Documents Committee. Webb, after offering the caveat that his letter represents only his personal opinions and not those of the AIA or the Documents Committee, describes himself as "a witness, and at times an unwilling participant, in the decline of the architect's role in the construction process as established by the AIA documents." Criticism of the 1987 edition documents, in which RECORD has joined, comes principally, according to Webb, "from a lack of understanding or an unwillingness to understand the basic ground rules under which we all work in the design and construction industry . . . Construction is a risky business and the AIA documents, of which A.201 serves as the 'keystone,' attempt to fairly allocate this risk to whichever party has control, including the owner." Pointing out that the documents are a system of checks and balances, and have a reputation for fairness to all parties, he adds that "the interest of others in the process has been responsible for some of the erosion of the architect's status, attributable to the architect's fear of being sued in court."

According to Webb, the architect's attitude has been that "if a responsibility leads to a legal hazard, get rid of the responsibility. Thus we find that under AIA documents, architects are unwilling to assume responsibility for construction cost, time, and quality of construction—three of the most critical items to owners. It is axiomatic: for each limitation of responsibility, there is a corresponding decline in market opportunity. No surprise then that other professionals and pseudo-professionals are rushing to take on the duties which architects decline." Too many architects, argues Webb, have what he sees to be an "alarming preoccupation with 'design' and lack of concern over the 'washing and ironing' part of the construction process. Some would even welcome the architect's role being further diminished to include only the pure architectural design, leaving the owner to work directly with others for engineering and construction administration."

Work is about to begin on the next set of AIA documents to be completed by 1997. Warning that we cannot hope to survive as a profession given a continuation and acceleration of the architect's decreasing role, Webb urges that the framers of the new documents begin at once to consider ways to reverse this trend. The next edition of the documents, he argues, must set the relationship of all parties to the construction process in such a way that the architect's role is expanded and enhanced. Not so easy to accomplish, of course, given the desire of interior designers and engineers to do the same thing. But worth a try. *Mildred F. Schmertz*



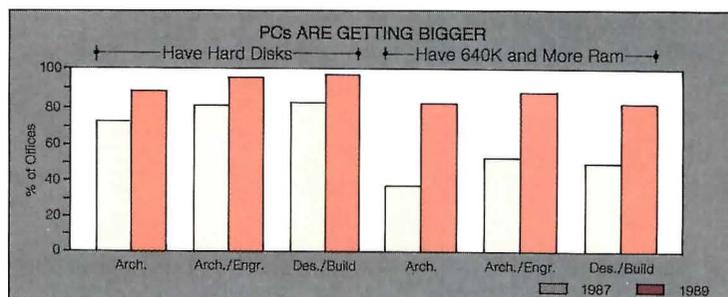
## Sweet's surveys reveal architects' changing patterns of computer use and its growth

Over the past 10 years, as Sweet's, the producer of those product catalogs, has moved into the age of automation with its Electronic Sweet's for both product selection and specification writing [RECORD, June 1989, page 159], it has conducted some 30 surveys of how architects use computers in general. The results? In 1984, 49 percent of architectural offices had computers. In 1989, some 85 percent do, and the average one has spent \$32,000 to get them (\$142,000 for architectural-engineering firms). And 92 percent are projected to have them by 1992. Within five years, the average architectural office plans to spend another \$24,000 and the average architect-engineer, \$155,000, despite dropping costs.

The real interest may lie in what type of computers they are using. Increasingly, it is the PC—up 50 percent from 1987 to 1989 alone. Mainframes and minis are still in force in the large offices, says Sweet's vice president for product planning and development, Hugh Sharp, and thus account for a disproportionate part of the work done by computers. But, as PCs become more and more powerful, their numbers already equal the professionals in the

median automated office. And Sharp sees plenty of room for PC growth. The statistics for the average office (which are skewed by the influence of the larger ones) shows a very different picture: The number of PCs equals only about a quarter of the professionals. He attributes this to not only the use of larger computers in the larger offices but also a good amount of work done by hand—a condition the computer manufacturers would like to correct.

PCs are getting bigger: The number of architectural offices having them with memories of 640K and greater has more than doubled in the past two years. And they are getting better: The percent of computerized architectural offices having hard disks has gone from 40 four years ago to some 90 percent today. Median disk size has doubled in the past two years to 40 megabytes and the average has gone to near 55. Sharp also cited the growth of compact discs: Nearly 10 percent of computerized offices have CD-ROM readers—a fact he attributes to the advent of Electronic Sweet's. "Almost all of them say they are using it." With all of these capabilities, have architects with computers reached the much-heralded state



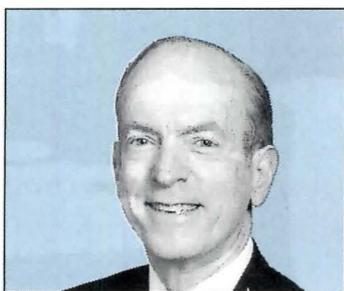
of systems integration whereby automated drawings interact with alphanumeric information? Word processing and specs are still the number one and two applications. CAD is high in the list of applications only in architecture and engineering firms. Still, some 57 percent of architects use CAD, and Sharp sees this application, like others, growing—along with integration.

Which brand of equipment do architects choose? The market continues to be dominated by IBM and compatibles, says Sharp. "But IBM has lost its share dramatically over the past two years." He attributes this to two causes: growing confidence in users who no longer feel the need for a name-brand security blanket and their aversion to IBM's new PS/2 technology. Now nearly 20 percent of systems are Apple. Preference in software is AutoCAD first, then Intergraph, and VersaCAD. For

spreadsheets and database management, architects most often turn to Lotus or dBase.

Concludes Sharp: "It is not incorrect to say that the design process is actually the development of a great database describing a structure—a record of all the decisions and the support for those decisions. One view holds that everything else—the drawings, specs, estimates, schedules, even the structure itself—simply reports from this database." While architects may find this a limiting way of seeing what they do, they cannot disagree with his observation that design and construction are very information-intensive and that "the computer, which enables the storage, retrieval, and manipulation of masses of information faster, easier, and more comprehensively than ever before, can hardly fail to impact them." *Charles K. Hoyt*

## Back to basics on tort reform



With the September dismissal of a lawsuit brought by 19 state attorneys general against a group of insurance companies, alleging the group's creation of the liability crisis by collusion on costs and scope of coverage, "state legislators can focus on the real solution to the

continuing liability crisis—tort reform," says Martin F. Connor, president of the American Tort Reform Association. [For more on the crisis, see RECORD, April 1988, page 37.]

"The liability crisis has always been the product of an

unbalanced civil-justice system," continues Connor. "This lawsuit served only one purpose—to divert attention away from the real cause of this devastating problem." What makes the civil-justice system unbalanced? According to Connor (as well as other experts): "the amount of litigation in our courts, the decrease in the predictability of the legal system, the increase in the size of awards, and the unfairness of a system that punishes regardless of the degree of responsibility." Hence his group's determination to do something about it. *C. K. H.*

## Watch your body language

According to a survey of 12,000 executives reported in the *A/E Marketing Journal*, 72 percent are influenced not as much by what a person says as by how he looks and acts. Let us hope such first impressions are not bases on which final commissions are awarded. Charm school anyone?

# MicroStation... Intergraph CADD on your PC, Macintosh, or workstation

## Three Platforms... One Solution

MicroStation software for design and drafting puts powerful, easy-to-use CADD capabilities at your fingertips. Backed by Intergraph's 20 years of leadership in developing CADD tools, MicroStation offers features once available only with powerful host-based systems:

- True 3D design
- Rendering, hidden-line removal (at no extra cost)
- Powerful Intergraph and third-party applications

MicroStation files can be shared between platforms without translation. MicroStation has this same compatibility with Intergraph's host-based systems.

## The MicroStation Advantage

Whether your needs are Intergraph compatibility or standalone CADD, let MicroStation give you the advantage — power, ease of use, and product support from the leader in interactive computer graphics.

For further information, call 800-345-4856 in the U.S. (in Alabama only, 800-345-0218). Outside the U.S., please contact an Intergraph sales office.

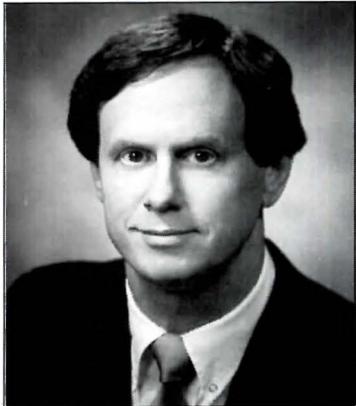
# INTERGRAPH

Intergraph is a registered trademark of Intergraph Corporation. MicroStation is a trademark of Bentley Systems, an Intergraph affiliate. Macintosh is a registered trademark of Apple Computer.



## Practice: How to get the best from your consulting engineers

By Richard B. McMichael



Consulting engineers are often in the precarious position of serving two masters—the building owner, who is the end user of what they design, *and* the architect, who leads the design team and relies on engineers' special expertise.

An architect can head off potential problems by giving his consultant a written document, in addition to the customary contract or agreement, outlining the essential elements of their relationship and the architect's specific expectations. The architect in turn should get a document from the consultant outlining what he expects the consultant to do.

In the engineer-selection process, architects can assure they get what they want by taking the time to discern important distinctions among consultants being considered. Getting answers to some important questions will raise the likelihood of finding engineers who give the best value.

### **Do engineers have experience consistent with your needs while still being innovative?**

Have they been through a progression of problem analyses and solution development similar

*Mr. McMichael is president of Colton McMichael Lester Auman Visnovske, Inc., mechanical, electrical, civil, and structural engineers in St. Louis.*

to that required for the project at hand? While it is sometimes not necessary that they have extensive experience in the same kind of work, they should be adept at the thought processes required for it. Innovation often comes from engineers diversifying their practices and broadening their experience. Such practices occasionally result in designs of certain systems for the first time. Ask consultants how many new design approaches they have attempted, say, over the past five years and what the results were. And ask yourself: "How many new design approaches have I requested of consultants and what were the results?"

Generally, all architects and some engineers enjoy exploring new approaches. But exploring them can sometimes become so enjoyable as to be dangerous. The risk is not always evaluated carefully enough to eliminate the unexpected lack of system performance. All engineers have a list of new ideas they have tried, some at the insistence of clients, that have not worked. The tendency is to abandon the search for new ideas rather than continue to pursue possibilities of getting them to work. Make it clear that everyone shares in the responsibility of trying out new ideas to inspire the best thinking from all participants.

### **Do the engineers communicate effectively with others in a way that gets action and results?**

Those who can spell out what results they expect to achieve usually produce drawings completed correctly and on time, know how to work with contractors, and know how to follow through to the proper functioning of building systems and components. Structuring communication this way brings results. Any other method may be useful, meaningful, or entertaining, but it might not produce what is wanted.

*Looking for "yes" people or those with only exactly the same type of experience as your project at hand may not always be the right answer.*

Occasionally a frustrating incident in engineering offices happens something like this:

- In order to meet a deadline, the engineer needs information on project X in advance of design.
- Since the engineer is busy on project Y, he does not ask for the information.
- Or he does ask, but does not reach agreement on timing.
- He does not follow up since he thinks he has fulfilled his responsibility for moving the project ahead by making an open-ended request.
- The needed information arrives late, which delays the project.

This lack of communication needs to be corrected when discovered; there is no clear responsibility on either party's part. It is also a very indirect, subtle, and covert way of controlling the rate at which work is produced. It is a human tendency. It is also intolerable.

### **Is the engineer committed to the success of all the design and construction participants?**

Because buildings are generally growing more complicated, requiring extensive coordination among the various specialists involved, an engineer who is not committed to everyone's success will be an impediment to the project's success. Especially in light of architects' and engineers' high risk and low reward, safeguarding of profit regardless of risks to others is irresponsible, at best. Every member of a design team has had adversarial relationships that lead to taking sides and setting up battle lines. To conquer this, the first step is the toughest: Invite an adversary to lunch.

### **Will the engineers assume responsibility for the completeness of their systems?**

Engineers' technical expertise is needed to ensure that a system's design is complete and meets all requirements. It is also needed

to ensure that systems function properly long after they have been in use by the owner. All people and all firms have made mistakes and will continue to do so. An engineer might volunteer to share in the cost of resolving problems when the following circumstances prevail:

- He has partial or total responsibility for a problem.
- The cost to correct the problem is manageable.
- The cost to correct the problem is less than his errors-and-omissions deductible.

It is usually more difficult to admit to a mistake. Being wrong feels like being destitute to many engineers. But the reason engineers carry errors-and-omissions insurance is to protect themselves from being destitute as a result of being wrong. The risk and responsibility for claiming to have all the right answers is large and the cost is high in today's business climate. The instances should be rare, but all are caught in human fallibility. It is wise to explore whether or not the consultants with whom you work are fully cognizant of their responsibility.

### **Will they stand up for the right answers even when it risks confrontation?**

Your interests and the client's interests are best served when you encourage your engineering consultants to openly disagree with you as a necessary process. Your interests are not being served by consultants who are great to work with solely because they agree to do things your way. If you make confrontation unpleasant enough, ultimately you will be surrounded by "yes" persons who are not sufficiently courageous to take a stand that could keep the team out of trouble. When you are overbearing and unreasonable in your demands, warfare is an option, if not an inevitability.

# Modular Membrane Structures

Today's Cutting Edge Building Technology



Resort dining and refreshment center, Wesley Chapel, Florida.



Poolside refreshment center, Pompano Beach, Florida.



Individual Modular Shelters, Phoenix, Arizona.



Underside lighting makes a shelter luminous after dark.

Graceful . . . versatile . . . practical! Helios Modular Shelters have all these qualities. No wonder architects and landscape architects are finding so many uses for these tensioned membrane structures.

These shade and shelter modules originally devised for our custom projects offer designers an outstanding design element to use in their projects. Pre-engineered, these Helios Modular Shelters can stand alone or be clustered in any formation needed. Translucent by day, they provide a welcoming luminous accent that glows with underside lighting at night.

Despite their light, airy appearance, Helios Modular Shelters are truly durable and long lasting. The sturdy steel framework and matching membrane are engineered for heavy winds, meeting many model building codes. The membrane fabric may be left up all year or demounted easily if desired. Modules are available in hexagonal or square configurations in umbrella or tulip shapes.

Helios Modular Shelters are produced by Helios Industries, Inc., the International Operations Division of Taiyo Kogyo Corporation, the world leader in design technology and utilization of fabric membrane structures. Our technological expertise and experience is ready and available to assist you.

For more information on Helios Modular Shelters or other tensioned membrane structures, call or write:

**Helios Industries, Inc.**  
20303 Mack Street  
Hayward, California 94545  
U. S. A.  
Facsimile: (415) 887-0134  
Telex: 176226  
Telephone (415) 887-4800

Helios Industries, Inc. has local representatives in the following countries:

**Spain**  
Boetticher Y Navarro, S.A. (BYNSA)  
C.T.R. (Comercial Tecnologias Recreativas)  
Avda. De Andalucia, Km.9  
28021 Madrid, Spain  
Facsimile: (1) 796-6892  
Telex: 47964 BYNSAE  
Telephone: (1) 797-8266

**Hong Kong**  
L. F. Sam (H.K.) Ltd.  
7/F First Commercial Bldg.  
33-35 Leighton Road, Hong Kong  
Facsimile: (5) 834-5283  
Telex: 62872 LFSAM HX  
Telephone: (5) 891-8448



**Helios Industries, Inc.**  
International Operations Division  
**Taiyo Kogyo Corporation**

Circle 26 on inquiry card

## Construction economy outlook: Three roads to more volume

By George A. Christie



Considering its wobbly beginning, 1989 construction contracting is coming out a bit better than it might have. Early indications of a small decline of newly started construction have been upgraded to the extent that this year's total, as shown on the Dodge Index (chart, page 43), will come very close to matching the previous value—for the second year in a row.

Another basic measure of the construction market, the Commerce Department's New Construction Put In Place, also shows 1989 building to be little changed—on a “plateau” that proclaims the conclusion of six years of expansion.

One important distinction: You heard it first from the Dodge Index, which is the leading indicator of construction activity. Contracting for new construction reached its peak as long ago as 1987, showing no further improvement in 1988 or 1989. But no decline, either. Construction put in place, which records spending for work being brought to completion, has only recently begun to reveal this loss of momentum. By either measure, however, the word that best describes construction in 1989 is “stalled,” albeit stalled at a comfortably high level.

This is not the way building cycles usually end. More typically, the denouement occurs in the familiar peak-and-crash sequence. Precedents abound. It happened in 1980, in 1974, and in 1970, to cite the most recent downturns. So why the soft landing this time? The key: *diffusion*. In the absence of a general economic recession, the long expansion of the construction sector through the mid- and late-1980s unraveled in bits and pieces instead of all at once. And that applies whether you look at it according to type of construction or by region.

Commercial building was the first to go, and that happened as far back as 1986 when soaring

*Interest rates, the recent glut of commercial construction, and the availability of public-works funding are the critical factors affecting building activity in 1990 and beyond.*

office and apartment vacancy rates made it apparent that the tax-shelter boom was over even before tax reform made it official. But the collapse of the commercial market didn't do much more than slow the growth of total construction. Public works went next, in 1988, when Gramm-Rudman deficit targets clamped a lid on federal outlays for construction and other programs. But public building was merely capped at a high level, not cut back. And there was still single-family housing, nearly one-third of total construction, which refused to quit until 1988's credit squeeze took its toll. The result: lots of churning within individual markets, resulting in stability of the total since mid-1987.

Divergent regional developments have been having a similar effect on the national numbers. From start to finish, (i. e., since the 1982 low) the national total of construction-contract value expanded by 65 percent before finally leveling off. Nevertheless, only two regions—the North Central and the West—were even close to being typical, while three others went their own ways. The South Central (alias the oil patch) was never in the game, peaking as early as 1983, and declining ever since. The Northeast and the South Atlantic, by contrast, far outpaced the others. More to the point, however, is the fact that each of the five regions turned down in a different year, leaving the impression of greater stability of the total than of its parts. Diffusion at work again.

There's a lesson in this. If the events that shaped construction markets over the past several years had occurred simultaneously instead of sequentially, the result most probably would have been the usual crash. But they didn't, so we've had the rare luxury of a soft landing instead. Now comes the task of pulling the several

loose ends of the stalled construction market together again. That will happen in much the same manner as it came apart—piecemeal. There are three roads to the recovery of construction: commercial, public, and housing. And there are some roadblocks.

### **Commercial building: some up, some steady, and some down**

The combination of high vacancy rates and a sluggish economy represents a formidable barrier to the recovery of commercial building in 1990. Nevertheless, there's been a change for the better in this overdeveloped market in which progress has to be measured in terms of whether or not the annual declines of newly started construction are getting smaller. And they are.

In 1989, the combined total square footage of new office buildings, apartments/condos, and hotels is headed for its fourth consecutive decline—this time to a decade low of 740 million square feet, and 40 percent below the 1985 peak when the “tax shelter boom” was under a full head of steam. The good news is that 1989's decline, at 8 percent, is only half that of the two previous years, as contracting finally appears to be stabilizing in the range of 700 million to 800 million square feet.

The perspective provided by hindsight now indicates that a volume of approximately 900 million square feet per year (ideally 250 million square feet of offices, 575 million square feet of apartments/condos, and up to 75 million square feet of hotels) is about as much as the market can absorb in a good year. Any more than 900 million square feet will drive vacancy rates up (as in 1983 through 1986). More pertinent to today's overbuilt situation: Vacancy rates can only be reduced by building less than 900 million square feet a year.

Experience of the mid- and  
*Continued on page 39*

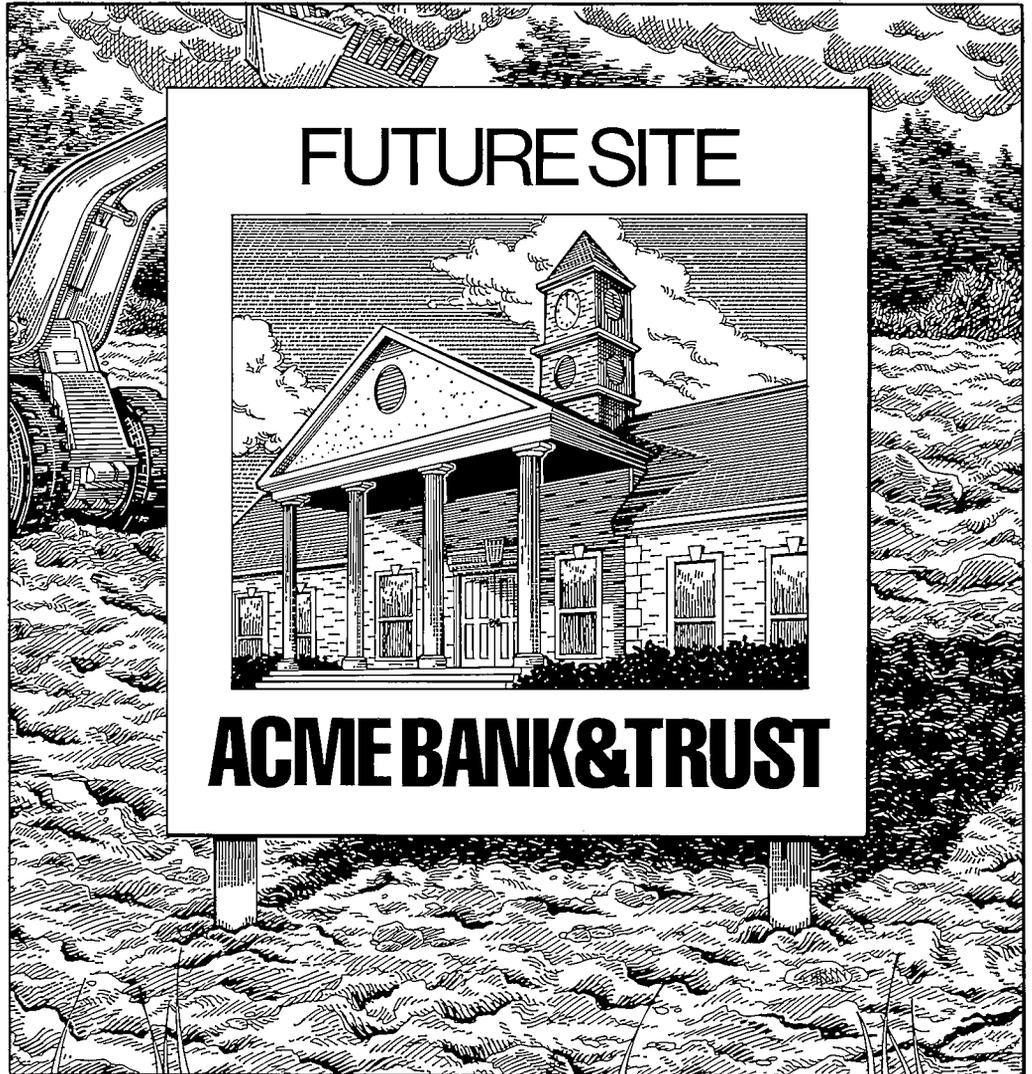
*Prepared October, 1989 by the Economics Department McGraw-Hill Information Services Company George A. Christie, vice president and chief economist.*

*Copyright ©1989 McGraw-Hill, Inc. with all rights reserved.*

# Use Our High Strength Wide Flange Beams And Put Less Money In The Bank.

*Now you can buy high strength wide flange beams for only ten dollars a ton more than standard A36 beams. And that means you can save a ton of money on steel and construction costs. Because, as you know, with high strength beams (50,000 psi) you can use lighter weight sections than with regular steel beams (36,000 psi). Matter of fact, the overall frame weight can be reduced by 20-25% and still carry the required loads. That means less steel is needed, foundations can be smaller and column sizes can be reduced.*

We can offer this steel at such a low price because we produce in modern, efficient electric arc furnaces. And that enables us to keep alloying costs to a minimum. And the savings are passed on down the line.



So if you're building a bank or any other building, you'll be putting less money into it. And that should make everyone involved very happy.

Our high strength wide flange beams are available in ASTM A572 Grade 50 and CSA 40.21 Grade 44W. They range from 6" to 24" in depth and up to 120 pounds per foot. So contact Nucor-Yamato for details. Call 800/289-6977 or write to Post Office Box 1228, Blytheville, Arkansas 72316. And start putting less money in the bank, or any other building you build.

## Nucor-Yamato Steel Company

**1990 National Estimates**

Dodge Construction Potentials

Nonresidential Buildings		1989 Preliminary	1990 Forecast	Percent Change 1990/89
Floor Area (millions of square feet)	Office Buildings	220	195	- 11
	Stores & Other Commercial	540	475	- 12
	Manufacturing Buildings	150	145	- 3
	<b>Total Commercial &amp; Manufacturing</b>	<b>910</b>	<b>815</b>	<b>- 10</b>
	Educational	134	137	+ 2
	Hospital & Health	69	71	+ 3
	Other Nonresidential Buildings	142	152	+ 7
	<b>Total Institutional &amp; Other</b>	<b>345</b>	<b>360</b>	<b>+ 4</b>
	<b>Total Nonresidential Buildings</b>	<b>1,255</b>	<b>1,175</b>	<b>- 6</b>
	Contract Value (millions of dollars)	Office Buildings	\$ 20,675	\$ 19,025
Stores & Other Commercial		24,125	22,100	- 8
Manufacturing Buildings		8,675	8,475	- 2
<b>Total Commercial &amp; Manufacturing</b>		<b>\$ 53,475</b>	<b>\$ 49,600</b>	<b>- 7</b>
Educational		\$ 13,875	\$ 14,550	+ 5
Hospital & Health		8,250	8,750	+ 6
Other Nonresidential Buildings		13,675	14,850	+ 9
<b>Total Institutional &amp; Other</b>		<b>\$ 35,800</b>	<b>\$ 38,150</b>	<b>+ 7</b>
<b>Total Nonresidential Buildings</b>		<b>\$ 89,275</b>	<b>\$ 87,750</b>	<b>- 2</b>

**Residential Buildings**

Dwelling Units* (thousands of units)	One Family Houses	975	1,075	+ 10
	Multifamily Housing	435	450	+ 3
	<b>Total Housekeeping Residential</b>	<b>1,410</b>	<b>1,525</b>	<b>+ 8</b>
Floor Area (millions of square feet)	One Family Houses	1,655	1,835	+ 11
	Multifamily Housing	465	472	+ 2
	Nonhousekeeping Residential	70	68	- 3
	<b>Total Residential Buildings</b>	<b>2,190</b>	<b>2,375</b>	<b>+ 8</b>
Contract Value (millions of dollars)	One Family Houses	\$ 93,375	\$ 106,325	+ 14
	Multifamily Housing	23,400	24,525	+ 5
	Nonhousekeeping Residential	6,075	6,050	-
	<b>Total Residential Buildings</b>	<b>\$ 122,850</b>	<b>\$ 136,900</b>	<b>+ 11</b>

**Nonbuilding Construction**

Contract Value (millions of dollars)	Transportation Construction	\$ 24,825	\$ 25,250	+ 2
	Environmental Construction	18,350	18,900	+ 3
	<b>Total Public Works</b>	<b>\$ 43,175</b>	<b>\$ 44,150</b>	<b>+ 2</b>
	Utilities	\$ 4,500	\$ 4,700	+ 4
	<b>Total Nonbuilding Construction</b>	<b>\$ 47,675</b>	<b>\$ 48,850</b>	<b>+ 2</b>

**All Construction**

Contract Value (millions of dollars)	<b>Total Construction</b>	<b>\$259,800</b>	<b>\$273,500</b>	<b>+ 5</b>
	Dodge Index (1982 = 100)	165	174	

\*F.W. Dodge basis.

late-1980s shows how this works. In 1986, despite a 10 percent cutback of building, vacancy rates kept rising because that year's supply of new space still substantially exceeded the 900-million-square-foot threshold. Only after a further 16 percent reduction in 1987 brought contracting close to the 900 million equilibrium level, did vacancy rates finally stop climbing. Still further declines of building in 1988 and 1989 below 900 million square feet at last were needed to begin bringing vacancy rates down.

Only grudging progress has been made so far in absorbing the oversupply created during the period between the Economic Recovery Tax Act and Tax Reform, when accelerated depreciation overstimulated the commercial real-estate market, but things are moving in the right direction. Office vacancies currently average 18 percent around the nation, down from their high of 21 percent; apartments are now 7 percent vacant vs. their recent 20-year high of 8 percent. Hotels have shown little change, and the whole process has quite a way yet to go. Getting the commercial building market back to a state of viability will obviously require an extended period of building less than 900 million square feet per year.

Under such circumstances, why build even 700 million square feet of commercial space this year or next? New buildings will continue to be built as long as they can be rented, all too often by shifting the vacancy problem to older buildings in less desirable locations. Renovation, rent concessions, and/or abandonment of marginal existing structures are among the responses to continued new construction. With so many variables in play, the "optimistic" outlook for new construction is stability at or near the 1989 volume of building

for another two or possibly three years, an improvement over the steady decline since the mid-1980s. This prescription of only enough new building to keep vacancy rates coming down is hardly the stuff that recoveries are made of, however.

The 1990 estimated total of 725 million square feet of commercial building, only slightly less than 1989's 740 million, will conceal divergent movements among offices (down), hotels (steady), and apartments (up). A short-run environment of lower interest rates and a generally sluggish economy will give multifamily housing an edge while inhibiting office construction.

**Public-works construction: little room for advance**

Public-works contracting gives special meaning to the concept that spending for construction has plateaued. Since 1987, not long after the application of Gramm-Rudman deficit controls, construction of infrastructure projects has been stonewalled at \$43 billion per year. This contrasts with its strong and steady growth through the middle of the 1980s, from a level of only \$25 billion at the start of the decade. Since plateauing, even the relative shares of transportation work (roads, bridges, mass transit) and environmental projects (water resource, waste-treatment facilities) have been frozen at 60:40 percent. If any change is taking place in this catatonic construction market, it is the barely perceptible transfer of control from federal agencies to state and local governments.

At the federal level, the ongoing process of deficit reduction, along with the need to absorb some new initiatives (e. g., the savings-and-loan bailout, the war on drugs) will claim most or all of next year's projected revenue growth of *Continued on page 41*

# Stop \$75 million from going up in smoke.

Money seems to be no object when it comes to making a high rise impressive. Yet, too often, budgets seem to run dry when it comes to fire containment systems that improve occupant safety.

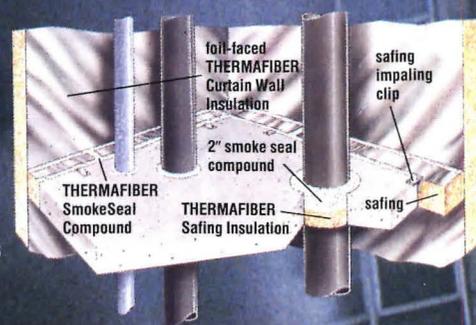
Cut corners by specifying low-melt-point foam or glass fiber insulations, and risk the spread of fire and deadly gases when they break down. Install sprinklers to improve fire safety, but smoke and fire still might not be effectively contained, causing fatalities away from the source.

A tested, reliable method for containing fire and smoke to the floor of origin is the THERMAFIBER™ Fire/Smoke Stop System. By sealing off all perimeter openings with foil-faced THERMAFIBER® curtain wall insulation, safing insulation and SMOKE SEAL™ compound, and filling poke-through openings as well, fire and smoke can be effectively contained.\* The added protection costs little more than assemblies using insulations that are not fire resistant.

Experts agree that the first line of defense against fire and smoke is containment.

It's also the most sensible way to keep a lot more than property from going up in smoke.

\*Test results and system information are published in our brochure "THERMAFIBER Life Safety Insulation Systems." For a copy, write USG Interiors, Inc., Thermafiber Division, 101 South Wacker Drive, Chicago, IL 60606-4385, Dept. AR1189



**USG**

Copyright 1989, USG Interiors, Inc.

**USG Interiors, Inc.**  
Thermafiber Division

Circle 28 on inquiry card

*“Even after some token reductions of defense spending and entitlement programs, the President’s new “no-new-taxes” pledge leaves little room for increased federal public-works programs in 1990.”*

between \$50 billion and \$75 billion. Even after some token reductions of defense spending and entitlement programs, the President’s “no-new-taxes” pledge leaves little room for increased funding of federal public-works programs in 1990. Perhaps the most that can be said is that the combined total of the construction programs of DOT, EPA, COE, BUREC, et al. is (so far) not slated for cuts.

Is there opportunity for increased public-works spending in 1990 via state and local governments? Some, but not much. State governments are in better financial condition than the federal government in several ways: collectively, state budgets are in surplus; most states have been raising taxes this year; many keep separate operating and capital budgets. In addition, states are setting up revolving-loan funds to replace EPA’s sewage-treatment-construction grants as required by the Clean Water Act (1987). Although state expenditures reflect a different blend of commitments, which, in many ways, are as demanding as federal priorities (e. g., education and welfare vs. military preparedness and Social Security), their surplus position nevertheless implies a small but fundamental flexibility that does not exist in Washington.

In 1990, contracting for public-works projects will not differ significantly from the past few years, either in its total value or in the types of work to be done. Governmental gridlock will continue to stand in the way of a breakout as state/local contracting, with the help of a friendlier bond market, only slightly more than offsets federal budgetary restraint. With total contract value inching above \$44 billion in 1990, both transportation and environmental construction will be held to nominal gains too small even to keep pace with inflation.

#### **Both housing and institutional building show promise**

Ever since 1983, when the Federal Reserve celebrated its victory over double-digit inflation by liberating the economy from double-digit interest rates, single-family-house building has been a consistently outstanding performer.

Institutional building has run a close second. As the types of building that are most sensitive to credit conditions, they stand to benefit most from current developments in the money market.

*Housing.* While commercial building was having its boom and bust in the mid-1980s, and while public-works construction was running into the wall of deficit reduction a little later on, single-family-house building just kept getting better and better as the decade wore on. Starting from a depressed annual average of 700,000 units in the early years (1980-1982), starts advanced to an average of 985,000 units during the middle years (1984-1986), and then climbed to 1,025,000 units in the closing years (1986-1989). (While these figures rely on somewhat different bases than those used by the Commerce Department, its data shows parallel changes.)

With most of the nation’s population growth concentrated in the 35-to-55 age bracket—the “age of acquisition”—owner-occupied housing is enjoying strong demographic support at a time when total household formation is waning. Census data show that, at the age of 35, half of family heads are renters, but, by age 55, more than three-quarters of them become homeowners. Yet, as the early years of this decade demonstrated, demographic support doesn’t count for much without a smoothly functioning mortgage market to convert potential into effective demand.

To illustrate the relationship between single-family-housing

starts and mortgage rates since 1980 (a period brief enough so that the longer-run determinants of housing demand such as demographics, affordability, social values, etc. can be considered temporarily fixed):

- Within the fairly wide range of 10-percent to 15-percent mortgage rates, housing starts can swing from a low of 700,000 units to a bit more than 1,000,000 units along a curve which approaches 1,100,000 units as the short-term upper limit set by demographics and affordability.
- Because full potential is rarely achieved, recent experience suggests that under favorable credit conditions, the practical potential for starts is currently about 1,050,000 units.

- Another short-run phenomenon is the normal delay of the response of housing demand to changes in the level of interest rates. If the reaction to rising mortgage rates were more direct, for example, starts would have declined sooner than they did in 1988 when mortgage rates began rising in the second quarter. The way it turned out, however, builders’ response to 1988’s higher rates wasn’t evident until the first half of 1989. By that time, mortgage rates had already peaked and were coming down again, and the lag began to work in the other direction. Housing starts weren’t ready to recover until late in the year.

There is a rationale for this lag. It’s the ritual that links the money market with the building business. As rates begin to fall, the initial reaction of potential borrowers is to wait and see. Even when house buyers are convinced that rates won’t go much lower and are ready to borrow, builders aren’t ready to build. They’d rather reduce their inventories of newly finished but unsold houses, swollen while rates rose. Not until inventories are down to a desirable six-

*Continued on page 43*

## Lasting Impressions

When the acquisitions committee adds commercial carpet to the permanent collection, this is the search procedure:

Seek out the hidden values that guarantee long-term performance on the floor. Review the Unibond® technology that protects against edge ravel and delamination. Apply the state-of-the-art in backing systems for a trouble-free wear surface.

Compare Unibond to other backing constructions. The eye may not see the difference in the sample, but every time you walk a project you'll see it on the floor.

**Filing systems.** For detailed construction and performance specifications, see Sweet's General Building & Renovation and Contract Interiors files 09685.

**Call toll-free.** For literature, warranties, installation and maintenance guides, call 800/523-7888.  
FAX 215/666-1094.

Circle 29 on inquiry card

Broadloom and modular carpet systems in Antron® by DuPont have soil resistance and static protection built-in.

Photography: Tom Crane

Yeguta dalla Grande Galleria del Louvre.  
Hubert Robert, Coquilby, Claude Monet.  
Scala Art Resource.

*There's no 'or equal' for performance.*

**Lees  
Commercial  
Carpet  
Company**



A Division of  
Burlington Industries, Inc.

## 1990 Regional Estimates

Dodge Construction Potentials

Northeast		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
Contract Value (millions of dollars)		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
	<b>Nonresidential Building</b>									
	Commercial and Manufacturing	\$10,750	\$10,075	- 6						
	Institutional and Other	7,500	7,825	+ 4						
	<b>Total</b>	<b>\$18,250</b>	<b>\$17,900</b>	<b>- 2</b>						
	<b>Nonbuilding Construction</b>	<b>\$10,525</b>	<b>\$10,725</b>	<b>+ 2</b>						
	<b>Residential Building</b>									
	One Family Houses	\$15,000	\$16,750	+ 12						
	Multifamily and Nhs pkg.	6,350	6,425	+ 1						
	<b>Total</b>	<b>\$21,350</b>	<b>\$23,175</b>	<b>+ 9</b>						
	<b>Total Construction</b>	<b>\$50,125</b>	<b>\$51,800</b>	<b>+ 3</b>						

North Central		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
Contract Value (millions of dollars)		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
	<b>Nonresidential Building</b>									
	Commercial and Manufacturing	\$13,025	\$12,150	- 7						
	Institutional and Other	7,575	8,425	+ 11						
	<b>Total</b>	<b>\$20,600</b>	<b>\$20,575</b>	<b>-</b>						
	<b>Nonbuilding Construction</b>	<b>\$10,025</b>	<b>\$10,450</b>	<b>+ 4</b>						
	<b>Residential Building</b>									
	One Family Houses	\$17,500	\$20,100	+ 15						
	Multifamily and Nhs pkg.	5,450	5,475	-						
	<b>Total</b>	<b>\$22,950</b>	<b>\$25,575</b>	<b>+ 11</b>						
	<b>Total Construction</b>	<b>\$53,575</b>	<b>\$56,600</b>	<b>+ 6</b>						

South Atlantic		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
Contract Value (millions of dollars)		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
	<b>Nonresidential Building</b>									
	Commercial and Manufacturing	\$10,700	\$ 9,750	- 9						
	Institutional and Other	7,600	7,875	+ 4						
	<b>Total</b>	<b>\$18,300</b>	<b>\$17,625</b>	<b>- 4</b>						
	<b>Nonbuilding Construction</b>	<b>\$ 8,350</b>	<b>\$ 8,550</b>	<b>+ 2</b>						
	<b>Residential Building</b>									
	One Family Houses	\$23,375	\$25,975	+ 11						
	Multifamily and Nhs pkg.	7,625	8,075	+ 6						
	<b>Total</b>	<b>\$31,000</b>	<b>\$34,050</b>	<b>+ 10</b>						
	<b>Total Construction</b>	<b>\$57,650</b>	<b>\$60,225</b>	<b>+ 4</b>						

South Central		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
Contract Value (millions of dollars)		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
	<b>Nonresidential Building</b>									
	Commercial and Manufacturing	\$ 5,850	\$ 5,875	-						
	Institutional and Other	5,575	5,750	+ 3						
	<b>Total</b>	<b>\$11,425</b>	<b>\$11,625</b>	<b>+ 2</b>						
	<b>Nonbuilding Construction</b>	<b>\$ 8,500</b>	<b>\$ 8,625</b>	<b>+ 1</b>						
	<b>Residential Building</b>									
	One Family Houses	\$10,375	\$12,425	+ 20						
	Multifamily and Nhs pkg.	1,650	1,825	+ 11						
	<b>Total</b>	<b>\$12,025</b>	<b>\$14,250</b>	<b>+ 19</b>						
	<b>Total Construction</b>	<b>\$31,950</b>	<b>\$34,500</b>	<b>+ 8</b>						

West		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
Contract Value (millions of dollars)		1989 Pre-liminary			1990 Forecast			Percent Change 1990/89		
	<b>Nonresidential Building</b>									
	Commercial and Manufacturing	\$13,150	\$11,750	- 11						
	Institutional and Other	7,550	8,275	+ 10						
	<b>Total</b>	<b>\$20,700</b>	<b>\$20,025</b>	<b>- 3</b>						
	<b>Nonbuilding Construction</b>	<b>\$10,275</b>	<b>\$10,500</b>	<b>+ 2</b>						
	<b>Residential Building</b>									
	One Family Houses	\$27,125	\$31,075	+ 15						
	Multifamily and Nhs pkg.	8,400	8,775	+ 4						
	<b>Total</b>	<b>\$35,525</b>	<b>\$39,850</b>	<b>+ 12</b>						
	<b>Total Construction</b>	<b>\$66,500</b>	<b>\$70,375</b>	<b>+ 6</b>						

month supply, do builders take out permits and start building. The whole sequence—falling rates/existing-house sales/permits/starts can take as much as half a year. In the current situation, it means that, despite improving credit conditions in 1989, this year's total of single-family housing starts will reach only an estimated 975,000 units, leaving an important carryover of deferred demand.

In 1990, with mortgage rates averaging 9.75 percent, the realization of normal potential, along with a partial carryover of deferred 1989 demand, could lift single-family building to 1,075,000 units—a gain of 10 percent. The 1990 spurt may be short-lived, however. Before the end of the year, rates will be moving up again and, without the benefit of deferred demand, housing starts will settle back to their 1987/88 levels of about 1,025,000 units.

*Institutional building.* To appreciate the parallel between single-family housing and institutional building, it is only necessary to substitute municipal bonds for mortgages and to exchange the ends of the population "pyramid" for its middle. Growth of the population in the under-15 and over-65 age brackets is second only to the 35- to 55-year-olds. Elementary schools and health-care facilities are the obvious linkages.

Through most of the 1980s, contracting for educational, health, and public-administration buildings has shown a vigorous 5-percent annual growth in square footage, a sharp contrast to the declining trend of the 1970s, when the school-age population was shrinking.

A recent interruption of this growth of institutional building during the 1988/89 period of credit restraint is bound to be temporary. Renewed expansion is anticipated in 1990, as this market's underlying

Continued on page 45



# BIG FACE™

## GET IT BEFORE THE LAW GETS YOU

The law can get you for all you're worth. If you install, specify or are otherwise responsible for running more than the equivalent of three #12 conductors through the power segment of a Poke-Thru, you're probably in violation. Unless, you're using BIG FACE from Raceway. That's something you don't want to learn in a liability suit.

So how did this situation occur?

Back in the hula-hoop days, when test procedures were created for Poke-Thru's, Underwriters' Laboratories examined fittings with one or two receptacles (hence the assumption that three #12's would be adequate). Then

came open offices and smart offices with Poke-Thru's supporting demountable partitions, electrified modular furniture and the sophisticated work station. The once conventional single receptacle and phone connection was left behind with the hula-hoop. A false sense of security was introduced by the generous raceway capacities provided by manufacturers. Yet, tests conducted to industry standards\* demonstrate that the number of power conductors utilized in common field practice often generates and traps excessive heat in confined Poke-Thru space. Under these conditions,

the fitting will not meet U.L. Standards.

*BIG FACE from Raceway Components, Inc. is currently the only Poke-Thru that is U.L. Listed for seven #12 in the Power Compartment.*

Its' double gang design permits "mixing and matching" a myriad of high and low tension combinations.

The alternative to learning more about this subject the hard way is to send for our free brochure on BIG FACE. Write Raceway Components, Inc., 208 19th Avenue, Paterson, New Jersey 07504 (201) 279-1116.



**RACEWAY  
COMPONENTS, INC.**

\*Current usage tests according to "E-119", available on request.

U.L. Listed Pat. Pending I.B.E.W.

Circle 30 on inquiry card

P

*"In 1990, with mortgage rates averaging 9.75 percent, the realization of normal potential, along with a partial carryover of deferred 1989 demand, could lift single-family building to 1,075,000 units—a gain of 10 percent."*

strength responds to lower interest rates.

#### **The outlook for 1990**

Before long, contracting for new construction will be lifting off the plateau it has been confined to for the past three years. Despite a lack of short-term potential in either the overbuilt commercial market or the deficit-dominated public sector, a recovery of house building, backed up by more institutional construction, will be enough to break the recent deadlock.

It is important, however, not to lose sight of the fact that little has changed concerning the generally bleak environment for the construction industry except for one very important thing: the cost of credit. For now, that's sufficient. It is almost axiomatic that a decline of interest rates, following a period of temporary escalation, will encourage fuller realization of the demographic potential in credit-sensitive building markets. All that needs to happen has already happened. Favorable demographics for these markets are solidly established. Interest rates have fallen. Recession does not pose a serious threat. Under these conditions, it is reasonable to expect that 1990 will bring more than a normal volume of housing and institutional building, including an additional dividend as some of 1989's unrealized demand is recaptured.

A volume of 1,525,000 total housing starts in 1990, with gains in both single-family and multifamily units, will be an 8-percent improvement over 1989's depressed level of building. With inflation in residential building costs of between 3 and 4 percent, the potential for improvement in residential contract value next year is slightly on the high side of 10 percent. Institutional building, which is not as volatile as housing, will respond in its own way to the stimulus of

lower financing costs with a gain of between 5 and 10 percent.

For the time being, that's all there is. But it is enough to produce the first advance in total construction-contract value since 1987. Because housing and institutional building together make up roughly 60 percent of total contract value, their combined 1990 gain of almost 10 percent will have a "bottom-line" impact of 5 percent next year as total construction contract value rises from its \$260-billion plateau to a new high of \$273 billion.

#### **... and for 1991**

The case for moving ahead in 1990 is based largely on falling interest rates. The 1989 decline of interest rates is a 1990 housing recovery waiting to happen.

And then what? If the only difference between 1989 and 1990 is more favorable credit conditions, all that is happening is the shifting of some 1989 housing demand into 1990. What does this say about 1991? What does it say about nonresidential construction? The moment of truth for this newly developing expansion will arrive in 1991, its critical sophomore year. This is when 1990's tentative advance will either pick up momentum or burn out. It is when we will discover whether or not we have a real recovery going. Two scenarios illustrate different outcomes of next year's positive developments.

*Scenario 1: business as usual*—Analysis of the recovery/ expansion phase of building cycles over the past two decades reveals a consistent sequence. Recovery typically takes hold first in homebuilding in response to falling interest rates. This much of the standard recovery pattern corresponds closely with the 1990 outlook.

In the second year, the early recovery of residential building is usually reinforced by an

expansion of nonresidential (i. e., commercial and industrial) construction. The development of this second-stage support is more complex than the interest rate/housing reflex. Certainly the longer time needed to get larger nonresidential projects under way plays a part. So, too, does the time-honored principle that business capital spending, of which commercial and industrial building is a component, typically lags the dynamics of the economy.

In the business-as-usual scenario, 1991—the critical second year—would bring side-by-side increases of housing and nonresidential building, resulting in an acceleration of the first year's gain, and forming a base for several years of continuing cyclical expansion. That's the way it has worked for at least the past two decades.

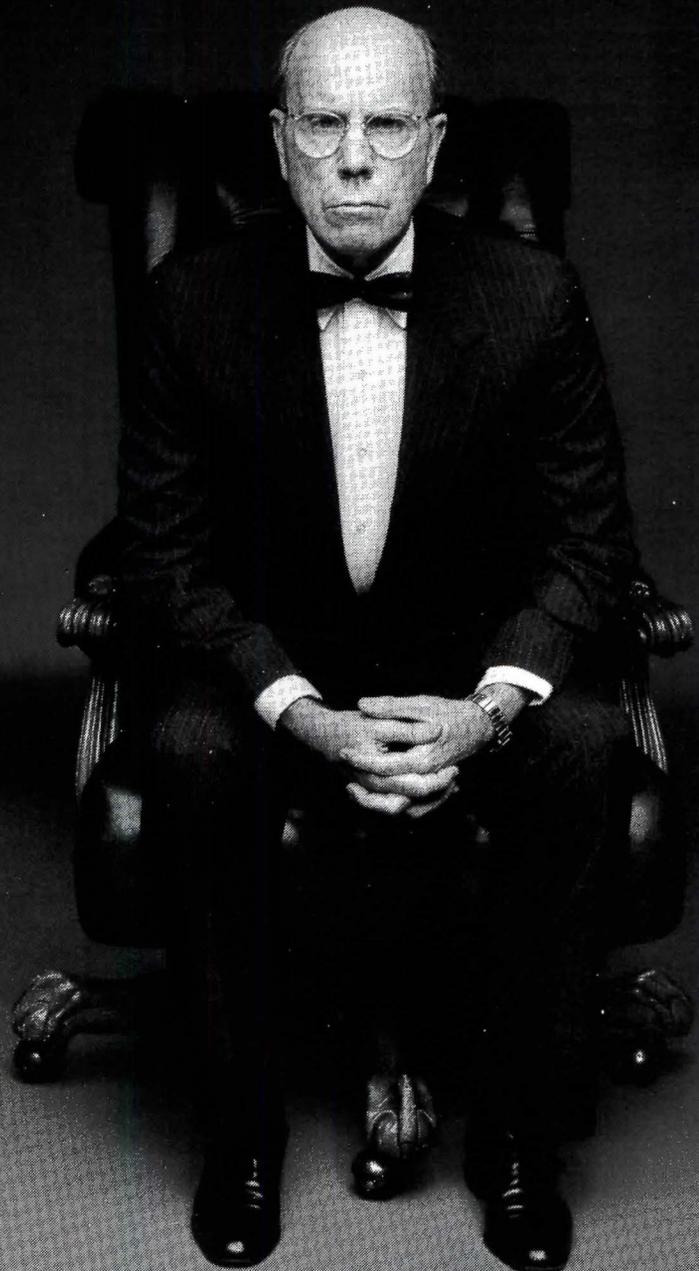
*Scenario 2. second-stage burnout*—This alternative to business as usual recognizes two events of the 1980s with consequences that will be distorting construction markets well into the 1990s. One is the Economic Recovery Tax Act (1981), which greatly overstimulated commercial building by its accelerated depreciation provision. Although full-term depreciation was restored by the Tax Reform Act (1986), ERTA's backlash—stubbornly high vacancy rates—will depress new building for years to come. The other event is the Deficit Control Act (1985), more familiarly known as the Gramm-Rudman Act. A reaction to runaway deficits, G-R has effectively frozen funding for federal-construction programs. Because of this baggage of the 1980s, which must be carried into the 1990s, a sizable block of nonresidential construction may not be available to provide the usual second-stage boost in 1991.

Like the first scenario, this one says that 1990 can be relied

*Continued on page 47*

*You're flying overseas to go  
head to head with Thomas Gerhard Clarke.  
You need all the help you can get.*

**H**e's brilliant. He's quick. And he isn't nice. If you're going into a meeting with someone like this, you had better arrive there well-rested, well-nourished, and well-prepared. That's what our First and Executive Class service is designed to help you do. The way we see it, our on-ground and in-flight staff has only one job: to help you do your job. For international First or Executive Class reservations, contact your travel agent or Northwest at 1-800-447-4747.



© 1989 Northwest Airlines, Inc.

**NORTHWEST AIRLINES**

## In the background

The by-now familiar "slowdown/recovery" scenario is still the assumption of choice for what's left of 1989 and for 1990. The initial effects of another dose of monetary restraint are wearing off. The economy's growth has been slowed, inflation has been tamed, and interest rates are on their way down again. What remains is the final chapter of a delicate and apparently successful exercise in fine tuning; some lingering deceleration of economic activity as the lags play out, and following that, a period of renewed if not particularly vigorous expansion.

Because monetary policy is more effective at restraining economic activity than it is at stimulating expansion, the hardest part lies ahead. If the gestation period for monetary policy is roughly three quarters, the Fed's shift to stimulus should have economic activity (as measured by real GNP) accelerating by the first quarter of 1990, with continuing improvement throughout the balance of next year. Meanwhile, the closing months of 1989 will be revealing progressive weakness as growth winds down to about one percent (vs. 3.7 percent in 1989's opening quarter). If all goes according to the script, 1990 will be a mirror image of 1989 weak beginning/stronger finish. On an annual basis, however, both 1989 and 1990 will show substandard growth, the price of keeping inflation below 5 percent.

Next year's potential for GNP growth, roughly 2 percent over 1989's output, will rely heavily on above-average residential building and continued expansion of export markets as business capital spending and consumption lags the recovery. Government spending, as might be expected, will contribute little to the economy's revival. Inflation, as measured by the Consumer Price Index, will remain close to 4 percent in 1990 after averaging just under 5 percent in 1989. The year-by-

year steady decline of unemployment (from its 1982/83 high of 9.5 percent to this year's 5.25 percent) will be temporarily interrupted, though not seriously.

No measure of economic activity is more critical to the outlook for construction than interest rates. The most recent excursion of the conventional fixed mortgage rate, with the central bank as its tour guide, began in the second quarter of 1988. From a low of 10.1 percent, the basic mortgage rate was nudged to a peak of 11.2 percent late in the first quarter of 1989. After receding gradually through April, the mortgage rate plummeted in May and June, breaking through the 10 percent level in July.

Although the Fed appears to have adopted a position of neutrality in the money markets by midyear, the mortgage rate is likely to continue to decline through the remainder of 1989 as the slowing pace of economic activity generally inhibits loan demand. It is assumed that the conventional mortgage rate will stabilize at 9.75 percent during the first half of 1990, and advance in the second half as demand strengthens. Compared with an average of 10.4 percent for 1989, the conventional fixed mortgage rate is forecast to average 9.8 percent in 1990 the first single digit year since 1978!

Beyond the fluctuation of interest rates brought about by on-and-off monetary restraint in the continuing attempt to strike the proper balance between growth and inflation, there will be a barely perceptible downward trend of long term interest rates in the 1990s as the federal deficit is reduced in small and difficult decrements. Progress in deficit reduction is expected to be somewhat better than the excessively conservative projections of the Congressional Budget Office, which foresees no reduction at all between 1990 and 1993. At the other extreme are the Administration's overly optimistic projections based on

unrealistic revenue expectations. An achievable schedule of deficit reductions of approximately \$10 billion per year implies persisting inflationary pressure from fiscal operations, a generally high level of interest rates, and an average annual increase of federal outlays which exceeds the going rate of inflation by about one percent.

Recently in Washington, 500 executives attending McGraw-Hill's 50th anniversary Building Products Executives Conference got some welcome news: the construction industry is ready to break out of a two-year period of stagnation in 1990.

George Christie, chief economist for McGraw-Hill's Construction Information Group, explains what's behind the brightening outlook (see page 37).

This year's decline of interest rates is next year's recovery waiting to happen. Until recently, the temporary escalation of mortgage rates forced many families to postpone plans for home ownership. But that's changed. With conventional fixed mortgage rates averaging less than 10 percent in 1990, some of that deferred housing demand will resurface. That's where most of 1990's five percent improvement in construction contracting will be concentrated.

Commercial building and public works will not be contributing much to next year's recovery. Public works projects will be held to a very small gain as the need to reduce the federal deficit takes priority. Commercial building has been adjusting to high vacancy rates the result of extensive overdevelopment during the mid-1980s. That adjustment will continue in 1990 with a further small decline of commercial construction.

So we're talking about a narrowly based recovery, confined mainly to housing, but it should be enough to get the stalled construction industry moving ahead again.

upon to deliver an above-average volume of housing as some of 1989's deferred demand is salvaged. But that is where the similarity ends. By 1991, housing starts will ease back to the level prevailing in 1987/88 and, more important, the reinforcement of nonresidential building required to keep total construction advancing through the second year of recovery will be absent. In this by-no-means-worst-case scenario, recovery loses whatever initial momentum it had by 1991 and stalls. Total construction contracting settles back to its former plateau to wait out the resolution of the problems that are holding back the development of the commercial and public works markets.

Making a choice between these two extensions of 1990's developments is the task of next year's construction outlook. By then, conditions in the pivotal nonresidential sector will be clearer than they are at present. For the time being, though, it is hard to avoid the conclusion that 1991 will develop more along the lines of the second scenario, which recognizes that some fundamental handicaps left over from the recent past have not gone away. On the other hand, no severe crash (the worst-case outlook) is on the horizon. Instead, the industry appears headed for nothing worse than high-level stagnation until the distortions of the 1980s are gradually sorted out.

At the start of 1989, the industry faced three major problems. One, artificially high interest rates, is already resolved and improved housing and institutional building is the essence of the 1990 outlook.

Another problem, the glut of commercial buildings, is by now partially resolved. A 40-percent cutback of construction since 1986 means that the hardest part of the adjustment to the mid-1980's overbuilding is behind us. A third problem, the scarcity of public funds for construction is farthest from being solved. Needed is a blend of deficit reduction, user fees, reordering of federal priorities, and increased participation by state and local governments.



© Registered trademark of Monsanto. © Monsanto Company, 1989.

## 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. AR1189, P.O. Box 188, 2445 South Calhoun Road, New Berlin, WI 53151.

Circle 32 on inquiry card

## BURNED OUT ON PRODUCING REPORTS?



Could you benefit from a financial management system designed specifically for architects and engineers, that will produce your reports at the touch of a keystroke?

If The Answer Is YES  
Call Now 1-800-77-WIND2

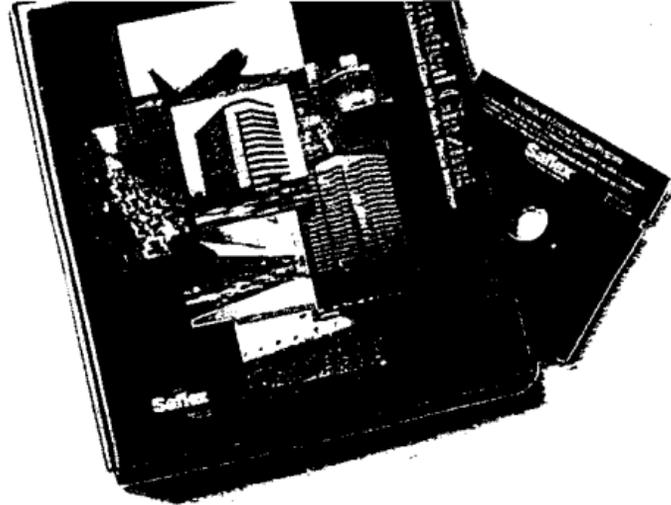


**Wind-2™**

*The Professional Choice™*

1901 Sharp Point Drive, Suite A  
Fort Collins, Colorado 80525

Circle 33 on inquiry card



# How to quiet those noisy neighbors

I want to quiet some noisy neighbors.  
Please send me your free *Acoustical  
Glazing Design Guide* and software  
program.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

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

Telephone (\_\_\_\_) \_\_\_\_\_

AR-12-89



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**  
FIRST CLASS      PERMIT NO. 3016      ST. LOUIS, MO

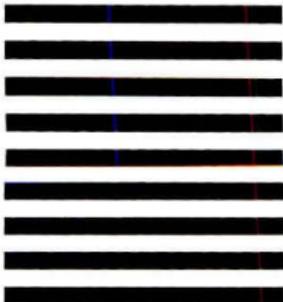
POSTAGE WILL BE PAID BY ADDRESSEE:

**Monsanto**

Dept. 204

800 North Lindbergh Boulevard

St. Louis, Missouri 63141-9977



If you've got a noise problem that's about the size of a 747, we'd like to suggest a solution: laminated glass with Saflex.<sup>®</sup>

It dramatically minimizes unwanted exterior noise, and it does it more effectively than any other glazing material. In addition, it can give you exceptional safety, security, solar control and UV protection.

## Our sound barrier quiets even the noisiest neighbors.

For more information on how laminated glass can quiet your noisiest neighbors—like planes, trains or highway traffic—send for our free *Acoustical Glazing Design Guide* and software package. Just complete and mail in the reply card, call 1-800-325-4330, or write Monsanto, Dept. 204, 800 N. Lindbergh Blvd., St. Louis, MO 63167.

**Tough glass for tough problems.**



Circle 31 on inquiry card

## Grate Designs for Great Designers

Every designer and planner knows a quality tree grate must be more than a thing of beauty. It must also be defect-free to handle weather and wear. Versatile to accommodate an endless variety of proposed design configurations. And changes! Expandable when required, to allow trees to grow after installation. Our quality tree grates are all these things...and more! Write for the full story and FREE tree grate catalog.

**NEENAH** **INF**  
FOUNDRY COMPANY

Box 729, Neenah, WI 54957  
If you can't wait, call! 414/725-7000  
Quality castings produced entirely in the U.S.A.

