ARCHITECTURE™

JUNE 1994

INCORPORATING ARCHITECTURAL TECHNOLOGY

$6.00 / $7.50 CAN

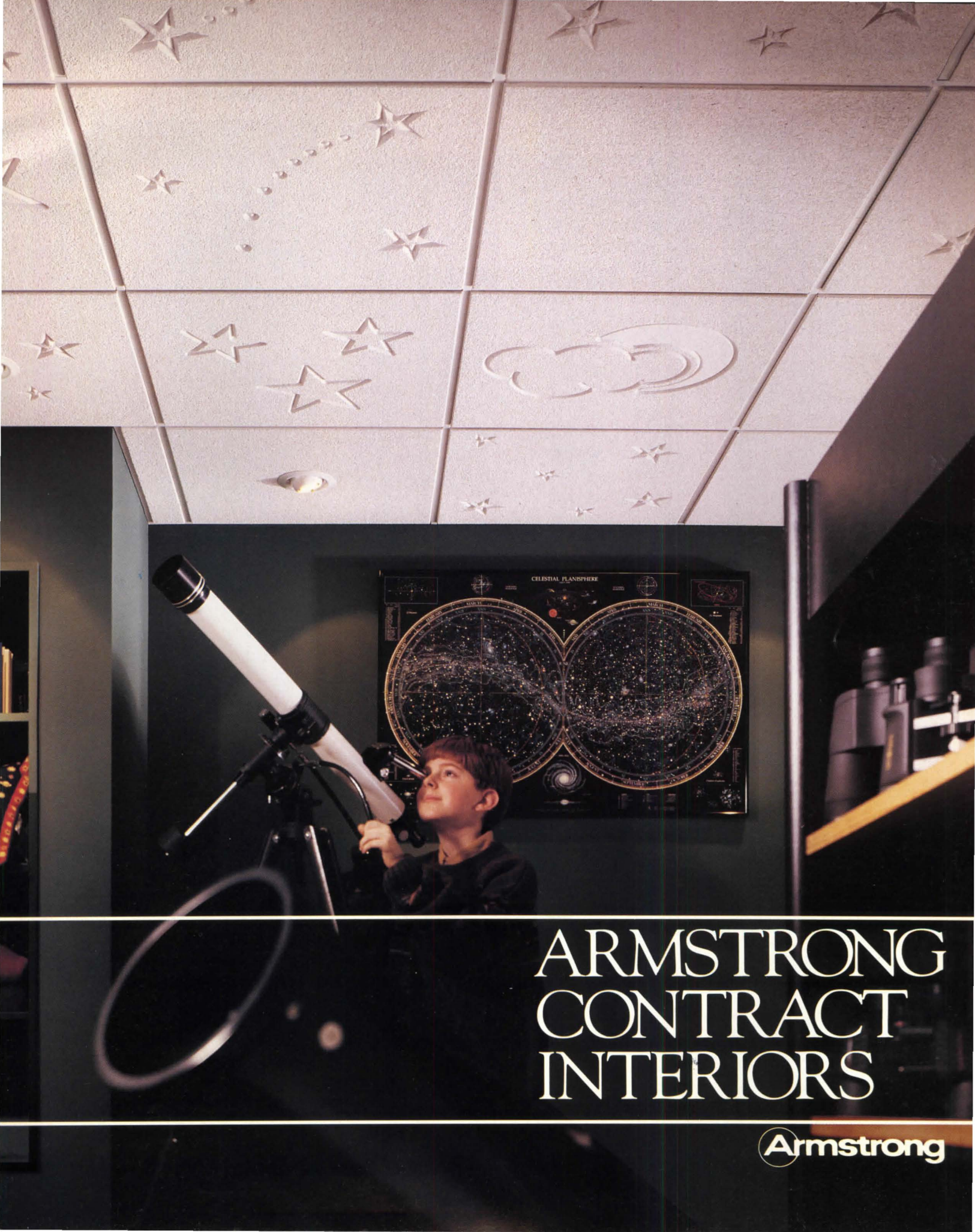
MODERN EXPLORATIONS

ONE GIANT LEAP FOR DESIGN INTEGRATION.

Cirrus® Themes.™ Winner of three major design awards, these artfully carved acoustical panels make any retail space more friendly and inviting by integrating a store's special theme. Five design families fit either 9/16" or 15/16" exposed tee grid, so they're ideal for both new construction and renovation. Call 1 800 233-3823 and ask for Themes ideas.

Ceiling designs copyrighted by Armstrong

Circle 41 on information card



ARMSTRONG CONTRACT INTERIORS

Armstrong

USING ANDERSEN® WINDOWS FREELY, AN ARCHITECT RE-CREATES THE BIRTI

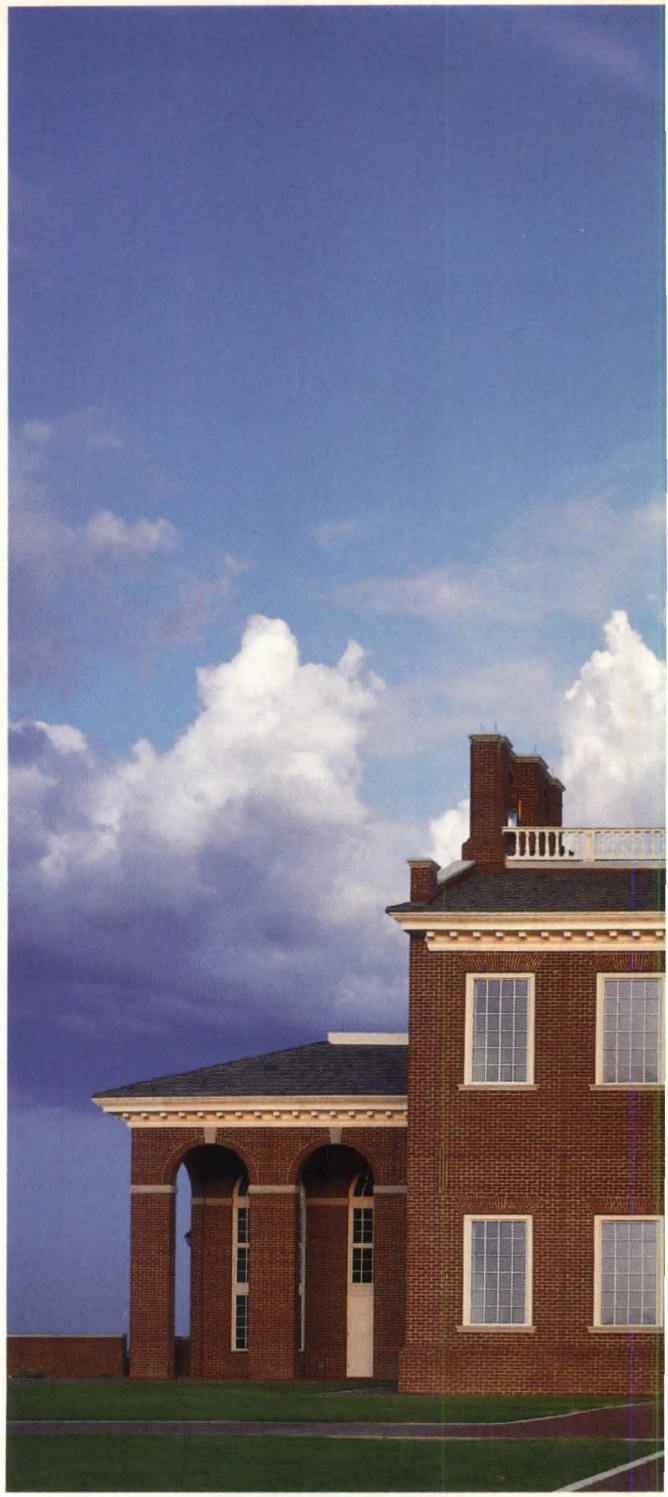
"Our student center is a two-thirds replica of Philadelphia's Independence Hall," said architect Jim Booher. "We used Andersen® windows freely along with solar control Andersen High-Performance Sun glass. That gives the students great views through 20-foot-high windows but without excessive heat gain."

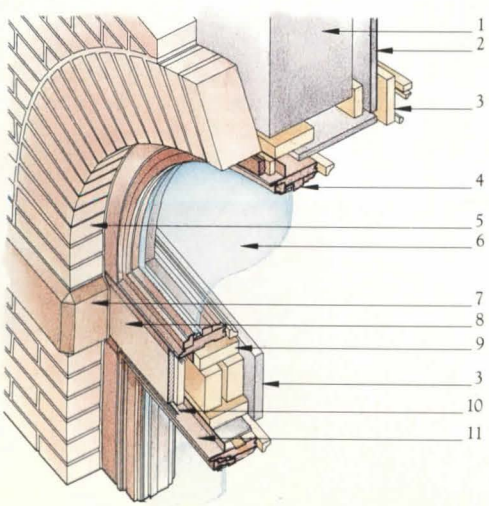
"In fact, the Andersen glass reduced air conditioning tonnage by 30%."

"And with the brick, fiberglass tower and vinyl-clad Andersen units, our 'Independence Hall' exterior is virtually independent of upkeep."

Look into Andersen® windows for your next design. They've been proven – in independent tests.

For the name of your Andersen representative, call 1-800-426-7691. Or write Andersen Commercial Group,℠ Box 12, Bayport, MN 55003.

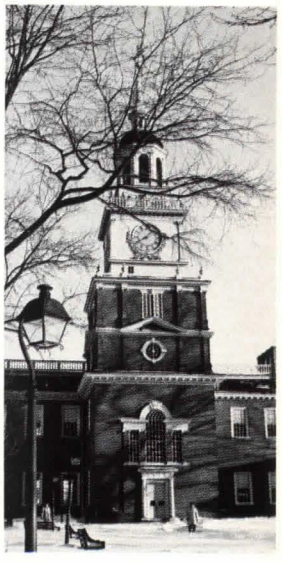




1. MASONRY WALL
2. GYPSUM BOARD
3. INTERIOR WOOD TRIM
4. ANDERSEN® CIRCLE TOP WINDOW UNIT
5. BRICK ARCH AND VENEER
6. ANDERSEN® HIGH-PERFORMANCE SUN GLASS
7. STONE VENEER
8. ANDERSEN® VINYL LAMINATED BOARD (OPTIONAL)
9. WOOD FRAMING AND BLOCKING
10. SILICONE SEALANT WITH BACKER ROD
11. ANDERSEN® AWNING WINDOW UNIT

PLACE OF AMERICAN INDEPENDENCE.

Independence Hall, Philadelphia



JOHN G. MAHLER
STUDENT CENTER
DALLAS BAPTIST
UNIVERSITY
DALLAS,
TEXAS

ARCHITECT:
JIM BOOHER
BOOHER/McGEE
& ASSOCIATES, INC.
DALLAS,
TEXAS

ANDERSEN COMMERCIAL GROUP℠

Andersen AW Windows. Patio Doors.

Circle 1 on information card

ARCHITECTURE™

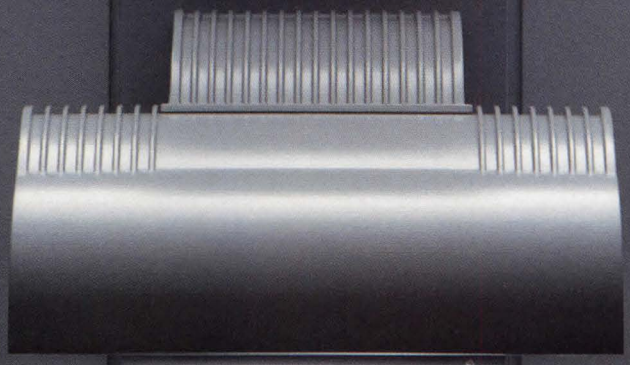
ARCHITECTURE™

ARCHITECTURE™ (VOL. 83, NO. 6), Incorporating Architectural Technology, publication number ISSN 0746-0554, the magazine of the American Institute of Architects, is published monthly by BPI Communications, at 1515 Broadway, New York, NY 10036. Editorial offices are located at 1130 Connecticut Ave., N.W., Suite 625, Washington, D.C. 20036. Postmaster, please send changes of address to ARCHITECTURE, P.O. Box 2063, Marion, OH 43305-2063.

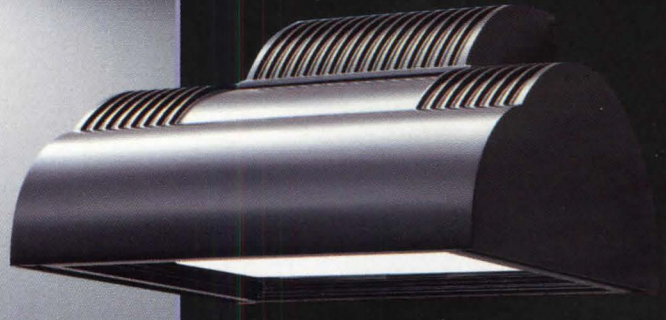
Individual subscriptions: U.S. and its possessions: $42 for 1 year, $65 for 2 years, $93 for 3 years. Canada: $49 for 1 year. Foreign: $65 for 1 year. Single copies: U.S. and its possessions: $6 each; Canada: $7.50 each. Publisher reserves the right to refuse unqualified subscriptions. AIA members: If you have questions about your membership or subscription, call 1-800-242-3837. All others write: Circulation Department, ARCHITECTURE, P.O. Box 2063, Marion, OH 43305-2063; 1-800-347-6969, outside U.S. (614) 382-3322, 8:30AM–8:30PM, EST, Mon.-Fri. Allow 8 weeks. Microfilm copies available from University Microfilm, 300 North Zeeb Rd., Ann Arbor, MI 48106. Second Class Postage paid at New York, NY, and additional mailing offices.

Wall Director™

High Performance
Total Cutoff
Adjustable and Invertible
Three Light Distributions
2 Sizes: 14" 70-175W and 18" 250-400W HID
Kim Quality and Durability



Introducing Kim's new line of Wall Mounted Outdoor/Indoor Luminaires

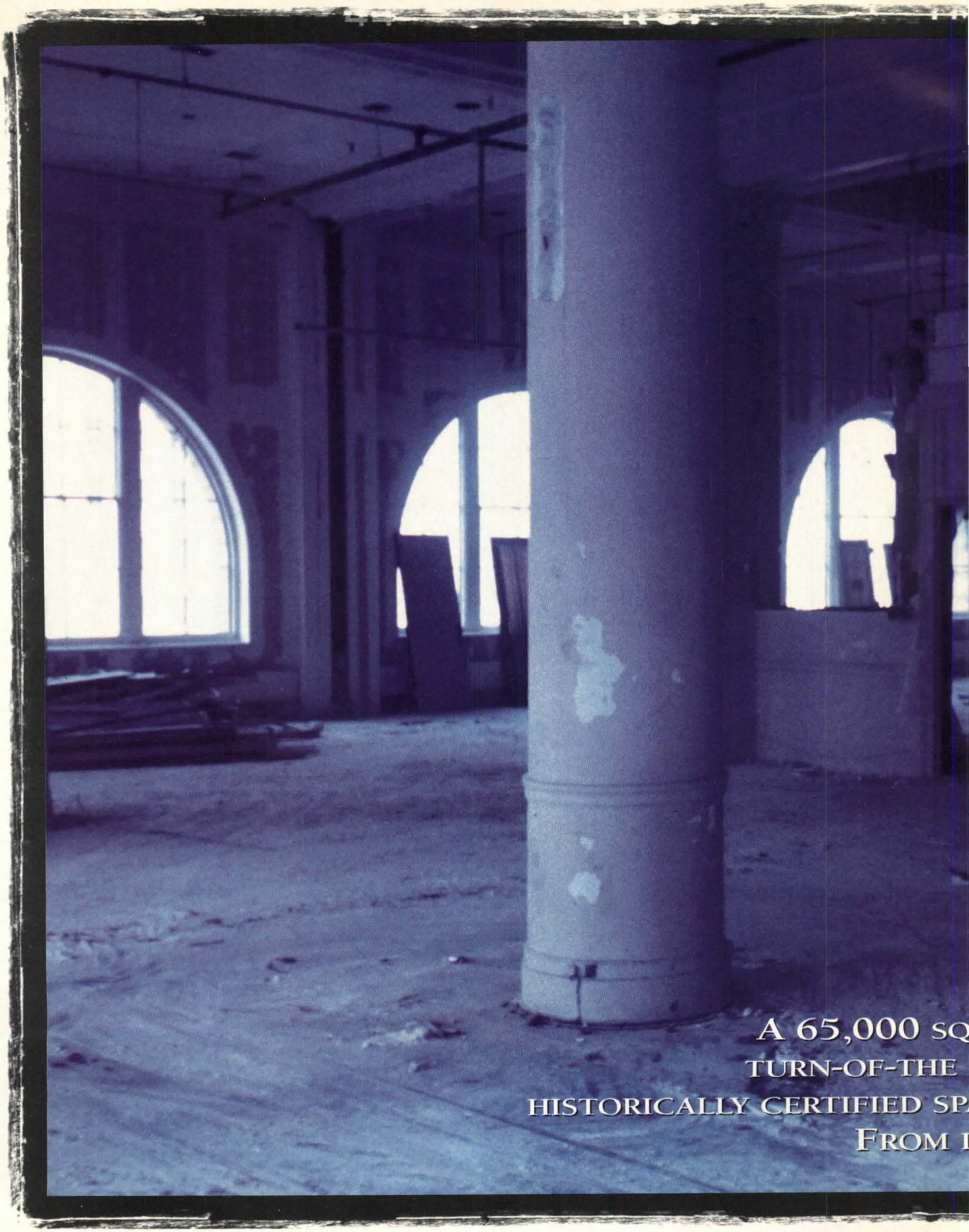


KIM LIGHTING

SITE / AREA PARKING STRUCTURE ROADWAY ARCHITECTURAL FLOOD / ACCENT LANDSCAPE

16555 EAST GALE AVENUE PO BOX 1275 CITY OF INDUSTRY CALIFORNIA 91749 U.S.A. PHONE 818 / 968 5666 FAX 818 / 369 2695

Circle 43 on information card



YOU NEED OPTIONS.

At Mannington Commercial, we want the environment you're creating to be as grand. Intimate. Elegant. Austere. Spare. Or as spectacular as you do.

Which is why we provide you with more than 1200 flooring options.

No single source in the flooring industry gives you as many color, texture, design and styling options as Mannington Commercial. And all have been specifically designed to work together and complement each other.

And no single source provides you with as wide a range of service options, from the planning stages, through installation, and beyond.

Flooring options. Design options. Service options. All these options make Mannington Commercial your best option.

To find out what your Mannington options are, call 1-800-241-2262.

MANNINGTON COMMERCIAL

SHEET VINYL ■ VINYL COMPOSITION TILE
MODULAR CARPET ■ 6 FOOT CARPET
BROADLOOM CARPET

Circle 45 on information card

WHY OUR NEW OPTIMA PLUS® FOR CLOSETS WEARS A DIFFERENT HAT

Our new "hat" has a button. Press it and our Optima Plus® Flushometer operates manually. Now you can have the benefits of electronics with the convenience of user operation.

We put a button on our closet Optima Plus Flushometers for a good reason: *users wanted it.* We created the concept of Optima Plus with users in mind: • Fast, One-trade Installation • Infrared Battery Operation • Battery-Replacement Indicator • Sloan Quality • A.D.A. Compliance. Optima Plus provides superior hygiene to restrooms. It reduces odor, eliminates costly chemicals and helps conserve water.

For more information about our Optima Plus with its new button for closets, call 1-800-745-0800 and press Ext. 104 for information or Ext. 105 to place a direct order.

SLOAN.

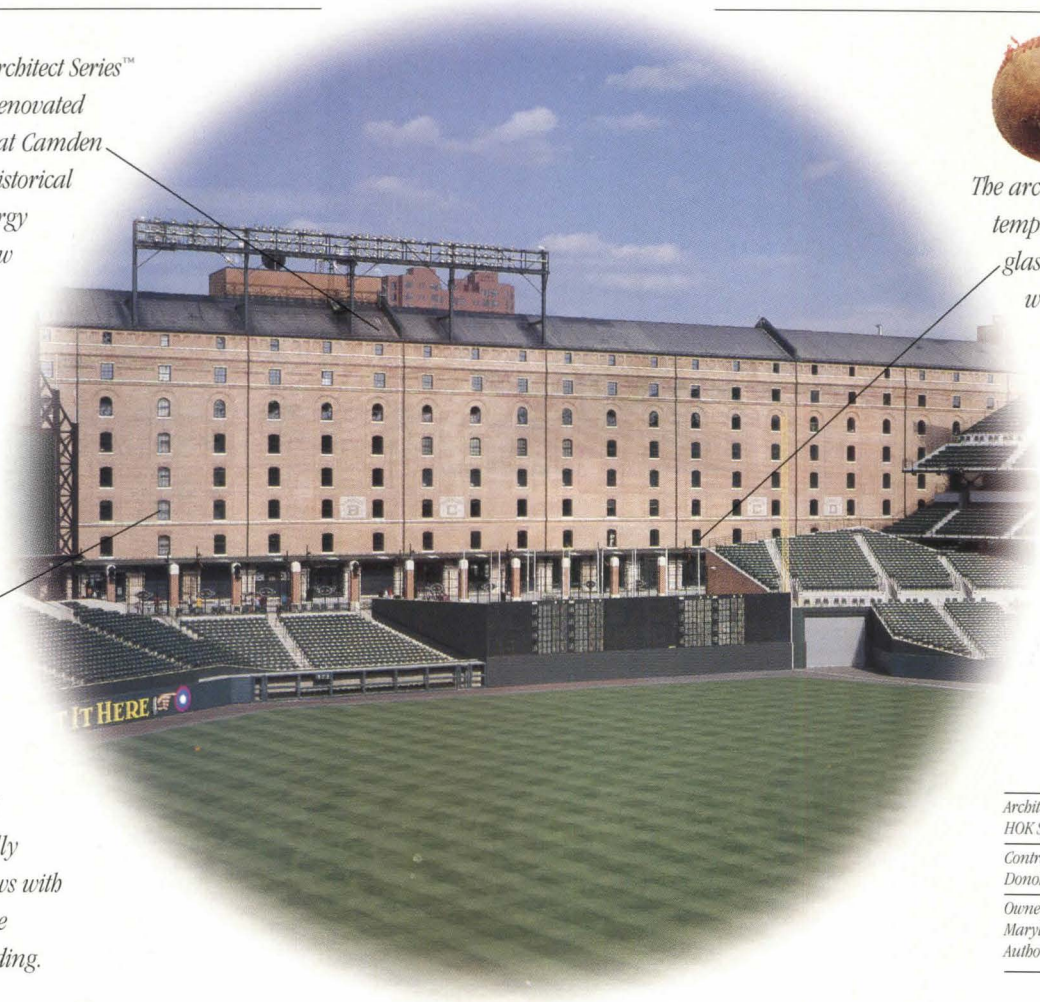
Sloan Valve Company
10500 Seymour Avenue
Franklin Park, IL 60131

Circle 47 on information card

ANOTHER REASON TO USE PELLA® WINDOWS

817 hits. No errors.

The 817 Pella® Architect Series™ windows in the renovated B&O Warehouse at Camden Yards combine historical authenticity, energy efficiency and low maintenance.



The architect specified tempered safety glass for windows within home-run range.

Only Pella could provide historically authentic windows with low-maintenance aluminum cladding.

Architect:
HOK Sports Facilities Group

Contractor:
Donohoe Construction

Owner:
Maryland Stadium Authority

Few historical renovations have the exposure of the B&O Warehouse at Camden Yards in Baltimore. As the backdrop for a major sports facility, it's seen by millions nationwide. The owner and architect wanted windows with the authentic look of true divided light, on the outside and inside. They also required superior energy efficiency and low maintenance – all at a competitive price. Pella® Architect Series™ windows met all these criteria – 817 times over. Let the Pella Commercial Division provide innovative solutions for your window challenges. Call for our free Commercial Products Guide, or contact your local Pella Commercial Specialist.

1-800-54-PELLA

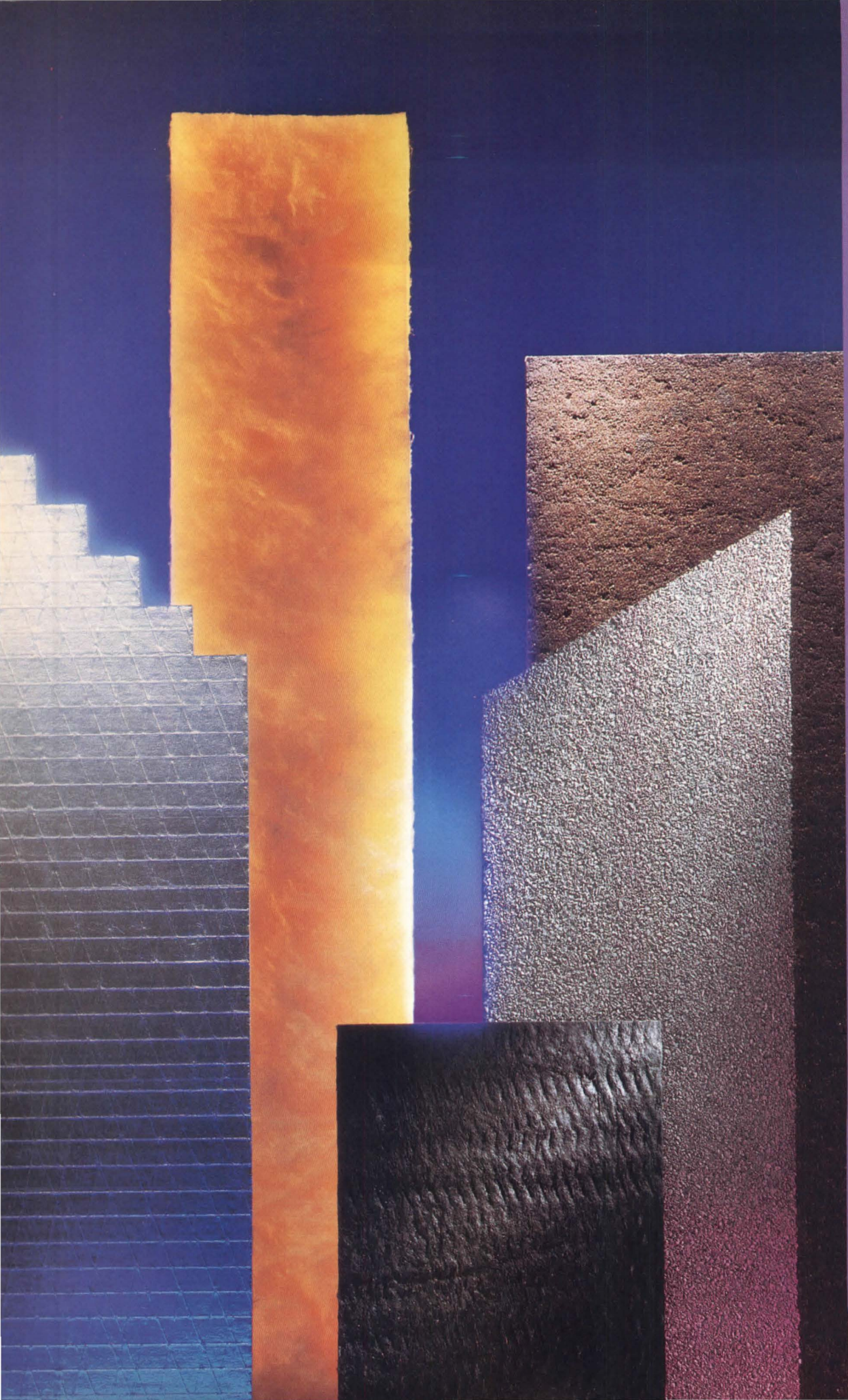
Pella® WINDOWS & DOORS

Pella Corporation is a Sponsor of The National Arbor Day Foundation

Quality like this only comes from Pella.

Circle 49 on information card

CODE: A224H4TK



SCHULLER...

WE'RE BUILDING ON OVER A CENTURY OF MANVILLE EXPERIENCE.

Chances are you've specified Manville or Johns-Manville products in the past. Now, these same high quality materials are available under a new name... Schuller International.

Continuing the Manville tradition of technology and product innovation, Schuller International delivers trusted solutions in Building Insulation, Mechanical Insulations and Roofing Systems.

Today, Schuller International is synonymous with stability, strength and experience in commercial and industrial building products... and your best single-source supplier.

For more information, call the Schuller Product Information Center at 800-654-3103.
And remember: For Manville experience, specify Schuller.

SCHULLER

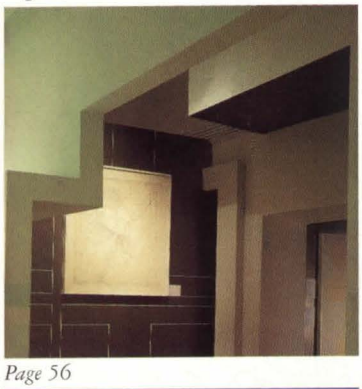
Leaders in Insulation, Reinforcements, Filtration and Building Products

JUNE 1994

ARCHITECTURE

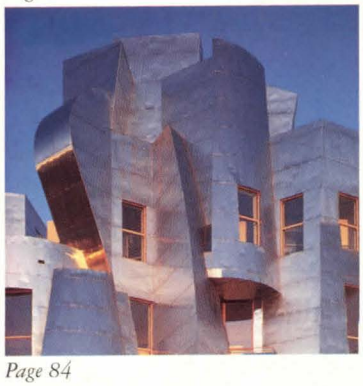
SCOTT FRANCES / ESTO

Page 74



JEFF GOLDBERG / ESTO

Page 56



DON F. WONG

Page 84

Cover
Hypolux Bank Building, Luxembourg, Richard Meier & Partners Architects (page 74). Photo by Scott Frances/Esto.

Next Month
Architecture for Children
Custom Hardware
Design/Build

Design

Technology & Practice

Departments

The DORMA Group

NEW LEADERSHIP... FOR TODAY'S CHALLENGES

Advanced design and manufacturing technology make it possible. Old fashioned work ethics and craftsmanship make it a reality.

Today's American Device line of exit devices is unequaled by any other in the world...and we are ready to prove it.

Request: "New Leadership/Exit Devices."

We'll earn your confidence, every day.

American Device
Manufacturing Company

Dorma Drive
Reamstown, PA 17567
Phone: 1-800-523-8483
FAX: 1-800-274-9724

Circle 55 on information card

A DORMA Group Company

Design at the White House

The Clinton administration's efforts to raise design consciousness need architects' support.

Architecture and design gained national attention on April 28, when President Bill Clinton presented the Presidential Awards for Design Excellence at the White House. The eight winners, ranging from public housing to an explosives detector (pages 26-27, this issue), received the nation's highest official honors for design excellence in federally supported projects. They were selected in 1992, but were never announced by former President George Bush. Sensitive to political opposition to the National Endowment for the Arts (NEA), which runs the quadrennial Presidential Awards competition, the Bush administration scrapped the ceremony to avoid controversy during an election year.

The recent Presidential Design Awards ceremony, the first ever held at the White House, indicates that the Clinton administration has begun to take design seriously as part of its "competitiveness" strategy for American businesses. "The federal government is the largest purchaser of design services in the world," Clinton proclaimed. "And the designs we commission should reflect not only the best artistic execution available, but also taxpayers' money well spent."

To make Clinton's rhetoric a reality, NEA Chair Jane Alexander, who urged the president to hold the April ceremony, is spearheading efforts to create a White House Council on Design. The council would comprise public- and private-sector design advocates. According to Thomas B. Grooms, NEA program manager for federal design improvement, it would "promote design as a management tool and show how it not only influences products, but also performance, cost, and environmental impact." Like the cross-disciplinary Presidential Design Awards program, the White House Design Council could extend its purview from the design of products to quality-of-life issues, from government brochures to pollution controls and urban design. The new council could take the form of a private, government-supported organization, such as the National Trust for Historic Preservation, or a presidentially appointed, independent panel, such as the U.S. Commission on Civil Rights.

The idea for such a design council is a good one and long overdue. More than 100 countries have national design councils, influencing commerce and culture. A White House Design Council would send the message from top government levels that design fosters economy in production; design is not a frill but a necessity for American businesses to compete abroad. The NEA plans to take its White House Design Council proposal to the design community for feedback and submit its proposal to the White House this summer.

Meanwhile, small steps are being taken elsewhere within the federal government to raise design consciousness. A bill is currently being drafted by U.S. Representative George Brown (D-California), chairman of the Science, Space, and Technology Committee, to establish a design council within the technology administration section of the U.S. Department of Commerce. Brown wants to make U.S. manufacturers more aware that design is important to ensuring the quality of their products. His bill would establish programs to educate the public about the value of design and guidelines for innovation in products. Such a council could serve as a model for similar design watchdogs in other federal government agencies.

Design-related organizations like the AIA must actively support the far-reaching potential of Brown's bill and the White House Council on Design. We need to remind the president that innovative design is essential not only for competing abroad, but for ensuring a better environment at home as well.

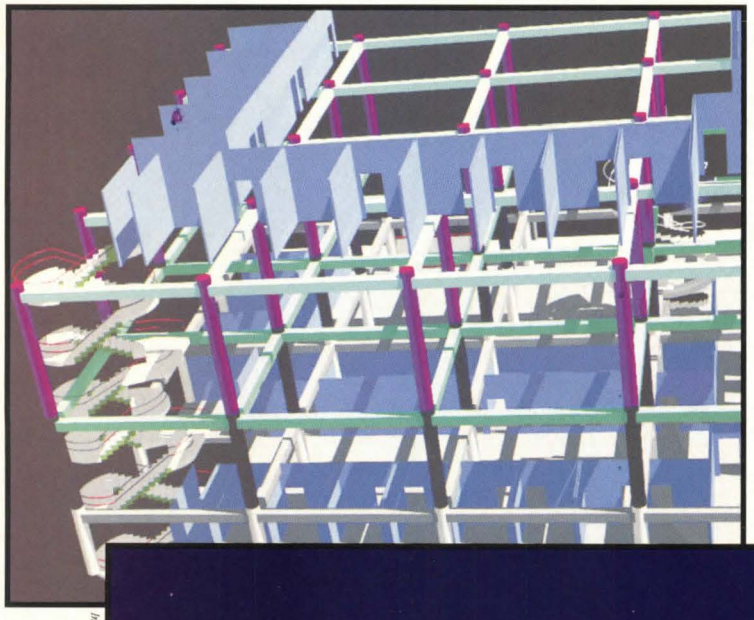
Deborah K. Dietsch

Make CAD work for you!

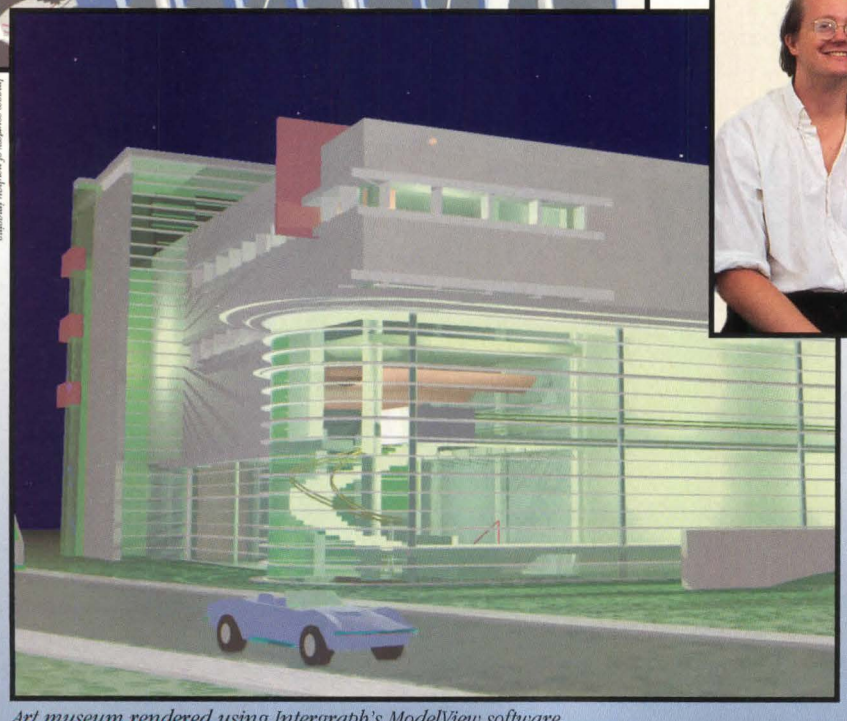
Join leading industry experts at A/E/C SYSTEMS '94 for MicroStation University – it's FREE! June 20-23 in Washington DC. Call 800-807-2200 to enroll.

"What sells clients is 3D modeling. With DesignWorks, I can automatically generate 3D models from floor plans."

— *David Bader,* president
neubau imaging



To complement MicroStation's powerful production capabilities, architects and designers are turning to DesignWorks. For designers at neubau imaging, MicroStation and DesignWorks are the perfect 3D tools. "Once the plan is made, only a few steps are needed to transform the work into a 3D model. This brings life to any space-planning concept, and provides a vivid spatial understanding for our clients." — *Curt Dilger,* designer



Images courtesy of neubau imaging.

Combining MicroStation and DesignWorks, Curt Dilger, David Bader, and Steven Johns enjoy increased productivity at neubau imaging.

Art museum rendered using Intergraph's ModelView software.

INTERGRAPH

Solutions for the Technical Desktop

Circle 57 on information card

DesignWorks and MicroStation — giving you the designing edge.

MicroStation

Have a look at MicroStation and DesignWorks on Intergraph's Technical Desktop Series personal workstations.

Call 800-345-4856 for free brochures and demo disks on MicroStation and DesignWorks.

Events

June 11-August 7
"Masterworks: Italian Design From 1960 to 1994," an exhibit at the Denver Art Museum sponsored by the Italian Trade Commission. Contact: (303) 640-2933.

June 15
Entry deadline for Advanced Technology Facilities Design: 1994-1995 Review, sponsored by the AIA. Contact: (202) 626-7366.

June 20-23
Architecture/Engineering/Construction Systems '94, a conference on automation systems for building designers, in Washington, D.C. Contact: (203) 665-0153.

June 22-23
Society for Computer Integrated Building Sciences '94, a symposium on building automation, cosponsored by SCIBS and the International Council for Building Research Studies and Documentation, in McLean, Virginia. Contact: (405) 325-1947.

June 22-23
Concurrent Engineering, a two-day conference sponsored by the CAD Society, at the Washington Design Center. Contact: (610) 444-9690.

June 22-25
1994 International Tile and Stone Exposition in Anaheim, California. Contact: (407) 747-9400.

July 1
Submission deadline for the 1994 Cedar Architectural Design Awards, sponsored by the AIA and the Western Red Cedar Lumber Association. Contact: (604) 684-0266.

July 1
Deadline for International Excellence on the Waterfront, a competition sponsored by the Waterfront Center. Contact: (202) 337-0356.

July 6
Deadline for the Design Awards Program, sponsored by the AIA New York chapter. Contact: (212) 683-0023.

July 12-14
Dialogue '94, a symposium on techniques for historic preservation, at Johns Hopkins University in Baltimore. Contact: (713) 492-0535.

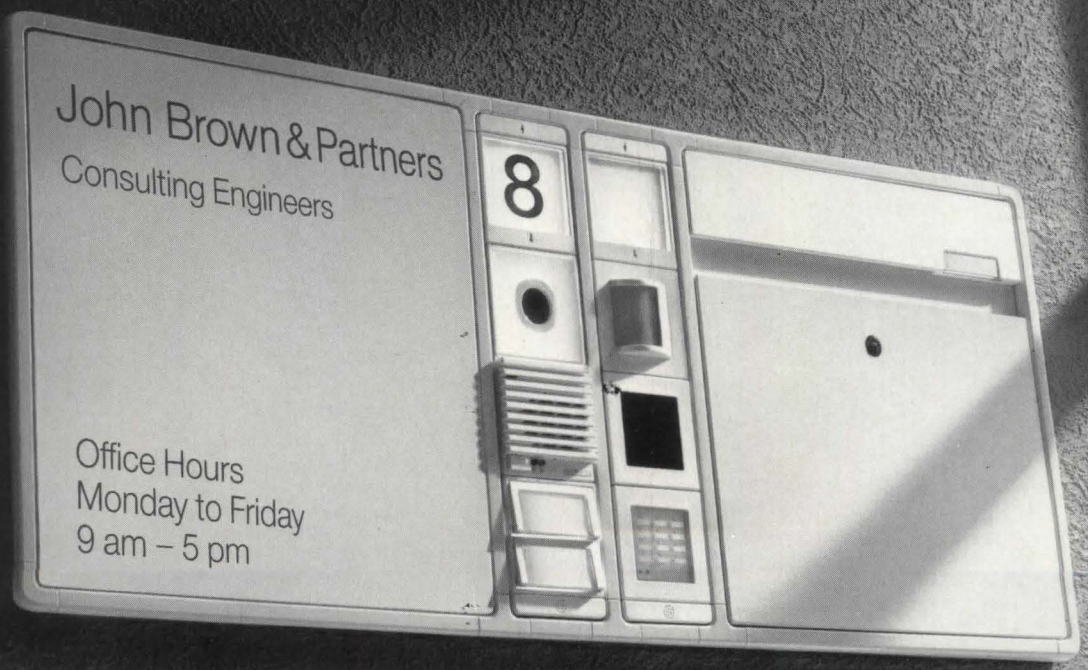
July 15
Deadline for DuPont Antron Design Awards, an interior design competition. Contact: (302) 999-5560.

July 15
Entry deadline for the International Aluminum Extrusion Design Competition. Contact: (202) 862-5163.

July 15
Application deadline for 1994 project grants offered through the Design Arts Program of the National Endowment for the Arts. Contact: (202) 682-5437.

August 1
Submission deadline for Advanced Technology Facilities Design: 1994-1995 Review, sponsored by the AIA. Contact: (202) 626-7366.

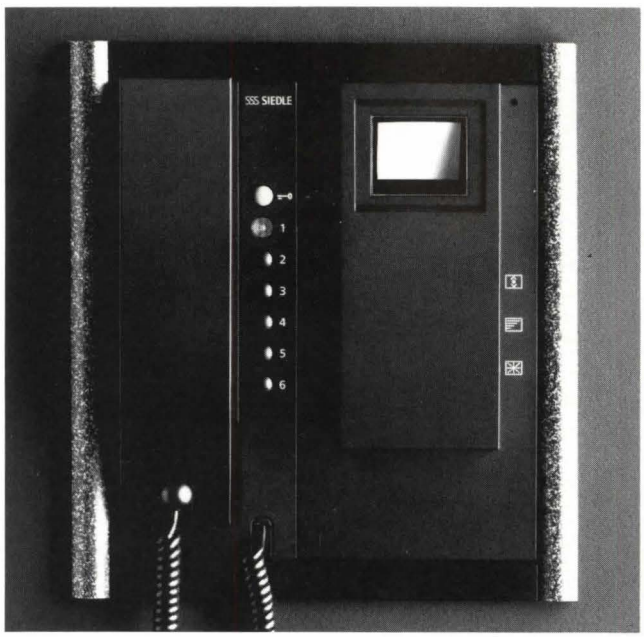
Complete with watchdog, doorman and nameplate.



Leonhardt & Kern

The Siedle infrared movement sensor acts like a trusty watchdog. It detects and signals movement within a 40-foot radius of your front door.
Even better than Fido, it turns on the front light automatically. It also activates the Siedle CCD video camera – a permanent eye on the outside that instantly transmits to the system's video monitor on the inside. Now that you're in the picture, let's talk about the sound. The Siedle System HT 611-01 house phone ensures perfect clarity thanks to the Siedle electret microphone. Besides the door release button, it offers six other functions you can choose from to adapt it to your individual lifestyle.

The Siedle System HT 611-01 House Phone. A single system answering many needs. With an extremely low profile for mounting on a wall or table-top. Variable lateral frame available in highly polished black or aluminum or black and white Korian. Award-winning innovative design '91.