Circle 34 on inquiry card

## POCKET PERSPECTIVE

COMPUTER AID FOR PERSPECTIVE DRAWING

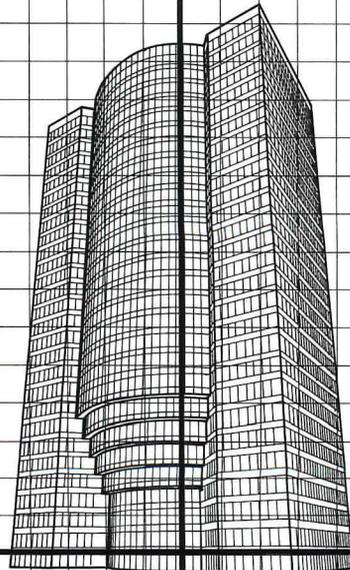
Unique drawing tool for producing perspective drawings from any point of view

You give the program a location on your plan. Pocket Perspective tells you where to draw it in perspective, using standard grid paper

Faster, more accurate than purely graphic methods  
No need to position plans

Pocket Perspective  
• Locates vanishing points  
• Automatically locates repeating windows and columns  
• Does angles and curves  
• Lets you specify drawing size  
• Files up to 5 views

Calculator-size Tandy<sup>®</sup> PC-6  
8K Pocket Computer  
Program stays in memory when batteries are changed  
1 year warranty on computer



ELPHIN, INC. (404) 633-7589  
David L. Hartley, AIA, Pres. 1350 Amanda Circle Decatur, Ga. 30033

TO ORDER: (Includes Computer, Software in Memory, and Manual)  
Send \$240 each, check or money order, payable to Elphin, Inc., or telephone order w/Visa, MC

NAME \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Please allow 3-4 weeks for delivery Georgia residents add applicable Sales Tax

Circle 35 on inquiry card

# Why Has Manville Made a Major Commitment to Bringing You Phenolic Foam Roof Insulation?

**Because this  
new generation product  
is the most thermally efficient  
roof insulation available.**

Manville's new phenolic foam insulation, UltraGard® Premier, delivers the highest thermal value – 8.33 R units per inch – of any roof insulation. That means less energy consumption.

**Because it offers an  
unmatched range of installation  
and performance benefits.**

UltraGard Premier provides designers, installers, and owners with a full range of benefits: can be used with all major roofing membrane systems; superior flame spread and smoke ratings; excellent dimensional stability; light weight; ease of handling; and lower installation costs.

Manville has made a major commitment of resources to assure that you can specify and install phenolic foam with complete confidence. For information on the roof insulation of the future that's available now, talk with a Manville representative or call the Product Information Center at 800-654-3103.



Leading our industry into the next century

Circle 36 on inquiry card

# Report from Milan: As usual, anything goes

As a rule, the Salone del Mobile presents the some 130,000 to-the-trade-only visitors who converge in Milan for the annual event with an amalgam of the good, the bad, and the ugly. This year's furniture fair and concurrent International Lighting Exhibition, held September 20-25, was no exception. Although the bold colors and irregular shapes of many of the items on display were, at least to American eyes, welcome relief from the boxy panel systems that are the staples of U. S. contract-furniture shows, the outrageous and the impractical have become the Salone's almost predictable fare. Sadly, there was an absence of true invention in much of what was unveiled at the fair or in showrooms around the city—save for the work of a few maverick designers like Ingo Maurer (3). Italian critic Alessandro Mendini offered his opinion on the Salone, and the international design scene in general, by staging a decidedly high-concept opening replete with subversive messages. Mendini invited street vendors to hawk designer handbags and blue jeans to his guests, which he then autographed—among other things a stab at author-conscious slaves of style who perpetuate the demand for the latest designer item. *K. D. S.*

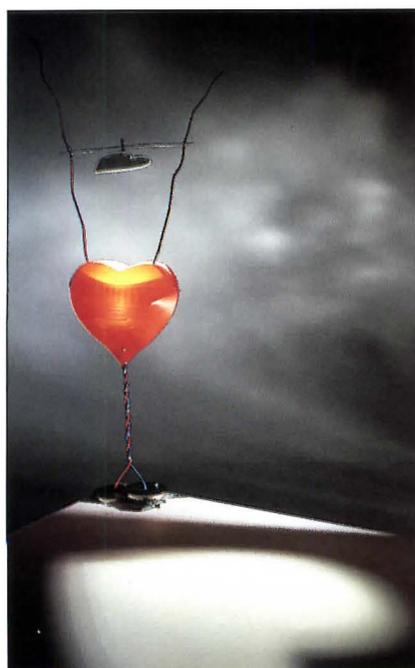
1. Baisity armchair by Antonio Citterio for B&B Italia
2. Miss Balù table and Dr. Glob chairs (1988), by Philippe Starck for Kartell
3. One From the Heart table lamp, by Ingo Maurer
4. Mountain Range table, by SITE for Casigliani
5. Pavone chair, by Riccardo Dalisi for Zanotta
6. New-Tone sofas, by Massimo Iosa-Ghini for Moroso
7. Split armchair, by Ron Arad for Poltronova
8. Topolino light fixture, by Matteo Thun for Bieffeplast



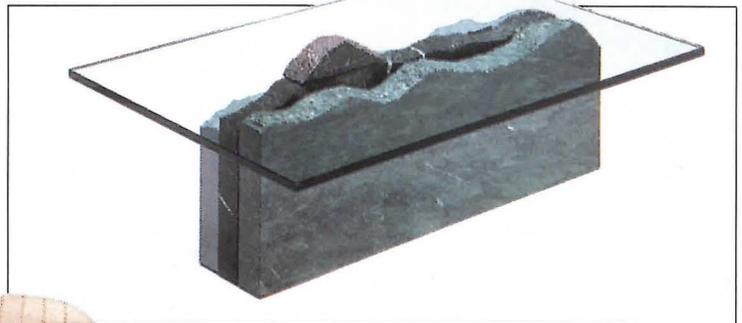
1



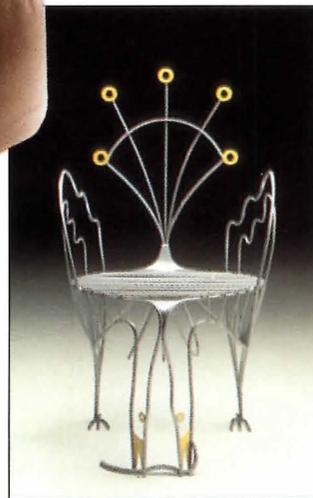
2



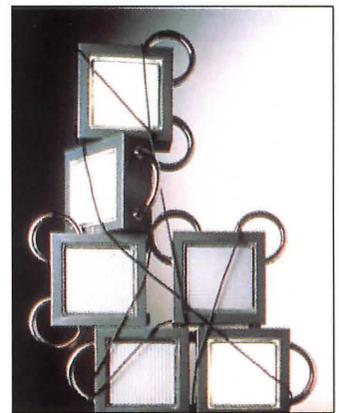
3



4



5



8



6



7

# One good architecture deserves another

## IBM/SOM

At last there is a solution to the problems of applying state-of-the-art technology to the practice of design.

Skidmore Owings & Merrill's knowledge of *what to do* coupled with IBM's knowledge of *how to do it* has created a more powerful tool — The IBM Architecture & Engineering Series (AES).

IBM and SOM have joined forces to produce tools for professionals by professionals: tools that address the real, proven needs of architects and engineers in their quest for excellence.

IBM's AES is a high-function, fully integrated design, engineering and building information system offering eight discipline-specific applications. It provides the output an architect needs with the power an engineer demands.

The IBM Architecture and Engineering Series is the best foundation you can build upon. For more information, contact your local IBM Representative or 1-800/IBM-2294.

Circle 37 on inquiry card



## Gridlock

*John Burgee Architects' revised proposal for New York's Times Square raises as many questions as it answers.*

Attempts to get the troubled redevelopment of New York's Times Square back on track took a new turn with the release of revised designs for the project's four major office towers. These are the financial cornerstone of the public-private scheme that includes renovation of nine historic theaters and the city's busiest (and most decrepit) subway station, a new wholesale merchandise mart, and a hotel.

The earlier design, by John Burgee Architects with Philip Johnson (below), did not go far in disguising the towers' overweening bulk (almost twice that normally allowed by the city), and was criticized for its stylistic inappropriateness in New York's bright-lights district (guidelines mandating Broadway-style signage were ignored). Burgee's revised design (Johnson continues to act as a consultant), though unchanged in bulk, springs from a directive to integrate the signage and to take into account the continued existence of the Times Tower, the square's iconic presence, once proposed for removal. Though the tower is the most prominent structure in the renewal district, the sponsoring Urban Development Corporation has excluded it from the project.



©Nathaniel Lieberman photos



*Current proposal for office towers at the 42nd Street Redevelopment Project. John Burgee Architects, Philip Johnson, design consultant.*

Under 1980 guidelines prepared by Cooper Eckstut Associates that govern the redevelopment, the towers were supposed to be slightly taller and much less bulky; however, Burgee regards those floor sizes as unworkable: "The towers are big, and they aren't going to be filled up with the 10,000- to 20,000-square-foot user. We've had to design them to appeal to banks, insurance companies, and accounting firms that need hundreds of thousands of square feet and floor sizes no less than 20,000 square feet." Responding to criticisms of the project's size, he says, "If I thought it was a great violation of the city, I would say so, and not do it. But I think the mitigating factor is that we are on this great open space and above every subway line in New York."

Consistent with the guidelines, the earlier design was conceived as an ensemble at the southern end of the square. The new buildings, by contrast, are intentionally different from each other (above). The southernmost tower, clad in two colors of stone, is the most overtly historicist, but the buildings closest to the square are

assemblages of stone, glass, and aluminum grids at varied scales. Huge electric signs will be invisible by day; at night, thousands of computer-controlled nine-inch neon disks set between windows will transform multi-floor sculptural elements into enormous moving signs. The largest of these is a 28-story turret (above right).

Burgee's imagery might be called neo-decon, reminiscent of work shown in the Deconstructivist Architecture show curated by Johnson last year at the Museum of Modern Art. Certainly the design turns the fragmenting, program-distorting strain of thought innate to Deconstructivism on its head. Instead, Modernist and Constructivist devices are *applied*, an exercise in packaging and precooked diversity that is wholly within the Postmodern canon (at least as it has devolved in American office-building design). Burgee disavows all labels, or any indications that this is a harbinger of the firm's future: "It's responsive to this particular location," he declares.

In the complex and ambitious overall scheme for the

redevelopment, sticky issues remain [RECORD, June 1989, pages 79-85]. Among them, the sponsoring corporation still does not have commitments for the theater redevelopment or the wholesale mart. Burgee and Johnson, however, have reduced the office-building issues to one of esthetics: should the buildings be styled à la Park Avenue (the earlier scheme, as championed by the Cooper Eckstut guidelines and, at one time, by the Urban Development Corporation), or as a kind of high-tech honky-tonk? This has tempted some critics to see the new design as a public-relations strategy, but the stakes remain high. Rebuffed in its efforts to sell the Columbus Circle site to the highest-bidding developer, the city and state remain committed to the 42nd Street Redevelopment Project, in which the \$100-million-plus cost of subway improvements and theater renovations will be carried by developers rather than the taxpayer. The "price" will be exacted in additional density, less light and air, and more congestion—values many citizens regard as unimportant. Other cash-strapped cities will be watching. *J. S. R.*



*1982 scheme for the 42nd Street project. John Burgee Architects with Philip Johnson.*

**Our Ceiling  
Systems are  
an Easy  
Choice.**

**Choosing  
*Which*  
System May  
Not Be So  
Simple.**

Chicago Metallic offers such a wide variety of Designer Ceiling Systems that there just isn't an easy choice. Each system creates its own unique look and has its own unique benefits. All our systems are available in colors that are an exact match to all major ceiling tile manufacturers' tile.

The choice is yours.



**Sensations Color Selector has over 100 matching colors, brilliant tones and reflective finishes to choose from.**



**Chicago Metallic Corporation**

Chicago (312) 563-4600 • Baltimore (301) 796-8220 • Los Angeles (213) 582-1100

Circle 38 on inquiry card

AD-DCS

News briefs

Houses from another era

**Teamwork:** Hellmuth, Obata & Kassabaum, of San Francisco, has joined with Tokyo's Nippon-Sogo Architects and Engineers to design a 20-story telecommunications center in Tokyo called Tokyo Telecom Center. HOK is said to be the first American architectural firm awarded a contract as a result of a 1988 bilateral agreement intended to improve access to the Japanese construction market.

**Antoine Predock**, of Albuquerque, has received the international grand prize in the Buenos Aires biennial in September. An international jury chose Predock from more than 800 entries for his design of the Arizona State University Fine Arts Complex in Tempe.

[RECORD, October 1988, page 94]. **I. M. Pei** has won the \$100,000 Praemium Imperiale prize in the architecture category. He is one of six internationally renowned artists to receive the prize, created in 1988 by the Japan Art Association to celebrate its 101st anniversary and to recognize contributions in the arts.

**New York City's Landmarks Preservation Commission** has unanimously voted to designate the Seagram Building on Park Avenue as a landmark, including its granite and marble plaza, the first-floor interior, and the Four Seasons restaurant. Ludwig Mies van der Rohe, with Philip Johnson, designed the International Style bronze and tinted glass tower in 1958. Another New York landmark, the black-iron and glass Scribner Building (1913) on Fifth Avenue, reopened in October. A branch of Brentano's bookstore now occupies the space.

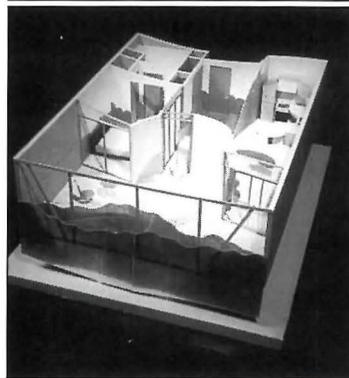
**Wallace Roberts & Todd** of San Francisco, with Van Dyke and Associates, has been retained by the Santa Fe Pacific Realty Corporation to complete an urban-design plan for a mixed-use development in downtown San Diego, near the historic Santa Fe Railroad Station.

After World War II, Richard Neutra, Charles Eames, and several other architects designed the Case Study Houses—36 experimental prototypical dwellings for the average American family. "Blueprints for Modern Living: History and Legacy of the Case Study Houses" at the Museum of Contemporary Art in Los Angeles features two walk-through reconstructions of the houses and design elements of the era.

The exhibit documents the Case Study houses, built between 1945 and 1966, as well as social, political, and cultural developments during the period. "The Case Study program was the most concerted architectural effort to shape the course of the postwar housing boom," said MOCA associate curator Elizabeth Smith, organizer of the show. Case Study house design influenced architecture both in this country and abroad, she



Squidids & Nurnns



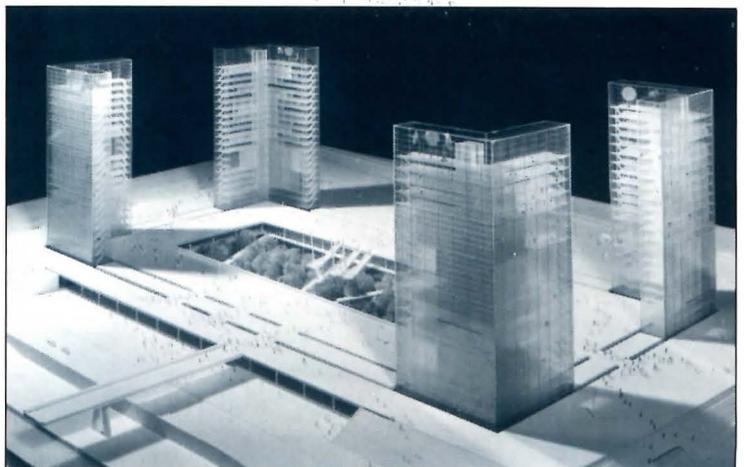
MOCA invited six architects to submit housing designs for its show. Eric Owen Moss created multifamily housing (top); Itsuko Hasegawa designed senior-citizen housing (left).

added. Open plans, flat roofs, standardized industrial materials, and sliding glass doors are among features characteristic of the Case Study houses. The exhibit, which runs through February 18, 1990,

comprises drawings, scale models, photographs, and videotaped interviews with Case Study architects. Additionally, the museum invited six architects—Itsuko Hasegawa, Craig Hodgetts, Toyo Ito, Eric Owen Moss, Robert Mangurian, and Adele Naude Santos—to create new housing designs for the show. Their models and drawings are on display.

Grand plans for a "grand projet"

The competition to design the Library of France, the latest architectural *cause célèbre* of Paris, has ended with the selection of local architect Dominique Perrault. Chosen from a roster that included Mario Botta of Switzerland, Richard Meier and Arquitectonica International of the United States, Rem Koolhaas of Holland, Fumihiko Maki of Japan, and Perrault compatriots Bernard Tschumi and Jean Nouvel, the architect of more modest international stature won with an ambitious urban plan captioned by an equally grand motto: "A square for Paris, a



A. Goustard/Archipress

library for France." To be built on an industrial site along the Seine in the city's 19th district, the library is expected to be the largest in the world when completed. According to the architect, the scheme of four buildings, configured to conjure up the image of giant open books surrounding a sunken garden, was devised as a solution to two conceptual

problems: the need for a vertical "reference point" for the City of Light's east end and the desire to continue France's tradition of stately public plazas. Sheathed in diaphanous layers of glass, the towers seem to reaffirm a continuing national obsession with technology, characteristic of all of President François Mitterand's pet *grands projets* to date.

# The hottest glass in town just got cooler

Introducing *New Graylite*<sup>®</sup> glass from PPG. The architectural glass with unprecedented levels of thermal and UV performance.

Never before could an uncoated glass give you a 0.50 shading coefficient to help you reduce solar heat gain and air conditioning loads.

And no other glass-coated or uncoated—protects better against fading. *New Graylite* blocks 91% of the sun's ultraviolet energy.

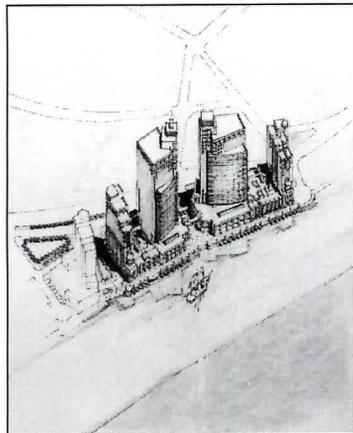
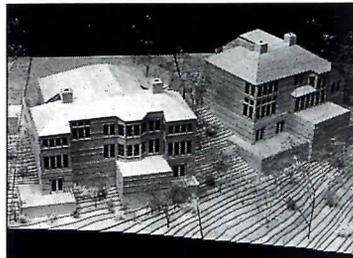
If you think that is cool, here is something else you should know. *New Graylite* glass can be fully tempered when required for safety glazing.

And best of all, it is available to you now. So don't wait, get *New Graylite* glass. The hot new glass that can make your next building your coolest one yet. Write to: PPG Industries, Inc., Glass Group, Department CG 091, P.O. Box 16012, Pittsburgh, PA 15242-0012.



News briefs

Massachusetts's ambitious MOCA



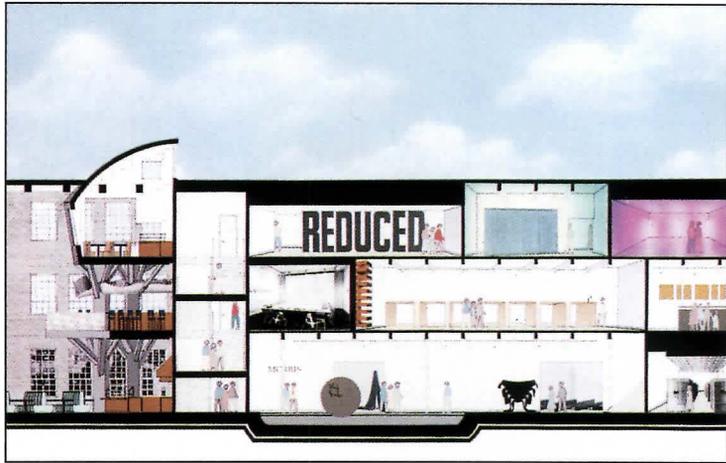
**Charles Moore** has designed the Vistas Condominiums (1) in Ann Arbor, Mich., at the request of Domino's Pizza entrepreneur Thomas Monaghan. Moore is one of 30 world architects selected by Monaghan for commissions, several of which are located near Domino's Pizza World Headquarters in Ann Arbor—the home of Monaghan's Frank Lloyd Wright collection.

**The Stubbins Associates** of Cambridge, Mass., has completed designs for Eniwa Country Club on the Island of Hokkaido, Japan. A new clubhouse facility (2) will be the centerpiece for the country club. Features of the complex include a 27-hole golf course and two glass-enclosed towers that rise above the clubhouse. Toho Kaikan Group of Tokyo is the developer.

**Riverfront Plaza** in Newark, N. J. (3), will be graced by a two-level riverfront esplanade and will contain restaurants, a hotel, offices, and retail space. Alexander Cooper of Cooper, Robertson & Partners in New York designed the two-million-square-foot building complex, which will be located on a six-acre site.

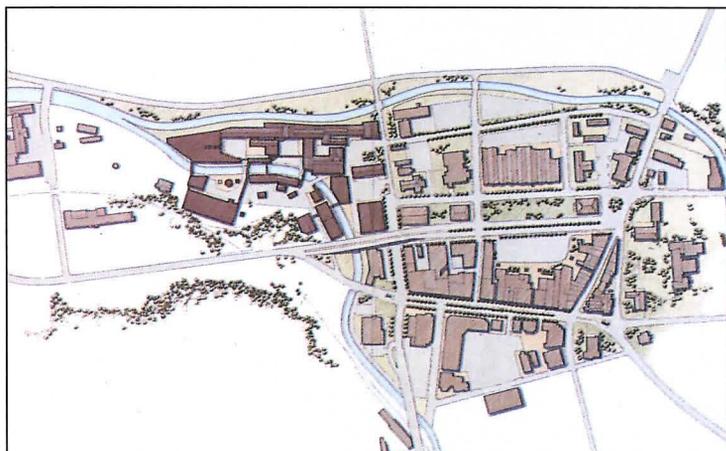
**A proposed expansion plan** for the Winterthur Museum and Gardens in Delaware (4), designed by Hartman Cox Architects, calls for a new attached three-story structure connected to the existing museum, with three additional galleries and a new entrance for visitors. Winterthur, former country home of the late Henry Francis du Pont, contains an important collection of American decorative arts.

**San Joaquin County Human Services Agency** in Stockton, Calif., designed by Albert C. Martin & Associates to house county agencies, will integrate art with architecture (5). Natural light will stream into the offices and public spaces through an interior atrium containing carved forms that resemble clouds.



The master plan by an all-star team comprising David Childs, of Skidmore, Owings & Merrill's New York office; Frank Gehry; Venturi and Scott Brown; and Bruner Cott has been completed for the Massachusetts Museum of Contemporary Art. The brainchild of Thomas Krens, formerly director of the nearby Williams College Museum of Art, the \$72-million project will ultimately occupy some 400,000 square feet within an abandoned 28-building, 13-acre industrial complex (shaded area below) in North Adams. Much of the art will be exhibited in large expanses of raw space within a fortresslike assemblage of 19th-century brick loft structures, picturesquely squeezed between two canals off the Hoosic River. Thus the actual "design" component is rather small. The

team has proposed various exhibition configurations (above) and "high readers"—art billboards identifying the museum entrance and the commercial sector, the latter intended to occupy 30 percent of the space and generate a considerable amount of the museum's operating income. The northwestern corner of the state might seem an unlikely location for an avant-garde museum (it is three hours from both Boston and New York), but Krens has commitments from prominent collectors including Count Giuseppe Panza di Biumo, of Milan, much of whose collection of minimalist and conceptual art is too large to exhibit elsewhere, and the German Museum of Architecture, in Frankfurt. Completion of the first phase of construction is expected in 1993.



# OUR STEEL JOISTS ARE IN I

As older malls and shopping centers are being remodeled and expanded all across the country, Vulcraft joists are being used on job after job. Because no other system is faster to erect. No system is more economical. And no other system is more flexible when it comes to building complex designs.

Take the case of Richland Fashion Mall in Columbia,



With major expansion and remodeling, the oldest shopping center in South Carolina took on a whole new image.

South Carolina. The oldest shopping center in the state, its developers decided to expand it from 290,000 square feet to 900,000 square feet and give it a whole new high-fashion image. When finished,

the mall would house 200 stores plus a food court, and it would have two stories throughout.

To make the most efficient use of available land, the design for the expansion was necessarily complex. And since our joists were much more versatile than prestressed concrete, they were perfect for the job. Furthermore, because they're so lightweight, they were easy to install, and they required less foundation than alternative systems. In all, 2500 tons of our joists were used. And we delivered every one on schedule on Vulcraft trucks.

Today, Richland Fashion Mall is doing brisk business

**VULCRAFT**

A Division of Nucor Corporation

with prestigious anchor stores such as Bonwit Teller, Parisian and J.B. White &

PO Box 637, Brigham City UT 84302 801/734-9433; PO Box F-2, Florence, SC 29502 803/662-0381; PO Box 169, Fort Payne, AL 35967 205/845-2460; PO Box 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. Developer: L.J. Hooker Developments; Architect and Engineer: H.J. Ross Associates; General Contractor: McDewitt & Street Company; Steel Fabricator: Steel Fab Inc.; Steel Erector: Florence Steel Erectors.

# FINE STORES EVERYWHERE.

Company. And we're helping developers transform other malls and shopping centers from coast to coast. So find out how our joists can help you remodel and expand fine stores wherever they may be. Contact any of the plants listed below or see Sweet's 05100/VUL.

*Twenty-five hundred tons of our steel joists were used to expand this mall from 290,000 to 900,000 square feet.*



## Design awards/competitions: Florida Association/AIA 1989 Awards for Excellence in Architecture

*A festival marketplace in Miami, an airport terminal in Tampa, and a national bank headquarters in Lima, Peru, were among the 14 completed projects tapped for honors in the 1989 Awards for Excellence in Architecture program, sponsored by the Florida Association of the AIA. The premiated projects, shown below and on page 64, were selected from 169 program submissions by a jury comprising three architects from St. Louis: Eugene J. Mackey (jury chairman), president of Mackey*



1 *George Cott/Chroma Inc.*



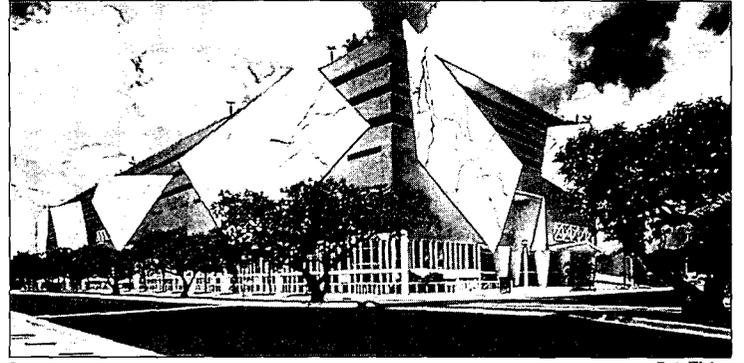
2 *George Cott/Chroma Inc.*

1. **Independent Day School, Tampa, Florida;** The Architects Studio, architect. The challenge was to redesign an existing grade-school campus and add new classroom and administration buildings. The solution is a series of hip-roofed structures distinguished by simple shapes and primary colors. "The relationship between the buildings' style and color contribute to a fresh solution appropriate to their function," said the jury.

2. **Rados Residence, Tampa, Florida;** Rick Rados, architect. A house located in suburban Tampa responds to a program

that called for spaces that are bright, open, and economically cooled. Toward these ends, the architect specified deep louvered overhangs and heavily insulated wood framing that resists daylight heat transferral. "This looks like a Florida house," praised the jury. "The exterior is handsome, and the scale and form are good."

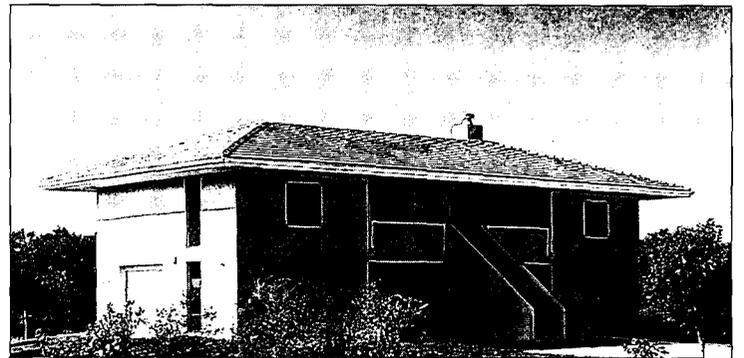
3. **Miracle Center, Coral Gables, Florida;** Arquitectonica International, architect. A mixed-use facility located at the edge of downtown Coral Gables comprises three levels of retail space, five levels of parking, and a pool and running track on the



3 *Pat Fisher*



4 *George Cott/Chroma Inc.*



5 *©Steven Brooke*

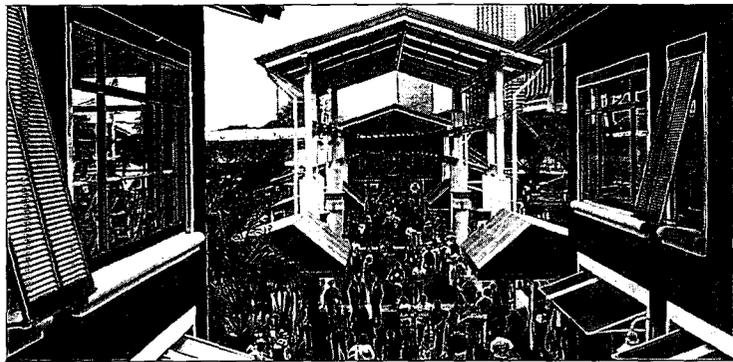
roof. The structure's most distinctive feature is a series of trapezoidal marbled panels that contrast with the blue-glass background of the building mass. The jury characterized the center as "an exciting building for what is usually a mundane function . . . a real show-stopper."

4. **Medical Office Building, Palm Harbor, Florida;** Ranon & Partners, architect. "A study in beautifully composed geometry" was the jury's description of a 10,000-square-foot building housing offices for plastic surgeons and neurologists. In response to Florida's climate, the architect placed the building on

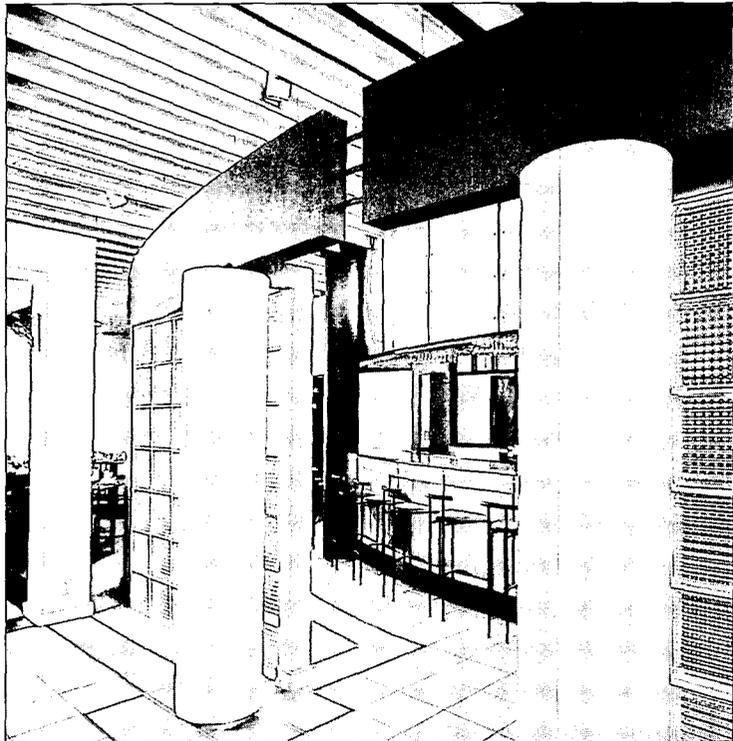
an east-west axis and included such features as generous overhangs, reflective coloration, and translucent screens. "Well-proportioned, bright, airy, and disciplined," concluded the jury.

5. **Shoar Residence, Punta Gorda, Florida;** Suzanne Martinson, architect. The program called for a two-bedroom house with a raised living area to capture trade winds and maximize views of an estuary. The jury praised the architect for "dealing with real-world issues in an elegant, straightforward manner. The house is outstanding in its simplicity and clarity."

Architects; William A. Bowersox, of Ittner & Bowersox; and Louis R. Saur, president of Louis R. Saur & Associates. The jury praised the winning entries for reflecting the state's singular climate and topography. "They are true to the Florida palette," observed Mackey.



6 ©Steve Rosenthal



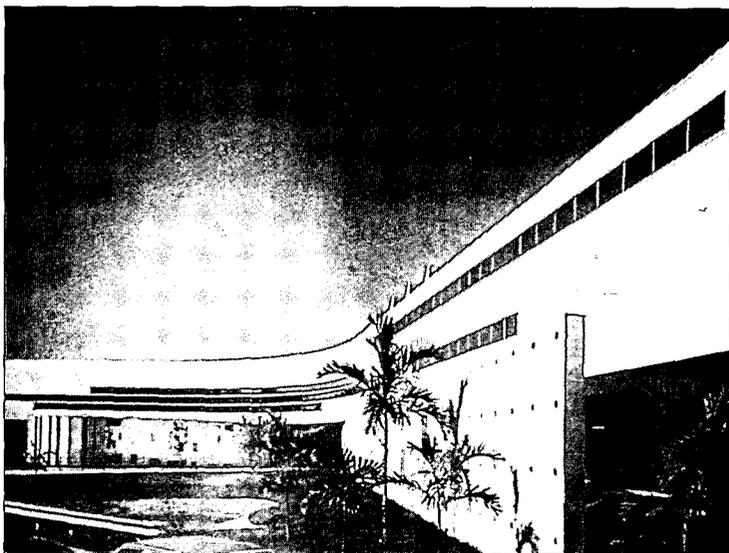
7

6. Bayside Marketplace, Miami, Florida; Benjamin Thompson & Associates and Spillis Candela & Partners, architects [RECORD, June 1988, pages 146-149]. This festival retail market, located along Biscayne Bay in downtown Miami, comprises two sets of pavilions surrounding an open market shed and a promenade along the water's edge. To minimize air-conditioning, the project incorporates natural ventilation, shaded open streets with fountains, fixed louvers, and Bahama-shuttered windows. The jury praised the center for "adapting perfectly to the Florida climate and culture."

7. Tokyo Rose Restaurant, North Miami, Florida; Mateu Rizo Associates, architect. Located in a suburban strip shopping center, this 3,500-square-foot restaurant features a narrow pedestrian "street" that cuts diagonally through the dining room. Patrons enter a brushed-aluminum bar through a pair of bright-yellow columns. A glass wall separates dining and food-preparation areas, allowing guests full view of the grille. The jury liked the restaurant's lighting and materials and called the project "an ambitious design presented as a total set of ideas under complete control."



8 George Cott/Chroma Inc.



9 ©Paul Warchol

8. Burger King Corporate Headquarters, Miami, Florida; Hellmuth, Obata & Kassabaum, architect. Pink-tinted precast concrete accented with aqua and pink marble gives this corporate headquarters a strongly regional flavor. In response to the building's 50-acre bayside setting, the architects raised the building atop two levels of parking, meeting local flood ordinances and preserving much of the parcel as open space. The jury's conclusion: "This building has a wonderful sense of scale. The strong entry and appropriate terracing invite outside activity."

9. North Dade Justice Center, North Miami, Florida; Arquitectonica International, architect [RECORD, May 1988, pages 122-129]. A 39,000-square-foot satellite county courthouse comprises three distinctive volumes: a green stucco and black tile rectangle enclosing parking, an entrance lobby clad in pink marble and green reflective glass, and a curving courtroom wing sheathed in white spandrel glass. The jury called the center "a dynamic shape, bold in form and plan, but restrained in elevation... a strong statement on the landscape."



10



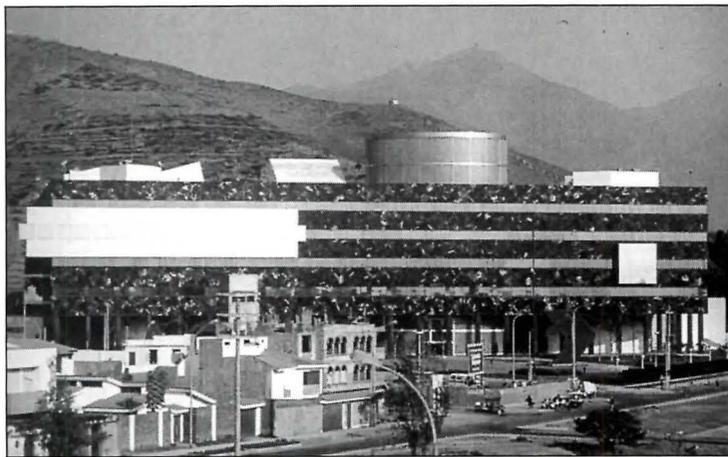
12

George Cott/Chroma Inc.



13

George Cott/Chroma Inc.



11

©Timothy Hursley



14

Rion Rizzo

**10. Tenant Space at CNB Tower, Tampa, Florida;** Associated Space Design, architect. The interior design of a 31-story circular tower in downtown Tampa features a luxurious material palette of French limestone, Texas shellstone, polished marble, and teak. The jury praised the architects for their "masterful control of a sophisticated interior. There is total coordination of space, light, color, materials, and detail."

**11. Banco de Credito, Lima, Peru;** Arquitectonica International, architect [RECORD, February 1989, pages 90-99]. The

530,000-square-foot headquarters of Peru's largest private bank is raised on steel pilotis over landscaped gardens. "A spectacular project," the jury concluded, "a wonderful sculpture that works as a piece of architecture. The building has a powerful relationship with its difficult site."

**12. Moog Inc., Engine Controls Division, Pinellas County, Florida;** Reefer Yamada & Associates, architect. A 70,000-square-foot aerospace research and development facility is located on a heavily wooded site, which the architect largely preserved by raising the

structure on covered parking. "This building seems to work well with natural light," said the jury. "The combination of solids and voids is very effective."

**13. Airside F, Tampa International Airport, Tampa, Florida;** The Design Arts Group/Rowe Holmes Hammer Russell Architects, associated architects. The program called for a new 190,000-square-foot international airside terminal adjoining existing airport facilities. The architects' solution is a vast column-free space that is meant to evoke a 19th-century train shed, with its triangular exposed trusses providing clear-

span support of an arched roof. "The exposed structure gives the interior an interesting texture," said the jury.

**14. Rio Shopping Center, Atlanta, Georgia;** Arquitectonica International, architect. A 110,000-square-foot retail center near downtown Atlanta was conceived as an urban village, with separately defined buildings surrounding a central entertainment court. An unusual material palette comprises vertical blue corrugated metal siding, white window mullions, and yellow sunshades. "The building is strong and eye-catching," said the jury.



Check out  
HI's new DL series

**Large format,  
Big features,  
Small price.**

- ✓ Eight-pen changer **NEW**
- ✓ LCD user interface display **NEW**
- ✓ One-year warranty **NEW**
- ✓ Plot optimization **NEW**
- ✓ "Quick scale" feature **NEW**
- ✓ Standard media up to 36" x 48"
- ✓ Sizzling speed up to 40 ips
- ✓ High resolution of 0.0005 inch
- ✓ Roll-feed option **NEW**
- ✓ Scanner option
- ✓ 1 Mb buffer option

These are just some of the many standard features packed into HI's new DMP-60 DL series of pen plotters. Based on the popular DMP-60 line, the new DL series delivers a blend of proven performance and state-of-the-art innovation. At a surprisingly low price.

Top of the line. Heavy duty. Large format. Loaded with standard features. Priced as low as \$4,895.\*

Check it out by calling  
1-800-444-3425 or 512-835-0900.

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

8500 Cameron Road, Austin, TX 78753

\* U.S. suggested retail price. Subject to change.  
Houston Instrument is a trademark of AMETEK, Inc.

Circle 41 on inquiry card

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



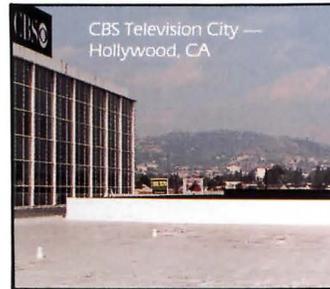
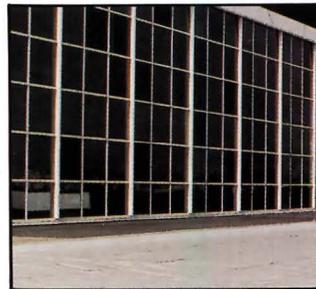
Lake County Village Shopping Center — Phoenix, AZ



Arena Towers — Houston, TX



Con-Rail — Altoona, PA



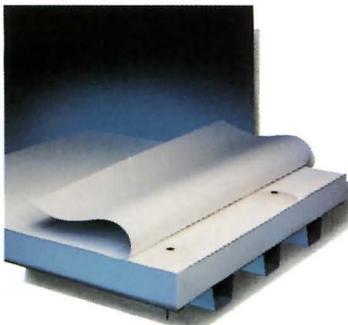
CBS Television City — Hollywood, CA

**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?

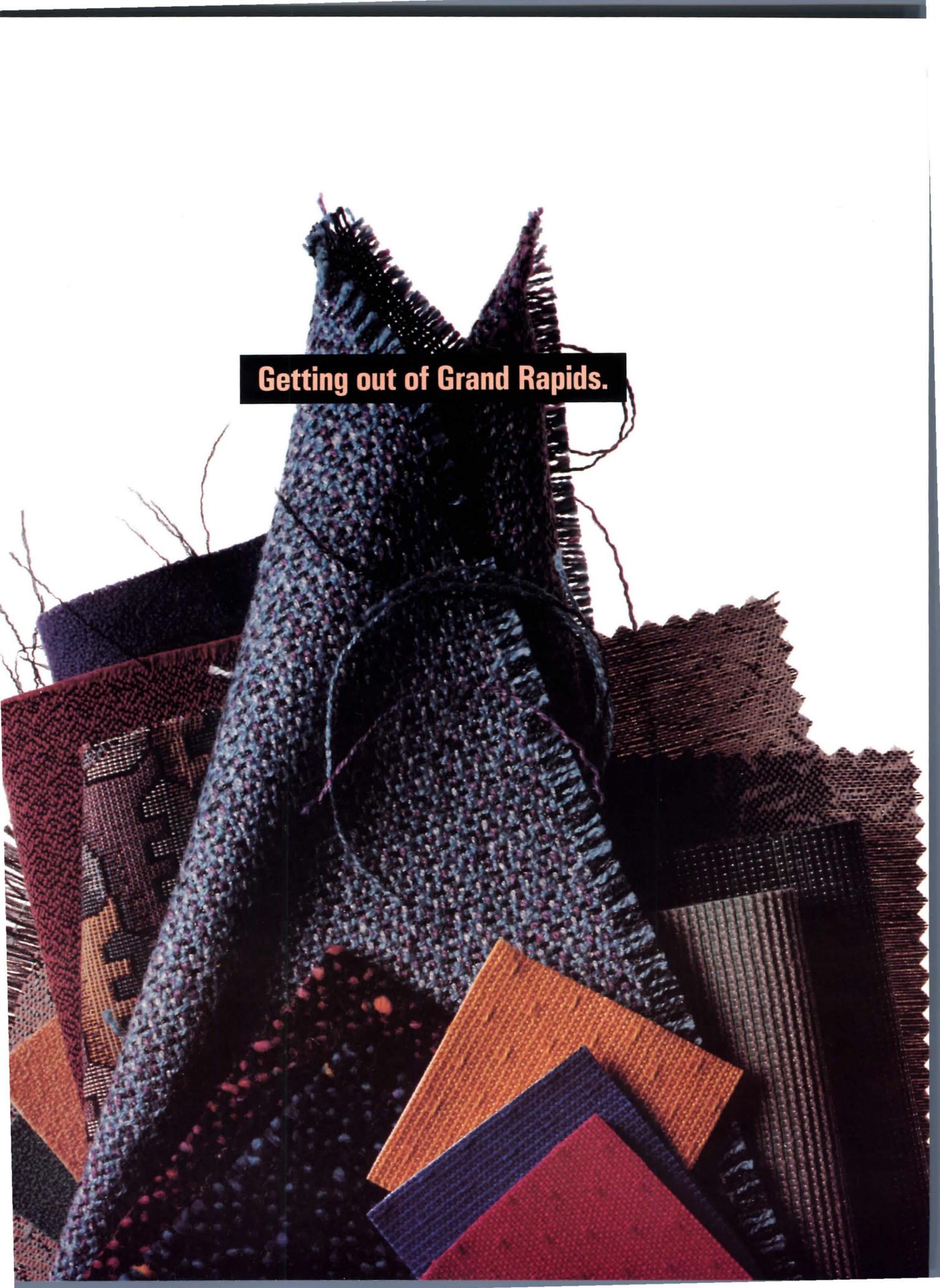


**Call today.** It's your first step to putting . . . and keeping . . . your roof in some pretty good company.

**1-800-248-0280**

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

**DURO-  
LAST®**  
Roofing, Inc.



**Getting out of Grand Rapids.**

Over at headquarters, word was out as to what designers thought of Steelcase<sup>®</sup> and Stow & Davis<sup>®</sup> systems: “You offer every product and feature we could ever need, but not enough of what we really want.” So Steelcase set out to determine exactly what the A&D community did want. They knew they’d have to send people out of Grand Rapids, to do some talking face-to-face.

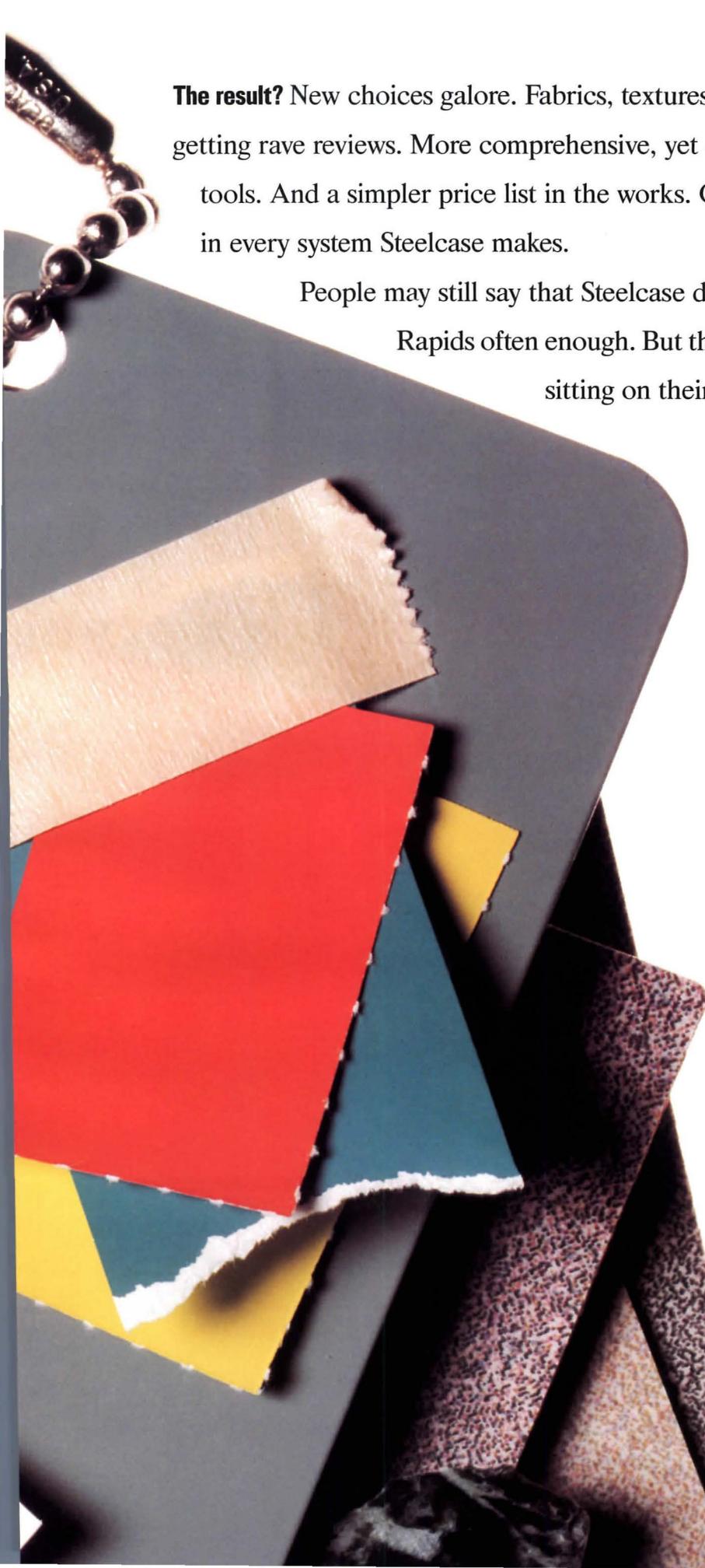


Steelcase put together a task force including people from industrial design, product engineering, manufacturing engineering, communications, sales, and marketing. Top people, with the clout to transform what they heard into real changes. They sat down with hundreds of designers from New York to San Francisco, Chicago to Atlanta. And with dozens of Steelcase field reps and dealers. They got back an earful.



“Change the product? Basically, it’s fine. Great quality. Delivered on time. Terrific service. But...the price list—you need a college course to understand it! And can you give us livelier colors? Bolder fabrics? Richer-looking laminates? Seamless worksurfaces? And, while you’re at it, can you give us something to play with—something fun?” The task force set Steelcase designers and engineers to work.





**The result?** New choices galore. Fabrics, textures, and colors that are getting rave reviews. More comprehensive, yet easier-to-use planning tools. And a simpler price list in the works. Changes that can be seen in every system Steelcase makes.

People may still say that Steelcase doesn't get out of Grand Rapids often enough. But they didn't get to the top by sitting on their hands, either.



*SERIES 9000®*

"People in the marketplace jumped at the chance to tell us what they wanted.

"One of the things we responded with was snap-in-place Series 9000 accents. Playing with these panels, a designer can vary colors and fabrics to create visual excitement, put ribbons of color through an area. Now you can rejuvenate a system without replacing entire panels."

*Paul Hausner, marketing*

"The people who own Series 9000 furniture want the system enhanced, not made obsolete. That's a major concern with every Series 9000 improvement. For example, our new shared cantilever lets you put tops together to build a large, uninterrupted work surface. The supports no longer make bumps.

"That new component is completely interchangeable with existing ones. Has to be."

*Ruth Howard, marketing*



*VALENCIA®/SERIES 9000*

"A lot of companies reward their managers with wood, using all-metal Series 9000 in the open plan and reserving Valencia, Stow & Davis's wood version of Series 9000, for private offices. But private offices require some larger components than open-plan areas. So, we've introduced a 90-inch Valencia credenza as a standard product.

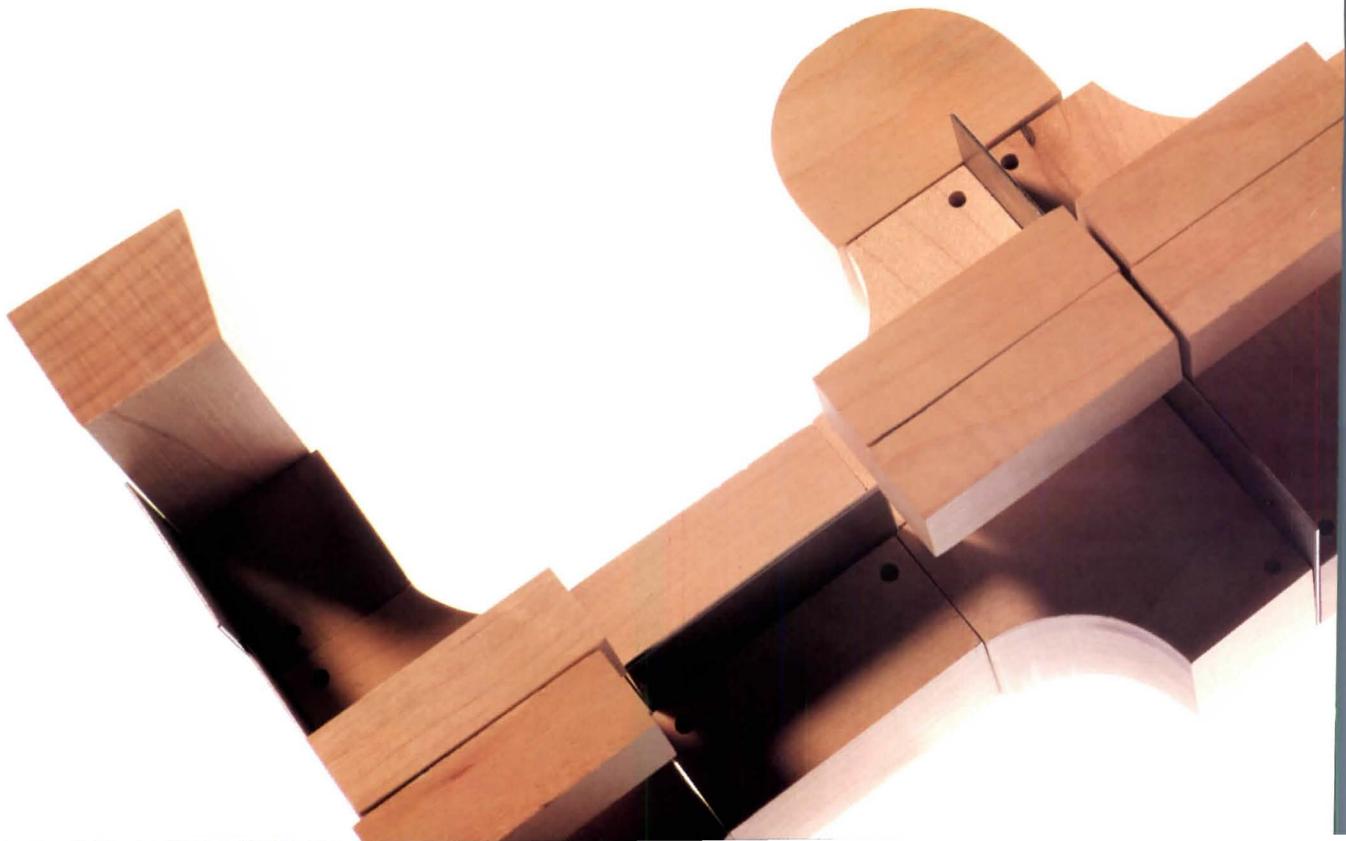
"It can be either 25 or 30 inches deep—the extra five inches is for your computer."

*Henry Atsma, marketing*

"We in manufacturing need first-hand knowledge of how our customers feel about the products we're making.

"So, we're sending production people—wood specialists, final assemblers, paint sprayers—out into the field. They do a fine job of fixing anything that's not up to snuff. And when they spread the word about an ongoing problem, it gets heard back at the plant."

*Les Clark, manufacturing management*





## MOVABLE WALLS

"We've created three new neutral colors—a warm one, a cool one, and an updated yellow. We've added a slightly patterned laminate. We've also adapted a computerized Jacquard weaving process, which lets us add patterns for a greater variety of fabrics.

"We went back into the field with the new fabric, paint, and laminate samples. Talk about positive feedback!"

*Barb Fisher, marketing*

"After we introduced Series 9000, we thought Movable Walls might die quietly. But some major customers were standardized on Movable Walls. It worked fine—why change? But it did need more attention.

"We added options—fabric-covered end trim, wood top caps, a full-to-the-floor pedestal for added storage. We changed the worksurface to accommodate terminals and paperwork, gave it a waterfall edge, and recessed the cantilever for more knee space.

"Better looks, more storage—and a lower price. Did Movable Walls die quietly? Sales doubled."

*Linda Otis, marketing*



## ELECTIVE ELEMENTS™

"There are a zillion different ways to put Elective Elements together, but not a zillion good ways. Showing—not telling—the very best ways is what the *New Elective Elements Planning Guide* is all about.

"For each EE product category, it illustrates the statements of line and performance capabilities, and suggests some applications. Within a year or so we'll be introducing similar guides for all our systems—maybe even on disk."

*Bruce Rentz,  
product engineering*

"I'm glad I heard what I heard from the customer, rather than from marketing alone, because sometimes what they wanted was not what I wanted to hear. Now long ago, manufacturing would have said, 'Hey, we don't do that sort of thing.' Today, we're bending over backwards to please the customer."

*Keith Stauffer, manufacturing engineering*



To let us know what's on *your* mind—what you want, what you need, what you love or can't stand—please give us a call: 1-800-333-9939, Ext. 99.

Chances are, we'll do more than just listen.

**Steelcase**  
The Office Environment Company®

**CONTEXT™**

**"Work styles are changing. Some people still perform only processing, clerical, or supervisory functions, but many do a myriad of things interdependently, in groups.**

**"We designed Context to provide a whole spectrum of options, from closed office to open plan. Because it's the most complete freestanding furniture system on the market, you can get any balance between complete privacy and complete openness.**

**"There is a three-dimensional or sculptural character to the system that you can't get until you walk into a Context environment. The components are physically interdependent but logically and aesthetically linked. It's pleasing to look at, comfortable to work in, and a snap to reconfigure."**

*Bud Klipa, corporate sales*



# Books: Reexamining a classic

By Stephen Kliment and Catherine Kean

In the 56 years between the publication of the first edition (1932) and the eighth (1988) of Ramsey and Sleeper's *Architectural Graphic Standards*, the book has mirrored the evolution of the architectural profession—moving from a hand-drawn volume depicting stables, classic ornament, clocktowers, and stone arches, to a straightedge-drawn and mechanically lettered volume containing the latest in electronic-surveillance systems, passive solar-heating details, and computer workstations.

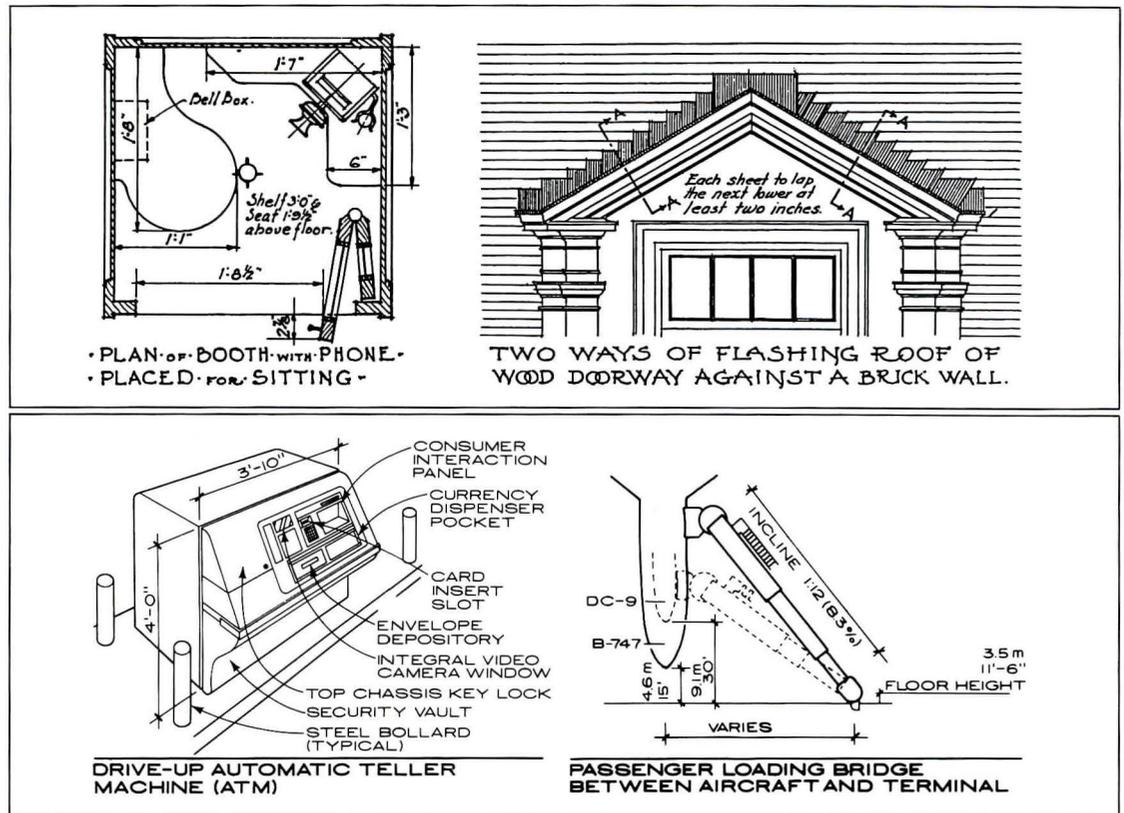
As Eero Saarinen wrote in the foreword to the fifth edition, "Just as Vitruvius gave us understanding of the vocabulary of Renaissance architects, so [AGS] will show the future the dizzying speed and practice of our time."

The book was originally conceived by architects Charles Ramsey and Harold Sleeper as an office drafting and detailing guide, but its potential as a commercial publishing property soon became clear after sales of the first edition passed 5,000 copies—a respectable figure in an era when only 5,600 firms were in practice.

When the first edition came out, Europe was adopting the International Style for much of its new architecture, while the United States was experimenting with Art Deco on larger buildings and still employing Georgian and Tudor styles for most home construction. With its strong residential bias (seen in the details of clay tile, copper and slate roofs, elegant brick arches, and traditional cabinetry), the first edition reflected this mindset.

Until recently these details, meticulously hand-drawn and hand-lettered, had little more

Stephen Kliment is architecture editor at John Wiley & Sons. Catherine Kean is a technical writer.



than nostalgic value. But with the surge of rehabilitation and renovation work, these drawings have come to have a practical value to the architect. As a result, John Wiley & Sons, publishers of *AGS*, released last month a facsimile edition of that first volume.

By the mid-1930s, American architects were beginning to catch on to the work of Mies van der Rohe, Le Corbusier, and Gropius, and *AGS* changed accordingly. Although the second edition (1936) and, to a larger extent the third (1941), still preserved the comfortable residential emphasis of the first edition, they did scale back the number of elegant details of terra-cotta facings, slate roofing, and double-hung windows in favor of a more machine-made approach to design.

The first postwar edition, the fourth (1951), reflected the country's dramatic jump into a new era of glass-curtainwall construction and moved toward a

commercial and institutional idiom. Only 46 pages were unchanged from the third edition. Added since the first edition were such elements as brick cavity walls, glass block, skylights, safety treads, curtainwall details, and precast masonry.

The book was on its way to becoming a standard reference in the architect's office. As Ralph Walker, a prominent figure of the architectural establishment around 1950, wrote in a foreword to the third edition, "The book has become a part of architectural practice and a reference for all of us who work in architectural and allied fields. Because we have it we are spared the inconvenience of searching through our own unfiled accumulations of papers when we need information."

When the fifth edition came out in 1956, the postwar building boom was in full swing. Sophisticated curtainwalls, central air-conditioning, modular

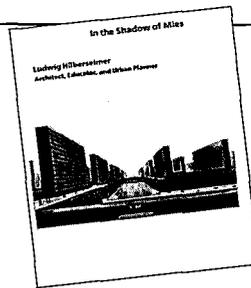
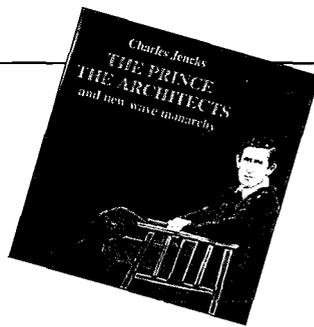
*Top two drawings are from the first edition (1932) of Architectural Graphic Standards, while the bottom two are from the eighth and most recent edition (1988).*

office partitions and, alas, the acoustic hung ceiling—all were depicted in a whole new array of drawings. The fifth was the last volume edited by Ramsey and Sleeper. By 1964 they had transferred editorial control to the American Institute of Architects, which organized a broad group of architects, allied professionals, and materials trade associations to secure the latest and best details.

The sixth edition ushered in a new businesslike attitude to architectural practice, focusing more on architects' growing dependence on allied disciplines such as structural, mechanical, and electrical engineering.

When the seventh edition appeared in 1981, Americans





were still reeling from the impact of the energy crisis of 1974, and architects demanded information on energy-conscious design. (The eighth edition now has a separate chapter on energy design.) Growing concern for the handicapped also resulted in more than 20 pages devoted to barrier-free design.

While the first six editions organized material by the sequence of construction, from foundations to furniture, the seventh arranged items by their place in the 16-division CSI (Construction Specifications Institute) format.

The eighth and most current edition of *AGS* continues to keep pace with changes in the field, featuring a 26-page chapter on historic details aimed at designers involved in preservation and another new chapter on sports facilities. Sixty-five percent of the material in this edition was redrawn at twice the final size, so illustrations are crisper when reduced for printing.

In the future, *AGS* will enter the electronic age. Ink pen and Leroy lettering will be replaced by material input entirely by computer for the ninth edition, scheduled for 1994. An electronic version of this classic text eventually will be available for computers everywhere. In 1932 *AGS* included 252 pages and cost \$6. Today it encompasses 864 pages and carries a price tag of \$150. Size and price are just two simple measures of the book's evolution.

More importantly, *Architectural Graphic Standards* has earned a unique place in the profession of architecture as an essential resource, one that has continually changed as the needs of its readers have changed. We like to believe that Ramsey and Sleeper would be pleased.

**The Prince, the Architects, and the New Wave Monarchy**, by Charles Jencks. New York: Rizzoli, \$14.95.

**In the Shadow of Mies: Ludwig Hilberseimer, Architect, Educator, and Urban Planner**, with essays by Richard Pommer, et al. Chicago: The Art Institute of Chicago in association with Rizzoli, \$19.95.

*Reviewed by Roger Kimball*

As anyone familiar with the subject would have guessed, these two books are so disparate in tone and outlook that they seem to come from different universes. The gulf between the glib populism of Prince Charles's banner-waving on behalf of architectural quaintness and the somber Modernist schemes of architect Ludwig Hilberseimer is all but absolute. What links them, and what in the end links these brief books, is a deeply felt concern for the future of cities and urban architecture.

One would be hard-pressed to imagine a better impresario for the Prince than architecture's other Prince Charles, Charles Jencks. Witty, sly, erudite, endlessly ecumenical, he brings the appropriate blend of insouciance and conviction to the Prince's celebrated anti-Modernist speeches about architecture and urban planning. Jencks sympathetically details the Prince's advocacy of so-called community architecture and the Postmodernist classical revivalism of architects like Quinlan Terry. He also discusses with relish the infamous condemnations: the Prince's allusion to Mies van der Rohe's proposed building for Mansion House Square in London as "yet another giant glass stump," his observation that "you have . . . to give this much to the Luftwaffe: when it knocked down our buildings, it didn't replace them with anything more offensive

than the rubble," and—most infamous of all—his excoriation of one firm's design for the extension of the National Gallery as a "monstrous carbuncle on the face of a much-loved and elegant friend."

In addition to providing a mini-treatise on the Royal view of contemporary urban architecture, Jencks reprints excerpts from several of the Prince's speeches and includes a handful of professional reactions to the manifestos. But his main point is simply that, all things considered, the Prince's forays into the architectural "Taste Wars" have been a good thing. If he has not always been as well-informed as one might have hoped, well, he has at least been on the side of the angels in his championship of historicism and his condemnation of Modernism. Moreover, in his "new wave" approach to his role as Prince of Wales, he has intervened adroitly in the only realm where the British crown stills wields real power, the realm of media hype and public opinion.

The Prince should be deeply gratified by Jencks's tribute—not so much for the praise it contains (flattery is one perquisite royalty still exacts) but for a far more startling accomplishment. Though the architectural establishment had hitherto steadfastly avoided it, Jencks manages to take the Prince's opinions about architecture seriously as *criticism* and not just as a serious form of *promotion*.

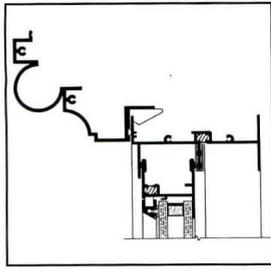
A radically different tone is evident in the brief but scholarly reassessment of Ludwig Hilberseimer (1885-1967) by Richard Pommer, David Spaeth, Kevin Harrington, and others.

Born in Karlsruhe, Germany, Hilberseimer began his career as an architect and urban planner of the socialist-utopian stripe. Today, he is best known for his writings and many collaborations with Mies van der Rohe at the

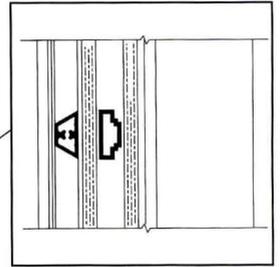
Bauhaus and (after 1938, when they both immigrated) at the Illinois Institute of Technology. This commemorative volume consists of a personal reminiscence by one of the architect's students at IIT, several critical essays, and a handful of Hilberseimer's writings on city planning.

Together the essays provide an overview of Hilberseimer's work, tracing his career from student days in Germany through his influential mature publications (e.g., *The New City*, 1944, and *The Nature of Cities*, 1955), and his collaboration in rebuilding Lafayette Park in Detroit, and the redevelopment of Chicago's South Side. Pommer's essay on Hilberseimer's dream of the high-rise city and modern city planning is especially noteworthy: historically informed, critical but not carping, it's a model performance.

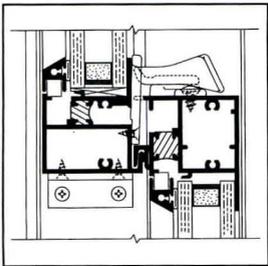
A preface explains that "it was time to bring Hilberseimer out of the shadow of Mies." Few readers, I think, will concede that this volume achieves that impossible ambition. Hilberseimer was an architect and planner very much in the shadow of Mies: obsessed with the *Zeitgeist*, craving purity of design, striving to supply architecture and urban planning with a foundation of firm, irreducibly rational principles. Though his vision of the city gradually evolved from a stark, geometrically ordered utopia ("more a necropolis than a metropolis," he later admitted) to one more accommodating to nature and context, "What mattered to him was not the realities of urban planning, but the perfect form alone, the representation of absolute types." Whether one regards such striving for perfection as a more grievous deficiency than period-piece nostalgia is in the deepest sense a matter of taste.



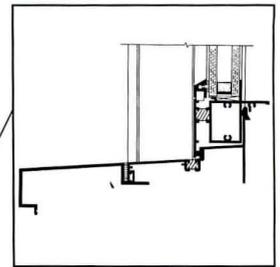
HEAD



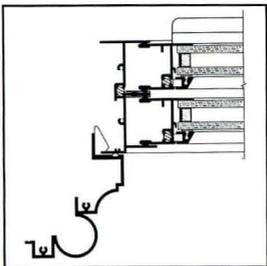
MUNTIN



MEETING  
RAIL



SILL



JAMB



# HISTORY IN DETAIL.

Take a close look at an EFCO historical replacement window, and you'll see craftsmanship in detail. EFCO precisely replicates each major window component from head to sill, thus minimizing sightline encroachment. EFCO is also capable of matching historically significant paint colors. Specify EFCO historical replacement windows, and get all the details. For more information, call **1-800-221-4169**. EFCO Corporation, P.O. Box 609, Monett, MO 65708-0609. TELEX: 332165 EFCO CORP MT.



**More Windows, More Ways, Than Anyone.™**

## Theater preservation update: London 1989

By Anthony W. Robins

A week of theater-hopping in London this summer, sponsored by the American-based Theatre Historical Society, underlined the similarities in the state of theater preservation on the two sides of the Atlantic. While many battles have been lost and quite a few are still brewing, the worst of the decline of theater buildings has passed, said John Earl, director of Britain's Theatres Trust, one of the program's co-hosts along with the Cinema Theatre Association. Theaters rarely close now, and many are reopening, valued as irreplaceable resources.

Perhaps the biggest surprise about England's surviving stage theaters is that they are not much older than their American counterparts. London's West End houses generally date from no earlier than the 1880s, compared to Broadway's earliest of about 1900. Elsewhere in Europe, older theaters survive because the European nobility historically built and supported theaters as an act of patronage; the economics of the theater never interfered. In England, the patronage went to the theatrical company, not to the building. If a theater failed, it was razed.

Britain has two mechanisms for safeguarding theaters. One is the "listing" of historically or architecturally distinguished structures, the English equivalent of landmarks designation. The other is the Theatres Trust. Charged by Parliament with "the better protection of theaters for the benefit of the nation," its jurisdiction extends to "all public theaters, old and new, used and disused, protected as historic buildings or not." The Trust, which has no American equivalent, must be consulted by local planning councils before

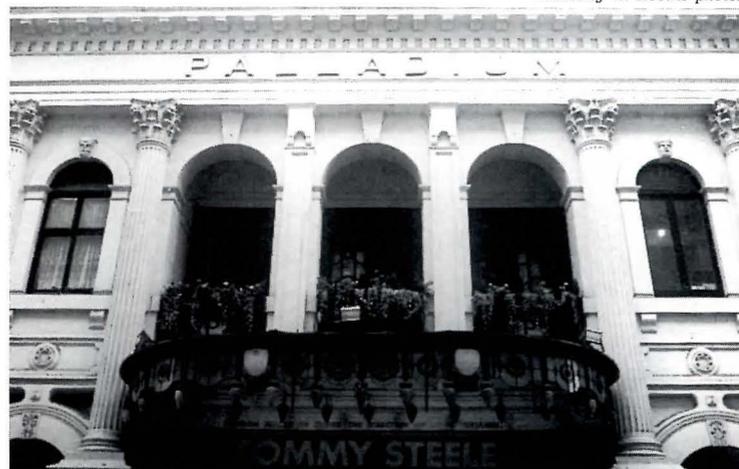


*The Globe (left), designed by W. G. R. Sprague and built in 1906, is one of only six surviving theaters on Shaftesbury Avenue in the West End. One of the largest theaters in London, the Palladium (right), was designed for vaudeville shows.*

any action involving a stage theater can be approved. Its opinions, while advisory only, carry much weight.

In both New York and London, the theater district migrated over time, moving north to Times Square in the American city and west to Shaftesbury Avenue in the West End of the British capital. On Broadway impresarios and entrepreneurs acquired whatever lots were available on the cheaper side streets, often forcing their architects to make do with small and awkward sites. In the West End theater developers also picked up odd parcels left over after Shaftesbury Avenue was cut through the ancient London streets.

An unexpected characteristic of London theaters is their relationship to street level: lobbies lead to the "dress circle" (first balcony), while the "stalls" (orchestra) are actually underground. One motivating factor is safety: crowds running upstairs have less chance of



Anthony W. Robins photos

falling and causing panic than those going downstairs. A second reason, at least during Victorian times, was a perceived need to attract the gentry, who patronized the dress circle, the best seats in the house (for which they "dressed"). Sinking the stalls into London's soft clay enabled the gentry to avoid stairs. In America, however, immigrant theater builders, such as the Shuberts and Chanins, democratized the theater-going experience by abandoning the old-world arrangement of separate entrances leading to separately priced seats. On Broadway all patrons enter the same lobby; in some houses all go into the orchestra section before ascending stairs to the balcony.

In the 1910s and 1920s America took the imported English building type of the theater, added moving pictures, and invented the American movie palace. British cinema development, first dominated by chains such as Granada and Gaumont, lagged behind its American counterpart by roughly a decade. When the Depression hit, American cities were already well served by the huge palaces built in the '20s, and very few were built during the '30s. In Britain, however, large palaces were built throughout the Depression, including many that look like

American eclectic fantasies of 10 years earlier. The 1930s cinema boom gave Britain something America never had: a national chain of some 300 grand Art Deco movie theaters—Oscar Deutsch's Odeon (later spelled out as "O-scar D-eutsch E-ntertains O-ur N-ation").

Large cinemas do not survive unscathed in Britain any more than they do in America, however. The 1,000-seat Odeon flagship on Leicester Square, faced in black granite and endowed with a 120-foot-tall tower carrying the company name, is one of only four cinemas left in the West End, and it lost its original interior in 1967. Other cinemas have been multi-plexed and several turned into bingo parlors. Only recently have cinemas been listed as historic structures; perhaps 60 are so protected today.

A good example of the state of British cinemas is the 2,800-seat Astoria at Finsbury Park, once one of England's finest. Located in a depressed neighborhood and vacant for five years now, the debris-strewn Astoria shows only too plainly that the old cinemas of England and America share certain difficult problems. While the Astoria is listed and renovation plans have been announced, returning the building to its earlier splendor will be a daunting task.

Anthony W. Robins is survey director at the New York City Landmarks Preservation Commission.

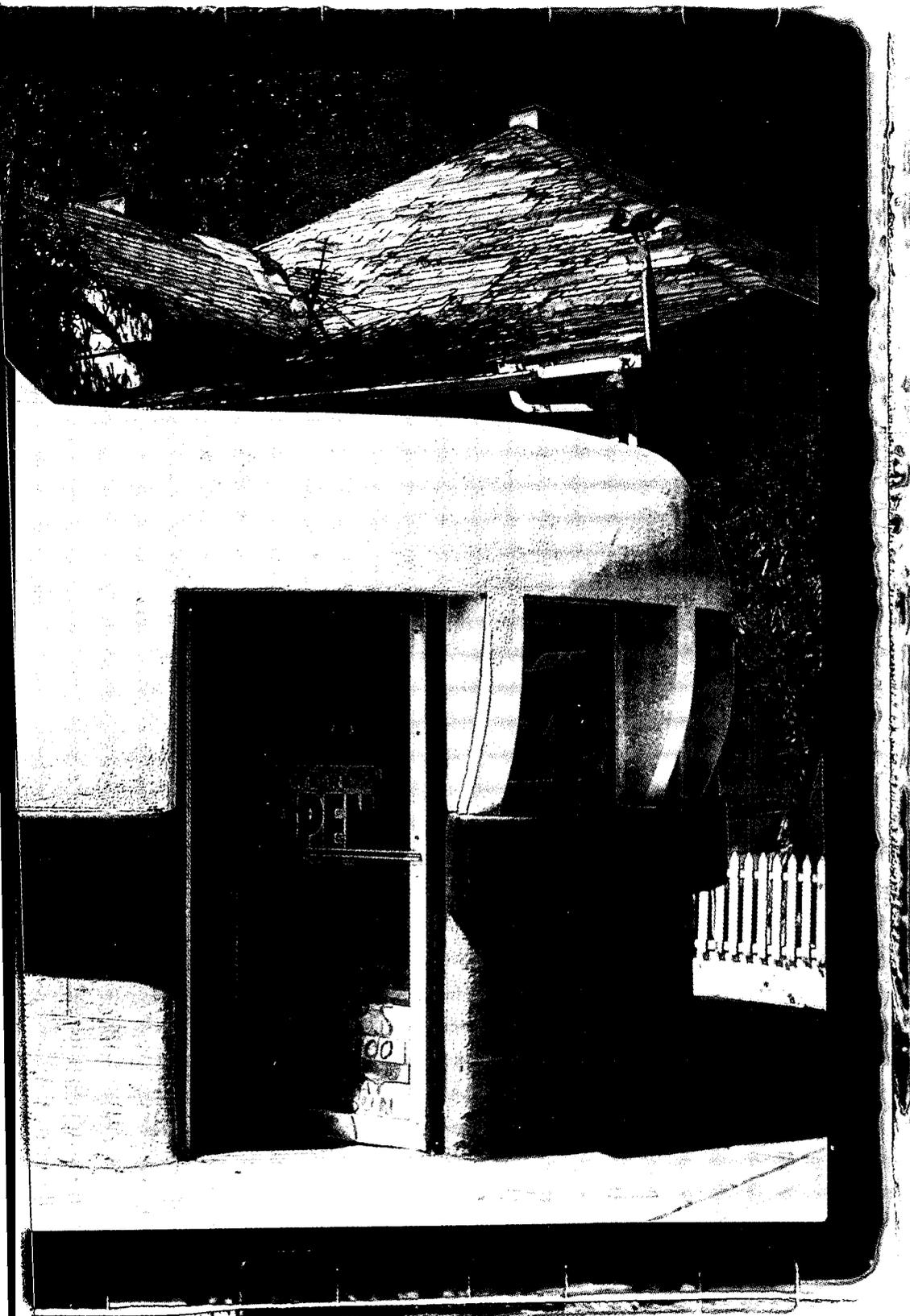
*Deschwanden's Shoe Repair, Bakersfield, Ca.*



## No matter what they look like outside, b

In America, businesses come in all shapes and sizes. But there is one thing most of them share: a strong preference for Du Pont Certified Carpets.

Nothing startling there. After all, these carpets offer the kind of tough, unyielding performance that keeps clients satisfied.



## es prefer Du Pont Certified Carpet inside.

So when you specify Du Pont, your client's comfort level is apt to be a lot higher. And that can come in mighty handy when you're trying to sell a hot new design.

Go with Du Pont Certified. That way, your clients will get the carpets they really want. And the designs they truly deserve.

Du Pont Certified. The Carpets American Business Is Built On.



Flooring Systems

# The TCS roof. elegant simplistic adaptive

There is, in the remarkably simple lines of a TCS standing seam roof, an expression of architectural character unmatched by other types of roof forms. As it serves its essential function of providing shelter, TCS, terne-coated stainless steel, gives the Hult Center for the Performing Arts a bearing of elegance. And, under most atmospheric conditions, TCS will weather to an attractive, warm gray.

TCS is readily adaptable to all types of structures and allows maximum creative latitude to the designer at relatively modest cost.

Aesthetics aside, however, TCS has outstanding functional characteristics—great tensile strength combined with light weight and a low coefficient of expansion; exceptional resistance to corrosive attack and a durability measured in generations rather than years.

We will be happy to send you substantiating evidence. Call us at 800/624-6906.

Hult Center for the Performing Arts, Eugene, Oregon.

Architects: Hardy, Holzman, Pfeiffer Associates, New York, NY.

Roofer: Acme Roofing, Eugene, Oregon.

Photograph by Timothy Hursley.



## FOLLANSBEE

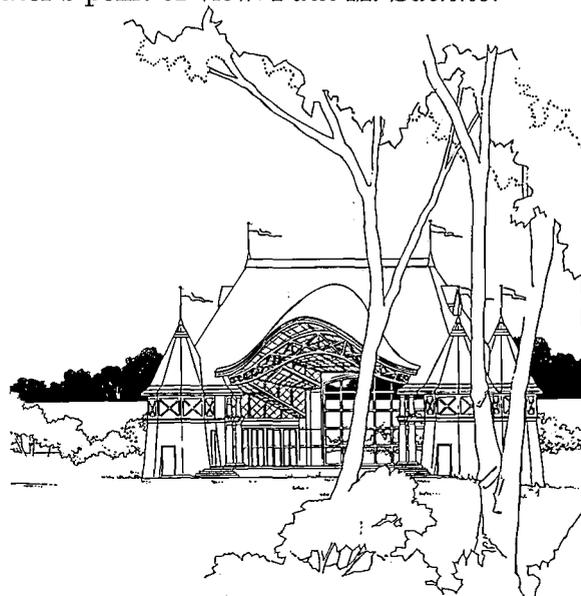
FOLLANSBEE STEEL  
FOLLANSBEE, WEST VIRGINIA 26037  
Circle 47 on inquiry card

# In this issue

What does an outdoor swimming-pool complex in a central California farming community have in common with a botanic garden located in the heart of America's greatest metropolis? Most significantly, perhaps, the Coalinga Community Swim Complex and the Brooklyn Botanic Garden are two of the 11 completed projects that the editors have tapped as winning submissions in RECORD's second In the Public Interest awards program.

The purpose of this annual issue is to recognize excellence in the design of architecture that serves a public outside the usual circle of commercial, residential, and institutional clients. Each year RECORD's editors choose a different building type and solicit entries from architects, government agencies, private/public development consortiums, and community design centers for projects completed during the past three years. After last year's inaugural issue on subsidized housing, we elected to focus our 1989 program on recreational buildings. While this particular building type might seem to lack housing's poignant urgency, the editorial jury was delighted to discover that many of the 90 project submissions that it reviewed exhibited the same concern for human scale and appropriately regional character that distinguished last year's winning designs—together with a notable civic quality one might not typically associate with recreational facilities.

In Coalinga, that civic character takes the form of easy-to-maintain open-air pavilions that are fresh, colorful, and thoroughly Californian (pages 116-119); New York's reconstructed Brooklyn Botanic Garden, by contrast, exhibits a dignified monumentality that befits an important cultural institution in a world capital (pages 110-115). Other premiated entries featured on the following pages range from Camp Algonquin, a rustic retreat for abused children and their families outside Chicago (pages 84-87), to handsome new community centers in Petaluma, California (pages 120-123), and the Denver suburbs of Commerce City and Westminster (pages 100-107). Waterfront parks in Imperial Beach, California (pages 108-109); Bellevue, Washington (cover and pages 124-127); and Galveston, Texas (pages 94-99), offer a variety of active recreational options, while Pilot Field in Buffalo (pages 88-91) and the Lake Harriet Band Shell in Minneapolis (pages 92-93) satisfy those who prefer pursuing their leisure time from a spectator's point of view. *Paul M. Sachner*



*Lake Harriet Band Shell, Minneapolis*  
*Frederick Bentz/Milo Thompson/  
Robert Rietow, Architects*



## Rebuilding families with care and design

*A trio of deceptively simple buildings designed by Tigerman McCurry Architects for a camp outside Chicago creates an environment where troubled people can re-establish family ties.*

Camp Algonquin is a place where low-income children and their parents get the chance to rebuild their lives. While architecture alone can do little to change human behavior, it can create a setting in which counseling might help people understand their problems. With this in mind, Stanley Tigerman designed a set of buildings that use simple elements such as broad porches and stairways to establish a sense of community and trust.

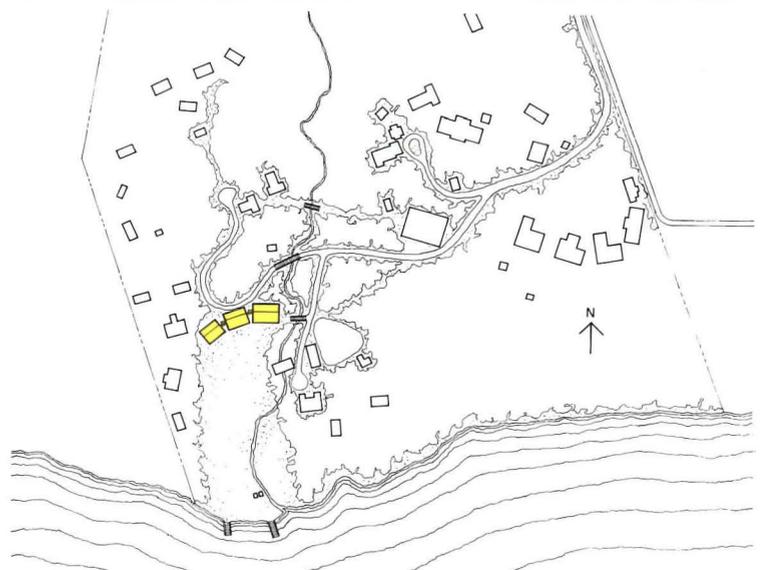
Tigerman won the commission by insisting on reworking the past, instead of ignoring it. That meant rehabilitating an old lodge (far right in photo above) and using its Adirondack-style rustic design as a starting point for the three buildings that make up the new activities center. While the project's building-block forms, Roman railings, and straightforward fenestration have a childlike simplicity, Tigerman assembled it all with great subtlety and a touch of his celebrated wit. Not only did he angle the three major blocks so they form a welcoming gesture, but he also established a series of progressions and repetitions that play games with scale and color. As the blocks change in function (from a classroom building to an arts-and-crafts center to a gym), their



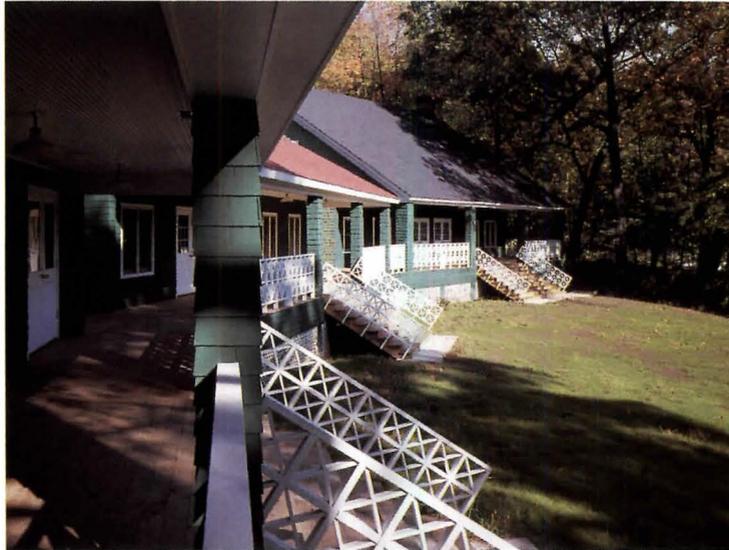
Activities Center  
Camp Algonquin  
Elgin, Illinois  
Tigerman McCurry Architects

roof pitches get steeper, their ceilings get higher, and their proportions get bigger. The forms stay the same, but the dimensions keep expanding. At the same time, roofs and floors change color, moving from blue to orange to gray. By playing with scale, Tigerman keeps these small buildings in motion, defying what he says is architecture's inherently static nature.

At the two points where the angled blocks splay out, entry sheds serve as architectural hinges. Tigerman had planned to emphasize these points of disjunction and unity by extending them forward in prowlike balconies, but budget constraints wouldn't allow it. The loss may have been for the best: while the projecting elements out front would have added some visual interest, they might also have reduced the impact of the covered porches as shared spaces connected to all three buildings. As built, the porches serve both as circulation linking each of the buildings to the others and as a common outdoor room. Sitting on one of the porches or wide steps overlooking the Fox River is one of those simple pleasures that helps tie this project to a past that is recalled in its architecture. *Clifford A. Pearson*

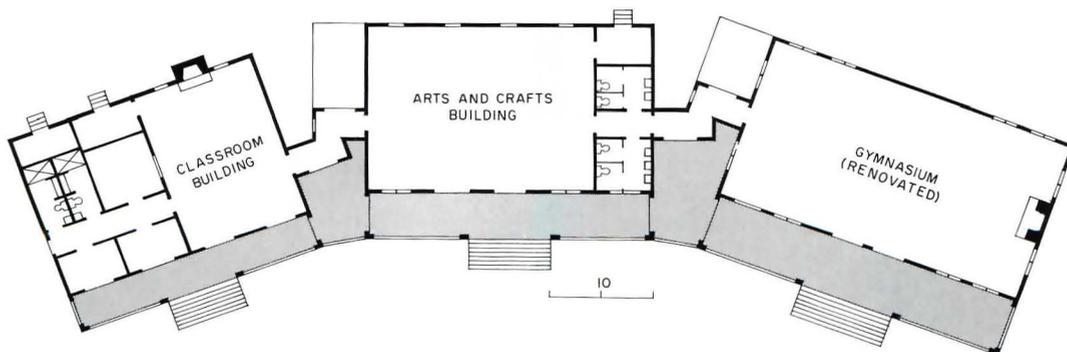


By specifying inexpensive materials such as painted wood siding for exteriors, plywood paneling for interiors, and vinyl tiles for some flooring, and by using factory-made structural members such as prefabricated wood roof trusses, Tigerman was able to keep construction costs down to under \$60 a square foot. Although renovating an existing lodge proved more difficult than expected (due to the building's poor condition), it preserved the spirit of the original structure, as well as an old chimney (bottom right). The simple forms of the buildings and details such as exposed rafters (bottom left and right), Roman balustrades, and latticework (opposite) come from rural buildings.



Activities Center  
Camp Algonquin  
Elgin, Illinois

**Owner:**  
United Charities of Chicago  
**Architect:**  
Tigerman McCurry  
Architects—Stanley Tigerman,  
project architect  
**Engineers:**  
Beer Gorski and Graff Ltd.  
(structural); Wallace-Migdal  
(mechanical)  
**General contractor:**  
Teschky Inc.

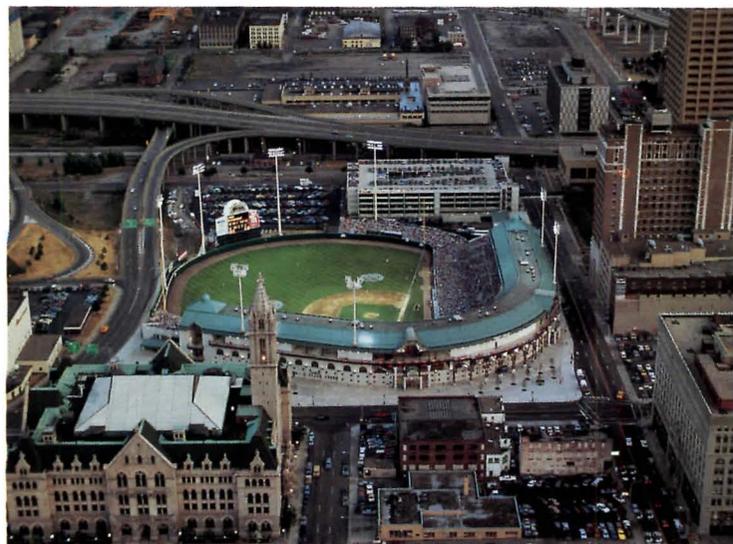




Pilot Field  
Buffalo, New York  
Hellmuth, Obata & Kassabaum  
Sports Facilities Group,  
Architects

# Field of dreams

*Patricia Layman Bazelon*



*John L. DePasquale*

It is gratifying to report that the rumors of Buffalo's death have been greatly exaggerated. After decades of wallowing in urban decay and low self-esteem, this erstwhile Queen City of the Great Lakes seems in the midst of a modest economic and psychological revival. The most tangible symbol of Buffalo's ongoing effort to rouse itself from years of postwar malaise is Pilot Field, the handsome new baseball stadium that occupies 13 acres between Interstate 190 and the city's downtown commercial core.

Like many large-scale public projects, Pilot Field had a long gestation. In 1982 Robert E. Rich, Jr., president of the locally based Rich Products Corporation (makers of Coffee Rich and other frozen foods), purchased the Buffalo Bisons of the Class AA Eastern League and set out to upgrade the financially struggling baseball club, initially to a place in the Class AAA American Association (which he has done) and eventually to a possible major-league expansion franchise. At that time the city of Buffalo, with promised financial backing by Rich and the state of New York, hired the HOK Sports Facilities Group to investigate the feasibility of a 40,000-seat domed downtown ballpark to

Once best known for its chronically ailing economy and snow-bound winters, Buffalo now basks in the knowledge that its new downtown stadium is the finest minor-league ballpark in the land.

Patricia Layman Bazelon



replace War Memorial Stadium, the Bisons' spacious but decrepit home that local residents have unaffectionately dubbed "The Rockpile." A second feasibility study commissioned by the state ultimately concluded that the city, with a population of just 325,000, would be unable to support so ambitious a scheme—a contention that was greeted with particular enthusiasm by local preservationists fearful of a dome's visual impact on the adjacent Ellicott Square Historic District. Instead of a dome, the city, state, and Rich proposed a 19,500-seat open-air stadium that would meet the Bisons' current needs and could be enlarged to 42,000 seats should the major leagues come calling in the future. Total cost: \$43 million, split among the three parties involved.

The result is a refreshingly site-specific alternative to the faceless architecture of so many recent stadiums. "Our main challenge," recalls HOK principal Joseph Spear, "was to raise Buffalo's expectations and assure the people that they were not getting yet another circular stadium set in a sea of parking." Toward that end, the architects turned to early 20th-century ballparks like Detroit's Tiger Stadium and Chicago's Wrigley

Field in configuring Pilot Field as a classic, slightly asymmetrical in-town stadium that conforms to Buffalo's existing street grid. What is more, they took their specific design cues from such adjacent 19th-century landmarks as the Ellicott Square Building and the old U. S. Post Office (now Erie Community College), devising a distinctive ornamental palette of rusticated precast-concrete panels, a steel-tube arcade, and round-arched windows.

In contrast to the studied nostalgia of its exterior, however, Pilot Field's interior is decidedly up-to-date: no steel columns block spectator views of the field, and the facility has such big-time amenities as a 300-seat restaurant overlooking the field on one side and the city on the other, 40 corporate suites (or "Bison Boxes" in franchise lingo), and multiethnic food stands offering everything from charcoal-broiled hotdogs to cannoli. The park's success can be measured in attendance—in 1989 the Bisons drew just over 1 million fans, around 15,200 a game, for the second year in a row—and in the fact that cities like Baltimore and San Francisco are looking to Buffalo's winning formula as they plan new open-air stadiums of their own. *Paul M. Sachner*

HOK gave Pilot Field the character of a classic early 20th-century American ballpark by including bleacher seating for 1,130 general-admission patrons and a picnic area in right field (plans opposite), and by incorporating such devices as exposed steel

trusses and 10-foot-diameter cupolas set into a green standing-seam hipped roof (below right). Along Swan Street (below left), deeply rusticated precast-concrete panels embellished with 2-foot-square tiles of verde antique marble allude to the

Renaissance Revival architecture of Daniel Burnham's 1896 Ellicott Square Building. Unlike older ballparks, Pilot Field features rigorously symmetrical diamond dimensions (325 feet to foul poles, 410 feet to center field) and such major-league

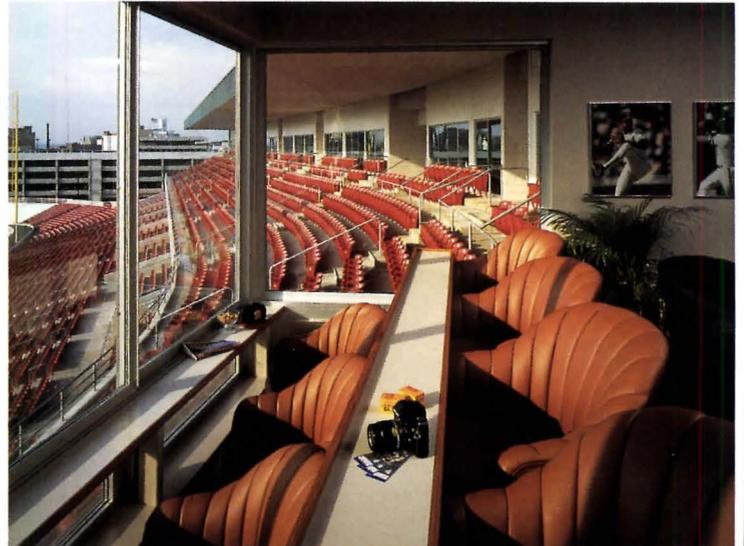
amenities as corporate boxes (the team owner's box is shown, bottom right) and a full-service restaurant called Pettibone's Grille (bottom opposite) that does a brisk year-round lunch and dinner business. Although the project included the construction of an 800-car



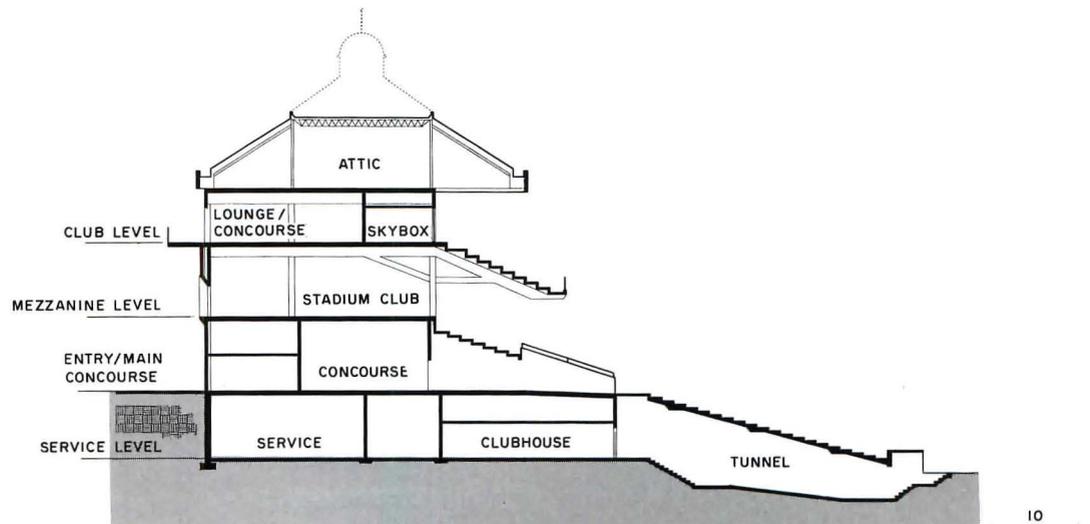
Patricia Layman Bazelon



John L. DePasquale



©Tom Crane

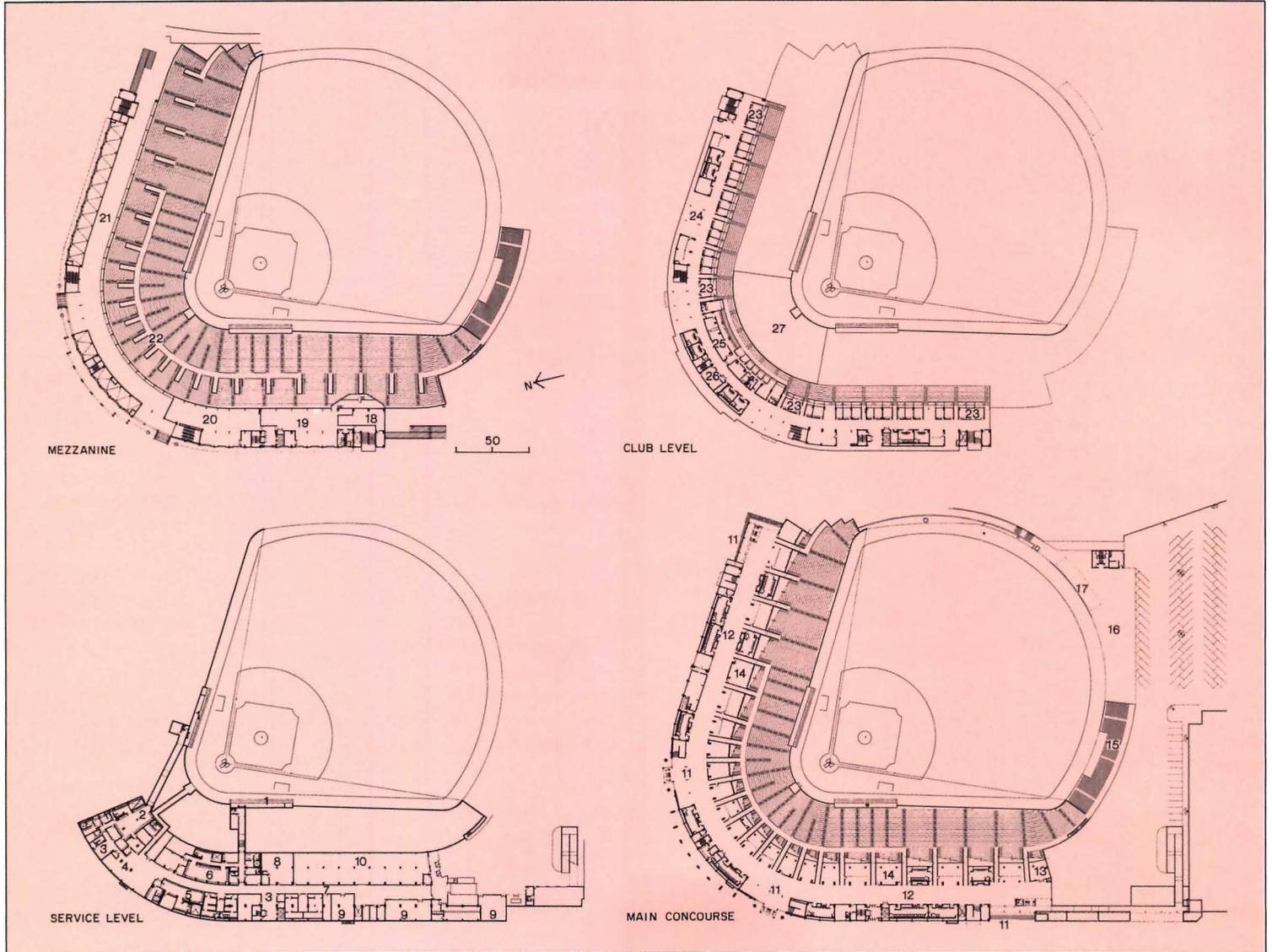


parking ramp, many patrons use privately owned surface lots surrounding the stadium, and 30 percent arrive via Buffalo's new Main Street subway/trolley system (the line's Seneca Street station is located a block away).

**Pilot Field**  
Buffalo, New York  
**Owner:**  
City of Buffalo  
**Architect:**  
Hellmuth, Obata & Kassabaum Sports Facilities Group—  
Joseph E. Spear, principal-in-charge of design; Ben B.

**Barnert, project manager;**  
Scott Shepherd, project architect  
**Engineers:**  
Geiger Associates (structural/mechanical/electrical); Joiner Rose (acoustics)

**Consultant:**  
Barbara Gisel Design (interior design)  
**General contractor:**  
Cowper Construction Management



© Tom Crane

- |                        |                       |
|------------------------|-----------------------|
| 1. Dugout              | 18. Kitchen           |
| 2. Visiting clubhouse  | 19. Stadium Club      |
| 3. Lobby               | 20. Team offices      |
| 4. Truck turnaround    | 21. Open to concourse |
| 5. Auxiliary lockers   | 22. Cross aisle       |
| 6. Home lockers        | 23. Suite             |
| 7. Service tunnel      | 24. Concourse         |
| 8. Maintenance         | 25. Press Club        |
| 9. Mechanical          | 26. Kitchen           |
| 10. Commissary storage | 27. Foul-ball screen  |
| 11. Entrance           |                       |
| 12. Concourse          |                       |
| 13. Hall of fame       |                       |
| 14. Vending            |                       |
| 15. Bleachers          |                       |
| 16. Picnic area        |                       |
| 17. Scoreboard         |                       |

For a lakefront setting in Minneapolis, architect Milo Thompson designed a fanciful band shell that takes its cues from earlier incarnations yet learns from past mistakes.

## Sound design

The symphony needed a bigger stage, while the neighbors wanted a less intrusive one. Thus guided by a chorus of competing voices, architect Milo Thompson somehow pleased almost everyone, giving Minneapolis's Lake Harriet a new band shell that picks up some of the stylistic flourishes of late 19th-century buildings found in the area.

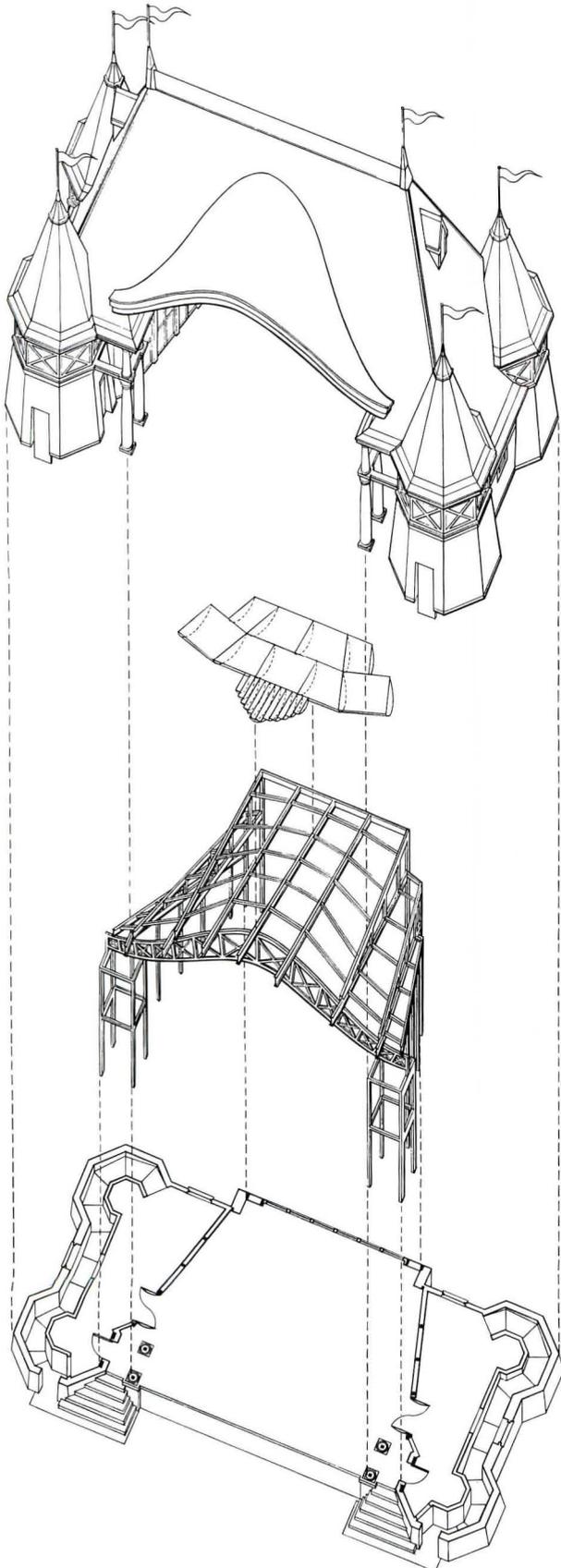
The building replaces a "temporary" structure built in 1927 after three previous band shells had met ill fates at the hands of fire and wind. One of those early facilities, designed by local architect Harry Jones, provided the so-called "pagoda style" that Thompson used as inspiration for the octagonal towers and sharply pitched roofs in his design. A small building, now used for restrooms, is the only surviving work by Jones on the site.

Thompson also learned from past mistakes. Neighbors had long complained of too much sound from the band shell, so the architect reoriented the structure away from houses to the west and toward parkland to the north (site plan opposite). He also built a berm in the back of the seating area to help contain sound in the site's natural bowl. To maintain the audience's contact with the lake, Thompson cut a large window in the rear wall of the structure (below) and framed views of the water. During night performances, the band shell shines like a lantern and serves as a landmark for boaters on the lake.

Large enough to accommodate 75 musicians, the new band shell also provides excellent sound quality, thanks to the work of acoustical engineer R. Lawrence Kirkegaard. The steeply pitched roof creates an attic that serves as a reverberant chamber for sound, while the steel eyebrow truss on the front elevation (opposite) helps the music project out into the audience. Banana-shaped acoustic panels in the attic deflect sound back to the musicians. For amplified performances, the attic also houses microphones and speakers.

A steel frame supports stick-built towers and roofs (axonometric left), while cedar shakes (now painted gray, not brown as shown in the photographs) serve as the building's skin. With its witch's hat roofs, banners waving in the breeze, and transparent rear wall, the band shell recalls one of those charming sham castles that the English were once so fond of building.

*Clifford A. Pearson*



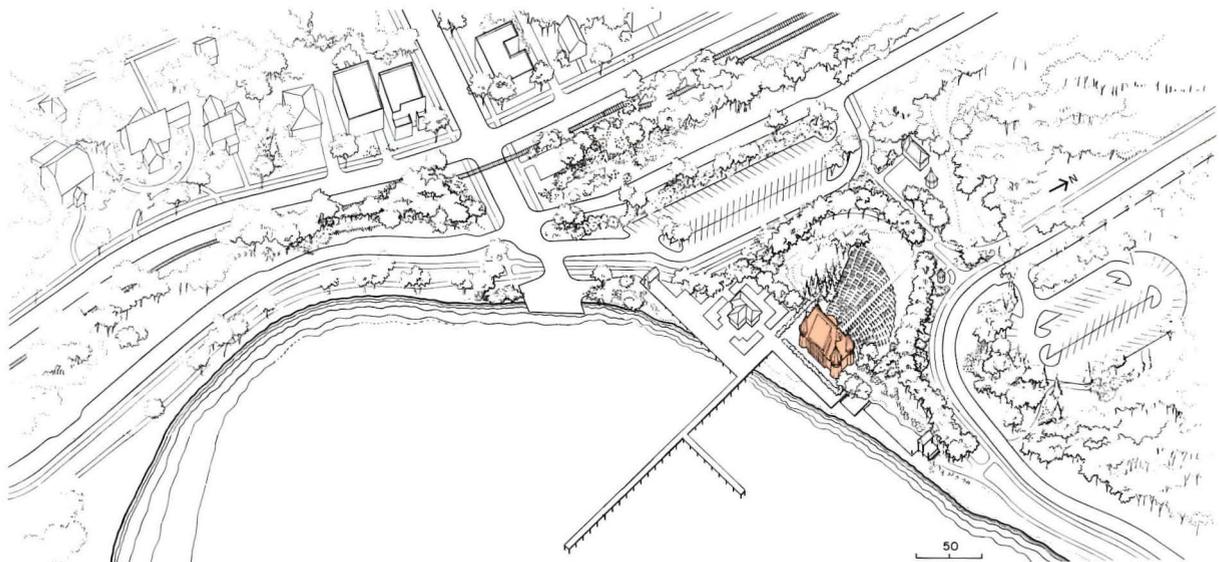
©George Heinrich photos

Lake Harriet Band Shell  
Minneapolis, Minnesota  
Frederick Bentz/Milo  
Thompson/Robert Rietow,  
Architects

*Lake Harriet Band Shell*  
*Minneapolis, Minnesota*  
**Owner:**  
*Minneapolis Park and  
Recreation Board*  
**Architect:**  
*Frederick Bentz/Milo  
Thompson/Robert Rietow —*

*Milo H. Thompson, design  
principal*  
**Engineers:**  
*Bakke, Kopp, Ballou &  
McFarlin, Inc. (structural/  
electrical)*  
**Consultants:**  
*R. Lawrence Kirkegaard &*

*Associates (acoustical); Martin  
& Pitz Associates (landscape)*  
**General contractor:**  
*H. M. H. Enterprises, Inc.*

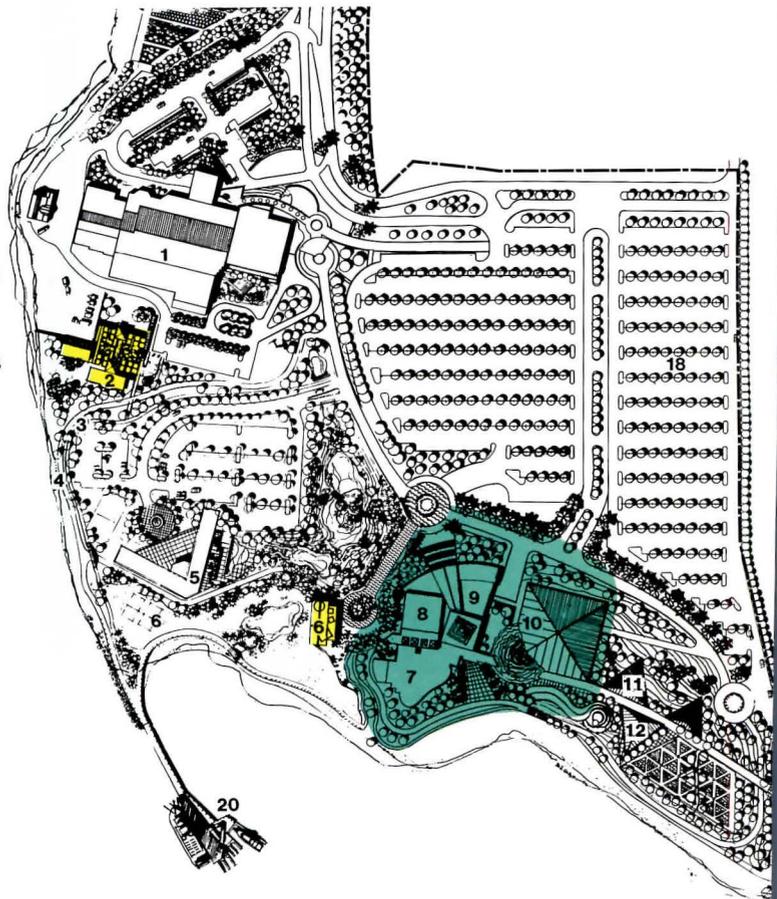
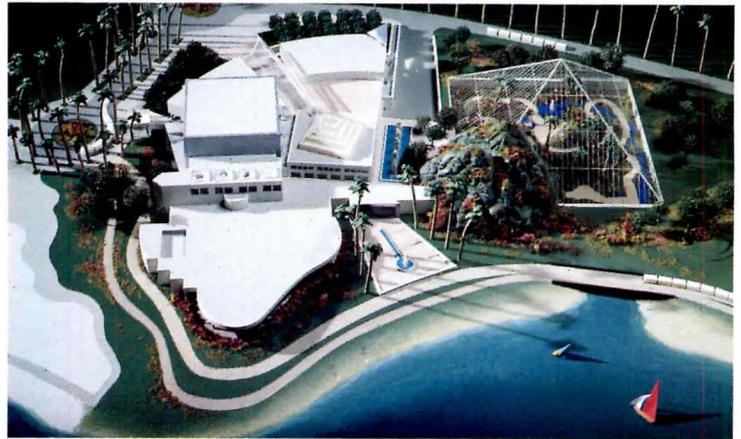


# A garden of hope and recovery

Jogging trails, animal exhibits, artificial lagoons, and a performing-arts theater sound more like the features of a Disney theme park than a development devoted to healing the handicapped. For the nonprofit Moody Foundation, however, tourist attractions are crucial ingredients for financially supporting the therapeutic, educational, and research facilities planned for 142 acres of Texas Gulf Coast marshland leased from the city of Galveston. Called Moody Gardens, the landscaped development is projected to take 20 years to complete at an estimated cost of \$120 million. In addition to offering facilities for the mentally and physically disabled, it will include a botanical garden designed by the renowned British landscape architect Geoffrey Jellicoe, a wetlands preserve, and a visitors' complex.

The Moody Foundation, a philanthropic organization founded by one of Galveston's wealthiest families, began planning the project in 1982 with a team of landscape architects, a horticulturalist, and an exhibit-design firm. The foundation's idea was to create a public recreational area adjacent to Galveston's municipal airport that would benefit the city and increase tourism on the island. One of the organization's trustees, Robert Moody, also saw the park as an opportunity to create a therapeutic setting for the mentally and physically handicapped, inspired by his son's slow recovery from a brain injury through animal-assisted therapy. As a result, the first project to be completed at Moody Gardens was Hope Arena, an indoor riding ring used for guiding disabled children and adults on horseback that was eventually expanded to accommodate civic events. In 1985, the foundation decided to expand its programs for the handicapped by constructing a setting that would facilitate supervised contact with small animals ranging from rabbits and turtles to parrots and iguanas. "It's more than a petting zoo," says administrator Ralph McPheeters of the resulting building. "By interacting with the animals directly, the disabled gain self-reliance and self-esteem, and the facility gives people of all ages the opportunity to learn about animals, plants, and minerals. We also offer an outreach program to hospitals, nursing homes, and orphanages."

Completed in 1988, the animal-contact facility (pages 96-97) was designed by the Houston office of Morris Architects, which viewed the commission as an opportunity to establish the tone for



- |                            |                                 |
|----------------------------|---------------------------------|
| 1. Hope Arena              | 13. Jellicoe-designed gardens   |
| 2. Seaside Safari          | 14. Wetlands                    |
| 3. Jogging trail           | 15. Wetlands overlook/boardwalk |
| 4. Tramway                 | 16. Wetlands interpretation     |
| 5. Hotel                   | 17. Subtidal lagoon             |
| 6. Palm Beach              | 18. Parking                     |
| 7. Restaurant              | 19. Water gardens               |
| 8. Performing/Imax theater | 20. Pier and dock               |
| 9. Visitors' center        |                                 |
| 10. Tropical biome         |                                 |
| 11. Alpine conservatory    |                                 |
| 12. Desert conservatory    |                                 |

*A botanical garden in Galveston offers lessons in sustaining nonprofit educational, therapeutic, and research facilities through revenue-producing tourist attractions.*

Moody Gardens  
Galveston, Texas  
Morris Architects



©Rick Gardner photos

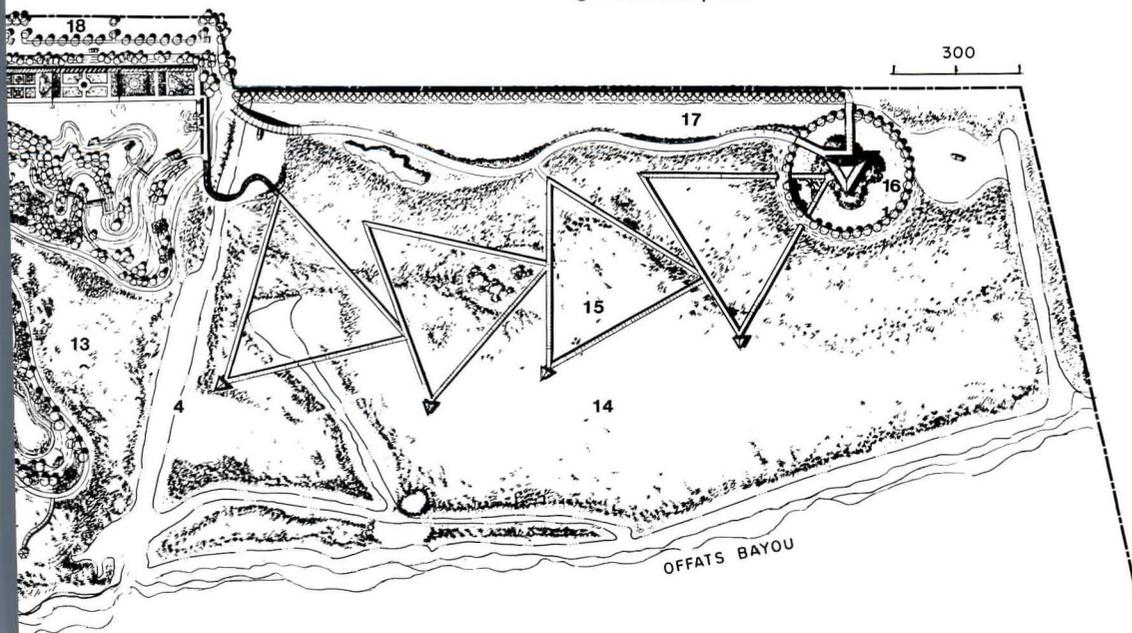
the future development of Moody Gardens with architecture integrated into the landscape. Dubbed Seaside Safari (the result of a naming contest held among the city's schools), the animal-contact facility adjoins the riding arena (site plan), but couldn't differ more from the industrial shed in its intimate, almost residential scale (bottom left). The 6,000-square-foot building is designed to allow visitors to interact with a variety of animals in outdoor and indoor settings, including classrooms for individual and group therapy, a greenhouse-like "garden parlor," and a separate wing housing animal pens and exercise areas.