It can be programmed to switch on lights, open the garage door, raise and lower blinds, and more. Or it can put you in instant touch with up to six rooms in your home.
With the modular Siedle-Vario® system, you can put together a complete communication center right at your door. Everything from a code and control module (for opening doors, switching lights on and off, and a whole lot more besides) to a handsome nameplate. In fact, the whole system looks so good it has won a number of awards for outstanding design. To find out more, just send in the reply coupon – or call 800-874-3353, fax 215-353-9716.

Coupon

Send to: Siedle Communication Systems of America, Inc. PA 6, 750 Parkway, Broomall, PA 19008

Please send me further information on Siedle communication systems

Name_____

Address_____

_____

State/Zip code_____

Phone_____

Accessible Systems For The Physically Challenged.

Intercommunication systems.

SSS SIEDLE

Circle 59 on information card

New Age Rock.

Introducing Terreon™ Solid Surface Material.

To look at it, you'd think it was polished granite. And the way it resists stains, burns and impact, you'd think it was stainless steel. It's Terreon™, a new solid surface material now available on the next generation of Bradley Multi-Fount™ washfountains.

The advantages go beyond the surface. Terreon is a solid material, not a coating to be scratched or worn off

Terreon™ is a solid surface material, not a coating that can scratch or erode.

with time. In the unlikely event of damage, it can even be repaired on-site. And to complement your washroom design, Terreon is available in two attractive colors. Call Bradley at (414) 251-6000 for more information. And discover what New Age Rock will do for your next washroom project.

Bradley CORPORATION

Always A Step Ahead Of The Crowd.™

9101 Fountain Blvd., Menomonee Falls, WI 53051

Circle 61 on information card

News

French Architect Wins Pritzker Prize

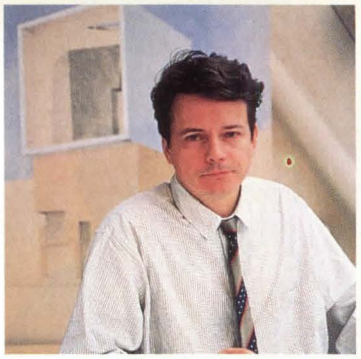
Bold, sculptural forms carefully woven into the urban fabric characterize the buildings designed by this year's laureate of the Pritzker Architecture Prize, Christian de Portzamparc. Hailed by the jury as "a powerful poet of forms and creator of elegant spaces, who is aware of the past, but true to himself and his time," Portzamparc has contributed to an emerging architectural renaissance in his native France, spawned by President Mitterrand's *Grand Projets* initiative. This government program sponsored Portzamparc's most celebrated building, the City of Music, located in the Parc de la Villette. Portzamparc's west wing, housing the National Conservatory of Music and Dance, was completed in 1990. The formal opening of the entire complex, including a new concert hall, is scheduled for early 1995.

The 50-year-old French architect gained international recognition from his participation in a housing development in Fukuoka, Japan, planned by Arata Isozaki. These 1991 housing units demonstrate Portzamparc's affinity for the spaces in between buildings: fractured architectural objects knitted together by a bridge, courtyards, and canals.

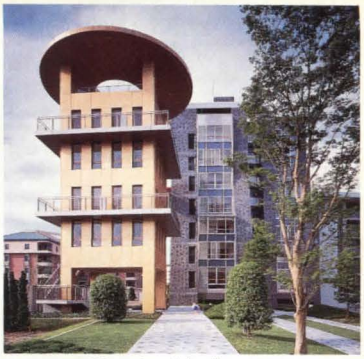
Several of Portzamparc's current projects in France are the result of prize-winning competition entries, including a high court facility for the town of Grasse and a cultural center for Rennes. The Credit Lyonnais Tower, an office high rise and 80-meter bridge built over a railroad station in Lille, is scheduled for completion later this year.

An early disciple of Le Corbusier, Portzamparc rejects the notion that cities consist of isolated parts. His design philosophy depends upon the belief that each building contributes to the identity of the city, evidenced by his current renovation of three 1960 apartment buildings on the Rue Nationale, in a neglected residential area of Paris. His idealistic vision of cities is grounded in a practical strategy: one building at a time.

Portzamparc, the first French architect to win the Pritzker, will be presented with $100,000 and a medal at a ceremony on June 14 in Columbus, Indiana, a city that boasts the works of four former Pritzker laureates: I.M. Pei, Kevin Roche, Richard Meier, and Robert Venturi.—*Ann C. Sullivan*



PRIZE WINNER: Christian de Portzamparc.

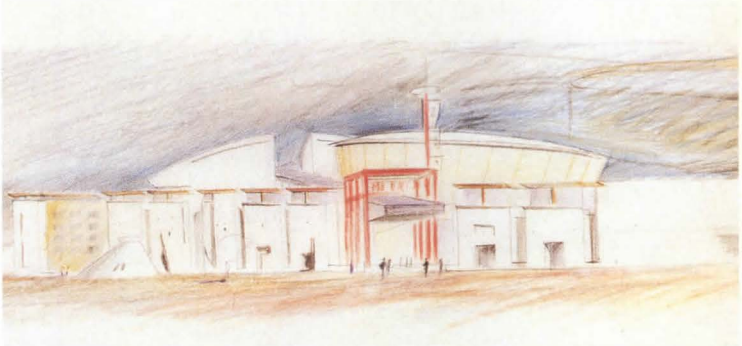


NICHOLAS BOREL

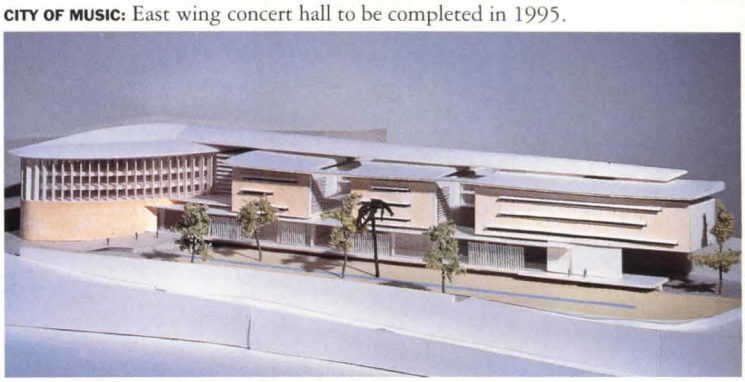
FUKUOKA: Housing blocks, 1991.

STEPHANE COUTURIER

SCHOOL OF DANCE: Residential school in Nanterre, 1987.

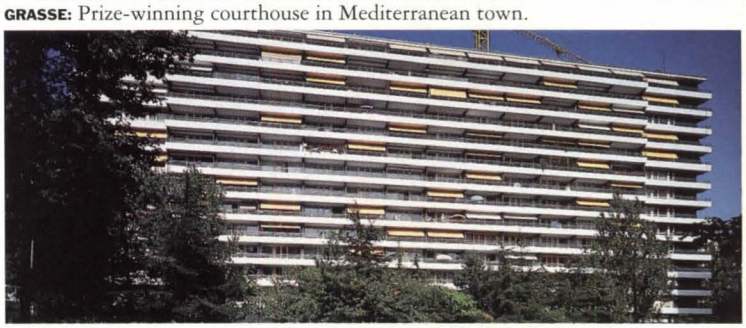


CITY OF MUSIC: East wing concert hall to be completed in 1995.



NICHOLAS BOREL

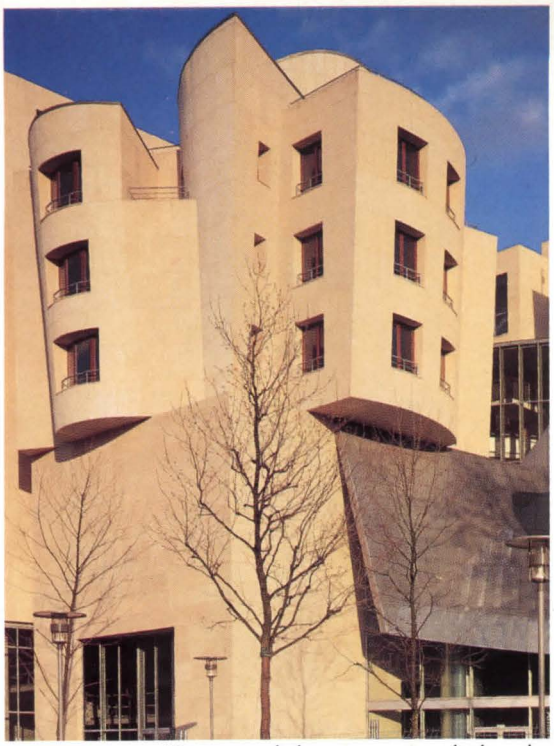
GRASSE: Prize-winning courthouse in Mediterranean town.



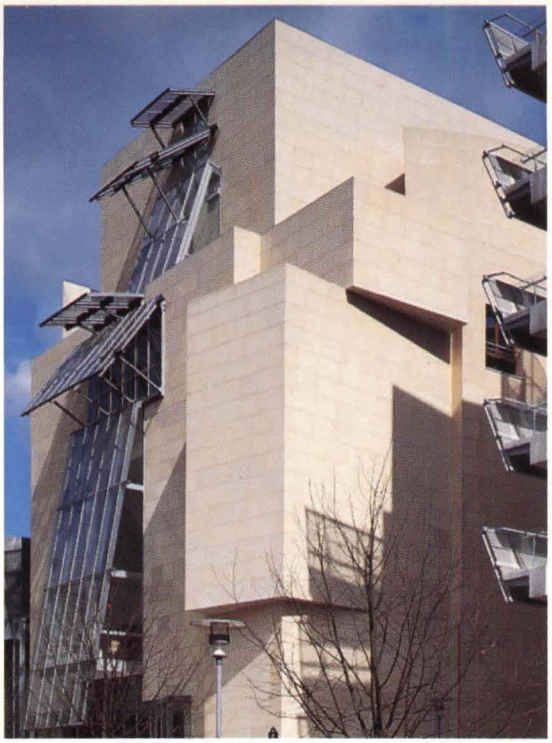
NICHOLAS BOREL

RUE NATIONALE: Apartment building renovation in Paris.

LUC BOEGLY PHOTOS



RESIDENTIAL WING: Limestone-clad apartments overlook park.



CULTURAL WING: Cascade of glass punctuates volume.

American Center Opens in Paris

The cultural trade winds carrying architectural influence have usually blown from Europe to America, but with the opening of Frank Gehry's American Center in Paris this month, they reverse direction virtually for the first time since Frank Lloyd Wright's Wasmuth portfolio. With origins in the scruffy streetscape of Venice, California, where he cultivated chaos into an architectural art form, Gehry has posited along the banks of the Seine a building profoundly American in its instincts. Raw, generous California energy erupts in the heart of the capital of reason, a Fauve among Neoclassical and Modern buildings based on Cartesian rationalism.

Contextualism is in the eye of the beholder, and when Gehry studied Paris, he did not see the city for its Classically ordered, mathematically proportioned facades. With an eye trained by artists who transformed Venice's alleys into art, Gehry saw the accidental roofscapes of Paris, the party walls that shear buildings. This fragmentation characterizes the "heartspace" of the American Center.

The eight-story, 198,000-square-foot, $40 million limestone-clad structure is the cultural centerpiece of a redeveloped district overlooking the Parc de Bercy, and an iceberg of functions packed into a small volume. The site was rife with restrictions. The back facades had to match the height, massing, and outline of an adjacent building; and the leading corner facing the park had to be chamfered at 45 degrees.

The building had to be charismatic enough to draw people to a little-known part of Paris and attract fashion shows and other rent-producing activities. Executive Director Henry Pillsbury explains that recent cutbacks in the center's arts program, which leave the building host to a postponed mission, were not caused by construction costs (Gehry brought the project in on budget, at about $143 per square foot), but fund-raising problems due to the recession.

Gehry has indeed understated the rear and side elevations, designing regularly fenestrated facades clad in a creamy French limestone. Only a mansard slipped to the second story—where it looks like a skirt and acts like an awning—signals architecture with an unusual agenda. The regularity of the back helped pay for the irregularities at the front.

The building's many programmatic requirements left Gehry little "wiggle" room for design and the curse of a building with a missing chin. Gehry designed his way out of the weak corner with a metal skirt that rotates from the front to the side facade through forms that compensate for the missing corner. The low skirt brings the building down to pedestrian scale. Inside, the complexity of the building reveals itself in the towers and protrusions of an interior court with clifflike walls.

Unlike the courtyards of older Parisian buildings which it recalls, the canyon separating the residential and cultural sections erupts geologically: The roof of a half-submerged black box rises to form a second-floor terrace in the court, one of several shelves that make the cliff habitable. Leading to the theater and cinema, these and other terraces form networks of semipublic living rooms, balconies, and catwalks removed from the circulation at grade. The many different limestone-clad shapes may seem formalistically gratuitous, but most serve a double function: Gehry has turned every requirement into an asset feeding the building's public life. The cliff also masks a bulky building that is otherwise orthogonal and conventional.

The American Center is an intersection of two of Gehry's design directions—the disparate forms of the Winton Guest House, and the curvilinear ribbons of the Vitra Furniture Museum and Guggenheim in Bilbao. This crossroads of Gehry's thinking at Parc de Bercy is seasoned and steady but inquisitive and tentative—a known quantity, yet an exploration.—*Joseph Giovannini*

Details

The Gap has chosen **William McDonough Architects** of New York City to design its corporate headquarters in San Bruno, California. The City of Dallas has selected San Francisco-based **Holt Hinshaw Architects** to design the Dallas Aquarium at Fair Park. Their scheme was selected over designs from **Cambridge Seven Associates**, **Eskew Filson Architects**, and **Esherick Homsey Dodge and Davis**. Chicago-based **Lohan Associates** has won a competition to design a synagogue for the Chicago Sinai Congregation. The Princeton and Philadelphia offices of **The Hillier Group** and **Phillip Cox Richardson Taylor and Partners** of Sydney, Australia, have been selected to design the $700 million Sydney Harbor Casino. The Department of Justice has contracted **HNTB** to provide support services for the Americans With Disabilities Act. The firm will conduct complaint investigations and compliance reviews. **NBBJ** with **Danadjieva & Koenig Associates** have been selected to design a $165 million U.S. courthouse in Seattle. **Hellmuth, Obata & Kassabaum** is designing a master plan for an $850 million addition to the Meadowlands Sports Complex in East Rutherford, New Jersey. London-based **Ove Arup Partnership** is the 1994 recipient of the Queen's Award for Export Achievement. **GHA Architects** of Portland, Oregon, has changed its name to **Thomas Hacker and Associates Architects**. Former Deputy Director of the National Gallery of Art **Roger Mandle** has been inducted as President of the Rhode Island School of Design. **Ellenzweig Associates** of Cambridge, Massachusetts, has been selected to design new medical education facilities at Chicago's Loyola University and at the University of New England in Biddeford, Maine. *The Architect*, an opera written by playwright Tom Cone and composer David MacIntyre, premieres this month at the Vancouver Opera; Canadian architect **Joost Bakker** is the set designer. Architect **Elissa Aalto**, widow of **Alvar Aalto**, died on April 12. A partner in her husband's office since 1958, she was responsible for completing projects after his death in 1976, including the opera house in Essen, Germany. **Anni Albers**, widow of abstract artist **Josef Albers**, died on May 9. The 94-year-old textile artist was the last surviving teacher at the Bauhaus.

Presidential Design Awards Announced

Two years after they were juried, the 1992 Presidential Awards for Design Excellence were finally handed out at a White House ceremony on April 28. The group of eight projects demonstrates "the highest level of excellence in American design, which consists of more than mere beauty," lauded President Clinton. "It is also at its best inspirational, enduring, functional, and cost-effective."

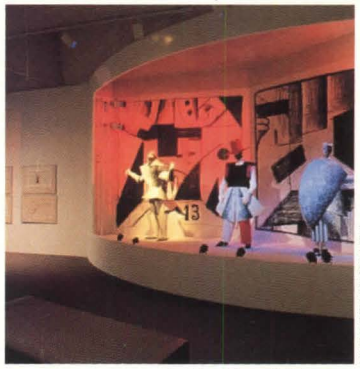
Of the structures honored, the Mer Rouge Villas in Louisiana demonstrate a regional approach to low-income housing. Peaked roofs, arched windows, clapboards, and porches echo the rural vernacular. Bendway Weirs on the Mississippi River—a stone structure that reduces navigational delays—also challenges government design standards.

Historic precedents guided the designs of two large-scale public amenities: the Blue Heron Coal Mining Camp at Big South National River and Recreation Area, Kentucky; and the Old Faithful Inn rehabilitation at Yellowstone National Park. Similarly, the National Gallery of Art was honored for respecting the esthetic and historic content of the museum's 15-25 exhibitions each year.

Simple, effective communication distinguishes three winners: the EGIS Explosives Detector, a hand-held device designed to detect and identify concealed explosives; Arctic Data Interactive, an electronic journal that translates climatic statistics into clear, graphic information; and a publication of the Smithsonian's Cooper-Hewitt Museum in New York City, *Keys and Locks in the Collection of the Cooper-Hewitt Museum.*

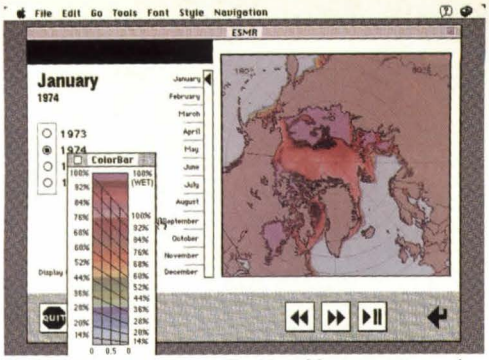
During the White House ceremony, President Clinton announced a call for entries for the next Presidential Design Awards—scheduled for the fall of 1995. Entries must be affiliated with a federal agency and submitted to the National Endowment for the Arts' Design Arts Program before October 1994.—*A.C.S.*

EXPLOSIVES DETECTOR: By Thermedics.



KATHLEEN BUCKALEW

NATIONAL GALLERY: Malevich exhibit.

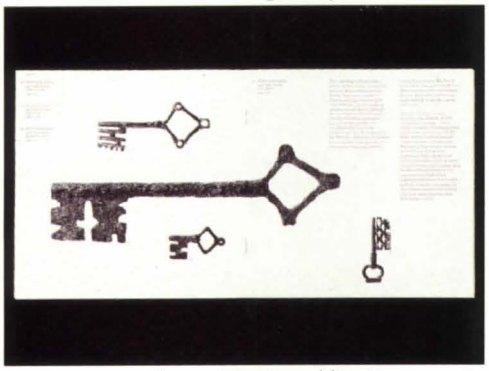


ARCTIC DATA INTERACTIVE: Designed by InterNetwork.

OLD FAITHFUL INN: Wyoming hotel preserved.

MICHAEL A. HANKE

BLUE HERON COAL MINING CAMP: Recalls 1938 town.



KEYS AND LOCKS: Cooper-Hewitt publication.

TIMOTHY HURSLEY

MER ROUGE VILLAS: Wenzel & Associates, Architects.

BENDWAY WEIRS: Stone structures harness Mississippi.

D.C. Architect Designs Civic Projects in Texas

The Renaissance is alive and well and playing in Fort Worth. The contemporary Medicis are the billionaire Bass brothers, and their court architect is David Schwarz of Washington, D.C. At 43, Schwarz occupies a position that other architects can only fantasize about, designing everything from a baseball park to a performing arts hall, a library, a children's hospital, apartments, even a tiny Montessori school. His $350 million in projects around Fort Worth have made him wealthy, a fixture on the local party circuit, and anathema to local architects.

PERFORMANCE HALL: Neoclassical collage.

Schwarz describes his connection to the Basses as "long and complex," starting with the Yale School of Architecture, which he and Ed Bass, the brother responsible for the controversial Biosphere, both attended. Schwarz was briefly employed by the office of Paul Rudolph (Yale's former chairman), where he worked on Rudolph's scheme for a dazzling Modern house for eldest brother Sid. The architect later became a valued advisor to Robert Bass, when the latter chaired the board of the National Trust for Historic Preservation. Schwarz designed several houses for him as well. Impressed by Schwarz's Washington work, Ed Bass hired him to design Sundance West, an apartment and movie theater complex in downtown Fort Worth that is the cornerstone of his personal renewal scheme for the city.

The latest addition to the Bass-Schwarz mix is a $60 million performing arts hall, spearheaded by the Basses and unveiled in April. In an effort to put as much distance as possible between himself and I.M. Pei's pristine Meyerson Symphony Center in Dallas, Schwarz produced an ornate collage of domes, arches, and mansard roofs, culled from various continental sources and whipped up into what he calls "a sundae or a souffle, depending on your taste." The design for the performance hall looks grand and traditional without having a specific pedigree.

The most dramatic details are a pair of angels, 40 feet high, that trumpet above the hall's main entrance. They give the building a flamboyant civic presence in the heart of downtown. Seating 2,000 and likely covered in limestone, the hall will be the new home for the Fort Worth Symphony, Opera, Ballet, and the quadrennial Van Cliburn International Piano Competition.

Until the hall opens in 1998, Schwarz's most celebrated project is the 49,000-seat Ballpark in Arlington, home of the Texas Rangers. While not a Bass project, it's a renaissance piece too, comprising campaniles and arches and friezes decorated with longhorns and Lone Stars. It's an anomalous piece even for the suburbs, until one realizes that it sits next to the Six Flags Over Texas amusement park.

Inside, however, the ballpark is a lively blend of tradition and innovation: grass, sky, and an asymmetrical

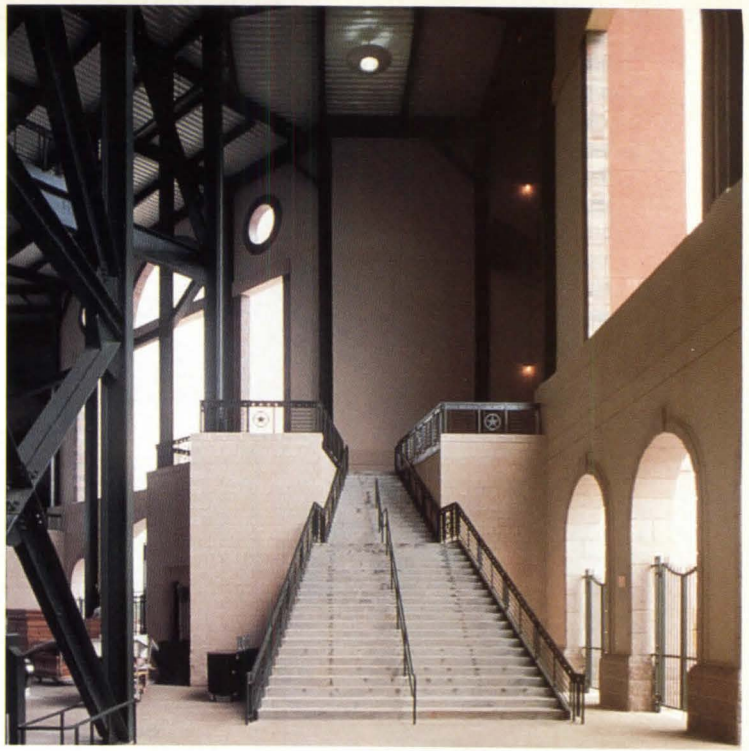
outfield for purists; 120 luxury suites to appease the owners; and mostly good seats for fans, especially on the lower level and in the home run porch, an adaptation of the famous cantilevered structure at Detroit's Tiger Stadium. If its historicism is often overwrought (the owners had seen Camden Yards and wanted one with a Texas twang), the general atmosphere is bright and welcoming and, at the moment, far more entertaining than the hapless Rangers.

So many choice commissions have made Schwarz persona non grata among Fort Worth architects, who dismiss him as a "carpetbagger" and a "jet-set Classicist." Much of this sentiment is sour grapes, though Schwarz has made an effort to mend fences by joining the local AIA, lecturing at the museums, and contributing creative ideas to the new downtown plan. But he's basically a loner rather than a joiner. Besides, Schwarz knows that as long as the Basses are for him, it doesn't matter who is against him.—*David Dillon*

GLENN PATTERSON / SKYCAM

BALLPARK: Home of Texas Rangers.

MASONRY SHELL: Concourse, offices.

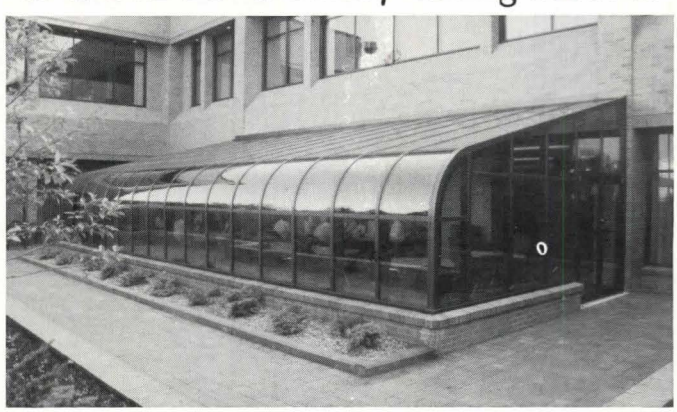


GRANDSTAND: Structural steel supports upper decks wrapped in masonry facade.

BERNARD TSCHUMI: Motion inflects form.

MOMA INSTALLATION: Models suspended from cables capture animation of Tschumi's designs.

MICHAEL MORAN PHOTOS



Tschumi Exhibit at the Museum of Modern Art

In filmstrip drawings on view at the entrance to "Architecture and Event," the current exhibition of his work at the Museum of Modern Art (MoMA) in New York City, Bernard Tschumi displays the theoretical armature that plays through the five projects in the show. These scenes from *The Manhattan Transcripts*, his manifesto of drawings from 1976 to 1981, portray buildings and people in a spatial tango in which, as Yeats observed, the dancer cannot be distinguished from the dance.

Athletes romp and skaters loop through courtyards of an imaginary apartment complex, and the courtyards yield under the influence of the activity, motion inflecting form, and form, motion. Tschumi professes that buildings and the events that happen in them have a potentially symbiotic relationship—streams of people breed ramps, and ramps draw streams of people.

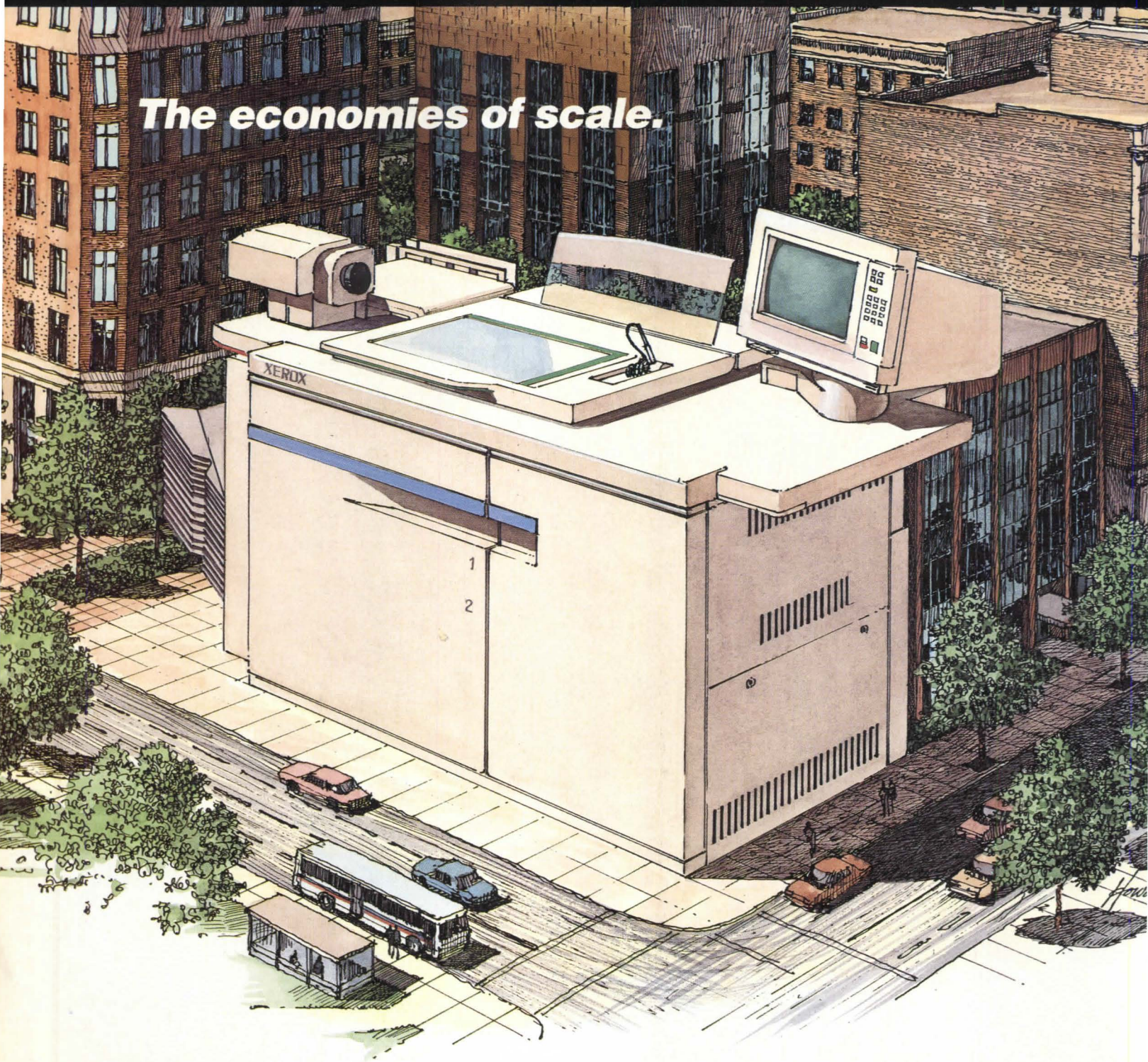
Tschumi's thesis is not mere visual rhetoric. A cross-sectional maquette of the Kansai International Airport for Osaka embodies the Swiss-born architect's proposal for an urbanism of events. The design calls for a mile-long airport organized in contiguous strips: The middle strip—undulating with the flow of an airplane gliding lazily through plasma—houses a golfing range, running track, theaters, and other entertainment and is sandwiched between two departure-lounge strips. On a section of this architectural ribbon, runners jog on an elevated track that loops around escalators, as travelers-in-transit look on. Airports are boring, and Tschumi has proposed a way of diversifying their overcontrolled, monofunctional precincts.

Tschumi, the dean of Columbia University's Graduate School of Architecture, Planning, and Preservation, designs by layering strata of activities in an effort to animate structures, energize cities, and foster an intense metropolitan condition

LA VILLETTE: Model of geometric follies in 125-acre Paris park, 1982.

KANSAI AIRPORT: Mile-long building layers recreation and transit in contiguous strips.

XEROX



The new buying power of the AIA reduces prices on Xerox equipment.

The American Institute of Architects announces a landmark agreement. We've scaled down the price on Xerox office equipment when members lease or buy.

Xerox has the product selection and the service support to help architects streamline their document production. With tools like highlight and four-color copiers. B&W copiers. Oversized and regular-sized faxes and duplicators. And other document equipment. Each of which has the built-in three-year Total Satisfaction Guarantee, which says you determine whether you're satisfied, not Xerox.

Design your business to run smoother with better materials. Products engineered with all the value and reliability of Xerox equipment, some specifically for architects, all now at constructive savings. They may not improve your renderings but they'll improve the overall look of your documents.

So check out the economies of scale you can now draw on. Just call 1-800-ASK-XEROX, ext. AIA, or your local Xerox representative. When it comes to building business, we're better together. Xerox and the AIA.

Xerox
The Document Company

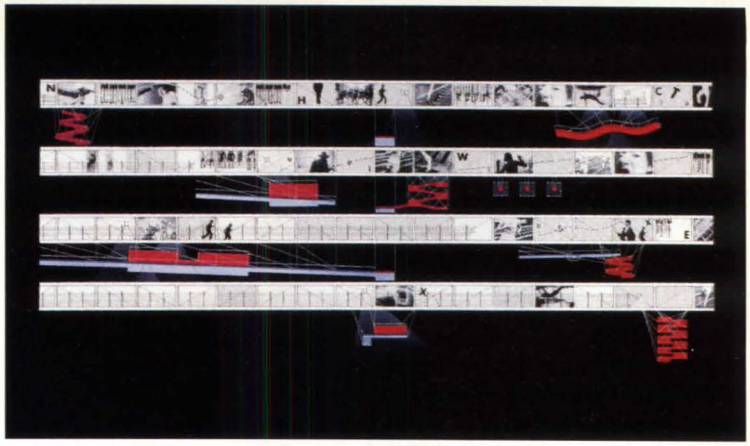
AIA ADVANTAGE

Circle 63 on information card

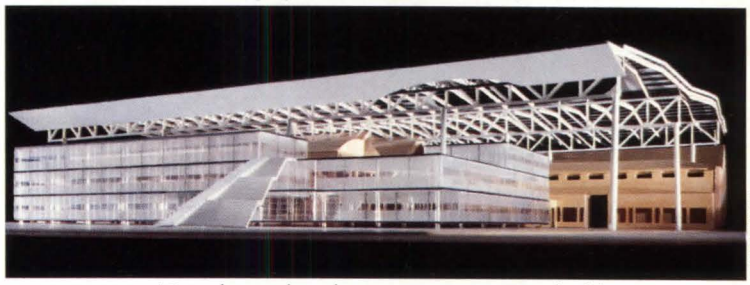
through the city's basic atom—the building. At Kansai, he layers horizontally, but in the National Studio of Contemporary Arts in Tourcoing, France, vertically. The program called for updating sheds for a multimedia art school, and Tschumi simply roofs over the complex, building between the old and new roofs. Catwalks, theaters, and screens are suspended like trapezes from the upper roof.

The undulating forms of Kansai—or teeter-tottering beams in his mixed-transportation bridge in Lausanne—are not esthetically self-preoccupied. Tschumi designs to heighten experience through defamiliarization, for spaces that bring on the goose bumps. Soon after designing the red cubes of Parc de la Villette, Tschumi abandons virtuosity in favor of a neutralized, anti-formalist formalism that stirs physical experience, playing to the inner ear. His high-tech boxes for the bridge in Lausanne do not fetishize tectonics: The design is elegant, but it does not embody form for form's sake. A model of the bridge plastered with flickering electronic images represents Tschumi pushing physically to the brink of immateriality and disappearance. In some projects, a tectonic thinness results from his avoidance of a more fully corporeal form. When the buildings do not become beehives of programming, they remain only diagrammatic.

The MoMA installation itself summarizes the architect's intentions. In a gallery that has been criticized for looking like a developer's sales office, Tschumi suspends the dozen models by devising wire tensegrity structures held at the floor and ceiling. The bouquets of wires diagonalize the space like vectors, breaking its tired symmetries, creating an unexpectedness augmented by spotlights that spill and splash light and shadow onto the floor and walls. Seldom has this stodgy room felt so animated.—*Joseph Giovannini*



NATIONAL STUDIO: Cinematic projections illustrate art school activities.

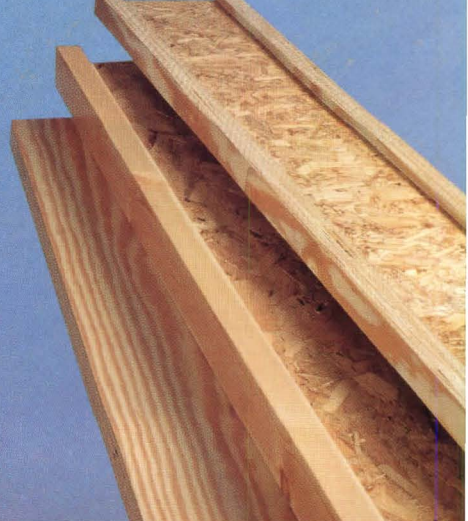


DAN CORNISH

NATIONAL STUDIO: New glass-and-steel structure covers 1920s building.

SUPPORT HEAVY LOADS BETTER

Whether you want to build quieter floors or stiffer, stronger roofs, LPI™ Joists and Gang-Lam® LVL beams will give you all the support you need. They're longer and stronger than solid sawn products because we remove the natural defects so common to dimensional lumber. And unlike lumber, every LPI Joist and Gang-Lam LVL beam is as uniform and predictable as the next. So there's no need for sorting, no wasted pieces, and no costly callbacks due to squeaky floors or sagging headers. L-P's engineered joists and beams utilize more of the tree than dimensional lumber joists or beams. And they're made from plentiful, fast-growing trees which helps us bear the biggest responsibility of all: making the wisest use of our planet's renewable natural resources.



Louisiana-Pacific
Engineered Wood Products
Doing something about it.™

For more information, call us in Fernley, NV at **800-223-5647**, or in Wilmington, NC at **800-999-9105.**

Circle 65 on information card

New Ballpark Opens in Cleveland

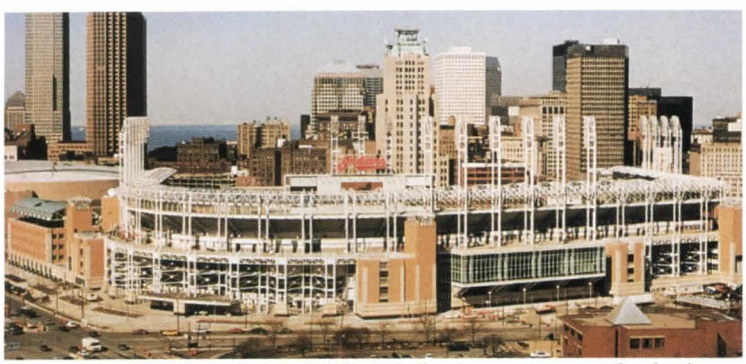
Jacobs Field, designed by Hellmuth, Obata & Kassabaum Sports Facilities Group (HOK Sport) and opened April 4 in Cleveland, is more than a ballpark. Part of a 28-acre sports complex, the 42,000-seat home of the Cleveland Indians is the set piece for Sasaki Associates' master plan for reviving the downtown. The ochre-colored brick building, woven into this once-thriving, now-struggling steel town, is designed to evoke images from Cleveland's industrial past. However, it exhibits little of the historicism of HOK Sport's well-known Camden Yards, built for the Baltimore Orioles. "We knew we'd be asked, 'Where are the brick arches?'" notes principal designer Joseph Spear, referring to the Baltimore ballpark. "But we didn't want to do a generic baseball stadium. Cleveland isn't Baltimore."

Taking cues from the muscular, industrial bridges spanning the Cuyahoga River, HOK Sport crafted a modern, expressed-steel structure. Truss-topped elevator towers gracefully echo the nearby bridge piers, and tall, toothbrush-shaped light fixtures provide a sense of verticality for this otherwise squat building.

Club seating and a glassy terraced restaurant provide elegant viewing opportunities for upscale sports fans, whose payments for such comfort financed half the ballpark. However, the showy restaurant, permitting views of diners in air-conditioned cubes, is visible from most of the park. Regular folks, who also paid for the stadium through a self-imposed beer and cigarette tax, occupy bleachers or deck seats, sweltering under the sun. So much for sports being a great equalizer.

"I stand at the plate in the Vet in Philadelphia, and I honestly don't know whether I'm in Pittsburgh, Cincinnati, St. Louis, or Philly," major league ballplayer Richie Hebner once exclaimed about Veterans Stadium (1971). Hebner's remark summarizes why cities like Cleveland are building ballparks that evoke a nostalgic, hometown aura.

While it is too early to judge whether Jacobs Field will catalyze Cleveland's renewal, ticket sales and even the Indians' league standings are up slightly. (The team hasn't won a pennant since 1954.) It ain't over till it's over.—*Heidi Landecker*

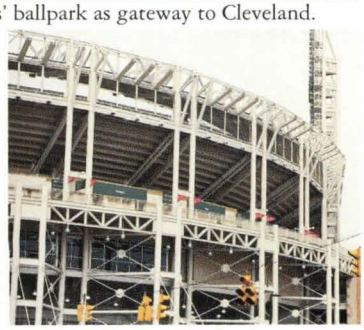


SKYVIEW

JACOBS FIELD: HOK Sport designed Indians' ballpark as gateway to Cleveland.

MORT TUCKER

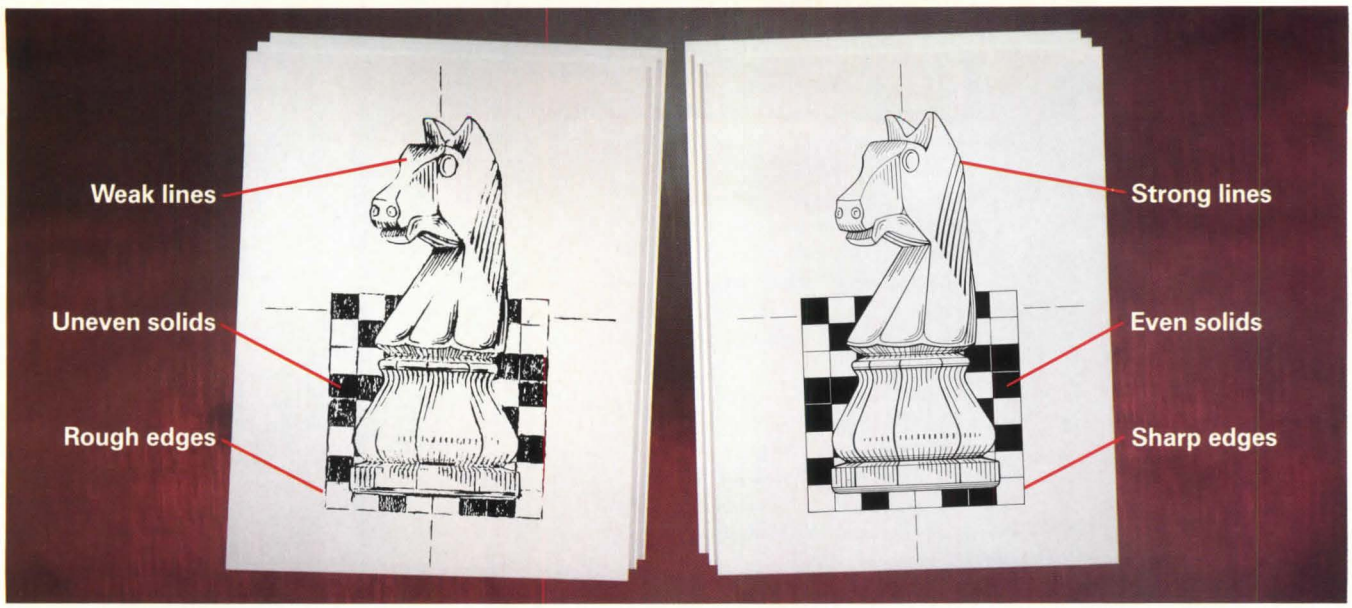
SPORTS COMPLEX: Arena in background.



MORT TUCKER

STEEL STRUCTURE: Cleveland's roots.

The decisive move to copy quality.



Lose some detail here or there and you could lose the whole match.

Copying critical documents, particularly copies of copies, demands perfection. The slightest drop in quality can mean the distribution of incomplete or illegible information. Suddenly, the possibility of a costly error becomes very real.

Copies made on a compact Océ 7000 plain paper engineering copier help prevent errors, and project a quality image for your work and your company.

The Océ 7000 excels at holding detail. Fine lines and edges stay sharp. Solids print rich and uniform. First copies look like originals. Copies of copies are as nearly perfect as you've ever seen. And with its optional roll cutting capabilities, the Océ 7000 offers flexibility never before possible in a low volume copier.

Winning in business means making decisive moves. Make your move to better copying today with an Océ 7000.

Call now for a complete information package or to arrange for a demonstration.
800-445-3526 Ext. 7000
Fax: 708-351-7549
Or contact your authorized Océ-Bruning dealer.

océ

Océ-Bruning
...a division of Océ-USA, Inc.

Océ-Bruning, 1800 Bruning Drive West, Itasca, Illinois 60143

See us at AEC Show Booth #413

Circle 67 on information card

THE AMERICAN ARCHITECTURAL FOUNDATION

PRAIRIE AVE.: Marshall Field House.