To the northwest of the animal-contact facility along Offats Bayou, an inlet that borders the site, the Moody Foundation decided to create a three-acre recreational area equipped for the handicapped that would attract families with young children (pages 98-99). Designed by Houston-based landscape architects SLA Studio Land (formerly Smith, Locke, Asakura), the tropical enclave is planted with date palms and blanketed in white sand, and features freshwater swimming lagoons, a waterfall, and outdoor whirlpools. At the entrance, Morris Architects designed an umbrella-covered concession stand (top left) that boldly establishes a colorful symbol for the waterfront park, which the Moody Foundation appropriately named Palm Beach.

For the next phase of the development, Morris Architects has been commissioned to create a \$50-million visitors' center (model opposite), due to begin construction late next year. The complex will incorporate a 400-seat film theater, a 200-seat restaurant, and a 100-foot-high glass pyramid enclosing an acre of tropical plants. The architects will also oversee the expansion of Hope Arena into a convention center and the eventual construction of Jellicoe's botanical garden, which traces the history of landscape from the primeval forest through 19th-century Romanticism.

While Moody Gardens emphasizes the lofty ideals of teaching and healing, the client has adopted a hard-headed approach to ensuring the longevity of its educational and rehabilitative programs by supporting them with revenue-producing leisure facilities for the public, such as Palm Beach and the proposed theater. It is this highly pragmatic attitude that should sustain the Moody Foundation's ambitious and unprecedented vision.

*Deborah K. Dietsch*

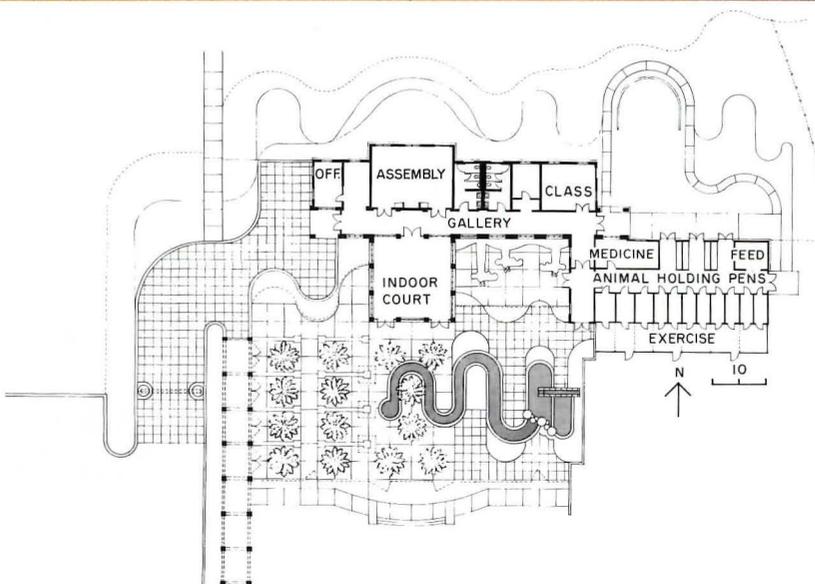


# Seaside Safari

© Rick Gardner photos



“We tried to create a building sympathetic to Galveston’s architectural traditions,” explains principal-in-charge Don Springer of Morris Architects’ animal-contact facility at Moody Gardens. Designed with spacious rooms, outdoor courtyards, and a structure sturdy enough to withstand 140-mph hurricane winds, the 6,000-square-foot building is intended to encourage therapeutic interaction between handicapped persons and animals, as well as to provide educational programs for children and adults. The architects organized the classrooms, staff offices, support spaces, and animal holding areas along a gable-topped central corridor (plan). On the southern elevation, they extended a glass-enclosed pavilion (left) that houses a tropical environment of lizards, parrots, and exotic plants. Surrounding the stucco-covered structure are outdoor gardens designed by the Houston-based landscape architecture firm SLA Studio Land, with whimsical touches such as a snake-shaped stream (left), giraffe-shaped topiary, and metal gates decorated with elephants and fish. Scattered around the grounds is the Moody Foundation’s collection of geodes and crystals, including a sculpture fashioned from selenite (opposite bottom).  
D. K. D.



**Architect:**  
Morris Architects—Donald Springer, principal-in-charge; Pete Ed Garrett, design principal; Burke Lane, project architect

**Landscape architect:**  
SLA Studio Land, Inc.

**Engineers:**  
Walter P. Moore and Associates (structural); CHP & Associates (mechanical)

**General contractor:**  
Tellepsen Corporation; D. L. Meacham Construction (sitework)



# Palm Beach

©Rick Gardner photos



One of the current ways Moody Gardens supports its educational and therapeutic programs is by charging admission to Palm Beach, a public recreational area located to the north of the animal-contact facility. Designed by landscape architects SLA Studio Land, the tropical environment boasts a 15,000-square-foot freshwater lagoon, a 12-foot-high waterfall, a beach covered in white sand barged in from Florida, and a 1,000-foot-long boardwalk stretching along an adjacent bayou.

To provide services for the 3,000 visitors who flock to Palm Beach, the Moody Foundation commissioned Morris Architects to design a concession stand, ticket booth, and changing facilities. The architects complied with the programmatic requirements by treating the functions as freestanding, one-story pavilions (bottom left and opposite) and shielding them with a vaulted, canvas-covered steel structure (top left), which has become a colorful emblem for the park. Based on the success of their design, the architects were commissioned to add another canopied structure at the opposite end of Palm Beach, covering two whirlpools, a refreshment stand, and massage rooms, and to extend a pier from the southern edge of the site. *D. K. D.*



**Architect:**

*Morris Architects—Donald Springer, principal-in-charge; Pete Ed Garrett, design principal; Burke Lane, project architect; Rick Birkinshaw, designer*

**Landscape architect:**  
*SLA Studio Land, Inc.*

**Engineers:**  
*Walter P. Moore and Associates (structural); CHP & Associates (mechanical)*

**General contractor:**  
*Tellepsen Corporation; D. L. Meacham Construction (sitework)*



THE SHORE-LINE

A F E

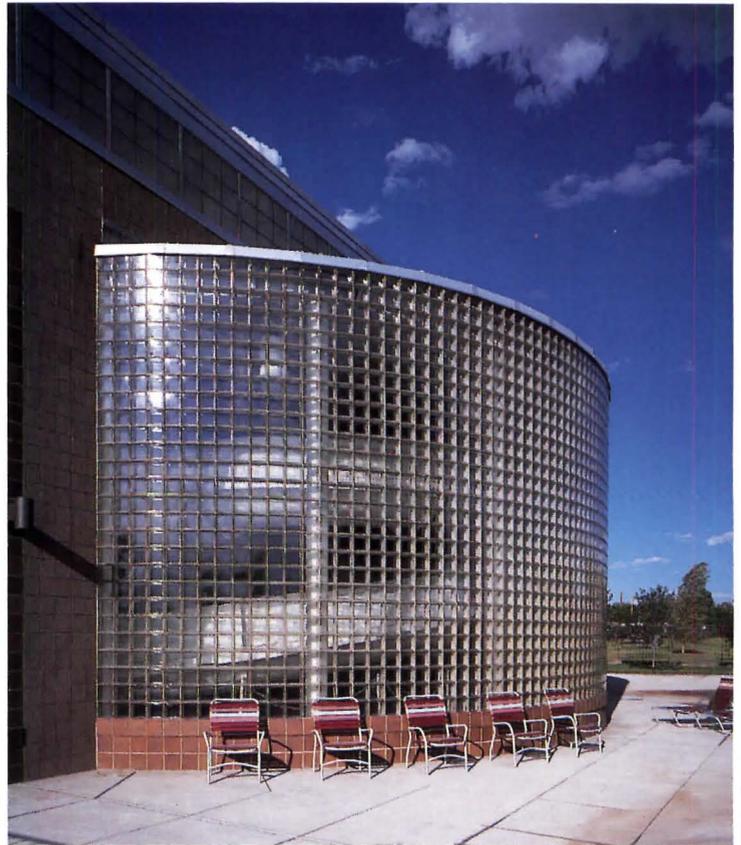
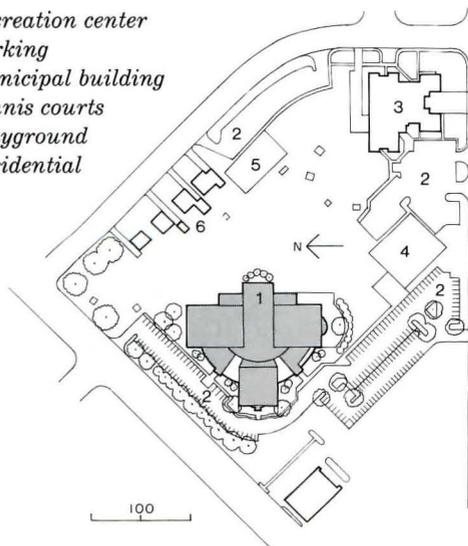
# Recreation serves and shapes a community

The aptly named suburb of Commerce City, a blue-collar enclave on Denver's industrial fringe, has a resident population of 17,000 that doubles daily as workers from throughout the metro area fill its plants and factories. For both groups the recreation center lately added to the town's 8.5-acre City Park has introduced a new-found common ground, fittingly joining the nearby city hall to form the nucleus of an emergent municipal core bounded on one hand by neighborhood streets lined with tidy bungalows, on the other by commercial and industrial development.

Not so fittingly, architects Barker Rinker Seacat & Partners were enjoined to "match" the new building to the brick-infilled concrete of the typically '60s city hall, a dictum they both followed and transcended with a formally symmetric load-bearing masonry structure of buff brick with darker brick insets enlivened by sweeps of glass masonry. In addition to welcoming but tempering the region's abundant sunlight, the glass block also tempers the building's outlook to a view that takes in the westward mountains by way of foreground strip shopping and fast-food establishments and a mid-ground panorama including oil refinery, multisiloed grain elevator, assorted warehousing, and a dog track. But any hint of constriction is rebutted by the openness of an interior at once straightforward and dynamic.

As is usual in such facilities, the design was driven by the irreducible bulk of the required gymnasium and swimming pool, and further prodded by the program emphasis on facilities to serve older members of the community. In response, pool and gym are paired, with lockers and related facilities between them; a senior center, with its own prominent entrance through a garden terrace (bottom opposite), is set on the cross axis to form a T filled in by large multipurpose and crafts rooms. Additional entries on either side lead by way of arcades on open courts (bottom right) to a two-story lobby that draws natural light from an arced glass-block clerestory. A central control point allowing unobtrusive oversight of the entire complex, the atrium/lobby is more importantly a vital hub animated by its visual links to surrounding areas and activities. Interior window walls, for example, offer views of gym and pool, which are also overlooked by a second-level jogging track whose circuit traces an overhead loop through the lobby to other major spaces. *Margaret Gaskie*

1. Recreation center
2. Parking
3. Municipal building
4. Tennis courts
5. Playground
6. Residential

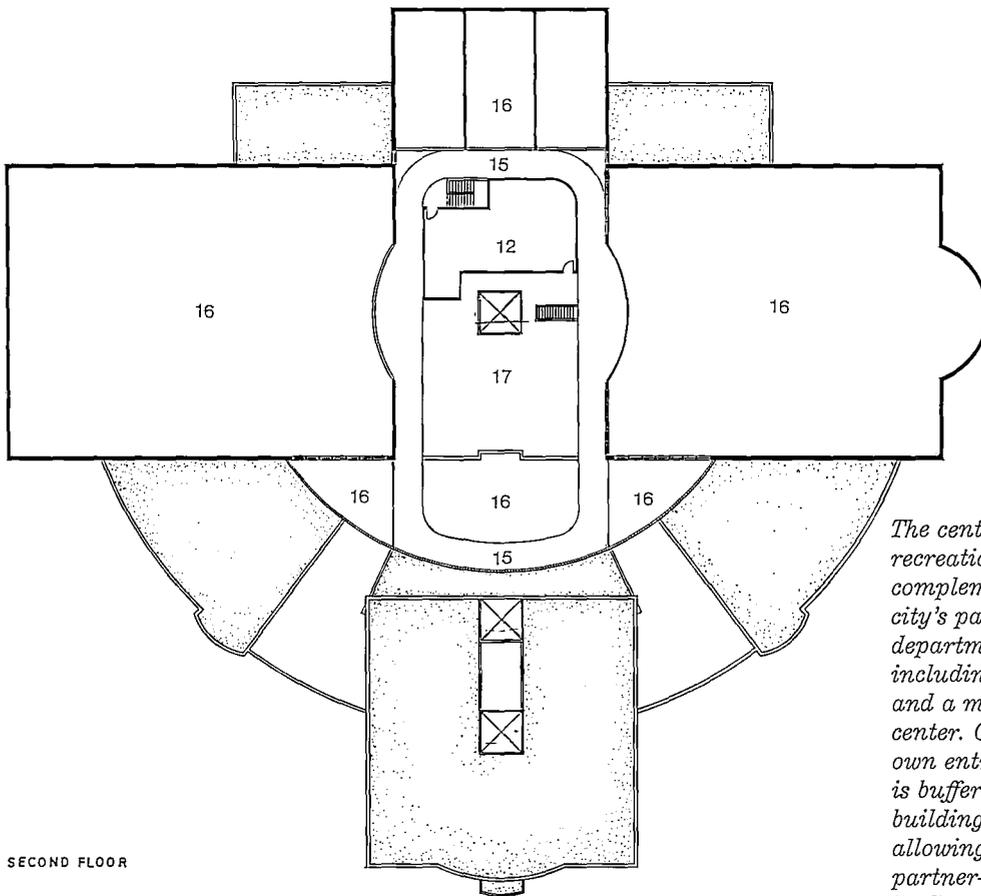


*Government and industry, residents and commuters, young and old, find common ground in a recreation center at the core of an across-the-tracks Denver suburb.*

Commerce City  
Recreation Center  
Commerce City, Colorado  
Barker Rinker Seacat &  
Partners, Architects

*Jerry Butts photos*

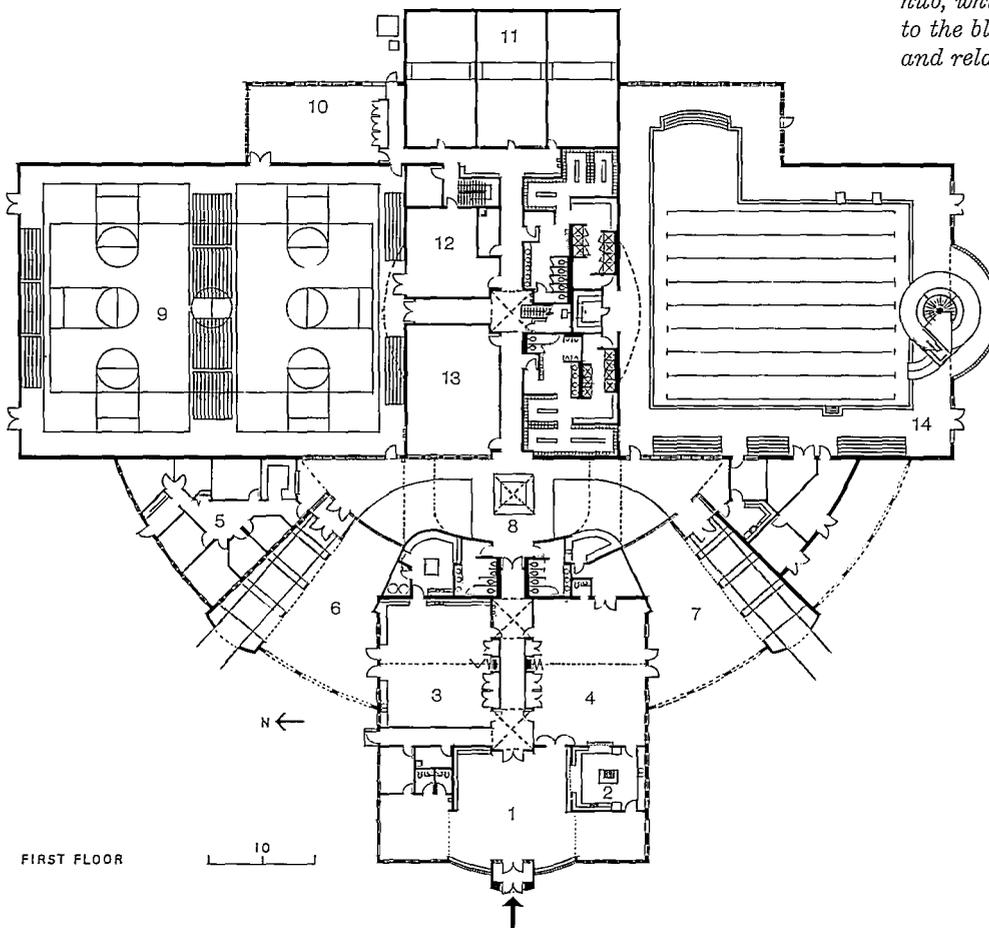




SECOND FLOOR

1. Senior activities
2. Kitchen
3. Arts and crafts
4. Multipurpose
5. Administration
6. Art court
7. Play court
8. Lobby/atrium
9. Gymnasium
10. Aerobics/dance
11. Racquetball
12. Storage
13. Weight room
14. Pool
15. Running track
16. Open to below
17. Expansion

The center's full menu of recreational activities is complemented by offices for the city's parks and recreation department, daycare facilities including an outdoor tot-lot, and a much-frequented senior center. Given identity by its own entrance, the senior center is buffered from the rest of the building by shared spaces, allowing seniors what BRS partner-in-charge Mark McCormick (now with The Oliver Design Group) calls "selective involvement." Two other entrances in a west-facing fan converge on the center's hub, which in turn gives access to the block housing pool, gym, and related amenities.



FIRST FLOOR

The bulky mass of the gym is twinned with a 25-meter pool (bottom left) that features a 25-foot-high spiral slide, a curved glass-block wall to admit natural light, and an open sun deck reached by sliding glass doors. Clear-spans across both pool and gym are bridged by

inverted steel trusses that allow translucent sloping skylights along their full length. Reinforcing the visual continuity among the building's spaces, an elevated running track encircles its core, looping through the lobby (left and right below) and

continuing past overlooks that skirt gym, pool, and racquetball courts beyond.



**Commerce City Recreation Center**  
 Commerce City, Colorado  
**Owner:**  
 City of Commerce City  
**Architect:**  
 Barker Rinker Seacat & Partners—Mark McCormick, partner-in-charge; Kenneth A. Berendt, project architect; David Hammel, construction administration  
**Engineers:**  
 KKBNA (structural); Richard Weingardt Consultants (civil); Osbaugh-Miller Associates (mechanical); Torgerson/Yingling & Associates (electrical)

**Consultants:**  
 Kip Wood, Inc. (pool); Virginia DuBrucq (interiors); Engineering Dynamics (acoustical); Civitas (landscape)  
**General contractor:**  
 Saunders Construction, Inc.

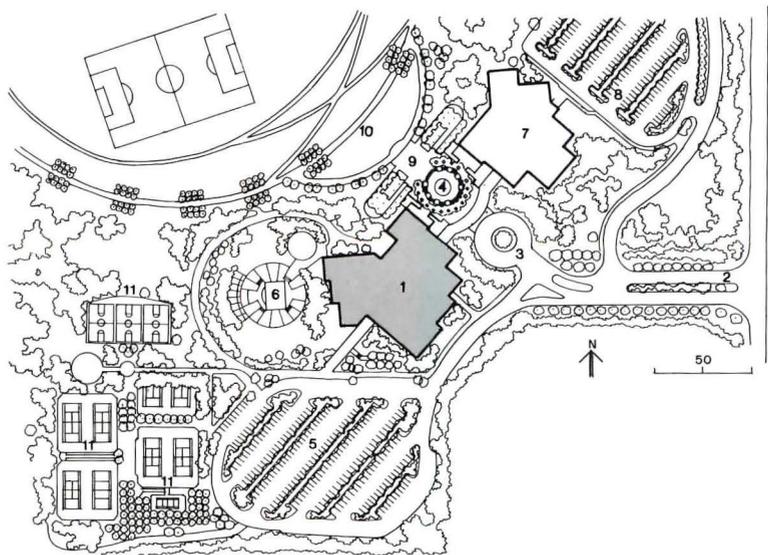
# No little plans

City Park Recreation Center  
Westminster, Colorado  
Barker Rinker Seacat &  
Partners, Architects

Indistinguishable from its counterparts among the cheek-by-jowl bedroom suburbs that swarm along the Front Range north of Denver, Westminster is an all but invisible city. But not, it seems, for long. Whispers are abroad of plans for a substantial mixed-use "city center," and the recent completion of a state-of-the-art recreation complex substantiates the city's ambitious scheme for a 100-acre park of which it is the first phase (partial plan below).

Although Barker Rinker Seacat & Partners designed the recreation center concurrently with Commerce City's (preceding pages), Westminster's reflects a different outlook—literally and figuratively. Envisioned as a communal resort welcoming sedentary pursuits along with sweatier activities, the building also broadens its horizons visually with a high-perched site and a wide-open glass and masonry structure (top right and opposite) that combine to exploit fully the mountain views. The location also reinforces the complex's linkage with the town via an approach off a major thoroughfare, from which a divided drive climbs to a drop-off court tangent to a circular fountain-centered plaza (below right and bottom opposite), both generously scaled in anticipation of the center's future pairing with a library opposite.

Entry to the center itself is announced by gable-roofed two-story porches at each end which open to a high, skylit galleria thrust through the building's spine. A plan-ordering element, the galleria also previews the center's varied offerings. At the south entrance the promenade becomes a bridge spanning the adjacent gym and pool, the complex's principal volumes. On the north the passage is flanked by daycare, meeting, and crafts areas and, looking west, an assembly room whose appeal is attested by months-ahead bookings for weddings and other celebrations. Between, the promenade edges a roomy lounge overlooking the pool and circles a stairwell leading to it, introducing the core that has made the complex a showplace and a magnet for community residents. A three-tiered water playground, the pool is so alive with slides and rope swings, bubblers and sprays, cascades and caves that it seems only incidentally for swimming. The further embellishments of plantings, bridges—even a picnic area—and a ceiling-high glass wrapping complete the illusion of continuity with the outdoors and foreshadow the future park at its doorstep. Next on the agenda: an outdoor pool. *Margaret Gaskie*



#### Existing:

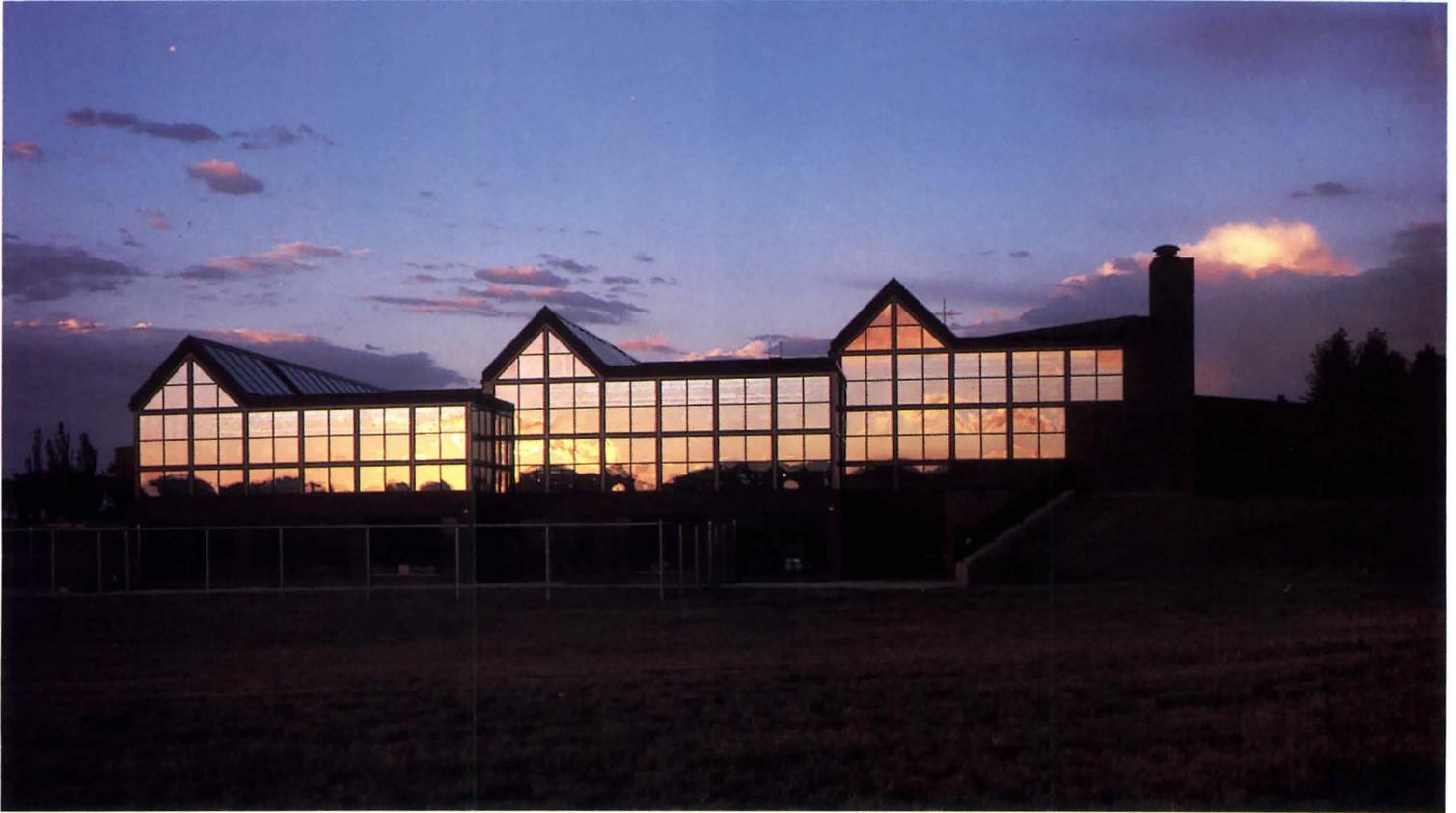
1. Recreation center
2. Entry drive
3. Auto court
4. Fountain plaza
5. Parking

#### Future:

6. Outdoor pool
7. Library
8. Parking
9. Formal terrace
10. Pedestrian promenade
11. Tennis courts/court games

*A Denver suburb's view-embracing community "resort" is the first installment of its ambitious 20-year plan for a grandly conceived city park in the shadow of the Rockies.*

*Jerry Butts photos*

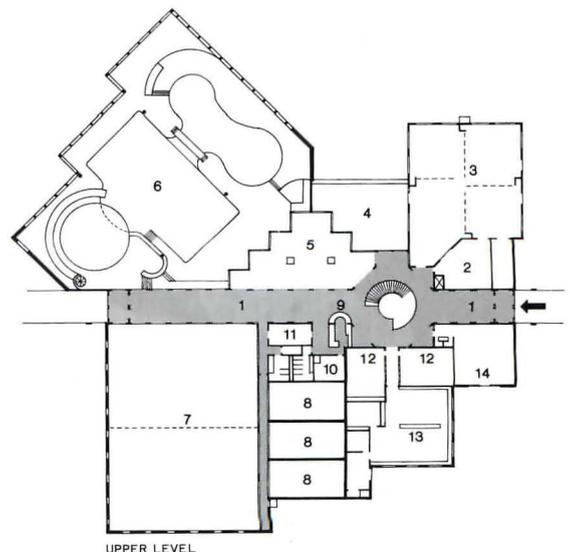


*Disguising the center's bulkiest volumes—the gym cuts into the site, the pool steps down its slope—kept its profile to a friendly two stories. At each end, gabled entry porticos (below left) open on an airy two-story galleria (below right) that is both the center's*

*circulation spine and an inviting destination in itself. Lighted throughout by high clerestories, the promenade is also glass-walled as it bridges gym and pool. At the central reception desk it opens to embrace a lounge, then circles the stairwell to the lower level*

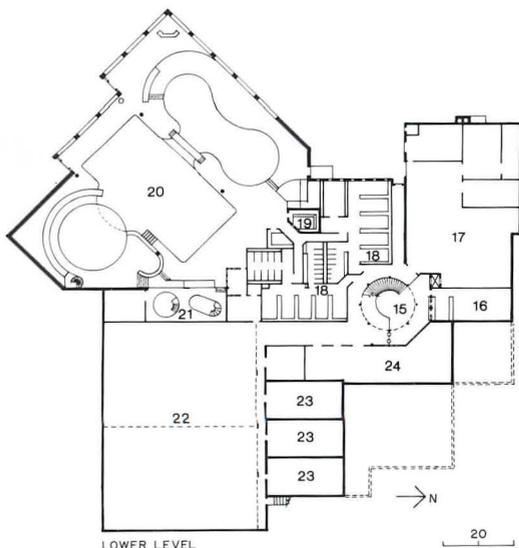


- |                      |                       |
|----------------------|-----------------------|
| 1. Galleria          | 13. Crafts            |
| 2. Kitchen           | 14. Daycare           |
| 3. Community room    | 15. Lower lobby       |
| 4. Deck              | 16. Staff             |
| 5. Lounge            | 17. Storage/expansion |
| 6. Pool below        | 18. Lockers           |
| 7. Gymnasium below   | 19. Steam/sauna       |
| 8. Racquetball below | 20. Pool              |
| 9. Vending           | 21. Spa               |
| 10. Office           | 22. Gymnasium         |
| 11. Reception        | 23. Racquetball       |
| 12. Classroom        | 24. Weight room       |



and its facilities for active sports: gymnasium (with a specially built rock wall for climbing), racquetball courts, a weight room, and, of course, the something-for-everyone pool. Visitors enter from locker rooms to a 25-yard activity pool for lap swimming and

water sports, ringed by a spa, sauna and steam room, and planted poolside snack and lounge areas. On the level above, a deep pool offers diving, rope swings, and a curved slide; below, a shallow pool with bubblers, sprays, and a slide accommodates small children.



*City Park Recreation Center  
Westminster, Colorado*

**Owner:**

*City of Westminster*

**Architect:**

*Barker Rinker Seacat & Partners—Ronald Rinker, partner-in-charge; Duane Crawler, project architect; David Hammel, construction administration*

**Engineers:**

*KKBNA (structural); Richard Weingardt Consultants (structural); Osbaugh-Miller*

*Associates (mechanical); Torgerson/Yingling & Associates (electrical)*

**Consultants:**

*Royston, Hanamoto, Alley & Abey (landscape); Kip Wood, Inc. (pool); Chen & Associates (soils); Engineering Dynamics (acoustics); Associated Irrigation Consultants (irrigation); GSR Design Group (interior landscape)*

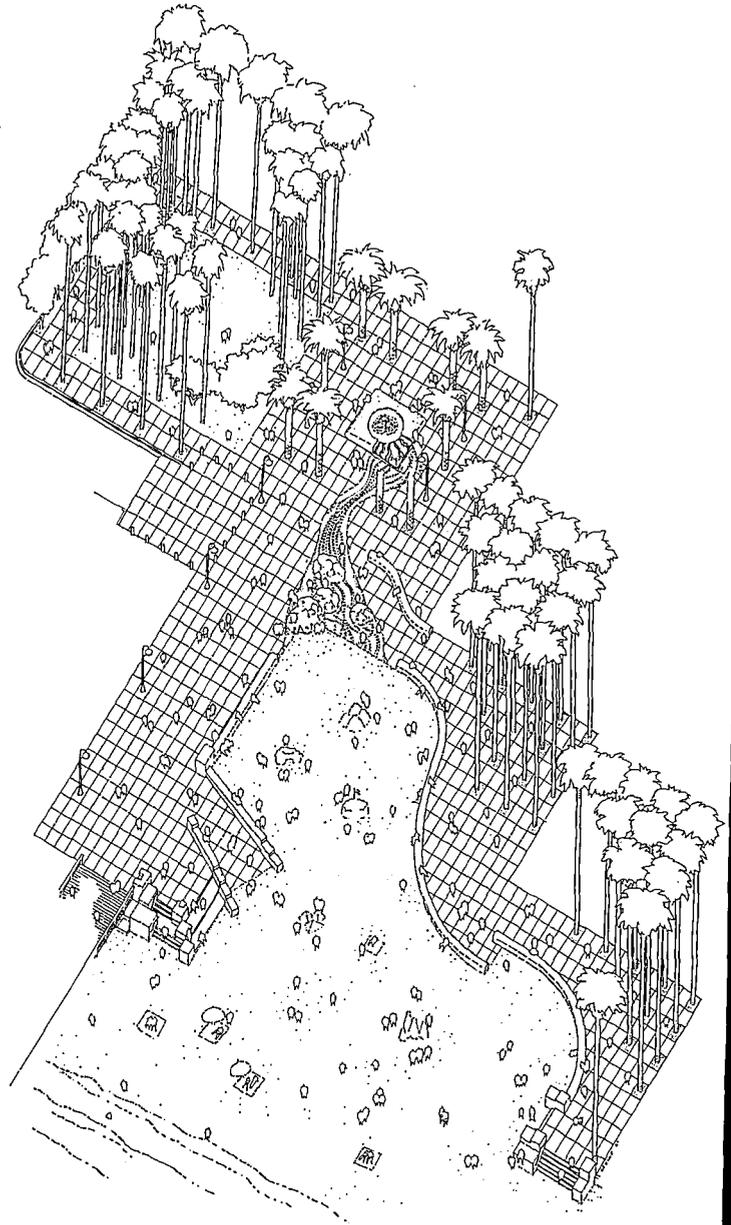
**General contractor:**  
*J. E. Dunn*

# Royal treatment

Campbell & Campbell is a Santa Monica-based practice committed to public work. Despite the political squabbles and inevitable frustrations associated with these projects, the husband-and-wife team finds that even small attempts to improve peoples' daily lives are worth the effort. In practicing both architecture and landscape architecture, the Campbells are also committed to returning degraded natural environments to their original state, a process that is becoming increasingly common in California. Their combined interest in public spaces and landscape renovation is best exemplified by an oceanfront park located near the California-Mexico border in San Diego County's poorest city, Imperial Beach. Funded by a grant from the California Coastal Conservancy, the project grew out of a series of design workshops, involving 600 members of the community, that were organized to formulate a master plan for redeveloping the city's waterfront. The outcome of this citizen process was an ambitious scheme for a large hotel, condominium, and commercial complex, a public park, and the restoration of an existing pier. Campbell & Campbell was awarded the commission for the first phase of this proposal, namely the park, which it designed in accordance with the community's guidelines.

The design evolved from the architects' decision to evoke the most significant natural features that surround Imperial Beach: the nearby Tijuana River estuary, which they recalled in a fountain and spray of undulating tilework, and the Coronado Islands, just visible on the horizon from the pier, which they symbolized by a group of granite boulders. Rather than treat the park as a static formal space, Campbell & Campbell defined its area with a number of eccentric elements to form a dynamic landscape. A sweeping fan of sand opening out to the ocean's edge divides the checkerboard-paved plaza into a narrow linear space shaded with a grid of palm trees that steps down to the beach and pier. On the side facing the city, a grassy area surrounded by palm trees provides a more urban frontispiece to the park. Hailed as successful by elected officials, citizen groups, and visitors alike, the park has spurred private investment, including new housing and stores, and now serves as a Pacific Ocean setting for an annual sandcastle-building competition.

*Judith Sheine*



*The irregular site of Imperial Beach Pier Plaza is organized along a central spine of manmade artifacts stretching from a streetside fountain to a pier (opposite top). Its axial organization is countered by natural elements, including a group of boulders, a "stream" of tiles, and a sweep of sand (axonometric and opposite top). At the edges of the plaza, low concrete walls edged with tile (opposite bottom left) and granite boulders (opposite bottom right) double as seating.*

*Imperial Beach Pier Plaza  
Imperial Beach, California  
Architect and landscape  
architect:*

*Campbell & Campbell—  
Douglas and Regula Campbell,  
designers; Stephen Levine,  
project manager*

**Engineers:**  
*Moffat & Nichol (civil)*

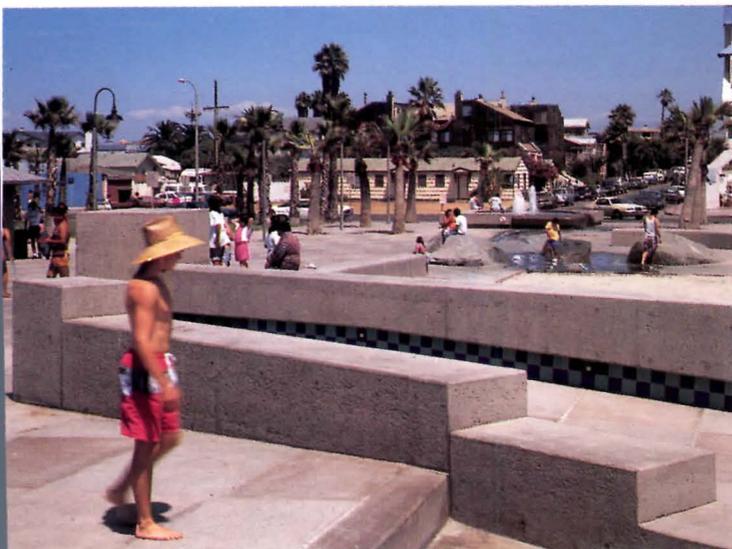
**Consultant:**  
*Associated Irrigation  
Consultants*

**General contractor:**  
*T. B. Penick & Sons*

*Designed in collaboration with citizens of a California coastal city, Imperial Beach Pier Plaza belies its name by offering a festive outdoor setting accessible to both visitors and residents.*

Imperial Beach Pier Plaza  
Imperial Beach, California  
Campbell & Campbell,  
Architects

©Michael Moran photos



# Reconstructing a Victorian legacy

One of Frederick Law Olmsted's most precious gifts to Brooklyn in the early 20th century is the borough's Botanic Gardens, a green oasis startling in its contrast to the gritty buildings that surround it. The Brooklyn Botanic Gardens are not large, totaling just over 50 acres, but they are lush and picturesque.

The limited size of the gardens led Olmsted to an unusual decision: Instead of siting the conservatory, designed by McKim, Mead & White in 1918, as a jewel in the center of the greenery, he called for it to be linear composition strung along one edge of the gardens, facing Washington Avenue (aerial photo below).

The gardens have become one of Brooklyn's most treasured institutions offering, in addition to the pleasures of strolling among the trees and flowers, some marvelous greenhouse collections and an active educational program. Its centerpiece, a soaring palm house, has served a variety of functions. Over the years, however, the conservatory had fallen into disrepair. The palm house in particular had decayed beyond the point of possible renovation. The wood-framed greenhouses were less than energy-efficient. And there was pressing need for additional space in which to display the institution's growing collections.

So in 1987 Davis, Brody & Associates was commissioned to rebuild the conservatory almost from scratch in a \$25-million project. It is now called the Steinhardt Conservatory after a donor. Only the McKim, Mead & White building was retained and renovated into administrative quarters and a visitors' center with a new entrance from Washington Avenue.

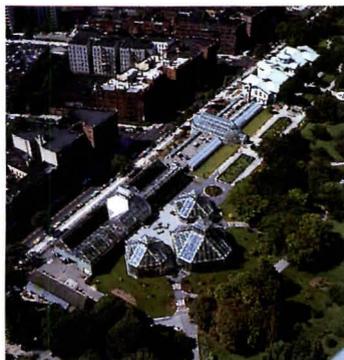
Although there was some early discussion of inserting the conservatory into the gardens, the wisdom of Olmsted's original siting prevailed. Indeed, the garden alternative would have been even more disruptive now than originally, since it would have replaced some fine mature trees and other plantings. Olmsted, in fact, had left a plan for the conservatory's expansion, simply extending

the row of buildings along the avenue. Davis, Brody essentially followed this plan, but with some significant appendages.

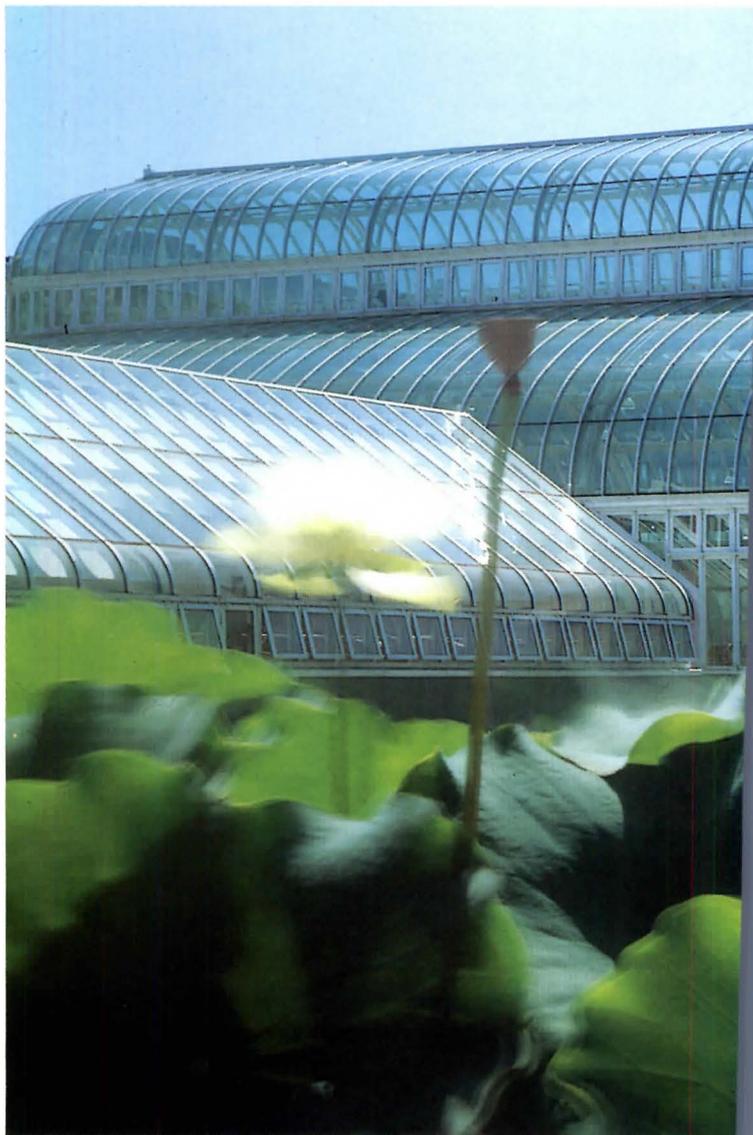
South of the McKim, Mead & White building, approximately on the footprint of the old greenhouses but extending beyond them, is a long, gabled building. Its first floor facing the avenue is stucco, to be covered with ivy. Above it is a neo-Victorian greenhouse structure of tubular steel and double glass (page 115). The framing is pale green outside, reflecting the almost too-vivid green of McKim, Mead & White's building. Only the greenhouse portion of the new building is visible from the gardens, on axis with a system of formal pathways, terraces, and lily ponds.

The segment closest to McKim, Mead & White, however, is devoted to offices and classrooms, made more interesting by the slanting glass roof. Another segment near the garden entrance is an extensive plant shop, a popular facility formerly tucked away in a basement. There is also a striking, sculptural exhibit on the "trail of evolution," incorporating some actual fossils.

*Continued on page 114*



©Paul Warhol



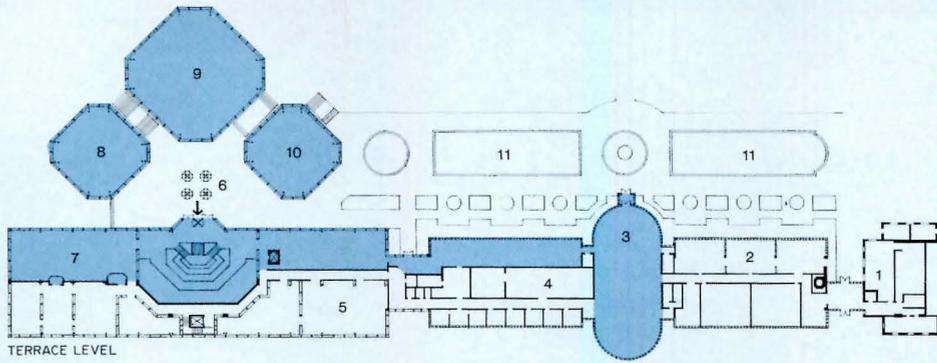
©Patricia Layman Bazelon photos, except as noted

*An artful combination of new construction and historically accurate replication has given the Brooklyn Botanic Garden a new lease on life.*

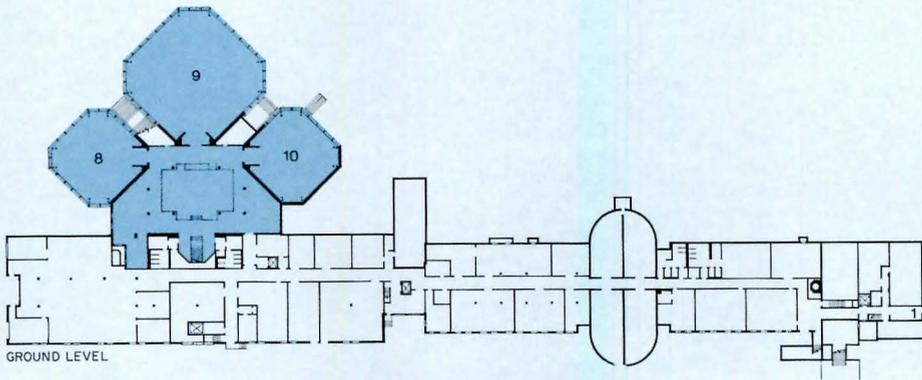
Steinhardt Conservatory and Palm House Restoration  
The Brooklyn Botanic Garden  
Brooklyn, New York  
Davis, Brody & Associates,  
Architects

©Paul Warchol



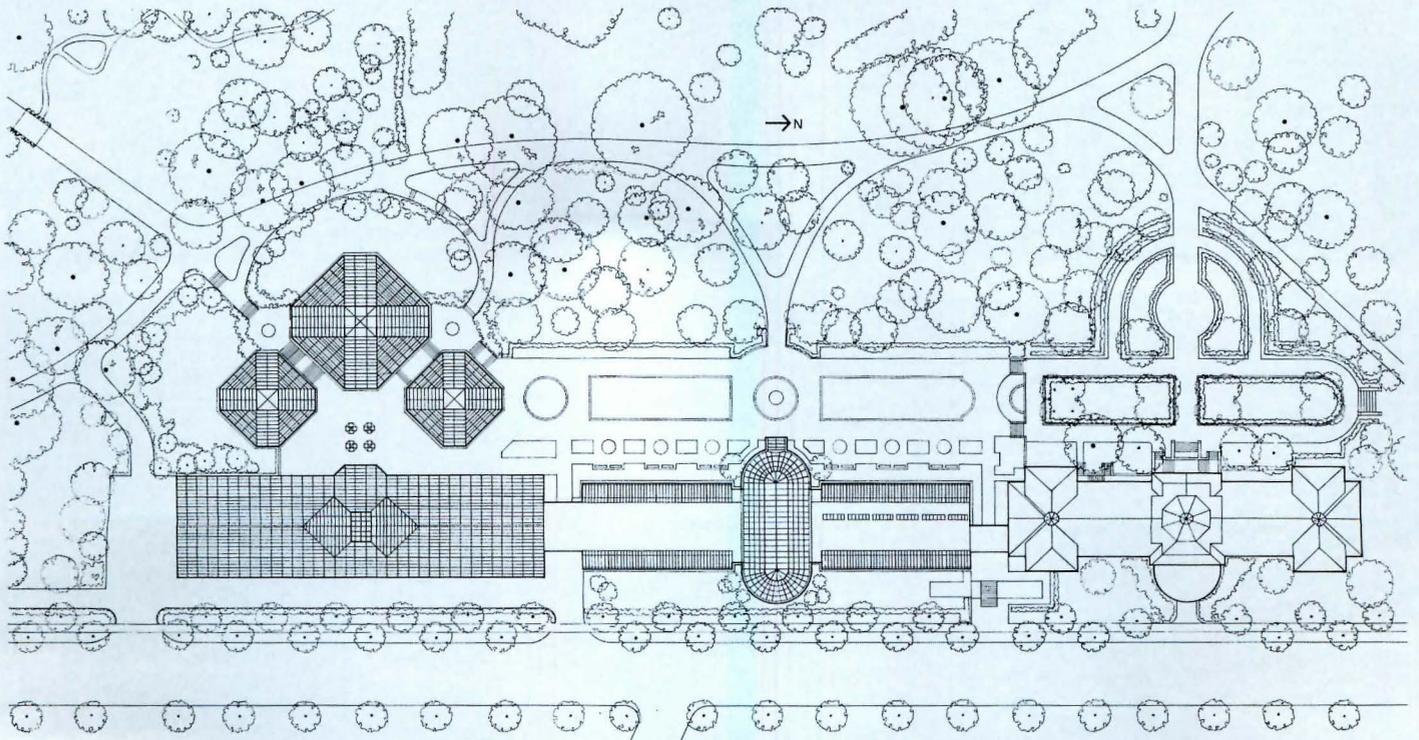


TERRACE LEVEL



GROUND LEVEL

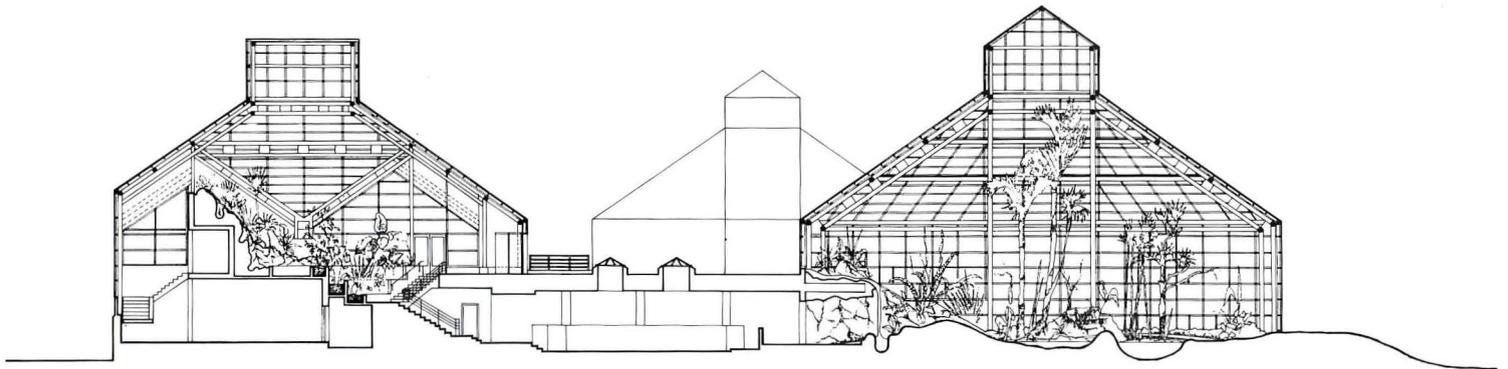
1. Visitors' center
2. Education center
3. Palm house
4. Plant shop
5. Bonsai greenhouse
6. Main garden entrance
7. Aquatic plant greenhouse
8. Desert pavilion
9. Tropical pavilion
10. Temperate pavilion
11. Lily ponds



The principal exhibition areas at the Brooklyn Botanic Gardens occupy three glazed octagonal pavilions housing flora of the temperate, tropical, and desert zones (photos this page and page 114). Entry to the pavilions is down a grand staircase in the greenhouse building (far left in top photo), one level below grade. The pavilions are constructed of heavy tubular steel framing—painted pale green outside and white inside—and horizontal double-glazed panels. Stairways between the pavilions connect to garden paths (bottom photos and site plan opposite).



© Paul Warchol



© Jeff Goldberg/ESTO



© Jeff Goldberg/ESTO

*Steinhardt Conservatory and  
Palm House Restoration  
The Brooklyn Botanic Garden  
Brooklyn, New York*  
**Owner:**  
*The Brooklyn Botanic  
Garden—Donald Moore  
(president); Peter Casler  
(project manager)*

*Continued from page 110*

Inserted into the greenhouse building transversely is the palm house (pages 110-111). This voluminous structure, oval in plan, is an exact replication of the original and is in constant use for meetings and other events. South of the palm house, past the shop and bonsai greenhouse, is the garden entrance, marked by a striking, angular protrusion topped by a gabled cupola. This is the conservatory's sole dramatic departure from the Victorian.

Entry is from a paved terrace bearing four pyramidal skylights. Surrounding the terrace are the conservatory's most intriguing new constructions: three octagonal steel and glass pavilions with pyramidal cupolas. They are identical in form but one is taller than its siblings. Together, they make a pleasing composition and a strong foil to the linearity of the buildings facing the avenue.

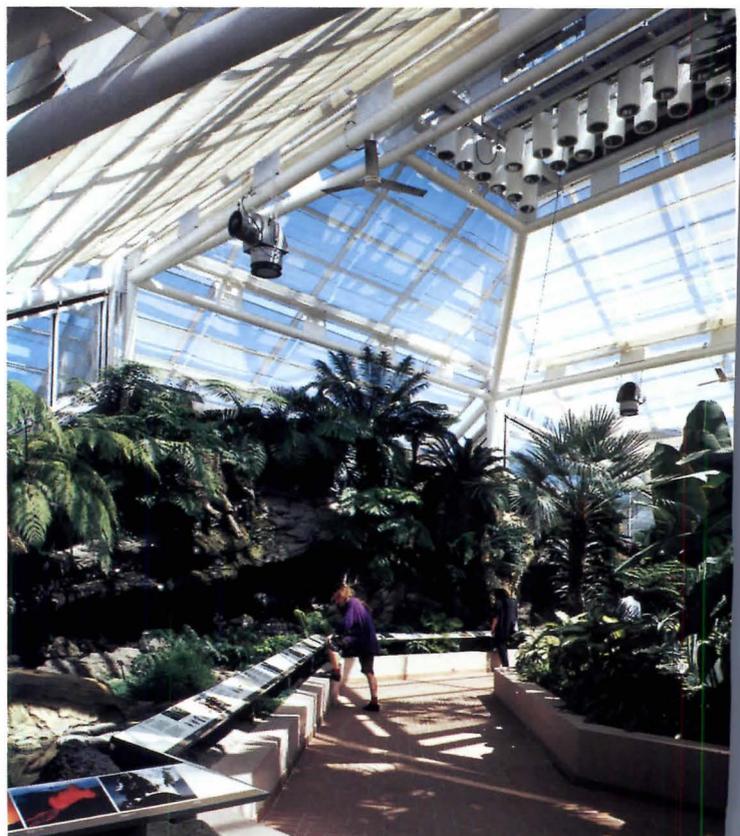
The pavilions (page 113) are airy but not gossamer light. Their framing is sturdy, almost industrial. Here, too, the color palette is pale green outside and white inside. Glazing is in wide horizontal panels rather than in the vertical configuration that one associates with traditional greenhouse construction. Visitors look down into the pavilions and skylights to see the exhibits, which are below grade. They enter the long building and then proceed down a central staircase to the exhibit level. Just off the staircase, illuminated by the terrace skylights, is an area for changing displays.

Each pavilion's exhibition area is devoted to a single climatic region and its flora: desert, tropical, and temperate zones. These exhibits formerly were lined up along greenhouse corridors; now each has its own identity and environment. Visitors do not just look at the three zones, they inhabit them. When the exhibits mature, in the words of a conservatory brochure, "the desert pavilion will be a real desert, with jojoba and saguaro and the giant Joshua tree planted in undulating slopes of sand and stone. The tropical pavilion will be a Mediterranean hillside, flowering seasonally."

Even at this early stage, however, a great air of naturalness prevails in the pavilions. There are earth caves in the temperate pavilion, and trees in the tropical pavilion reach for its 65-foot height. By contrast, the changing-exhibit area surrounded by the pavilions below grade is far more pedestrian in character. Atop the pavilions, cupolas are more than decorative topknots, serving as exit vents for air admitted through windows at grade level. The two-level scheme allowed the architects to add a considerable amount of space without adding a great deal of mass. As a result the conservatory is an ornament to the gardens, not an intruder.

Both new and old buildings look considerably better from the gardens than they do from the avenue, which is as it should be. The avenue elevations are somewhat harsh now, but should soften as plantings there mature. Also, a little architectural muscle is appropriate, given the brick apartment buildings of Brooklyn that are the conservatory's very close neighbors.

*Donald Canty*



**Architect:**  
*Davis, Brody & Associates—  
Albert Grossman, Gerald  
Olanoff, John Henle, John  
McCoy, John Schwartz  
(associate), Constance Pugh  
Torborg, Marie Colasson,  
Steven Grotel, project team*

**Engineers:**  
*Goldreich, Page & Thropp  
(structural); Cosentini  
Associates (mechanical/  
electrical)*  
**Consultants:**  
*Hanna/Olin Ltd. (landscape);  
Dr. Stephen K. M. Tim, Breslin*

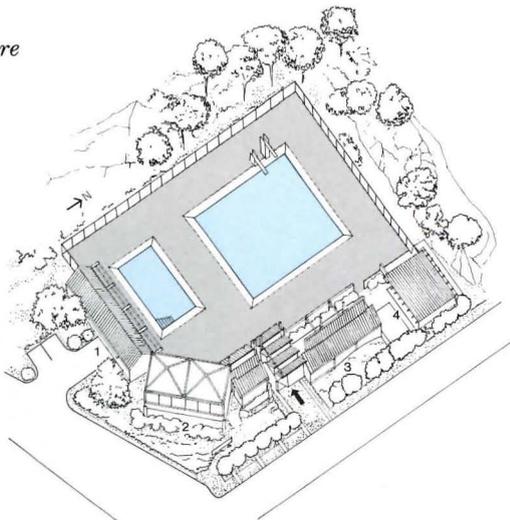
*Mosseri Design, The Larson  
Company (exhibition design);  
Paul Singer Associates  
(signage)*  
**General contractor:**  
*DeMatteis Construction Corp.*



# Aftermath



1. Pool building
2. Shade structure
3. Toilets
4. Snack bar



The first jolt of the 6.5 earthquake that rocked Coalinga on May 2, 1983, virtually dematerialized the unreinforced masonry buildings in the commercial district and profoundly damaged all other structures in the town. In less than a minute, Coalinga was transformed from an oil-rich boomtown fallen upon hard times into a pile of dust.

Only the infusion of federal and state funds to rebuild schools and other buildings kept the town from dying completely. Since the earthquake had irreparably damaged Coalinga's sports and entertainment facilities, residents who did not pack up and leave faced the rigors of reconstruction without any recreational outlet for their stress. The swimming pools at West Hills College and Coalinga High School were badly mangled, and the \$1.3 million available in government assistance was not enough to salvage them. An inventive solution was found when the Coalinga-Huron School District, the West Hills College District, and the Coalinga-Huron Parks and Recreation District formed a joint-powers agreement and persuaded California's Office of Emergency Services to use reconstruction funds to build a new swim complex.

*A festive swim complex re-creates a sense of place for an isolated California community devastated by earthquake.*

©Richard Barnes photos



Located across the street from the college and adjacent to the junior and senior high schools, the Coalinga Community Swim Complex had to meet a host of needs, including recreational swimming, competitive swimming and diving, handicap and aquatic therapy, and training for aquatic activities such as water polo and water polo. The Swim Board, under the guidance of the City School Superintendent Robert D. Vert, relied heavily upon the expertise of Edwin S. Darden Associates to establish program criteria for the complex. The architects were particularly suited to the commission. The firm had helped the Office of the State Architect assess the damage done to Coalinga's schools and was fully aware of the psychological climate in the town. Moreover, swimming-pool design was of particular interest to Ed Darden, whose Clovis West Olympic Swim Complex in nearby Fresno has proven to be one of the fastest outdoor swim venues in the country. At Coalinga, the emphasis was not on speed, but on the sense of recreation and competition uses. The competition pool, measuring 25 yards by 25 meters, was designed to qualify for certification under both AAU high school and Olympic competition

criteria. An extensive 18,000-square-foot deck serves as a staging area for up to 350 contestants while accommodating 2,000 spectators in portable bleachers.