LIBRARY OF CONGRESS

MASSACHUSETTS AVENUE: Edwin Lutyens' British Embassy, 1930.

THOMAS S. HINES COLLECTION

WILSHIRE BOULEVARD: Postcard illustration of Los Angeles avenue, 1925.

Grand Avenue Show Opens at Octagon

The Octagon opened its doors for the first time in 20 months this April to host "The Grand American Avenue: 1850-1920" in its newly renovated galleries, part of a $5 million restoration (ARCHITECTURE, November 1993, pages 107-113).

"The Grand American Avenue" illustrates the industrial, economic, and social changes in American cities through maps, photos, prints, models, and decorative arts. The exhibit focuses on six avenues, each treated as a microcosm of the larger city and its subsequent development: Euclid Avenue, Cleveland; Fifth Avenue, New York City; Massachusetts Avenue, Washington, D.C.; Prairie Avenue, Chicago; St. Charles Avenue, New Orleans; and Wilshire Boulevard, Los Angeles.

Influenced by European city planning ideals, these elegant residential promenades advertised newfound industrial success following the Civil War. Some avenues flourished with the advent of commercialism, while others fell victim to the consuming growth of 20th-century urbanism.

Suburban developments left Chicago's Prairie Avenue mansions abandoned among warehouses and factories. In addition, the advent of mass transit hastened the decline of Cleveland's Euclid Avenue.

"The Grand American Avenue" exhibition was organized by the American Architectural Foundation and cocurated by Jan Cigliano and Linnea Hamer. On view at the Octagon in Washington, D.C., until July 10, the exhibit will travel to New Orleans this September, followed by openings in Chicago and New York early next year.—*A.C.S.*

Zelig

A floor to cover all floors.

PARQCOLOR® is a state-of-the-art flooring that enables you to change the environment in any room without having to undertake long, dusty operations. Easy to install, with simple stave jointing, PARQCOLOR® sits on top of the old floor, guaranteeing excellent structural compactness at all times. It is resistant to wear, impact, water, fire, acids and light because it is coated on both sides with high pressure Print HPL laminate, and it is suitable both for residential use and for heavy traffic areas. PARQCOLOR® comes in a vast range of designs and colors and, with unique treatment of the wood veins, also in pastel shades.

I wish to receive additional information regarding PARQCOLOR®.

Name .....

Last Name .....

Occupation .....

Address .....

Phone .....

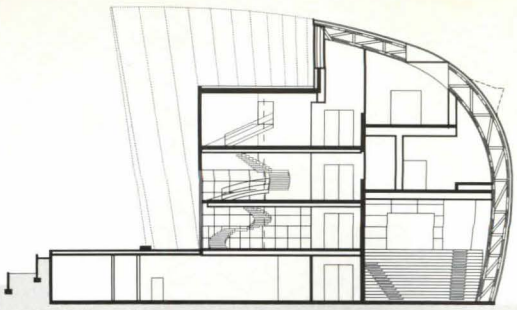
Zip Code ..... City ..... State .....

ABET LAMINATI

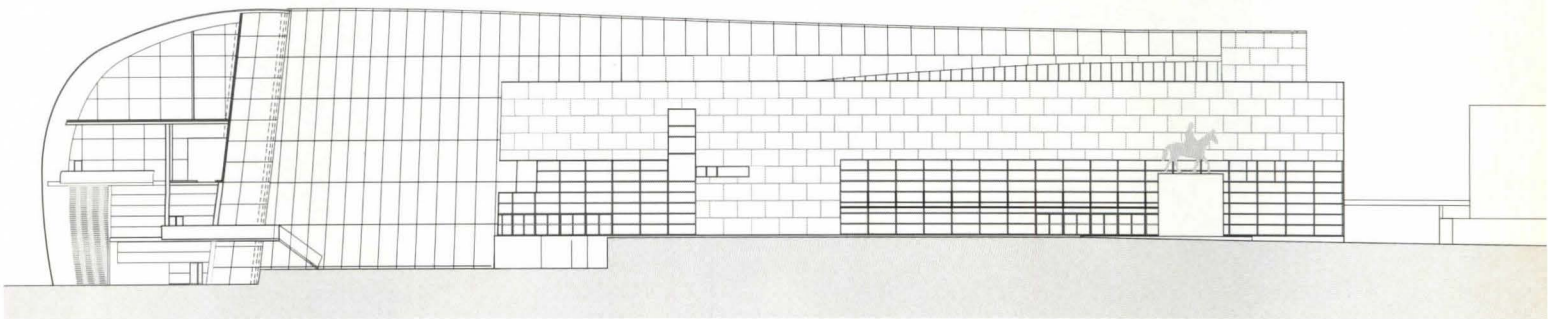
Please return coupon to:

ABET INC. - 100 Hollister Road - Teterboro, New Jersey 07608
Phone: 201/440-5440 - Fax 201/440-6373

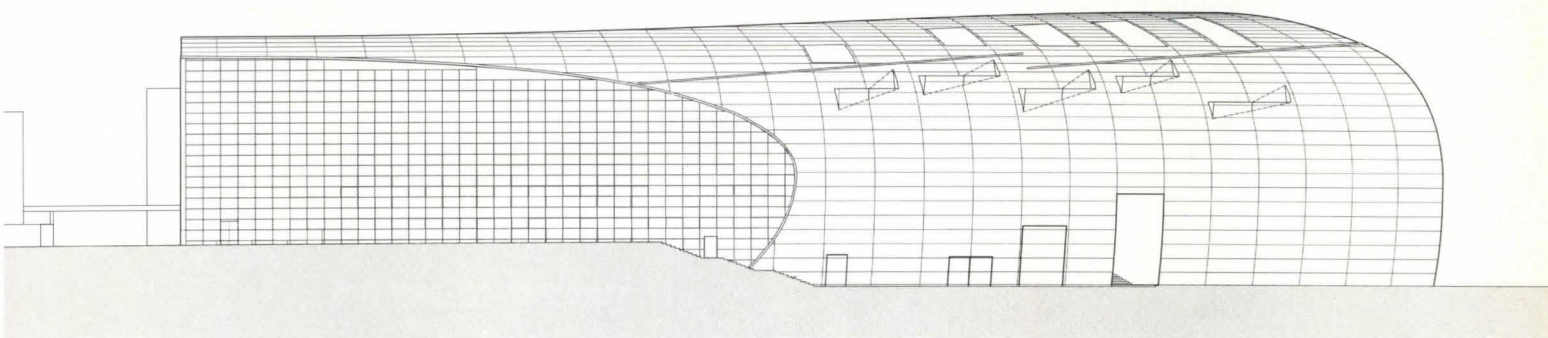
Circle 69 on information card



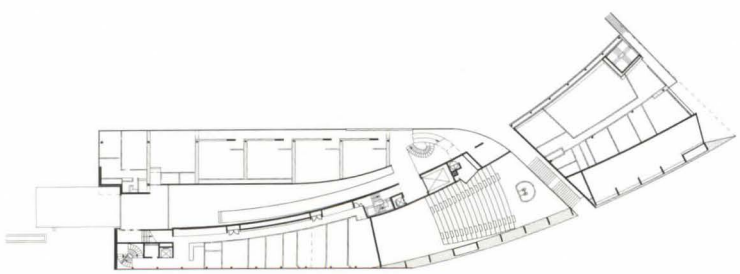
WEST-EAST SECTION



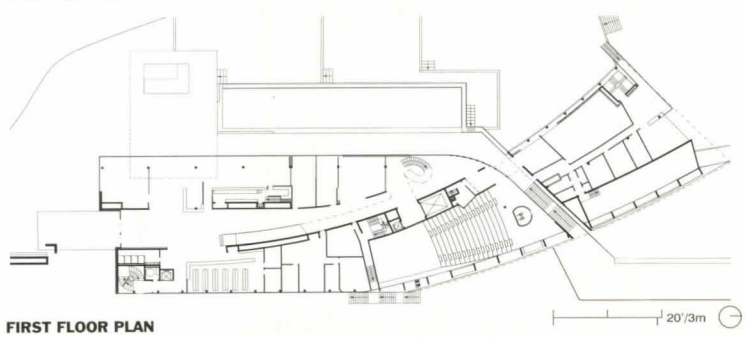
WEST ELEVATION



EAST ELEVATION



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Helsinki Museum of Contemporary Art
Helsinki, Finland
Steven Holl Architects

Steven Holl has designed the 125,000-square-foot Museum of Contemporary Art as a sculptural response to the monuments of downtown Helsinki, including Eliel Saarinen's train station and Alvar Aalto's Finlandia Concert Hall.

Panels of aluminum, blasted steel, and glass will frame the irregularly shaped building. The north facade—clad in sandblasted glass panels to reduce the intensity of natural light—gently curves to allow light to reach the lower floor galleries in the four-story museum. Skylights on the east face of the curved roof will illuminate interior passageways.

Holl intends for the artwork within the museum to provide what he terms the "intermediate scale" of his architecture, a neutral background of unadorned plaster walls and exposed concrete floors. A single curved wall in each of the galleries traces the paths of adjacent ramps, which are designed to encourage casual exploration of the galleries.

In addition, Holl proposes extending Töölo Bay into his museum site. A channel of water directed from the bay will run alongside a passageway through the building to a rectangular pool on the west face of the museum. The architect envisions future civic activities to be developed along this tapering channel of water.

Holl was awarded the Helsinki commission following an international design competition in 1993; he was one of four foreign architects invited to participate in the Finnish competition. Construction of the new art museum is estimated to cost $36 million and is scheduled for completion in 1997.—*A.C.S.*

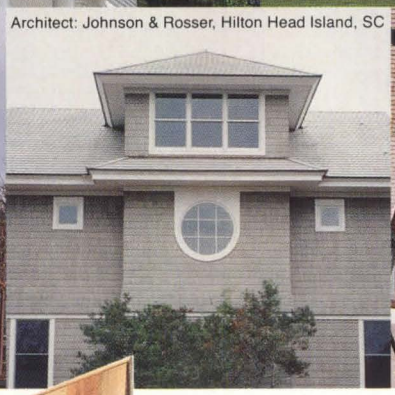
However you interpret shingle-style...

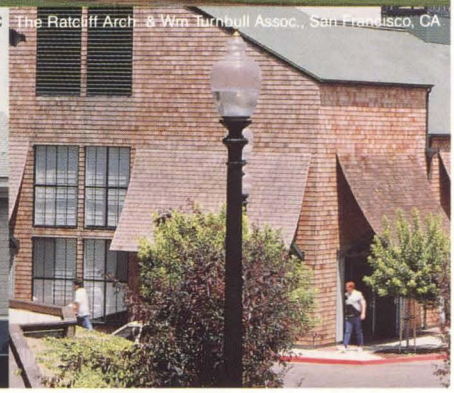

Architect: William B. Morris, Shaker Heights, OH


Architects: Aldrich & Quesada Green, Seattle, WA


Designer: Stephen S. Fuller, Atlanta, GA


Architect: O'Neill Pennoyer, Sommerville, MA


Architect: Johnson & Rosser, Hilton Head Island, SC


The Ratcliff Arch. & Wm. Turnbull Assoc., San Francisco, CA

this is the surest way to achieve it.

Only Cedar Valley can give you these assurances your shingle-style design will be built the way you envision it. You get real tapered Western Red Cedar shingles, knotfree with natural keyways and deep shadow lines. Patented *interlocking* end joints provide a seamless shingle texture and waterproof integrity. Unique construction lets shingles move with the weather. And the Certi-Panel label of the Cedar Shake & Shingle Bureau guarantees consistent quality. Your builder will appreciate full-length panels without shorts and the one-piece 5/16" CDX plywood substrate backer. Your budget will appreciate the large panels that shorten application time, the self-aligning features that cut labor costs and a 100% on-grade product that eliminates falldown.

CEDAR VALLEY SHINGLE SYSTEMS

For a true shingle look in the exposures you want in regular or rough-sawn texture, straight or staggered buttline or Decorator patterns, join those architects who have found a Cedar Valley proprietary specification essential. There really is no "or equal."

To get your free design and specification packet fast, call 800-521-9523 or fax 408-636-9035. Or write to Cedar Valley Shingle Systems, 943 San Felipe Rd., Hollister, CA 95023, or use the information card.

Circle 71 on information card

Protest

A new library for the blind and disabled responds insensitively to users and context.

HOODED WINDOW WALL: Maryland State Library's giant eye is a parody of those who cannot see.

CORNER SITE: Faddish library stands apart from neighbors.

WINDOW: Daylight for partially sighted.

Blind Ambition

Is this building a case of the blind leading the blind, or just an overdose of political correctness? A state-funded library in Baltimore hired a local architect, Ayers/Saint/Gross, to design a new building for disabled patrons next to the historic 1933 Enoch Pratt Free Library. The architect responded with a deliberately discordant building that stands apart from its stately neighbors.

The 55,000-square-foot Maryland State Library for the Blind and Physically Handicapped has a jarring, strident quality that seems better suited to a disco than a state-funded library for the disabled. The library's most troubling feature is a large, hooded window wall that pops out of the two-story base like a foreign sports car's retractable headlamp, stuck in the "up" position.

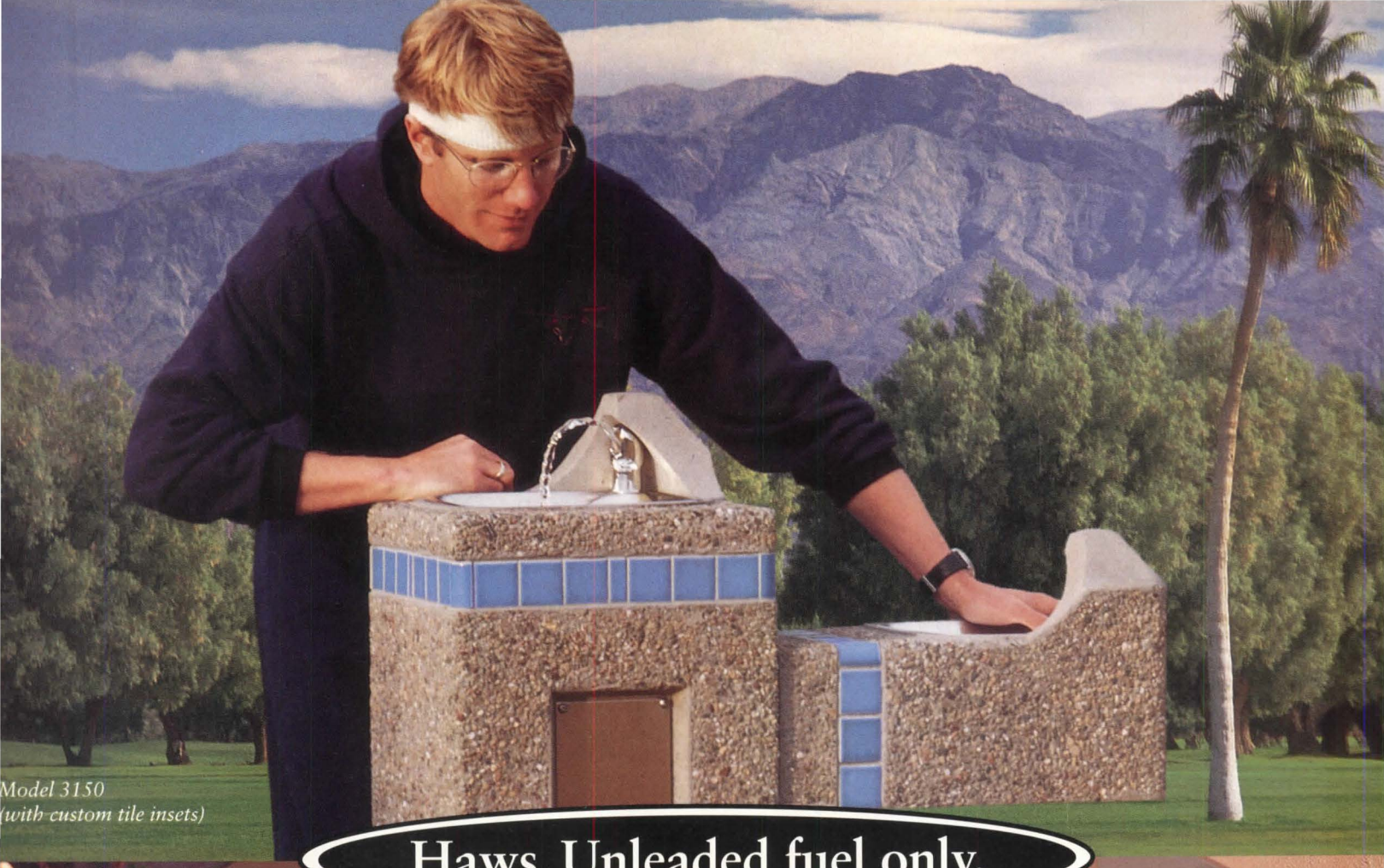
Whether the architect intended it or not, this giant oculus comes across as a vicious parody of the people inside—a giant eye for those who cannot see, an essay in urban deformity to represent those inside with physical deformities. Next to the noble Pratt library, the masonry annex comes across as faddish and strangely mechanistic.

The architects say the giant window was designed to let northern light filter into the large reading room, to benefit those who have at least partial sight. But its one-way vault and the heavy metal canopy over the front entrance do little to resolve the corner architecturally or add life to the street.

Furthermore, the new structure doesn't meet its historic neighbor well, and the spare, industrial quality of the new library's details are anything but welcoming.

Not everyone in this scenario was blind to the building's shortcomings. Baltimore's Architectural Review Board, a city panel that reviews plans for new buildings in key areas, expressed concern about the design. So did the city's Commission for Historical and Architectural Preservation. But, under pressure from the state's do-it-now government not to impede a new construction project, they approved the design.

In the best of all worlds, there would be no need for separate buildings for the disabled. By creating a building that doesn't fit in with its surroundings, though, the architect reinforces the erroneous message that disabled people are different from everyone else and don't fit in either. The new building may indeed be a good library for the blind, but what about those who have to look at it?—*Edward Gunts*



Model 3150
(with custom tile insets)

Haws. Unleaded fuel only.

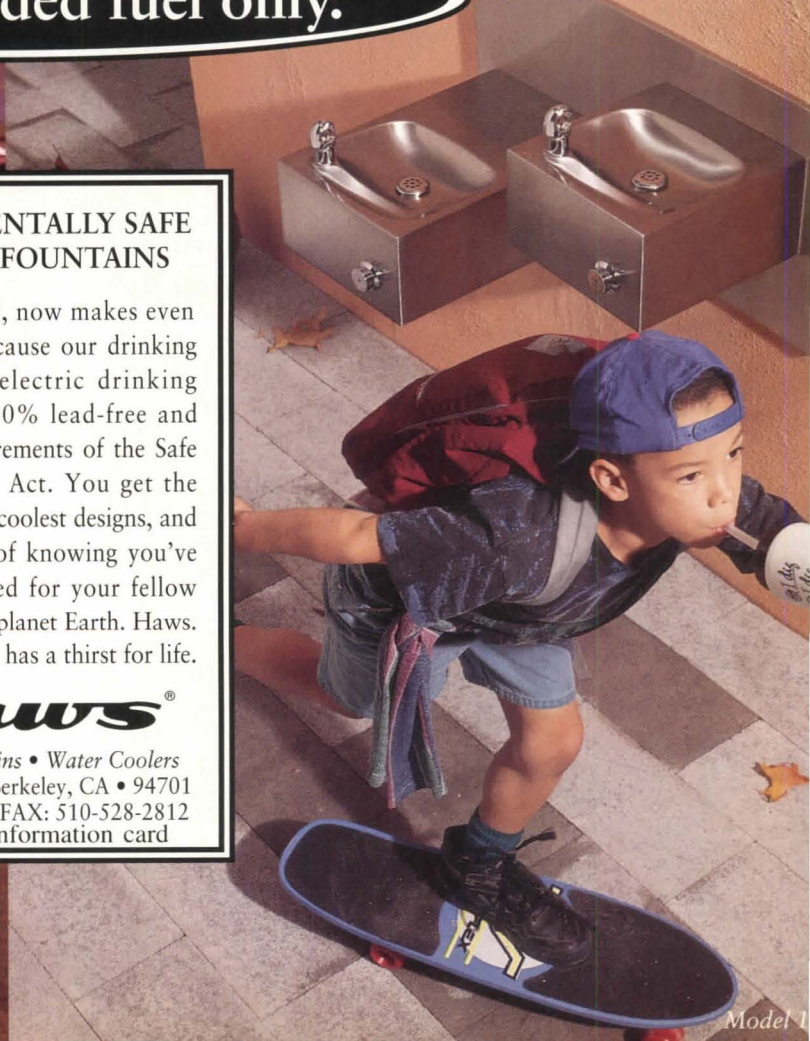
Model 008A

ENVIRONMENTALLY SAFE DRINKING FOUNTAINS

Specifying Haws, now makes even better sense. Because our drinking fountains and electric drinking fountains are 0.0% lead-free and exceed the requirements of the Safe Drinking Water Act. You get the hottest selection, coolest designs, and the satisfaction of knowing you've done a good deed for your fellow occupants of the planet Earth. Haws. Because everyone has a thirst for life.

Haws®

Drinking Fountains • Water Coolers
P.O. Box 1999 • Berkeley, CA • 94701
(510) 525-5801 • FAX: 510-528-2812
Circle 73 on information card



Model

Collaborating With Minority Architects

Architectural practice can be enriched by encouraging diversity in joint ventures.

Programs to boost minority-owned firms' participation in the design and construction industry have spurred increasing controversy in recent years. In 1989, the U.S. Supreme Court struck down Richmond, Virginia's affirmative-action program, which attempted to set aside 30 percent of construction contract dollars for minority-owned firms. The Court ruled that all but the most narrow and strict of such race-based economic remedies to bias are unconstitutional because they violate the equal protection clause of the Fourteenth Amendment.

In New York City, a *cause célèbre* currently rages over the role of minority subcontractors in the reconstruction of King's County Hospital—the city's largest—which is 32 months behind schedule. An original roster of seven contractors grew to 110, following discussions between the city's Health and Hospitals Corporation (HHC) and members of the New York State Black and Puerto Rican Legislative Caucus over participation by women- and minority-owned firms. According to Bruce Siegel, the HHC's new president, the hospital's delays and cost overruns spun out of control as those in charge focused more on fulfilling social and political goals rather than finishing the project on time.

Social responsibility

Dismissing that claim as yet another example of blaming the victim, many in the African-American community ask: Why shouldn't minority-owned businesses participate in the reconstruction of a healthcare facility situated in an overwhelmingly minority district, in which the patients are predominantly people of color? Are not city administrators and their delegates obligated to expedite the refurbishment of King's County in a way that is economically beneficial to the community served by the hospital?

The same question of social responsibility is prompted by a recent report that the young designers on the staff of a major sports clothing company—I'll call the company Trendy—"go to the street" in search of inspiration for new fashion statements. Trendy's designers are well aware that the creative expression of minority kids—with their backward caps, clashing patterns, and droopy pants—is a bottomless well that irrigates the fashion industry. But how many of Trendy's young designers are themselves Latinos and/or African Americans? Is it fair that minority people should be sought after as a source of ideas, and most assuredly sought after as consumers of the products their ideas inspire, but excluded from reaping the benefits of the economic harvest?

Joint-venture possibilities

In the architecture profession, efforts aimed at enhancing the business opportunities of minorities have occurred through joint ventures, which have become so common as to be a significant part of how architects practice. A common kind of joint venture involves firms with expertise in different areas to enhance the range of services to a client. One firm may have a connection to the commission, a strong design reputation, or some other quality desired by the client; the other may be experienced in dealing with the building type and/or offer a large, technically expert staff. In this situation, the nature of each firm and, therefore, the divisions of labor and responsibility are relatively clear.

A second type of joint venture combines a small, local architecture firm that is well connected on the scene and knowledgeable about local politics and networks, with a prestigious regional or national firm that brings the resources required to expedite a major project. The third association, designed to serve the goal of equal opportunity, involves "majority" firms joining with "minority" and women-owned firms—commonly referred to as underutilized or disadvantaged business enterprises, or DBEs.

While such joint ventures can be successful, we all know of cases where the parties did not work well together. Why? Because even

THESE COMPARTMENTS ARE BUILT FOR A BUNCH OF ANIMALS.

If your toilet compartments have to stand up to heavy use and abuse, take a good look at Bobrick's new Thrislington Series. They're the next best thing to a concrete bunker, and much more stylish. Start with an incredibly sturdy floor-supported and wall anchored extruded aluminum framing system with contemporary Euro-design. Add tough nylon floor supports with individual anchoring of extra-private (no sight lines) 6′ panels and doors. Then, choose from plastic laminate, solid phenolic or fiberglass reinforced plastic panels. With FRP you've got the ultimate in graffiti and scratch resistance with heavy duty texturing and color that is 1/16″ thick.

So, if you want to give the animals in your zoo a run for their money, and save a bundle on maintenance and replacement costs, specify Bobrick's Thrislington Series Compartments. For school, dorm, arena and stadium installation information, call or write to Bobrick, 11611 Hart Street, North Hollywood, CA 91605, Phone: 800/553-1600, 818/503-1630 in CA.

BOBRICK
Thrislington Series
New York Los Angeles Jackson, TN Toronto

Circle 75 on information card

when the reasons for working together are clear, joint ventures introduce social and cultural dynamics that our architectural education and the mythology of our profession do not prepare us for—dynamics which, to be successfully handled, require us to develop new attitudes, practices, and skills.

A local firm and a larger, more prestigious firm, for example, join forces because neither can get the job done alone. They associate partly to enhance their skills and partly to enhance their reputations. The local firm is likely to be well known in its own community and may possess good technical and design skills, but it may not have quite enough experience, prestige, or staff to compete on its own. In this type of pairing, where the out-of-towners may well have all the requisite technical abilities and experience, it can be much harder to sort out the responsibilities of the joint venture for firms. The local firm, wanting and expecting to play a significant role in design or the production of documents, may find that its staff is consigned to performing only local tasks—such as attending meetings, adhering to codes, supervising construction—and may feel that it isn't benefiting from the association.

Who does what?

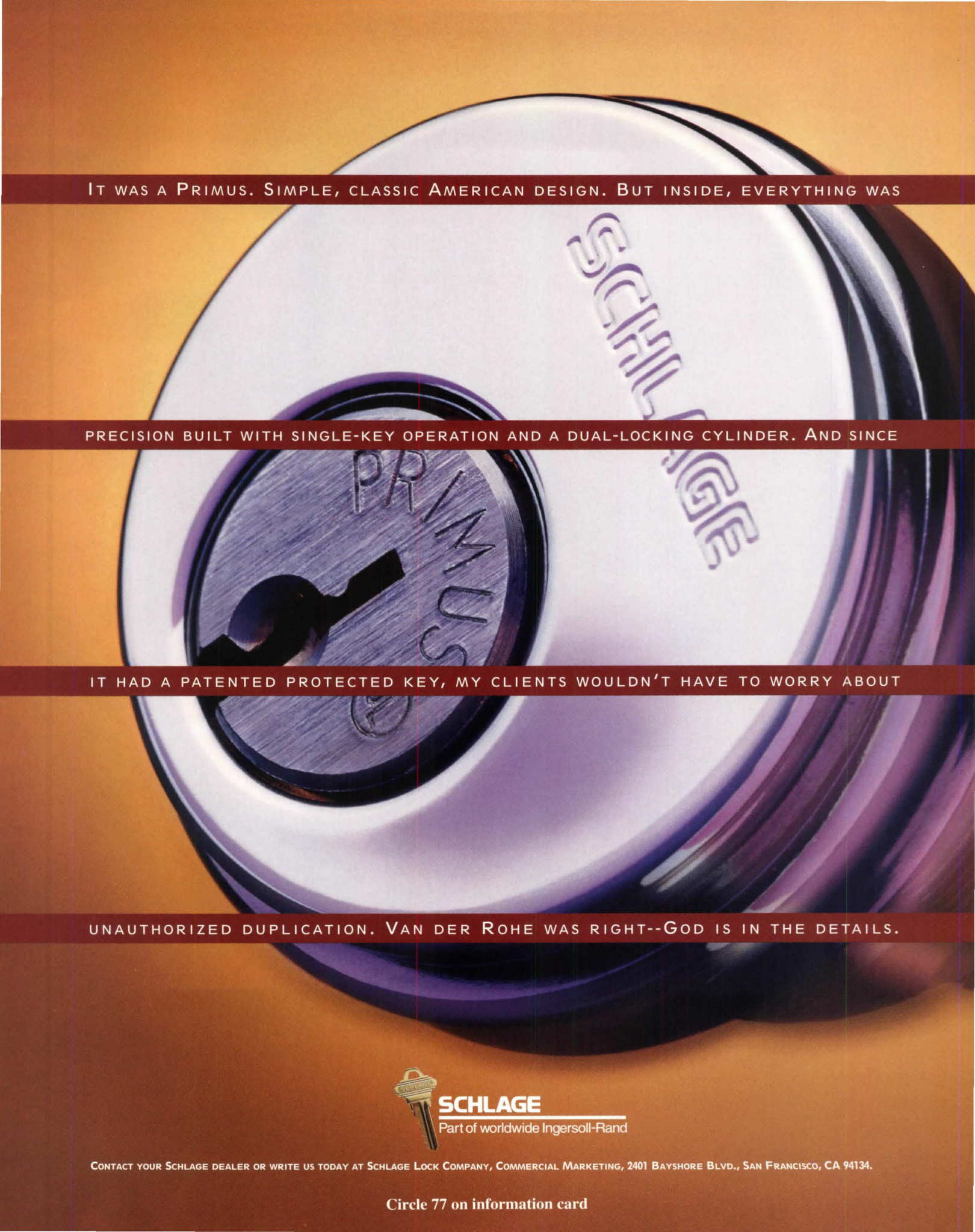
When a share of a large "majority" firm's business goes to a "disadvantaged" firm—a woman-, black-, Latino-, or Asian-owned practice—the division of labor becomes an even more difficult nut to crack because the social benefits of the association offer few, if any, clues as to who should do what. Furthermore, the majority (typically white-male-dominated) firm, whether or not it is committed to the principle of offering greater opportunity to others, usually assures the client that it is equipped to do the whole job.

In the face of this dilemma, two approaches to the division of labor have become common: One assigns specific tasks to each firm; the other has the smaller firm, typically the DBE, send staff to the majority firm's office to form one team. The first solution, although it often requires more planning and coordination, offers the possibility of preserving each office's integrity. But it also runs the risk of competition between the two firms. The second arrangement, forming one team, may create more harmony because the tasks are divided among the individuals, and the hierarchy of work and supervision is more conventional. However, the risk for the small office in the second scheme is that it may lose the services of one or more of its best staff members. The small firm may also feel that its practice as a whole does not benefit from working on the joint venture because the work is being executed away from its own premises, and because all the credit for a successful design may go to the larger firm.

In addition to the problems that are unique to each of the three types of joint ventures, work-sharing per se requires attitude adjustments. The question of authorship is less clear than if one office does the work—a particularly acute problem for a profession that is accustomed to having significant work credited not even to a firm, but to an individual. In addition, most architects are trained to design as a solitary activity, learning to work in teams only after they have embarked on their careers. Joint ventures also require excellent management and communication skills so that each firm and team member understands his or her tasks. Extensive interaction between collaborating parties requires trust and the appreciation of one another's skills and background. As the kids say, "You can't dis' me if you want my cooperation."

Back to Trendy, the sports clothing company. Trendy recognizes that "the street" in a

Joint ventures introduce social and cultural dynamics that architectural education and the mythology of our profession do not prepare us for.


IT WAS A PRIMUS. SIMPLE, CLASSIC AMERICAN DESIGN. BUT INSIDE, EVERYTHING WAS
PRECISION BUILT WITH SINGLE-KEY OPERATION AND A DUAL-LOCKING CYLINDER. AND SINCE
IT HAD A PATENTED PROTECTED KEY, MY CLIENTS WOULDN'T HAVE TO WORRY ABOUT
UNAUTHORIZED DUPLICATION. VAN DER ROHE WAS RIGHT--GOD IS IN THE DETAILS.
SCHLAGE
Part of worldwide Ingersoll-Rand
CONTACT YOUR SCHLAGE DEALER OR WRITE US TODAY AT SCHLAGE LOCK COMPANY, COMMERCIAL MARKETING, 2401 BAYSHORE BLVD., SAN FRANCISCO, CA 94134.
Circle 77 on information card

multi-ethnic society such as ours is a dynamic and vibrant place. It's a happening place, where the interaction between groups of people from a huge variety of backgrounds perennially incubates ideas and imaginative expression to shape American culture. Music, the visual arts, literature, dance, and theater are all richer for the pervasive influence that racial minorities, various ethnic groups, and women have exerted—both directly and indirectly—in shaping these art forms. This combination succeeds not only because of the sensibilities that members of each group bring to the table from their particular heritages, but also because of the interaction that occurs across group lines—the mix. Trendy's designers and the staff of other design-arts companies "get" that much. What they don't quite get is that many of the young creators of street style grow up to become young adults who could work productively on the design staffs of sports gear companies like Trendy.

Diversity's benefits

As architects concerned with the advancement of building design, we should realize that the abundant varieties of 20th-century experience can enrich the practice of our profession. A disadvantaged firm may well bring unique points of view about creativity and technology to its association with a "majority" firm. Similarly, a local architect may bring a unique sense of place, materials, and context to a project undertaken with an out-of-town giant. In other words, just as the other arts in America have benefited, architecture, too, can benefit from diversity.

Teamwork, associations, and joint ventures—whatever professional collaborations may be called—are increasingly a mainstay of architectural practice and are worth continuing. Often, joint ventures open the only door into specific markets for disadvantaged architects—crossing into a new building type is difficult enough for most firms already. At the same time, however, experienced minority-owned and other disadvantaged firms must be encouraged to cut loose from the safety and obscurity of joint ventures to compete for projects on their own strengths. By that time, they will have learned from successful joint ventures that assimilate diverse influences, collaborations that promise to elevate architecture to new levels of achievement.—*J. Max Bond*

J. Max Bond is principal of Davis, Brody Associates and the dean of the School of Architecture at City College of New York.

adaptability
beauty
longevity

FOLLANSBEE® ROOFING METALS

at home around the world

TCS® and Terne roofing metals, produced by Follansbee, are responding to the world's design needs, simply because they are adaptable to structures which express the cultural character of various countries.

TCS—terne-coated stainless steel—and Terne are being specified for prominent buildings in the Near and Far East, in the British Isles, and throughout Europe. These Follansbee metals not only meet the architectural needs of the designers, but offer a beauty and longevity unmatched by other roofing metals.

We will be happy to send you substantiating evidence of the suitability of TCS or Terne for your next project ...wherever it might be.

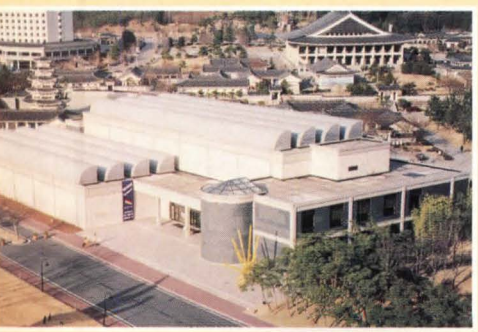
ENGLAND

Arena
Stockley Park, Heathrow
Architects: Arup Associates

JAPAN

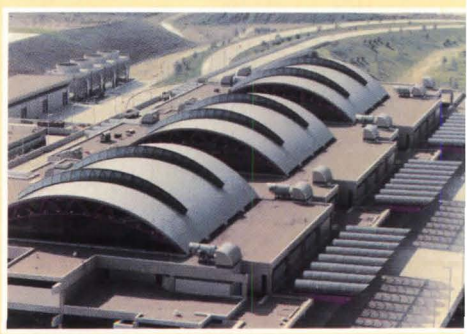
Dazaifu Treasures Museum
Tokyo, Japan
Architects: Satoh Total Planning and Architecture

KOREA



Keishu Art Museum
Seoul, Korea

UNITED STATES



International Airport
Pittsburgh, Pennsylvania
Architects: Tasso Katselas Associates

FOLLANSBEE® STEEL
World Class Roofing

MADE IN U.S.A. and available

in the UK and in Europe through FOLLANSBEE UK, Ltd. 44-81-367-6463 and BRODERICK STRUCTURES 44-483-750-207

in the Pacific Rim through SUMITOMO (03) 3237-4134

TERNE...the beauty of color
TCS®...beauty by mother nature

FOLLANSBEE®

FOLLANSBEE STEEL • FOLLANSBEE, WV 26037
Call us toll-free 800-624-6906

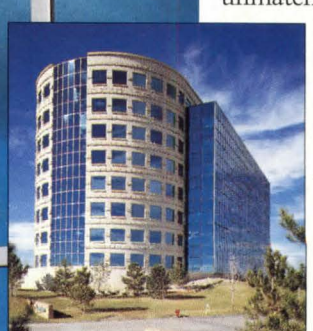
Circle 79 on information card

Performance That Dominates The Skyline.

Now there is a glass of such striking beauty that it draws the eye like a magnet. A glass whose unique aquamarine color transforms buildings glazed with it from mere architectural objects into performances of visual artistry. *Azurlite*® glass from PPG.

But while *Azurlite* glass is perhaps the most beautiful float glass available for architectural glazing, its stunning visual performance is only half of its story. *Azurlite* glass is also a solar control glass of unsurpassed performance.

With a full 71% light transmission in 6 mm thickness, spectrally selective *Azurlite* glass allows designers to realize all the openness, aesthetics, and efficiencies of daylighting. Yet its outstanding 0.58 shading coefficient provides solar heat gain management that delivers coolness and comfort. An unmatched performance ratio of 0.71/0.58=1.22.



See for yourself how the performance of *Azurlite* glass can help your designs dominate the skyline. Contact your glass supplier or glazing contractor. Or call **1-800-2-GET-PPG** for more information and a free sample.

PPG

Azurlite is a registered trademark of PPG Industries, Inc.

AZURLITE
Glass by PPG Industries

Circle 81 on information card

THE OBJECT OF ART I

TO GIVE LIFE SHAPE.

JEAN ANOUILH

Beauty. Significance. Skill. Purposeful. The words that define art also define the responsibility of the window. And the window refines the landscape.

Kawneer windows are designed and engineered to provide a balance between aesthetics and the realities of cost, performance and energy efficiency.

Kawneer windows offer a complete spectrum of performance and operating capabilities and are available to assist the designer in shaping tomorrows.

Kawneer

The Mark Of Responsibility.

For information on our comprehensive window line, write or call Kawneer, the most trusted name in architectural aluminum.
555 Guthridge Court, Norcross, GA 30092, 404.449.5555

Circle 83 on information card

Three important letters behind your name!

AIA

Prestige

Advancing Your Interests

Promoting the Profession

Professional Information

AIA means

Prestige

As a member of the AIA, your professional standing is enhanced, as "AIA" communicates professionalism to your clients and colleagues. The AIA is recognized by public audiences, which can give you the competitive advantage.

AIA means

Advancing Your Interests

As the collective voice of the architectural profession, the AIA makes sure your concerns and interests are heard by key decision makers at federal, state, and local levels. You and your firm profit from the AIA's legislative savvy and diligent monitoring of all regulatory matters affecting the profession.

AIA means

Promoting the Profession

The AIA boosts the public's awareness and appreciation of the unique services and contributions that architects provide, enhancing your visibility and stature among both clients and the community.

AIA means

Professional Information

The AIA provides you with information and tools to give you a competitive advantage in today's tough marketplace. Your AIA membership gives you access to a vast array of professional resources and technical materials at the lowest costs available.

Join the AIA today & receive up to 18 months of membership for the cost of 12!

Choose one of these membership categories:

- ☐ **Architect member $165***
  For individuals who hold a current license to practice architecture in the U.S.
- ☐ **Associate member $72***
  For unlicensed individuals who are either: participating in career responsibilities recognized by licensing authorities as constituting credit toward licensure (intern); under the supervision of an architect in a professional or technical capacity; a faculty member in a university architecture program; or holders of a professional degree in architecture.
- ☐ **International associate $309****
  For holders of an architecture license or equivalent form a non-U.S. licensing authority, but without a license in the U.S.

* The AIA is a three-tiered membership organization. All members who reside in the U.S. must join and pay dues at the national, state, and local levels. You will be invoiced for state and local dues following application processing. For telephone numbers of your local AIA chapter, please check the white pages.

**If you reside outside of North America, please include $100 to cover first-class postage.

THE AMERICAN INSTITUTE OF ARCHITECTS

National AIA Membership Application

Application for:

- ☐ Architect member *($165)*
- ☐ Associate member ($72)
- ☐ International associate member ($309, plus $100 for applicants living outside North America)

This application is for new members only. If you are a former member and would like to reinstate your membership, please call 800-AIA-DUES.

NAME

MAILING ADDRESS

CITY STATE ZIP

PHONE

FAX

DATE OF BIRTH

Architects must attach a copy of current license to complete membership processing.

I wish to be a member of the _____ chapter.

Check enclosed (made payable to The American Institute of Architects)

Charge my: ☐ MasterCard ☐ Visa

CARD NUMBER

EXPIRATION DATE

SIGNATURE

TOTAL CHARGE $

Return completed application and check or charge information to: P.O. Box 80363, Baltimore, MD 21280-0363. This application is valid through December 31, 1994.

ARCH 94

XEROX

Time is money. And at today's business pace, no one can afford delays. We need accurate information to keep everyone on the same page.

Our Xerox Reseller showed us how, without chemicals and with no special power requirements. Our new 3030 Engineering Copier gives us high-quality plain-paper copies of blue-lines, CAD originals, you name it. Ever since then, productivity has been at an all-time high.

"I can't hang around and wait for changes."

The new Xerox 3030 Engineering Copier

- High-quality plain-paper copies up to 36" wide
- Up to 15 copies from a single feed
- Powerful, reliable engine
- Compact design, easy to use, quiet running
- Total Satisfaction Guarantee

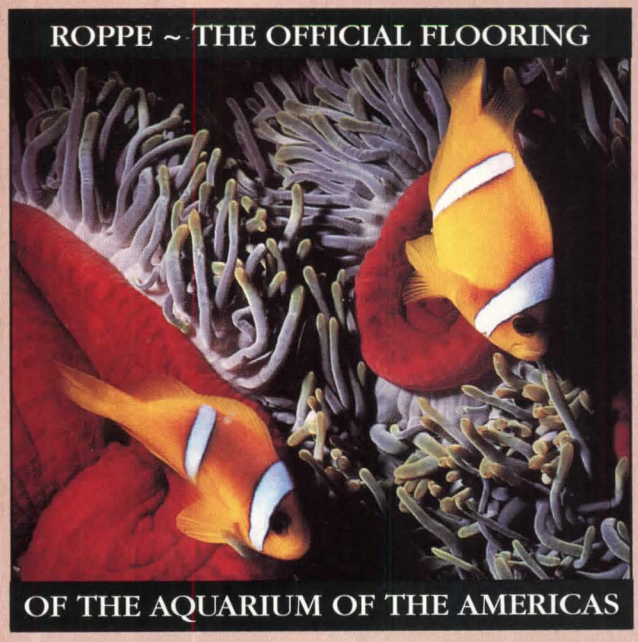
For more information on the Xerox 3030 Engineering Copier and other productivity solutions, call your Xerox Authorized Reseller or

1-800-937-7397, ext. 8240.

XEROX
Engineering Systems

Circle 85 on information card

NOW THE MOST BEAUTIFUL COVE IN THE WORLD IS INDOORS.



You'll find Roppe® Rubber Cove Base in some of the most beautiful and best-designed spaces on earth. Including now — amazingly — the ocean floor.

You see, Roppe has been chosen as the official flooring of the Aquarium of the Americas in New Orleans, where tens of thousands of visitors each year experience the wonders of undersea life.

It's no surprise Roppe Rubber Cove Base was selected. Its vividly luxurious look is in keeping with the striking beauty of the Aquarium.

On a more practical level, it's easy to coordinate the color of our Cove Base with Roppe Rubber Floor Tiles and Stair Treads — thanks to our unique MatchMates™ color system.

Our Cove's flexible thickness helps hide wall irregularities, too, while its unique matte finish stands up to scuffing and gouging.

If you'd like to get a closer look, just stop by some of the most beautiful corners of the earth. Because that's where you'll find Roppe Rubber Cove Base.

Look For Our Catalog in Sweet's Section 09650.

Or Call 1-800-537-9527 For The Roppe Distributor Nearest You.

ROPPE® CORPORATION

Circle 87 on information card

ARCHITECTURE

MODERN EXPLORATIONS

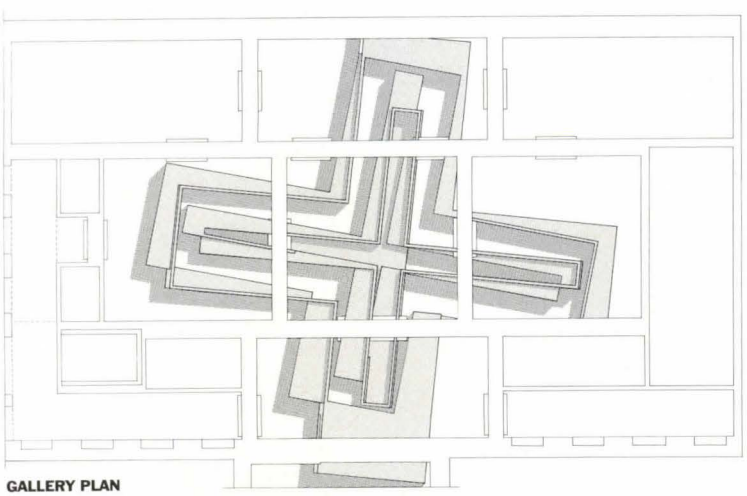
For all the fanciful interpretations of traditional form that swayed architecture in the 1980s, the heroicism, abstraction, and innovation of Modernism have never lost their appeal. These fundamental impulses are nowhere more evident than in the four projects featured in this issue: Each represents the continuing evolution of Modernism, from an exploration of isolated, universal form to an idiosyncratic response to program and site. The projects range in expression from the exuberant romanticism of Frank Gehry's Weisman Art Museum in Minneapolis to the restrained rationalism of Richard Meier's Hypolux Bank Building in Luxembourg.

Both rational and romantic tendencies are manifest in the city library for Münster, Germany, by Peter Wilson and Julia Bolles-Wilson. The building's complex massing is not only rationally assembled, but also expressively adapted to the existing urban fabric. In contrast, Peter Eisenman's installation for an exhibition of his own work at the Canadian Centre for Architecture in Montreal makes the rational appear irrational; for Eisenman, form subverts function.

EXCAVATING EISENMAN

Cities of Artificial Excavation
Canadian Centre for Architecture
Montreal, Canada
Eisenman Architects

MICHEL LEGENDRE / CCA



GALLERY PLAN

Coolness inheres in most architecture exhibitions because the gallery installations represent buildings that are necessarily absent. However, at the Canadian Centre for Architecture's (CCA's) most recent exhibition, visitors step through the looking glass. "Cities of Artificial Excavation: The Work of Peter Eisenman, 1978-1988" might have suffered the usual distancing effect of architecture shows, except that Eisenman designed the installation itself as living architecture, rather than simply representing it. Eisenman's installation-as-building provocatively marginalizes his drawings and models within a complex of walls whose layers, nooks, and crevices form corridors, open views, and reveal glimpses of the center's Classicized galleries, transformed by the installation into residual artifacts.

Eisenman's exhibition, curated by CCA Curatorial Assistant Jean-François Bédard and on view until June 19, literally breaks through the CCA's walls as it breaks through the usual preconceptions about the display of precious objects on hallowed cultural ground. The plan of the installation is taken from Eisenman's 1980-1981 scheme for housing in Berlin, from which the architect excerpts a Greek cross intersection that he encases in a larger cross and rotates along x, y, and z coordinates. Eisenman then builds the dislocated crosses in the galleries at a diagonal, removing some parts of the museum walls, leaving others exposed. His installation field-reverses the container and contained.

In symmetrical galleries that Eisenman completely redefined, dozens of models and drawings document a cycle of 11 projects that explore the imagined complexity of a site revealed and developed through fictive excavation. According to Eisenman, psychotherapy made him wary of being too cerebral; wanting to distance himself from his analytic house designs of the 1970s, he brought himself "down to earth" by digging to uncover an unconscious realm below the surface. Metaphor sent Eisenman underground.

PREVIOUS PAGES: Visitors enter the Eisenman exhibition through a gold-painted corridor that displays the architect's 1978 housing scheme for the Cannaregio district of Venice.
PREVIOUS PAGE, PLAN: Eisenman shifted a Greek cross within the symmetrical galleries of the CCA.
THESE PAGES: Drawings are mounted on walls, while models are viewed through angled apertures. Rose-colored galleries are devoted to 1980-1981 Berlin housing project.

The CCA show concentrates on four of these "artificial excavations": a scheme for Cannaregio West, a housing project in Venice (1978); a competition entry to the Internationale Bauausstellung in Berlin (1980-1981); a scheme for Parc de la Villette in Paris (1985-1986); and a proposal for California State University at Long Beach (1986). Each project is documented within a separate quadrant of Eisenman's Greek cross, color-coded in gold (Venice), rose (Berlin), light blue (Paris), and green (Long Beach). They range from the first tentative dig to fully orchestrated excavations in which the architect overlays grids based on maps, topographical features, and landmark structures on or near each site.

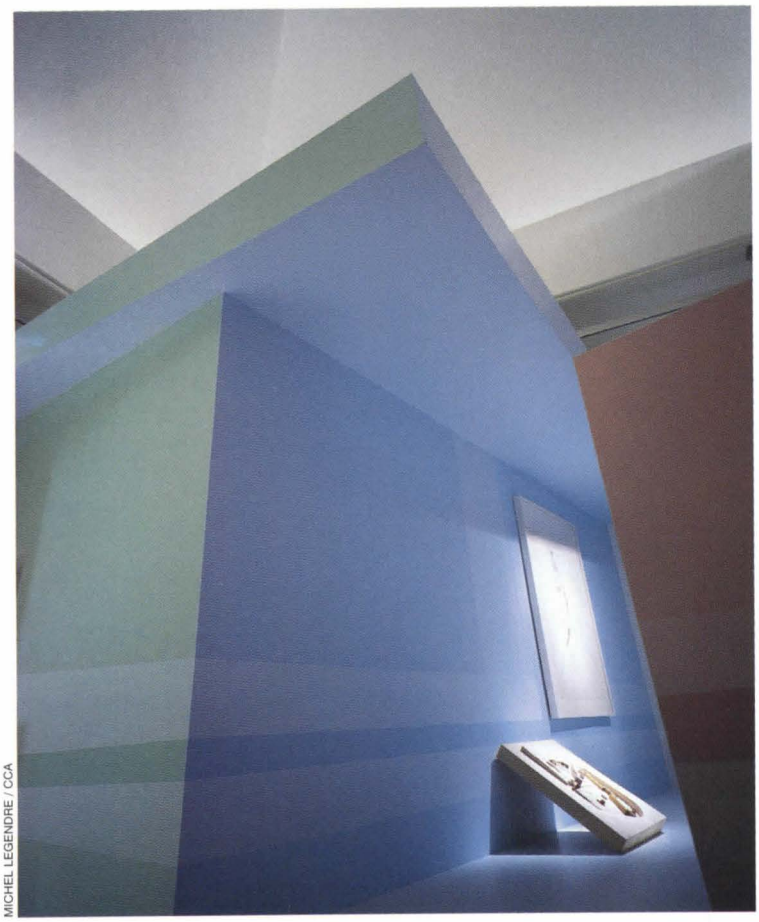
The exhibition is entered through the quadrant devoted to the architect's most primitive tell, the Cannaregio scheme for Venice, near the site of Le Corbusier's never-realized hospital designed in 1964-1965 on a point grid. Eisenman abstracted and extended the points, "excavating" holes that for him represented the empty, failed rationalism of Modernism. In them, he nested L-shaped houses. Drawing a diagonal line across the site, the architect proposed cutting the earth back along the line like skin—as though revealing facts of a hidden life.

In the Berlin housing project, Eisenman proposed building intersecting grids and walkways that give concrete form to his mapping of 18th- and 19th-century walls and the Mercator grid. Eisenman fully develops this notion of excavating a site's unconscious in his 1986 design of an art museum at California State University at Long Beach; the architect geometrically superimposes traces of an old roller coaster, oil derricks, an arroyo, and a ranch that once existed on or near the site.

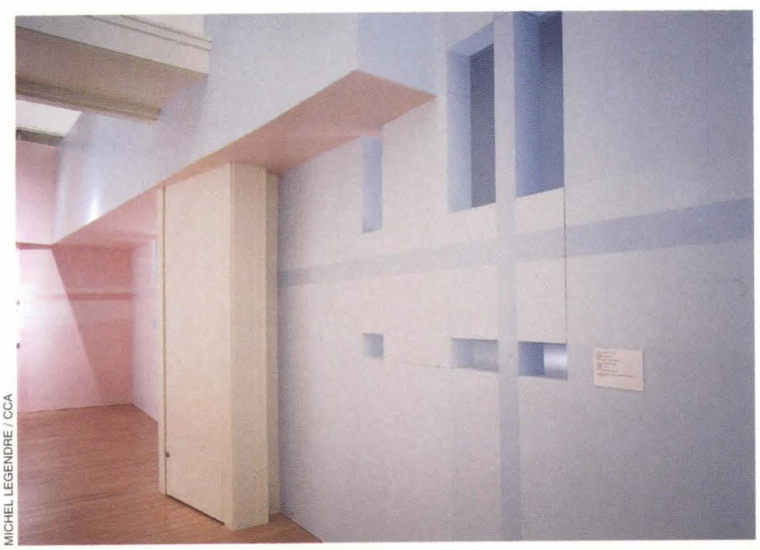
The show's drawings and models explain not only the process and results of Eisenman's excavations, but also clarify their limitations. When *the architect* extrudes plans into three-dimensional reality, the resulting structures do not automatically turn into successful buildings or landscapes of poetic

MICHEL LEGENDRE / CCA

FACING PAGE AND BELOW: The walls and soffits of Eisenman's installation engage fragments of existing walls and penetrate Classically detailed doorways. Light blue quadrant focuses on Eisenman's proposal for Parc de la Villette in Paris.
BOTTOM: Models are positioned at different heights within Eisenman's inner cross and viewed through slots at eye level. Painted lines on walls represent converging geometries of museum and Eisenman installation.



MICHEL LEGENDRE / CCA



MICHEL LEGENDRE / CCA

memory: Maquettes of the Cal State project, for example, reveal a design weak in the third dimension, and one sectional drawing shows a surprisingly banal museum interior.

In 1988, Eisenman designed the Guardiola house, in which he ratcheted the L-shaped house through space, registering phases of its movement. This project spurred a subsequent series of buildings, including the Koizumi Sangyo building in Tokyo and the Columbus Convention Center, in which shapes metamorphose and leave traces of their genesis.

The show at the Canadian Centre for Architecture, scheduled to travel to Spain and the Netherlands, really juxtaposes two phases of Eisenman's career, since the installation itself belongs to a generation launched by Guardiola. With his ratcheting crosses, Eisenman has built in a comparison and critique of his earlier work, achieving a spatial richness that delivers viewers from cerebral readings of his projects into a real-time, real-space experience. His installation elicits physical interaction: Viewers stoop to peer at a model through an aperture in the wall and crane to view another. As they walk inside and outside Eisenman's intersecting crosses, the spatial labyrinth of corridors seems without dominant axes or a centering intersection. There is no control point in the installation, not even the single point of view of perspectival space. That the walls rise, fall, and sometimes tilt revitalizes the viewer's position, so that the eye no longer occupies the viewpoint of origin: The body begins feeling a space whose indeterminacy questions sight.

For Eisenman, only space that subverts habit is memorable. His installation is memorable for several subversions, but primarily because he takes rationality to the brink of irrationality by breeding simple form into complexity. The CCA show troubles the eye, inviting physical experience through the perception of strangeness. Eisenman found the grounding for which therapy sent him excavating by provoking the mind to think through the body's eye.—*Joseph Giovannini*

CITIES OF ARTIFICIAL EXCAVATION
CANADIAN *CENTRE FOR* ARCHITECTURE
MONTREAL, CANADA

DESIGNER: Eisenman Architects, New York City—Peter Eisenman (principal-in-charge); Megan McFarland (exhibition coordinator); Sergio Bregante (project architect); Donna Barry, Scott Corwin, Simon Fellmeth, Judy Geib, Edward Mitchell, Richard Rosson, Janine Washington (design team)
CCA DIRECTOR: Phyllis Lambert
CCA CURATOR: Jean-François Bédard
CCA EXHIBITION COORDINATORS: Susan Haight; Helen Malkin (head of exhibitions); Jocelyn Drolet (assistant)
CCA INSTALLATION DESIGN: Robert Anderson (head of design and installation services); Normand Lemonde (chief technician); Peter Bélanger-Aldworth, Oscar Varese, Jacques Houle, Alain Mayer (technicians)
CCA LIGHTING: Jose Oliveros; Neil Whitehall (electrician)
GENERAL CONTRACTOR: P&R Desjardins Construction
PHOTOGRAPHER: Jeff Goldberg/Esto, except as noted

BELOW: Green section is devoted to California State University at Long Beach project. Soffits of Eisenman's installation part to permit views of skylit ceiling vaults, which diffuse daylight into artificially lit galleries.
BOTTOM: Center of Eisenman's cross, which is occupied by a podium supporting model of Long Beach scheme, offers view of rose and gold quadrants.
FACING PAGE: Sectional view reveals viewing corridor (left) and raised area for model displays at perimeter (right).

URBAN PASSAGE

Münster City Library
Münster, Germany
Bolles-Wilson+Partner, Architect

Peter Wilson and Julia Bolles-Wilson built their reputation at the Architectural Association (AA) in London during the 1970s and 1980s. Headed at the time by Alvin Boyarsky, the AA was an experimental hothouse, producing arcane images and mysterious statements rather than buildings. Peter Wilson demonstrated an architectural, as opposed to purely conceptual, talent early on with a series of well-drawn designs that showed a passion for form. In the 1980s, Wilson and his German wife Julia Bolles, whom he met at the AA, started to enter German competitions, including the 1985 competition for a library and museum in Münster, Bolles' hometown. They were awarded the commission for the city library (the museum was subsequently dropped from the program)—their first large building—with time enough to work up every detail.

The new Münster library is profoundly contextual, developed so much in response to its place that it is unthinkable elsewhere. The site lies just east of the old city center on the southern part of an irregular urban block. Although the street pattern is medieval, most of Münster was rebuilt after wartime bombing. The only valuable old building in the immediate vicinity is a 16th-century merchant's house on the corner. The 15th-century St. Lamberti Church west of the site is also important: Its tower survived the war, though the nave was extensively repaired.

The starting point for the city library was the discovery of an axial view across the site

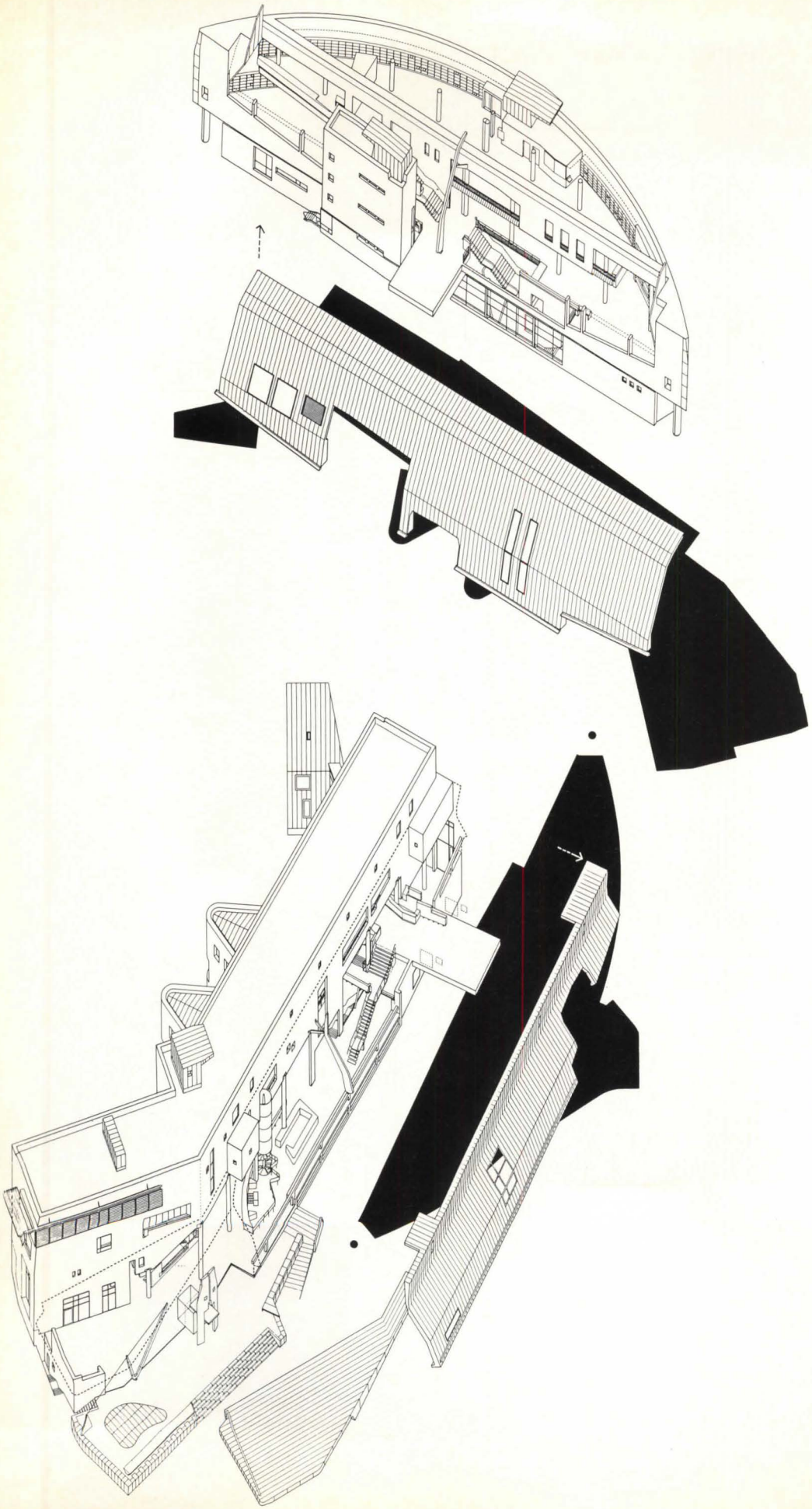
FACING PAGE: Viewed from the St. Lamberti Church tower looking east, the Münster City Library is bisected by a new pedestrian passageway.
TOP: East end of passageway, flanked by main library (left) and administrative wing (right), is entered from plaza.
ABOVE: South half of library, housing stacks, swings around the corner.

toward the church, which prompted the development of a new pedestrian passageway right through the block. The narrow pedestrian street finds no east termination, so the new building provides one with a second-floor bridge connecting its two main blocks. Walking west through the new street, a view of the St. Lamberti Church tower unfolds as one passes under the bridge.

The north half of the library completes the existing urban block; its north side fronts quiet backyards and takes advantage of the site with a couple of projecting bays. At its east end, the building stops short of the corner, where a group of trees is retained as part of the small plaza from which the passageway is entered. A line of existing houses is gently followed by a copper-clad volume at the library's east end; while at the west end, the north block meets the adjacent buildings of the side street at a right angle. Here, a low, glazed wing housing the library's café and main entrance extends into a triangular plaza defined by the taller surrounding buildings. This is a welcoming, mediating space.

The south half of the city library, which houses the stacks and reading rooms, is more freestanding and independent. Wilson and Bolles-Wilson hit on the idea of a curved block, which unifies a difficult corner. From a distance, this volume of the Münster City Library suggests an increase in scale appropriate to a public building, and its sweeping form is reminiscent of Erich Mendelsohn's urban dynamism of the 1920s.

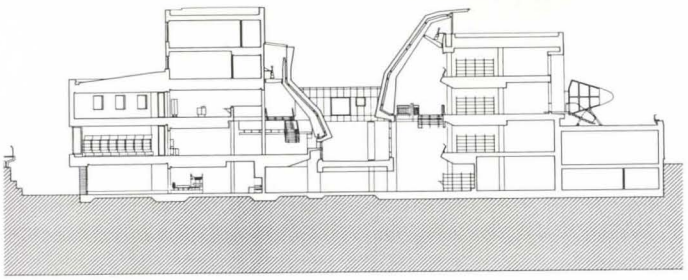
FACING PAGE: Library forms an incomplete drum; its urban dynamism is reminiscent of Erich Mendelsohn's work in the 1920s. Upper stories are clad in insulated stucco.
TOP: Entire library is visible from the narrow street to the southwest. In north wing, café (left) is glazed, and entrance is marked by a freestanding portico.
ABOVE: At the west entrance to the passageway, copper-clad, sloping form contains check-out area.



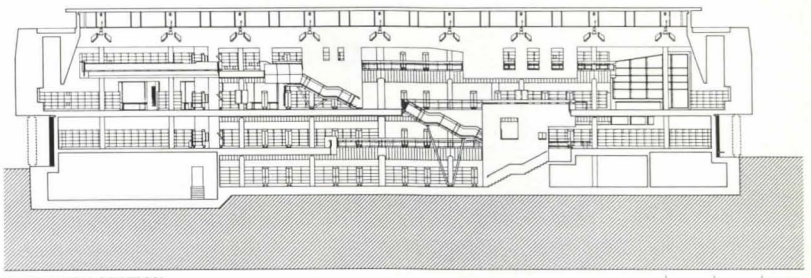
Gunnar Asplund set a strong precedent for a library as a drumlike cylinder with his Stockholm City Library of 1928, but at Münster, the drum is broken, symbolizing the impossibility of rounding up the totality of human knowledge in one perfect circle. Cracking it open, Wilson and Bolles-Wilson allow the vulnerable inside face to be exposed. While the outside wall is hard and ends in a parapet, the inner side is softened with copper roofs cascading down, mansarded over the stairhalls on both sides, stopping only for the glazed first floor.

Internally, the south half of the building is reserved for the lending library of reading tables, carrels, and open bookstacks; the north is devoted mainly to a large general reference area and administrative offices. The main circulation thus takes place in two glazed stair halls flanking the passageway between the bifurcated building, allowing library users to view pedestrians and vice versa. This arrangement animates the narrow street and reminds everyone that the Münster City Library is a public building.

The library's entrance is located in its north block off the raised terrace by the café, declared by a symbolic portal. Inside, a straight flight of stairs leads to the left, to the lecture hall, an area of the building that can be opened in the evening when the library is closed. From the lobby, a long, exciting multilevel space opens up, surprisingly reminiscent of the spatial interaction, circulation, and daylight of buildings by Hans Scharoun

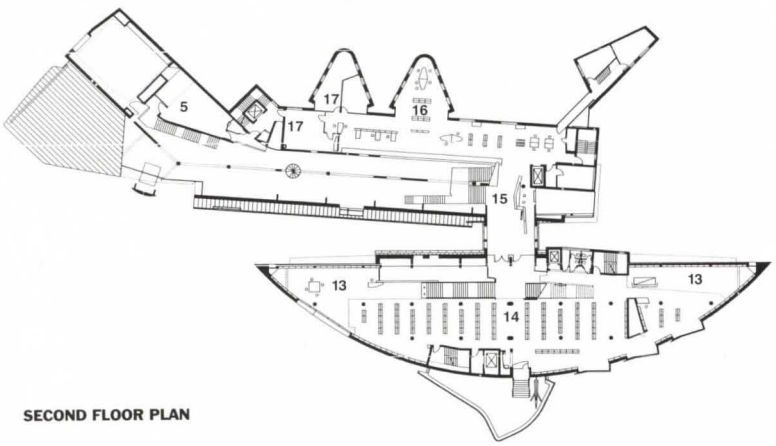


NORTH-SOUTH SECTION

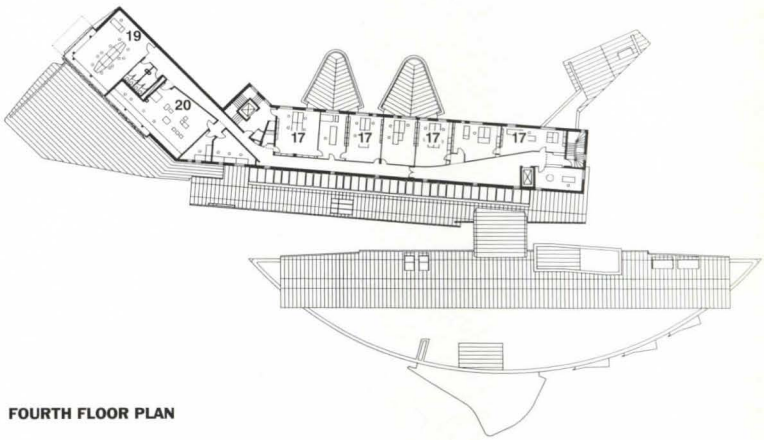


EAST-WEST SECTION

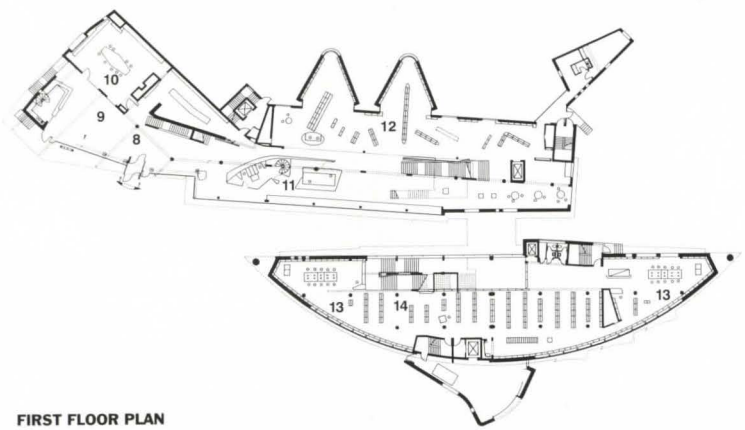
10'/3m



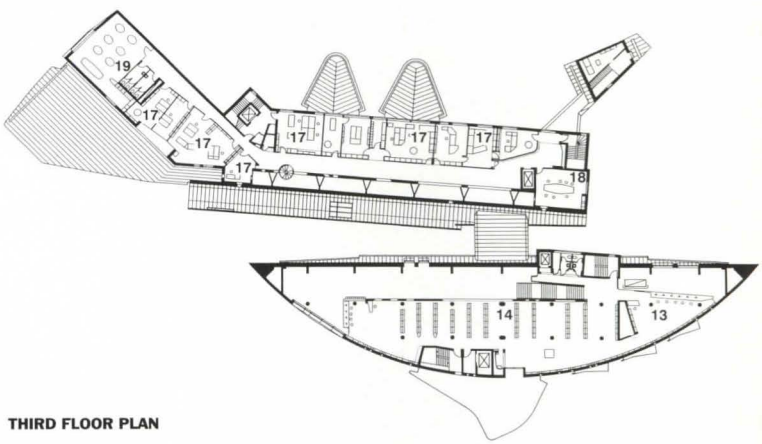
SECOND FLOOR PLAN



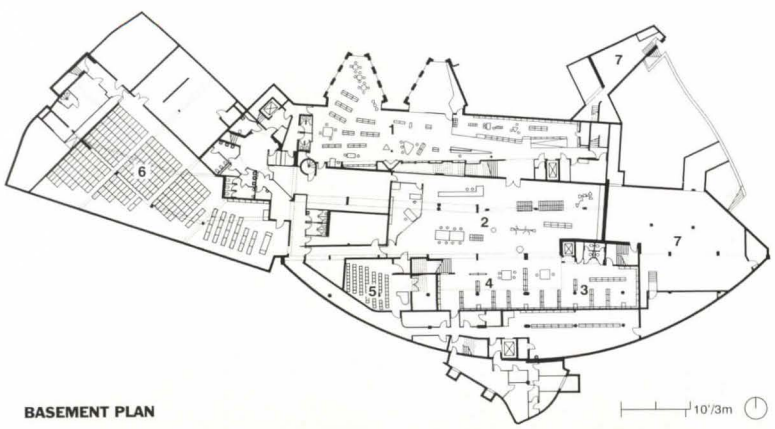
FOURTH FLOOR PLAN



FIRST FLOOR PLAN



THIRD FLOOR PLAN



BASEMENT PLAN

10'/3m

1 CHILDREN'S LIBRARY
2 MEDIA LIBRARY
3 MUSIC LIBRARY
4 ART LIBRARY
5 LECTURE HALL
6 ARCHIVES
7 MECHANICAL
8 MAIN ENTRANCE
9 CAFÉ
10 PERIODICALS ROOM
11 CIRCULATION DESK
12 REFERENCE AREA
13 READING ROOM
14 STACKS
15 INFORMATION DESK
16 CATALOG AREA
17 OFFICE
18 CONFERENCE ROOM
19 TRAINING ROOM
20 BOOK BINDING ROOM

and the wood and plaster palette of Alvar Aalto. Round columns carry the south-facing structural wall to the left, which is progressively cut away, while cranked, laminated wood frames carry a sloping, plywood-paneled ceiling to the right; the void between rises to a glazed skylight. After climbing a staircase to the second floor, one discovers the main information desk: To the left is an extension of the first-floor reference area; to the right is the bridge into the south half and the library proper, with a glimpse of the St. Lamberti Church tower on axis.

The Münster City Library is an impressive building and fastidiously detailed. A slightly uncertain balance, however, is struck between tectonic expression and pure abstraction. For example, the timber roof supports are painted white, leaving perhaps a little too much material ambiguity. The contextual gestures by Wilson and Bolles-Wilson are finely judged and a welcome reminder that respect for history does not mean aping the building across the road, posturing in some ironic way, or trying to reduce lengthy historical processes to some golden moment. Rather, it means understanding how a piece of city came about and the significance of its development, then making a new gesture to complement it, opening up new urban possibilities.—*Peter Blundell Jones*

Peter Blundell Jones is a practicing architect and a professor of the history and theory of architecture at Sheffield University, England.

FACING PAGE: In south half of the building, stair hall parallels urban passageway and is lit by reflected daylight from clerestory. Steel brackets anchor angled glue-laminated timber beams that have been painted white.
TOP: Circulation desk incorporates spiral staircase leading to staff offices.
ABOVE: Bridge between the two halves of the building is entered through plastered concrete portal; walls are clad in beech acoustic panels.

BELOW: Information desk and bridge between two wings (right) are located at the top of the main staircase.
BOTTOM: East end of the lending library incorporates upper floor gallery with southeast-facing bay window (right).
FACING PAGE: West end of lending library, looking toward the pointed end of the building, houses stacks and reading areas, with gallery above. Louvers screen daylight through large southwest-facing window.

MÜNSTER CITY LIBRARY
MÜNSTER, GERMANY

ARCHITECT: Bolles-Wilson + Partner, Münster—Julia Bolles-Wilson, Peter L. Wilson, Eberhard Kleffner (principals-in-charge); Friedhelm Hass, Martin Schlüter, Andreas Kimmel (project assistants); Jim Yohe, Manfred Schoeps, Dietmar Berner, Anne Elshof, Cornelia Nottelmann, Jens Ludloff, Laura Fogarasi, Mikkel Frost, Toshi Hisatomi, Dirk Paulsen, Stefanie Schmand, Karen Haupt, Katrin Lahusen, Jean Michel Crettaz, Thomas Müller, Glen Wiedemeier (design team)
ENGINEERS: Thomas/Menke and Köhler (structural); Albers (mechanical/electrical/plumbing)
CONSULTANTS: Lichtdesign (lighting); Stemmer and Tönnemann (acoustics); Assmann Consultants (project management); Umpfenbach (ground surveys)
GENERAL CONTRACTORS: Bolles-Wilson + Partner; Harms and Partner
COST: Withheld at owner's request
PHOTOGRAPHER: Christian Richters

SPATIAL ASSETS

Hypolux Bank Building
Kirchberg, Luxembourg
Richard Meier & Partners Architects

Luxembourg is a beautiful city of cliffs, gorges, ancient fortifications, and dramatic bridges. Unfortunately Kirchberg, the quarter of Luxembourg that accommodates various European Community-affiliated institutions, offers none of these picturesque assets. Its east end, beside the main road out to the airport, is currently being developed as a commercial and banking zone. Isolated from one another by meaningless stretches of grass, the big new buildings in this district do not add up to anything that could be described as an urban environment. The shining exception is the new office block designed by Richard Meier & Partners for the Hypolux Bank, a branch office of Hypobank International, a Munich-based commercial bank.

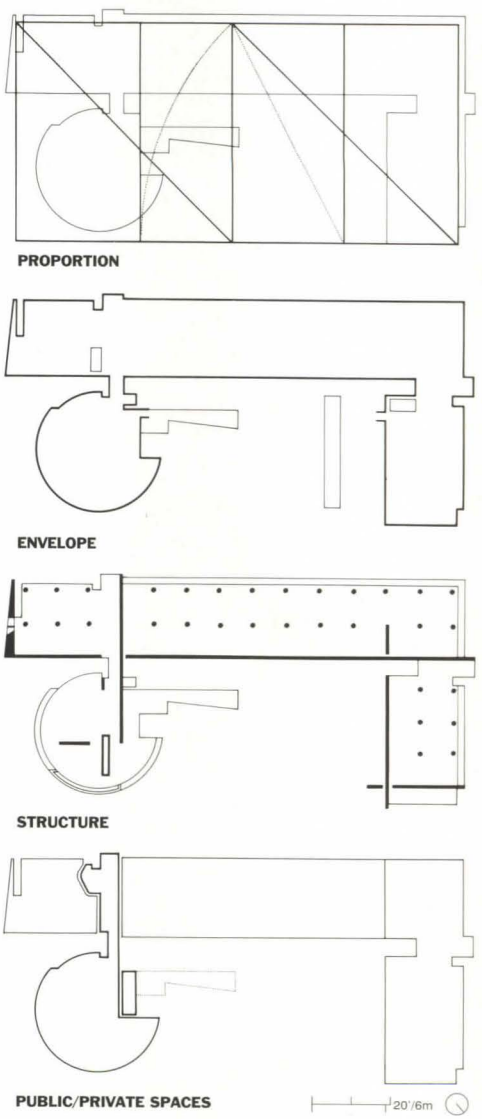
While most of its neighbors are organized around deep, inward-looking plans, the Hypolux Bank Building is an elegant, balanced composition with an L-shaped office block and a cylindrical tower that defines an open forecourt—just about the only deliberately designed external space in the whole neighborhood. Clearly visible from the airport road, the five-story cylinder forms the Hypolux Bank Building's public face. It houses the entrance hall, a mini-atrium, and, on the upper floors, the suites of offices where the bank personnel meet their clients. Within its circular enclosure, the plan is basically rectilinear. But this volume is more than just a simple stack of accommodation. Forms and spaces overlap and interlock in a composition like a three-dimensional Purist painting.

What gives the mini-atrium inside the cylinder its special painterly quality is the way that it is framed by an opening in a smooth granite-clad wall, slicing into the cylinder from the office block like a knife into a cake. This is one of a number of granite walls, including the east and south facades of the office block, that anchor the building to its base.

Across the link between the cylinder and the office block to the southwest, a larger atrium forms the meeting place for the everyday working part of the building. It is treated with all the care and attention to detail that one would expect in a more public building such as a museum; and like a museum, it displays architectural elements as artifacts: A spiral staircase bound in an open steel frame stands at one end of the space like a snake in a bottle. At the other end, the balustrades form a perforated rectangle that appears to hang in the space like an abstract painting.

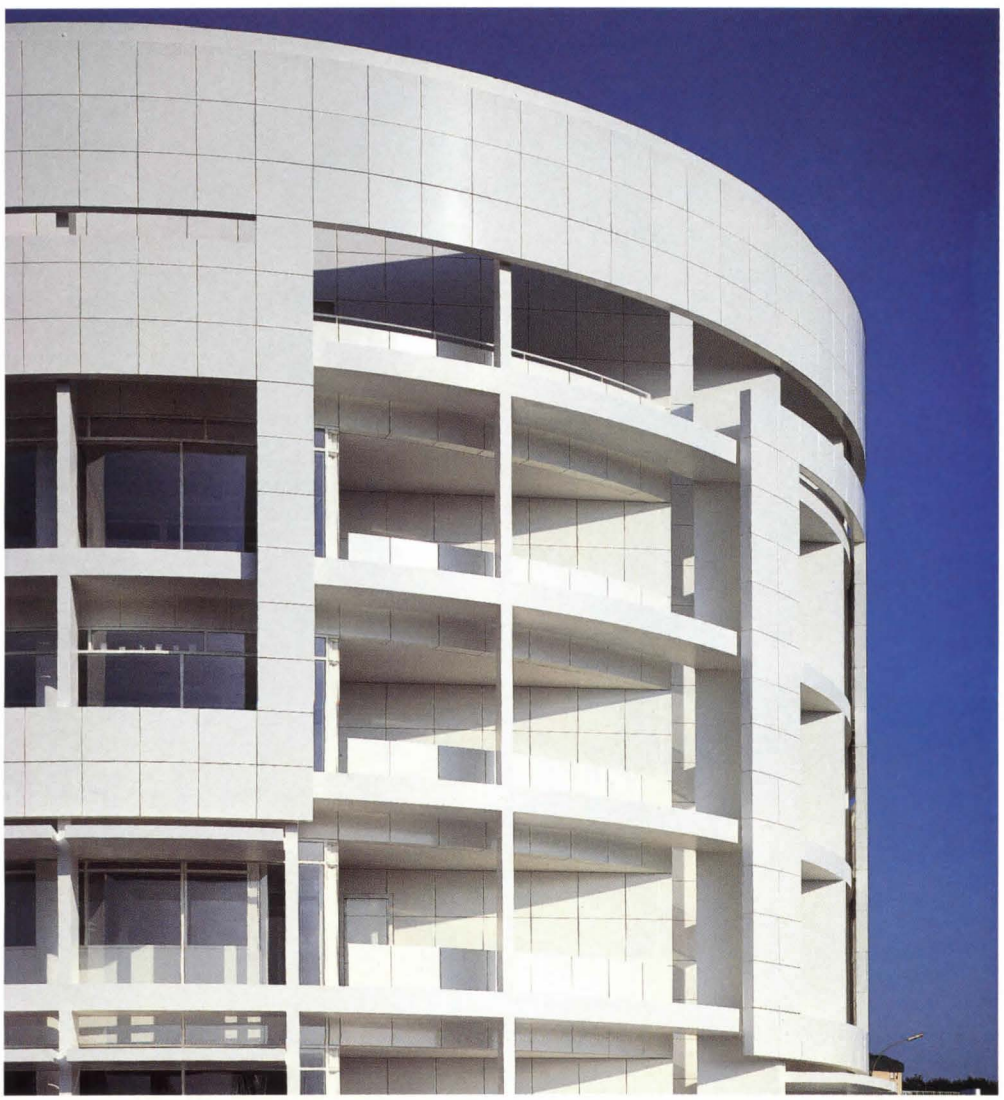
The rest of the office block is organized according to a simple, linear plan with a central corridor. The original intention was for the short arm of the L-shaped office structure to be leased separately. It is therefore self-contained, with its own entrance and its own mini-atrium. These open spaces punctuate the regular rhythm of the plan, as breathing spaces, freeing the offices from confinement. They are topped by clear glass rooflights, so that one is never far from a shaft of sunlight or a liberating glimpse of sky.

In Europe over the past five years, deep-planned, air-conditioned office blocks with



FACING PAGE: Staircase in office block's main atrium is visible through slot in granite southeast facade.
PLANS: Meier rigorously approached proportions, structure, and circulation.
LEFT: View from west shows cylindrical entrance block (left), as well as long arm (center) and short arm (right) of L-shaped office wing.

TOP RIGHT: Northwest facade is a complex assemblage of steel-framed sunscreens and maintenance access platforms in front of a glass curtain wall. Large curved metal panel marks entrance to underground parking.
BOTTOM RIGHT: Frank Stella's riotous sculpture, *Chaos*, is set against the controlled proportions of the east facade. The vertical windows (left) mark the position of the atrium in the self-contained, rented part of the office block. Winglike structure (right) forms a canopy over a roof terrace.
FACING PAGE: Northeast end of L-shaped office block is clad in enameled-steel panels. Projecting balconies terminate central corridor.



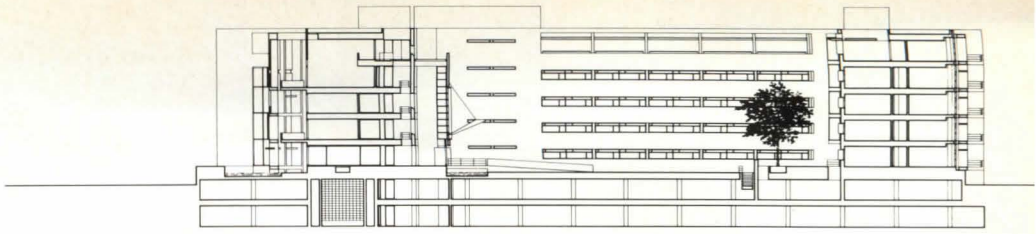
FACING PAGE: Main entrance is accessible from forecourt via a ramp passing over water-filled moat and under drawbridgelike canopy.
TOP LEFT: Cylinder announces public face of the building, clearly visible from nearby airport road.
LEFT: Plan of cylinder is basically rectilinear within its concrete-framed, metal-clad sleeve.
FOLLOWING PAGE: Balustrades around atrium at southeast end of office block form a perforated screen that hangs in the space like a painting.

sealed external envelopes and huge mechanical plants have fallen out of favor among progressive clients and architects, who have shifted their emphasis to energy conservation. Worries over "sick building syndrome," the vaguely defined complex of ailments caused by artificial light and artificial air, have led office workers to demand desks near windows, preferably windows that can be opened. The traditional shallow plan, naturally lit and ventilated, has therefore made a big comeback, and Richard Meier & Partners' Hypolux Bank Building conforms to this trend.

In this new situation, responsibility for the quality of the internal environment is effectively transferred from mechanical engineer to architect. The external wall is no longer an impervious skin that can be decorated to taste: It forms an environmental filter with a real job to do. Meier's architecture relies for its effect on controlled complexity—the subjection of the functional parts of the building to a rigorous proportional discipline—and so he relished the design challenge of this complex external wall. The west and north facades of the building are basically glass curtain walls with small panes in thick white frames, but their character is determined by an elaborate, steel-framed secondary structure, supporting maintenance access platforms, winglike sunshades, and vertical baffles of perforated metal. The structure is beautifully detailed and finely proportioned, though some doubt remains over its effectiveness in keeping the building cool. It is possible that some limited air conditioning will have to be introduced.

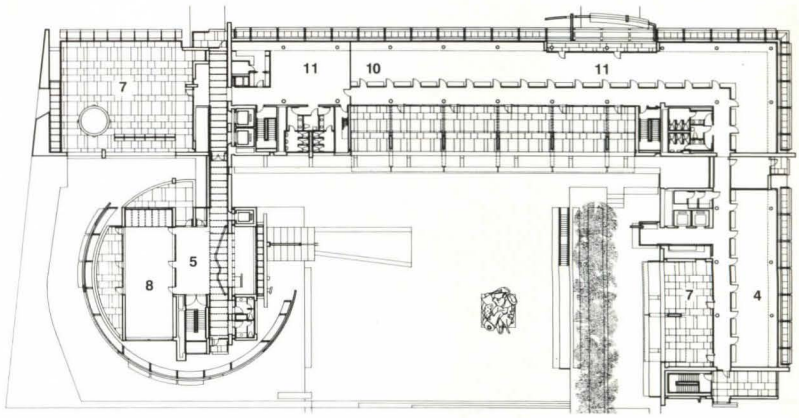
The working office areas are designed with all the care for proportion and detail that characterizes the rest of the building. Occasionally, Meier's insistence on order and regularity takes precedence over functional common sense. Doors to larger offices are not all functional, and some are backed by built-in storage units. The "dummy" doors are nevertheless provided with handles to preserve complete visual consistency.