"In a community suffering from the trauma of devastation, the pool, buildings, and grounds had to be a fun place for the town to gather," Darden said. Inspired by the episodic nature of a carnival midway, Darden interpreted the program's components as festive happenings united by a continuity of design elements. He selected industrial systems and materials to express the functional aspects of the office, toilet areas, dressing cubicles, lockers, snack bar, equipment-storage building, shade structure, handicapped-accessible pool, and competition pool. Structural tube steel was combined with prefinished, custom-designed spaceframe trusses and corrugated metal panels. In addition to symbolizing strength and permanence, these industrial materials are flexible enough to roll with the punch of earth tremors that continue to vibrate Coalinga. Perhaps just as significantly, the swim center's playful forms and vibrant colors create an atmosphere of gaiety and have instilled fresh life into a town that refused to die. *Janice Fillip*

Since Coalinga's summer temperatures routinely linger at 102 degrees and frequently percolate up to 112, the architects took every opportunity to provide shade within the town's new swim complex. A canopy of tilted metal panels shields the

entrance to the facility, and extended roof panels form awnings to protect the office, toilet, and snack bar (below and top photos opposite). An open-air pavilion covered with removable yellow canvas both controls and celebrates the sunlight (bottom). A suspended

space-frame truss supports a corrugated metal cover over the walkway leading to the toilet and change facilities (opposite bottom).



*Coalinga Community  
Swim Complex  
Coalinga, California*

**Owner:**  
*Coalinga-Huron Recreation &  
Parks District and West Hills  
College District*

**Architect:**  
*Edwin S. Darden Associates—*

*Edwin S. Darden, Jr.,  
principal-in-charge; Juan  
Gonzalez, project architect*

**Engineers:**  
*J. A. Paquette (structural);  
Donald R. Lawrence  
(mechanical); Electrical Power  
Systems (electrical)*

**Consultants:**  
*Milton Johnson (pool  
consultant); Robert Boro  
(landscape architect)*

**General contractor:**  
*Mauldin/Dorfmeier*



# Holding the center



*The Petaluma Community Center sits beside a man-made lake in Lucchesi Park, east of the U. S. 101 freeway. In addition to a steel-framed clock tower, the most striking aspects of the concrete-block facility are its prominent pyramidal roofs (photos this page and opposite)—the larger one covering a multipurpose auditorium, the smaller one marking a club room.*

Petaluma, a city of some 50,000 north of San Francisco, once proudly proclaimed itself the chicken capital of California. Now it is part semirural town and part bedroom exurb, the two segments divided neatly by Highway 101. To the west is a charming group of 19th- and early 20th-century buildings, to the east a seemingly endless sea of tract housing, without character or punctuation.

Until recently, that is, when the city completed its new community center in a deliberate effort to give the town's amorphous east side a focal point and gathering place. The 27,500-square-foot center is located alongside a man-made lake in Lucchesi Park and is the first component of a proposed civic complex that will include, when funding is available, a performing-arts center and athletic facilities.

The Petaluma Community Center is a simple, yet artful building that performs its intended functions admirably. The building makes itself known from afar by means of a tall metal clock tower and is a rambling, inviting presence by the lake. Concrete-block walls are dove gray, accented by dark charcoal ("the darkest they could make for us," says project designer John Miller). The structure is basically a rectangular box, bent at the center to take full advantage of the lake. Windows and doors are deeply recessed, giving the building something of the character of an early Western fort or trading post. This composition is greatly enriched by two teal-green appendages. The first is a loggia that wraps around the side and rear of the building and eventually will serve as the main entryway to the performing-arts center. The second is a pavilion housing the "club room," a square prefabricated metal structure set at an angle to the main building, with a pyramidal roof of its own and a tall chimney.

Inside the center is a wonderfully wide variety of community facilities. Under the pyramidal roof is a multipurpose auditorium used for performances, banquets, and all manner of other large-scale functions. At the nexus where the building bends is a spacious and welcoming entrance area, which, like the multiuse room, is illuminated by clerestories. On the lake side of the building are meeting, activity, and craft rooms, some divisible by sliding doors. Facing the lake is a delightful preschool classroom. Interiors on this side are brightened by a light court with a small pyramid echoing the exterior forms. *Donald Canty*



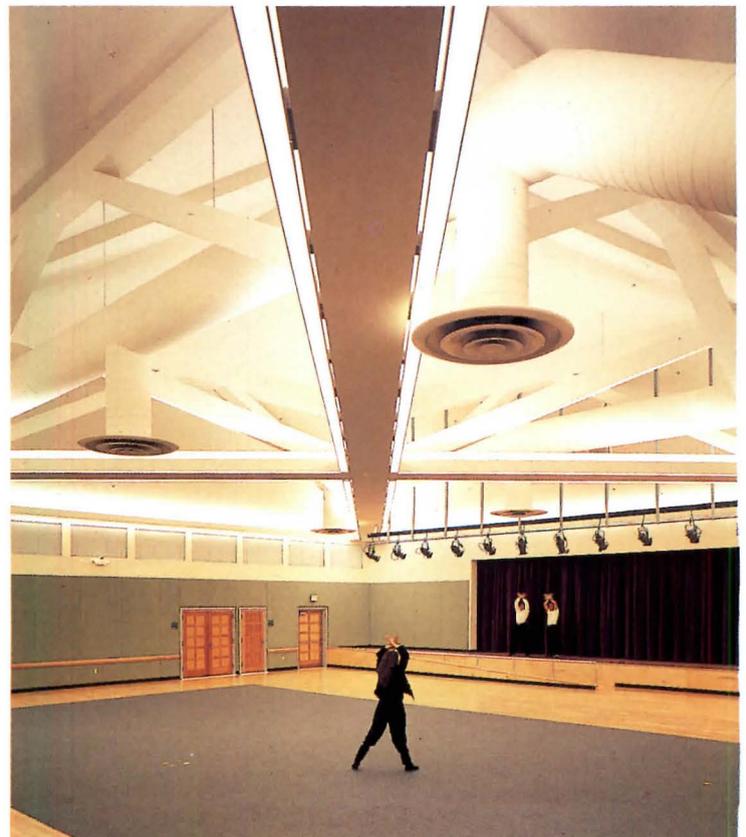
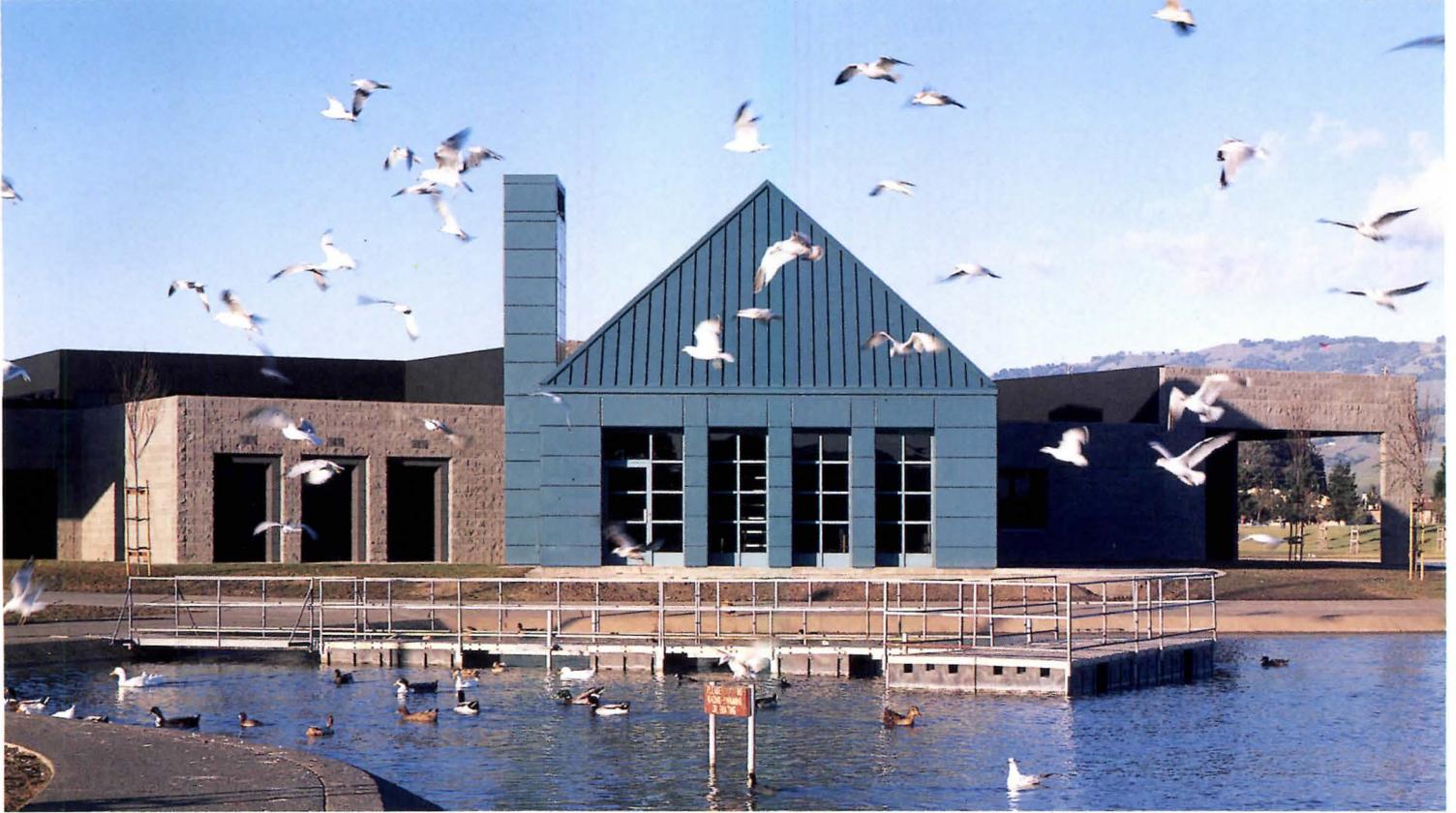
*A strong building housing a variety of community activities gives a sea of subdivisions visual punctuation, and a sense of place.*

©Tom Rider photos



*The club room (below), a crucial element in the community center's exterior composition, is a pleasant, restful space (bottom left). A multipurpose auditorium (bottom right) is illuminated by clerestory windows and strip lighting on the upper and*

*lower surfaces of the ceiling beams. Wall panels in the auditorium are constructed of rigid glass-fiber board, covered with acoustical fabric. Elsewhere in the center, walls are fire-retardant wallboard sheathed in easy-to-maintain perforated vinyl.*



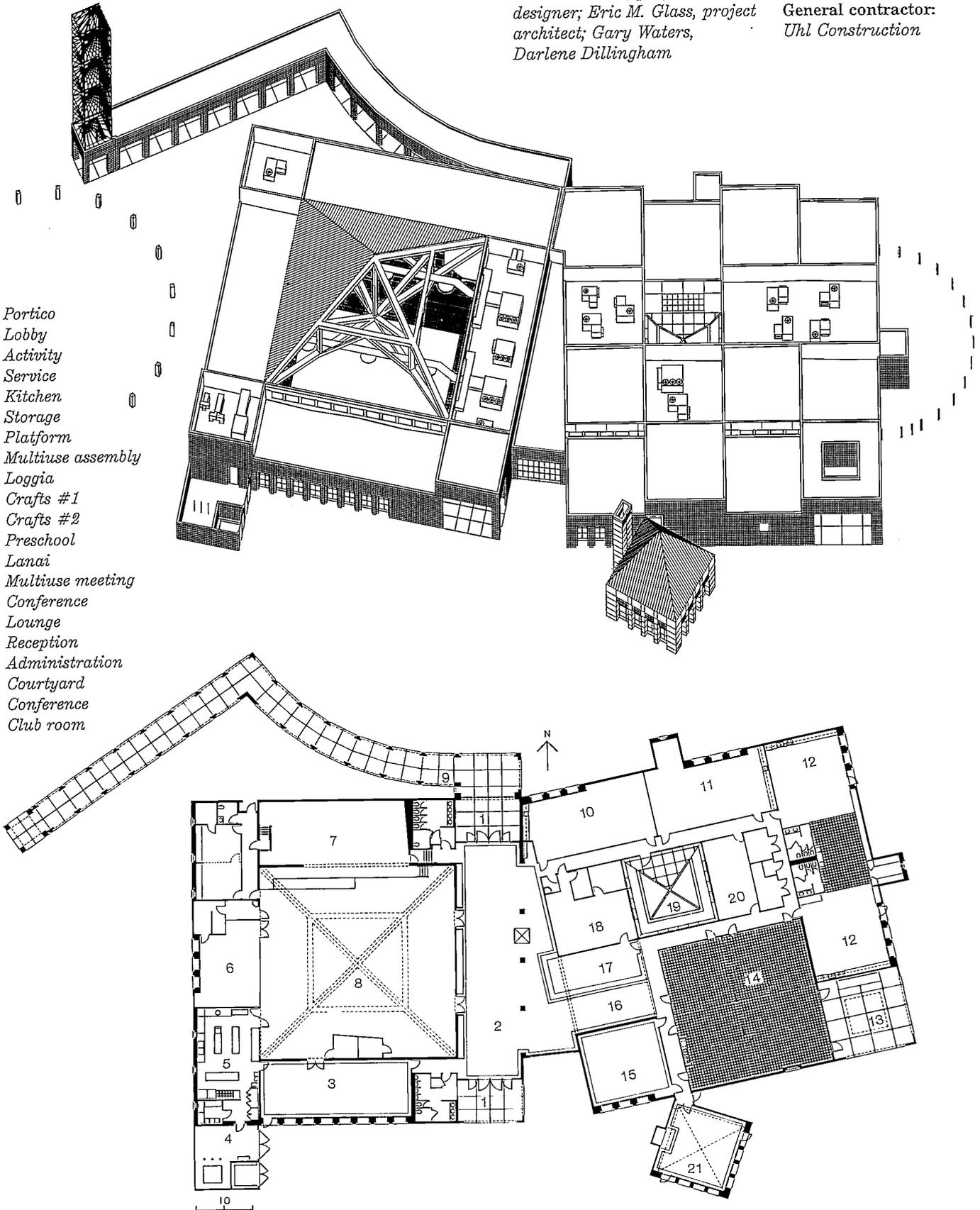
*Petaluma Community Center  
Petaluma, California*

**Owner:**  
*City of Petaluma*

**Architect:**  
*Roland/Miller/Associates—  
John K. Miller, project  
designer; Eric M. Glass, project  
architect; Gary Waters,  
Darlene Dillingham*

**Engineers:**  
*Zucco Associates (structural);  
Marion, Cerbatos & Tomasi  
(mechanical); O'Mahony &  
Myer (electrical); Singer &  
Hodges (landscape); Carlile &  
Associates (civil)*  
**General contractor:**  
*Uhl Construction*

1. Portico
2. Lobby
3. Activity
4. Service
5. Kitchen
6. Storage
7. Platform
8. Multiuse assembly
9. Loggia
10. Crafts #1
11. Crafts #2
12. Preschool
13. Lanai
14. Multiuse meeting
15. Conference
16. Lounge
17. Reception
18. Administration
19. Courtyard
20. Conference
21. Club room

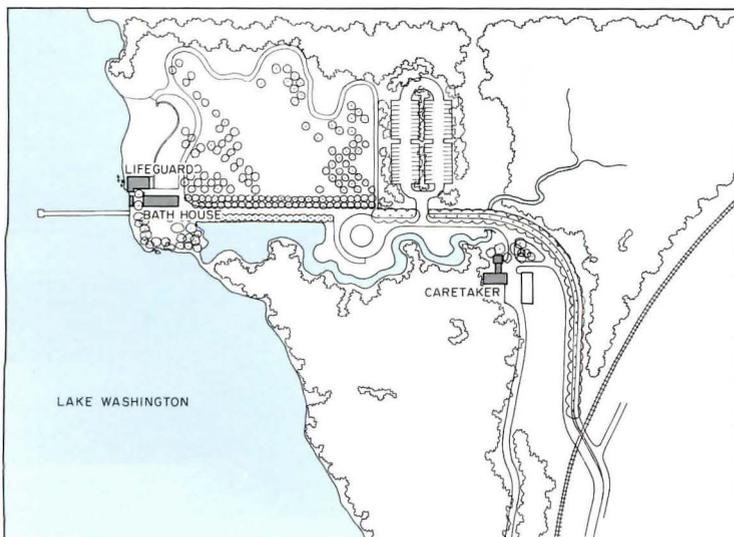


# Natural history

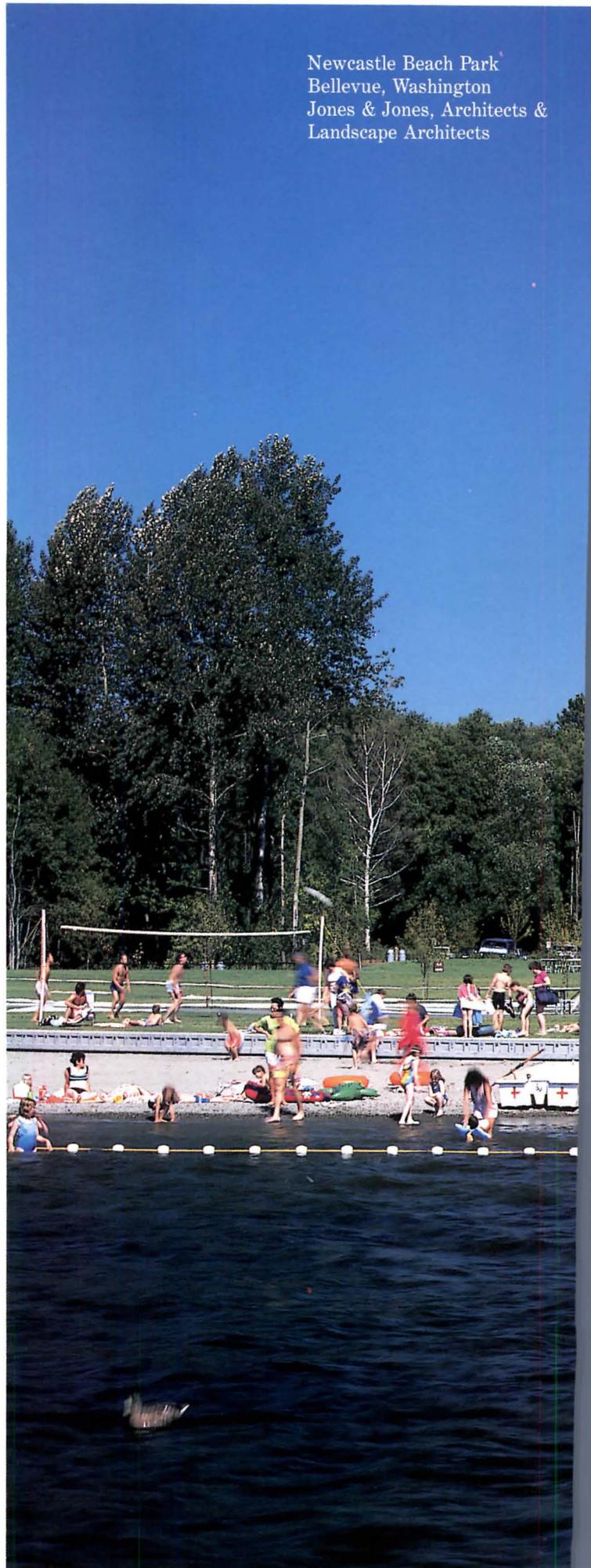
Since opening in June 1988, Newcastle Beach Park has been warmly received by the residents of Bellevue, Washington, who take advantage of its festive waterfront setting all year. In summer, jazz concerts are staged in the park, while in December, crowds gather near a beach bonfire to watch ships loaded with carolers pass on the lake. Although the city of Bellevue acquired the site 20 years ago, it only began to develop plans for the 29-acre stretch along Lake Washington's eastern shore four years ago. In 1986, officials called on Seattle architects Jones & Jones to devise a scheme for Newcastle Beach Park, based on the firm's successful design for a waterfront park in the nearby town of Renton. After the architects assembled several alternatives, ranging from the most minimally intrusive—parking lots and a beach—to the most extensively developed—marinas and food concessions—the city ultimately agreed upon a design evenly divided between man-made and natural elements.

Jones & Jones provided access to the park via a road that curves down a steep hillside into parking areas at the eastern boundary of the site (plan below). The east-west axis generated by the road is extended by a footpath leading to a pier. In the picnic area at the northern end of the park, the architects scattered crab-apple trees that are meant to simulate an established orchard while providing an informal counterpoint to the rows of London plane trees planted along the road.

Though the program required several structures to be erected on the site—a caretaker's cottage, bathhouse, and lifeguard station—Jones & Jones minimized their impact on the landscape. Patterned after the Nordic architecture erected by the area's original Scandinavian settlers, the board-and-batten buildings are tall and narrow with steeply gabled roofs, and are oriented toward the central footpath and road. Darker metal siding at the base of the neutral-colored structures reduces their mass, and sea-blue roofing and yellow window surrounds add a bright note under Bellevue's often cloudy skies. The architects designed the lifeguard station (cover and opposite) to provide a more solid focal point for the picnic areas, 1,700-foot-long beach, and pier than the steel-frame towers typical of public lakefronts. In the future, the park's main axis will be terminated by a small pavilion on the pier, due to begin construction shortly. *Douglas Gantenbein*



Newcastle Beach Park  
Bellevue, Washington  
Jones & Jones, Architects &  
Landscape Architects

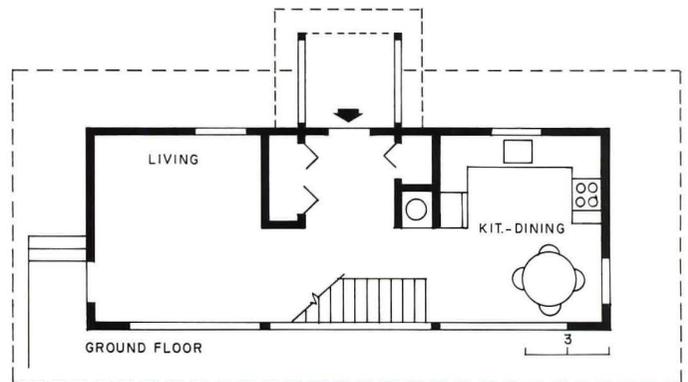
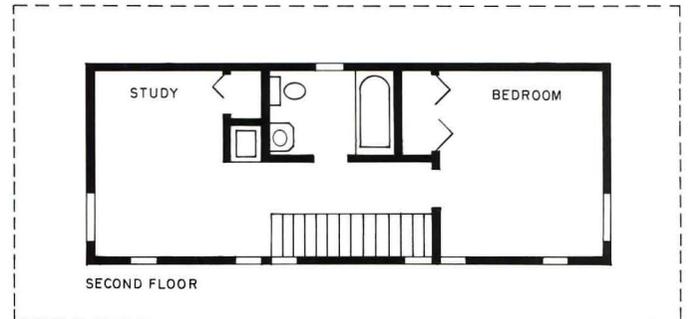


*Natural and cultural history are combined in a waterfront park that has become a popular gathering place for a community east of Seattle.*





*Jones & Jones took advantage of previously cleared land for Newcastle Beach Park's main recreational activities. The architects designed the buildings in these areas with small footprints and oriented them to the main east-west circulation axis to reduce their visual impact on a somewhat marshy, low-lying setting that is studded with cottonwood trees. The focus of the park's Lake Washington waterfront is a lifeguard station enclosed by canted, board-and-batten-clad walls (top left and opposite). Just off the access road, a permanently occupied caretaker's cabin (middle and bottom left and plans below) has helped minimize vandalism in the park. Its rustic materials echo those of the lifeguard station, and its deep bracketed eaves recall the gabled proportions of Scandinavian vernacular architecture.*



*Newcastle Beach Park  
Bellevue, Washington*  
**Owner:**  
*City of Bellevue*  
**Architect:**  
*Jones & Jones, Architects and  
Landscape Architects—Tom  
Atkins, Johnpaul Jones,  
principals-in-charge; John*

*Galloway, project architect;  
Roger Sherman, project  
landscape architect*  
**Engineers:**  
*TAMS, Engineers and Planners*  
**Consultant:**  
*The Watershed Company*  
**General contractor:**  
*IMCO, Inc.*



# Open and shut case

The Toronto SkyDome  
 Toronto, Ontario  
 The RAN Consortium,  
 Architects/Engineers

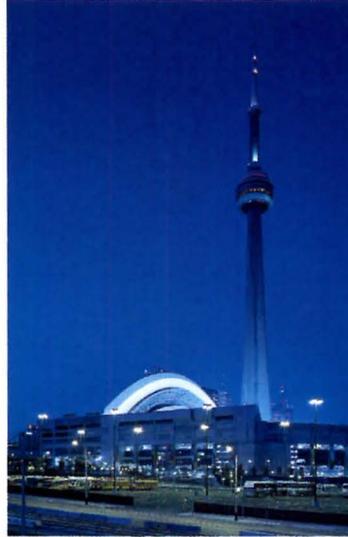
Engineering

The regional economic impact of major-league sports is so substantial nowadays that disruption of the revenue flow by the vagaries of weather is considered anathema. So city after city in North America has turned to covered stadiums of various kinds, which, whatever their value to television producers and tractor-pull promoters, certainly deprive the contemporary football fan of the whiff of autumn leaves and the baseball spectator of the simple pleasures of a languid summer afternoon. Operable stadium roofs have been tried before without notable success in both Pittsburgh and Montreal. This did not deter the public-private consortium tapped to develop a new home for the Toronto Blue Jays (of major-league baseball's American League) and the Argonauts (of the Canadian Football League); it decided to hold a competition to find both a workable retractable-roof concept and a design/build team. Although the Toronto SkyDome, designed by a three-firm consortium dubbed RAN and opened in June, is a success, its construction presented enormous technical and logistical challenges.

Having committed to the idea of some kind of removable roof, the Stadium Corporation of Ontario assembled a technical committee that analyzed dozens of unsolicited proposals for structural integrity—both open and closed—and for the means proposed to store the roof *off* the field. Four finalist teams, allied with contractors so that a guaranteed maximum price could be negotiated, competed for the commission. Once Roderick Robbie, of Robbie, Sane Architects, learned that a retractable-roof stadium was in Toronto's future, he teamed up with Michael Allen, of the engineering firm Adjeleian Allen Rubeli, and they jointly developed what they hoped was a winning roof design.

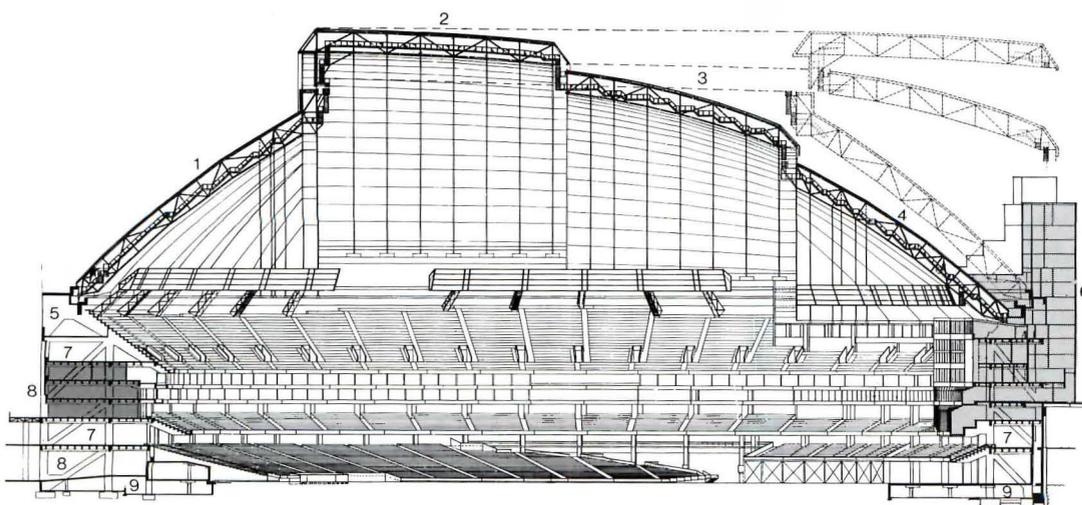
## Roof concept

"We started with the idea that the stadium should have an architecture of structural form," says Allen. Robbie adds, "It had to look good, but we wanted the casual observer to viscerally feel that it was structurally safe." The team rejected fabric roofs and cable structures (too much maintenance, the possibility of collapse), and began experimenting with various rigid-panel schemes. Designs that depended on a single supporting element were discarded as lacking redundancy, as were configurations in



Toronto's new retractable-roofed stadium is located on obsolete rail lands near the city's downtown, adjacent to a convention center and the celebrated CN Tower (top left). The roof combines one movable and one fixed hemispherical shell and two movable vaulted panels. Opening time is 20 minutes and is silent. Piers extend north from the oval plan of the stadium field to support the retracted panels (middle left). Much of the space that normally goes unused below the stands has been turned over to revenue-producing uses, including a hotel cantilevered from the stadium structure over remaining rail lines (section below).

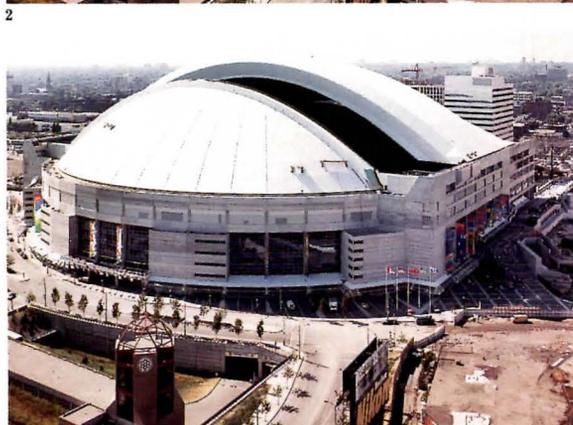
© Panda Associates photos, except as noted



1. Panel 1 (rotates)
2. Panel 2 (slides)
3. Panel 3 (slides)
4. Panel 4 (fixed)
5. Mechanical
6. Hotel
7. Concourse
8. Club and skyboxes
9. Parking



In the roof's closing sequence, Panel 1 rotates 180 degrees from behind a fixed shell (1, 2) to a position at the southern end of the stadium (3). Once it is clear, the transverse-vaulted Panels 2 and 3 begin moving on parallel tracks to seal the gap (4).



4 ©Landscape Incorporated photos this page

which framing would be left behind when the roof was opened (the shadows cast would reduce television-signal quality). On the other hand, the competition brief required that the retracted roof remain within the site's tight property lines. The final scheme combined aspects of what Robbie and Allen call the grapefruit analogy—rotating wedges—and telescoping parabolic vaults. The solution leaves only the northernmost nine percent of the stadium (beyond center field) under fixed cover.

Concept in hand, Robbie and Allen formed the Robbie/Adjeleian/NORR Consortium (RAN) with the NORR Partnership, a Toronto-based architect/engineer. Ellis-Don, Ltd., as contractor, and Dominion Bridge, Ltd., for fabrication and erection of the roof, completed the design/build entity. The consortium's scheme won, according to the judges, for its combination of engineering workability and lowest cost. The other competing teams had either a linear telescoping panel scheme or a system of rotating segmented shells. The Robbie-Allen proposal ingeniously combined both (left).

#### Defining structural integrity

High performance standards were set to be sure the roof would be trouble-free over an anticipated 100-year life. Should an engine drop through a roof panel from a passing airliner, for example, Allen designed sufficient structural redundancy to prevent progressive failure. Nor did the team want to depend on mechanical devices to shed or melt snow. Instead (after wind-tunnel testing verified likely areas of accumulation), the roof was reinforced to carry drifts as deep as 15 to 16 ft, and the geometry of panel seals was designed to cope with the eccentricities such unbalanced loads would cause (pages 132-133). Wind-load analysis also determined that suction pressures on the closed roof proved to be more severe than conditions in the fully open position or during the opening process.

The parabolic-arched panels are framed with steel trusses that span the long dimension across the field. The two hemispherical shells are constructed similarly: trusses spring from the perimeter parallel to the face of the shell (page 136). For the movable panels, each truss is supported on a single point and the loads are conveyed through railroad-type, individually powered wheeled bogeys to the reinforced-concrete supporting structure (page 132). Tolerances were inevitably tight and the system required enormous attention to dimensional accuracy during construction. In its 1,014 ft of travel and 180 degrees of rotation, only 3 to 5 mm of variation was allowed between the wheels and rails of Panel 1, the most extreme case.

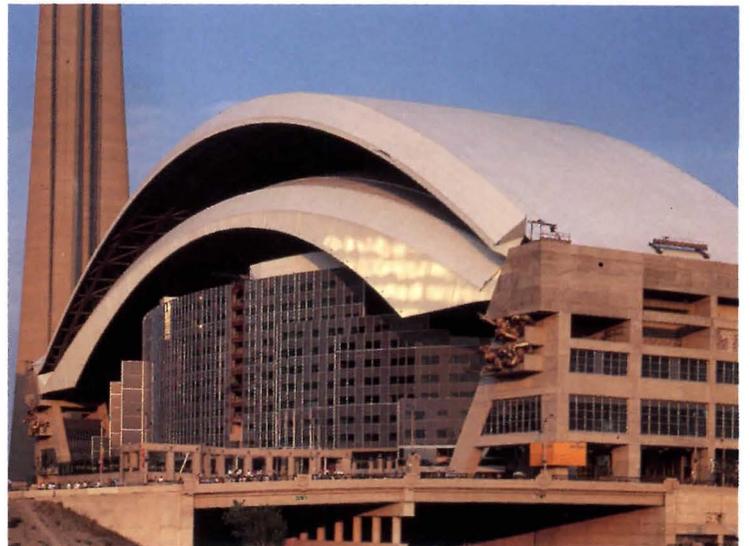
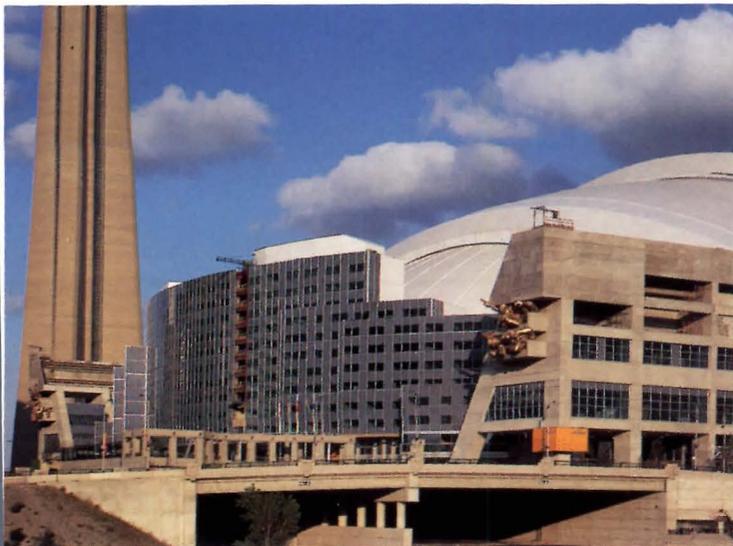
#### In the fast lane

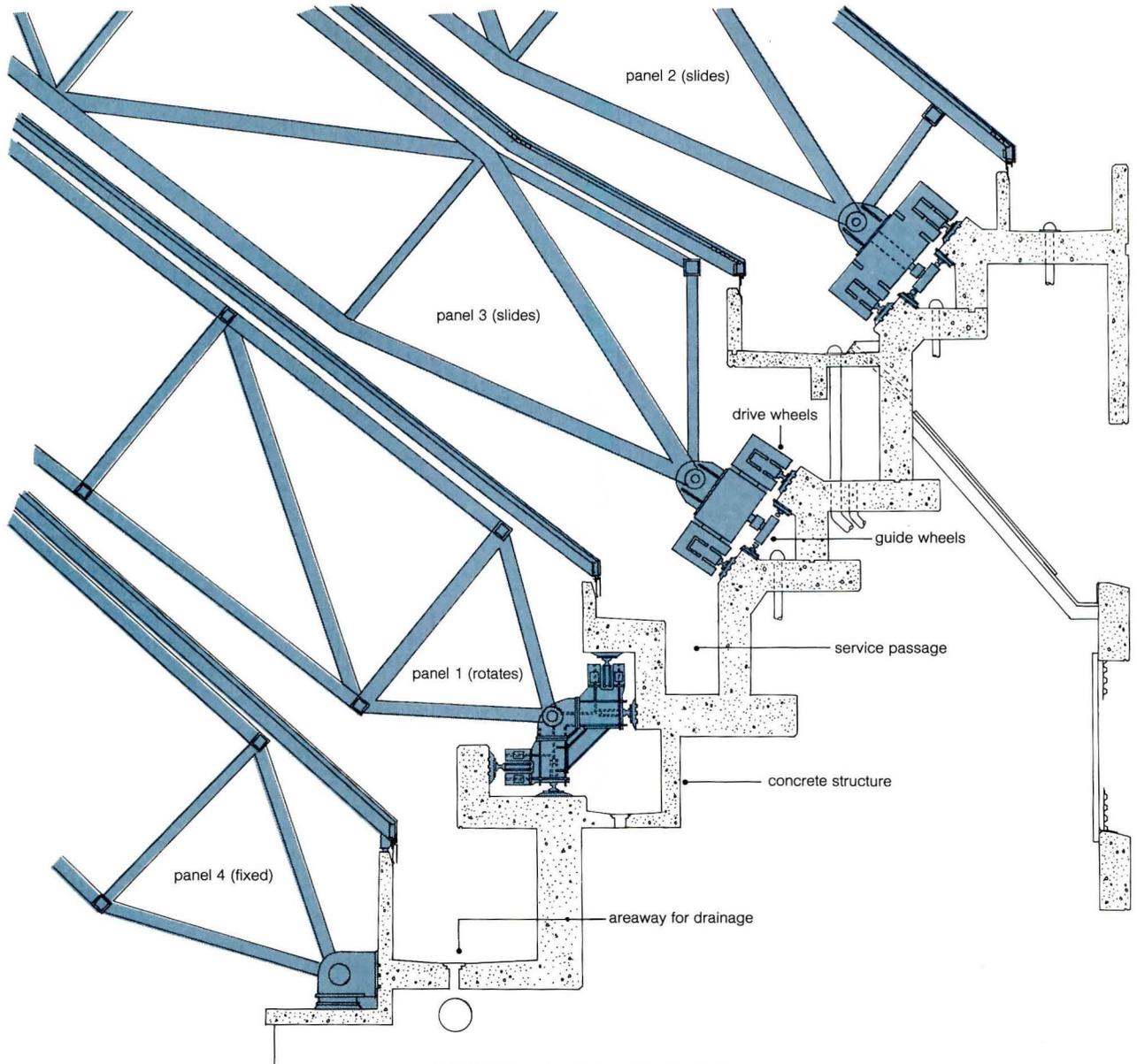
The project includes movable seating sections to allow a baseball configuration seating 53,100, a football layout for 55,400, arena seating for concerts ranging from 10,000 to 70,000, broadcast facilities, 32 concession stands, and a 115- by 30-ft video screen. The stadium has the usual complement of luxury skyboxes on two "club" levels with separate circulation and reserved underground parking. To finance the scheme, the Stadium Corporation was formed combining representatives (and dollars) from the city of Toronto, the province of Ontario, and a group of limited partners, each of whom contributed no less than \$5 million (Canadian). The need to pay back investors placed enormous pressures on the design and construction team to finish the stadium on schedule.

*Continued on page 136*

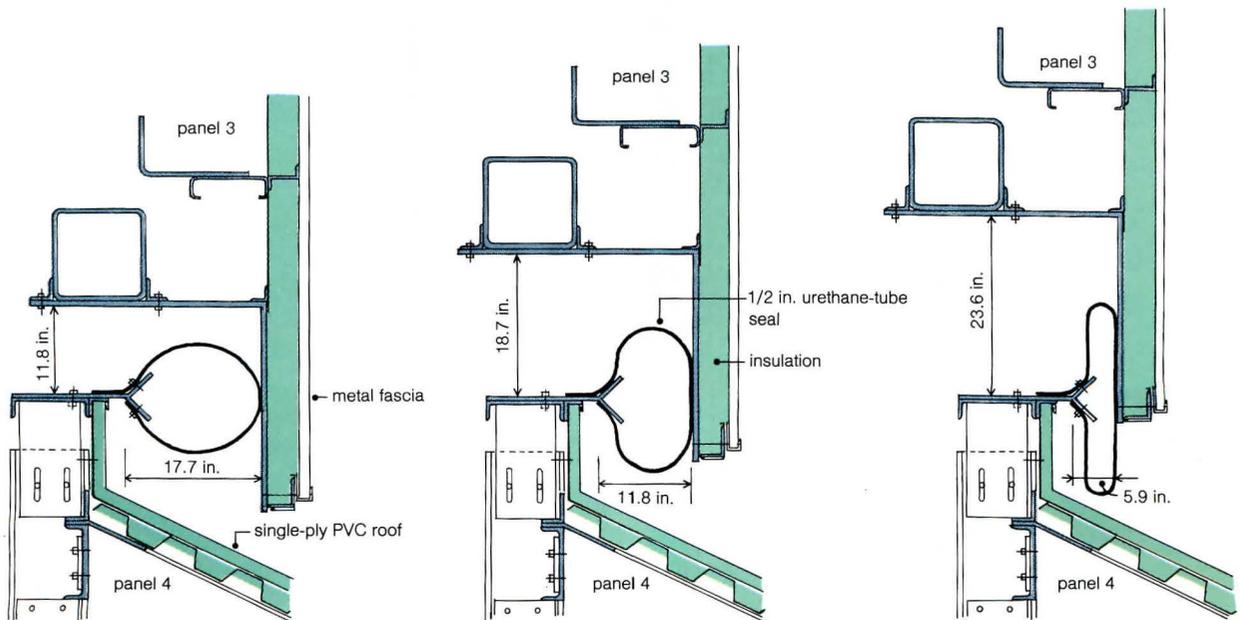
The southern (home-plate) side of the SkyDome presents an apsidal face to the nearby Gardiner Expressway and Lake Ontario (below), and is linked to downtown Toronto on the north by a plaza spanning the region's rail trunk lines. A 350-room hotel, retail center, and

cinema open from the plaza. The hotel's curtain-walled form is prominent when the roof is closed (bottom left), but less visible when sheltered by two layers of retracted paraboloid "roofs" (bottom right).



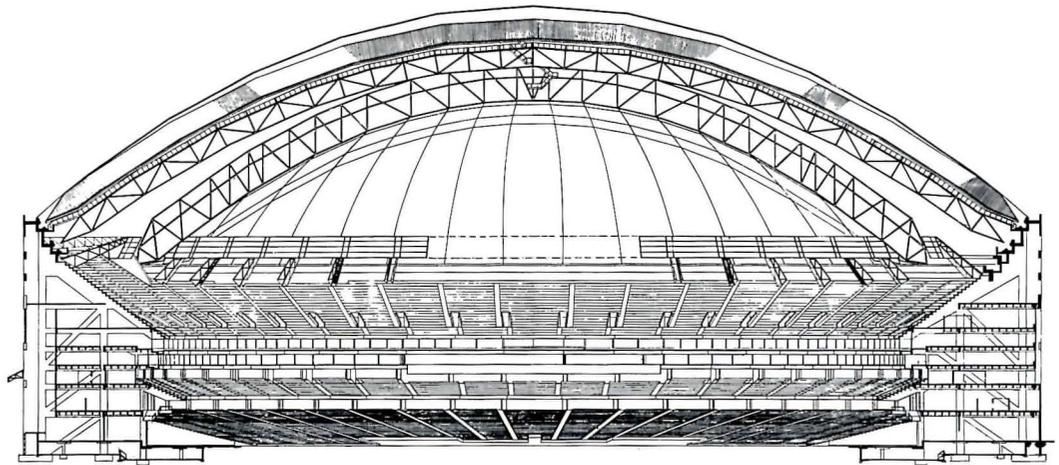


SECTION THROUGH ROOF PANEL TRACKS

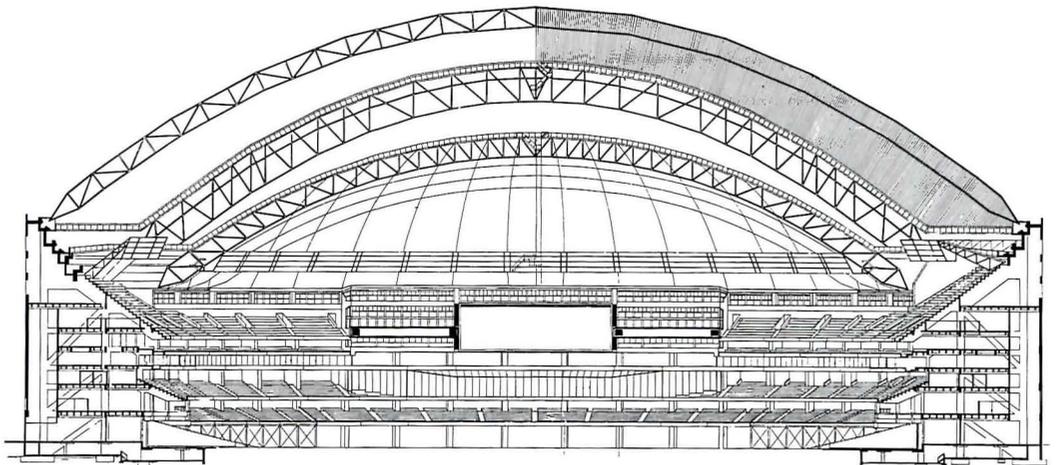


ACTION OF SEALS UNDER ECCENTRIC DEFLECTIONS CAUSED BY UNBALANCED SNOW LOAD

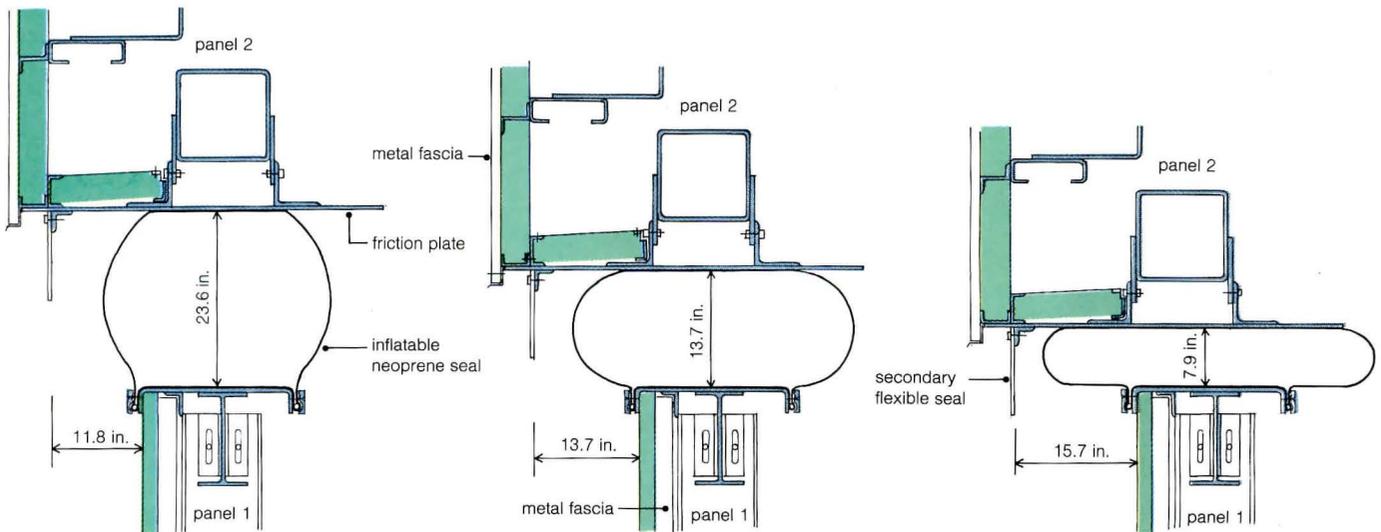
*In section, the complex interlocking of roof panel shapes becomes evident. The movement of the sloping vaulted panels must follow that of the hemispherical shell to avoid conflicts in elevation. The detailing of service stairs and light-fixture supports was also complicated by the need to allow the passage of movable panels (right). Bogeys support the roof panels' trusses; wheels are oriented to the geometry of forces conveyed through to the concrete structure (opposite), which was designed to take into account service access, drifts of snow, and acres of runoff. Seals between panels had to be designed for enormous differences in thermal movement as well as eccentric live loads (below and opposite bottom).*



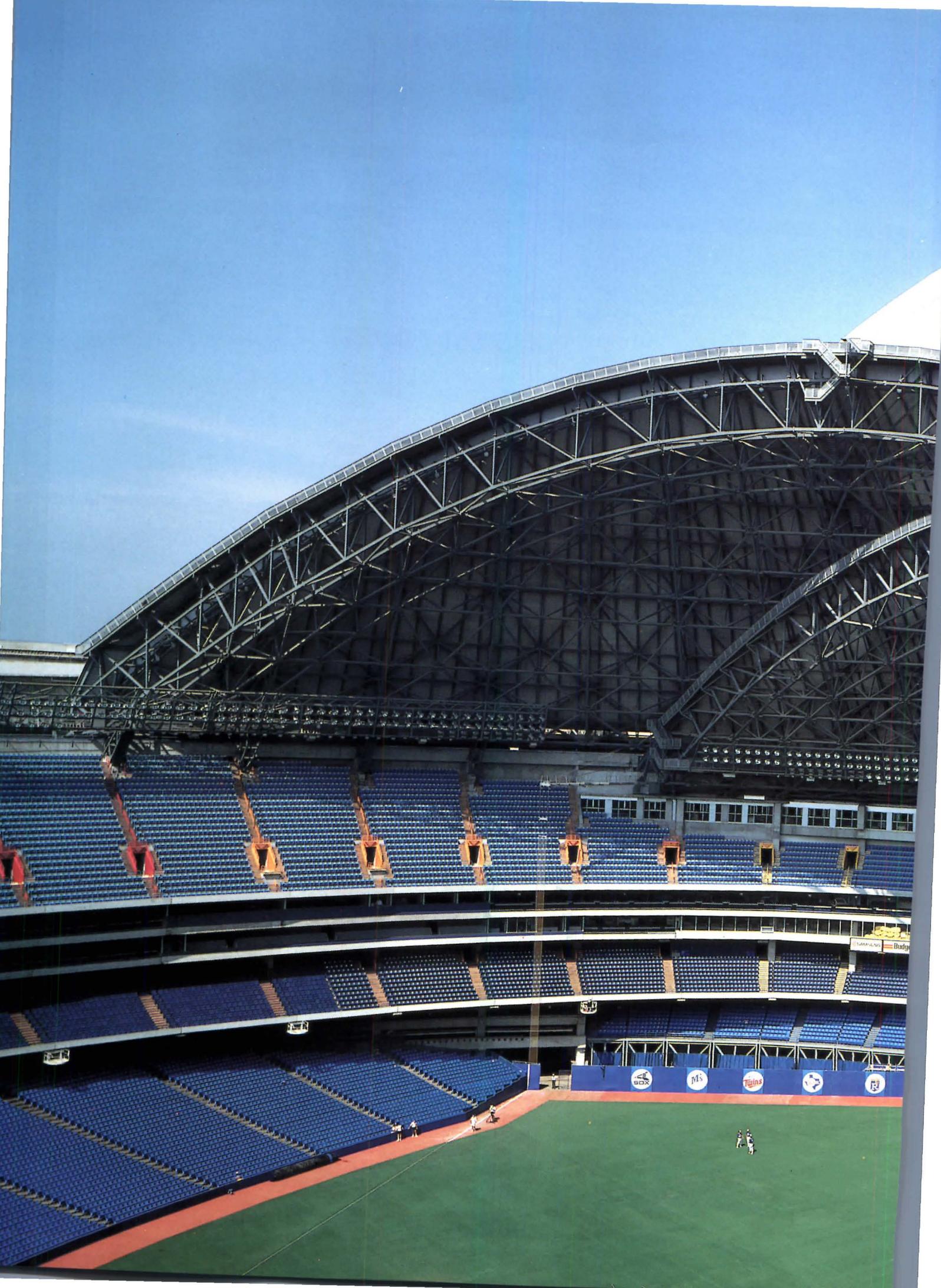
SECTION LOOKING SOUTH

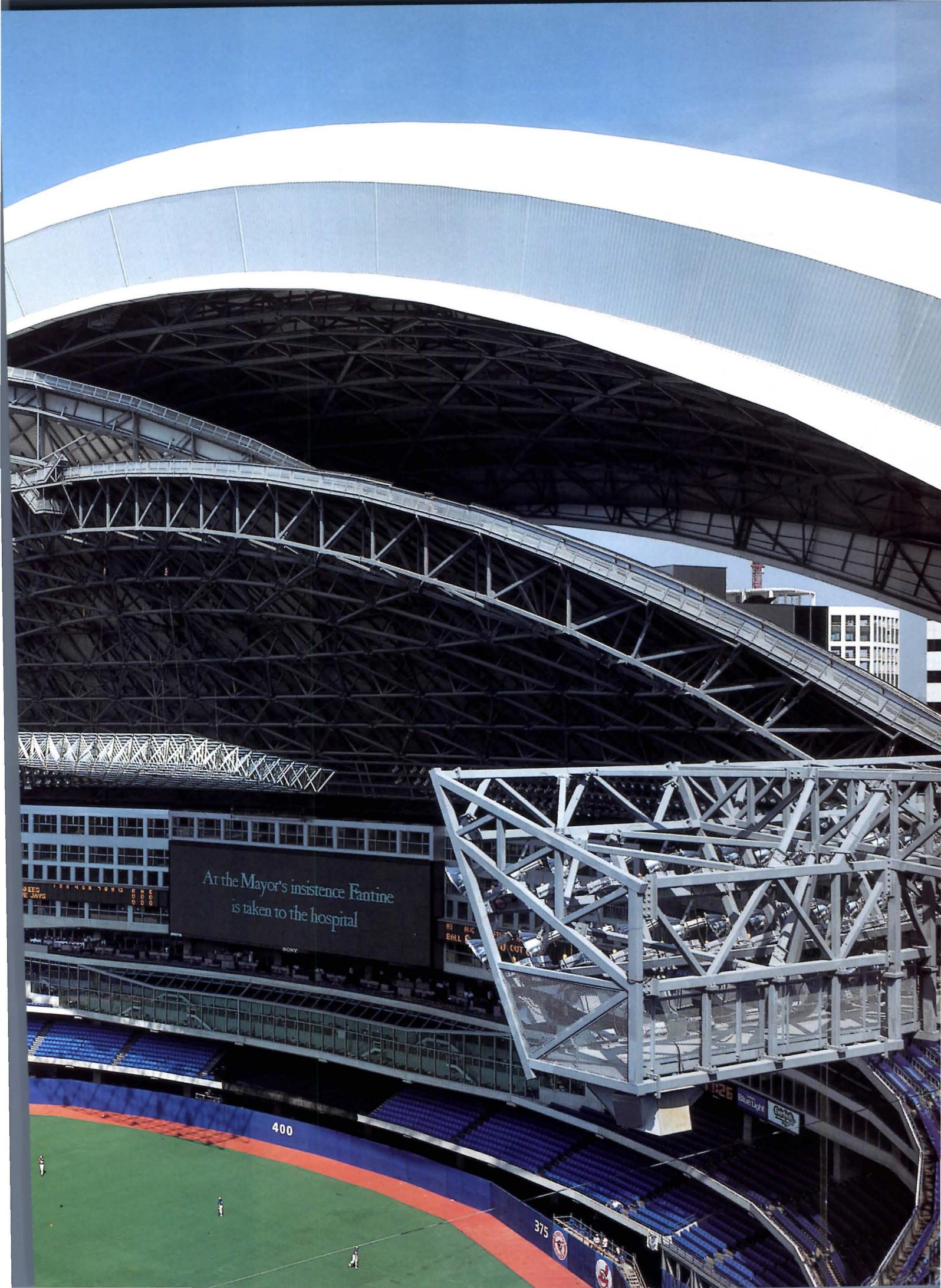


SECTION LOOKING NORTH



ACTION OF SEALS UNDER ECCENTRIC DEFLECTIONS CAUSED BY UNBALANCED SNOW LOAD





At the Mayor's insistence Fantine  
is taken to the hospital

400

375

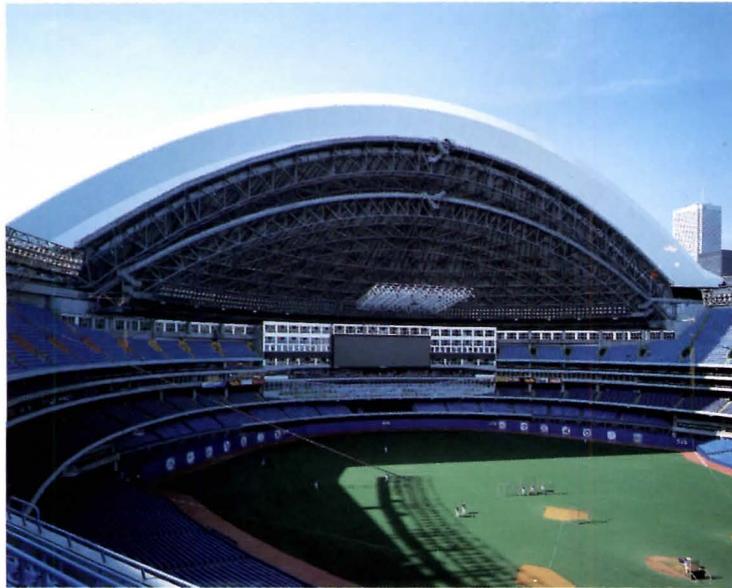
126

Blue Light  
Goody's

*The Toronto SkyDome*  
Toronto, Ontario

**Owner:**  
Stadium Corporation  
of Ontario

**Architect/Engineer:**  
RAN Consortium—Roderick  
Robbie, Michael Allen, Bill  
Neish, principals; Ron Perry,



RAN Consortium

project manager; David  
Hastings, A. Silvio  
Baldassarra, Wiktor  
Moskaliuk, Gord Gilbert,  
Wayne Garrett, Larry Carroll,  
Barbara Hopewell, Julia  
McAllister (architectural team);  
Don Duchesne, Victor Zubacs,  
Chris Andrews, Dave Watson  
(structural engineers)

**Engineers:**  
Carr & Donald & Associates  
(roof-moving mechanism);  
H. H. Angus and Associates  
(mechanical/electrical)

**Consultants:**  
Rowan Williams Davies and  
Irwin (wind-tunnel testing);  
Leber Rubes (fire protection,

building codes); DS-Lea  
Associates (transportation);  
Atkinson/McLeod (interior  
design); Ferris McCluskey  
Quinn & Associates (landscape)

**Contractors:**  
Ellis-Don (general  
construction); Dominion  
Bridge (roof fabrication)



James S. Russell

*Continued from page 130*

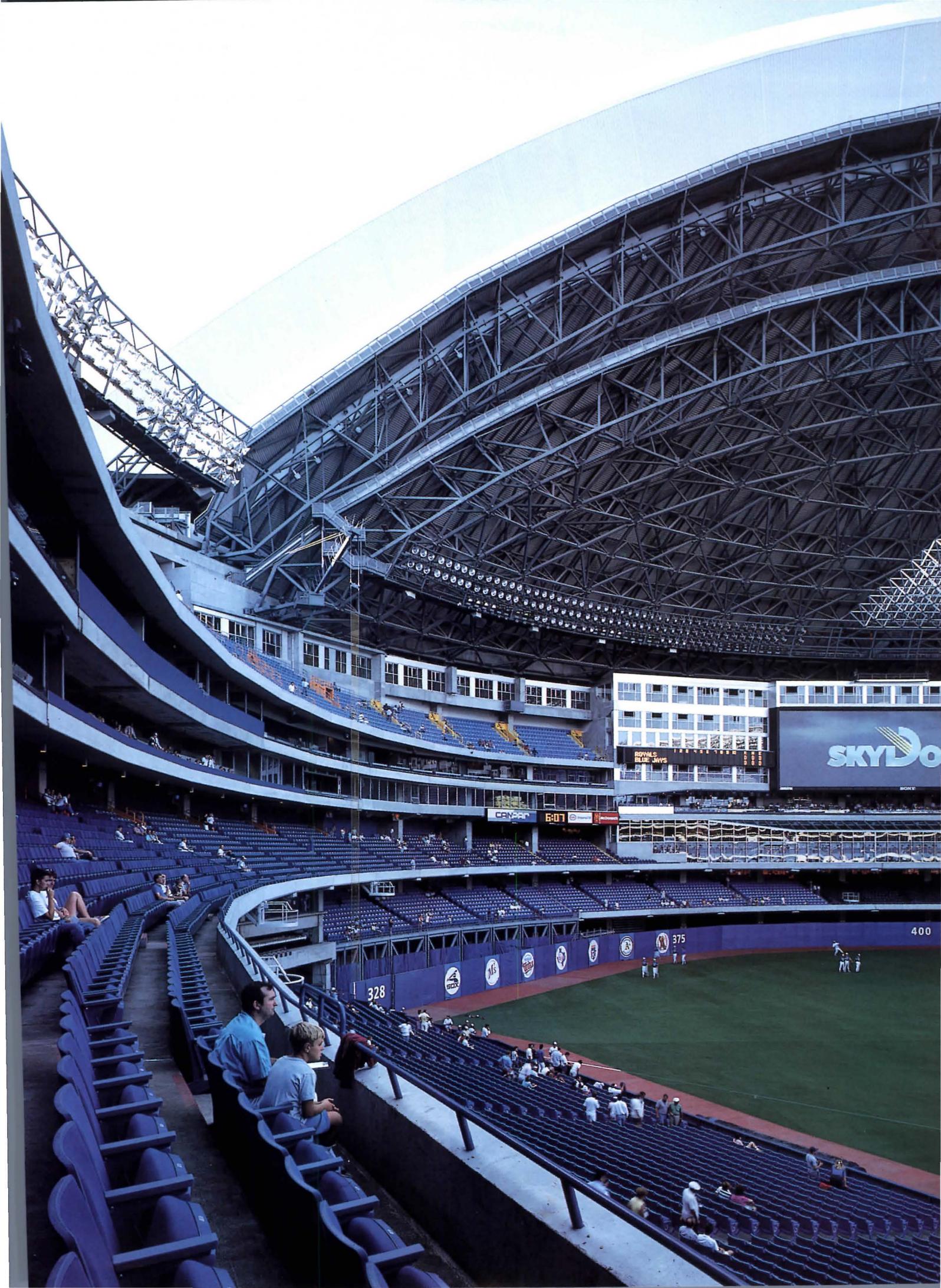
On such large-scale jobs, it has now become standard practice to begin construction before design is complete. The design/build process was supposed to reduce construction time further by creating a closer relationship between the design team and the contractors. But the process became seriously complicated as the corporation added a series of revenue-enhancing program elements to the project.