According to Meier, Hypobank was a model client. This can hardly be doubted. The building is full of modern paintings and sculptures, some by famous artists like Frank Stella. The bank has an art acquisition policy that would put some provincial galleries to shame. Its most important acquisition, however, is the building itself. The Hypolux Bank is of a higher quality than the current context of Kirchberg deserves, but it should encourage the architects of future developments to try a little harder.—*Colin Davies*

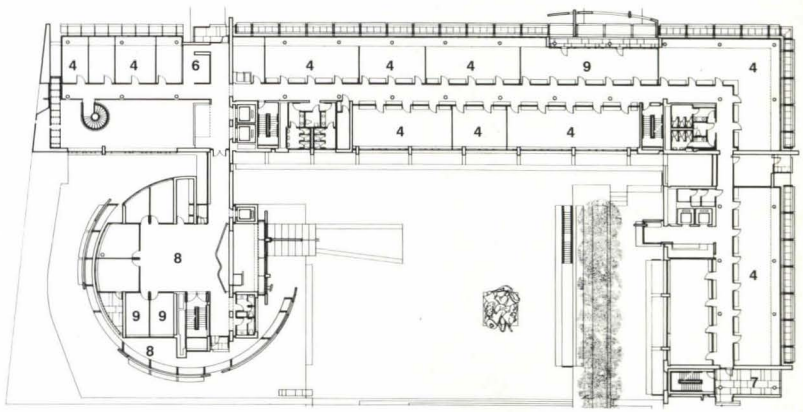


NORTH-SOUTH SECTION

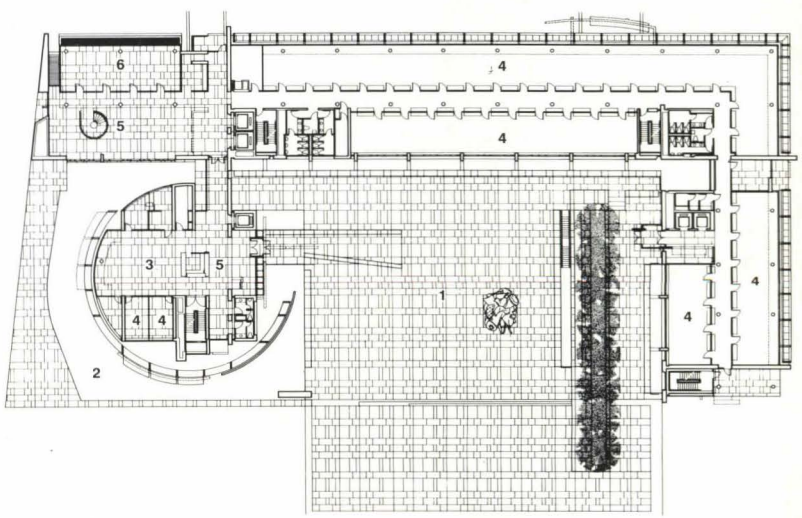
10'/3m



FIFTH FLOOR PLAN



FOURTH FLOOR PLAN



FIRST FLOOR PLAN

10'/3m

1 FORECOURT	5 ATRIUM	9 CONFERENCE ROOM
2 REFLECTING POOL	6 LOUNGE	10 KITCHEN
3 RECEPTION	7 TERRACE	11 DINING ROOM
4 OFFICE	8 BOARDROOM	

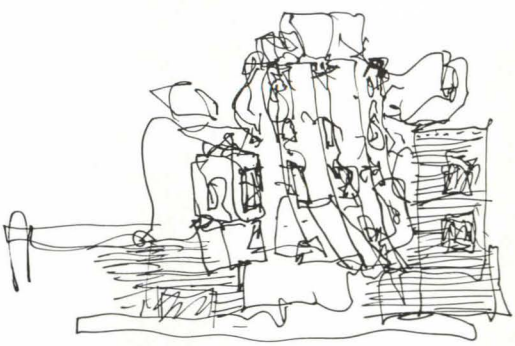
ABOVE RIGHT: Top floor of cylinder, looking toward office block, is decorated by sinuous baluster.
RIGHT: Double-curved balustrades overlooking entrance hall are framed by an opening in the granite wall.
FACING PAGE: Sculptural spiral staircase in main atrium of office block expresses quality of museum exhibit.

HYPOLUX BANK BUILDING
KIRCHBERG, LUXEMBOURG

ARCHITECT: Richard Meier & Partners Architects—Richard Meier, Thomas Phifer (principals-in-charge); Robert F. Gatje (partner-in-charge); Jeffrey P. Barber (project architect); Birgit Zwankhuizen, Peter Coombe (project architects/construction); Stuart Basseches, Christine Chang Hanway, Renée Cheng, David Ling, Gerhard Priebe, David Shilling, Kimberly Smith (design team)
CONSULTING ARCHITECT: Christian Bauer
LANDSCAPE ARCHITECT: Gerhart Teutsch
GENERAL CONTRACTOR: SF Bau
ENGINEERS: Obermeyer Consultants (structural); Kuehn-Lehr Associates (mechanical/electrical); Memmert Engineers (facade)
CONSULTANTS: Müller-BBM (acoustics); Fischer, Marantz, Renfro & Stone (lighting); Achenbach Art Consulting (art)
COST: Withheld at owner's request
PHOTOGRAPHER: Scott Frances/Esto

METALLIC MUSE

Frederick R. Weisman Art Museum
Minneapolis, Minnesota
Frank O. Gehry & Associates

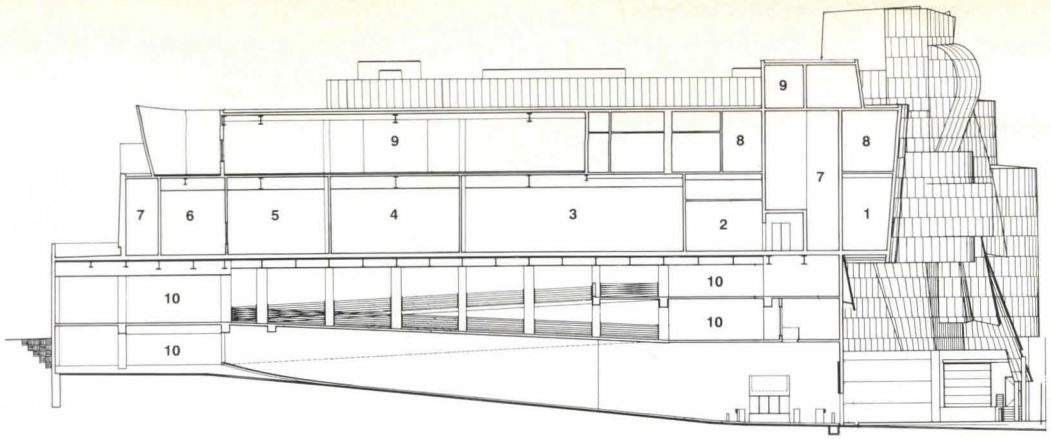


FACING PAGE: Gehry-designed Frederick R. Weisman Art Museum commands east bank of Mississippi River.
ABOVE LEFT: Steel cladding on west facade evokes nearby industrial buildings. Cars enter parking garage at ground level (lower left).
ABOVE: Gehry's facade study contrasts sculptural masses against rectilinear corner and base.
FOLLOWING PAGES: Sunlight transforms facade. Public balcony extends from gallery level (right page, center).

Frank Gehry's design for the University of Minnesota's Frederick R. Weisman Art Museum has been called The Exploding Silver Artichoke; Pile of Schlitz by the River; and, least affectionately, The Can. These names rival the acronym formed by the museum's own initials—WAM—which some might deem as onomatopoeic for Gehry's process of construction. Designed to house a varied collection of 20th-century American art, "The Fred" has become the university's armored mascot, guarding the west boundary between central campus and downtown Minneapolis. "We wanted to make an attraction of the architecture," Gehry wryly admits.

Seen from the rocky east bank of the Mississippi River, the museum resembles an amicable crustacean with a central balcony for a mouth; upper level windows for eyes; and an adjacent, existing bridge for an arm. This arm reaches across the Mississippi toward the university's library and downtown, luring pedestrians and cars into its grasp and sucking them into the depths of its cool, steely folds. But Gehry's steel-coated structure is a chameleon of many moods. Under a gray winter sky, its west face appears as cold and impenetrable as a block of Minnesota ice; while in the summer dusk, it glints and refracts sunlight, blinding its admirers and critics as its sculptural masses dissolve into a metaphorical burst of flames.

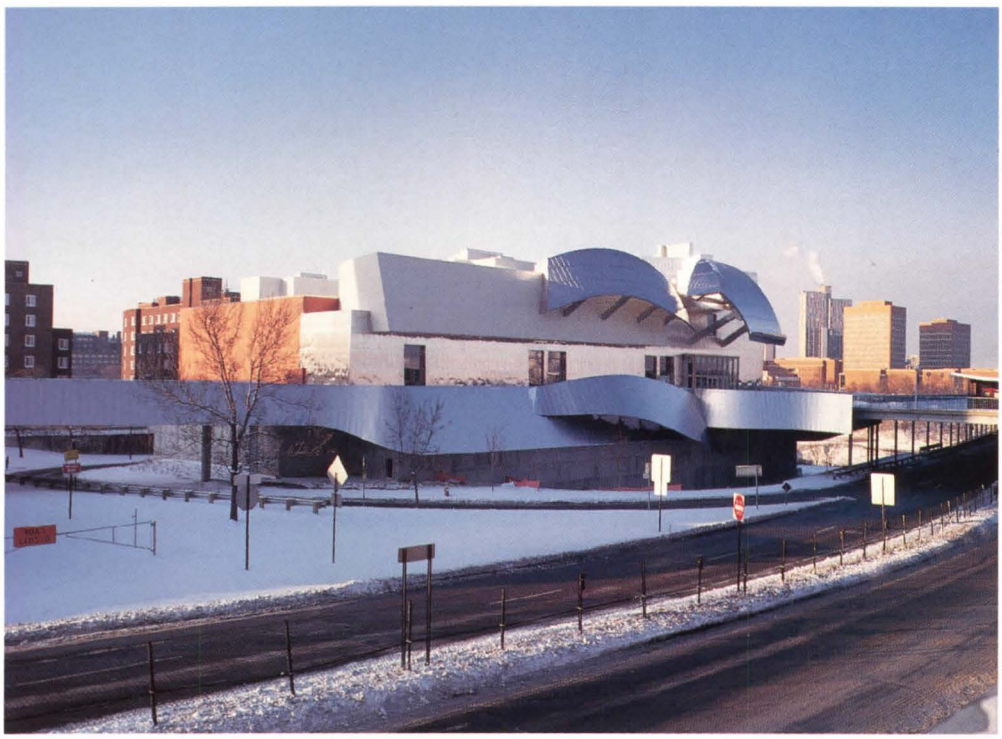
Yet for all of the criticism that has focused exclusively on the building's idiosyncratic west facade, Gehry intuited the 41,000-square-foot museum as a sympathetic response to its context. His first models consist of corrugated paper glued to one side of a cardboard box, suggesting a faceted frontispiece to accommodate views up and down the river. With characteristic bravura, Gehry shredded, collaged, and punctured strips of paper until settling on a final frontispiece that seemed at once analogous to the riverbank below, scaled to the neighboring dormitories, and expressive of the building's



1 LOBBY
2 ENTRY VESTIBULE
3 MUSEUM STORE
4 GALLERY
5 REGISTRAR
6 PRINT/STUDY ROOM
7 STAIRCASE
8 OFFICE
9 MECHANICAL
10 PARKING

EAST-WEST SECTION

20'/6m



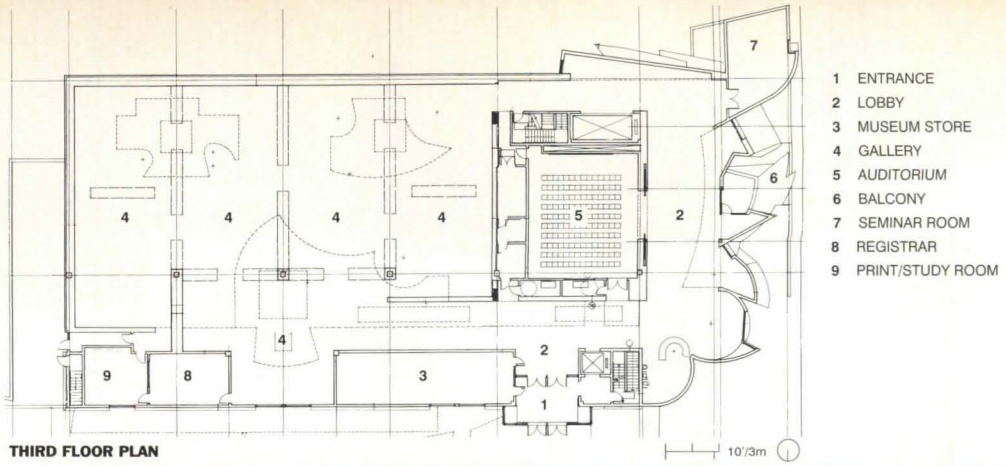
purpose. Recalls Gehry: "The university asked me not to build another brick lump."

Indeed, Gehry clad the museum's riverfront and entry facades in brushed stainless steel, opposing not only the university's grand, Classical mall, but also the banal corporate towers, brutal 1960s campus buildings, and deserted parking lots that encircle the historic core of Minneapolis. While Gehry's metallic collage evokes the materiality of local grain elevators and railroad sheds, it is tacked onto a straightforward brick box, enclosing parking, storage, and mechanical rooms on the first two levels; five spare, skylit galleries on the third; and administrative offices on the fourth. Gehry's differentiation between metal frontispiece and brick warehouse therefore epitomizes Robert Venturi's idea of a decorated shed: The museum is wrapped with a chameleon that screams, "I am a monument," through its big, balcony mouth.

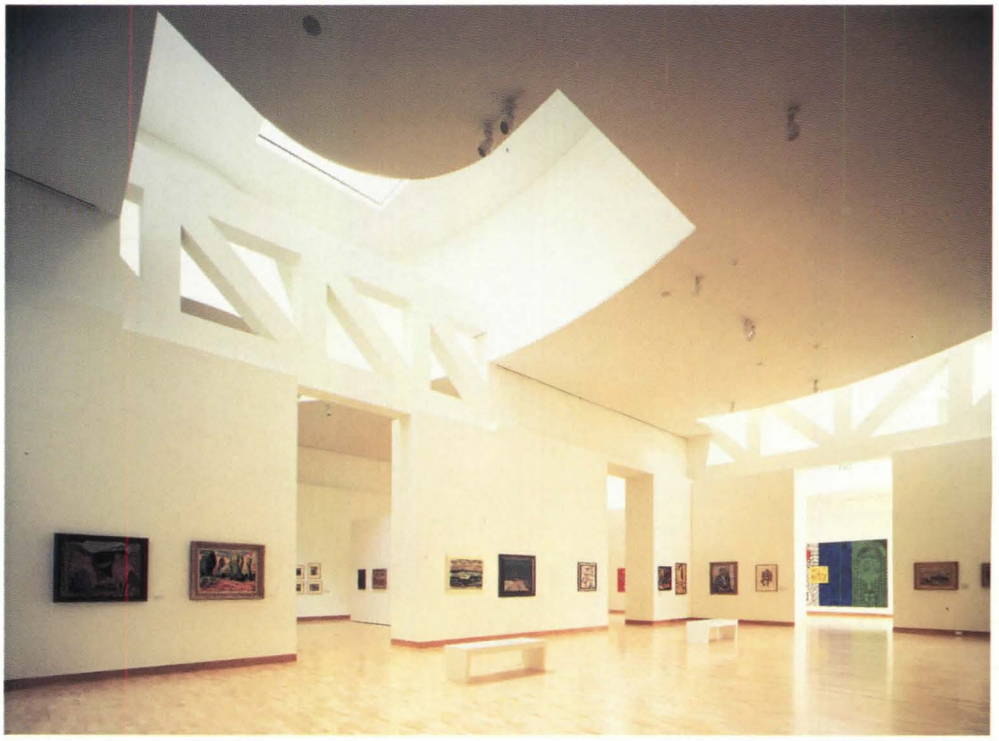
Unlike Gehry's design for the Winton Guest House in suburban Minneapolis, completed in 1986, or the new American Center in Paris (pages 24-25, this issue), the Weisman Museum's voluptuous envelope scarcely corresponds to interior volumes. Gehry designed the galleries as airy, orthogonal lofts to accommodate such vast paintings as Roy Lichtenstein's 1964 *World's Fair Mural*, which hangs opposite the museum's main entrance. In response to Museum Director Lyndel King's estimate that nearly 10,000 students would walk past the building each day, this entrance opens north onto the bridge linking the library across the river to the student union east of the museum. Gehry incorporated large picture windows along the entire north facade, as if to display the museum's collection on the sidewalk.

Inside, the museum's sculptural west facade reads as an independent, undulating wall, which is separated in section by a narrow shaft of space extending from the gallery level to the roof. Although the wall's undulations are sheathed in gypsum board—thin

FACING PAGE: Sculptural masses wrap southwest corner of brick volume.
SECTION: Two-level parking garage forms plinth of museum.
ABOVE LEFT: Gehry designed steel canopies to reflect south light onto north-facing entrance.
FOLLOWING PAGES: Daylight permeates galleries through free-form skylights. Walls can be removed to accommodate large installations.



THIRD FLOOR PLAN



FREDERICK R. WEISMAN ART MUSEUM
MINNEAPOLIS, MINNESOTA

ARCHITECT: Frank O. Gehry & Associates—Frank O. Gehry (principal); Randy Jefferson (managing principal); Robert Hale (principal); Edwin Chan (project designer); Victoria Jenkins, Matt Fineout (project architects); David Gastrau, Richard Rosa (project team)
ASSOCIATE ARCHITECT: Meyer, Scherer & Rockcastle—Jeff Scherer (project manager); John Cook (project architect); Greg Abnet, Joan Soranno, David Zenk, Pat Fitzgerald, Tim Carlson, Kelly Roemhildt, Jim Larson, Mark Fausner (project team)
LANDSCAPE ARCHITECT: Damon Farber
ENGINEERS: Meyer, Borgman & Johnson (structural); Ericksen, Ellison & Associates (mechanical); Progressive Consulting Engineers (civil); Strgar-Roscoe-Fausch (transportation)
CONSULTANTS: PHA Lighting Design (lighting); Ted Jage and Associates (cost); Jack Lindeman (specifications)
COST: $10.5 million
PHOTOGRAPHER: Don F. Wong

PLAN: Visitors enter gallery level from north (lower right). Galleries occupy southeast corner (upper left). Exhibition area flanks west facade (right).
ABOVE RIGHT: Gehry concealed lighting cove in recess above wall.
FACING PAGE: Exhibition area is used for receptions. Teak-framed windows overlook Mississippi River.

and cheap—Gehry transforms the wall into a habitable boundary between the river and the museum. This open poché manifests the architect's conception of architecture as sculpture, and sculpture as place. Visitors occupy the wall's fragmented volumes and command, as if in a childhood fantasy, the top of a mountain in a midwestern plain.

Minneapolis-based Meyer, Scherer & Rockcastle (MSR) was assigned the herculean task of detailing the museum's mountainous facade. They rose to this challenge without the benefit of expensive computers, which Gehry's office now employs to calculate the cladding and structure for projects like the Disney Concert Hall in Los Angeles. Using strings, tape, and measurements from a sketchy but final tabletop model, MSR framed each form with a web of metal studs, assigning names like nose, belly, and skirt to remember different parts of the building.

These structural acrobatics orchestrated the latest example of Gehry's sculptural expressionism in the Midwest, which includes the Iowa Advanced Technology Laboratories (ARCHITECTURE, March 1993, pages 58-67) and the University of Toledo Center for the Arts. In these earlier works, Gehry draws from the romantic temperament of buildings by Erich Mendelsohn, Antoni Gaudí, and Bruno Taut in his creation of hollowed-out, curvilinear volumes. At the Weisman Art Museum, however, Gehry's intuitive manipulation of form is confined to one facade—a shiny decoration for an elegant, if lumpish, shed.

The architect's more important achievement at the Weisman is his ongoing mastery of light. In the galleries, he hollows skylit voids out of the ceiling that could have been molds for Le Corbusier's biomorphic roof forms. And while Gehry forges the Weisman Art Museum's large-scale image with little attention to small-scale detail, he builds a new kind of lighthouse on the river: a metallic muse that inspires personal reflection as much as it reflects light.—*M. Lindsay Bierman*

Trisha Wilson, ASID, IBD, founder of Wilson & Associates, Dallas, Texas. Recently inducted into the 1993 Interior Design Hall of Fame for her stunning work in hospitality design, she is a specifier of DuPont Antron carpet fiber.

TRISHA WILSON

ON COLOR & INNOVATION

Where do colors come from?

I don't think anyone knows. It has to do with feeling.

Like walking along the African coast and finding a rock

with colors you've never seen before.

Colors are thought waves.

If we're sensitive enough to pick them up,

we can train our eyes to catch them—

even if they're just ever so briefly in our sights.

Once I saw the most magnificent color

on a lion running through the bush

with the morning light bouncing off his mane.

I used that color for the interior of a building that perhaps

could not exist anywhere—except in our imaginations.

Is that innovative? Perhaps.

Turning lamps upside down to create a crystal and bronze balustrade.

Building a Palace in the heart of a Lost City.

Not letting reality stop you—that is innovative.

DuPont. Meeting the challenge of innovative minds by inventing products like DuPont Antron® nylon carpet fiber with a superior polymer substrate–type 6,6 nylon. It is offered in over 600 styles, with unlimited high-end color and texture capabilities. DuPont Antron. There is no equal. For more information, call 1-800-4DUPONT.

DUPONT®

Antron®

Only by DuPont

Circle 89 on information card

Some things weren't meant for a wild ride.

Your savings, for example.

Move your dollars to a secure investment with proven performance — GoldPortfolio,® FDIC-insured deposit accounts, developed especially for American Institute of Architects members, with higher interest rates than the average market rates.

You may have already seen GoldPortfolio® deposit accounts listed in nationally recognized financial publications. For more than four years, GoldSavers® Money Market rates have exceeded the national average rates calculated by *Bank Rate Monitor*. And at least one GoldCertificate® CD term has been ranked in *100 Highest Yields* for more than 80 weeks.†

Unlike a mutual fund, GoldPortfolio accounts feature the added safety of FDIC insurance — up to $100,000 per depositor. And because GoldPortfolio is offered by MBNA America, your money is in the care of the nation's "top-ranked" bank in 1993, as determined by *Financial World* magazine.*

Rely on GoldPortfolio for performance, security, and Customer satisfaction — because when it comes to your savings, the last thing you want is a wild ride.

Control your financial future with FDIC-insured GoldPortfolio.

Call 1-800-345-0397, Extension 6050

Investor Service Representatives are at your service
Monday–Friday 8 am–8 pm, Saturday 8 am–5 pm, Eastern time.

Circle 117 on information card

MBNA AMERICA®

Member FDIC

AIA ADVANTAGE — GROUP SAVINGS — MEMBER BENEFITS

*December 7, 1993 issue.

†Substantial penalty for early withdrawal of certificate of deposit funds.

AD 4-1234-94F

"Your new 1/4" Dens-Deck® is durable and easy to handle and still offers superior fire and moisture resistance?"

G-P: Perfect combination, right? It's lightweight, and it's got the front and back embedded glass mats, as well as the patented silicone-treated core. This engineered design gives it dramatically superior strength and moisture resistance.

YOU: *"Dramatically superior." That's quite a promise. What about its fire rating?*

G-P: Dramatically superior there, too — U.L. Class A rating, zero flame spread, zero smoke development. You won't find anything better suited for use as a recover or overlayment board in commercial roof applications.

YOU: *I've specified some of your other Dens products in all kinds of applications — is the 1/4" versatile, too?*

G-P: Absolutely. The mats give Dens-Deck greater flexural strength than alternative roof products. Use it above and below roof system insulation, over wood or steel decks in high-moisture environments, as a separator between incompatible materials, or you can use it with several roofing systems to provide a U.L. Class A rating over a combustible or non-combustible deck.

YOU: *Okay, I think I get the point. Easy to work with, Class A fire rating . . .*

G-P: Superior fire and moisture resistance, of course.

YOU: *Don't you mean, dramatically superior?*

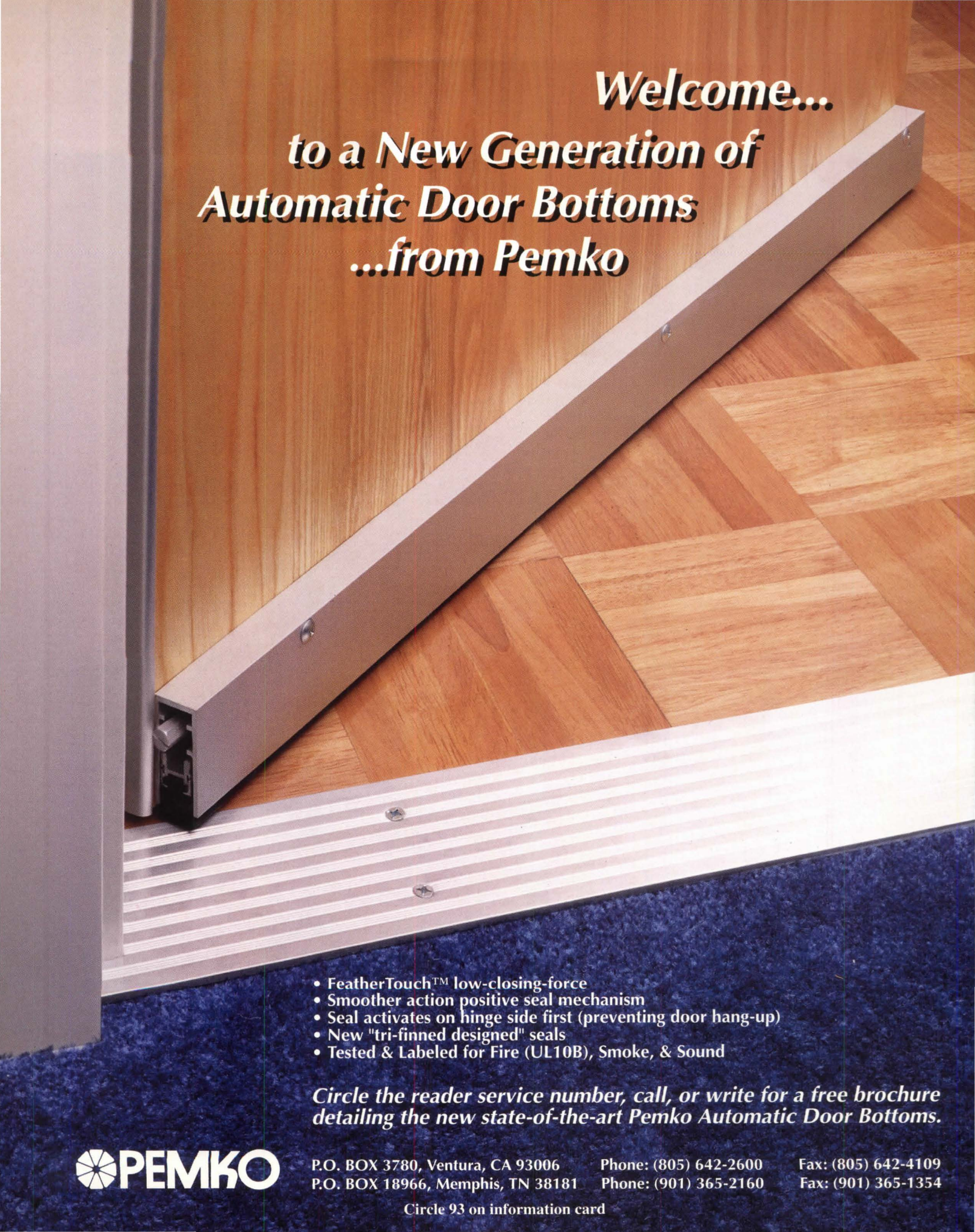
For more information about 1/4" Dens-Deck, call **1-800-BUILD G-P** (1-800-284-5347). Or call the G-P Technical Hotline, **1-800-225-6119**.

Solve it with G-P.℠

Georgia-Pacific

Circle 91 on information card

Please see us at CSI, Booth 1839



- FeatherTouch™ low-closing-force
- Smoother action positive seal mechanism
- Seal activates on hinge side first (preventing door hang-up)
- New "tri-finned designed" seals
- Tested & Labeled for Fire (UL10B), Smoke, & Sound

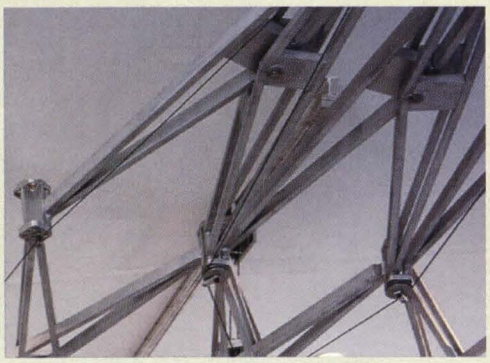
Circle the reader service number, call, or write for a free brochure detailing the new state-of-the-art Pemko Automatic Door Bottoms.

PEMKO

P.O. BOX 3780, Ventura, CA 93006 Phone: (805) 642-2600 Fax: (805) 642-4109
P.O. BOX 18966, Memphis, TN 38181 Phone: (901) 365-2160 Fax: (901) 365-1354

Circle 93 on information card

Technology & Practice



STEVE BARKER © THE MUSEUM OF MODERN ART

PAUL WARCHOL

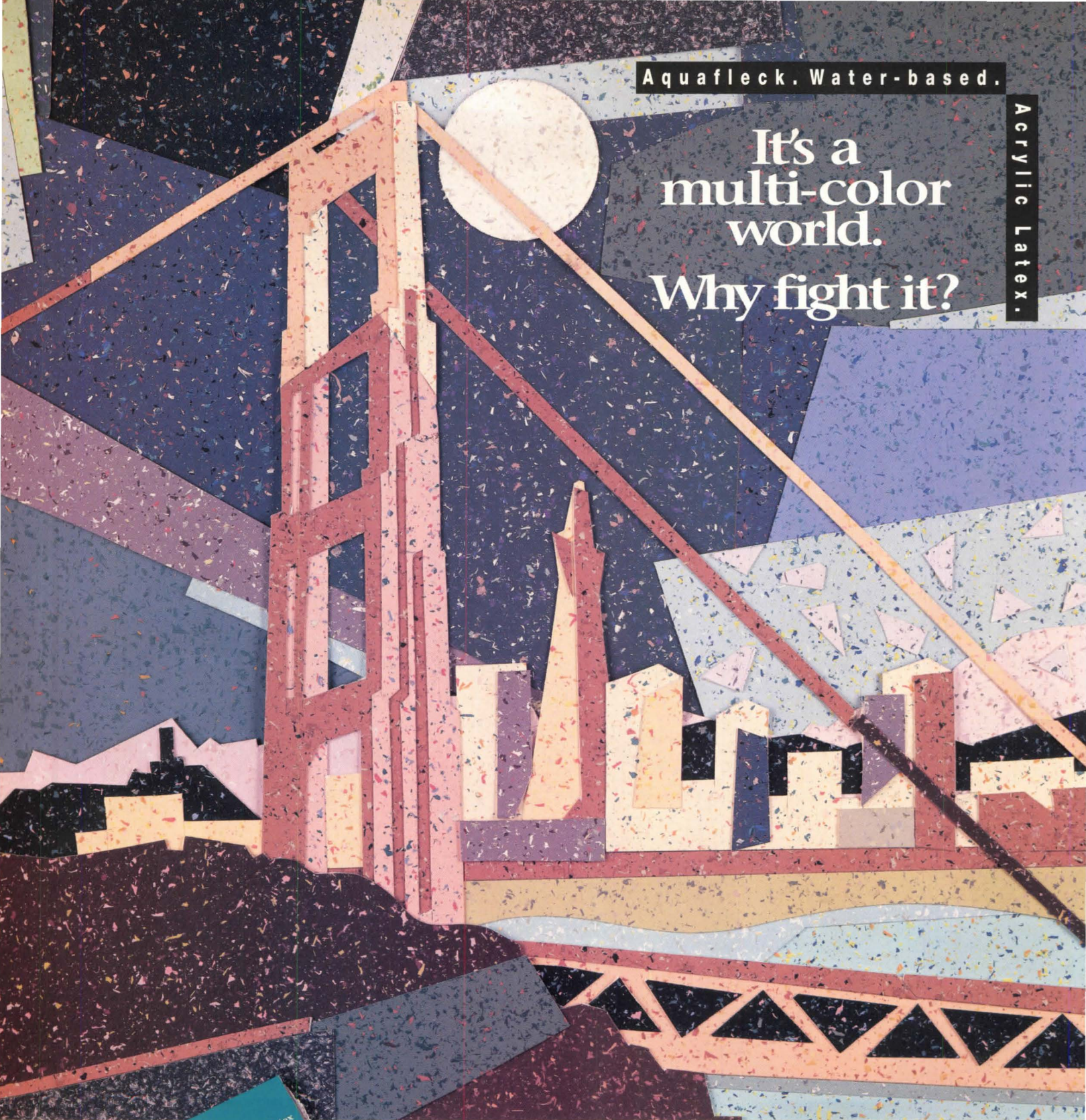
This month's Technology & Practice section focuses on efficiency through building techniques and project delivery, beginning with the structural inventions of **Chuck Hoberman**. For architects, Hoberman's structurally economic, retractable domes offer a potential alternative to expensive deployable roof systems.

Our feature on the new headquarters for the Illuminating Engineering Society of North America demonstrates how the conservation principles espoused by the society can be incorporated into **energy-efficient office lighting**.

Avoiding wasteful replacement of historic building materials can be achieved through the application of **epoxy**. Our technology article recommends how to apply this versatile compound to wood, masonry, and concrete.

Architects are developing designs more efficiently through interactive brainstorming sessions that directly involve clients in the decision-making process. This **collaborative design process** results in fewer changes during construction and fewer client complaints as outlined in our computer story.

Other firms are spending less on marketing and streamlining their practices by ensuring **repeat clients**. Our guide to cultivating such loyalty tells how to listen to clients and learn the intricacies of their business.



Safe to spec anywhere.

Bright bright whites. Rich deep blues. Now Aquafleck® brings all the colors of the world to your multi-color specs. With it, your color palette is limitless.

Aquafleck is the environmental choice. It generates no noxious fumes and no hazardous waste, so you can specify it for any building in the world. It easily beats all VOC/VOS requirements. Yet it's extremely durable, and touch-up is easy.

So make any wall your very own work of art--safely--when you specify Aquafleck. For samples and information, call California Products at 1-800-533-5788 extension 25.

California Products
CORPORATION
Est. 1926 Cambridge, MA

Circle 95 on information card

Structural Inventor

With his iris and expanding structures, Chuck Hoberman elevates the art of engineering.

STEVE BARKER © THE MUSEUM OF MODERN ART

ABOVE RIGHT: Chuck Hoberman stands before a fully extended, operational segment of his 60-foot-diameter Iris Dome, displayed at the Museum of Modern Art. The segment of movable links, pivots, and hubs is constructed of sandblasted anodized aluminum.

Visitors to the Museum of Modern Art's (MoMA's) blockbuster Frank Lloyd Wright exhibition this spring who happened upon a small display of inventor Chuck Hoberman's Iris Dome were well rewarded. Assembled by Matilda McQuaid, assistant curator of MoMA's Department of Architecture and Design, the exhibition consisted of two operable aluminum models of domes that might one day replace the expensive deployable roof systems available today: a large-scale section of a 60-foot-diameter dome, as well as a smaller scaled model of the entire structure. The beautifully made, electrically powered models slowly folded and unfolded in quiet, uninterrupted movements that resembled time-lapse photography of a flower or a sea anemone.

The 36-year-old Hoberman, who studied sculpture at Cooper Union, earned a degree in mechanical engineering at Columbia University, then moved to the design of robotics and automation systems, is an artist and engineer who can be rightly called an inventor. In a course he conducts on structures at Columbia University's Graduate School of Architecture, Hoberman begins with a discussion of invention. He teaches that a dialectic exists between discovery and creativity. Discovery is the finding of something that already exists. Creativity is the generation of something that would not otherwise exist. Invention partakes of both processes. The inventor employs mathematical discoveries out of which he creates an artifact, thereby bringing about a fusion of the two.

Chuck Hoberman insists, however, that he is not a mathematician. "I am exploring things the way it was done in the 19th century using applied mathematics. Those were great days—the time of the big machines, like the steam engine, and the great technological advances in construction—the Brooklyn Bridge, the Eiffel Tower, the Crystal Palace, forms emerging from the new industries. It was the day of the inventor." That is

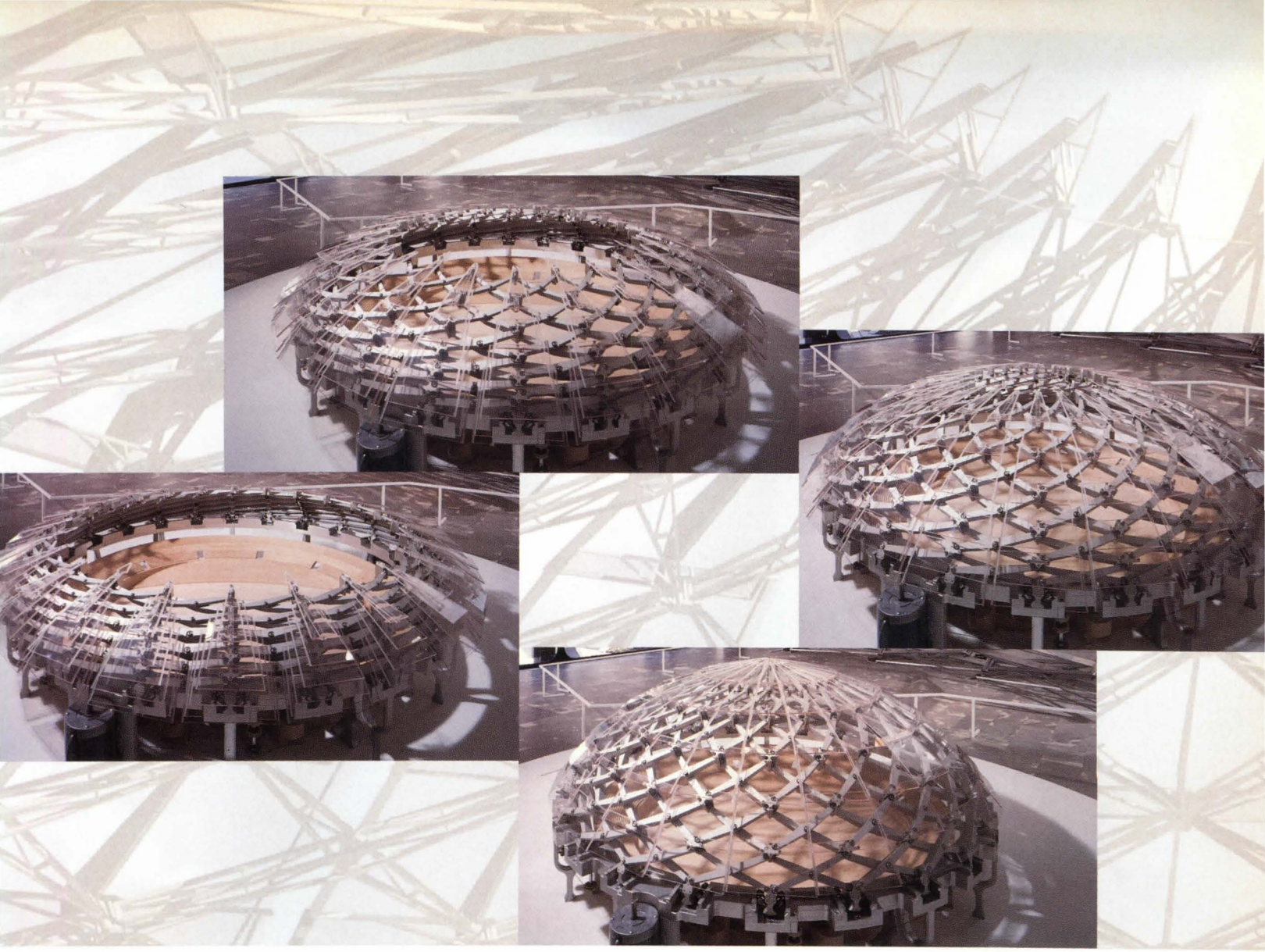
the tradition Hoberman is responding to, a tradition carried into the 20th century by the work of Buckminster Fuller, Frei Otto, Pier Luigi Nervi, and Felix Candela.

Hoberman began his process of invention hoping to eventually design structures that would fluidly transform their size and shape. This inquiry was conducted prior to any thought of what general applications might result. His work, greatly facilitated by the computer, led rather quickly to the exploration of possible geometries for such structural transformations. At the time, Hoberman was just completing his mechanical engineering studies. His focus, therefore, included the design and principles of mechanisms. "The process of going from one concept to another," he remembers, "had its own internal logic—thinking of something, making something, seeing what it does." The trajectory of effort moved from mechanism toward structure; from resolving kinematic concerns to devising links and pivots, to creating functioning forms that would span greater and greater distances, yet be simply, comprehensibly, and economically able to go through extensive motions and very complete transformations.

Hoberman's work soon led to the creation of two distinct families of forms known as expanding structures and iris structures. Both families are rooted in a key mathematical construct, invented and patented by Hoberman, that governs the forms and movement of the structures he designs. The structures of both families are made up of links, pivots, and hubs. Expanding structures, with the application of a necessary degree of force, get bigger or smaller, but retain their overall shape as they move. A sphere remains a sphere, a dome remains a dome, and a faceted shape remains a faceted shape. Within this family, Hoberman is presently branching out into more complex shapes, including saddle-surfaced geometries. Iris structures, rather than becoming bigger or smaller, extend and retract within a stable perimeter to cover a space. The geometries and mechanisms of the two families offer many variations, in shape, orientation, plan, elevation, and means of actuation.

The fundamental difference between an expanding structure and an iris structure is that the former, when it moves together in a cluster, directs all the links inward or outward from the surface. With the iris, the links, pivots, and hubs remain on the surface at all points, as they extend out and retract back. The models of the Iris Dome exhibited at MoMA were completed in early 1994 and represent the most highly developed structures in the iris family. In testing and furthering the applicability of the iris as a retractable roof, Hoberman has worked with structural engineer Guy Nordenson of Ove Arup & Partners to explore the dome's behavior.