"From the day the contract was awarded, the project was in a constant state of evolution," says Ron Perry, of NORR, the consortium's project manager. The number of skyboxes was increased from 100 to 161; offices for the teams and stadium managers and a retail area with cinema were added. The most complex addition was a 350-room hotel and health club, which was hung from the stadium's structure so that it would not extend beyond the site boundaries (page 131). "Here we were on the critical path to get the roof up and we pop in this 350-room hotel," says Silvio Baldassarra, who coordinated the architectural and engineering teams. Construction had already been timed so that erection of the concrete stands and the steel roof structure was underway to the north while an existing water-pumping plant at the southern end of the site was being relocated.

Unfortunately, the hotel had to be placed in the portion of the structure built earliest. The results of the wind- and snow-load testing were not completed until a significant number of footings had been poured. To verify the adequacy of the design, all of this data had to be considered—a process that was further complicated by the shifts in the shape of the building from bottom to top. For sightline reasons, the seating areas are oval shaped, requiring 13 different radius centerpoints in plan. Yet the track of the rotating hemispherical roof panel had to be supported in a perfect three-quarter circle. Each of the 48 main frames had to be analyzed both with and without spectators and verified a third time when the hotel was added. "We had the engineering team working 24 hours a day for weeks," recalls Baldassarra, yet there were times when design-team drawings were completed as little as two weeks ahead of construction. To avoid reconfiguring footings already poured, adjustments were made in supporting structures higher up to shift loads to footings with adequate bearing capacity.

The architects credit the close relationship developed with Ellis-Don in keeping the project on track through such difficulties. To save time, seat supports were precast as double tees rather than cast-in-place as the architects originally envisioned. The drive mechanism on the roof panels was changed three times to meet schedule constraints. The project *did* open only slightly behind schedule, but costs escalated from an originally anticipated \$183 million to \$500 million (Canadian). Much of the increase is attributable to added program elements; in other cases, less-expensive construction techniques could not be considered due to time. The owner chose to get revenue flowing earlier rather than hope that later completion would result in significant savings.

The dome regularly hosts international delegations from cities contemplating new arenas (the design, however, is copyrighted and the system is patented, with a Japanese construction company exclusively licensed to build it), but the enormous local attention the dome received during its lengthy gestation has largely quieted. Baldassarra says, however, that the roof is rarely operated during events: "There's so much excitement, it takes too long to calm everyone down." *James S. Russell*



SKYDOL

ROYALS BLUE JAYS  
1st 4th 5th 6th 7th 8th 9th  
0 0 0 0 0 0 0

6:07

328

375

400

# New products

For more information,  
circle item numbers on  
Reader Service Card

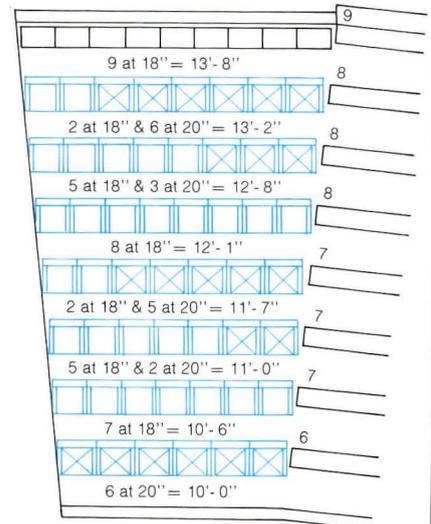
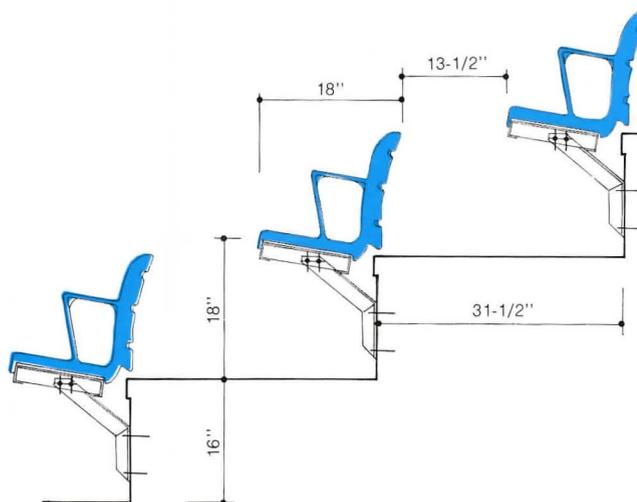
## Stadium seating

The Contour Seat is said to save stadium floor space while providing a seat area 20 percent larger than other designs.

Aluminum-framed seats and backs are made of polyethylene approved by the Boston Fire Academy for use in indoor or outdoor arenas. The plastic is blow-molded in a two-wall construction that insulates the user from extremes of heat or cold; the full-length seat back protects spectators from being bumped from the row behind. Standard seat colors are fade-resistant red, gold, blue, and green; custom colors are also offered.

Each seat is carried on a continuous double-rail metal base that allows easy installation in curved rows. Different mounting options—floor, tread, riser, or angled—allow the between-row spacing required by various codes without the need for flip-up seats. Contour Seats, Inc., Allentown, Pa.

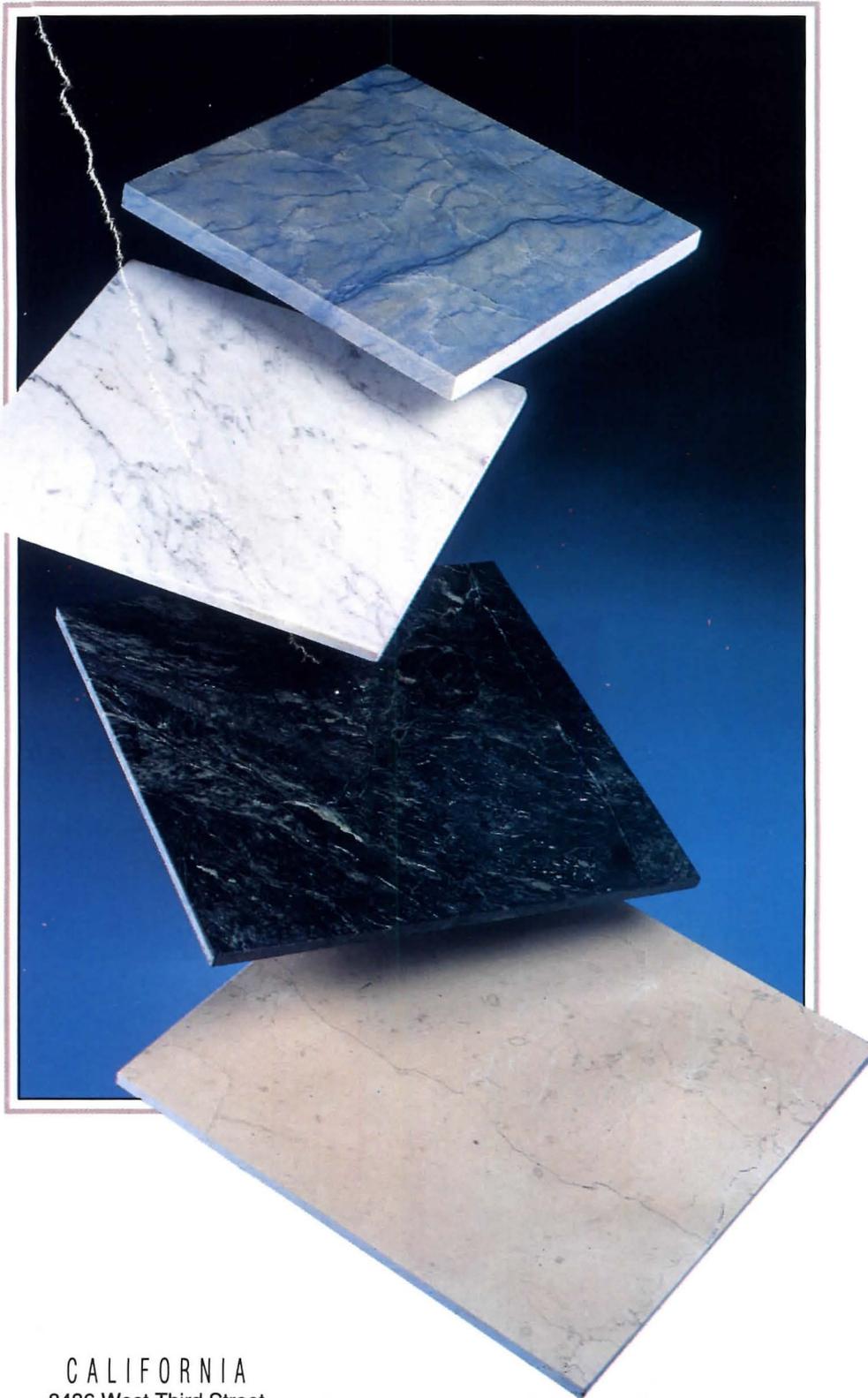
Circle 300 on reader service card  
More products on page 144



*A specialized CAD-based design program provides a complete seating layout for new or existing stadiums, arenas, and other facilities. This maximizes space allocation by mixing 18- and 20-in.-wide seat modules to achieve the greatest density possible within each row. The Contour Seat will fit on treads that are less than 30 in. wide, and still meet codes that require 30 in. horizontal distance from seat back to seat back, and 12 in. between a seat back and the front of the seat immediately behind it.*



# 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

**1. Window detail package**

Quik-CAD, a template-driven, product-specific graphics package running in AutoCAD Release 10, provides details and elevations for Weather Shield windows and doors that can be inserted into CAD drawings during the design stage. The quality of the graphics is said to be superior, virtually eliminating shop drawings. Program features include a number of typical wall conditions, such as two-by-sixes with brick veneer, as well as the ability to design a custom condition; the program can change plot and detail scales to match drawing conditions. Weather Shield Mfg., Inc., Medford, Wis.

*Circle 301 on reader service card*



**2. Oval basin**

Graphite, a metallic coloration pictured on the Vintage countertop lavatory, manages to look Victorian and Art Moderne at the same time. The Antique faucet set, also in Graphite, echoes the oval shape of the sink. Kohler Co., Kohler, Wis.

*Circle 302 on reader service card*



**3. Aluminum composite panels**

Available in 36 coil-coated paint colors and anodized finishes, Alucobond cladding panels are guaranteed not to buckle or oil-can, even over a temperature range of from -55 to +175 deg F. The thermoplastic-core aluminum sheets are rated for both interior and exterior use, and may be bent and curved to conform to almost any building contour. Standard panel dimensions range up to 5 by 16 ft; custom colors and sizes are available. The material's light weight suggests it for remodeling applications such as the hospital renovation pictured. Alucobond Technologies, Inc., St. Louis.

*Circle 303 on reader service card*



**4. Wright-designed sofa**

The Robie 3 Sofa of 1906 is one of the five pieces included in the second collection of reproductions authorized by the Frank Lloyd Wright Foundation's Decorative Designs licensing program. The wood frame is made of cherry or beech, finished in walnut, ebony, mahogany, or oak stain. Upholstery may be leather, as shown, or a choice of fabrics. Atelier International, Ltd., Long Island City, N. Y.

*Circle 304 on reader service card*

**5. Computerized mosaics**

Colorco is a new turn-key tile image design and manufacturing service that uses color graphic computers and image-processing techniques to reproduce any custom design or photograph as a ceramic-tile or glass mosaic, at a scale appropriate to the floor or wall area specified. The effect of white or colored grout can be incorporated in the computer-generated approval proof. Once approved, the mosaic is supplied as pre-assembled 1- by 2-ft sections, using tile from any U. S. manufacturer. The 1,500-sq-ft swimming pool surround pictured, designed by Ellen McCluskey, is made of 1-in.-sq ceramic tile from Dal-Tile, and took just over two weeks to design, assemble, and install. Colorco Limited, Merrimack, N. H.

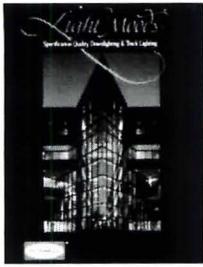
*Circle 305 on reader service card  
More products on page 157*



**swissair**  
Timetable  
Horaires  
Horarios  
107 cities  
67 countries

Destination No. 86  
The most civilized way to the world®

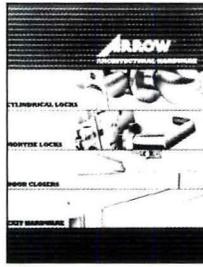
## Product literature



### Track and downlighting

A 48-page catalog on Light Moods downlights and track fixtures explains how the accent and general lighting products meet all new UL requirements. Hubbell Lighting, Christiansburg, Va.

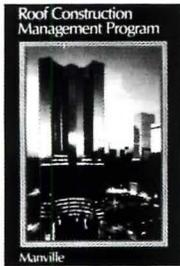
Circle 400 on reader service card



### Architectural hardware

New products featured in a 12-page short-form door-hardware catalog include door closers, exit devices, and exit alarms as well as locksets and trim. Arrow, Essex Industries, Inc., New Haven.

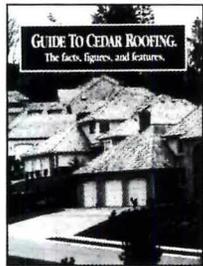
Circle 403 on reader service card



### Roof-construction management

A one-source design, installation, and maintenance program for new and existing commercial roofing projects is explained in a four-page booklet. Manville, Denver.

Circle 401 on reader service card



### Cedar roofing

Performance characteristics of cedar shingles and shakes, including fire-, hail-, and wind-resistance, are highlighted in a 14-page booklet. Cedar Shake & Shingle Bureau, Bellevue, Wash.

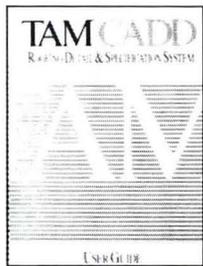
Circle 404 on reader service card



### Commercial plumbing

Solid-brass faucets and valves for hospital, institutional, and utility applications, a new line for this German manufacturer, are illustrated in a 24-page catalog. Grohe America, Inc., Wood Dale, Ill.

Circle 402 on reader service card



### Roof-specification CAD

A user guide explains how CSI-format text and complete construction detail drawings are produced by Tamko's step-by-step, interactive roof-specification software. Tamko Asphalt Products, Joplin, Mo.

Circle 405 on reader service card

# Hours

Ours is the new Versatec CADmate™ electrostatic plotter. It's up to six times faster than the pen plotter on the left. And umpteen times easier to load, operate and maintain.

You even get 300 ppi laser-quality reproduction.

Because the Versatec CADmate uses your 286 or PC CAD system as a print server, we're able to eliminate the need for a controller.

Which allows us to offer you, for the first time, all the advantages of an electrostatic plotter at a pen plotter price.

For more information,  
circle item numbers on  
Reader Service Card



#### Roof accessories

Fascia, gravel stops, edging, and expansion joints of color-coated galvanized steel and aluminum are illustrated in a 12-page architectural catalog. Hickman Construction Products, Asheville, N. C.

Circle 406 on reader service card



#### Fire-retardant wood

A brochure explains how Flame Proof LHC wood treatment resists thermal degradation, and describes high-temperature testing that confirms the structural integrity of treated wood. Osmose, Inc., Griffin, Ga.

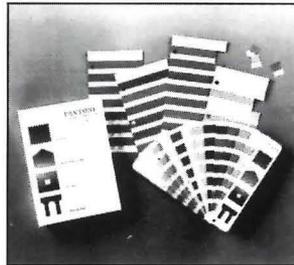
Circle 409 on reader service card



#### Sun-control products

An eight-page catalog on exterior sun-shading products describes SunScreen vinyl-coated fiberglass screens and ShadeScreen aluminum louvers. Phifer Wire Products, Tuscaloosa, Ala.

Circle 407 on reader service card



#### Color specification

Over 200 contemporary shades have been added to a Professional Color System Selector and Specifier, for a total of 1,225 sample chips that replicate the colors of commercial finishes.

Pantone, Moonachie, N. J.

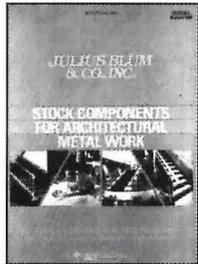
Circle 410 on reader service card



#### Floor-deck raceway system

Cellular and noncellular power-distribution systems, activation devices, and trench headers are presented in a 10-page layout guide. Epic Metals Corp., Rankin, Pa.

Circle 408 on reader service card



#### Architectural metalwork

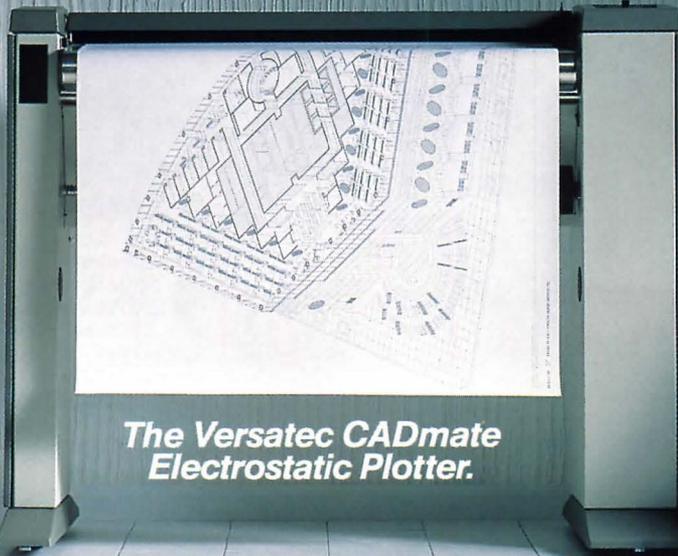
Railings, moldings, and fittings of aluminum, bronze, stainless steel, and other materials are described in a 52-page design catalog.

Installation photos and detail drawings are included. Julius Blum & Co., Carlstadt, N. J.

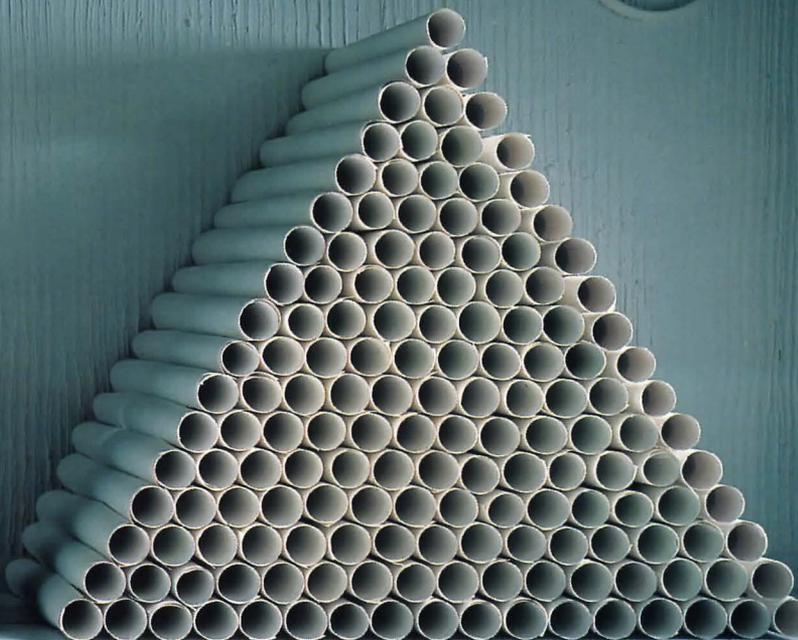
Circle 411 on reader service card

XEROX®

# vs Ours.



**The Versatec CADmate  
Electrostatic Plotter.**



you and your company hours upon hours.

Ours.

Circle 50 on inquiry card

**VERSATEC**

2710 Walsh Ave., Santa Clara, CA 95051  
Xerox is a trademark of Xerox Corporation.  
Versatec and CADmate are trademarks of  
Versatec, Inc. © 1989 Versatec Inc.

Only \$13,900.  
So take a minute to call our toll-free number now for  
information: 800-538-6477. In California,  
341-6060.

Then go with the new electrostatic plotter that'll save

# AEC. AUTOCAD® TAKES YOUR PROJECT FULL CIRCLE.

## AutoCAD, the AEC standard, covers all the applications.

As the industry standard computer-aided design software, AutoCAD adds value as your project progresses. Its sheer drawing power, compatibility with allied engineering disciplines, graphics portability to other AutoCAD users and extensive third-party support give you a comprehensive design-through-completion solution.

**Better designs faster with 3-D.** 3-D design makes massing studies and space plans much easier to produce, so you can explore more

options and make better decisions earlier in the design process.

Create freely in 3-D space and use powerful dynamic viewing commands to look at your ideas from any perspective. Then render your model with AutoShade® for realistic presentations.

## Share your ideas with others.

AutoCAD files can be used in HVAC, structural analysis, piping, electrical, civil, facilities, site planning, landscaping and presentation rendering applications. That means AutoCAD gets everyone on a project speaking the same

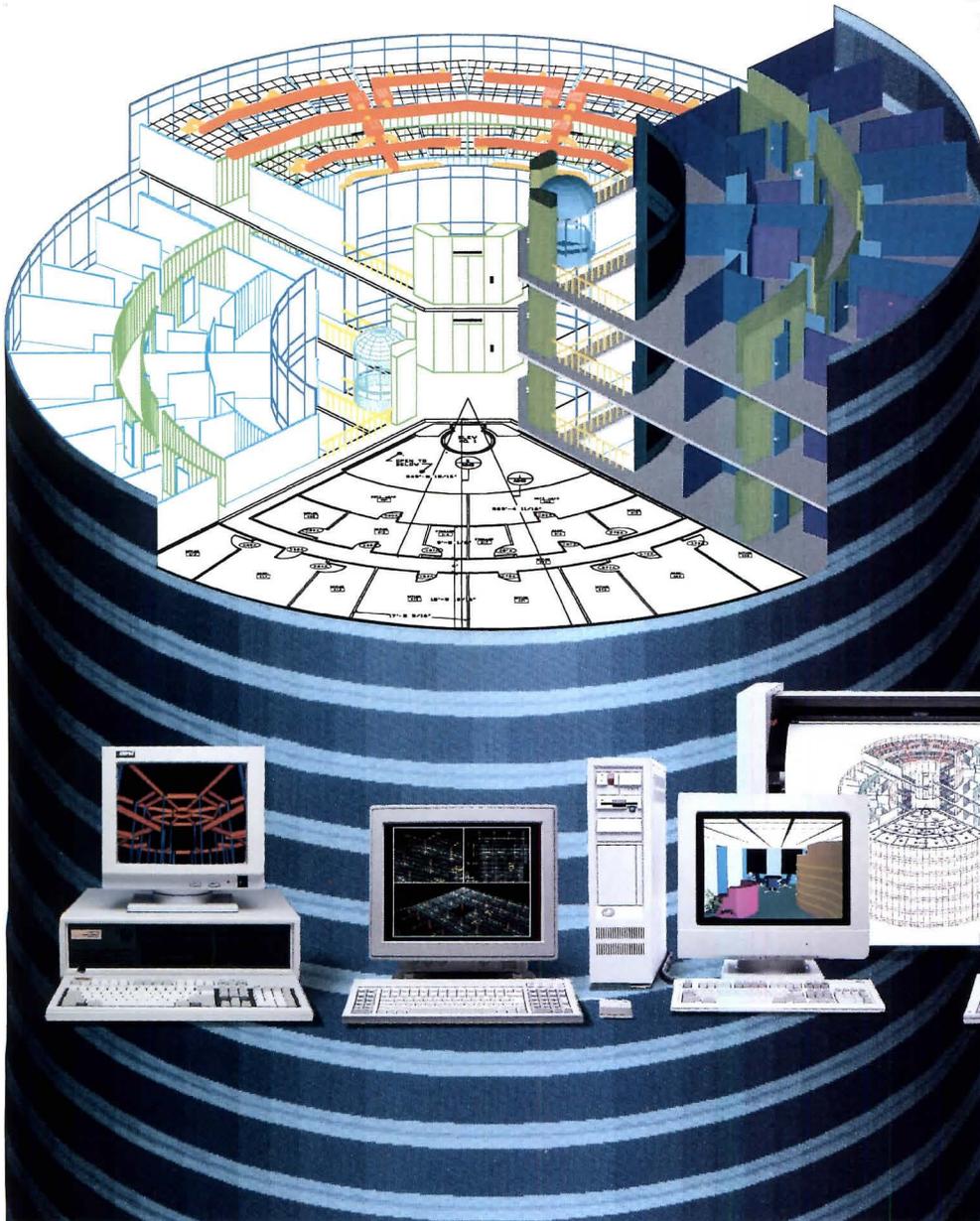
language — because everyone's using the same drawings.

## Handle all the details.

Graphical entities in AutoCAD drawings can be linked to the words and numbers that describe them. These attributes can be output by AutoCAD for use by third-party programs to produce contract schedules, bills of materials and facilities inventory lists.

## What goes around...

From its powerful drawing features to its widespread support, AutoCAD gives you a full 360-degree return on your investment. Call 800-445-5415, extension 29 today to find the Authorized Dealer nearest you.



AUTODESK

2320 Marinship Way, Sausalito, CA 94965  
800/445-5415, ext. 29

AutoCAD runs on a variety of industry-standard personal computers and engineering workstations. AutoCAD's file portability allows transfers of drawings between different hardware platforms without file conversion.

Autodesk, the Autodesk logo, AutoCAD and AutoShade are registered in the U.S. Patent and Trademark Office by Autodesk, Inc.

Circle 51 on inquiry card

# Software reviews for architects

By Steven S. Ross

## VersaCAD/386 version 5.4

The latest version of this 2-D-drafting, 3-D-modeling package can take advantage of extra memory and the Weitek Abacus coprocessor for easy installation, easy use in a network, and spectacular speed. Bill-of-materials and 3-D shading are built-in. It requires a computer using the 80386 or 80386SX microprocessor, and comes with a certificate for a free upgrade for the OS/2 version when it becomes available.

**Equipment required:** IBM PS/2 Model 55SX, 70, 80, or other computer using the Intel 80386SX or 80386 (recommended) microprocessor, MS-DOS or PC-DOS 3.3 or later, 3 megabytes of random-access memory (and the more the better), 80387 or 3167 (recommended) coprocessor, fixed disk, mouse or digitizing tablet, graphics monitor. VersaCAD/386 is compatible with a wide variety of graphics accelerator cards, printers, and plotters. Can exchange files in IGES and DXF formats.

**Vendor:** VersaCAD Corporation, 2124 Main St., Huntington Beach, Calif. 92648 (714/960-7720). \$3,495 with 90 days of free support. Upgrades from VersaCAD Design are \$495; from VersaCAD 2D, \$995.

**Manual:** Standard VersaCAD issue—a well-organized CAD command reference in one volume, and a manual with details of other program modules (translators, the macro command language, and so forth) in the other. There's also a new 25-page quick-start manual.

**Ease-of-use:** Not only is everything faster, installation is a breeze. You simply follow instructions on-screen to insert one disk after another, set

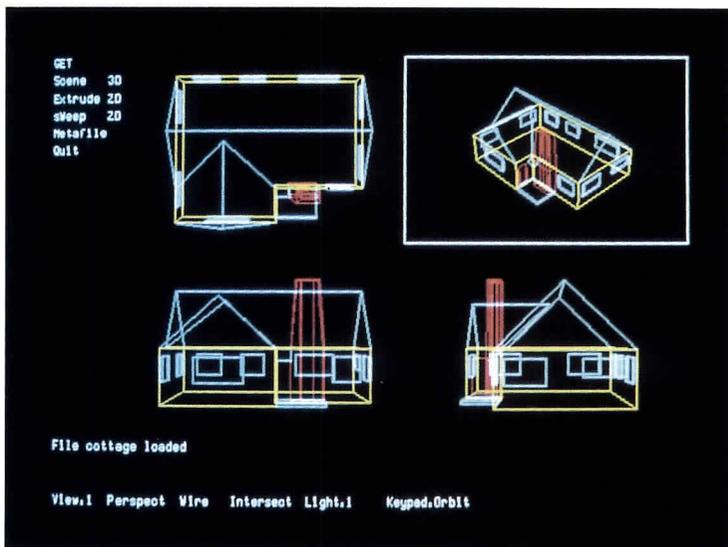
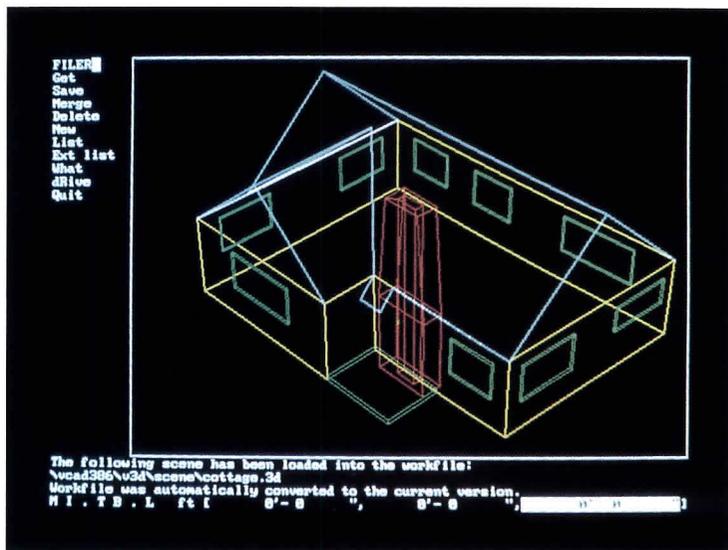
files=40 in the CONFIG.SYS file, and run. That's because VersaCAD/386 is not constrained by the normal 640K DOS memory limit, so it does not have to be fine-tuned to be shoehorned into your computer. It uses so-called "extended" memory, up to 15 megabytes of it. The INSTALL program prompts you about whether you want to install VersaCAD/386 for the Intel 80387 math coprocessor or the Weitek 3167 Abacus coprocessor. The Weitek will cost you more, but it is worth it.

**Error-trapping:** VersaCAD warns users at each step that might result in loss of data, such as not saving an edited drawing before exiting the program. Sometimes you leave a menu with the Quit command, sometimes with Exit, so it is difficult to destroy data by mindlessly repeating the same command.

Exiting back to DOS normally will cause the erasure of the temporary workfile VersaCAD uses to record changes you make during an editing session. If the "exit" is involuntary (a power failure, perhaps), the workfile can be restored to recover your drawing.

As with earlier versions, the bill-of-materials module is touchy about definitions in any symbol library you might create to keep track of objects in your drawing. You cannot change the name of a library after adding symbols to it. So a firm's symbol library tends to grow as new projects make use of it. Special symbol libraries cannot be easily cloned for specific projects. You can copy a core library to a different subdirectory (a subdirectory holding a specific project's files) and add project-specific symbols to it. But you then have two different libraries with the same name.

Symbols get added to your drawing workfile as you use  
*Continued on page 151*



*Not only is everything faster on VersaCAD/386, installation is a breeze. It can also be optimized to take advantage of the latest, fastest coprocessor chip available, the Weitek 3167. The increase of raw speed is astonishing, says the reviewer. The familiar 3-D modeling screen (top) is clean, uncluttered, and easy to use. The QuickRender module displays up to four views at*

*once (above) in up to eight colors. Views can be shown in wireframe, hidden-surface, or shaded-image form. The five standard eyepoints are only starting points. Keyboard cursor keys change the viewing position, or coordinates can be entered for the eyepoint, distance, and the center of the user's view. Views can be axonometric, isometric, and perspective.*

*Mr. Ross is a prominent computer consultant and a regular contributor to RECORD.*



# ARCHITRION

## The architectural software you've been waiting for.

**Created by architects for architects, Architrion™** is a powerful CAD software package for use on the Macintosh™ computer. Its many features and ease-of-use allows you to maximize your creative abilities at every stage of the design process – from conception to completion. Architrion is available in two versions: the original black

& white version and our advanced full-color Architrion II™ now featuring: create and modify in section; multicolor shading in perspectives and elevations with shadows; and DXF import/export.

**Explore your most complex ideas in minutes.** With Architrion, quickly build your schematics, produce alternative

studies and base your decisions on a realistic 3D representation of your design.

**Experience a better relationship with your clients and consultants.** Architrion allows you to communicate your ideas effectively. Walk throughs, details, modifications or enhancements take shape in a few minutes as you easily produce any interior or exterior perspective, axono or isometric, section or plan.

**Document your design any-time and get take-offs along the way.** While designing, send your automatically generated plans, sections and elevations to the drafting module for further

delineation (before printing or plotting). And, at any moment check your construction costs with Architrion's estimating module.

**ARCHITRION**  
The essential tool  
for today's architect.

*For more information, or to find out the name of your nearest dealer, contact us today.*

**Gimeor**   
PROGRESSIVE CAD SOFTWARE

420 10th Street S.E.  
Washington, DC 20003  
Telephone: (202) 546-8775  
**Circle 52 on inquiry card**

them each for the first time. The symbol remains in the workfile in its original form even if you modify it in the library later. Thus, older drawings can contain obsolete symbols.

Using fill patterns expands drawing size quickly, because each line in the pattern is considered a separate object.

### Review

VersaCAD/386 is one of a new generation of modifications to high-end CAD programs that make use of the power of 80386 computing. Like VersaCAD/386 they use software technology from Phar Lap to open up more usable memory, above the MS-DOS and PC-DOS limit of 640K.

In fact, VersaCAD/386 uses little conventional memory at all. That leaves about 500K available for other software that requires normal DOS memory; network software, for instance.

VersaCAD adds a new wrinkle. It can be optimized to take advantage of the latest, fastest coprocessor chip available, the Weitek 3167. This was our first experience with the Weitek chip. The increase in raw speed compared to the 80387 was astonishing—a doubling, at least, in calculation-intensive tasks such as shading a 3-D wireframe view with four light sources.

The speedup was even more remarkable, because our test computer, an IBM PS/2 Model 80, does not have a special socket on the motherboard for the Weitek. Instead, the Weitek chip was inserted into an expansion board from MicroWay (P.O. Box 79, Kingston, Mass. 02364, 508/746-7341). Thus, the Weitek got its signals from the IBM Microchannel bus (the pathway to and from expansion slots) rather than the faster route, directly through the motherboard.

The QuickRender module displays up to four views at once, in up to eight colors. Views

can be shown in wireframe, hidden-surface, or shaded-image form. There are five standard eyepoints—top, right, left, front, and perspective. But they are only starting points. You can use the keyboard cursor keys to change the viewing position. Or you can enter coordinates for the eyepoint, distance, and for the center of your view. Views can be displayed in axonometric, isometric, and perspective.

In many ways, features of VersaCAD/386 mimic specialized graphics accelerator cards, even with a computer using simple VGA graphics. You can set up a display list processor in your computer's memory, for instance, to allow fast pans and zooms. Use plenty of memory for the display list, though. Building a drawing too big (by using lots of fill patterns, for instance) can disable it.

A cost-effective computer configuration would look something like this: 25 MHz 80386 computer with Weitek socket on the motherboard (certain models from Acer, ALR, AST, Compaq, Dell, Everex, HP, NCR, Sun, Wang, Zenith, and others), about \$4,000 with 4 MB of random-access memory, the Weitek 3167 or 1167 three-chip set (\$1,000), VGA or Super VGA monitor (\$500 to \$1,000), 100 MB fixed disk (\$1,500), digitizing tablet (\$500). That's about \$8,000 for a workstation that would have cost \$20,000 two years ago. A MicroWay board for a computer without a Weitek socket on the motherboard is about \$1,000.

## Proposal Manager 254/255

A clever set of templates that work with PageMaker 3.0 on the Macintosh to automate most of the creation of proposals using forms 254 and 255 for small and medium-size firms. The templates can be used out of the box, or customized. The proposals can include imported drawings from CAD software, and even a graphic logo for your firm.

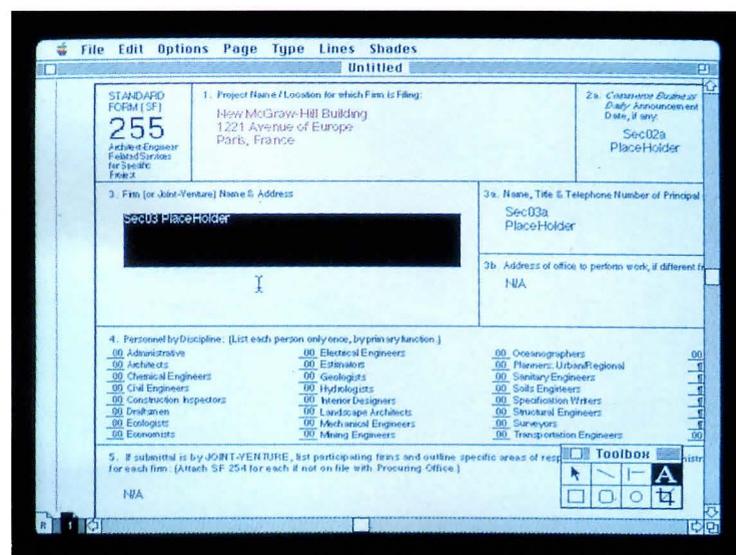
**Equipment required:** Apple Macintosh Plus, SE, II, IIx, or IIcx with fixed disk. It is possible to run the software (slowly) on a Macintosh 512 enhanced with 1 megabyte of random-access memory and a fixed disk. System 4.1 or higher. Finder 5.5 or higher (PageMaker, and thus Proposal Manager, does not run under MultiFinder). The ideal printer would be one of the LaserWriter series, rather

than the dot-matrix ImageWriter.

**Vendor:** Wordscapes, 4546 B-10 El Camino Real #177, Los Altos, Calif. 94022 (415/968-8737). \$279. You will also need PageMaker. The current Macintosh version, 3.02, is available for \$600 or so through most computer stores. **Manual:** Simple and straightforward in the Macintosh style. Instructions for Proposal Manager itself are only about 15 pages long. The remainder of the manual reproduces forms 254 and 255, and shows how to fill them out. There are four good tutorial "workbooks" for on-the-keyboard practice. Installation instructions in the manual do not precisely follow the steps actually needed to set up the software.

**Ease-of-use:** Simple if you are familiar with PageMaker on the Macintosh. If you are not, spend a day using the PageMaker tutorial materials first.

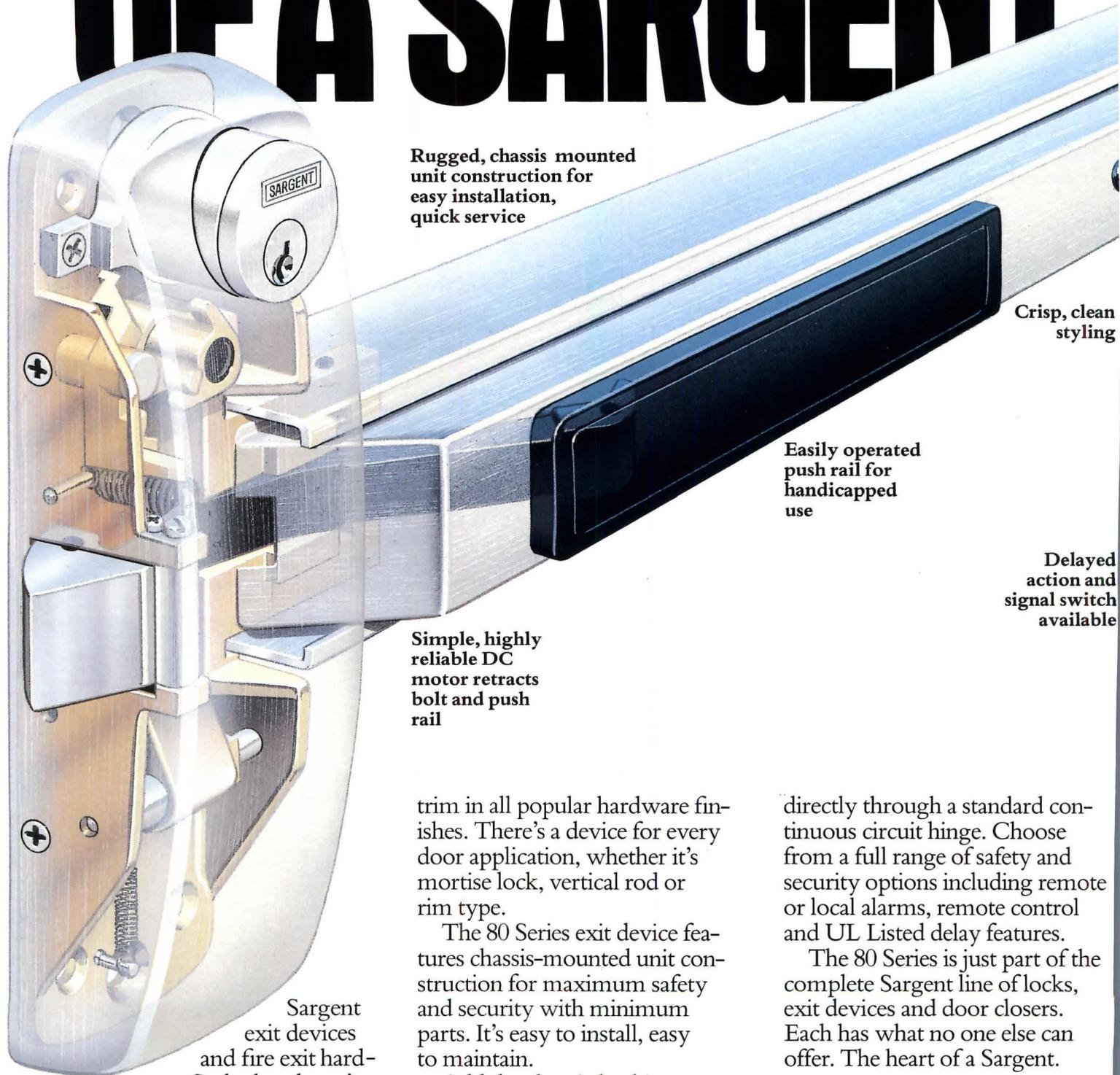
*Continued on page 153*



*On the opening page of standard form 255, each section of the form has "placeholder text" that is edited away and replaced with what the user wants to say. Replacement text can be specified to appear on the screen in a contrasting color (in this case, red).*

*Proposal Manager is designed to help medium- and small-sized firms create proposals on the Macintosh using SF 254 and 255.*

# THE HEART OF A SARGENT



Rugged, chassis mounted unit construction for easy installation, quick service

Crisp, clean styling

Easily operated push rail for handicapped use

Delayed action and signal switch available

Simple, highly reliable DC motor retracts bolt and push rail

trim in all popular hardware finishes. There's a device for every door application, whether it's mortise lock, vertical rod or rim type.

The 80 Series exit device features chassis-mounted unit construction for maximum safety and security with minimum parts. It's easy to install, easy to maintain.

Add the electric latching option, and the 80 Series becomes one of the most advanced exit devices available. An electric motor retracts the latch bolt and depresses the push rail. Thanks to its low voltage requirements, the device can be powered

directly through a standard continuous circuit hinge. Choose from a full range of safety and security options including remote or local alarms, remote control and UL Listed delay features.

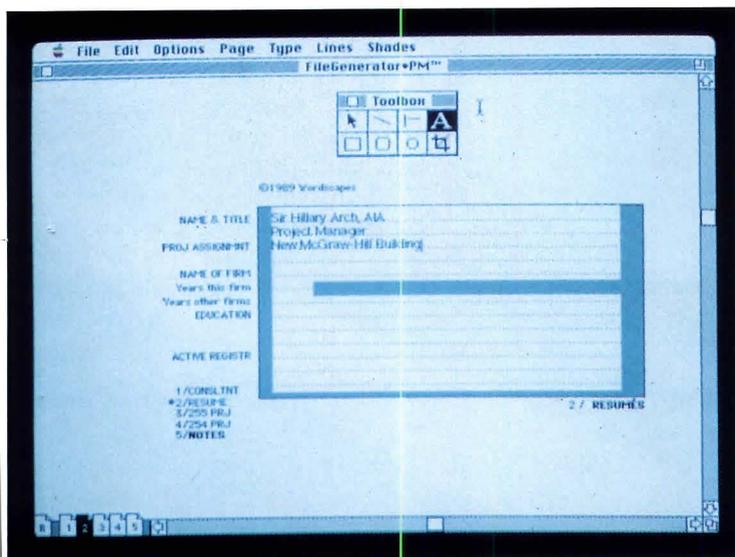
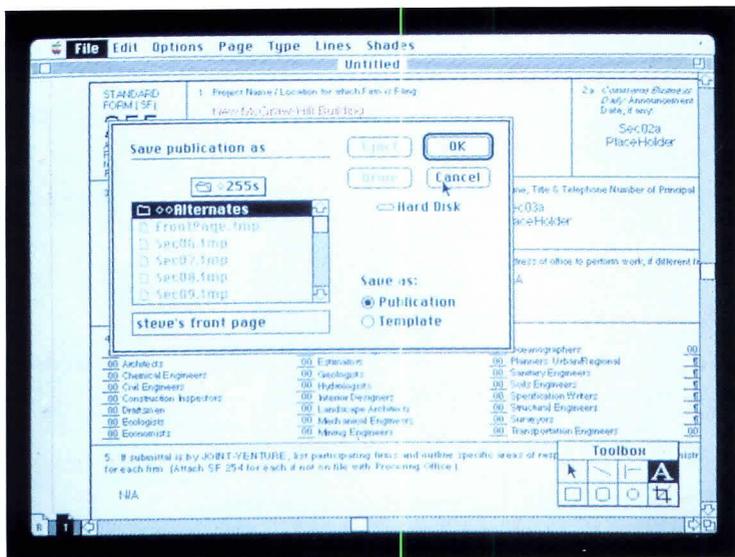
The 80 Series is just part of the complete Sargent line of locks, exit devices and door closers. Each has what no one else can offer. The heart of a Sargent.

Sargent exit devices and fire exit hardware. Style that doesn't compromise safety or security. And a choice that doesn't compromise your design. Get the configuration you prefer, from handsome, low-profile push rail models to traditionally styled units, all with a wide range of

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

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

*Proposal Manager is meant for firms that do perhaps one government request-for-proposal (RFP) every week or two, with most of the proposals aimed at the same kind of projects.*



*PageMaker's own error-trapping (top) keeps the user from overwriting template files. (Note that arrow is pointing to "cancel.") The File Generator feature of Proposal Manager allows the user to create four separate file generator forms (above):*

*consultant listings, resumés, projects (in formats for form 255 sections 8 and 9), and projects for form 254. All four forms are actually on one sheet, allowing users to move from one form to another almost instantaneously.*

**Error-trapping:** Good. The PageMaker "master pages" hold various pages of the form itself, and the "working pages" hold text that can be modified. You can use PageMaker to modify a master page, but it is difficult to modify the underlying master pages inadvertently. Normally you will want to leave them alone. But you may particularly want to modify the resumé and project-listing sections of form 255.

There's guidance on numbering and naming individual pages in a given form. Unless you are careful and methodical, tracking specific pages in a maze of different RFPs can become difficult.

Wordscapes recommends removing old files from your fixed disk as each proposal is completed and mailed. Or, you can use the "Save as..." command to insert each proposal into its own Macintosh "folder" on the fixed disk.

You can expand the descriptions of projects (section 8 of form 255) beyond four lines for each project. But if you do, you will have to use the (supplied) alternate PageMaker "FileGenerator" sheets, or (if you are a savvy PageMaker user) modify the FileGenerator sheets to fit. There's one alternate supplied by Wordscapes that allows seven lines per project, and another that allows 10.

**Review**

Add Proposal Manager 254/255 to a short list of software designed to help architectural and engineering firms respond to government requests-for-proposals. Two packages reviewed in earlier issues (A/E Marketing Manager and RFP) are aimed at larger firms with proposals that can change greatly from project to project. These packages are also flexible enough to generate proposals for private clients, rather than only

in the form 254/255 format.

Proposal Manager is meant for firms that do perhaps one RFP every week or two, with most of the proposals aimed at the same kind of projects.

The Proposal Manager package consists of 15 templates. Each template represents a page or group of similar pages (resumé sheets, for example) in form 254 or 255. There is also a multipage "template" for FileGenerator material.

PageMaker itself makes it easy for users to work by seeing each "page" on the screen as a physical "page" in the final document. The downside is that any changes in font styles have to be made in all the templates, and in the FileGenerator document as well.

Also, when you need extra pages (for extra copies of a given section), you have to go through two steps. First, you use the Insert Pages command in PageMaker to create the blank page you need, and then you copy the desired template page (for extra resumés, typically) into it.

There are two versions of the pages that hold section 7 of form 255—the resumé sections. One allows two resumés per page, and the other allows one. There are four versions of the section 8 area (projects). One allows 10 projects per page, another allows five, another allows two, and a final version allows users to set up their own section 8.

Section 10, the free-form description of your firm's capabilities with respect to a project, can be filled in on-screen in PageMaker. But it will be a lot easier to do as the manual suggests, and create these description files using a word-processing program compatible with PageMaker. Almost all word processors are compatible.

Changing font sizes (and not merely font styles), or increasing the leading (spacing between

# A.R.E. HANDBOOKS DISCOUNTED!

*NCARB Slashes Prices Now Thru December 15!*

1989  
NCARB

## A.R.E. HANDBOOK VOLUME ONE

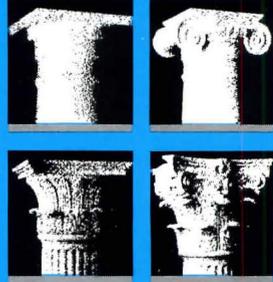
Division B: Site Design, Graphic  
Division C: Building Design



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



Now through December 15, 1989, NCARB is drastically reducing the price of the 1989 A.R.E. Handbook. If you're taking the graphic portions of the A.R.E. in December, the A.R.E. Handbook offers a comprehensive overview of what to expect.

Actual design solutions and sample A.R.E. questions give you first-hand 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.

Set of 2 was \$95  
**NOW ONLY \$60**  
Vol. 1 was \$70  
**NOW ONLY \$45**  
Vol. 2 was \$40  
**NOW ONLY \$25**

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. This offer applies only to individual orders and no other discounts apply. Specify a daytime address—no P.O. 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, I)

- Sample exam questions and answers from previous exams
- Official test information booklets
- Updated bibliographies for written divisions

### Order Your Discounted 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 1-2 weeks.

Name \_\_\_\_\_  
(Please print)

Company \_\_\_\_\_  
(if applicable)

Address \_\_\_\_\_  
(Daytime—No P.O. Boxes)

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

QTY	VOL	PRICE*	TOTAL
	SET	\$60	
	VOL. 1	\$45	
	VOL. 2	\$25	

D.C. residents add 6% sales tax to total.

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 \_\_\_\_\_



- project 865 South Figueroa Tower  
Los Angeles
- owner The Manufacturers Life Insurance Company  
Toronto
- developer Manufacturers Real Estate  
Toronto
- architect Albert C. Martin and Associates  
Los Angeles
- photography Aker/Burnette Studio  
Houston
- general contractor PCL Construction Services, Inc.  
Irvine
- stone setting contractor Hatch Masonry, Inc.  
Los Angeles
- curtainwall installation contractor Tom Benson Industries, Inc.  
Carson
- stone supplier Ingemar S.A.  
Spain
- stone Eagle Red Granite  
Finland

**Ingemar**  
of Spain

Ingemar Corp. 15303 Dallas Parkway Suite 490 LB-4 Dallas, TX 75248 214-458-3276 Telefax 4583216 Telex 735128 INGEDAL

Circle 54 on inquiry card

## You're playing it safe with Elkay.

Introducing the Elkay Design 2000 Coolers. An extra-fine strainer, "The Filtrex System," helps keep out solid impurities. And, all components are lead-free. Trust Elkay for all your cooler needs...



© 1989 Elkay Manufacturing Company

just say **ELKAY**

Circle 55 on inquiry card

## Elegant, not splashy.

Stylish SwirlFlo coolers from Elkay have a unique-contoured basin to minimize splashing. And the exclusive Flexi-Guard™ safety bubbler. For every cooler imaginable, there's only one name to know...



© 1989 Elkay Manufacturing Company

just say **ELKAY**

Circle 56 on inquiry card

Continued from page 153  
lines of type) can throw the type blocks out of whack with respect to the underlying page templates. Changing the leading is easy to do inadvertently. Fortunately, it is also easy to undo.

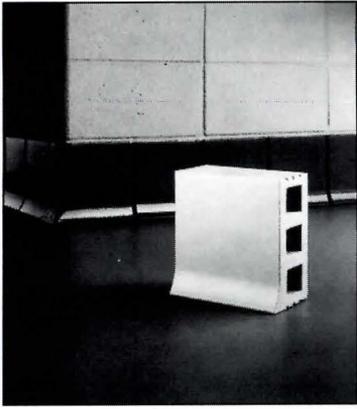
The FileGenerator feature allows you to create four separate files—consultant listings, resumés, projects (in formats for form 255 sections 8 and 9), and projects for form 254. To do this, you merely type into the proper form on-screen. All four forms are actually on one sheet, so users of large monitors may see edges of one form while they fill out another. But that's a small price to pay for the convenience. You can move from one form to another almost instantaneously.

Note, however, that if you want to expand the capabilities of Proposal Manager 254/255 to generate prospect mailing lists (mailings to existing clients and consultants, for example), you will have to export the data files to another program of your choice, and use the second program to generate your form letters and mailing labels.

The FileGenerator is a feature of PageMaker. Once you are done entering data, you export it to a file using the PageMaker Export command. Leave the defaults alone if you will be using the data files only in PageMaker. But if you intend to export files to another system, you will probably want to export data without PageMaker format tags. Other systems will not understand the tags, and read them as text.

Going the other way is easier. PageMaker can import text, and it can import graphics in TIFF, PICT, Paint, and encapsulated PostScript (EPS) format. Most Macintosh CAD software can export images at least in PICT (through the Clipboard). Thus, it is easy to convert from your existing software to Proposal Manager, and it is easy to add graphics to your proposals.

Oh, yes. The forms, as printed on a LaserWriter, are picture-perfect.



**Ceramic-face cove base**

An 8- by 8-in. glazed structural block for isolated ceramic cove-base use is now available in white, gray, black, brown, and green. The unit is said to work with plaster, brick, and stud walls as well as with concrete block. Elgin-Butler Brick Co., Austin, Tex.

Circle 306 on reader service card



**Bent-glass windows**

Bent glass, in either single-pane or insulating units, may be ordered for aluminum-clad wood windows. The exterior frame profile can match most manufacturers' designs; both industry-standard and custom cladding colors are offered. New Morning Windows, Bloomington, Minn.

Circle 307 on reader service card

Continued on page 161

**Style that knows no barriers.**

Elkay Barrier Free coolers are unsurpassed for their stylish good looks. And the light-touch, wrap-around pressbar always makes access easy. For coolers for every situation imaginable, just say the word...



just say **ELKAY**

© 1989 Elkay Manufacturing Company

Circle 57 on inquiry card

**The quality runs deep!**

This wall hung economy cooler is no exception. It doesn't take up a lot of room. Or a lot of your budget. For high quality coolers for every setting, one word says it all...



just say **ELKAY**

© 1989 Elkay Manufacturing Company

Circle 58 on inquiry card

DON'T WAIT FOR A SOLAR PHENOMENON.



CREATE ONE.

# ECLIPSE<sup>®</sup>

Reflective Glass

Find out how.

To receive your FREE  
ECLIPSE Design Kit,  
Call 1-800-848-4400,  
ext. 368.



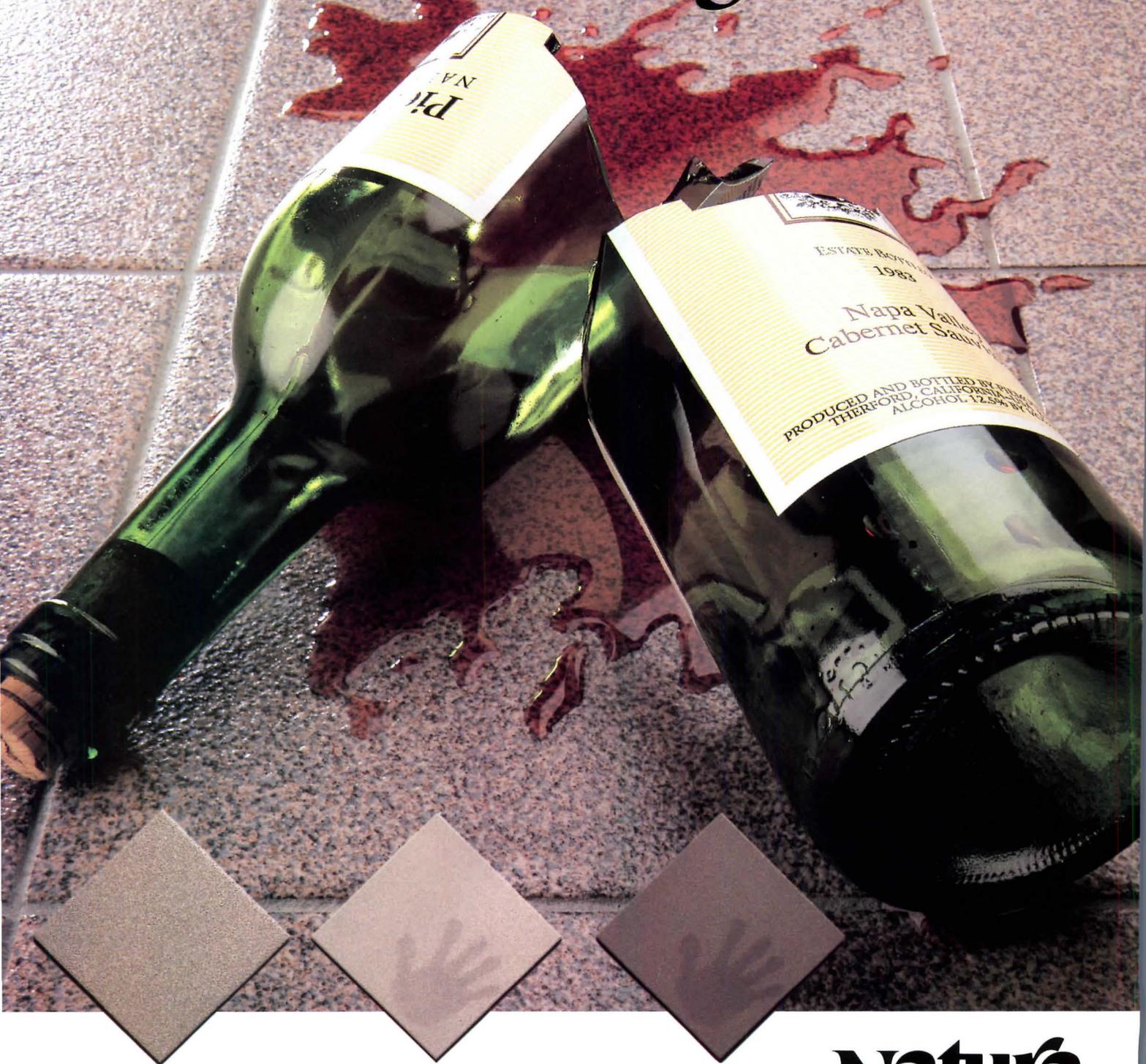
**LOF** Libbey  
Owens  
Ford

A member of the Pilkington Group

© 1989 Libbey-Owens-Ford Co.

Circle 59 on inquiry card

# At last, a tile that can stand years of constant wine-ing without leaving a stain.



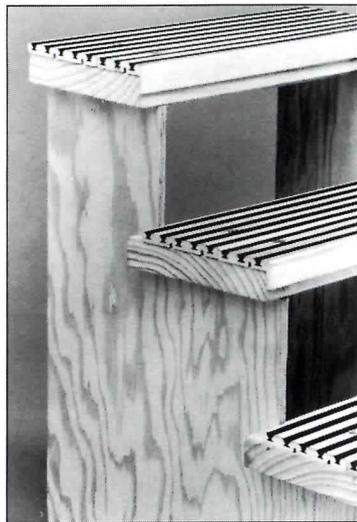
**Natura Granite beats porcelain and quarry tile hands down.** In fact, no ordinary paver can touch the stain-resistant qualities of this unbeatable ceramic tile. Its durable glazed matte surface is designed to hold up under the toughest conditions. . . in a choice of 10 natural colors that will hold their beauty for years. For samples and information, contact your nearest Florida Tile distributor. Or call 1-800-FLA-TILE today.