The report of the Arup team describes the Iris Dome as a system in which each individual structural element contributes to its behavior as a mechanism: "When the roof retracts and extends, the individual members



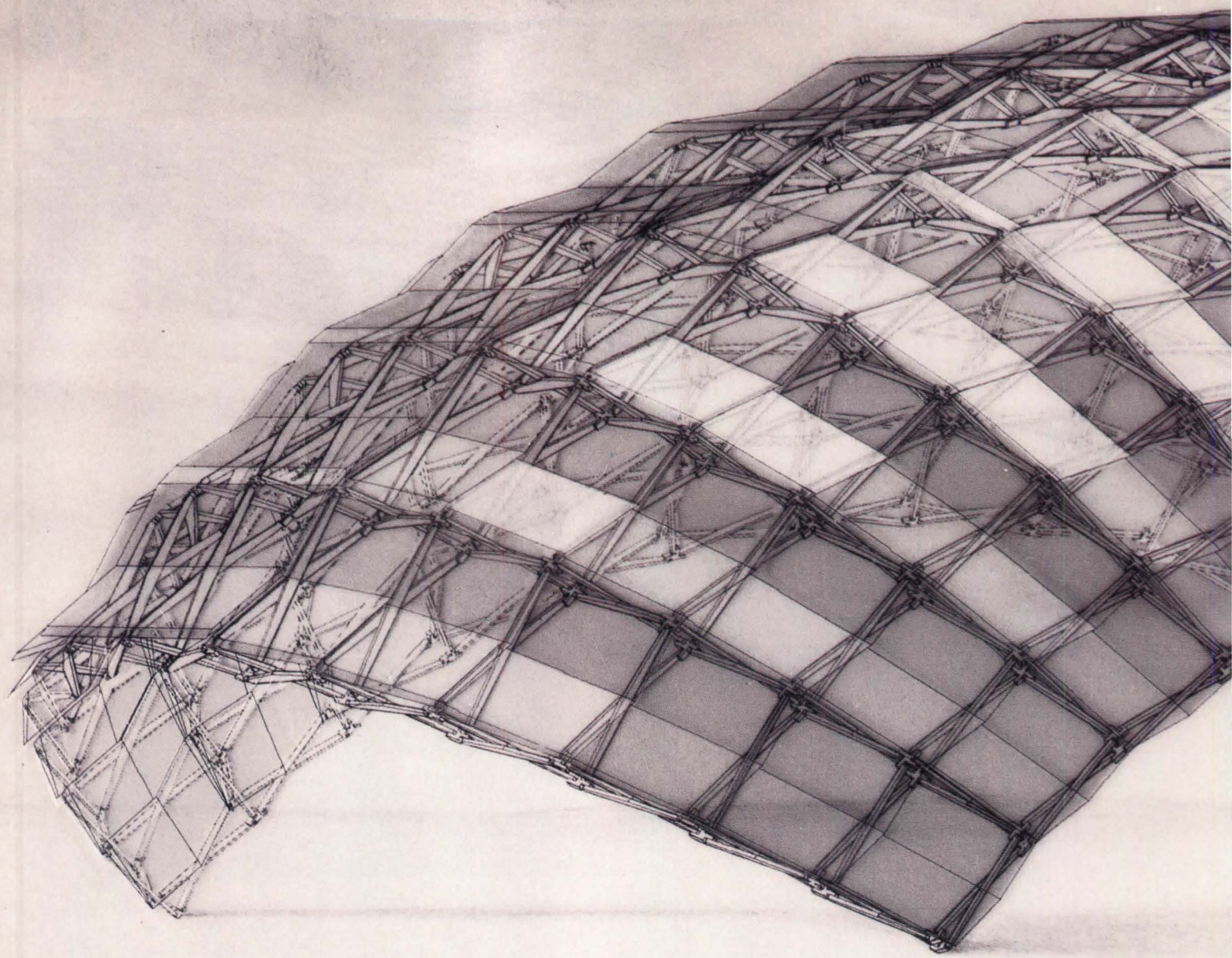
follow patterns of movements giving the overall impression of the iris of the eye, or a lens adjusting to the light. As such, the Iris Dome promises to provide large audiences with a vivid display of structural and mechanical engineering working together." The Arup team notes that an advantage of the current dome scheme is that deployable structures of different forms can be achieved by altering the relative slopes of the pins at the hubs and the lengths of the members.

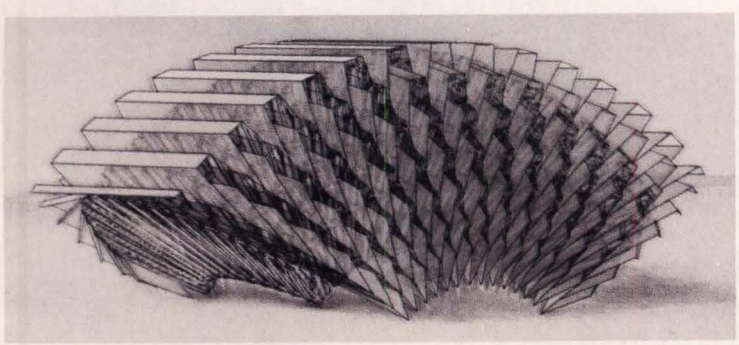
A major goal of the Arup research is to establish whether the Iris Dome behaves as a structural shell. To this end, the team has built a computer model of the dome subjected to uniform loading. Team members are also performing calculations that apply the classical theories of shell membrane and bending behavior to the Iris Dome in much the same manner as the theories of beam behavior are often applied to trusses.

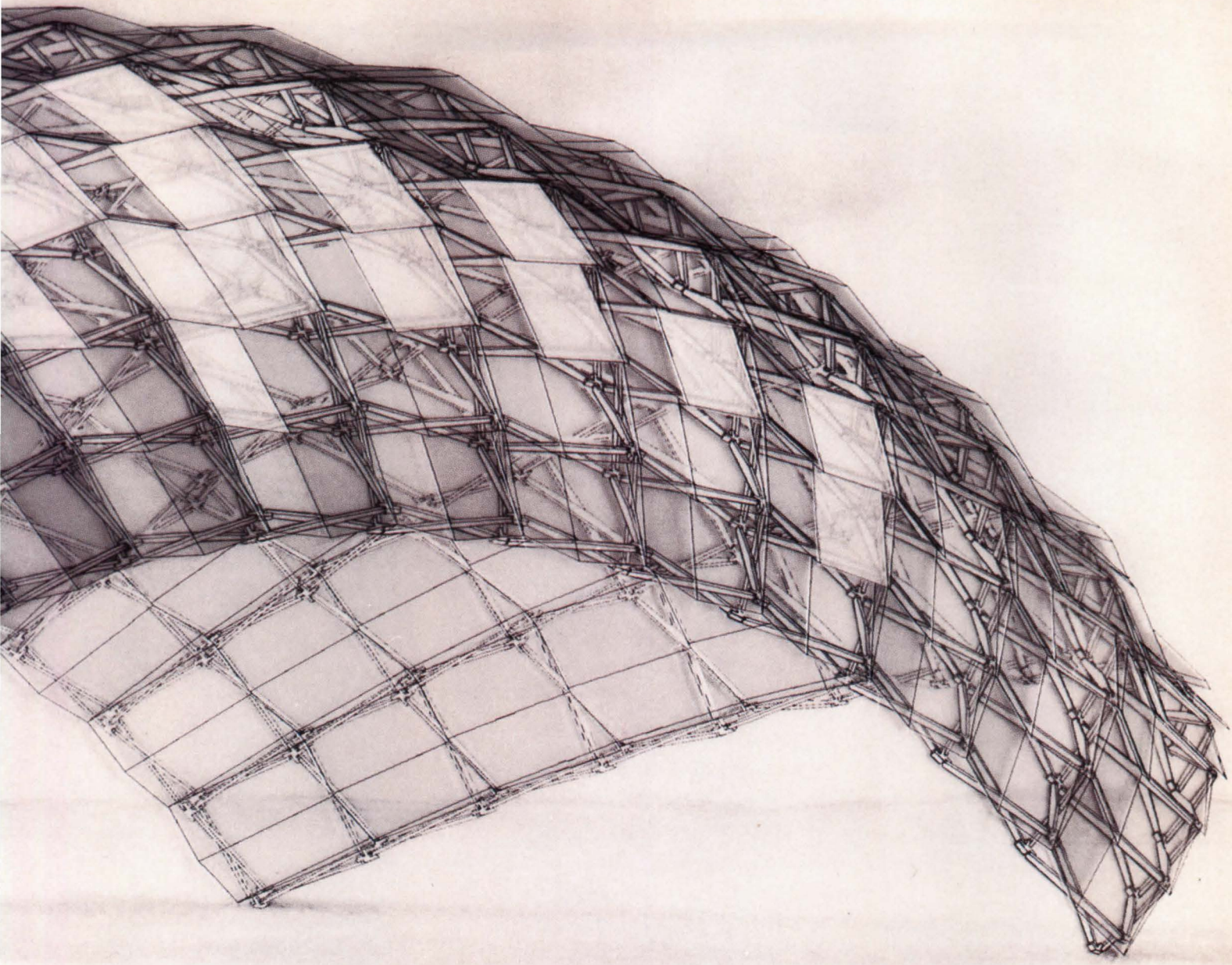
Hoberman and the Arup team describe the dome as an assembly of pairs of structural members with hinges at their midpoints that allow the pairs to move like scissors in unrestrained rotation about an axis perpendicular to the surface of the dome. Each of the four free ends of the scissors is connected to neighboring scissors at hubs that allow rotation similar to that of the hinges. In addition, for reasons of structural stability, the hubs must resist the bending of the scissors' ends about an axis tangential to the surface of the sphere. In the current design, the scissors pairs act in a plane, and the changes in slope necessary to generate curvature occur entirely at the hubs.

To accommodate this curvature, the hubs essentially comprise four pins, one for each pair of scissors framing in. This arrangement allows each structural member to rotate about a slightly different axis where it connects into the hub. Nordenson notes that "from a structural viewpoint, the links are symmetrical about their central hinge point. They taper to their ends from the center." The links reflect the action of the internal

FACING PAGE: The Iris Dome segment at MoMA folds and unfolds in response to the force of an electrical pulley. It is shown (left to right) retracted, partially extended, and fully extended.
ABOVE: A moving, 4-foot-diameter aluminum scale model of the entire dome was also displayed at MoMA. It is shown (clockwise from left) retracted, in various stages of extension, and fully extended. The dome's individual members, moving like scissors, appear to follow patterns of motion similar to the function of the iris of the eye, or a lens adjusting to the light.







ABOVE: In addition to the iris family, Hoberman has invented expanding structures, including a truss roof with sheltering panels, which he calls a portable pavilion. It is shown fully open.
FACING PAGE: The pavilion can be fully contracted, as shown, or expanded, as above, by forces pulling inward or outward from each corner. An expanding structure differs from an iris structure in its fluid expansion and contraction; its overall shape remains constant.

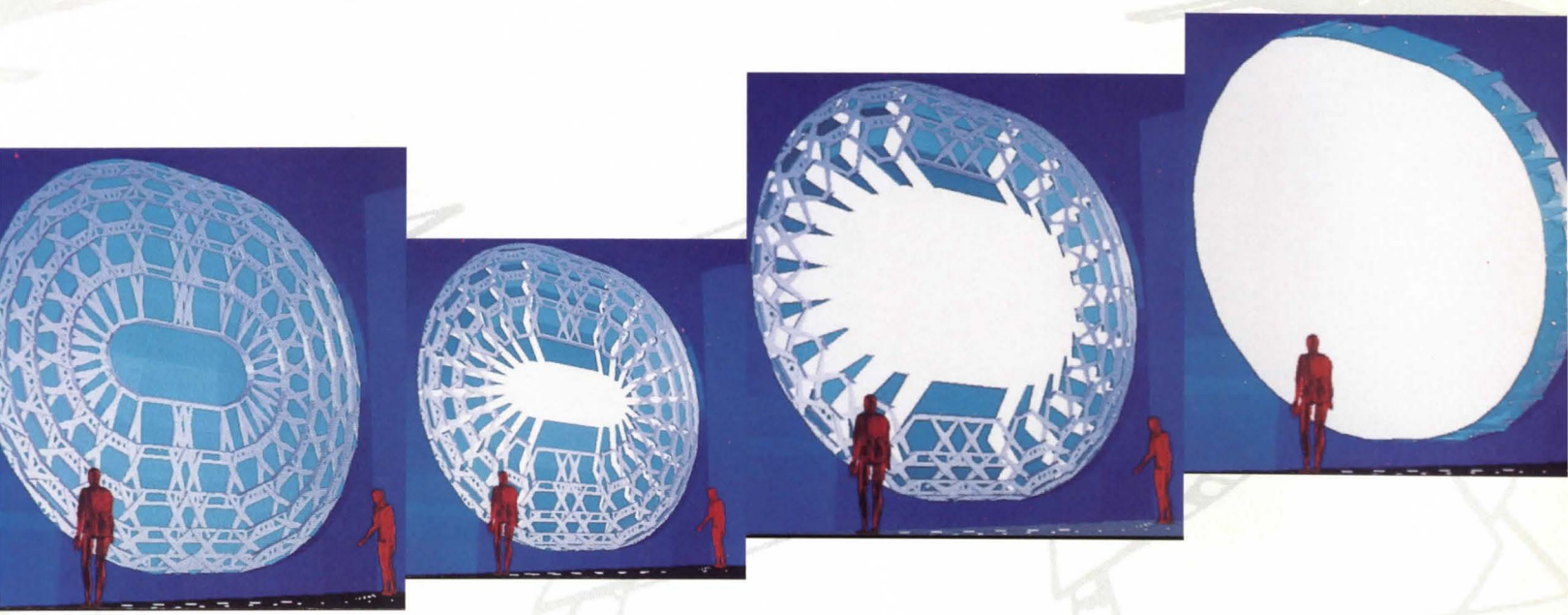
forces of the structure. Because it is, by necessity, made up of parallelograms, the structure relies on bending rather than axial resistance. The link taper follows the magnitude of bending moment to either side of its center. Continues Nordenson, "The structure is, in effect, a Vierendeel grid." Because of this makeup, the structure is only slightly heavier than a fixed triangulated lattice, such as a geodesic dome. Long-span, fixed structures, such as David Geiger's Tensegrity Dome in St. Petersburg, Florida, which spans up to 800 feet, have become quite light and inexpensive. But the few deployable stadium roof structures built to date, the Toronto Skydome, for example, that consists of a series of rigid curved units that slide and nest into each other, are still quite expensive—as much as three to four times that of a fixed dome. "The Iris Dome," claims Nordenson, "because of the clarity and rationality of its design, will undoubtedly prove an affordable alternative to these fixed domes."

Should this turn out to be true, Hoberman's elegant Iris Dome will join the small but famous roster of built forms whose correctness and economy of structure is the source of their beauty. He hopes that other members of his iris and expanding structures families will find their way to becoming buildings. If the young inventor manages to achieve full-scale construction of his theoretical engineering artifacts, he will join the company of Fuller, Otto, Nervi, and Candela, each of whom was able to persuade the ultra-conservative construction industry of his day to take a chance and build his visions.

Although Hoberman's structures move, and those of the structural artist/engineers who preceded him do not (except for some very minor efforts by Fuller), his work is nevertheless rooted in theirs. The distinction of Hoberman's structures, however, is that they grew out of different premises and starting points, out of which emerged different vocabularies and possibilities. Like Hoberman, Fuller, Otto, Nervi, and Candela never implemented someone else's program or design. For the young designer, it is important that each of his predecessors "thought not only of the way of doing something, but the why of it as well, and that has every mark of intentionality and purpose."

Hoberman reports that "Fuller did a few domes that did deploy. One geodesic, partly deployable and partly demountable, could be separated into pieces that he was able to flatten out and stack. Bucky also formed a kind of geodesic that was not triangulated and didn't look terribly strong. It had a series of pistons that drove the thing. He never carried this project to the level of his other work, or really developed it in any kind of methodical way. He also did a geometric form which he called 'jitterbug.' It wasn't particularly structural, but he made it dance."

Frei Otto's vocabulary of hyperbolic paraboloid, saddle-shaped geometries was derived from the fact that the fabric of his tent



structures wanted to take those shapes. Like Hoberman's models, his tensile roofs are retractable; but unlike them, Otto's roofs are manipulated like the sails of a boat by means of cables and winches. In Otto's work, there is a clear separation between what makes up the structure and what makes up the mechanism. In Hoberman's, the mechanical and structural components are integrated.

Candela's forms emerged from his desire to make very thin shells, which led him to develop the mathematical formulas for hyperbolic paraboloids and build them. Hoberman notes that "he didn't pick just any forms, he made choices and adaptations to reflect an esthetic viewpoint. In that sense, what I am trying to do is rather similar."

Both Nervi and Hoberman work in lamella forms. Nervi's lamella cylindrical roofs were invented by him in the 1940s for aircraft hangars. The lamella system enabled him to do away with the beams connecting parallel arches and constitutes a curved space frame. Hoberman is intrigued by the fact that "out of the process in which I am working, the form of the lamella emerged from my effort to make a particular type of iris structure. In Nervi's effort, it had a different significance that was purely structural."

Hoberman acknowledges that he could not have accomplished what he has done so far, had not this great quartet of artist/engineers gone before him. "Whatever is expressed by my way of working, it is certain that all of these men were very important." When he was in engineering school, and later when he began practicing as a robotics engineer, for inspiration Hoberman pored over their work, which led him to direct his efforts toward architecture.

"Frankly, architecture has been my support, and my career has come from the architectural aspect of what I do," Hoberman continues. "The world of architecture seems to be the place where my kind of work will find its fulfillment."—*Mildred F. Schmertz*

FACING PAGE: Hoberman's geodesic dome belongs to his family of expanding structures. It projects to a diameter of 18 feet (top right) from a compact $4\frac{1}{2}$-foot cluster (bottom left). In all positions, the structure is stable and rigid, maintaining its shape and geodesic configuration. The dome sits on five roller supports. If pulled outward at these points, the dome expands; if pushed inward, it contracts.
ABOVE: The geometries of Hoberman's iris family allow a wide variety of forms and configurations. This oval-shaped dome is being developed for MCA/Universal Studios for a theme park exhibit in Japan.

ANDERSEN® WINDOWS FOR COMMERCIA

Constructed in the 1920's, this office building had 6-inch thick concrete walls.

"The challenge," said architect John Surges, "was to bring this old structure into a contemporary world without destroying its historical character."

"The Andersen® windows installed easily into the concrete walls and the Andersen wood interiors helped us achieve a historically correct appearance."

"Outside, the stucco and the Andersen Perma-Shield® vinyl created a maintenance-free exterior."

Renovate with Andersen® windows? This architect answers with a concrete yes!

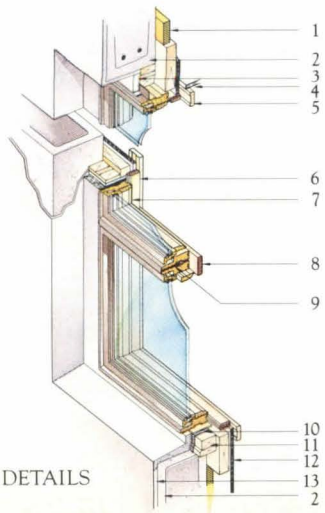
For the name of your Andersen representative, call 1-800-426-7691. Or write Andersen Commercial Group,℠ Box 12, Bayport, MN 55003.

BRAY-LIPPOW BUILDING. MARTINEZ, CALIFORNIA.

ARCHITECT: JOHN D. SURGES, AIA. SURGES ARCHITECTURE AND PLANNING. MARTINEZ, CALIFORNIA.

BEFORE: AN OLD, CONCRETE CLASSIC.

RENOVATION? A CALIFORNIA ARCHITECT OFFERS A CONCRETE ANSWER.



WINDOW DETAILS

1. RIGID INSULATION
2. EXISTING CONCRETE BLOCK
3. 1" PLASTER
4. SUSPENDED ACOUSTIC TILE CEILING
5. HARDWOOD CASING
6. ANDERSEN® EXTENSION JAMB *(optional)*
7. ANDERSEN® PERMA-SHIELD® CASEMENT WINDOW
8. ANDERSEN TRANSOM CASING *(optional)*
9. ANDERSEN VINYL TRIM STRIP & WOOD JOINING STRIP *(optional)*
10. BUILDING FELT
11. PRESSURE TREATED WOOD BLOCKING
12. ½" GYPSUM BOARD
13. EXISTING PLASTER

ANDERSEN COMMERCIAL GROUP℠

Andersen AW Windows. Patio Doors.

Circle 51 on information card

lightruss

A modular indirect lighting structure for large, open spaces. Configure to include horizontal or vertical runs, gentle curves, multiple angles of any radius or even changes in elevation.

Choose from a palette of reflector designs and light sources that are uniquely packaged to conveniently drop into the system.

Flexible, lightweight components are constructed of die-cast, extruded aluminum anodized and powder coated to withstand corrosive environments.

For optimum illumination that goes the distance the choice is **lightruss** - from **SPI**.

SPI

Circle 97 on information card

To view SPI's new **lightruss** video, write, call or fax:

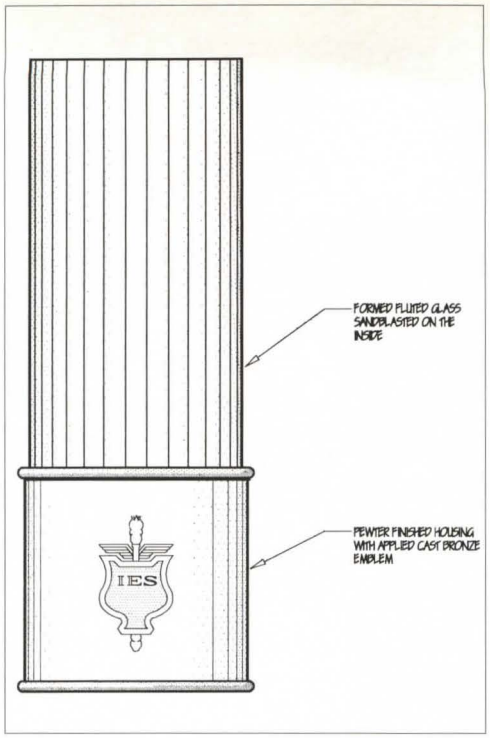
SPI Lighting Inc.
10400 North Enterprise Drive
Mequon, WI 53092

414-242-1420
414-242-6414 FAX

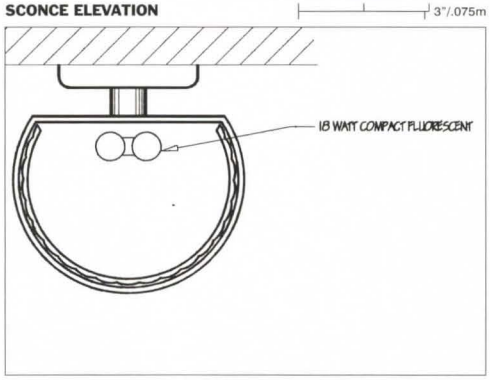
Lighting by Example

A new headquarters seeks to set the industry standard for energy-efficient office lighting.

RIGHT: Stainless steel and frosted glass sconces, housing a pair of 18-watt compact fluorescents, provide energy-wise accent lighting in the corridors of the IES headquarters.



SCONCE ELEVATION 3"/.075m



SCONCE PLAN 3"/.075m

PAUL WARCHOL

The New York headquarters of the Illuminating Engineering Society of North America (IES) conveys a decided absence of glitz. There are no zoomy fixtures suspended from walls or bright displays showing off the latest trends in lighting technology. The impression is clearly—and intentionally—understated.

This design direction was prompted by the fact that IES is an organization with cost-conscious members who don't like sinking their dues into extravagances, maintains Howard Brandston of H.M. Brandston & Partners, lighting designers of the new offices. Founded in 1906 to establish and publish scientific lighting recommendations, the 10,600-member society remains active in setting standards and recommended practices for lighting design and applications. Recently, IES coauthored ANSI Standard 90, the energy-conservation guideline for lighting. "We felt it was important for the IES to design good lighting within the spirit of the code they make everybody else comply with," says Brandston, a former IES president.

In short, the designer's actions had to match the organization's words. "But you can have well-lit rooms, design innovative lighting, and still be within the spirit of the guidelines," explains project architect Tom Brashares, formerly of Voorsanger & Associates Architects of New York City, who designed the offices. IES Executive Vice President William Hanley selected Voorsanger & Associates from more than a dozen prospects because the architect showed a willingness to work within the strict $35-per-square-foot budget and a sensitivity to the society's energy-conservation goals.

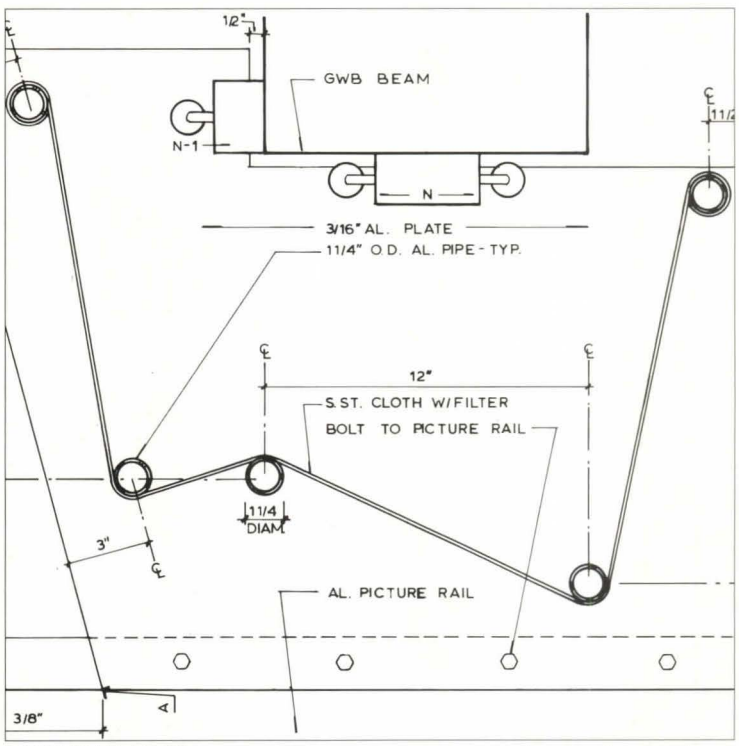
To complement Brandston's recommendation for almost exclusive application of energy-efficient fluorescent lighting, Voorsanger generated an office plan that allows as much natural light as possible into the 11,000-square-foot space leased by IES. The 17th-floor suite affords spectacular views overlooking the East River, which suggested to principal Bartholomew Voorsanger an egalitarian arrangement of offices. Interestingly, the architect saw in the project a potential to address ethical issues by minimizing the hierarchical organization of the space. "There is an active movement in institutionalized business to downgrade the quality of the workplace," he asserts. In this case, Voorsanger was committed to producing as emotionally sustaining and rewarding an environment as possible—and an open, light-filled workplace was the best place to start.—*Vernon Mays*

Lobby lighting

DETAIL: Lobby lighting relies on low-cost fluorescent fixtures within asymmetrical enclosures of stainless steel mesh backed by mylar film.
BOTTOM: Light is both reflected off ceiling and diffused by shade, whose dynamic form adds variety to ceiling.

Given the Illuminating Engineering Society (IES) job's strict budget limitations, Voorsanger & Associates concentrated the design effort on the office lobby. The architect seized the potential to enliven the space by taking advantage of its full slab-to-slab height and exposed concrete beams, which establish a rhythm for the lobby lighting. Based on experience in previous jobs where economy was critical, the architect specified an inexpensive fixture and strived to make the enclosure distinctive. Two-bulb fluorescent fixtures are attached to the bottom of the beams, and a single-bulb fixture is placed on the side of the beam. The fixtures are shielded from view by an undulating shade wrapped around an asymmetrical arrangement of aluminum tubes. Project architect Tom Brashares selected a stainless steel cloth for the shade, backed with a mylar film that lets the shade glow while reflecting light against the white ceiling to bolster the indirect lighting. Lighting designer Howard Brandston notes that the irregular placement of the fixtures on the beams produces a slight undulation in the lighting intensity that provides relief from the normal boredom of indirect lighting while imparting a soft light appropriate for the receptions sometimes held in the lobby.

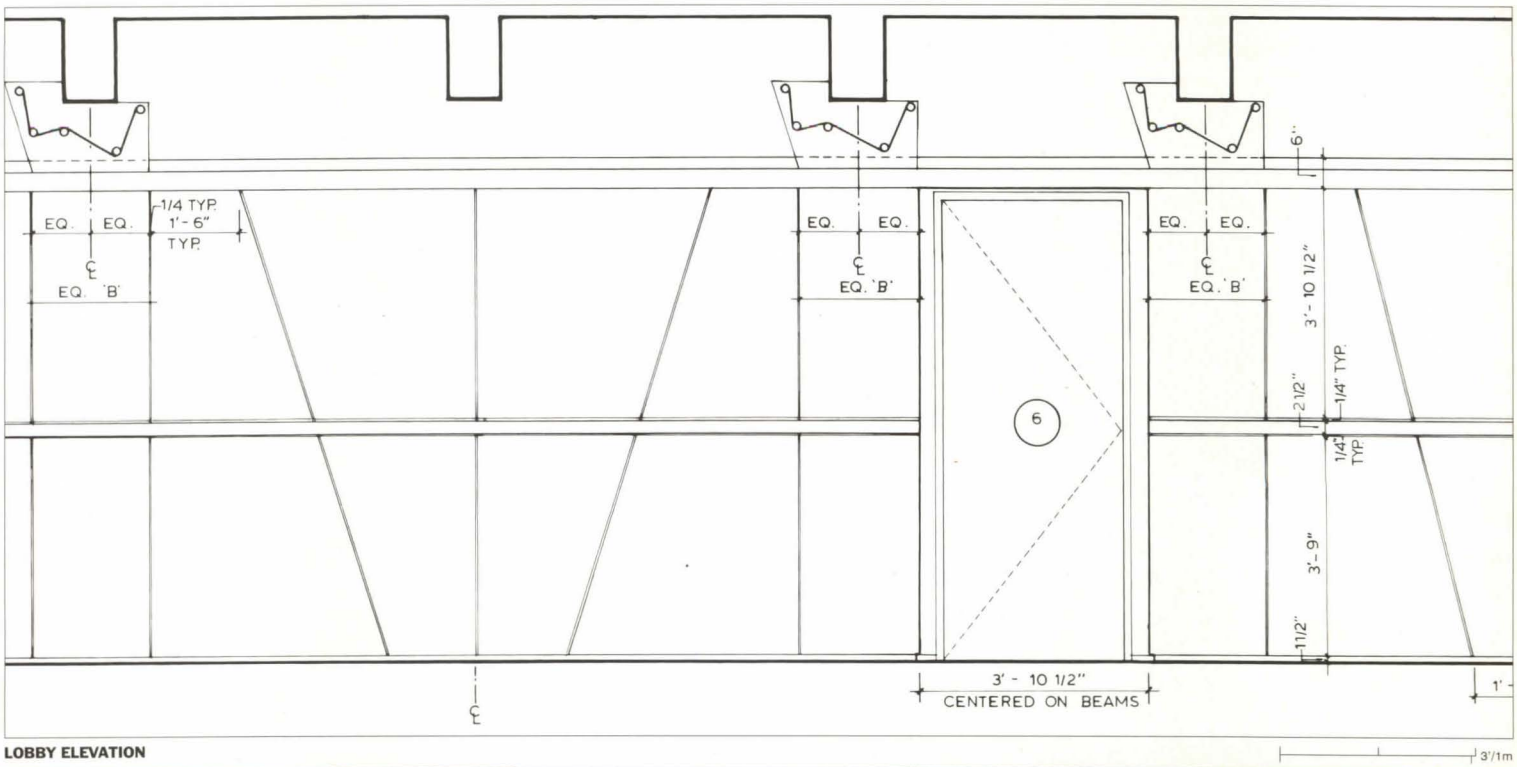
Brandston took the lead in design of the wall sconces that dot the corridors. He selected a simple, stainless steel base adorned with the bronze emblem of the IES. The sconces are fitted with 18-watt compact fluorescents and curved, fluted-glass shades that provide accent lighting to the office during special events. Opposite the curved reception area wall is a small area the society uses as a gallery to display the winners of its annual Lumen Awards. The framed photographs on its walls are lit by a dozen incandescent spotlights. "Here we made a very hard choice, in terms of energy," Brandston notes. Even so, the Illuminating Engineering Society's electric bills in February and March averaged less than $575 per month, extremely low for an 11,000-square-foot office.



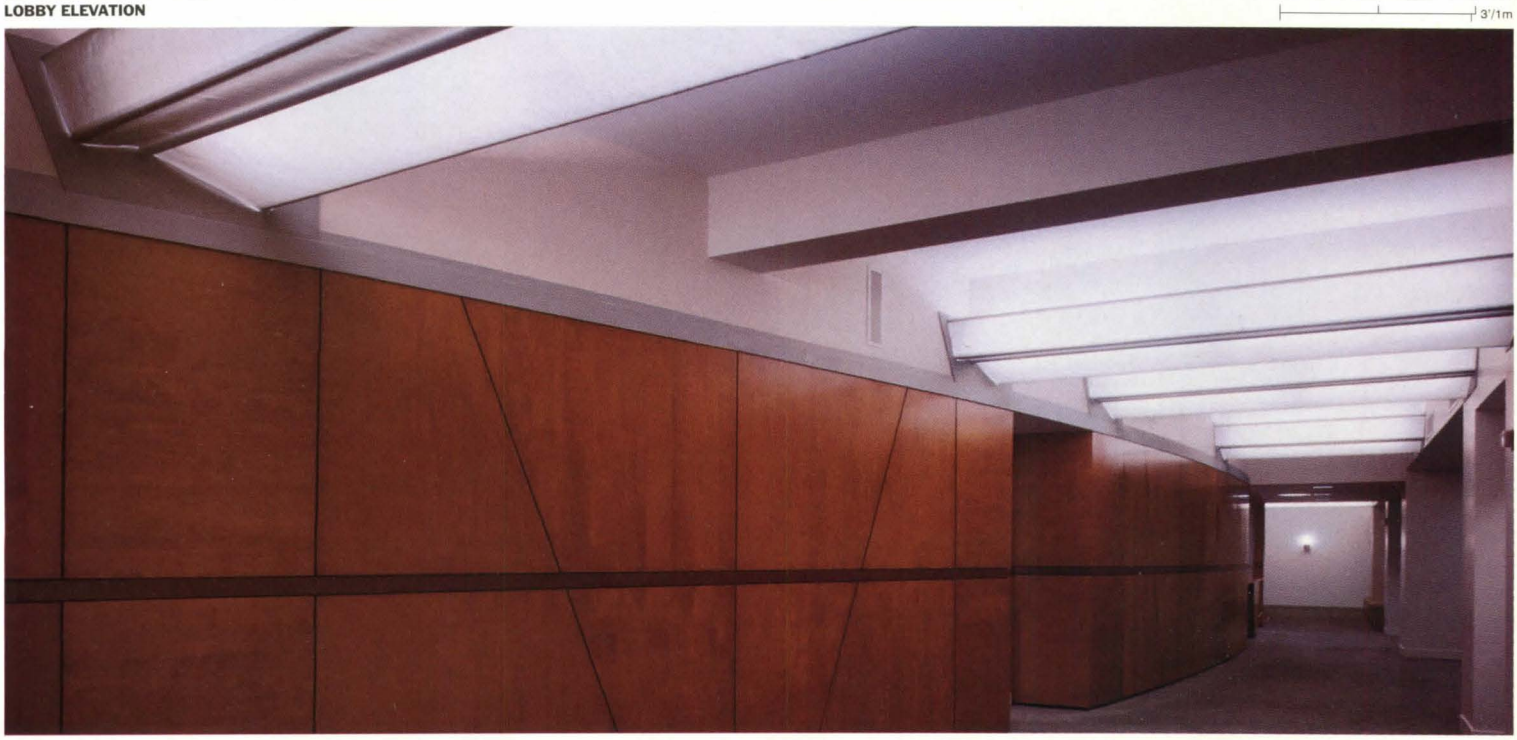
LOBBY FIXTURE DETAIL


PAUL WARCHOL PHOTOS

ELEVATION: Exposed concrete beams in lobby established rhythm for lighting and regulating dimensions for curved, wood-paneled wall.
BOTTOM: Custom fixtures combine direct light with varying levels of indirect light bounced off ceiling.



LOBBY ELEVATION



Office lighting

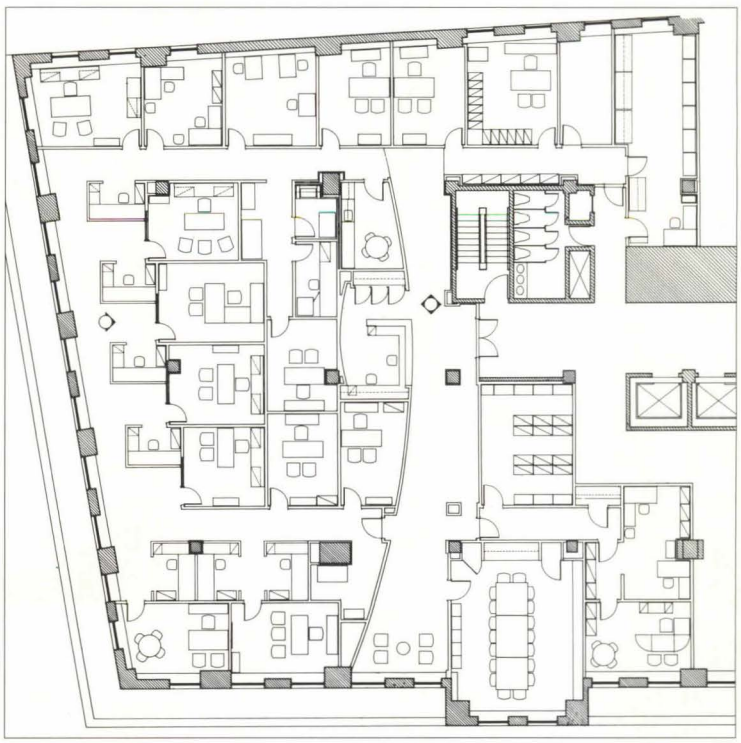
PLAN: Curved wall in lobby directs workers toward corridors, which are aligned with windows on south facade. **BOTTOM:** Cool fluorescent light in reception area is contrasted by warmth of red-stained plywood wall. Long fluorescent fixture within blue-gray ceiling recess bounces light into reception area.

Organizing the Illuminating Engineering Society offices into a nonhierarchical arrangement had important implications for the overall lighting scheme. Rather than lining the perimeter walls of the suite with managers' offices and locating the secretarial area in the core, Voorsanger & Associates planned the south-facing edge of the building as an open corridor. The architect placed secretarial workstations adjacent to the circulation path and located managers' private offices behind them. Thus the corridor, secretaries, and managers all receive ample daylight.

Managers' offices receive daylight through south-facing translucent, laminated glass windows, which also afford privacy. While each private office is supplemented with electric lighting, it is also equipped with an occupancy sensor that turns out the lights if the room remains unoccupied for long. Both open offices and managers' offices are illuminated primarily by 2-by-2-foot parabolic fixtures, which lighting designer Howard Brandston fitted with plastic shields to minimize the visual discomfort caused by bare fluorescent lamps. Fluorescent downlights in the offices add variety to the texture of the light. Exterior windows are fitted with black plastic-mesh shades that, on sunny days, can cut the light about 40 percent.

In the conference room, the manufacturer neglected to make the specified ambient fluorescent fixtures, so incandescents were substituted to save thousands of dollars in delays. Even so, white plastic panels in the conference room's cabinetry reflect light, reducing the need for electric lighting on bright days.

Special function areas such as storage room, copy room, kitchen, and lunchroom were placed in the heart of the plan and lighted with the 2-by-2 ceiling fixtures. Voorsanger located the society's art department adjacent to a solid perimeter wall; Brandston equipped the room with adjustable lighting setups to accommodate viewing of prints, slides, and other materials under controlled light conditions.



FLOOR PLAN 10'/3m

PAUL WARCHOL PHOTOS

PLAN: Reflected ceiling plan indicates that majority of fixtures are 2-by-2-foot parabolic fluorescent fixtures.
BOTTOM: Secretaries' workstations and managers' offices (behind windows) gain substantial daylight from south-facing windows.

CHART: Fixtures, as indicated in reflected ceiling plan, were specified to lower the IES's monthly utility costs.
BOTTOM: Light-reflective white plastic panels in conference room reduce need for electric lighting.

REFLECTED CEILING PLAN 10'/3m

Estimated rebates from local utility

	Fixture type	Number of fixtures	Lamps per fixture	Rebate per lamp	Total rebate
1	2' x 2' parabolic louver	69	2	$12/lamp	$1,656
2	2' x 4' parabolic louver	15	2	$12/lamp	$360
3	Compact fluorescent downlight	31	2	$12/lamp	$744
4	Incandescent downlight	4	4	$12/lamp	$192
5	Lens wallwasher	26	1	$12/lamp	$312
6	Compact fluorescent wallwasher	13	1	$12/lamp	$156
7	Wall sconce	14	1	$12/lamp	$168
8	Custom wallwasher	4	3	$12/lamp	$144
	TOTAL				$3,732

Risky Business.

Roger K. Lewis, FAIA

Don't take short cuts when signing a contract. Call your full-service distributor for AIA documents. Reduce the risk by spelling out the duties and responsiblities of each person involved in the project.

AIA documents... the foundation for building agreements.

1994 Full-Service Distributors of AIA Documents

ALABAMA
AIA Birmingham (205) 322-4386
AIA Montgomery (205) 269-9918

ALASKA
AIA Alaska (907) 276-2834

ARIZONA
AIA Arizona (602) 252-4200

CALIFORNIA
AIA Cabrillo (310) 495-1469
AIA Central Valley (916) 444-3658
AIA East Bay (510) 464-3600
AIA Golden Empire (805) 833-8010
AIA Los Angeles (213) 380-4595
AIA Orange County (714) 557-7796
AIA Pasadena & Foothill (818) 796-7601
AIA San Diego (619) 232-0109
AIA San Francisco (415) 362-7397
AIA San Joaquin (209) 266-0389
AIA Santa Barbara (805) 965-6307
AIA Santa Clara Valley (408) 298-0611

COLORADO
AIA Colorado (303) 831-6183

CONNECTICUT
Cleaveland, Inc. (203) 243-3456
AIA Connecticut (203) 865-2195
Crest Reprographics, Inc. (203) 677-8817

DELAWARE
Reproduction Center, Inc. (302) 328-5019
Wilmington Blue Print (302) 652-3364

DISTRICT OF COLUMBIA
National AIA Bookstore (202) 626-7475

FLORIDA
AIA Florida (904) 222-7590
AIA Tampa Bay (813) 286-7225
AIA Miami (305) 448-7488
Anderson/Cowford (904) 356-4271
Griffith Equipment & Supply Co. (904) 433-2605

GEORGIA
Architectural Book Center
AIA Atlanta (404) 873-1052
Dougherty Blueprint & Supply (912) 435-5727
Georgia Blueprint Co. (404) 524-8881
Savannah Blueprint Co. (912) 232-2162

HAWAII
AIA Honolulu (808) 545-4242

IDAHO
AIA Idaho (208) 345-3072

ILLINOIS
AIA Chicago (312) 670-7770

INDIANA
Architectural Center Bookstore
AIA Indiana (317) 634-3871

IOWA
AIA Iowa (515) 244-7502

KANSAS
AIA Kansas (913) 357-5308
City Blue Print, Inc. (316) 265-6224

KENTUCKY
Lynn Blue Print & Supply (606) 255-1021

LOUISIANA
AIA Louisiana (504) 387-5579
AIA New Orleans (504) 525-8320

MASSACHUSETTS
Boston Society of Architects (617) 951-1433
Hobbs & Warren (617) 523-2282
B.L. Makepeace (617) 782-3800

MICHIGAN
AIA Michigan (313) 965-4100

MINNESOTA
AIA Minnesota (612) 338-6763

MISSISSIPPI
AIA Mississippi (601) 948-6735

MISSOURI
AIA Kansas City (816) 221-3485
AIA St. Louis (314) 231-4252
AIA Springfield (417) 866-2211

NEBRASKA
Nebraska Society of Architects (402) 472-1456

NEVADA
Construction Notebook Inc. (702) 876-8660

NEW HAMPSHIRE
AIA New Hampshire (603) 226-4550

NEW JERSEY
AIA New Jersey (908) 636-5680

NEW MEXICO
AIA Albuquerque (505) 255-2170

NEW YORK
AIA Long Island (516) 294-0971
AIA Rochester (716) 232-7650
AIA Central New York (315) 471-0349
W.L. Coughtry Co., Inc. (518) 465-8367

NORTH CAROLINA
AIA North Carolina (919) 833-6656

OHIO
AIA Cincinnati (513) 421-4661
City Blue Print (216) 241-7344
AIA Cleveland (216) 771-1240
AIA Columbus (614) 451-7654
Dayton Blueprint Co. (513) 223-2272
Toledo Blue Print (419) 243-7224

OKLAHOMA
Eastern Oklahoma Chapter/AIA (918) 583-0013
AIA Central Oklahoma (405) 235-3712

OREGON
AIA Portland (503) 223-8757

PENNSYLVANIA
Pennsylvania Society of Architects (717) 236-4055
AIA Philadelphia
AIA Bookstore (215) 569-3188
AIA Pittsburgh (412) 471-9548

SOUTH CAROLINA
Charleston Blueprint/Supply (803) 722-1617
AIA South Carolina (803) 252-6050

TENNESSEE
Association Partners (615) 298-1250

TEXAS
AIA Austin (512) 452-4332
AIA Dallas (214) 871-2788
AIA Fort Worth (817) 338-4668
AIA Houston (713) 622-2081
AIA San Antonio (512) 226-4979

UTAH
Serviceblue Reprographics (801) 486-1391

VIRGINIA
Virginia Society/AIA (804) 644-3041
AIA Hampton Roads (804) 461-2899

WASHINGTON
AIA Seattle (206) 448-4938
AIA Spokane (509) 747-5498
J.A. Gendron & Company (509) 326-4490

WEST VIRGINIA
West Virginia Society of Architects (304) 344-9872

WISCONSIN
AIA Wisconsin (608) 257-8477

AIA Documents
Full Service Distributor

Gyo Obata On Originality

Gyo Obata, FAIA

"Good design does not occur in a vacuum. It is created in response to the needs of a client and the opportunities of the site. This is where originality comes in. How well a building fulfills its human purpose is the standard by which we judge whether a building has meaning. If it does not ease the spirit as well as stir the imagination, then it is not a significant success."

The tallest building on the St. Louis skyline, the 42-story Metropolitan Square, was designed by Hellmuth, Obata & Kassabaum and is the new home of HOK's corporate and St. Louis offices. The architects specified Kynar 500®-based finishes.

For over a quarter of a century, the world's most original architects have specified Kynar 500-based finishes to protect their designs. Shouldn't you? For more information, or to share your project originality, write: Elf Atochem North America, Inc., Fluoropolymers, 2000 Market Street, Philadelphia, PA 19103. Or call 800-KYNAR500 (800-596-2750).

KYNAR 500. The Original.

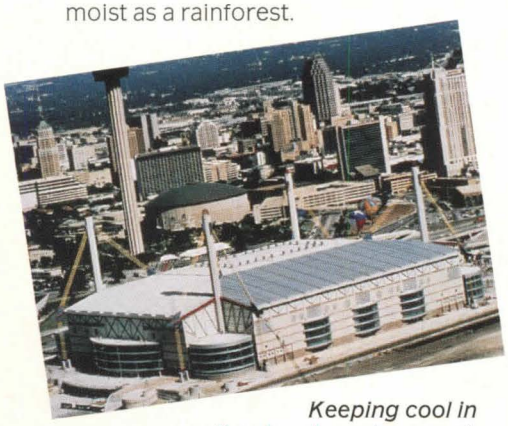
elf atochem

ATO

Circle 99 on information card

Even a Rainforest Can't Dampen Our Performance

Nothing endangers insulation R-values more than moisture. And thanks to wind-driven rain, internal humidity and condensation, the inside of a rain-screen cavity wall can get as moist as a rainforest.



Keeping cool in another harsh environment. The Alamodome, San Antonio, Texas.

It's the most versatile multi-purpose stadium in America. But without STYROFOAM brand insulation, it wouldn't stand more than a sporting chance of surviving the sweltering Texas heat. The designers of the Alamodome chose STYROFOAM insulation for its proven moisture resistance and long-term R-value retention.

In this environment, even the highest initial R-value can fall victim to exposure. Which makes moisture resistance your key consideration when choosing insulation for a rain-screen cavity wall.

New STYROFOAM* CAVITYMATE* brand insulation is moisture resistant. That's why it retains its R-value, year after year after year.

Similarly manufactured STYROFOAM brand products have been used successfully for over 40 years in other wet environments like foundation walls, roofs, roads and even floating docks. Plus new STYROFOAM CAVITYMATE can help cut down on heating and maintenance costs too.

We'll be happy to show you how it can do the same for you. So next time you're considering cavity wall insulation, call us first. We'll help you tame one of the harshest environments of all.

For technical literature on STYROFOAM CAVITYMATE brand insulation and the Alamodome case study, call our toll-free number, or simply return the coupon below to The Dow Chemical Company, Customer Information Center, P.O. Box 1206, Midland, Michigan 48641-9822

DOW* Styrofoam CAVITYMATE*

Circle 101 on information card

YES, please send me complete details on STYROFOAM* CAVITYMATE* brand insulation and the Alamodome case study.

- ☐ Brochure on STYROFOAM CAVITYMATE insulation (Form No. 179-4285)
- ☐ Alamodome case study report (Form No. 179-4296)
- ☐ Please call me to arrange a meeting with a Dow sales representative.

Name _____

Title _____

Company _____

Address _____

City _____

State _____ Zip Code _____

Phone ( ) _____

C1957B

Call Dow 1·800·441·4369

*Trademark of The Dow Chemical Company

Cultivating Repeat Clients

Developing a healthy, loyal clientele requires a focus on service and listening skills.

Haines Lundberg Waehler's (HLW's) longest repeat client is New York Telephone. The relationship started in 1885 when Alexander Graham Bell walked through the firm's door to commission the design of the first telephone building in New York City, where HLW is still based. The two companies grew together—in fact, for some time the phone company provided 75 percent of HLW's work—and today, the architecture firm serves its client according to the terms of a lucrative retainer. "If that's not the longest long-term architect-client relationship in the business, I'd be shocked," Ted Hammer, senior managing principal, asserts.

Firms look at their repeat-client rates and the longevity of client relationships as general indicators of how well they provide service. Typically, a strong firm can expect 30 percent to 50 percent of its clients to come back with more commissions, but if the firm counts new client referrals sent by standing clients, the repeat rate might reach 80 percent or 90 percent. A study released in April by the *Professional Services Management Journal* showed that responding firms receive a median 75 percent of work from repeat clients.

So what keeps clients coming back to an architecture firm with more business? The answers might surprise some practitioners. A recent study of 807 clients conducted by the Roper Organization for the AIA showed that 84 percent of clients stated that "responsiveness" was the chief criterion in choosing an architect. And 81 percent of clients cited previous experience working with the architect as a guiding factor in selection.

Firm principals concur with the Roper report. Harley Ellington Pierce Yee Associates of Southfield, Michigan, commissioned a survey of 135 past, present, and potential clients in April. The questionnaire, administered by an independent consultant, revealed the firm's name only after asking what clients liked about the architect they had hired. The first priority for clients, recounts Dennis King, Harley Ellington's principal and chief executive officer, was "architects who listen to and understand their clients." The second item was open, trust-based communication. "Notice," King interjects, "we haven't talked about architecture yet." Technical competence came in third on the list of priorities, and design concerns ranked seventh.

Clients or customers?

King insists that many architects view their relationship with clients from the wrong perspective. Practitioners, he asserts, should stop calling the organizations that commission them "clients" and start calling them "customers." "The term 'client' suggests that we know better than you ... *you* come to *us* for our expertise." That attitude, King explains, may reveal why the tags of "arrogant" and "elitist" consistently turn up in clients' negative opinions of architects.

When Harley Ellington overhauled its management structure three years ago and began guiding itself by the tenets of Total

Quality Management, King called for that small, but significant, change in nomenclature. "It took people in this firm a year before they could stop using the term 'clients,'" he recalls, adding that the name change fostered a pivotal adjustment in the staff's attitude. Employees of the firm no longer see themselves as working for the "boss" in the office, but for the "boss" who is the customer. A new sense of professional accountability has taken hold as the firm's employees remind themselves who butters their bread. Because service is usually the first thing promised and the last thing delivered, King contends, "it doesn't matter what kind of customer you're talking about—the firm that coddles its customers will develop the best competitive advantage."

Economies of scale

A firm like Harley Ellington will also spend much less money on marketing to win new clients, explains Hugh Hockberg, partner of The Coxe Group in Seattle. In a new market where a firm possesses capability but not much recognition, it typically spends, in the first year, about 20 percent of its gross fees just to secure the job. In other words, if the practice earns $100,000 from its first job for the semiconductor industry, it likely spent $20,000 just to get the client's attention and the commission. In the second year, Hockberg maintains, the firm will spend about 15 percent of project fees on marketing to that industry; the third year will see a decrease to 10 percent, and so on.

"Overall, it's reasonable to say that a firm spends 6 percent to 10 percent of its total annual fees on marketing efforts," Hockberg says, "so a firm that doesn't get much repeat work is going to have higher marketing costs." Considering that architects' average profitability runs about 5 percent, but needs to be 12 percent to 15 percent, firms can't afford to throw more money into marketing. It doesn't leave money to invest in training, or compensation, or in an ownership plan to fund firm transition—each of which easily usurps 4 percent to 5 percent of revenues.

Project management, plus ...

Convincing economics are hard to ignore, and wise firm principals deliberately employ a variety of devices to keep clients knocking at the door. No substitute exists for excellent project management, but clients don't like to work with machinelike managers, either. Even the best logistical experts have to keep clients personally engaged. Some strategies for keeping repeat clients involve common-sense communication skills: Architects who act rude or indifferent, warn their better mannered colleagues, will get what they deserve. Other strategies for keeping repeat clients are highly original, such as Harley Ellington's practice of lending employees to clients during slow periods within the firm. Part of the trick, principals say, is to set yourself apart from other firms in the eyes of clients—if your firm, for instance, runs on an employee-incentive program, point that out to clients. What firm principals and management specialists say works best to keep clients coming back can be summarized according to the following guidelines.

1. Sit back and listen.

"Some architects want to move in and show they understand the client by taking over the conversation," observes C. Richard Meyer, principal of the Callison Partnership in Seattle, which has worked for Nordstrom department store since it was a tiny local shoe retailer. "But you really need to sit back and listen, and let the clients say what they want." Does that mean the client's organization always knows what it seeks? Not by any means, Meyer says. "Sometimes you have to tell the client they don't understand what they're looking for," Meyer explains.

Then you have to show them what they really want, maintains Jim Jenkins, senior vice president and director of healthcare services for Ellerbe Becket in Minneapolis. A major healthcare client of Jenkins told the firm's architects in February that it wanted its new inpatient facility to be more like a residence than the typical hospital. At a predesign meeting, Jenkins recalls, the project team presented several large illustration boards to show a Modern house, a Colonial house, and a house in the woods and asked which kind of residence the client wanted. "They all broke into laughter because they realized they didn't want it to be a residence at all; they simply wanted something less institutional."

Sitting back and listening means you don't interrupt, you look your client in the eye, and you occasionally repeat back or paraphrase what they've said to show you understand. Listening is a skill that can be learned, notes Hammer of Haines Lundberg Waehler. Believing that active, critical listening becomes a life-or-death matter in the programming phase of a project, HLW on occasion invites specialists in to teach listening skills to professional staff. "A lot of architects don't like to listen," Hammer laments. "Sometimes you hear things you don't want

to hear; but if you're a good listener, people respect the fact that you're trying."

2. Know your client's business.
"I probably read two business books for every architecture book that I read," comments M. Arthur Gensler, president of Gensler and Associates, the 640-employee, 14-office firm based in San Francisco. "And when I meet with my clients, I'm talking to them about their business, not about design or the weather. I'm trying to understand what's going on that's different." As a result, Gensler has kept up with corporations' move toward decentralized management and smaller, more flexible facilities. "We collaborate with corporations as partners," Gensler explains, "rather than as a design firm to a client."

Architects need to understand clients' industries, growth patterns, and vocabulary almost as well as their clients do. Indeed, some principals argue that they need to know these things as well as they know how to design. "You cannot simply accept clients as they appear at a single point in time," advises Elizabeth Ericson, design principal of Shepley Bulfinch Richardson and Abbott in Boston. "You have to keep up with their world." Consolidation in the healthcare industry has Ericson's clients less interested in new facilities than in renovation of existing ones.

3. Capitalize on what clients like.
If the clients want to see the site by hot-air balloon, then by all means, take them—just remember to bill them for it. The more intimate knowledge you demonstrate toward a client, the more fixed your firm will stand in the client's frame of reference. Anderson DeBartolo Pan (ADP) of Tucson has designated several principals as "client advocates" to attend to individual clients independently of any projects in progress. The strategy keeps the firm in touch with clients and spares them the hard sell.

ADP's ombudsmen are required to contact each client at least four times a year. Whenever a member of the professional staff writes a research paper or speaks at a seminar, the text is forwarded to all clients whom it might interest, as are news clippings or other articles of relevance, explains Stewart Startt, principal in ADP's advanced technology group. "Our repeat business has run about 30 percent [for clients coming back], and our goal is to bring it up to 50 percent" through more subtle marketing, Startt says.

Architects should also take every opportunity to make their client's job seem easier, says Philip F. Valence, president of Blackridge Limited, a consulting firm in Wellesley Hills, Massachusetts. Perhaps you can introduce your clients to peers in industry whom they don't know. In any case, take advantage of ways you can make your client look good, especially to his or her superiors.

4. Dissolve all doubts.
Head off major doubts in the first place, Valence advises, by making only promises you can keep. Return clients' calls at once. Always deliver services on time, and if a problem or complaint arises, deal with it directly. You must make sure your employees—from the receptionist to the senior principals—react just as professionally to clients' concerns. "You have to make sure the staff knows what service means," Dennis King asserts, adding that you must treat your employees like you'd have them treat your customers.

Clients, advise consultants, may develop doubts when fees go up. Architects should therefore explain the greater value they receive with higher fees. For instance, remarks Jenkins of Ellerbe Becket, an institutional client may experience a change in its board of directors, bringing on someone who is alarmed to learn that fees rose a percentage point or two over the past five years. If the fee hike happens because your firm has invested in computers, tell them. "Don't let that be an unsaid thing," Jenkins suggests. "Be realistic and make sure they understand what you're providing—service that amounts to more value than before."

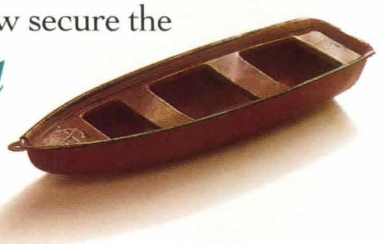
5. Affirm all expectations.
Even if the project benefits, such as energy savings or greater space economy, seem obvious or inconsequential, have the client take note. In most firms, the firm's project team and the client's team huddle at the outset of a project to establish the scope and goals. Make sure in the postoccupancy review that you touch on all the points covered in that initial meeting. Harley Ellington's survey asked clients how they measured the success of a project. The first criterion was: Was it within budget? The second most common concern was: Are the users of the building satisfied? And third: Was it on time?

Hammer says HLW seizes on the postoccupancy review to encourage clients to express their satisfaction and displeasure, but more importantly, to ask: How do you want it done next time? The client's response provides critical clues for keeping the relationship alive.—*Bradford McKee*

PITTSBURGH CORNING
PCGLASSBLOCK®
PRODUCTS

S I O N A R Y

"But now secure the
painted
vessel
glides,
the sunbeams trembling
on the floating tides."



Alexander Pope saw inspiration in rays of light nearly three hundred years ago.

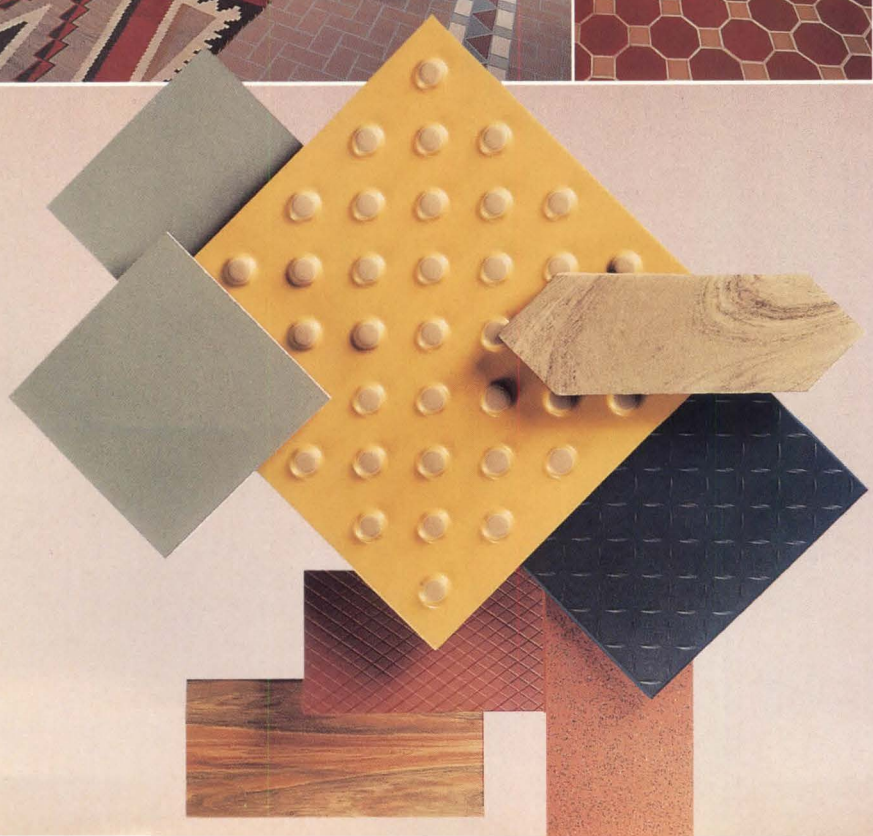
Today, light inspires people in the places they work and the places they live. That's why clearly distinctive glass block from Pittsburgh Corning can bring your visions to light.

Call 1-800-327-6126 to view our portfolio of applications. And we'd like to know... what inspires you?

Circle 131 on information card

Q U A R R Y

A New Look At American Durability.



Quarry tile from Summitville. Always durable, now more versatile than ever with new colors and sizes.

All across America, Summitville quarry tiles mean performance. In hotels, restaurants, airports and shopping centers: wherever high-traffic, low-maintenance flooring is essential.

Wherever quality is in demand, Summitville tiles are specified. Evolving through research and testing to meet market demands.

To learn more about Summitville's products, complete the reader service card for full-color product information.

Summitville®

Summitville Tiles, Inc., Summitville, Ohio 43962
FAX 1-216-223-1414

Circle 105 on information card

MADE IN USA
MEMBER TILE COUNCIL OF AMERICA INC.

Epoxy Repairs

Adhesive compounds for wood, masonry, and concrete repairs require careful specification.

TERRY ASHE

ABOVE RIGHT: Epoxy offers a range of restoration applications, including stabilizing and filling damaged wood.

Epoxy appears in almost any building crevice—as a coating, an adhesive, a filler, and an anchorage system. Its applications range from sealing leaky cracks in old basements to gluing fragments of ancient Etruscan vases. So why is epoxy, which has been around since World War II, such a confusing material? The answer lies, at least in part, in its mutability.

Finding the right formula

Epoxy is a copolymer made from a petroleum-based resin that is mixed with an alkaline hardener. It's generally available in three viscosity grades: low, medium, and nonsag. Job conditions dictate which viscosity is best. Low-viscosity varieties, for example, are employed to repair cracks because they penetrate small voids. Nonsag paste, which is stiffer in consistency, is best for filling gaps in trim work, because it doesn't run; when hardened, it can be cut and finished like wood.

Various additives affect the properties of epoxy differently, increasing or decreasing the time it takes for epoxy to set. Adding pigment helps epoxy blend visually with wood, stone, or other materials. Plasticizing materials, including epoxidized castor oil, provide the otherwise rigid material with some elasticity and facilitate its application.

The trick is to find the right formulation for the job. Adding significant amounts of wood flour or sawdust to an epoxy patch will give the epoxy properties similar to the surrounding wood, making it easier to cut and shape. An epoxy that is too strong will cause the surrounding materials to crack during expansion and contraction. One that is too flexible won't supply enough structural support.

"Even the manufacturers are reluctant to tell you exactly what epoxy will and won't do," explains Morgan Phillips, an architectural conservator based in Canajoharie, New York, "because it works differently, depending on the situation. If you combine that fact with the wildly varying site conditions on a restoration job, then you can understand why so many architects shy away from epoxy. It's not until you've worked with epoxy a dozen times or so that you start to see patterns," Phillips submits. "And you need to specify it hundreds of times before you're an expert."

Permanent results

John Waite, a principal of Mesick Cohen Waite Architects in Albany, New York, qualifies as such an expert. He's specified epoxy for more than 20 years on hundreds of projects—from repairing damaged sections of wood beams and posts to stabilizing original 18th-century window frames. He often works with a manufacturer that's willing to custom-formulate epoxy to his specification. Even so, asserts Waite: "I don't even consider using epoxy unless there's absolutely nothing else that will work. Just as its repairs are permanent, its damage is irreversible."

Because of its high tensile strength and strong adhesive properties, once epoxy is troweled onto or pumped into a material, it

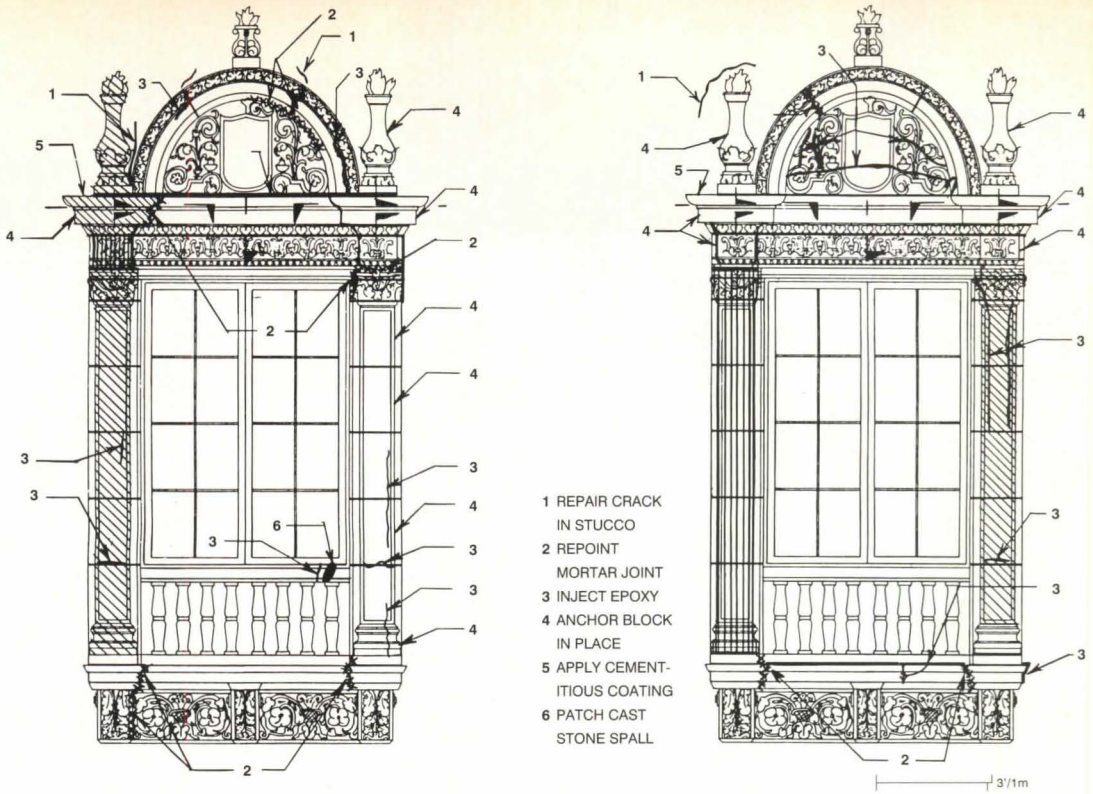
San Diego Museum of Art
San Diego, California
Wiss, Janney, Elstner Associates

After 65 years of exposure to the elements, the elaborate cast stone adorning the windows and front entrance to San Diego's Museum of Art in Balboa Park, California, began to fall away from the 1926 Spanish Renaissance structure in 1991. Architect Carolyn Searls of Wiss, Janney, Elstner Associates of Emeryville, California, specified an anchorage system that combined epoxy with stainless steel rods to reaffix the cast stone elements to the building.

To hold the stone in place, holes were drilled through the cladding and into the concrete-and-brick masonry infrastructure; epoxy was pumped into the cavities. Stainless steel threaded pins, carefully cleaned with a solvent to remove grease, were then pushed into the holes.

While wet, the epoxy was cleaned from the front portion of the cavity, and a bit of mortar matching the adjacent cast stone was pressed over it to disguise the locations of the pins.

Epoxy was also applied to very fine cracks in the stonework. Small holes were created along the cracks every 10 to 12 inches, and epoxy was injected into these holes with needles. The epoxy then spread itself out evenly through the length of the cracks. Mortar matching the color of the stone was later applied to seal and finish the repairs.



MUSEUM ENTRY: Stone entrance portal was repaired.

STONEWORK: Reaffixed with steel pins and epoxy.

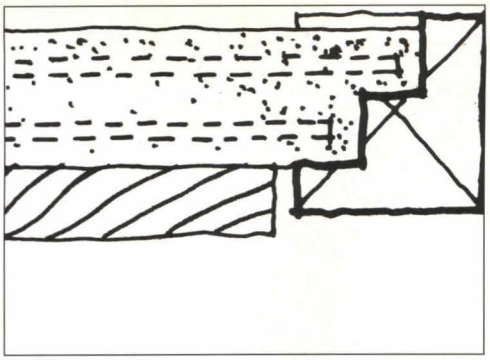
cannot be removed without taking out large chunks of the adjoining material with it. That's a scary thought for architects restoring valuable, irreplaceable old building materials.

Wood epoxies

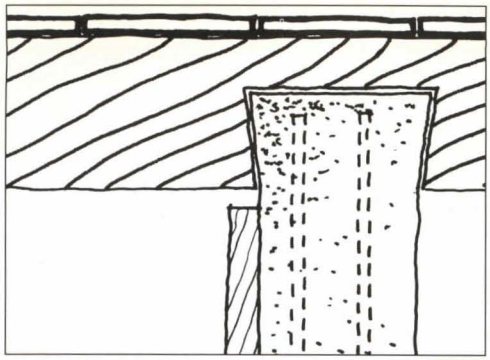
Repairing wood with epoxy is common because of the material's flexible and strongly adhesive properties. A thin, watery formulation injected into spongy wood will penetrate pores and voids and strengthen the wood. An epoxy paste can be employed to re-create sections of intricate trim work, often for less than what it would cost to replace those sections with wood. Even gaps and holes can be filled with the paste, often without disturbing the rest of the structure.

However, epoxy is not a miracle cure for all wood decay problems. It is essential that the source of the decay be repaired first. Otherwise, epoxy is only a temporary fix, maintains John Leeke, a preservation consultant based in Sanford, Maine. For example, at the 1812 Jonathan Fisher house in Blue Hill, Maine (facing page), decades of moisture infiltration, as well as infestation by powder post beetles and carpenter ants, reduced sections of the spruce girts and posts to little more than powder. After roof and chimney flashing was repaired, the rotted sections of the timber structure were rebuilt with epoxy.

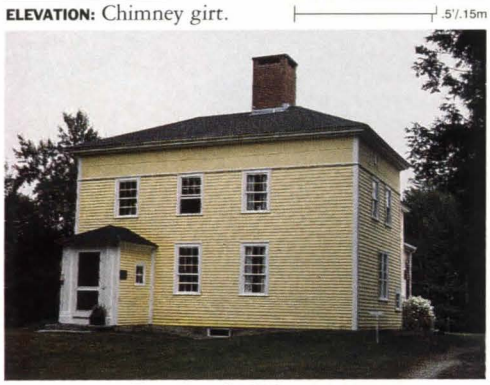
Cost is another consideration in working with epoxy. The material is more expensive than the combined cost of labor and material involved in simply replacing rotted wood. That is particularly true if the boards might otherwise be easily replaced, or if the work is being performed on a part of the structure that's not visible. But when saving the original building fabric is the top priority, epoxy is the best alternative. In some cases, the application of epoxy also avoids disturbing other parts of the building. Such was the case at the Fisher house, where it would have required gutting the interiors to gain access to the rotted girts and posts to replace them.



ELEVATION: Chimney girt. .5'/.15m



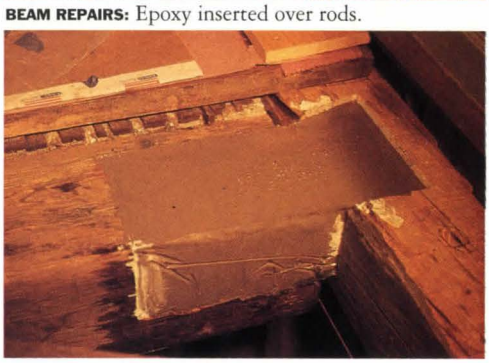
PLAN: Chimney girt. .5'/.15m



FISHER HOUSE: Exterior of 1812 structure.

BEAM REPAIRS: Epoxy inserted over rods.

EPOXY: Mixed with sand and gravel.



REPAIRED GIRT: Epoxy finished to resemble wood.

Once injected or troweled in place, epoxy hardens to a shiny, amber-colored finish, which can be painted with oil, latex, or other types of paint after its surface has been sanded. If the material is exposed to sunlight, it should be protected with paint, since ultraviolet light degrades epoxy, according to Leeke. Properly formulated epoxy can also be stained, but it's unlikely that it will accept the stain in the same way as adjacent wood surfaces; patch tests are therefore recommended on small areas.

Masonry epoxies

Because epoxy is so much stronger and stiffer than brick, terra-cotta, and many types of stone, its applications in masonry construction are limited. For instance, it is not suited for patching chips or crazing. Differences in the coefficient of expansion are likely to cause problems. While additives can reduce movement, epoxy still expands and contracts more rapidly than masonry. Also, since epoxy is impervious to moisture, any water beneath the patch or migrating outward from the interior will be trapped, accelerating the deterioration of surrounding masonry materials.

For instance, mortar deterioration in the jack arches on the front facade of the Octagon in Washington, D.C., caused the surrounding bricks to fracture. John Waite, project architect for the restoration of the 1801 house, elected to consolidate the bricks by injecting epoxy into the cracks with hypodermic needles. The old cementitious mortar joints were then raked out and replaced with new mortar that matches the original lime paste. While the process was painstaking and time-consuming, it preserved the original building fabric.

Epoxy is also useful in repairing masonry cracks that slice through entire wall sections. However, it can only fill cracks that are no longer expanding or were caused by a one-time event, such as an earthquake. Otherwise, if the stress is not relieved, new fissures will appear alongside the epoxy-filled cracks.

Jonathan Fisher House
Blue Hill, Maine
Matthew Elliott, Architect

Architect Matthew Elliott's first priority in restoring the 1812 Jonathan Fisher house was to reinforce the rotted beams and joints. Elliott selected an epoxy manufacturer that was willing to send consulting engineers to the site to help specify the proper epoxy formulation and provide guidance on construction techniques. Even with the help of his preservation consultant John Leeke, Elliott maintains, "We still felt better having a company back us up."

Typical of the epoxy applications in the house is the reconstruction of an 18-inch section of the 8-by-10 chimney girt. The section, located at one end of the girt, was destroyed by water leaking through the roof valley above. The end of the girt formed a tenon that also had rotted.

Replacing that 18-inch girt section with new wood would have meant ripping out interior plaster and trim and dismantling the network of adjacent beams. So Elliott created a new section of girt by pumping epoxy into plywood forms and then tying the resulting epoxy section into the existing beam and the joint with 32-inch fiberglass rods. The manufacturer advocated fiberglass because steel rods are sometimes coated with petroleum that, unless carefully removed, prevents the epoxy from bonding to the rods.

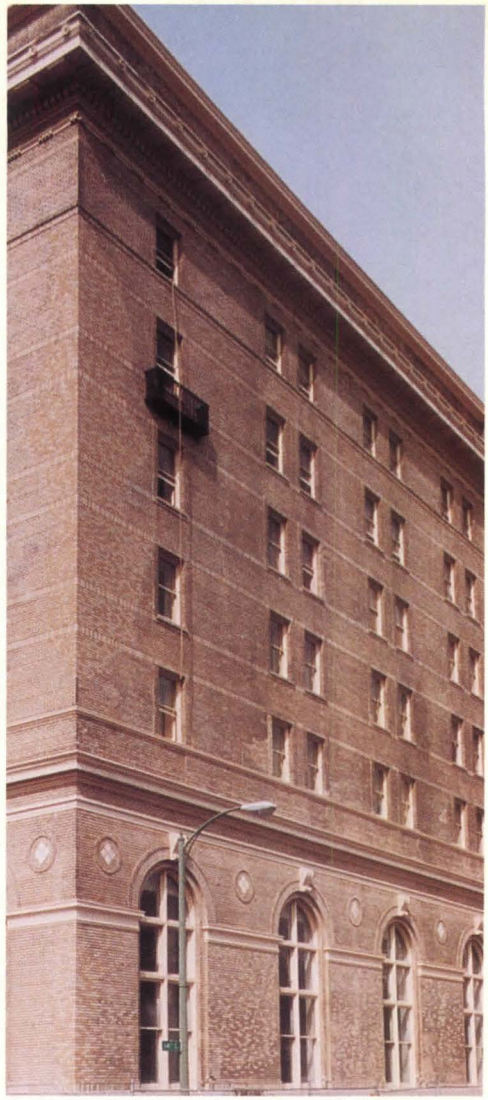
Hotel Oakland
Oakland, California
The Ratcliff Architects

The brick exterior of the 1906 Hotel Oakland was damaged in the 1989 Loma Prieta earthquake. Epoxy was applied to anchor the shear walls to new and existing footings and to tie the brick into the new shear walls and the existing steel infrastructure. At some locations, project architect Joelyn Gropp of The Ratcliff Architects and Thomas Wosser, principal of H.J. Degenkolb Associates Engineers, slipped epoxy capsules into holes drilled into the shear walls. Pins were injected to break the capsules open, mixing the two components of the epoxy and releasing them into the void.

The interior of the building's brick walls became part of the formwork for casting new concrete shear walls. The brick had to be strengthened with epoxy to support the force of the poured concrete. But welding the cracked bricks with epoxy proved difficult, because the repaired portions of the exterior had to match the rest of the building to satisfy the state's historic preservation officials.

After cleaning the cracks in the brick, the front and back of the cracks were packed with mortar that matched the existing joints. The epoxy was then injected through ports spaced at regular intervals along the cracks, and remaining gaps were touched up with matching mortar.

BEFORE: Hotel Oakland was damaged in 1989 quake.



AFTER: Cracks in brick facade restored with epoxy.

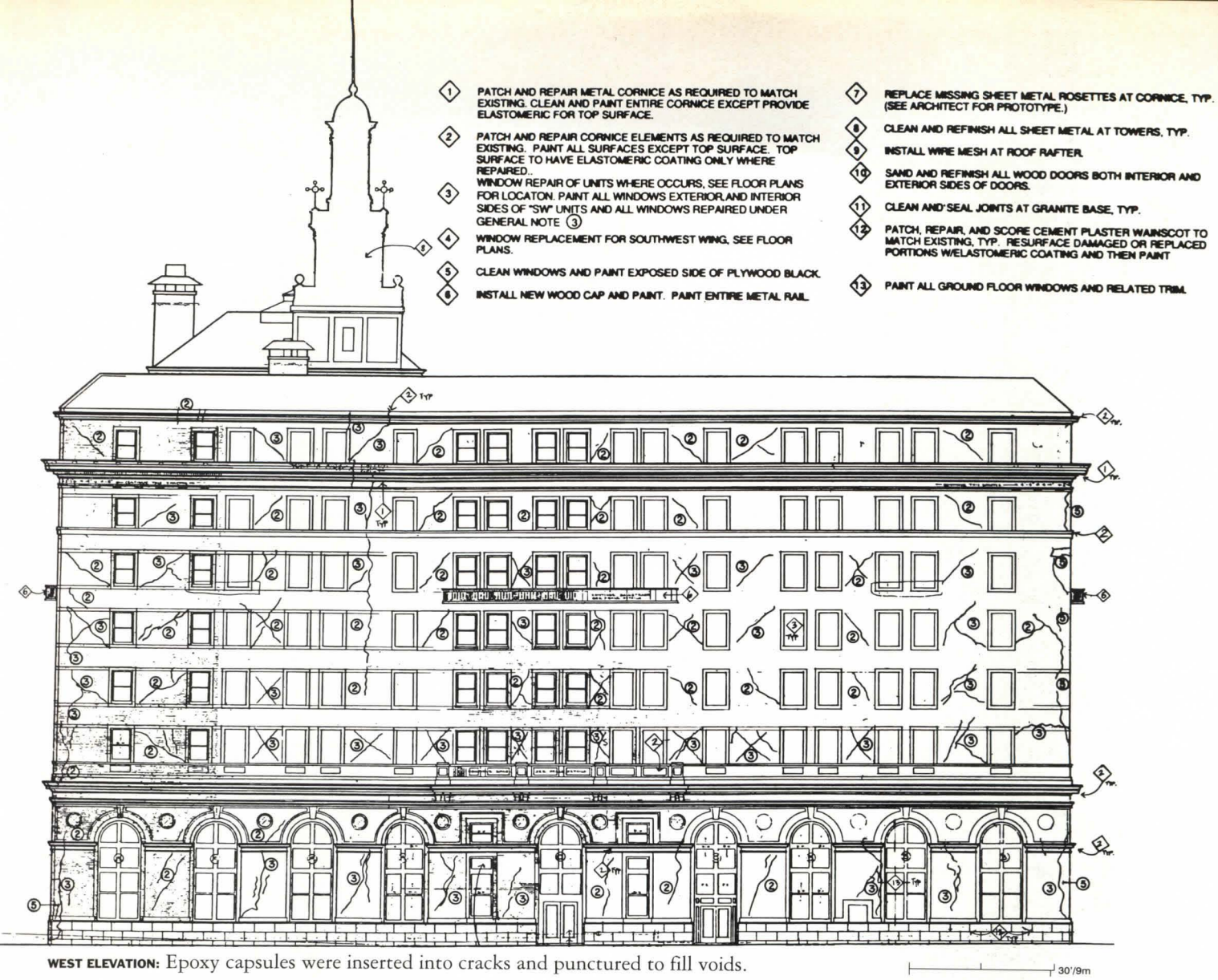
Concrete epoxies

Epoxy offers a variety of applications in concrete, but is probably most widely employed to repair cracks. Most major cities have contractors who perform this subspecialty work exclusively. However, not all concrete cracks need to be repaired, and in some cases, pumping in epoxy will cause other problems. "Concrete cracks. That's its nature. It isn't necessary to fix the cracks unless they are compromising structural integrity," asserts Thomas Wosser, principal of H.J. Degenkolb Associates Engineers in San Francisco.

As in masonry, concrete repair is most effective if the cracks are static. But there are different epoxy formulations and injection techniques suitable for different types of cracks. For example, a flexible epoxy can create a kind of expansion joint. When the crack is leaking, waterproof mortar or even hydraulic cement can be applied to seal the outside of the crack and protect it from moisture penetration while the epoxy sets.

Because the epoxy employed for crack injection is normally of a low viscosity, it will fill pores and voids several feet from the actual crack. This process can be controlled by adjusting the amount of pressure applied in the injection process. Even so, if there are electrical conduits nearby or other systems that the epoxy can invade, it might be best to find an alternative patching method.

Epoxy can also be specified as a fastening system for concrete, as was employed in the rehabilitation of the Hotel Oakland, a 1906 structure in Oakland, California, that now serves as a 650-unit housing project for the elderly. Architect Joelyn Gropp of The Ratcliff Architects in Emeryville, California, specified pins anchored with epoxy to anchor new concrete shear walls to existing footings and to tie the shear walls into the existing brick walls and steel infrastructure. Gropp, who collaborated with engineer Thomas Wosser on the hotel's restoration, slipped epoxy capsules into predrilled holes after they



WEST ELEVATION: Epoxy capsules were inserted into cracks and punctured to fill voids.

were cleared of dust. As the pins were pressed into the holes, the capsules broke open, mixing the two components of the epoxy and releasing the compound into the void.

Selecting a contractor

While epoxy is not difficult to work with, it does require some experience with the material. For instance, improperly mixed epoxy will harden within minutes, or, worse yet, won't harden at all. And because the chemical reaction between the material's compounds releases heat, there's also the risk of damaging delicate building materials due to excessive heat buildup. For such reasons, finding the right contractor for the job is another challenge when specifying epoxy.

During the restoration of the Hotel Oakland, Gropp recalls touring the job site with the project team, engineers, state historic preservation officials, contractors, and experts from Western Waterproofing Company, the group responsible for the brick repairs and restoration. The engineers wanted to ensure the structural integrity of the brick, while preservationists were concerned with the esthetic results of the repairs. Western Waterproofing worked closely with both groups and the architects to specify a suitable epoxy formula. "The whole process had to be a real team effort," notes Gropp.

Waite urges close collaboration with other experts when specifying epoxy. "You have to be very specific about how and where the material is to be applied," he advises. "Don't leave anything up to the contractor or the manufacturer's representative." Waite recommends that architects work with a technical consultant and experienced engineer whenever possible. Architects should also consult with the epoxy manufacturer's engineers or technical department to develop the proper specifications.—*Wendy Talarico*

Wendy Talarico is a free-lance writer based in Fredericksburg, Virginia.

Not only are you looking at a building that doesn't exist. You're about to ride the elevator to the 6th floor, walk across the boardroom and watch the city as the fog rolls in.

3D STUDIO RELEASE 3.0

Too bad this is only a magazine. Because if this page could move, you'd be seeing a workstation-quality, high-speed 3D graphics tool that lets you create designs right on your PC. You'd be seeing 3D Studio® Release 3, animation software that provides such vivid walkthroughs of mechanical and architectural designs, it's hard to believe they haven't already been built. ● Since it makes it easy to control both cameras and objects, you'd not only be able to stroll across the boardroom, you'd be able to look down at the lobby as the elevators move up and down. Even lights can be animated with ray-traced shadows to accurately simulate the shadow-play on the courtyard below. The fog? That's just one of the countless special effects and backgrounds you can create. ● Of course, you don't have to let the fact that this is a magazine keep you from seeing 3D Studio software. For a free demo disk, just call 1-800-879-4233 and ask for Demopack D251 or visit your local Authorized Autodesk Multimedia Dealer. Outside the U.S. and Canada, fax 415-491-8311.

Autodesk.

Special pricing available for students, faculty and schools.

Come see us at the AEC Systems Expo, Booth #1717

Architect-Client Design Collaboration

Computers offer interactive tools for involving the client in a project's design development.

Most electronic presentations have at least one thing in common with traditional media: They are unidirectional communications to show clients what has already been designed. The architects who work with computer renderings may have changed their tools, but most have not changed their habit of working in isolation from their clients.

By contrast, a few forward-looking architects have begun to explore ways the technology can break down this isolation. They sit with their clients in front of the computer and make the client a partner in the design process. This requires technical self-confidence on the part of the architect and a willingness to open the process to scrutiny by those untutored in the profession. Architects who have done it claim it has dramatically changed their attitudes toward design and improved the built outcome. Building costs are lower because there are fewer surprises during construction, and clients have fewer complaints about the completed building because they had more influence on its design.

Design as theater

Each firm that undertakes interactive design has developed unique procedures for involving the client. For example, Richard Buday, principal of Archimage in Houston, has set up a "design theater" at his office, where up to eight architects, clients, and consultants gather around a large computer monitor. In advance of daylong design sessions, he and his staff prepare electronic base material, such as drawings or models of the existing site. When the team comes together, everyone brainstorms as equals. While a staff designer manipulates the computer model in response to suggestions, Buday choreographs the group in what he refers to as "performance art with crowd control," knowing when to encourage spontaneity and when to ask for quiet reflection. During a session, one or two designers may leave the team to work out a problem in the adjacent studio then, later, return to the design theater with additional input for collective decision making.