Natura and Florida Tile are registered trademarks of Sikes Corporation. Natura Granite Series is a trademark of Sikes Corporation. © 1989

**Natura**<sup>®</sup>  
GRANITE SERIES



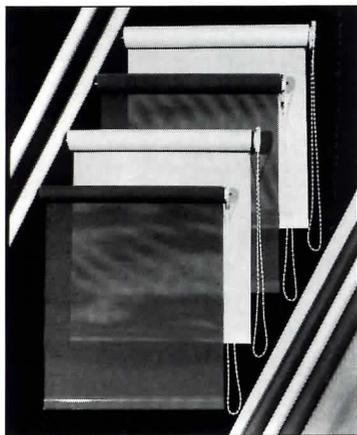
SIKES CORPORATION • LAKELAND • FLORIDA 33802



**Bronze treads**

The Traction Tread door saddle assembly, durable rubber insets set into metal grooves, is now available in polished and unpolished bronze, in addition to the standard aluminum. Made in 2- and 4-in. widths, the treads interlock to form a saddle or stair nosing of any desired depth. Zero International, Inc., Bronx, N. Y.

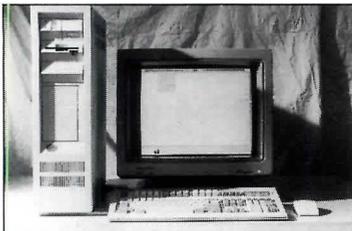
Circle 308 on reader service card



**Solar shading**

A new interior screen from a maker of exterior solar shades, the Sheer Shade admits daylight while filtering out heat and glare. Fire-retardant shades in a range of soft colorations can be custom-ordered in sizes of up to 16- by 10-ft. The roller-shade mechanism is chain-operated; a braking device keeps the shade at any desired position. Vimco, Richmond, Va.

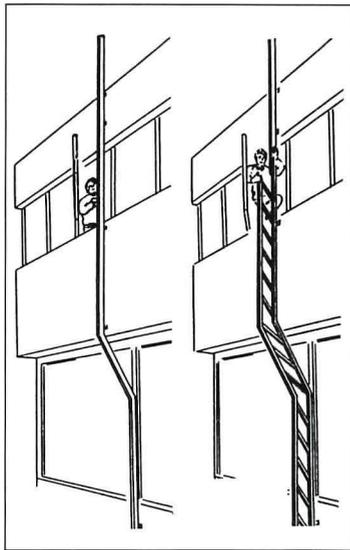
Circle 309 on reader service card



**CAD conversion**

OptiDRAFT, a raster CAD PC workstation, is described as a cost-effective means of getting pre-CAD drawings into CAD systems, allowing precision drafting on raster images of existing drawings. Optigraphics Corp., San Diego.

Circle 310 on reader service card



**Emergency escape ladder**

Developed in Norway and approved as a secondary means of egress under several U. S. codes, the Modum escape ladder mounts as inconspicuously as a rain leader on a building's facade. It can only be released and unfolded from above or at each floor, preventing unauthorized use. The ladder can be climbed from both sides, and can conform to building projections. Made of anodized aluminum, the housing can be painted to match the exterior. Modum U. S. A. Corp., Houston. Circle 311 on reader service card

Continued on page 163

**Charlotte chose Masonry  
with DRY-BLOCK®  
for their Jewel.  
Would you consider anything less  
for your masterpiece?**

**Over 700,000 DRY-BLOCK® units  
used in the Charlotte Coliseum**

The beautiful, split-face masonry units making up the walls of the fabulous Charlotte Coliseum are protected from the elements by the DRY-BLOCK® System.

Depend on DRY-BLOCK®, the original, integral water-repellent system for lasting beauty that stands up to whatever Mother Nature dishes out.

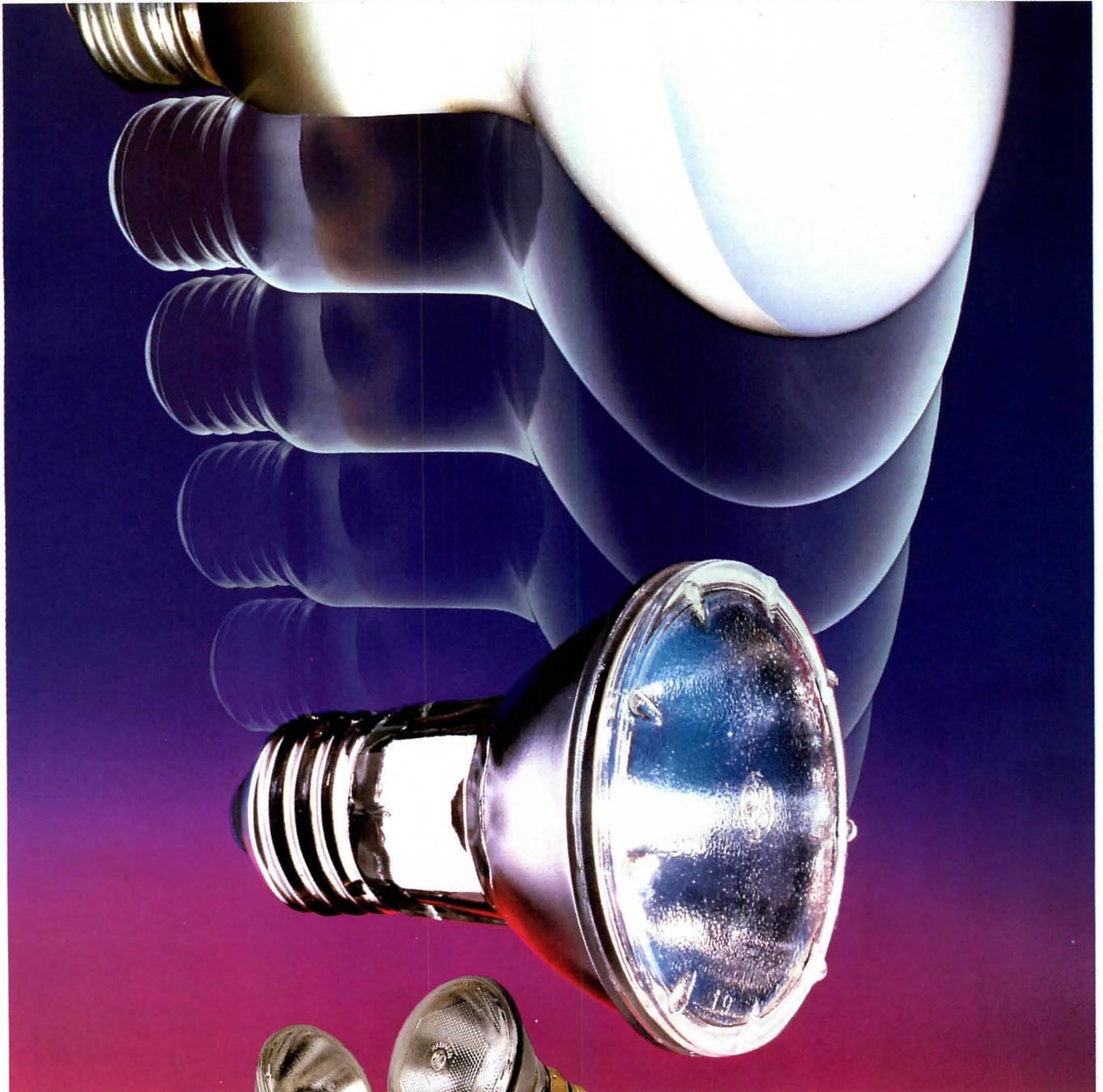
*For the full story on the Charlotte Coliseum,  
just drop us a line.*

**FORRER  
INDUSTRIES**

7221 West Parkland Court  
Milwaukee, WI 53223  
(414) 354-4400  
1 (800) 558-7066

**NATIONAL  
CONCRETE MASONRY  
ASSOCIATION**

# GE IS THE LIGHT THAT DELIVERS BIGGER LIGHTING PUNCH FROM A SMALLER LAMP.



**GE Performance Plus™ Halogen PAR lamps put design flexibility into the spotlight. And the flood.**

GE Halogen PAR lamps are now appreciably smaller. So your number of display lighting options is now appreciably bigger.

One such option: Specify GE Performance Plus™ Halogen PAR20



narrow spots instead of 75R30 reflector spots and deliver three times the display light on a third less energy from smaller, less obtrusive fixtures. Flicker-free light that's whiter and crisper for dramatically enhanced colors.

More light, less energy, better colors, smaller fixtures, original de-

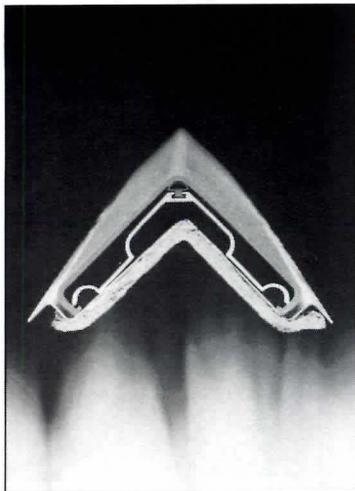
sign or retrofit. With GE's family of diode-free Performance Plus™ Halogen PAR spots and floods, your options keep adding up.

For more information, call GE's SpecLine toll-free at 800-523-5520.

**GE is Light.**



**GE Lighting**



**Fire-rated corner guard**

Part of a line of fire-resistive products for expansion joints and fire-wall corners, the Balco corner guard is flush mounted, and needs no additional sheet rock or studding to achieve a 2-hour UL fire rating. The preassembled guard comes in over 30 standard colors. Balco, Inc., Wichita, Kan.

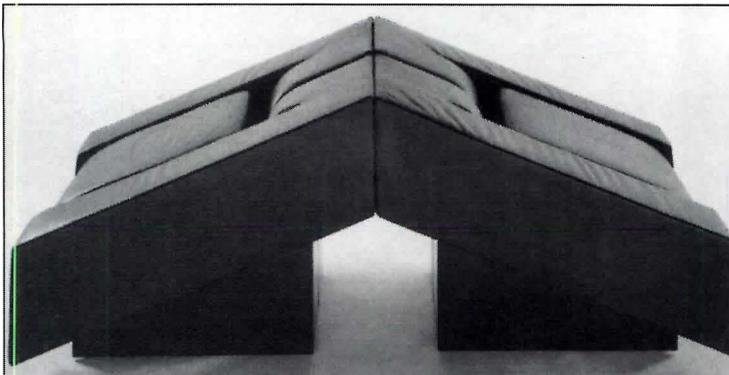
Circle 312 on reader service card



**Self-watering planters**

A new finish is offered in the Natural Spring line of controlled-watering planters. The color-flecked texture, available on all planter sizes and shapes, has the appearance of granite or concrete without the weight. Planter Technology, Mountain View, Calif.

Circle 313 on reader service card



**Tilt-up lounge**

Designed by Mario Botta, the Obliqua chair has seat, arms, and back that angle upwards; the movable seat lowers to the

horizontal in use like a theater seat. It is also available in two- and three-unit sofa versions.

ICF, New York City.  
Circle 314 on reader service card



**Site furniture**

The St. Andrews bench is made of plantation-grown Jarrah, an Australian hardwood said to be impervious to dry rot and insect damage. Custom architectural designs are a specialty. D. M. Braun, Santa Fe Springs, Calif.

Circle 315 on reader service card  
Continued on page 165

*Introducing...The All-New*

**IBP glass block grid system™**  
WINDOWS • WALLS • SKYLIGHTS FLOORS

For Exclusive Use With  
PITTSBURGH CORNING

**PC GLASSBLOCK®**  
PRODUCTS

The IBP Glass Block Grid System™ offers a handsome, tailored image... a totally new look for PC GlassBlock® products, yet they retain all their unique advantages. Controlled light and sound transmission. Privacy. Security. And, insulation value.

**A Choice of Finishes**

Choose from white as well as silver, gold or bronze metallic finishes to complement any design.

**Mortar-Free Installation**

Sturdy, lightweight aluminum alloy frames are installed. Then, hollow, 8"-square THINLINE SERIES PC GlassBlock® units are inserted into windows, walls or skylights. Or, solid glass PC GlassBlock® paver units are inserted into floor systems. Fast, clean, entirely without mortar!

**Windows, Walls, Skylights & Floors**

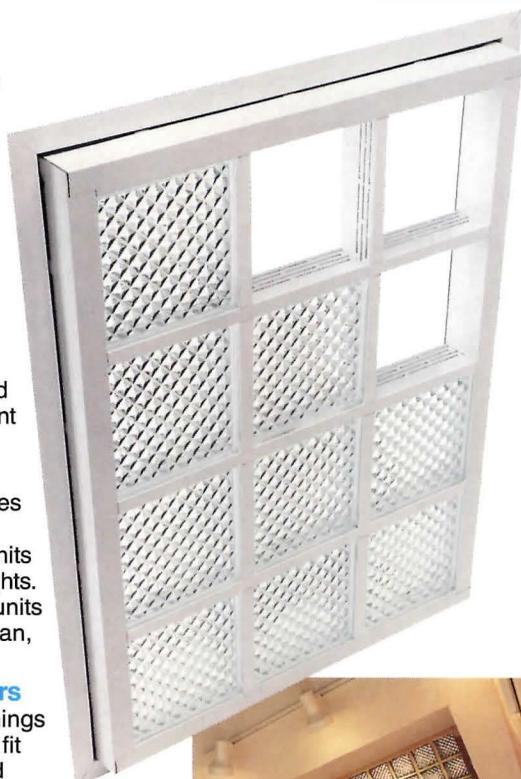
Window and Wall Systems fit most openings to 144 square feet... Skylight Systems fit most openings to 16 square feet... and Floor Systems can be up to 72" wide and in any desired length.

Never before has the beauty of PC GlassBlock® products been so attractively and functionally complemented!

Visit our Design Center at ADAC—West, Atlanta.

For more information or your nearest Distributor, call the PC GlassBlock® Products Hotline 800-992-5769.

**PITTSBURGH CORNING**  
Pittsburgh Corning Corporation  
800 Presque Isle Drive  
Pittsburgh, PA 15239  
In Canada: 55 Renfrew Drive, Unit 205  
Markham, Ontario L3R 8H3;  
Tel: (416) 222-8084



DELPHI® Pattern, White-Finish Window Frame

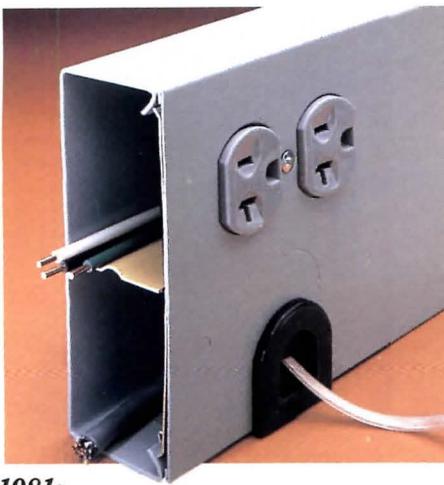
DELPHI® Pattern, Gold-Finish Skylight



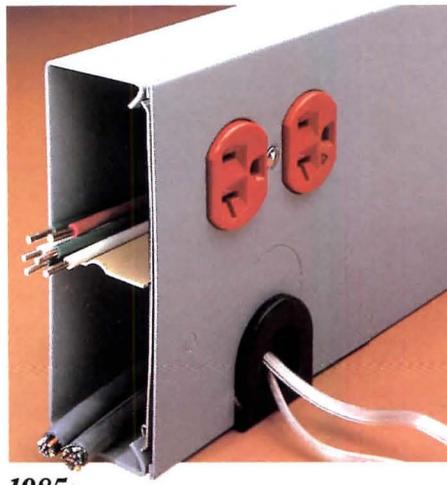
Manufactured by  
**INNOVATIVE BUILDING PRODUCTS, INC.**  
1305 Avenue H  
Grand Prairie, TX 75050

PC GlassBlock® & DELPHI® are registered trademarks of Pittsburgh Corning Corporation.

\*IBP Glass Block Grid System™ is a trademark of the manufacturer, Innovative Building Products, Inc. (U.S. and foreign patents pending).  
©1989 Innovative Building Products, Inc.



**1981:**  
newly installed Wiremold®  
G-4000 raceway with divider  
carries power circuits and a sin-  
gle telephone cable.



**1985:**  
a dedicated/isolated  
ground circuit is added to the  
same raceway; telephone ser-  
vice is doubled.



**TODAY:**  
now a cabling network adapter  
interfaces with a computer system and  
other tele/data equipment. Wiremold race-  
way still has room to grow!

# The wiring system you can't outgrow.

**Expand your power, telephone and data wiring as needed with a Wiremold perimeter raceway system.** Now, you can get at your wiring whenever you want to. All you do is remove the Wiremold raceway covers and lay in the additional wiring and fittings: electrical power in one compartment, low voltage data and phone cables in the other. That's the distinct advantage Wiremold perimeter raceway has over conventional wiring systems.

A Wiremold raceway system has you ready to grow. Maybe you change your office layout. Or you add new factory equipment. Perhaps you bring in more sophisticated telecommunications equipment. Or add additional LAN cables. There's capacity for these and more. So everything's

updated quickly and efficiently.

Large capacity Wiremold perimeter raceway comes in a range of sizes and finishes. Available in baked enamel finish, satin anodized aluminum or plastic, they can be used as is or painted to match or contrast. Available, too, are all the interconnecting fittings you need to extend and expand your raceway system, one that can grow as your business needs grow.

If you're renovating or retrofitting a building, Wiremold raceway reduces the high cost of labor and general disorder involved in breaking through walls – not just today but in the future. Designing a new building? It makes good sense to design in, from the beginning, a Wiremold perimeter raceway system – so you're prepared for future

expansion of your wiring needs.

To view a specially-prepared video about Wiremold perimeter raceway systems, call 1-800-621-0049 (In Connecticut 1-800-992-2277).



Installed at desktop level, the Wiremold perimeter raceway in this office handles both standard power and low voltage communications wiring.

For a fact-filled color brochure, write today to The Wiremold Company, Electrical Division, 60 Woodlawn Street, West Hartford, CT 06110-0639.

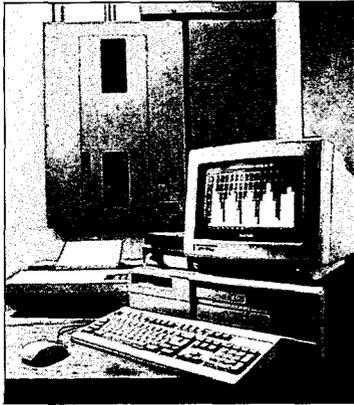
FREE  
LITERATURE



**W** Wiremold

Circle 64 on inquiry card

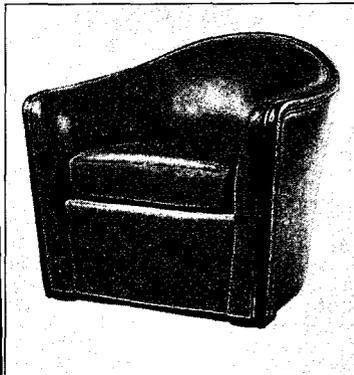
Removable covers make it easy to quickly access and update power wiring, telephone and data network cables.



**Occupant-sensitive lighting automation**

Designed for simplified installation in new buildings, GE's Total Lighting Control system uses standard low-voltage relays to operate lights automatically. Though each programmed relay is controlled by area-specific plug-in master on/off control cards, office workers retain control of the lighting in individual spaces. The TLC system can incorporate energy-efficient lighting strategies such as daylighting and occupancy sensors. General Electric Wiring Devices, Warwick, R. I.

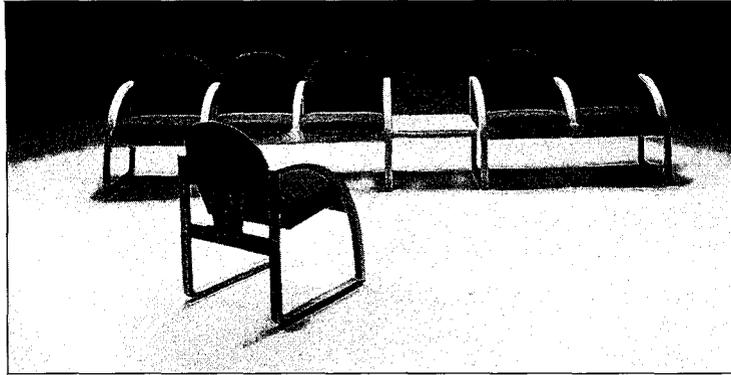
Circle 316 on reader service card



**Fully upholstered**

Designers Bentley La Rosa Salasky intended their Barrel Back lounge as a basic shape only, leaving to the individual owner the choice of upholstery fabric and detail that makes each chair or sofa unique. Brickel Associates, Inc., New York City.

Circle 317 on reader service card



**Reception seating**

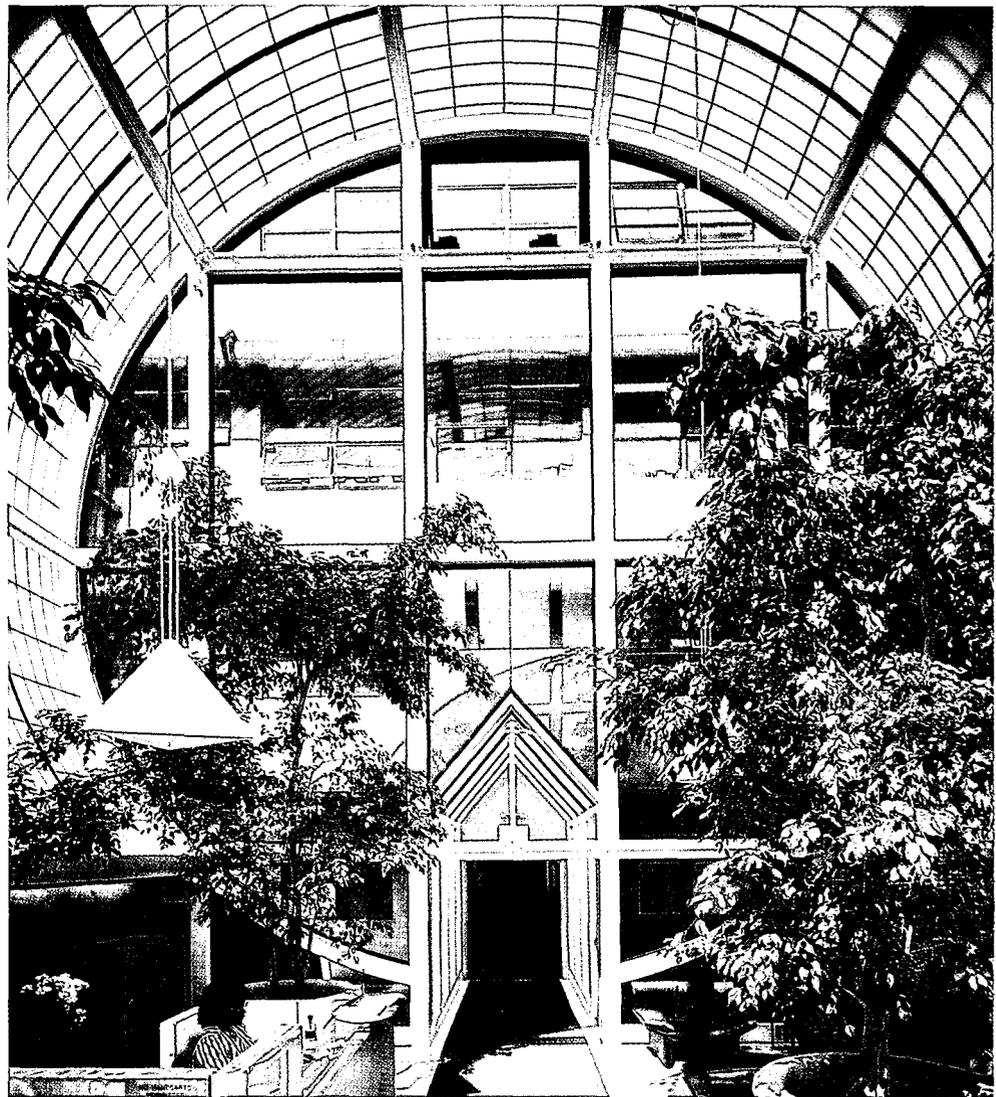
Two- and three-seat versions of Peter Danko's Clydes Chair, offered with or without central arms, are made of molded ash or

walnut veneer. The units are designed so that it is easy to clean under them. Peter Danko & Associates, Inc., Clinton, Md. Circle 318 on reader service card



**Vinyl wallcoverings**

A new collection includes stone-look designs, Southwestern patterns, and classical borders, all Class A rated. The vinyl comes fabric-backed, or on Wall-Over bridging material. Columbus Coated Fabrics, Columbus, Ohio. Circle 319 on reader service card. Continued on page 167



53rd and Horton Street, Emeryville, CA

The Munselle/Brown Partnership, Architect

**KALCURVE™** The most highly insulating light transmitting curved material for skyroofs and curtainwall systems.

See Sweet's 08900/KAL and 07820/KAL.

**Kalwall**  
CORPORATION

Since 1955  
P.O. Box 237, Manchester, NH 03105, Phone 603-627-9861 or 800-258-9777

Kalwall: a High-Tech Building Systems Company. Always the leader!

Circle 65 on inquiry card

U.S. Patent Number 4,557,090

Dow Corning Presents

# 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 safting 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 68 on inquiry card

## A transformer liquid that's safe.

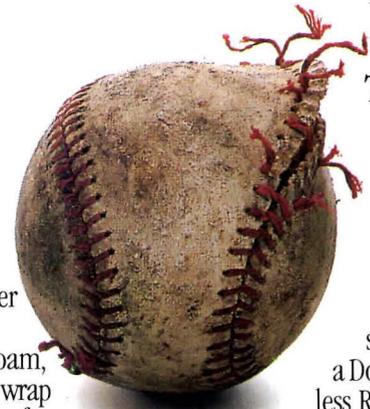
Get the performance advantages of liquid-filled transformers plus the safety of silicone. Dow Corning® 561 Silicone Transformer liquid is environmentally compatible. And it has good electrical properties, temperature stability, fire resistance and the proven performance you need.

Circle 69 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 70 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 71 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 66 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 67 on inquiry card

©1988 Dow Corning Corp.





**Interior-design calculator**

A hand-held device made to sell for less than \$100, the Home Contractor conversion computer measures distances of up to 33 ft electronically, and displays the room's total area or volume in either English or metric. Separate function keys are used to automatically calculate the amount of materials needed for each surface: gallons of paint; yards of carpet; rolls of wallpaper; number of floor or ceiling tiles; and the number of 4- by 8-ft wall panels. And using the volume of the space, hvac requirements are figured in Btu/hr. Seiko Instruments USA, Inc., Torrance, Calif.

Circle 320 on reader service card



**Danish design**

Classic modern furniture by Danish architect Poul Kjaerholm is made of chromed or stainless steel with leather, wicker, canvas, and glass. Pictured is a high-back lounge with an adjustable upholstered headrest. ICF, New York City.

Circle 321 on reader service card



**Traditional wood**

Described as affordable, new Dearborn Group furniture from Stow & Davis offers classic office styling in black cherry

vener with antique brass fittings. Modular casegoods are 24-in. deep. Stow & Davis, Kentwood, Mich.

Circle 322 on reader service card



**Lever set**

The Kingston lever set, for residential and light commercial applications, is a new contemporary design offered in both bright and antique brass finishes. National Lock Corp., Sikeston, Mo.

Circle 323 on reader service card  
Continued on page 169

Designs by World-Famous Architects

Traditional Designs

Bold Contemporary Designs

Fusital

Valli&Colombo®

Forges

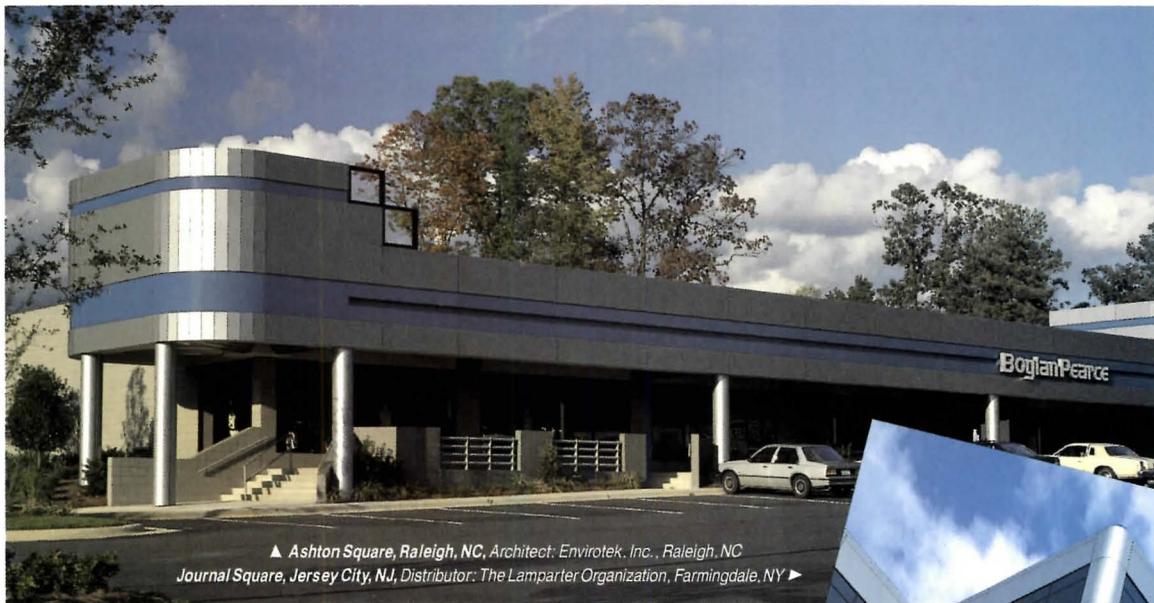
**Make every entrance a command performance.**

Italian designer door lever sets from Valli & Colombo feature over thirty superbly hand-crafted styles with coordinated accessories, deadbolts and mortise locks.

**Valli&Colombo**  
(U.S.A.) Inc.  
P.O. Box 245  
Duarte, CA 91009-0245  
(818) 359-2569  
© 1989

Circle 72 on inquiry card

**Le maniglie Valli&Colombo**



▲ Ashton Square, Raleigh, NC, Architect: Envirotek, Inc., Raleigh, NC  
Journal Square, Jersey City, NJ, Distributor: The Lamparter Organization, Farmingdale, NY ▶

**FOR  
INCREDIBLE  
DESIGN  
EXECUTIONS,  
FOLLOW  
THESE  
DIRECTIONS  
WORD  
FOR  
WORD:**

Alucobuild.  
It's a valuable word of advice  
for architects looking for the  
most formable, workable and durable  
material in the industry.

Only Alucobond material offers you  
an incredible  
formability that  
easily interprets  
even the most innovative designs,  
from sharp angles to binding  
folds to sweeping curves. And

Alucobond material's unsurpassed work-  
ability allows you to easily fabricate on-site, on time.

But that's not the only good word on Alucobond material.

Alucobond material also offers unbeatable  
durability. Made of two thin, lightweight sheets of  
aluminum with a thermoplastic core, its impressive  
strength-to-weight ratio guarantees incredible flatness. No buckling,  
rippling or oil-canning, even in extreme temperature changes.

In a word, Alucobond material can work wonders for any new  
structure, or retrofit application.

For more details, look for our catalog in  
Sweet's. Or call our service department,  
toll-free, 800-626-3365.

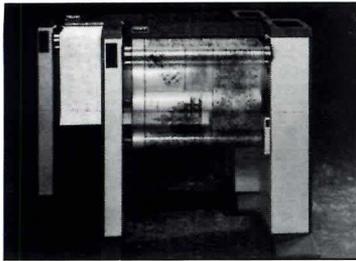
We'd like to have a word  
with you. Alucobuild.

**ALUCOBOND<sup>®</sup>**  
MATERIAL  
 **ALUCOBOND  
TECHNOLOGIES**

**ALUCOBUILD**

Alucobond Technologies, Incorporated  
P.O. Box 507, Symsonia Road, Benton, Kentucky 42025 • 800-626-3365 • 502-527-1376

Circle 73 on inquiry card

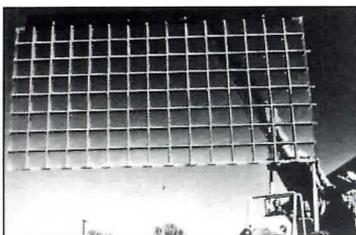


**Electrostatic plotter**

New 8600 series monochrome printers, priced at \$16,900 and up, are said to cost an average of 50 percent less than previous electrostatic plotters. Units accept a variety of film and paper media in widths of 24 or 36 in. Versatec, Santa Clara, Calif.  
Circle 324 on reader service card

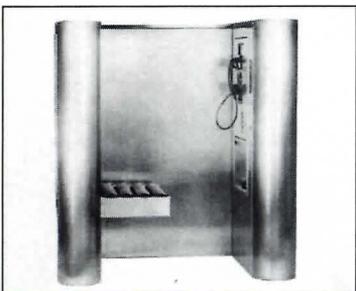


**Fireproofing-board ceiling**  
Promat-H medium-density calcium silicate rigid boards are shown here used in a West German post office to create a fire-rated suspended ceiling that provides complete access to the plenum. The system eliminates the need to individually protect telephone, computer, and power cables, equipment, and air ducts. Set on tracks, the boards slide side-to-side, and are hinged for opening upwards. The beige surface accepts paint readily. Isolatak Int'l., Netcong, N. J.  
Circle 327 on reader service card



**Glass-block mortar**

A high-strength mortar additive, developed specifically for hard-to-bond glass block, is said to facilitate the assembly of prefabricated panels, loadbearing walls, arches, and columns and lintels. Called 8510 Admix, the product has four times the bond and twice the tensile strength of other mortars. Laticrete Int'l, Inc., Bethany, Conn.  
Circle 325 on reader service card



**Phone booth**

A sit-down booth is made of stainless steel with an acoustic interior. The style works in various in-line and side-by-side configurations, with stainless-steel or glass dividers. RedyRef-Pressed & Welded, Inc., Long Island City, N. Y.  
Circle 326 on reader service card

# Entrance Exam.



Entrance exams leave little room for error. The questions are tough: Were your original design objectives supported by high quality door and entrance construction? Will the doors stand up under traffic conditions and operate without problems day in, day out? Does the fabrication and finish represent the kind of craftsmanship you expected. Passing this kind of test over and over

**Will the doors you choose stand up to the test?**

means specifying a manufacturer with a reputation for producing beautifully crafted doors and entrances. Dawson is the company. Whether your concept calls for mirror finish stainless or bronze, whether the door is solid or glazed or unusually ornate, Dawson custom doors will pass the test. For a catalog and other design information, call, write or fax.



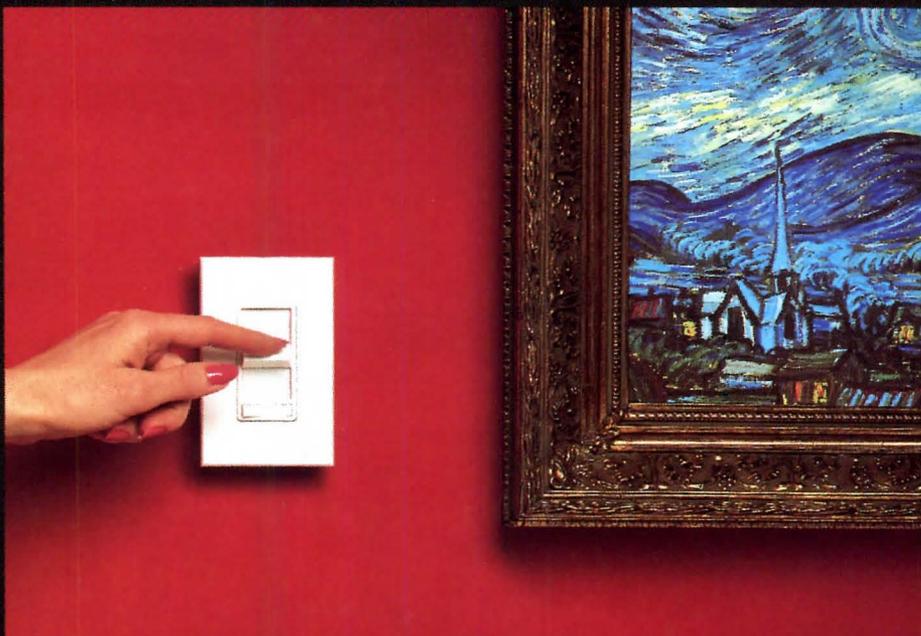
A Division of Dawson Metal Co., Inc.  
608 Allen Street  
Jamestown, NY 14701  
(716) 664-3811 Fax: 661-3722

# Two masterpieces. The painting is one of a kind. The dimmer is one of 350.

**Leviton offers a line of box mounted dimmers that master the art of lighting control.**

A wide range of box mounted dimmers with a breadth and depth like no other. Leviton dimmers are available for all types of residential and commercial applications. Slide, touch, rotary, or toggle dimmers are easily installed in standard wall boxes. To complete the picture, our NEW line of preset slide dimmers for incandescent, fluorescent, low voltage and fan speed control applications, from 600W to 2000W, are the perfect touch for interiors where slide controls are desired.

The most complete dimmer product line also offers local and remote dimming with Leviton's Decora Electronic Controls, or can be combined with our Decora designer devices for unlimited lighting design possibilities. And

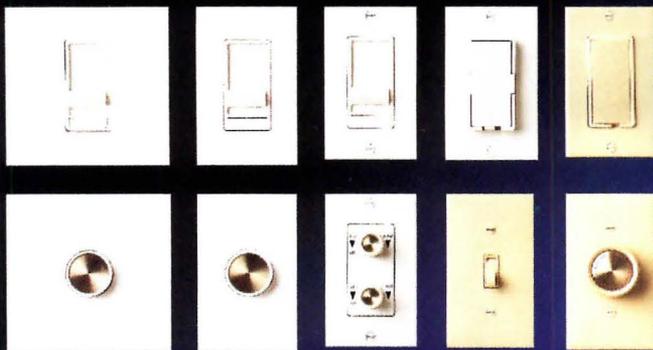


the Leviton two-year Limited Warranty covers it all.

Take advantage of the one manufacturer with the largest selection of box mounted dimmers in the industry — with over 350 color and design variations to choose from. Round out your literature file by sending us your business card to receive a FREE copy of our comprehensive dim-

mer catalog. *Leviton lighting controls...not just well-known but well-made.*

Leviton Manufacturing Co., Inc., 59-25 Little Neck Parkway, Little Neck, NY 11362, (718) 229-4040, Ext. 6486. In Canada, Leviton Manufacturing of Canada Ltd., 165 Hymus Blvd., Point Claire, Quebec, H9R 1G2.



**LEVITON**

Turn on the  
power of  
**Leviton**  
The industry's choice for all construction.

## 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 84-87  
Camp Algonquin Activities Center  
Tigerman McCurry Architect  
Aluminum-clad wood windows:  
Pella. Wood and glass doors:  
Morgan. Locksets: Schlage Lock.  
Laminate surfaces: Formica.  
Pendant fixtures: Halo.

Pages 88-91  
Pilot Field  
HOK Sports Facilities Group,  
Architect  
Pages 88-90—Aluminum-framed  
arched, storefront, and sliding  
windows; entrances: Vistawall  
Architectural Products. Glazing:  
PPG Industries. Single-ply roofing:  
Celotex. Standing-seam metal  
roofing: Fabral. High-mast lighting:  
Crouse-Hinds. Upward-acting doors:  
Overhead Door; Raynor Mfg.  
Grilles: Cornell Iron Works.  
Paints (on metal surfaces): Themec.  
Laminate surfaces: Formica.  
Grandstand seating: American  
Seating.  
Page 91—Ceilings: Armstrong  
World Industries. Paints: Sherwin-  
Williams.

Pages 92-93  
Lake Harriet Band Shell  
Frederick Bentz/Milo Thompson/  
Robert Rietow, Inc., Architect  
Shingle roofing and siding:  
Certigrade Red Cedar. Wood  
windows: Marvin.  
Laminated glass: PPG Industries.  
Paints and stains: Pratt & Lambert.  
Acoustic paneling: Tectum.

Pages 94-99  
Moody Gardens  
Morris Architects  
Exterior finish: Thoro System  
Products. Awnings: John Boyle Co.  
(UltraFab). Built-up roofing: Owens-  
Corning. Standing-seam metal roof:  
Berridge Mfg. Aluminum windows  
and entrances: Kawneer.  
Glazing: PPG Industries.  
Benches: Forms + Surfaces.

Pages 100-103  
Commerce City Recreation Center  
Barker-Rinker-Seacat & Partners,  
Architects  
Pages 100-101—Brick: Interstate  
Brick. Translucent panels: Kalwall.  
Aluminum skylights, windows, and  
entrances: Kawneer. Glass block:  
Pittsburgh-Corning. Sectional doors:  
Raynor Mfg. Paints: Themec.  
*Continued on page 185*

## Husband. Grandfather. Great American Investor.

When Bob Lawrence joined the railroad nearly 30 years ago, he began buying U.S. Savings Bonds for his retirement. Now he buys them for his grandkids. "Bonds pay good strong rates and they're simple to purchase," he says. Become the next Great American Investor. Call us to find out more.

### U.S. SAVINGS BONDS

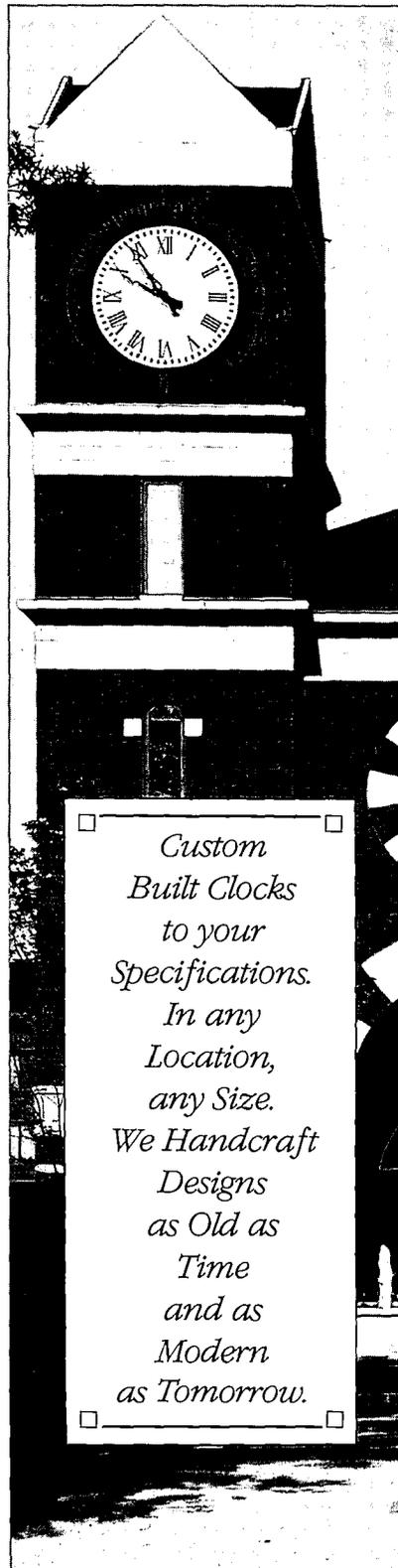


THE GREAT AMERICAN INVESTMENT

## 1-800-US-BONDS

A public service of this publication.

# Designing Time



*Custom  
Built Clocks  
to your  
Specifications.  
In any  
Location,  
any Size.  
We Handcraft  
Designs  
as Old as  
Time  
and as  
Modern  
as Tomorrow.*

**electric time**  
company, inc.

45 West St., Medfield, MA 02052 USA  
Tele: (508) 359-4396 Fax: (508) 359-4482

See Us in Sweets 16730/ELE

Circle 76 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<sup>®</sup>



Restoration  
Cambridge™  
3" Clapboard  
is one of five  
distinctive profiles  
that make up the  
new Restoration  
Collection of premium  
vinyl sidings and  
matching accessories.

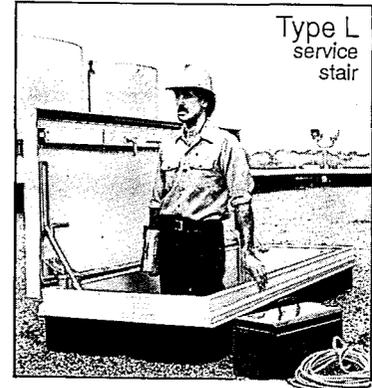
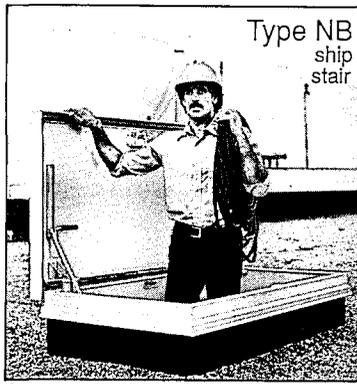
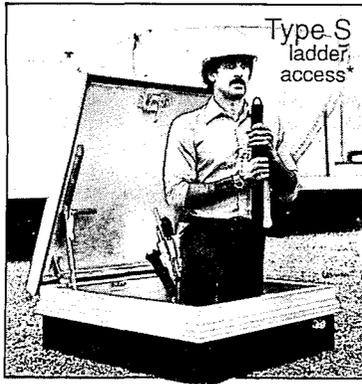
"Wolverine Restoration was never viewed as a substitute for any other siding material, but rather as a first-quality product with design merit in its own right. That, in addition to its natural appearance and distinctive lines, was why the decision to use Restoration was made very early in the design process. Plus, the availability of compatible corner and window trim gave us even greater flexibility in creating a home of long-lasting beauty."

Stanley J. Monroe  
Architect  
Sweeney and Monroe Inc.  
Ann Arbor, Michigan

Open up your design options — choose one of the five Restoration styles for your next project. Call 1-800-521-9020 today for product information, specifications, and case studies.

Circle 77 on inquiry card

# 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.

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

See our catalog in Sweet's®, or write for a copy.



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

Circle 78 on inquiry card



MONTPELIER, MONTPELIER STATION, VA.

A NATIONAL TRUST PROPERTY.

## PRESERVATION...PLAN ON IT

Planning on restoring a house, saving a landmark, reviving your neighborhood?

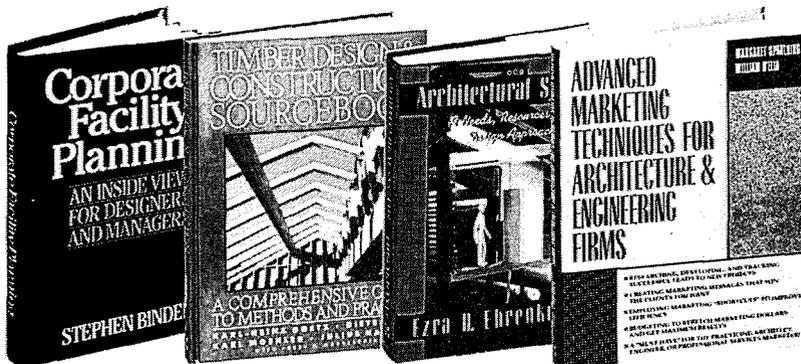
Gain a wealth of experience and help preserve our historic and architectural heritage. Join the National Trust for Historic Preservation and support preservation efforts in your community.

Make preservation a blueprint for the future.

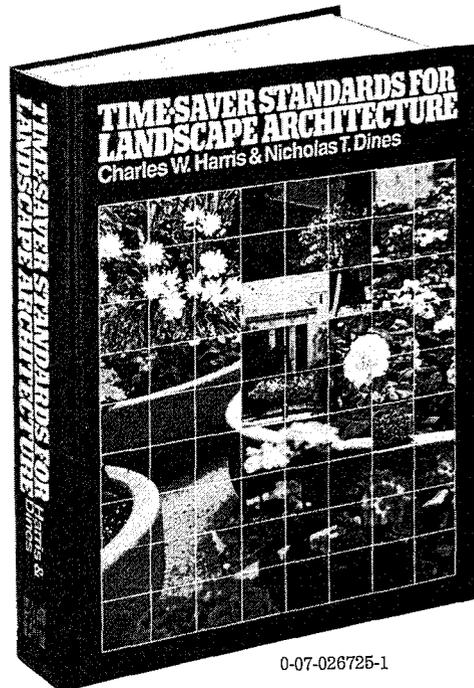
Write:

**National Trust  
for Historic Preservation**  
Department PA  
1785 Massachusetts Ave., N.W.  
Washington, D.C. 20036

# When architects and designers need dependable answers they can trust... they turn to McGraw-Hill



0-07-005289-1      0-07-023851-0      0-07-019100-X      0-07-016248-4



0-07-026725-1

For established techniques and the latest advances in the field, McGraw-Hill references meet all your architectural design needs. If you're looking to increase the efficiency of every facility you design, *Corporate Facility Planning* provides a complete, integrated, time-tested approach to every aspect of the facility manager's job. A virtual encyclopedia on engineering aspects of architecture in wood, the recently-published *Timber Design and Construction Sourcebook* is an essential reference and a creative partner for architects and builders alike. One of America's most respected architects, Ezra Ehrenkrantz, has just written *Architectural Systems* — a breakthrough *systems-based* guide to the entire design process... while another brand-new book, *Advanced Marketing Techniques for Architecture and Engineering Firms*, will help you make the most of your marketing dollars and efforts.

Within just a year of publication, this professional's guide has established itself as a classic in its field. Representing the expertise of 200 specialists, *Time Saver Standards for Landscape Architecture* has become the primary source for landscape and construction systems, techniques, standards, and details.

## AVAILABLE NOW AT THESE FINE STORES

**CALIFORNIA**  
Hennessey & Ingalls, Inc.  
1254 Third Street  
Promenade  
Santa Monica, CA 90401  
(213) 458-9074  
FAX (213) 394-2928

OPAMP Technical Books  
1033 N. Sycamore  
Los Angeles, CA 90038  
(213) 464-4322

San Diego Technical Books  
8290 Vickers  
San Diego, CA 92111  
(619) 279-4990

Scholar's Book Store  
327 Richmond Street  
El Segundo, CA 90245  
(213) 322-3161

Stacey's Bookstore  
219 University Avenue  
Palo Alto, CA 94301  
(415) 326-0681

Stacey's Bookstore  
581 Market Street  
San Francisco, CA 94105  
(415) 421-4887  
FAX (415) 777-5017

Stanford Bookstore  
Stanford, CA 94305  
(415) 329-1217

Stanford Bookstore  
Palo Alto  
135 University Avenue  
Palo Alto, CA 94301  
(415) 327-3680

**COLORADO**  
Auraria Book Center  
955 Lawrence Street  
Denver, CO 80204  
(303) 571-0265

R & R Technical  
Bookfinders, Inc.  
P.O. Box 1038  
1224 W. Littleton Blvd.  
Littleton, CO 80160  
(303) 794-4518

United TechBook  
Company  
P.O. Box 1658  
249 Main Street  
Longmont, CO 80502  
(800) 247-4808  
(303) 651-3184

**DISTRICT OF COLUMBIA**  
Feiter's Scientific & Professional Bookstore  
2021 K Street N.W.  
Washington, D.C. 20006  
(202) 223-3327

**FLORIDA**  
Bookstop  
7710 N. Kendall,  
Suite B1  
Miami, FL 33156  
(305) 598-7292

**GEORGIA**  
Engineers Bookstore  
120 North Avenue N.W.  
Atlanta, GA 30313  
(404) 892-1669

**HAWAII**  
Honolulu Book Shops  
1001 Bishop Street  
Honolulu, HI 96813  
(808) 537-6224

**MASSACHUSETTS**  
Architectural Bookshop  
66 Hereford Street  
Boston, MA 02115  
(617) 262-2727

**MONTANA**  
MSU Bookstore, Inc.  
185 Student Union  
Bozeman, MT 59717  
(406) 994-2811

**NEW JERSEY**  
McGraw-Hill Bookstore  
Hightstown-Princeton  
Road S-1  
Hightstown, NJ 08520  
(609) 426-5749

Princeton University  
Bookstore  
36 University Place  
Princeton, NJ 08540  
(609) 921-8500

**NEW YORK**  
Barnes & Noble  
105 Fifth Avenue  
New York, NY 10003  
(212) 807-0099

McGraw-Hill Bookstore  
1221 Avenue of the Americas  
New York, NY 10020  
(212) 512-4100

Urban Center Books  
457 Madison Avenue  
New York, NY 10022  
(212) 935-3592

**OHIO**  
University Bookstore  
University of Cincinnati  
Cincinnati, OH 45221  
(513) 556-1292

**OREGON**  
Building Tech  
Bookstore, Inc.  
7177 S.W. Stephen Lane  
Portland, OR 97225  
(503) 297-7177

**PENNSYLVANIA**  
AIA Bookstore  
(Philadelphia Chapter, AIA)  
117 S. 17th Street  
Philadelphia, PA 19103  
(215) 569-3188

**TEXAS**  
Bookstop  
6406 N. Interregional  
Highway - #1400  
Austin, TX 78752  
(512) 453-7297

Bookstop  
820 Preston Forest  
Shopping Center  
Dallas, TX 75230  
(214) 363-5744

Bookstop  
2922 South Shepherd  
Houston, TX 77098  
(713) 529-2345

Bookstop  
9985 1-10 West  
San Antonio, TX 78230  
(512) 697-0588

Brown Book Shop  
1715 San Jacinto  
Houston, TX 77002  
(713) 652-9337  
FAX (713) 652-1514

Taylor's Technical Books  
Preston Wood Creek  
5455 Belt Line Road  
Dallas, TX 75240  
(214) 239-TECH



**McGraw-Hill. Where the tradition of serving your professional needs continues.**  
McGraw-Hill Publishing Company • Professional and Reference Division

# No Architect Throws Away Sweet's.



- 70% of loose catalogs end up in the circular file.\*  
But...
- 96% of architects use catalogs in Sweet's as their prime reference source.\*\*
- Catalogs in Sweet's are referred to 10 times as much as any other source, including manufacturers' loose catalogs.\*\*

## Architects Use Sweet's

**SWEET'S MCGRAW-HILL**

Sweet's Group  
McGraw-Hill Information Services Company  
1221 Avenue of the Americas, New York, NY 10020

\*Catalog Perspective, Smith Stanley & Co.

\*\*Information Sources Used by Architects,  
Glen Oaks Research & Statistical Services

## 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 Buylines for your Best Lock Representative, or contact Best Lock Corporation, P.O. Box 50444, Indianapolis, IN 46250, 317-849-2250.



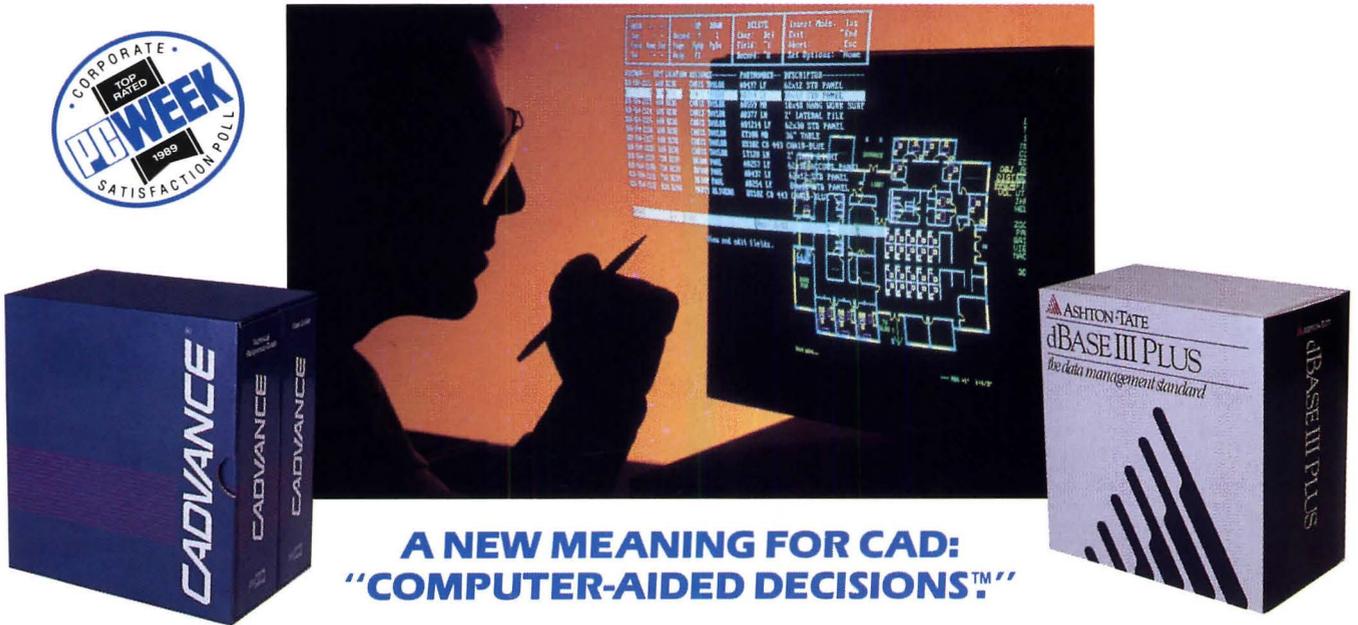
From concept to completion, architects and owners have always appreciated the aesthetic quality, security and versatility of BEST locks, as well as the best service team in the business.



BEST LOCK CORPORATION

Circle 79 on inquiry card

# THE CADVANCE/dBASE CONNECTION.



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

## Link Drawings to Data and Data to Drawings.

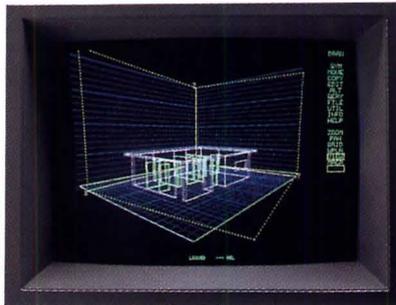
There's more to CAD than fast drawings. At least at ISICAD there is.

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.

### PC WEEK Poll: High-End CAD Software\*

Overall Performance  
Relative value  
Ease of installation  
Documentation quality  
Product support quality

	CADVANCE	AutoCAD	VersaCAD	MicroStation	CADKey
Overall Performance	1	3	4	3	2
Relative value	1	4	5	3	2
Ease of installation	1	3	4	4	2
Documentation quality	1	2	4	3	2
Product support quality	1	3	4	2	5

\*Information from "Survey Shows Staff Competition in High-End CAD" from PC WEEK, June 19, 1989. Copyright © 1989, ZM Communications Company. VersaCAD is a registered trademark of VersaCAD Corp. AutoCAD is a registered trademark of Autodesk, Inc. MicroStation is a registered trademark of Intergraph Corp. CADKey is a registered trademark of CADKey, Inc. CADVANCE, Computer-Aided Decisions, and VGS are registered trademarks of ISICAD, Inc. dBASE is a registered trademark of Ashton-Tate.

### 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



**When *push* comes to *shove*,  
Durafront Entrance Doors  
can't be beat.**

*For complete information call 1 (800) 627-6440, Fax 1 (800) 289-6440, or write*

**United States Aluminum Corporation**  
Manufacturing Facilities

3663 Bandini Blvd.  
Vernon, California 90023  
Telephone (213) 268-4230

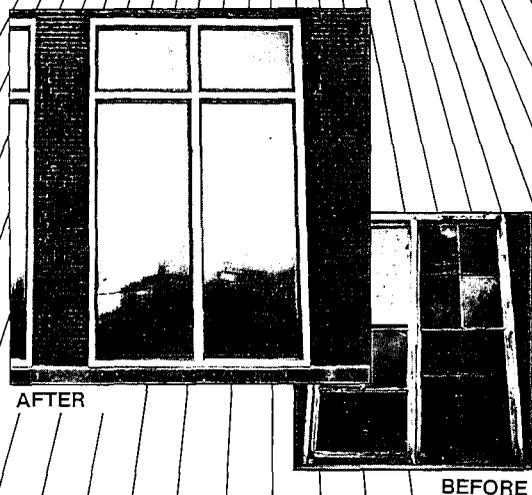
200 Singleton Drive  
Waxahachie, Texas 75165  
Telephone (214) 937-9651

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

**Energy efficient,  
Vandal resistant,  
Better looking ...**



**What more could you want for  
your building's windows?**

FLEX-LITE Glazing Systems and G.E. LEXAN® Thermoclear® sheet combine to offer you the ultimate glazing systems to upgrade your building's image and save you money.

- Double-skinned for energy savings
- Lightweight for ease of installation
- Virtually unbreakable
- Excellent light transmission
- PLUS MUCH MORE!

Find out which FLEX-LITE system is perfect for your building.  
Call toll free:

**1-800-421-0102**

In PA: 215-638-1077

**FLEX • LITE**

Architectural Glazing Systems

Division of

**Commercial Plastics & Supply Corp.**

1620 Woodhaven Drive • Bensalem, PA 19020

® LEXAN is a registered trademark of General Electric Co.  
® Thermoclear is a registered trademark of General Electric Co.

Circle 81 on inquiry card

**U. S. POSTAL SERVICE  
STATEMENT OF OWNERSHIP,  
MANAGEMENT AND CIRCULATION  
(ACT OF AUGUST 12, 1970: SECTION 3685,  
TITLE 39, UNITED STATES CODE)**

1. Title of publication—Architectural Record (combined with American Architect, Western Architect and Engineer).  
Publication number: 0003858X.
2. Date of filing—October 1, 1989.
3. Frequency of Issue—Monthly except semi-monthly in April and September. Number of issues published annually: 14.  
Annual subscription price: \$42.50.
4. Complete Mailing Address of Known Office of Publication—1221 Avenue of the Americas, New York, NY 10020.
5. Complete Mailing Address of Headquarters of General Business Offices of the Publisher—same as above.
6. Full Names and Complete Mailing Addresses of Publisher, Editor and Managing Editor—Publisher: Roscoe C. Smith III, 1221 Avenue of the Americas, New York, NY 10020; Editor: Mildred F. Schmertz, 1221 Avenue of the Americas, New York, NY 10020; Managing Editor: Carolyn De Witt Koenig, 1221 Avenue of the Americas, New York, NY 10020.
7. The owner is McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, NY 10020. Stockholders holding 1 percent or more of stock are: Donald C. McGraw, Jr.; Harold W. McGraw, Jr.; John L. McGraw; William H. McGraw; June M. McBroom; Elizabeth McGraw Webster; all c/o McGraw-Hill, Inc., 1221 Avenue of the Americas, New York, NY 10020. College Retirement Equity Fund c/o Bankers Trust Company, 280 Park Avenue, New York, NY 10015.
8. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities—None.
9. Not applicable.
10. Extent and nature of circulation:
  - A. Total number of copies printed—average number of copies of each issue during preceding 12 months, 80,726; actual number of copies of single issue published nearest to filing date, 80,077.
  - B. Paid and/or requested circulation—1. Sales through dealers and carriers, street vendors and counter sales—average number of copies of each issue during preceding 12 months, none; actual number of copies of single issue published nearest to filing date, none. 2. Mail subscriptions—average number of copies of each issue during preceding 12 months, 74,291; actual number of copies of single issue published nearest to filing date, 73,451.
  - C. Total paid circulation—average number of copies of each issue during preceding 12 months, 74,291; actual number of copies of single issue published nearest to filing date, 73,451.
  - D. Free distribution by mail, carrier or other means—samples, complimentary, and other free copies—average number of copies of each issue during preceding 12 months, 3,096; actual number of copies of single issue published nearest to filing date, 2,985.
  - E. Total distribution—average number of copies of each issue during preceding 12 months, 77,387; actual number of copies of single issue published nearest to filing date, 76,436.
  - F. Copies not distributed—1. Office use, left-over, unaccounted, spoiled after printing—average number of copies of each issue during preceding 12 months, 3,339; actual number of copies of single issue published nearest to filing date, 3,641. 2. Returns from news agents—average number of copies of each issue during preceding 12 months, none; actual number of copies of single issue published nearest to filing date, none.
  - G. Total—average number of copies of each issue during preceding 12 months, 80,728; actual number of copies of single issue published nearest to filing date, 80,077.

11. I certify that the statements made by me are correct and complete.  
MCGRAW-HILL, INC., Roscoe C. Smith III, Publisher



*The Competition*

*ECI*

# You can't see the difference. Until you see the invoice.

## **ECI introduces industry-standard panel systems at a lower-than-standard price. With higher standards of service.**

Finally, there's an alternate source of supply for the popular industrial roofing and composite wall panel systems you've relied on for years. ECI. But we offer some important differences that are designed to make us your main supplier.

Our specs are identical to the competition's. That's where the comparison stops. ECI panels cost less since we have lower overhead

than other manufacturers. And we're geared up to give you the most responsive service in the business, with quick turnaround for even the smallest orders. Plus, you can count on us for the engineering support you need.

We also offer a highly varied product line. With heavy gauges, longer spanning profiles and a wider range of coatings and durable finishes. So, call John Coburn at 1-800-9999-ECI. Our panels may be the same. But you'll see the difference in price and service.



Offices and plants: Houston, Texas/Amarillo, Texas/Jemison, Alabama/Lodi, California/Tualatin, Oregon/Lakeland, Florida/Williamsburg, Missouri. See the Yellow Pages under "Roofing" for the ECI Authorized Builder in your area.

- Please send me more information on ECI's new industrial panel system.
- Please have a representative call me.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

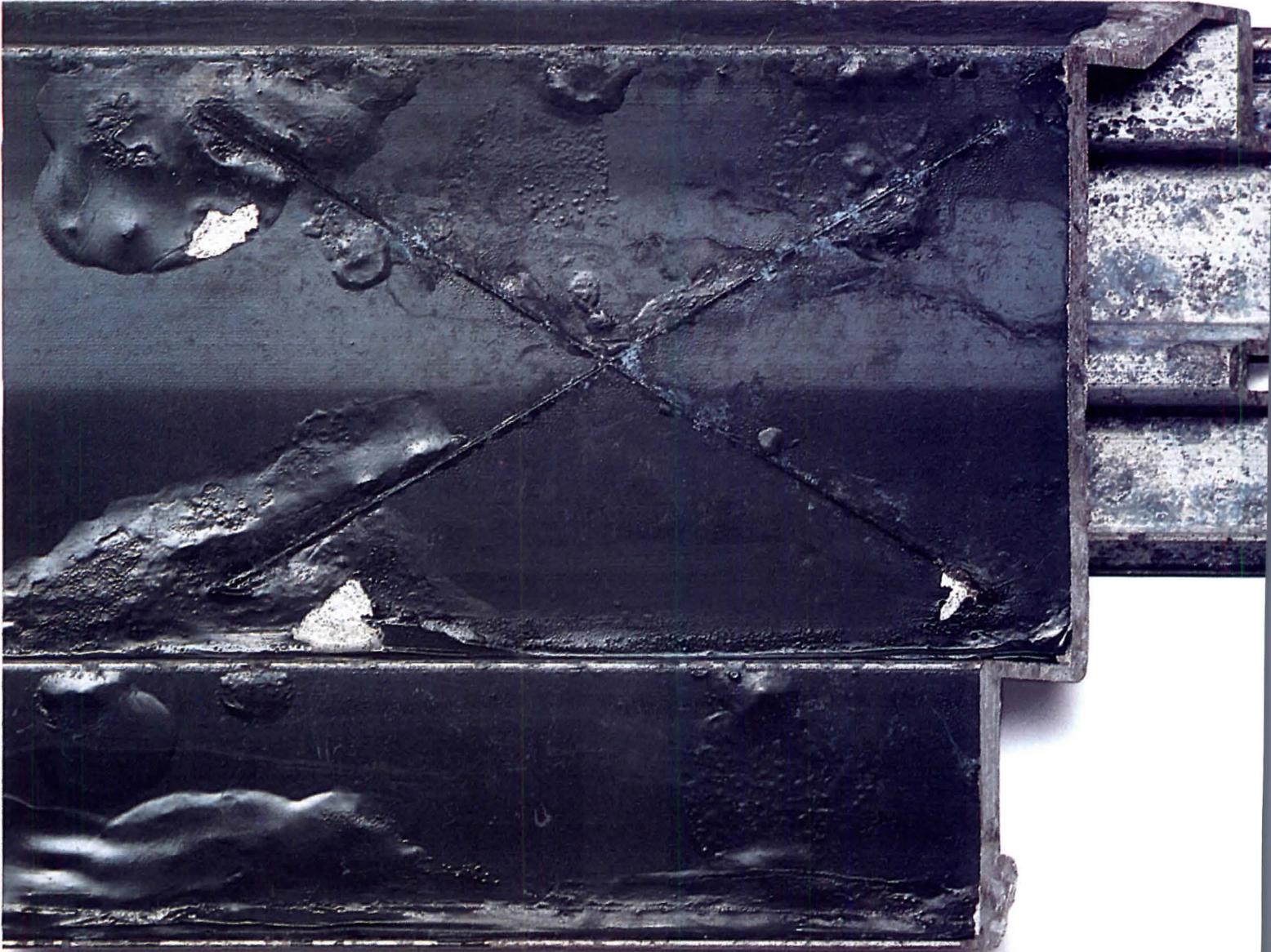
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: (    ) \_\_\_\_\_

Mail to: ECI Building Components, Inc.  
P.O. Box 968  
Stafford (Houston), Texas 77497-0968  
713/499-5611

Telex: 910-880-4435

Fax: (713) 499-0809



## Ordinary Paint.

After the equivalent of 3,000 hours  
of 5% salt fog (AAMA 605.2).

# Why Risk Tarnish

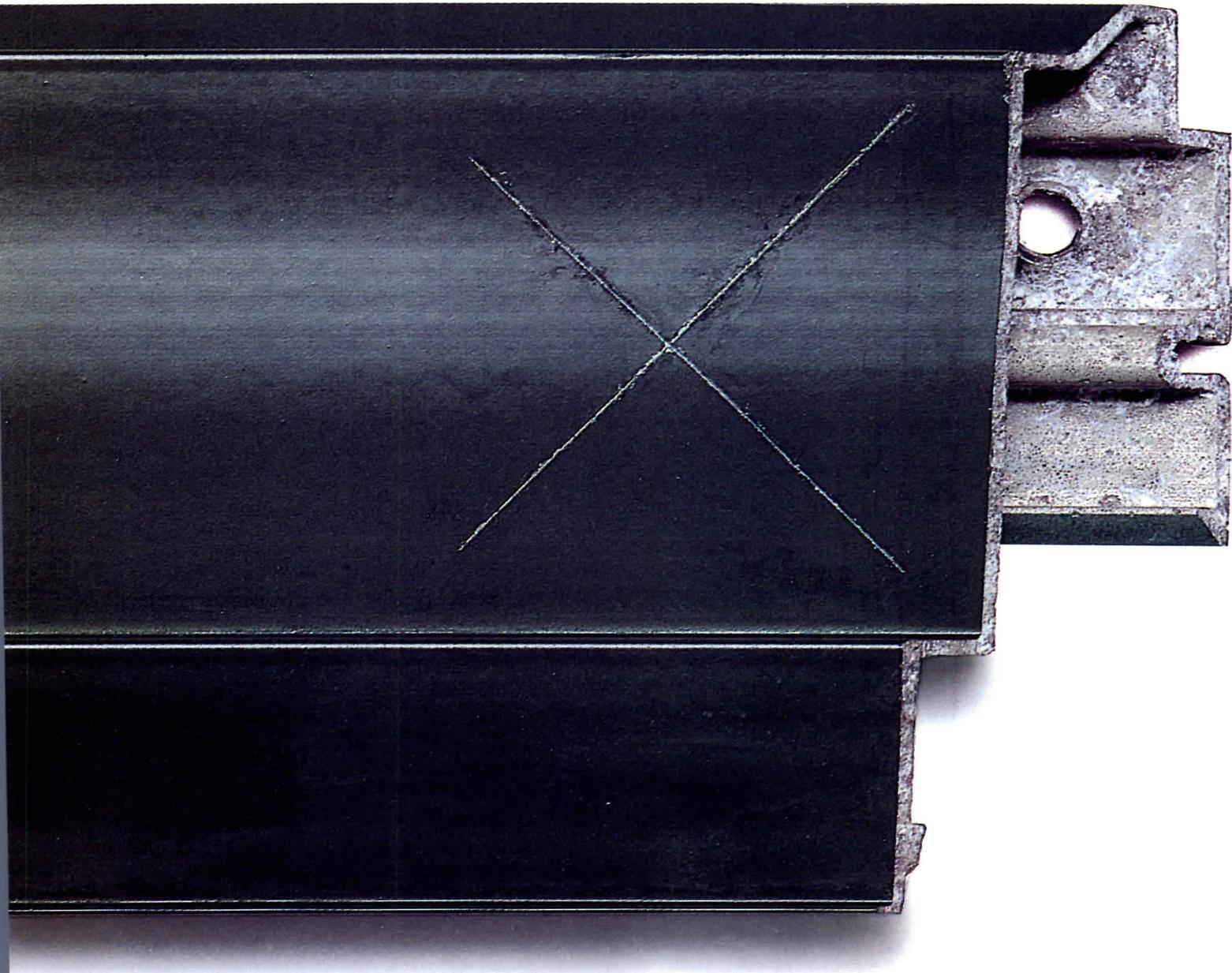


Introducing the Permacoat™ and Permacoat Plus™ system of high-performance premium finishes for Pella® aluminum-clad wood windows and doors. They offer unmatched durability even in the harshest environments: industrial emissions, acid rain,

temperature extremes, salt spray, high ozone and high altitude.

Unlike any paint, Permacoat exceeds AAMA 605 standards for hardness, color uniformity and film adhesion as well as resistance to impact, abrasion, detergents, solvents and chemical attack. It performs up to three times better than the AAMA 605

©1989 Rolscreen Company. Kynar is a registered trademark of Penwalt Corporation



## New Permacoat.™

After the equivalent of 10,000 hours  
of 5% salt fog (AAMA 605.2).

# Your Reputation?

standard for corrosion resistance.

Permacoat Plus is simply unbeatable. This tough, Kynar-500®-based fluorocarbon finish also exceeds AAMA 605 and resists fading, chalking, scuffing, marring and UV deterioration better than any other coating.

Thanks to our new Permacoat finishes, you can confidently recommend custom

color outside and Pella wood beauty inside, no matter what the environment.

For more information, or to see an informative video about our Permacoat system, see your Pella distributor or write to Commercial Department, Rolscreen Company, 100 Main Street, Pella, IA 50219.



ROLSCREEN COMPANY  
COMMERCIAL DIVISION  
PELLA, IOWA 50219

*Also available throughout Canada*

Circle 83 on inquiry card

Architectural Record November 1989 183

## Classified Advertising

To Advertise Call  
212-512-2556  
FAX 212-512-6800

### POSITIONS VACANT

# INDUSTRIAL ARCHITECT

Simons-Eastern Services Company, Inc., one of the nation's leading Architectural and Engineering firms is currently searching for an INDUSTRIAL ARCHITECT for its Food Division. The qualified individual will be a degreed Architect, plus 10 years experience. MBA a plus. Other requirements will include layout of projects, supervise construction contracts and client interface. Experience should be in industrial projects and strong presentation skills are required.

Simons-Eastern offers competitive salaries and attractive benefits.

Interested applicants should send resume or letter of application in confidence to:



Personnel Department  
Simons-Eastern Services Company, Inc.  
P.O. Box 1286  
Atlanta, GA 30301  
Principal Only  
An Equal Opportunity Employer

### DESIGNERS/ARCHITECTS

Fastest growing young firm in Taiwan seeks talented designers/architects with 5-7 years of experience to work on highrise office buildings, hotels, and commercial projects. Experience in design development and construction documents required. Salary commensurate with U.S. standards. Two-year contracts negotiable. Send resume and salary history to:

Kris Yao

ARTECH Inc.

Architects and Designers

Room 605, No. 205 Tunghwa N. Rd.

Taipei, Taiwan, R.O.C.

Fax (02) 712-4300

Project Architect. Established, expanding AE firm seeks graduate Architect, registered with 8 years diversified experience. Educational/laboratory design experience desirable. Strong design, creative instincts and leadership skills required. Send resume to: Ralph Hahn and Associates, Inc., Engineers / Architects / Consultants, 1320 South State Street, Springfield, IL 62704 EOE.

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:** Provide architectural design and drafting services. Must have strong design ability, good client relationship, spatial and functional planning and development of building programs for a variety of building types, freehand presentation drawings and renderings, ability to integrate engineering components (Structural, Mechanical, Electrical, and Plumbing) with building design, familiar with Intergraph computer graphics, prepare Construction Documents. Bachelor of Architecture (5-year professional degree) from an accredited Architectural School required. Salary \$1,905 per month based on 40 hours per week (8:00 a.m. to 5:00 p.m.), flexible overtime hours. Send resume to: Illinois Department of Employment Security, 228 Northeast Jefferson, First Floor, Peoria, IL 61603. Attention: Ms. Loretta VanHoorbeke, Reference Number 9176-B, An Employer Paid Ad.

**Interior Design Architect** to develop and design interior furnishings and furnishing of private palaces, public buildings, religious buildings, all with a unique arabesque architecture. Consult, review and coordinate with clients the projects and functional requirements. Prepare plans and specifications (scale drawings and contract documents) for construction purposes. Bachelor's degree in Architecture required, with four years experience and must be able to relocate if needed (minimum of two weeks) to supervise the administration of the construction contracts and documents and conduct on-site inspection during the construction phase. Salary \$29,500.00 per year, forty-hour week. Send resumes to 7310 Woodward Avenue, Room 415, Detroit, Michigan 48202, Reference No. 47789. Employer paid ad.

**Architect/Equipment Planner** — Architectural Design Firm: Stone, Marraccini & Patterson (SMP), a nationally recognized leader in healthcare and research/laboratory design, is looking for an intermediate to senior level Architect/Equipment Planner for its San Francisco office. Position involves specialization in programming, planning and designing spaces to accommodate medical equipment, laboratory and electronics equipment, and related high technology systems. This position provides opportunity for a leadership role in consulting with SMP architectural teams and clients on special equipment selection, compilation of inventories and data sheets, and general health facility planning are desirable. The ideal candidate will hold an undergraduate degree in Architecture; a Master's degree is preferred. In addition, 7 to 10 years combined professional experience in architectural planning, design and/or equipment planning are required. Please send resume in confidence to Susan Becker, Human Resources Coordinator, Stone, Marraccini & Patterson; One Market Plaza, Spear Street Tower, Suite 400; San Francisco, CA 94105. SMP is an Equal Opportunity Employer M/F/V/H.

**Project Architects / Designers / Managers** — Architectural Design Firm; Stone, Marraccini & Patterson (SMP), a nationally recognized leader in healthcare and research/laboratory design, is looking for intermediate level Project Architects, Designers and Managers for its San Francisco office. Ideal candidates will hold an undergraduate degree in Architecture; a Master's degree is preferred. In addition, 4 to 10 years of professional experience in all phases of project development are required; professional license is desirable. Demonstrated design and technical excellence, management skill and leadership qualities are essential. Please send resume in confidence to Susan Becker, Human Resources Coordinator; Stone, Marraccini & Patterson; One Market Plaza, Spear St. Tower, Suite 400; San Francisco, CA 94105. SMP is an Equal Opportunity Employer-M/F/V/H.

**We are in need of an environmental graphics project director.** For consideration you must be experienced in all phases of project work, including planning, design, detailing, inspection of fabrication and installation. Professional communication skills essential. Reply, with salary requirements to Phillips Knight Walsh, Inc., 123 East 21st, Tulsa, OK 74114.

**Drafter — Architect Designer.** Wanted Drafter-Architectural Designer to prepare clean, complete and accurate working plans and detail drawings from rough or detailed sketches or notes for engineering or building purposes. Delineates design and details, using drawing instruments. Confirms compliance with building codes. Will assist Project Architect in planning, programming, design studies and data gathering. Require a Bachelor of Architecture degree and minimum one year experience in job offered or one year intern architect experience. Salary \$364.58 per week for 40 hours. Applicants contact by resume to the following: Ms. Kathy Malo, Job Service Program & Technical Support, Tennessee Department of Employment Section, Nashville, TN 37245-1200.

### FACULTY POSITIONS VACANT

**School of Architecture and Planning** University of New Mexico. 1. Assoc. Prof. (Tenure Track) teach graduate and undergraduate Design Studio and Theory. Significant teaching and/or professional experience. Degrees: M. Arch. or equivalent. 2. Asst./Assoc. Prof. (Tenure Track) teach Basic Design. Beginning Arch. Design and Graphics, Theory and/or Interior Design desired. Experience: three years teaching two years professional experience and/or research preferred. Degree: M. Arch., M.F.A. or equivalent. 3. Asst./Assoc. Prof. (Tenure Track) teach required and elective structures course and consult in design studios. Experience Structural Consultant to architects and teaching architecture students preferred. Engineering registration desired. Degrees: Civil, Structural or Architecture Engineering. Send resume, portfolio, three names, addresses and phone numbers of references and letter of intent by Jan. 22, 1990 to: Faculty Search Committee, School of Architecture & Planning, University of New Mexico, Albuquerque, NM 87131, Telephone (505) 277-2903. Applicants may write or phone for additional information. AA/EOE.

## FACULTY POSITIONS VACANT

**Yale University School of Architecture:** Seeks application for one or more senior level in architectural design. Description: Graduate level teaching positions in architectural design beginning September, 1990. Emphasis on design guidance and criticism, with ability to lecture and conduct seminars in architectural theory, urbanism or visual studies. Qualifications, Rank and Salary: Advanced degree in Architecture/equivalent professional experience, teaching experience and recognized achievements in scholarship and/or practice. The School expects to make either senior level with tenure or senior level adjunct appointments. Fully qualified applicants in the early stages of their careers who give evidence of unusual promise will be considered as well. Rank and salary will be commensurate with qualifications. Application Deadline: Applications postmarked by 15 December 1989. Applicants should send curriculum vitae and names and addresses of references to: Alan Plattus, Chairman, Search Committee, School of Architecture, Yale University, 180 York Street, New Haven, CT 06520. Please do not send supporting material until specifically requested. Yale University is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS WANTED

**Highly qualified interior designer seeks** freelance liaison with residential architect. Pratt graduate. Member ASID. 20+ years experience. Excellent references. Work has been published in foreign and domestic books and periodicals. Call Gerald Kuhn. 212-889-6584.

## SPECIAL SERVICES

### New England Architects!

For your current list of Commercial/Residential Corian® Fabricators of New England, technical information & samples call:

ED SCHNEIDER AT 1-800-678-WINDE



### COMPLETE PREPARATION FOR THE REGISTRATION EXAMS

Architectural License Seminars (213) 208-7112  
Box 64188 Los Angeles California 90064

## BUSINESS OPPORTUNITIES

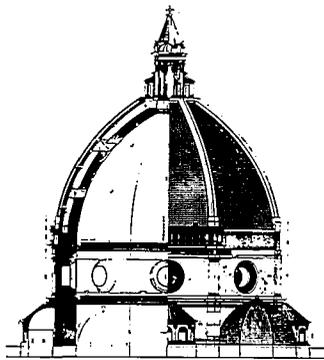
**Facility Management Consultant.** Provides consulting svcs. to Sr. Mgmt., re: space mgmt., organization and use. Prestigious nat'l clients-private & public. Los Angeles. Sales-.2M, Pretax-\$400K. Reply w/background to: Querry (#12831), Box 19599, Irvine, CA 92713 FAX (714) 756-0573.

## EDUCATIONAL SERVICES

MASTER OF ARCHITECTURE - M. ARCH. II

in

FLORENCE



A TWO SEMESTER PROGRAM in design, including courses in history and theory, is open to qualified students with a first professional degree in architecture. Program begins with two weeks in Syracuse, New York followed by two semesters in Florence, Italy.

Faculty: Syracuse University faculty and internationally renowned critics and historians.

For information contact:  
SYRACUSE UNIVERSITY  
School of Architecture  
103 Slocum Hall  
Syracuse, NY 13244-1250  
(315) 443-2255

## LEGAL SERVICES

### HARTER, SECREST & EMERY

ATTORNEYS AT LAW

PROVIDING  
LEGAL SERVICES to  
the DESIGN PROFESSIONS  
*Mergers & Acquisitions*

Contract/Specification Review  
Environment  
Litigation  
Personnel  
Real Estate

JAMES C. MOORE, Esq.

700 Midtown Tower  
Rochester, New York 14604  
716/232-6500

Albany, NY

Naples, FL

## ARCHITECTURAL RECORD:

The place to build your recruitment image.

Reach 74,000 architects and A/E firms through the pages of Architectural Record's Recruitment Advertising Section.

Call (212) 512-2556  
FAX (212) 512-6800  
for rates and information

Continued from page 171

Page 103—Carpeting: Collins & Aikman. Modular seating: Vecta. Chairs: Lowenstein. Pool tile: Fiandre.

Pages 104-107

Westminster City Park Recreation Center

Barker-Rinker-Seacat & Partners, Architects

Pages 104-105—Brick: Interstate Brick. Pavers: Endicott Brick.

Benches: Kroin. Concrete tile: Westile. Storefronts, sloped glazing, and entrances: Amarlite Architectural Products.

Glazing: Alpen Glass (HeatMirror). Paints: Tnemec.

Page 106—Sectional doors: Overhead Door Co. Ceiling: Inryco Architectural Products. Porcelain tile: Aztec. Glazed tile: DalTile. Quarry tile: American Olean. Coping: Endicott. Sports lighting: Abolite.

Pages 110-115

Steinhardt Conservatory and Palm House Restoration

The Brooklyn Botanic Garden

Davis, Brody & Associates, Architect

Aluminum windows: TEK Metals.

Glazing: PPG Industries. Paints: Tnemec. Solar shading: Sol-R-Veil. Lighting: Omega; Edison Price.

Pages 116-119

Coalinga Community Swim Complex

Edwin S. Darden Associates, Architect

Corrugated metal wall and roof panels: H. H. Robertson. Glazing: PPG Industries.

Pages 120-123

Petaluma Community Center

Roland/Miller/Associates, Architect

Split-face CMU: McNear Brick.

Metal wall panels: AEP/Span. Terne

metal roofing: Follansbee Steel.

Built-up roofing: Owens-Corning

Fiberglas. Aluminum-framed fixed

and project-out windows: Viking

Industries. Storefronts and

entrance: Kawneer. Exit devices:

Von Duprin.

Page 122—Operable walls:

Modernfold. Ceiling tile: Armstrong

World Industries. Wallcovering:

L. E. Carpenter. Carpeting:

Princeton. Cushioned wood flooring:

Horner Flooring.

Pages 128-137

The Toronto SkyDome

The RAN Consortium,

Architects/Engineers

Aluminum curtainwall and

entrances: Ferguson-Neudorf.

Glazing: AFG Ltd. PVC membrane

roofing and prefinished metal:

Sarnafil, Inc. Rolling and upward-

acting doors: Kinnear, Ltd. Panic

devices: Sargent. Wall fixtures:

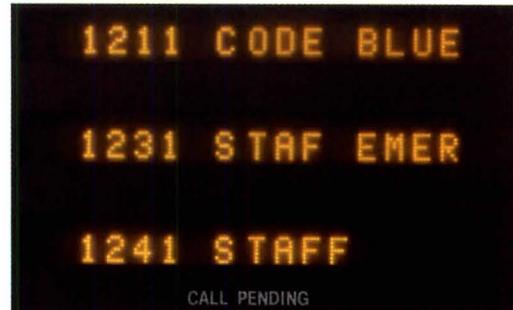
Prescolite. Bollards: Metalumen.

Elevators: Otis. Escalators:

Montgomery. Spectator seating:

Hussey.

# Quick. Which emergency messages can you read?



The new Dukane ProCare 4000™  
It speaks your language.



*No matter how well a hospital is designed, an inefficient nurse call system can make it look bad. That's why we developed the fast-response features of the ProCare 4000.*

#### **No more confusing codes to decipher.**

The ProCare 4000 communicates with simple language. Which means training nurses on the system will be simple as well. It also eliminates the all-too-common problem of having temporary help that can't use the system. And programming takes only minutes.

#### **Static-hardened for ultra-reliable performance.**

Tough environmental conditions set the stage for problems with static electricity. Even the changing of a patient's bed linens can produce a charge that can knock out an ordinary nurse call system in a flash. But the Dukane ProCare 4000 is no ordinary system. It's built to handle just about anything.

#### **Space-saving, compact size. Compatible with other Dukane systems.**

The new Dukane ProCare 4000 comes with a lot of added engineering features. But does it in a surprisingly compact size. And if you're currently using a microprocessor-based Dukane system, you'll find the upgrade to ProCare 4000 to be both simple and affordable.

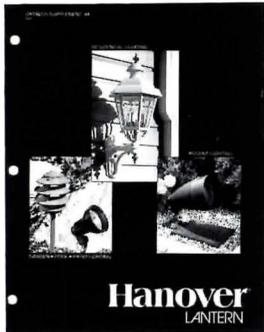
**Quick! Call your authorized Dukane distributor for details today.**



708-584-2300  
2900 Dukane Drive  
St. Charles, IL 60174-9984

# The Marketplace: Lighting

## NEW HANOVER LANTERN CATALOG SUPPLEMENT '89



Contains 42 new and unique decorative cast aluminum lighting fixtures, some with beveled glass and brass accents. Plus 15 new landscape lighting fixtures, which include H.I.D. spot/flood lights with ground ballast housings. All made in U.S.A.  
**HANOVER LANTERN • 470 HIGH STREET  
 Hanover, PA 17331 (717) 632-6464**

Circle 85 on inquiry card

## MAKE YOUR POINT



### MIRO-T O'HARE 150/250 WATT SPOTLIGHT

AN OUTDOOR METAL HALIDE SPOTLIGHT OFFERING A 6° BEAM PATTERN WHICH UTILIZES THE HQI 150/250 WATT LAMP. PERFECT FOR ILLUMINATING DISTANT PROJECTS.

MIROFLECTOR CO. INC.  
40 BAYVIEW AVE., INWOOD, N.Y. 11696

Circle 86 on inquiry card

## THE INCANDESCENT RETROFIT



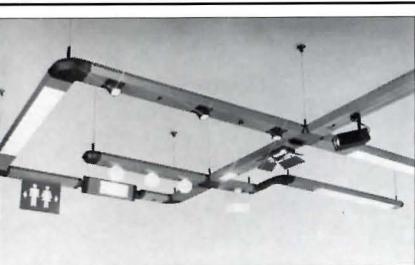
- 50 WATTS OF WHITE HPS LIGHT
- 60% REDUCTION IN INCANDESCENT ENERGY COSTS
- 3 TIMES LONGER LAMP LIFE
- MIXES PERFECTLY WITH INCANDESCENT LIGHTING
- TYPICALLY 6-18 MONTH PAYBACK



C.E.W. LIGHTING, INC.  
1-800-255-LAMP

DAYLUX-50™

Circle 87 on inquiry card



**Aura...One System, One Global Lighting Solution!** L'Image Industries Inc., proudly presents **Aura**-the most flexible lighting system ever designed. Using state of the art technology fluorescent, MR16, tungsten Halogen, incandescent. Suspended from ceilings or walls. In virtually any configuration. **Aura**. Slim profile. Stunning aesthetics!  
**Phone (800) 367-6801.**

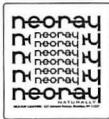
Circle 88 on inquiry card

## LIGHTEN THE LOAD...



EXTRUDED ALUMINUM INDIRECT LIGHTING FOR 8'-6" CEILINGS

Fax For Free Information FAST  
718/456-5492



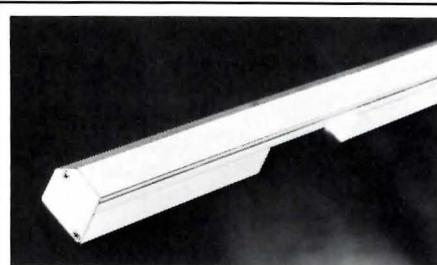
- \* Design Manual
- \* Price Per Linear Foot
- \* Photometric Data
- \* Delivery Information
- \* Sample Finish

Considering Neo-Ray . . . complements your wisdom as well as your taste

**neoray**  
NATURALLY

537 Johnson Avenue, Brooklyn, NY 11237  
718/456-7400

Circle 89 on inquiry card



**Low Voltage Lighting to Fit Any Situation.** Danalite's Linear Fixture System has a wide array of uses & design applications. Minimal size and various lamp spacing makes Danalite perfect for commercial merchandise presentation, office interiors, hotel and restaurant interiors as well as residential use.  
*Danalite, 17882 Sampson Ln., Huntington Bch, CA 92647. 714-841-4325.*

Circle 90 on inquiry card

## THE REPORT

**The REPort... the monthly newsletter for building product sales reps and distributors.**

News briefs and reports, building products, law,

marketing, management, selling tips, news of companies and people, employment listings, new lines available, ...and sales leads on major construction projects...everything the successful rep or distributor needs to know...from McGraw-Hill. \$69/year (5 issues). Subscribe now and get 5 valuable sales manuals FREE.  
 Call 212/512-3442.

## Power Outage?



**Turn to Sweet's Catalog File for information on lighting products. Call 800-421-9330.**



## The Original Cast® from Art Directions Inc.

The Original Cast® is being expanded to more fully meet your lighting needs for the 1990's.

The line, which includes many decorative, interior pendants, will soon incorporate **HID** capabilities into most of its fixtures. This, coupled with the artistry and affordability of these fixtures makes them a "must see". *Art Directions, Inc., 6120 Delmar Blvd., St. Louis, MO 63112. Phone 314-863-1895.*

Circle 91 on inquiry card

# 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 92 on inquiry card

## BIRD BARRIER

### NIXALITE BIRD CONTROL

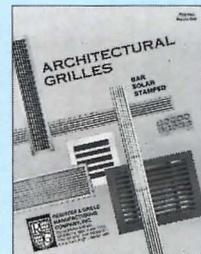
- Humane and ecological
- Virtually maintenance free
- Inconspicuous stainless steel spikes
- Commercial, institutional or residential
- Proven reliable for 39 years



**NIXALITE of AMERICA**  
1025 - 16th AVE. • BOX 727  
EAST MOULNE, IL 61244 • 309-755-8771  
800-624-1189 • FAX 309-755-0077  
SPECIALISTS IN BIRD CONTROL

For more info., see  
Sweet's section  
10290/NIX

Circle 93 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 a catalog: Register & Grille Mfg. Co., 202 Norman Avenue, Brooklyn, NY 11222. Call 718-383-9090 or 1-800-521-4895.

Circle 94 on inquiry card



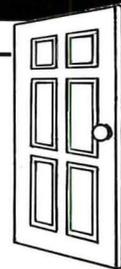
## Faster Plaster™ Renovates Ugly Block Walls Fast.

Faster Plaster™ heavy-duty wall liner is an excellent paintable substrate for surfaces such as concrete block.

This gypsum-impregnated fabric can also be used with selected wallcoverings. Goes on like wallpaper, yet cures strong as plaster. Contact Flexi-Wall® Systems, P.O. Box 88, Liberty, SC 29657. Phone 803-855-0500.

Circle 95 on inquiry card

## AMWELD



### DOORS, FRAMES AND HARDWARE

AN OLD COMPANY ··· A NEW SPIRIT

Backed by 40 years of experience

- Masonry, Drywall and Remodeling Frames
- Full-Glass Entrance Doors
- Stile and Rail Doors
- Replacement Doors
- Security Doors and Lights
- Bullet Resistive Doors and Lights
- Builders Hardware
- Supercore™ Doors
- Acoustical Doors
- Embossed Doors
- Fab-A-Frame



Industrial Park • 1500 Amweld Drive • Garrettsville, Ohio 44231  
Phone: (216) 527-4385 • Telefax: (216) 527-5122 • TOLL FREE: 1-800-248-6116

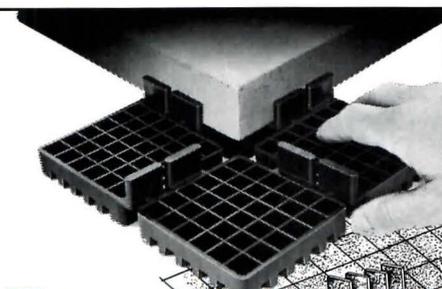
Circle 96 on inquiry card



## Make The Right Moves At The Right Time!

Subscribe to ENR, the only weekly information source in the construction industry. Late-breaking news on bids, market trends,

government legislation and regulations, new products, employment opportunities...PLUS special reports — forecast issues, top contractors, design firms...and more. One year (U.S. & Canada) \$49. For additional rates write: ENR, Circulation Mgr., 1221 Ave. of the Americas, N.Y., NY 10020.



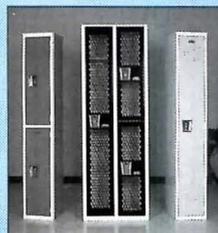
## The PAVE-EL® Pedestal System

A practical solution to roof paver applications

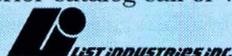
Write or call for specification brochure  
ENVIROSPEC INCORPORATED  
Ellicott Station Box 119, Buffalo, New York 14205  
(416) 252-2090

Circle 97 on inquiry card

## SUPERIOR LOCKERS



The lockers that last in team rooms, corridors, clubs or anywhere that security and durability are essential to success, and success is measured in years of service. For your copy of the Superior catalog call or write:



Box 3003, Boca Raton, FL 33431  
(407) 392-3900 Fax (407) 394-8465

Circle 98 on inquiry card

## A/E/C SYSTEMS '90

Conference: June 12-15, 1990  
Exhibit: June 13-15, 1990  
Georgia World Congress Center  
Atlanta, GA USA

The world's largest computer show for architects and designers

For more information contact:  
Sharon Price, P.O. Box 11318  
Newington, CT 06111 Or call:  
1-800-451-1196, 203-666-6097

To Advertise Call  
1-800-544-7929  
Fax 212-512-4256

## All-New Bench Catalog

Shown:  
TimberForm®  
Restoration™  
Bench  
2120-6.



Cast iron, steel, welded wire and all-timber benches, seats, litter containers and planters are illustrated in the **NEW** 64 page **TimberForm® Site Complement Catalog**. Metal components are powder coated with a wide choice of designer colors. Alaska yellow cedar or Marine Teak slats are available for most models. For **FREE** architectural specifier **Site Complement Catalog** call toll-free 1-800/547-1940, ask for extension 535.

**Columbia Cascade Company**  
1975 S.W. Fifth Avenue  
Portland, Oregon 97201-5293  
503/223-1157 FAX 503/223-4530

Circle 99 on inquiry card



## Western Red Cedar Shingle Siding Brochure

Shakertown's newest brochure shows design possibilities and details siding options such as

choices of face and backing material, number of courses per panel, shingle spacing, and even or staggered butt lines. Technical specs and pricing included. Available at no charge. *Shakertown Corp., 1200 Kerron St., Winlock, WA 98596. (206) 785-3501. 800-426-8970 (outside WA).*

Circle 100 on inquiry card

## CUSTOM WALKWAYS & CANOPIES ...WITHOUT CUSTOM PRICES



Styles include roll-formed, extruded, acrylic, pyramid, or barrel vault. Standard designs can be used to create custom appearance at a fraction of custom price.

**FREE CATALOG & DESIGN INFORMATION: 1-800-228-2391**  
**TheMAPES permanent solutions**



Mapes Industries, Inc. / P.O. Box 80069  
Lincoln, NE 68501 / (402) 466-1985  
FAX: 1-402-466-2790

Circle 101 on inquiry card



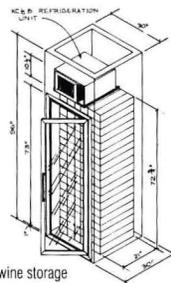
## The Record Houses Collection.

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.**

## KEDCO IS WINE STORAGE

"for professionals by professionals"®



- Design and plan service for proper wine storage
- A complete selection of self contained (plug-in) environment controlled cabinets
- A full range of pre-built wine vaults (ready for on-site assembly)
- Components for wine storage:
  - Complete range of racks... standard and custom
  - Refrigeration systems... split/remote and self-contained
  - Thermopane glass doors and panels
- The largest showroom and resource devoted exclusively to wine storage and accessories
- Immediate delivery on most models

**Kedco WINE STORAGE SYSTEMS®**

Showroom & Offices 475 Underhill Blvd., Syosset, L.I., NY 11791  
Outside NYS 800-654-9988 • 516-921-3600 • FAX: 516-921-1870

Circle 102 on inquiry card



## CUBE

## CEILING ADD TEXTURE

Cube, an open cell ceiling is a highly textural, continuous ceiling plane. Various cell and panel sizes allow easy installation and design versatility for large or small scale projects. An expressive range of over 80 color and reflective finishes completes the systems package.

Look for CMC's full line of ceiling systems in Sweet's.



Chicago Metallic Corporation

Circle 103 on inquiry card

## Brain Drain?



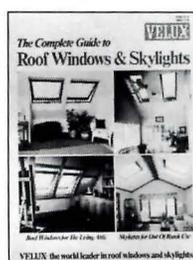
Turn to Sweet's Catalog File for information on plumbing products. Call 800-421-9330.



## Interior/Exterior Site Furniture

Trystan is a manufacturer of quality site furnishings that include various styles of benches, litter units, bollards, bike racks, treegrates, treegruards, food court furniture. Custom work is our specialty. Our products are ideally suited for streetscape, mallscape and other beautification projects. For complete information and nearest representative call Trystan at (519) 756-0765.

Circle 104 on inquiry card



## Attention To Details.

Special attention to details mean exceptional value, quality and satisfaction. **VELUX** offers you pages of information and ideas in our color brochure that can be used in building and remodeling plans. The more you know about **VELUX** roof windows and skylights, the better you can compare. **VELUX-AMERICA INC.** 450 Old Brickyard Rd. P.O. Box 3208, Greenwood, SC 29648. Phone 803-223-3149. **FREE.**

Circle 105 on inquiry card

# Advertising index

For detailed data, prefiled catalogs of the manufacturers listed below are available in your 1989 Sweet's Catalog File as follows:

(G) General Building & Renovation  
(E) Engineering & Retrofit  
(I) Industrial Construction & Renovation  
(L) Homebuilding & Remodeling  
(D) Contract Interiors

## A

Advance Lifts, Inc., 191; 118 [G]  
(312) 584-9881  
Alucobond Technologies, Inc., 168;  
73 [G]  
(800) 626-3365  
American Gas Association, 22; 12  
Armstrong World Industries,  
Inc., Cov. II-1; 1, 2-3; 2 [G-E-D]  
(800) 233-3823  
Autodesk, Inc., 148; 51  
(800) 445-5415

## B

BellSouth Services, 32Ra-32Rb  
(800) 447-7672  
Best Lock Corp., 177; 79 [G]  
(317) 849-2250  
Bilco Co., 174; 73 [G-E-I-L]  
(203) 934-6363

## C

Carlisle Syntec Systems, Div. of  
Carlisle Corp., 32; 17 [G-E-I]  
(800) 233-0551  
Chemstar, Inc., 32Wb; 20  
(800) 523-8977  
Cheney Co., 48; 32 [G]  
(800) 782-1222  
Chicago Metallic Corp., 56; 38 [G-D]  
(312) 563-4600  
Custom Building Products, 32Sc; 23  
[G-L]  
(213) 582-0846

## D

Dawson Doors, Div. of Dawson Metal  
Co., Inc., 169; 74 [G]  
(716) 664-3811  
Dover Elevator Systems, Inc., 17  
[G-I]  
(601) 393-2110  
Dow Corning Corp., 166; 66 to 71  
[G-E-I-D]  
(800) 346-9882  
DuPont Co.-Hypalon, 14-15; 8 [G]  
(800) 441-7111  
DuPont Co.-Textile Fibers, 80-81; 46  
[G-D]  
(800) 448-9835  
Dukane Corp., 186; 84  
(312) 584-2300  
Duro-Last Roofing, Inc., 66; 42 [G-E]  
(800) 248-0280

## E

ECI Building Components, Inc., 181;  
82 [G]  
(713) 499-5611  
Efcoc Corp., 78; 45 [G-I]  
(800) 221-4169  
Electric Time Co., Inc., 171; 76  
[G-E]  
(508) 359-4396  
Elkay Mfg., Inc., 156, 157; 55 to 58  
[G-E-I]  
(312) 986-8484  
Elphin, Inc., 51; 35  
(404) 633-7589

## F

Flex-Lite, Div. of Commercial  
Plastics & Supply Corp., 180; 81  
(800) 421-0102  
Florida Tile Div., Sikes Corp., 160;  
60 [G]  
(800) FLA-TILE  
Follansbee Steel Corp., 82; 47 [G]  
(800) 624-6906  
Forrer Chemical Co., 161; 61 [G]  
(414) 354-4400

## G

General Electric - C&I Lamps, 162;  
62 [G-E-I-D]  
(800) 523-5520  
Georgia-Pacific Corp., 139-142; 48  
[G-I-L]  
(800) 225-6119  
Gimeor, Inc., 150; 52  
(202) 546-8775

## H

Helios Industries, Inc., 36; 26 [G]  
(415) 887-4800  
Houston Instrument, Div. of  
Ametek, 65; 41  
(800) 444-3425

## I

IBM Corp., 54; 37  
(800) IBM-2294  
Inax Corp., 32Wa; 19  
(213) 657-5379  
Ingemar Corp., 155; 54  
(214) 458-3276  
Innovative Marble and Tile,  
Inc., 143; 49 [G]  
(516) 752-0318  
Intergraph Corp., 34; 25, 76; 44  
(800) 826-3515  
International Granite & Marble Co.,  
Inc., 32Ca; 18 [G]  
(800) 446-2677

Ioline Corp., 192; 115  
(206) 821-2140

## K

Kalwall Corp., 165; 65 [G]  
(800) 258-9777  
Kawneer Co., Inc., 18-19; 10 [G]  
Krueger, 5; 3 [G]

## L

Lees Commercial Carpet Co., 42; 29  
[G-D]  
(800) 523-7888  
Leviton Mfg. Co., 170; 75  
(212) 229-4040  
Libbey Owens Ford Corp., 158-159; 59  
[G]

## M

Manville Roofing Systems  
Div., 23-25; 13, 52; 36 [G-E-I]  
(800) 654-3103  
Maruhachi Ceramics of America,  
Inc., 32Sd; 24 [G-L]  
(714) 736-9590  
Marvin Windows, 20-21; 11 [G]  
(800) 346-5128  
MBCI, 6; 4  
McGraw-Hill Publishing Co., 175  
McNichols Co., 191; 114 [E-I]  
(800) 237-3820  
Monsanto Chemical Co.-Saflex Sound  
Control, 48 to 51; 31 [G-E]  
(800) 325-4330

## N

NCARB, A.R.E. Handbooks, 154  
Neenah Foundry Co., 51; 34 [G-E]  
(414) 725-7000  
Northwest, 46  
(800) 447-4747  
Nucor Corp., 38; 27, 60-61; 40 [G-E]

## P

Pella Rolscreen Co., 182-183; 33  
[G-L]  
(512) 628-1000  
Pittsburgh Corning Corp., 163; 63  
[G-E]  
(800) 992-5769  
PPG Industries, Inc., Glass  
Div., 58; 39 [G]

## R

Raceway Components, Inc., 44; 30  
(201) 279-1116

Radio Shack, 16; 9  
Reynolds Metals Co., Cov. III; 116  
(404) 991-2133

## S

Sargent & Co., 152; 53 [G]  
(203) 562-2151  
Season-All Industries, Inc., 31; 16  
[G-I]  
(800) 999-1947  
Sloan Valve Co.-Plumbing Div., Cov.  
IV; 117 [G-E-I]  
Steelcase, Inc., 67 to 74; 43  
(800) 333-9939  
Sub-Zero Freezer Co., 8; 5 [G-L]  
(608) 271-2233  
Sweet's Div.-McGraw-Hill Information  
Systems, 176  
Swissair, 145

## U

United States Aluminum Corp., 179;  
80 [G]  
(800) 527-6440  
United States Tile, 32Wc; 21  
United Technologies, 10-11; 6 [G]  
USG Interiors, Inc., 40; 23  
[G-E-I-L-D]

## V

Valli & Columbo (U.S.A.) Inc., 167;  
72  
(818) 359-2569  
Versatec, a Xerox Company, 146-147;  
50  
(800) 538-6477

## W

Weather Shield Mfg., Inc., 12-13; 7  
[G]  
(715) 748-2100  
Westinghouse Furniture, 27 to 30; 15  
Willamette Building Products, 26; 14  
(503) 928-3341  
Wind-2 Research, Inc., 48; 33  
(303) 482-7145  
Wiremold Co., 164; 64  
(800) 621-0049  
Wolverine Technologies,  
Inc., 172-173; 77 [G-L]  
(800) 521-9020

## Y

YKK, Architectural Products  
Div., 32Sa; 22 [G]  
(404) 344-2981

# Sales offices

## Main Office

McGraw-Hill, Inc.  
1221 Avenue of the Americas  
New York, New York 10020

Publisher  
Roscoe C. Smith III (212) 512-2841

Director of Business and  
Production  
Joseph R. Wunk (212) 512-2793  
Fax: (212) 512-4256

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  
Fax: (404) 252-4056

**Boston**  
607 Boylston St.  
Boston, Massachusetts 02116  
Louis F. Kutscher (203) 968-7113  
Fax: (203) 329-9946

**Chicago**  
645 N. Michigan Ave.  
Chicago, Illinois 60611  
Anthony Arnone, (312) 751-3765  
Thomas P. Kavooras, Jr.,  
(312) 751-3705  
Fax: (312) 751-3767

**Cleveland**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
Frank Rose (203) 968-7112  
Fax: (203) 329-9946

**Denver**  
7400 S. Alton Ct. Suite 111  
Englewood, Colorado 80112  
John J. Hernan (303) 740-4630  
Fax: (415) 954-9736

**Houston**  
1600 W. Tidwell, Suite 500  
Houston, Texas 77040  
Lockwood Seegar (713) 462-0757  
Fax: (713) 462-6526

**The Marketplace**  
ou Ruwane  
-800-544-7929  
Fax: (212) 512-4256

**Los Angeles**  
Media Sales Associates  
23232 Peralta Drive, Suite 218  
Laguna Hills, Calif. 92653  
William W. Hague (714) 859-4448  
Richard Ayer  
Fax: (714) 859-3979

**New York**  
1221 Avenue of the Americas  
New York, New York 10020  
Laura Viscusi (212) 512-3603  
Fax: (212) 512-4256

**Philadelphia**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
Frank Rose (203) 968-7112  
Fax: (203) 329-9946

**Pittsburgh**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
Frank Rose (203) 968-7112  
Fax: (203) 329-9946

**San Francisco**  
Media Sales Associates  
William W. Hague (415) 345-0522  
Richard Ayer  
Fax: (714) 859-3979

**Stamford**  
777 Long Ridge Road  
Stamford, Connecticut 06902  
Louis F. Kutscher, (203) 968-7113  
Fax: (203) 329-9946

**Vice President Market  
Development**  
Federal Government  
Paul R. D'Armiesto  
1750 K Street NW  
Suite 1170  
Washington, D.C. 20006  
(202) 463-1725

## Overseas Offices

**Frankfurt/Main**  
Ebigstraße 19  
Frankfurt/Main, Germany

**Efffield**  
1 West St.  
Efffield S14ES, England

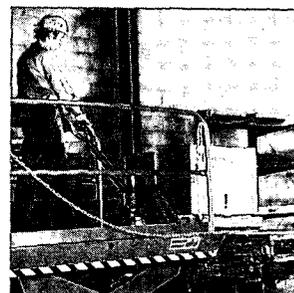
**Man**  
1 Baracchini No. 1  
Man, Italy

**Paris**  
1 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

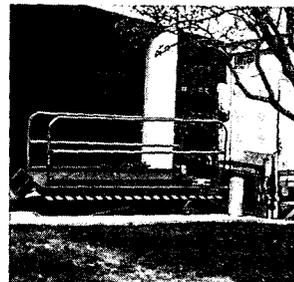
# Every Dock Needs A Lift



THIS — OR — THIS

**Avoid back injuries  
and increase  
productivity**

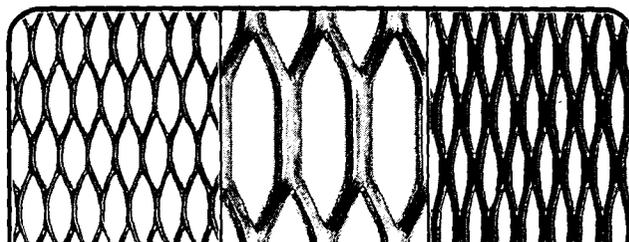
*If you don't have a loading  
dock or your dock is too  
high or too low, you need a  
versatile Advance Superdok.  
Call 1-800-THE DOCK for  
FREE information.*



**ADVANCE LIFTS**

Advance Lifts, Inc., 3575 Stern Avenue, St. Charles, IL 60174 (708) 584-9881

Circle 113 on inquiry card



STANDARD | GRATING | FLATTENED

**EXPANDED METAL?**

WE HAVE IT ALL!

**24 HOUR SHIPMENT**

FOR "THE HOLE STORY" ON  
PERFORATED METAL + WIRE CLOTH  
BAR GRATING + GRIP STRUT  
OPEN SAFETY GRATING



National  
Toll Free: **800-237-3820**



**McNICHOLS CO.**

FAX: 813-289-7884 Telex: 52706



Cleveland • Chicago • Dallas • Atlanta • Newark • Boston • Tampa

Circle 114 on inquiry card

**\$4995**  
 FIRST TIME EVER...  
 Offer Ends Dec. 31, 1989



Servomotor, Multipen,  
 A-E Media Sizes and Roll Feed

Two Outstanding Ways to Save. Right now you can get our top-of-the-line LP4000™ pen plotter loaded with extras for just \$4,995; or you can get the same package, and our PlotServr Plus™ file server, for only \$5,495. Think of it, a complete plotting solution for about half of what you might otherwise pay.

This unique offer ends soon, so act now. Talk to your local IOLINE dealer or call us at (206) 821-2140 for details.

**IOLINE™**  
**PLOTTING SYSTEMS**  
 A Great Return on Your Investment™

IOLINE CORPORATION 12020 - 113TH AVE. NE KIRKLAND, WA 98034 (206) 821-2140

Circle 115 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 \_\_\_\_\_

# Use your STAC number!

XXXXXXXXXX5-DIGIT 69699  
 6400 009876543 FEB90 S07  
 TERRY DOE, TD & ASSOCIATES  
 128 MAIN STREET  
 ANYTOWN IL 69699

**N**eed product information fast? Your Architectural Record Subscriber 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 # 1 1 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 17 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 your Inquiry Selection Numbers at 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 (609) 426-7070.



## When your name is Reynolds Aluminum, people expect a lot of you. So before we introduced our new building panels, we made sure they could take the heat.

Our new Reynobond® building panels are everything you'd expect from an aluminum composite: flat, strong, light, and formable.

But they're also available with a fire-resistant thermoplastic compound core that's designed to meet or exceed the requirements of national model building codes.

With the introduction of Reynobond panels, Reynolds research has produced a material with outstanding architectural flatness, an excellent strength-to-weight ratio, and a tough KYNAR® finish that resists weather and corrosion.

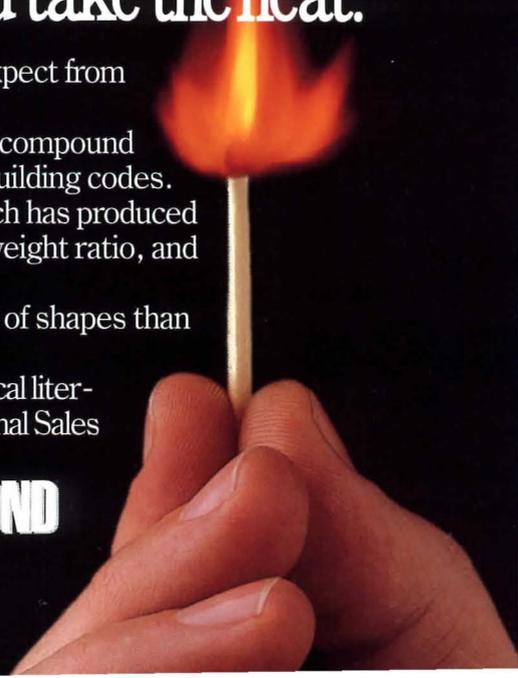
What's more, Reynobond can be formed into a wider variety of shapes than many competing materials.

For more information about Reynobond panels, including technical literature and color selections, call us at (404) 991-2133. Or write to: Reynobond National Sales Office, 1575 Phoenix Boulevard, Suite 8, Atlanta, GA 30349.

We'll show you why other building materials have finally met their match.

Reynolds  
**REYNOBOND**

 From the Building Products Division of Reynolds Metals Company. © 1989 RMC. Reynobond is a registered trademark of Reynolds Metals Company. KYNAR is a registered trademark of Pennwalt Corporation.



# Sloan Optima<sup>®</sup> humanizes electronic faucets.

With a patented  
new sensor that  
welcomes use.

At last, an electronic faucet that turns on without turning people off. It's Sloan's On-Q<sup>™</sup> Sensor-Eye Faucet.

Suddenly, no-hands operation becomes easy to live with. Because On-Q's sensor *looks* like a handle—but isn't. So people approach it with confidence. And are pleasantly surprised when the faucet turns on—and off—all by itself.

People also welcome the idea of no handles, no touch, and no transfer of germs. And no mess around the deck to clean up. Those who pay the bills welcome the idea of water savings of up to 85%. Barrier-free access welcomes handi-capped use too.

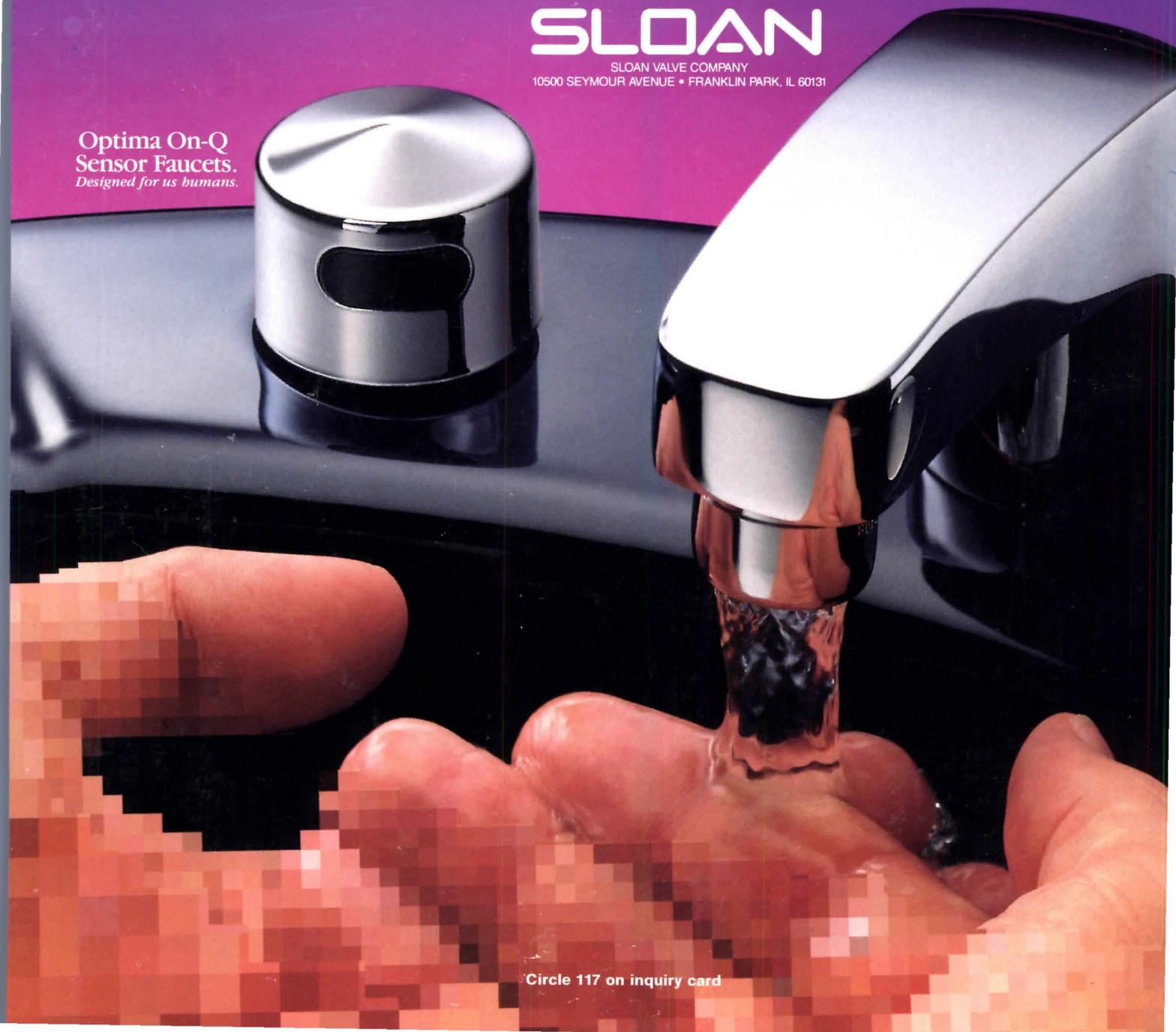
On-Q is a product of the newly combined strengths of Sloan (the inventor of the "no-hands" restroom) and a leader in sensor-operated systems, Bauer Industries, now a Sloan Valve Company.

Call your Sloan Valve representative for a hands-off demonstration.

## SLOAN

SLOAN VALVE COMPANY  
10500 SEYMOUR AVENUE • FRANKLIN PARK, IL 60131

Optima On-Q  
Sensor Faucets.  
*Designed for us humans.*



Circle 117 on inquiry card