"My inspiration has come from Bill Caudill," Buday explains. "In his book, *Architecture by Team,* Caudill wrote that 'the team is a genius' and that 'architecture is too important to be bound to the anachronism of one man's expression.' Anyone interested in interactive design should reread him." Buday has found that clients bring a unique perspective to design. As an example, he cites a group discussion about a 14-story-high atrium in a Houston office building. "We were exploring a 3D model ostensibly to make decisions about materials and lighting," Buday recalls. "But when the client had an opportunity to 'walk' up to the handrail and 'look down,' it became immediately obvious that the handrail had to be redesigned into a psychologically stronger barrier. This was a situation none of the architects had emotionally connected with after months of looking at sections and physical models."

RIGHT: A day in the life of collaborative design at Archimage (clockwise from upper left): A team of clients and architects develop the building's program; the team gathers around a large monitor for a problem-solving session; two designers break off to solve a problem in the studio; and the team regroups at the end of the day to discuss collective design decisions.

A somewhat different approach is taken by the Boston firm of Shepley Bulfinch Richardson and Abbott (SBRA). The architects develop 3D models with Sigma Design's Arris software on high-end workstations, then invite client groups in to view alternatives. With a workstation in the conference room, the clients can "walk" around and through proposed buildings. Small changes they request can be displayed immediately. More extensive changes can often be made by the staff while the group goes out for lunch. One of SBRA's computer managers, Duncan Keefe, comments that with this practice, architects learn about the clients' concerns much earlier.

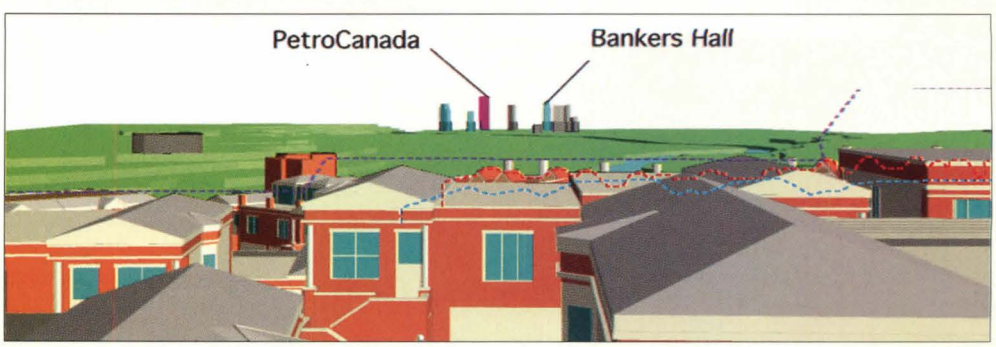
Client contributions

Clients may request views of the proposed buildings that the architects had not anticipated; local reviewing authorities, for instance, may be interested in urban design from the pedestrian's viewpoint, leading to important changes in the proposed scheme. For example, when it was discovered that the exterior patterning of SBRA's Massachusetts College of Pharmacy was not discernible from the street below, the architects modified its design, exaggerating the pattern's scale. This design change would not have been possible if the discovery had been made during construction. SBRA has also been able to justify taller buildings to city authorities by demonstrating that proposed setbacks conceal a new building's true height behind smaller scale, older buildings.

Both Keefe and Finiw stress the importance of involving at least two architects in client meetings: a CAD expert to manipulate the computer models and the project architect to direct the meeting. Otherwise, there is a danger of "dead air," because it is difficult for one person to work on a computer and lead a discussion at the same time.

With a highly developed Macintosh fluency, architect Barry Pendergast, principal of The Pendergast Group in Calgary, is able to conduct meetings while manipulating electronic models. As his clients respond to perspective images, they request additional views and suggest modifications to the design. "To make this work," Pendergast explains, "the software must be so familiar that you can think on the fly and lose your fear of working in front of the client." The process helps him detect subtle design flaws, like a piece of equipment that won't fit through a doorway, or signage that is difficult to see. Pendergast notes: "Psychologically, client involvement at an early stage allows them to identify with and 'buy into' the solutions."

For a recent condominium project, Pendergast built a model of proposed and existing housing to demonstrate to existing homeowners that their views of the Bow River Valley and Calgary's skyline would not be blocked by the new development. By showing perspective views from the existing houses, he was able to dramatize his point more effectively than with a traditional site plan or even a physical model.



RIGHT: Shepley Bulfinch Richardson and Abbott presented several design alternatives, including this one, to client groups for an addition to the Massachusetts College of Pharmacy.
BOTTOM RIGHT: The Pendergast Group worked with clients, planners, and neighborhood homeowners in evaluating the effect of a proposed housing development near Calgary, Alberta, on existing views of the city.
FACING PAGE: Architect Terry Beaubois created an animation sequence showing a house under design, gradually growing in detail (clockwise from upper left) from site photograph, to a wire-frame image, to a hand-drawn overlay, to computer rendering placed in the site photograph.

Like Pendergast, Terry Beaubois, of Terry Beaubois & Associates in Palo Alto, works with clients around a Macintosh computer, manipulating 3D ArchiCAD models. During a design session, he and partner Greg Miller ask the clients questions, develop plans and elevations, and try various layouts to come up with a design that works well both esthetically and functionally. Beaubois remarks, "One of the benefits of working with the client is that we don't spend a week or two inadvertently going off in a design direction that the client didn't intend or won't approve." He notes that if clients watch the architect draw, they sometimes realize that what they asked for wasn't what they wanted. "Clients love being involved in the creative process," Beaubois asserts. "It's also rewarding for the architect, because even though clients have opinions, they still rely on your guidance and experience."

To demonstrate the interactive process, Beaubois and Miller have created a video presentation with multimedia tools. Their animation of a house design starts with a bare site, develops the architecture piece by piece in plan, forms a wire-frame perspective, and gradually becomes a fully rendered image composited in a color photograph of the site. They are developing an illustrated database of building products, so residential clients can choose fixtures without leaving the computer during the design process.

One interesting aspect of interactive design is the time required to complete a project. Beaubois describes a residential project of over 12,000 square feet for which he did the schematic design in four days, with two 2-hour meetings each day. "On the other hand," he admits, "we had another client with a small addition, and that process could have gone on indefinitely." SBRA's Finiw points out that computer speed is what makes interactive design possible. "Clients can't come in and spend half a day at our drawing boards," he notes, "but they can come in for an hour at the computer. The technology allows us to produce any drawing they want on the spot."

Shorter design phase

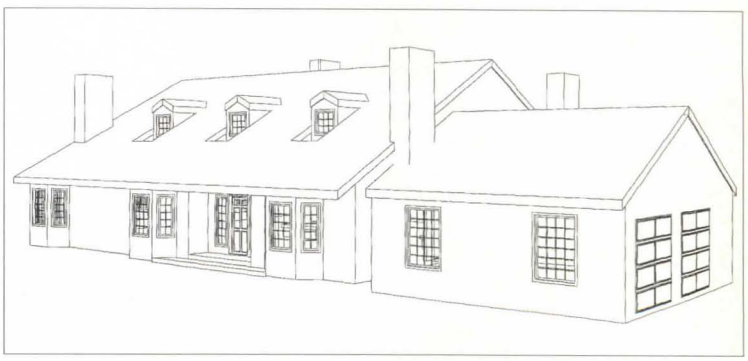
Even when collaborative processes are time-consuming at first, they may save time in the long run. Buday experienced a dramatic compression of design time in an early collaborative project. A restaurant owner was anxious to return to business after a fire, and the building was designed during 10 days of intensive, daylong meetings. Although this forced both owner and architects to commit large blocks of time up front, the construction documents were completed within three weeks of the initial meeting.

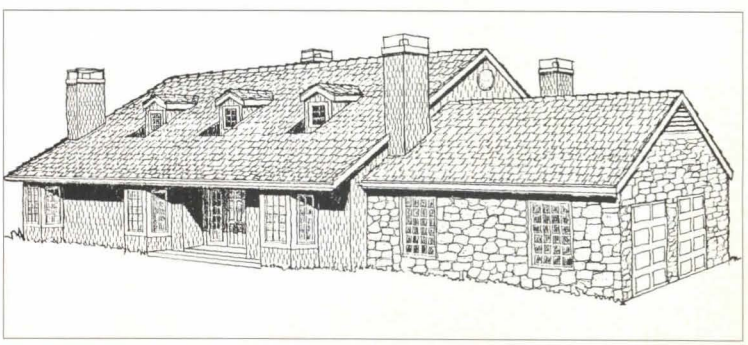
As with any novel application of technology, there are drawbacks. Even the most expensive equipment available today cannot produce detailed images at animation speed. So real-time walk-throughs are generally at a low resolution, making them seem abstract. Also, as Buday insists, architects must lose their fear of letting the client get too close to the design process. He notes: "You need to be willing to work on center stage."

Enhance creativity

Although Ellerbe Becket does not yet work with clients as interactively as Archimage and the others, the large firm relies on computers extensively for animation and schematic design, among other functions. Scott Berry, vice president of the Minneapolis office, notes: "Just as perspective drawing revolutionized the architecture of the Renaissance by providing a third dimension for study and representation, computers are revolutionizing how we create and present architecture today. In contrast to a static representation, animation simulates the experience of moving through a space, so we see buildings as experience, rather than as sculpture only."

Berry believes that architects' language of 2D abstractions and professional jargon often fails to communicate its intended message. Multimedia is more familiar to clients accustomed to television imagery. "Animation," Berry notes, "when used as a process tool, affords more opportunities for exploration and helps clients make more informed decisions." He urges fellow architects to see the computer less as a productivity tool and more as a means to enhance creative interaction and to discover the best possible solutions. With technology supporting collaborative design, he concludes, "We're on the verge of a breakthrough as a profession."—*B. J. Novitski*





Windows by Pozzi®

There's something special about Pozzi Windows. Perhaps it's our reverence for wood. After all, our heritage is in millwork. But there's more to windows than wood and glass. Great windows start with a great design. That's where you come in. Give us a challenge, something really special. We take pride in creating windows that will illuminate your design. Just think of Pozzi as the "Designer Window" company.

We know you want choices, lots of choices. That's why we offer such a wide variety of divided lite options. Want custom clad colors? We'll match the color of almost anything...even the Ferrari in the driveway.

For a free catalog and the name of the Pozzi distributor nearest you, please call Pozzi at 1-800-821-1016. We'd be delighted to hear from you!

POZZI
WOOD WINDOWS
A Division of JELD-WEN.

Pozzi Window Company
P.O. Box 5249
Bend, Oregon 97708

Circle 107 on information card

Changes in healthcare and billing rates indicate positive trends for architecture firms.

NIH CAMPUS: Existing conditions.

DRAFT PLAN: Framework for the future.

Conference Examines NIH Campus Plan

The 323-acre suburban campus of the National Institutes of Health (NIH), in Bethesda, Maryland, furnished the perfect host site—and case study—for a gathering of major medical research center designers and planners, convened in April by the AIA's Academy of Architecture for Health. Medical research centers today, the experts maintained, are shaped as much by external forces—government legislation, community concerns, and emerging technologies—as by internal clinical and research program needs.

While regulations and neighborhood issues must be addressed, Steve Rosenstein, president of GPR Planners Collaborative in White Plains, New York, alerted architects to the growing gap between high technology and owner requirements. "Not all medical labs require high-tech solutions," Rosenstein advised.

Currently, the NIH is in the throes of its own master planning, scoping its program needs and capacity for the next 20 years. The largest biomedical organization in the world, the future of this federally funded institute is affected by shifts in public policy such as healthcare reform and "reinventing government," necessitating a flexible master plan.

Like many large institutions whose growth over the years spurred adjacent development, community relations has also played a significant role in NIH's self-examination. The planning team responded to neighborhood fears of NIH's potential growth by expanding a proposed peripheral buffer zone from 150 feet wide to 250 feet for all new construction, lowering building heights where the medical campus verges on residential areas, and concealing parking structures near single-family houses. To minimize traffic congestion, the master plan calls for mass-transit incentives, such as campus shuttles, public-transit subsidies, and work-at-home options for employees.

Once approved, the new master plan will provide a framework for possible construction, not a guarantee of specific projects. Nonetheless, leading healthcare firms from around the country have begun wooing NIH in anticipation of the clinical center replacement project, a 3 million-square-foot complex that promises to be one of the most significant healthcare projects of the 21st century. Although under study since 1989, the project has no definitive construction schedule. NIH staff advises architects to keep their eye on *Commerce Business Daily*.—*N.B.S.*

AIA Endorses Clinton's Healthcare Proposal

The AIA joined several other small-business groups in May to endorse President Clinton's proposed Health Security Act, which would create a system of universal healthcare in the United States. The AIA's position, announced by Robert Peck, AIA group vice president for government affairs, supports guaranteed, comprehensive health benefits for all Americans and "shared financial responsibility" among employers, individuals, and government.

Clinton's proposal would require employers to provide health insurance to all employees. The AIA supports such an approach, explains Peck, provided that premiums are set according to broad community ratings and that the legislation precludes discriminatory practices, such as excluding certain types of businesses or denying coverage to individuals with preexisting conditions. The Institute also calls for healthcare coverage that employees could transfer from employer to employer in the event they change jobs.

In announcing the AIA's position, Peck emphatically rebuked small-business groups such as the National Federation of Independent Business (NFIB), which has aggressively opposed all healthcare reform legislation that would impose a mandate on employers to provide benefits.

"The NFIB doesn't speak for all small-business owners," Peck asserts. "Let's be realistic; we already have a mandate: The insured pay for the uninsured." If all employers provided health insurance, the AIA argues, the redistribution of coverage costs would cause typical premium rates—which now run as high as 15 percent of a firm's payroll—to fall by as much as half.

A/E's Billing Rates	1993	1994
Principal	$100	$104
Associate	80	88
Project manager	75	80
Project architect	65	66
Project engineer	65	70
Architect	55	58
Engineer	58	60
Designer	50	55
Senior drafter	45	48
Drafter	37	40
Spec writer	58	62
Estimator	53	61
Job site inspector	48	53
Clerical	30	32

Source: PSMJ

Hourly Billing Rates Increase for Architects

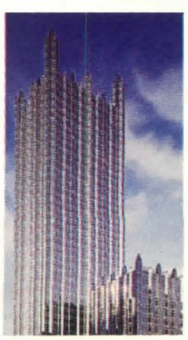
A new survey detects the first appreciable rise in hourly billing rates for architecture firms in four years. The 1994 *Professional Services Management Journal* (PSMJ) Design Services Fee Survey of 150 architecture and engineering firms across the country found a 4 percent to 5 percent increase in dollars commanded per hour by professional design staff (see chart above). Analysts at PSMJ note, however, that fees still fall well below levels of the late 1980s, owing to inflation, liability limits, retainers, fewer penalties, and increasing fee-based competition.—*B.M.*

Over The Past 25 Years, Our Engineering Expertise Has Helped Fill Some Pretty Tall Orders.

As early as 1962, and continuing through our days as Howmet, if an architect came to us with a problem, we would always rise to the occasion.

Today, that attitude has given Vistawall quite a history of engineering successful lowrise and monumental curtain wall and window wall projects. And of helping architects, like you, to bring their most imaginative ideas to life. By listening, then by working together to develop a system that takes your creativity to new heights.

We welcome the opportunity to discuss your current design needs with you. Just call Vistawall to set up a one-on-one discussion, or a lunchtime presentation for your entire office. You'll discover that when it comes to engineering, we're pretty tall on experience.



VISTAWALL
ARCHITECTURAL PRODUCTS
A DIVISION OF BUTLER MANUFACTURING COMPANY

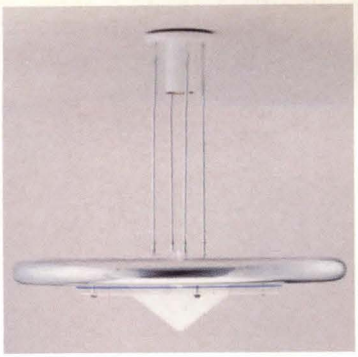
We Engineer Solutions.

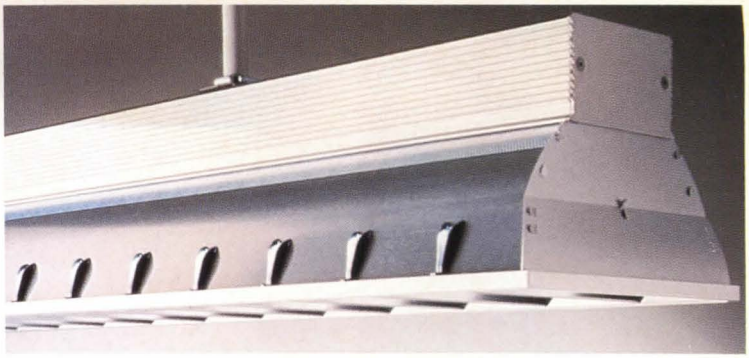
Terrell, TX (214) 551-6100 Lincoln, RI (401) 333-2906 Atlanta, GA (404) 938-3359 Modesto, CA (209) 545-5231
Bridgeport Center, Richard Meier and Partners 4200 Cyprus, Opus South Corporation One PPG Place, John Burgee Architects with Phillip Johnson

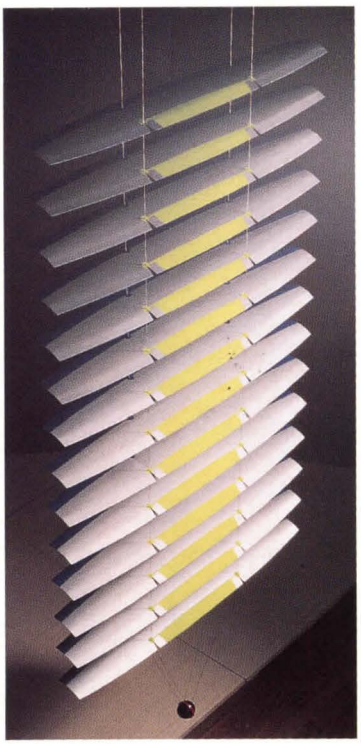
Circle 109 on information card

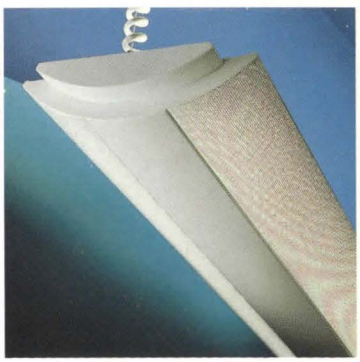
Products

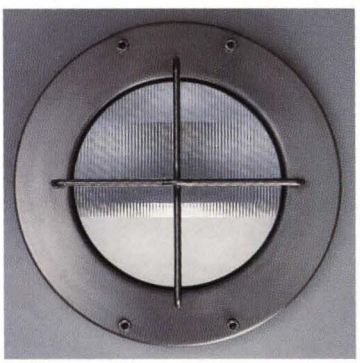
Manufacturers create innovative, energy-efficient lighting.











TOP: Options' indirect pendant series, offered by SPI Lighting, features two twin-tube fluorescent lamps with electronic ballast control. Lengths of 18, 22, 26, and 30 inches are available. A polished-steel ring with a die-formed, steel chassis houses the pendant's reflector components and ballasts. Accessories include acrylic shield diffusers; decorative bottom lenses; and 55-watt downlight for 120-volt systems.
Circle 401 on information card.

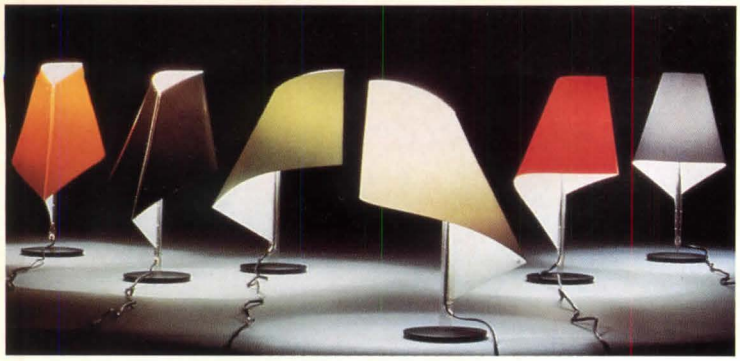
ABOVE: ECCO Design offers the Solar Blind, a light source that absorbs sunlight through thin, flexible photovoltaic cells located on the rear edge of each blade. Electricity is channeled through conductive cables that support the recycled aluminum blades. Energy is stored in a rechargeable battery suspended above the blind. The battery powers an electroluminescent strip on the front edge of each blade. A dimmer switch hangs from the cables directly below the last blade.
Circle 402 on information card.

TOP: Technos, a direct and indirect fluorescent T8 lighting system, is offered by Zumtobel to minimize reflections on computer screens. The bell-shaped housing unit is constructed of a heavy gauge extruded anodized aluminum. The lower portion of the reflector distributes light downward onto work surfaces, rather than at horizontal angles. Staggered perforations in the top portion of the fixture and on the unit's sides allow for indirect lighting. Zumtobel offers suspension lengths of 18, 24, and 30 inches.
Circle 403 on information card.

CENTER: Litecontrol offers a curved, fluorescent fixture called Classica. The 13-inch-by-3 1/2-inch linear fixture can house two, three, or four T8 lamps; or two 40- or 50-watt compact fluorescent lamps. Perforated-metal strips channel high-efficiency illumination with wide, indirect distribution. The curved unit is designed for spaces requiring low brightness.
Circle 404 on information card.

ABOVE LEFT: Bega lighting's circular, recessed wall luminaire, designed for compact fluorescents, measures 6 3/4 inches in diameter and is thermally protected. The unit comprises a 3/16-inch-thick tempered glass diffuser surrounded by a brushed stainless steel trim. It is available with or without a diffuser guard. A molded polymer sleeve that serves as a rough-in housing unit in poured concrete and masonry is available. This fixture is also available in low-voltage tungsten halogen with a number of trims, guards, and glazings.
Circle 405 on information card.

ABOVE: Norman Sukkar Design, based in New York City, offers the Waffle Cone series. This table lamp is formed from perforated stainless steel, blackened steel, and rubber. The unit measures 34 inches high, 17 inches in diameter and is designed for an incandescent tube. The base is available without the shade and measures 21 inches high, 9 inches in diameter.
Circle 406 on information card.



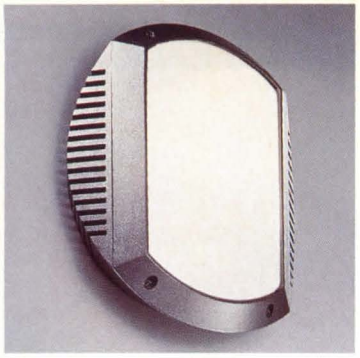
Reading lamp
Italiana Luce of Italy offers Nautilus (above), a table lamp that measures 15 inches high with a base measuring 5 inches in diameter. The lamp is reminiscent of a boat's sail and is designed by Mario Barbaglia and Marco Colombo. The base and shade are manufactured of a durable technopolymer. The shade is available in white, red, yellow, blue, green, and gray. The unit accepts a 60-watt incandescent bulb.
Circle 407 on information card.

Controlled pendant lighting
Boyd Lighting offers a medium- to large-scale pendant with an adjustable beam spread downlight. The Orion pendant accommodates fluorescent and incandescent lamping, with ambient and direct illumination control. A dual-circuit system allows the unit to be adjusted or dimmed separately. The shade is crafted of white satin glass and is available in 22-, 25-, and 31-inch diameters. Various lengths are available.
Circle 408 on information card.

Natural lamp shades
Luz Lampcraft offers a series of lamps designed by Lanie Kagan that utilize natural and handmade papers, veneers, and a wall covering designed by Jhane Barnes for Knoll. This drum-shaped lamp (above), from the Woven Birch series, comprises white birch woven through a steel frame painted with a black powder coating. This unit measures 22 inches high and 12 inches in diameter. Stainless steel framing is also available.
Circle 409 on information card.

Crowned wall sconce
Baldinger Architectural Lighting's first lighting collection designed by New York architect Robert A.M. Stern includes the Greek Key wall sconce (above) and pendant. This series is available in 12-inch and 18-inch widths. The oval diffusers are available in white or beige alabaster and white or clear frosted acrylic and are topped with an ornamental brass crown. Finishes include brass, chrome, and nickel.
Circle 410 on information card.

Pendant lamp
Leucos, based in the Murano region of Venice, offers adjustable pendant lamps. Golf (above), designed by Renato Toso and Noti Massari, can adjust to a maximum length of 71 inches. This unit can be mounted to a track adaptor and halogen lamp. The series' blown-glass and gold-leaf shades are available in four colors, and the satin-finished blown glass is offered in five colors. The Golf series includes wall, table, and floor units.
Circle 411 on information card.



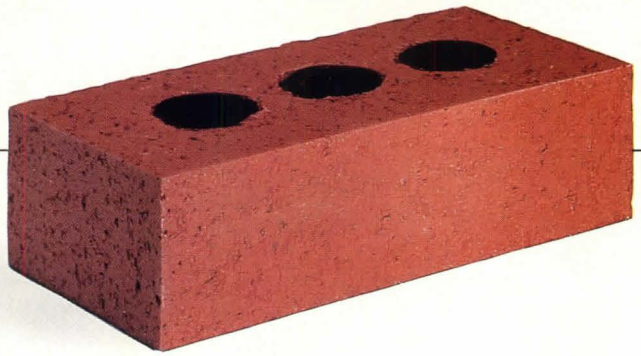
Ceiling and wall fixture
The Flight division of FLOS offers Rackette (above), an ADA-compliant wall sconce that is also available for ceiling installation. The unit, designed by Luciano Pagani and Angelo Perversi, measures 8.5 inches wide and 9.6 inches long. A cast aluminum housing unit encases a molded glass diffuser and accommodates either a double twin-tube, compact fluorescent lamp or a 60-watt incandescent bulb.
Circle 412 on information card.

Sloped ceiling trim
Lithonia Downlighting offers sloped downlight ceiling trims. The Advantage series comprises a 6-inch aperture, open white sloped ceiling reflector, and adjustable socket plate to allow the lamp to remain perpendicular to the floor. This series accommodates ceiling pitches ranging from $^{2}/_{12}$ to $^{12}/_{12}$ with one trim. This unit is suitable for moisture-prone areas. Trims are available in black, white, chrome, and gold.
Circle 413 on information card.

Table lamp
Sidecar, a division of Artemide, offers a new incandescent lamp series called Itaca (above), designed by Orni Halloween. Sizes available measure $19^{7}/_{8}$ inches high and $10^{1}/_{2}$ inches wide, $28^{3}/_{8}$ inches high and $15^{3}/_{8}$ inches wide, and $62^{5}/_{8}$ inches high and $15^{3}/_{8}$ inches wide. Itaca's steel base and stem can be finished in brushed nickel or a dark gray lacquer. The PVC shades are available in white, red, green, and mauve.
Circle 414 on information card.

Sixty second guide to Belden Brick:

COLORS

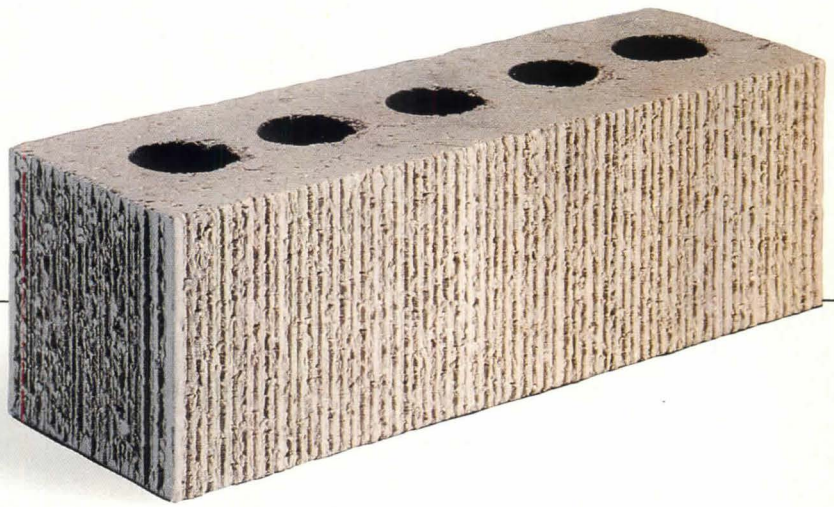


Belden Brick is made in over 116 colors that include 2 choices in black, 28 browns, 7 tans, 8 buffs, 3 creams, 18 grays, 16 pinks, 26 reds, and 8 whites.

In addition, it is made in 12 different textures, although not all our brick is made in the same range of textures.

Belden also offers a choice of extruded brick or molded brick (with the character of hand-made brick.) Each category includes a wide range of colors and textures providing more than adequate design latitude.

SIZES



Belden Brick is predominantly made in thirteen different sizes, representing the spectrum of Belden Brick colors and textures. Your design opportunities are broadened by the availability of virtually every Belden Brick color choice as pavers.

SHAPES

We've made hundreds of different shapes to provide special structure details, and a week seldom passes without our custom-making a new special shape to meet individual design requirements. If you need an "impossible" special shape to complement the brick structure you're planning, call Belden. We've seen the impossible become reality.

THE BELDEN BRICK COMPANY
700 W. Tuscarawas Canton, OH 44701
Telephone 216-456-0031

Circle 111 on information card

THE Belden Brick COMPANY
CANTON, OHIO 44701

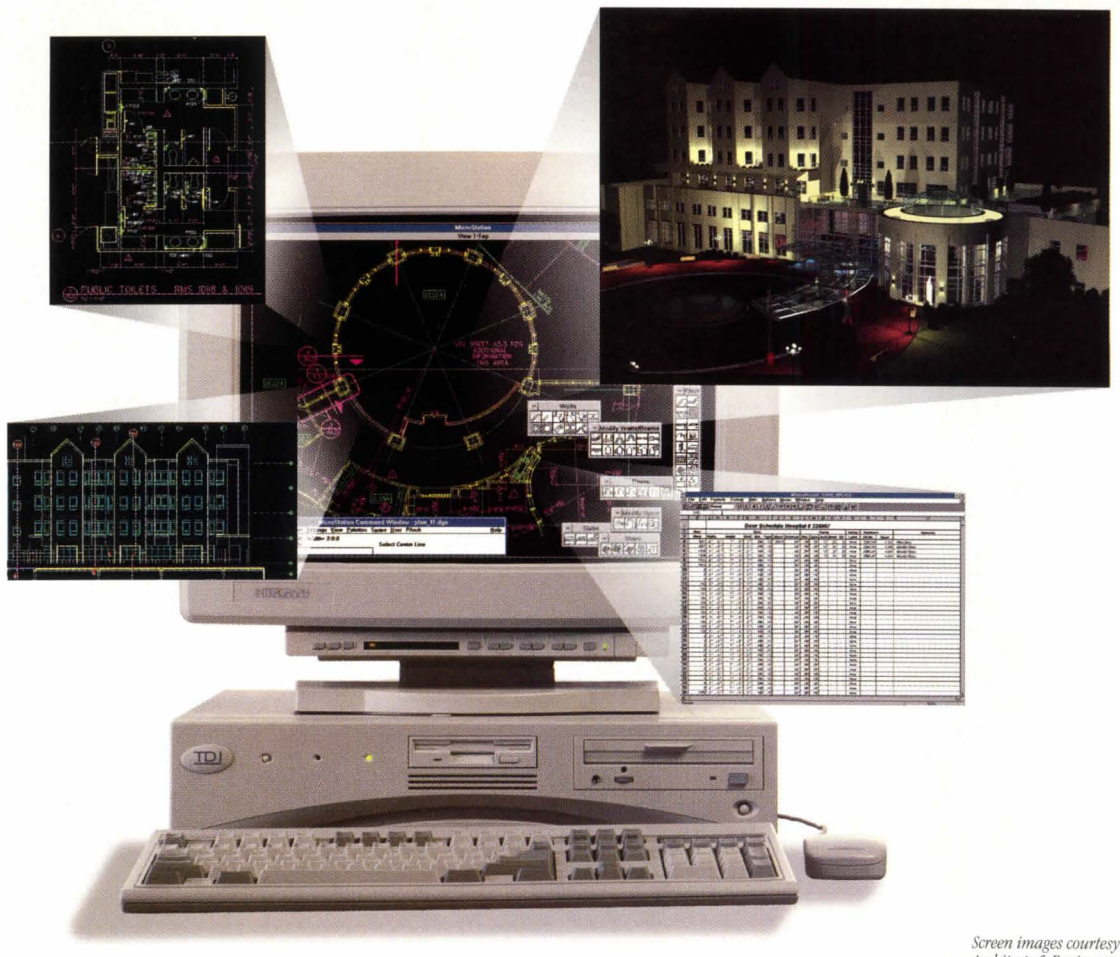
"We Do More Than We Have To"

The AEC Desktop™

Looking for architectural software that fits your office and budget?

Project Architect for Windows NT

ORDER BY JUNE 30, SAVE 28%



Screen images courtesy of Heery Architects & Engineers, Inc.

With Intergraph's Project Architect, you get a powerful application that fits your needs, instead of forcing you to adapt to new requirements.

Comprehensive functionality: detailed floor and reflected ceiling plans, accurate schedules and quantity takeoff reports, sections, elevations and sophisticated models automatically generated from floor plans and roofs . . . and much more!

"... the only limitation is your own imagination ..."
Brad Roush, CH2M Hill

Easy to use: Combine the simplicity of 2D drafting with the sophistication of 3D modeling. You can work in a 2D floor plan view while simultaneously creating a 3D building data model. Project Architect's command icons and dialog boxes are as easy to use as the Microsoft Windows graphical user interface.

Compatible with your office environment: Available on PCs running Windows NT, Project Architect is part of a single, consistent technical desktop. Use Project Architect with all your office automation tools, such as spreadsheets and word processors.

Professional support: The result of a 10-year dialog with thousands of architects around the world, Project Architect is backed by Intergraph's experienced support network.

For more information or the number of a sales representative or Solutions Center near you, call 800-345-4856.

Call now for your free Intergraph multimedia CD-ROM.

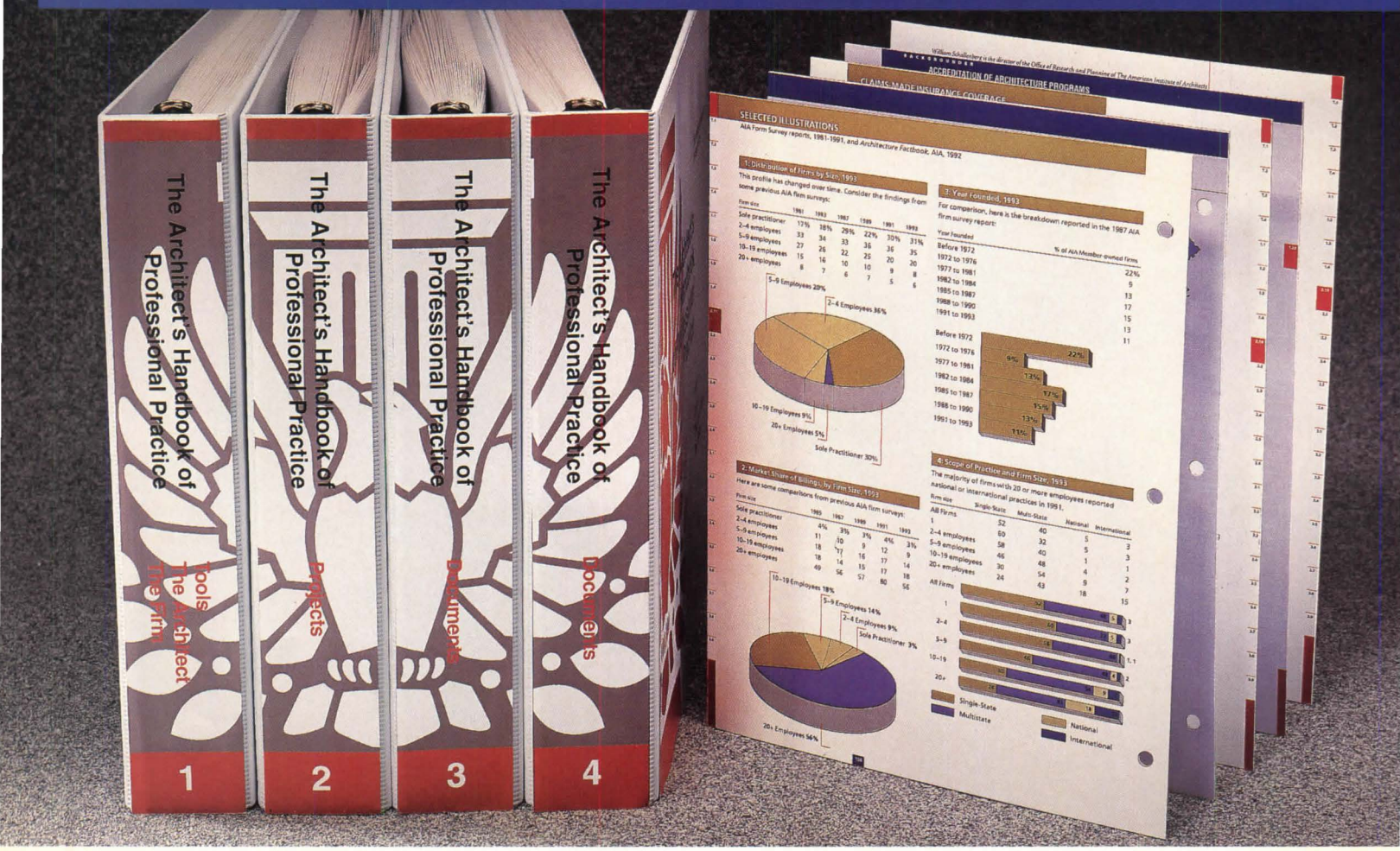
Circle 115 on information card

MICROSOFT WINDOWS COMPATIBLE
32-Bit Application

INTERGRAPH
Solutions for the Technical Desktop

MicroStation® Powered

Don't Struggle Through The '90s With Information From The '80s.



Order your copy of *The Architect's Handbook of Professional Practice*, 12th edition. Completely revised, updated and more indispensable than ever.

If the profession of architecture has a key resource, this is it. The *Handbook* has been a business necessity for every architect since 1917, when The American Institute of Architects first published it. With four big volumes — more than 1,800 pages in all — the *Handbook* covers everything from the regulatory environment to interprofessional relationships to sample contracts. This new edition is especially reader-friendly, and it's a good thing, because you'll refer to it again and again. Order now and make sure your practice is as up-to-date as this essential resource.

AIA

Call toll-free
800-365-ARCH (2724)
You may also mail the coupon or fax it to (802) 864-7626.

❑ YES! Bring me up to speed on the profession. Rush me the 12th edition of the *Handbook*.

All four volumes are just $140 for AIA members ($200 for nonmembers). The Student Edition Handbook (an abridged paperback version of the Handbook) is just $75.

❑ I understand that binders are optional and must be purchased separately.

❑ Check payable to the AIA is enclosed.
❑ VISA ❑ MasterCard

Account no. _____ Exp. date _____

Signature _____

Name _____

AIA membership no. (see AIA Membership Card) _____

Address _____

City/State/ZIP _____

Phone _____

Please send me:

___ Handbook(s) @ $140 each ($200 nonmembers) M107-94 $ _____

___ Binder(s) @ $4.95 each ($6.95 nonmembers) (four required for complete Handbook) M107B-94 $ _____

___ Documents Supplement Service subscription(s) @ $35 each ($70 nonmembers) DSS1994-N $ _____

___ Student Edition Handbook(s) (paperback) @ $75 each M107-94-SE $ _____

Subtotal $ _____
Shipping $ 8.00
Sales tax: DC 6%, VT 5% $ _____
Total $ _____

Mail to: AIA Orders
P.O. Box 60
Williston, VT 05495-0060

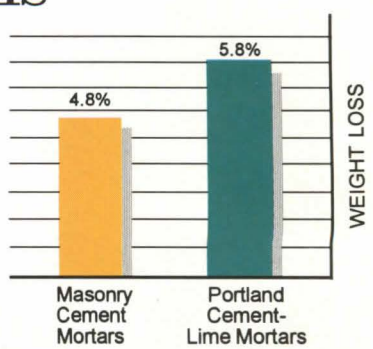
X162

SOLVING THE MORTAR PUZZLE!

Masonry Cement Helps Make Durable Walls

Durable masonry walls count on mortar joints to withstand the toughest conditions such as freezing and thawing. Masonry cement mortars endure freeze-thaw cycles because masonry cement is factory mixed and properly proportioned with just the right amount of entrained air. Add less drying shrinkage and greater sulfate resistance, ...and durability is in the bag!

In a series of ASTM C 666 tests, masonry cement mortars showed less freeze-thaw deterioration (weight loss) than portland cement-lime mortars. Send for a free report.



PORTLAND CEMENT pca ASSOCIATION

5420 Old Orchard Road Skokie, Illinois 60077-1083 (708) 966-6200

Circle 119 on information card

Advertisers Index

Circle number		*Page number*
69	Abet Laminati	38
21	ACCI Business Systems	30
—	AIA Accent	145
—	AIA Allied	149
—	AIA Membership	52
—	AIA PMD/Books	142
—	AIA PMD/Documents	116
—	AIA Portland Chapter	17
—	AIA Public Affairs	138
129	Alumax Extrusions	C4
1	Andersen Windows	2-3
51	Andersen Windows	108-109
19	Andersen Windows (IL state)	108-109
41	Armstrong World Industries	C2, p.1
17	Art Directions, Inc.	29
5	Artifice	18
—	Autodesk	130
27	Baldinger	33
111	Belden Brick (East, Midw reg.)	140
75	Bobrick Washroom Equipment	44
123	Bonneville Power Administration (West reg.)	147
61	Bradley Corp.	22
—	Brick Institute of America	16A-H
9	Calcomp, Inc.	27
25	Calcomp, Inc.	31
95	California Products Co.	100
71	Cedar Valley Shingle Systems	40
113	Chemstar Lime, Inc. (West reg.)	140
35	CRSI	47
55	Dorma Group	14
101	Dow Chemical	118
89	DuPont Antron	94-95
99	Elf Atochem North America	117
79	Follansbee Steel	48
125	Forbo Industries	151
91	Georgia-Pacific	97
73	Haws Drinking Faucet	42
33	Hoover Treated Wood Products	45
121	Inter. Conference of Building Officials (West reg.)	146
57	Intergraph Corp.	16
115	Intergraph Corp.	141
7	Kalwall Corp.	26
83	Kawneer Company, Inc.	50-51
43	Kim Lighting	5
13	LCN Closers	28
65	Louisiana-Pacific	34
45	Mannington Commercial	6-7
117	MBNA America	96
11	Musson Rubber Co.	28
3	Nixalite of America	4
67	Oce USA	36
103	OSRAM SYLVANIA	150
—	Pacific Data Products	19
15	Patina Finishes & Copper	29
23	Patio Enclosures	30
49	Pella Corporation	9
93	Pemko	98
131	Pittsburgh Corning	122-123
37	Portals Plus, Inc.	139
119	Portland Cement Assoc.	143
107	Pozzi Window Co.	134
81	PPG Industries	49
87	Roppe Corporation	54
77	Schlage Lock Co.	46
31	Schuller Roofing Systems	37
—	Schuller International, Inc.	10
39	Seiho Intl. Inc.	139
59	Siedle Communication	20-21
47	Sloan Valve Co.	8
29	Spec Line Inc.	35
97	SPI Lighting Inc.	110
105	Summitville Tiles, Inc.	124
109	Vistawall Arch. Prods.	136
127	Wausau Tile	C3
53	Wilkhahn, Inc.	12-13
63	Xerox Corporation	32
85	Xerox Engineering Systems	53

EDITORIAL OFFICE
1130 Connecticut Avenue, N.W., Suite 625
Washington, D.C. 20036
(202) 828-0993

EXECUTIVE OFFICE
994 Old Eagle School Road, Suite 1010
Wayne, Pennsylvania 19087
(215) 254-9800

Robert Hoover Production Director
Barbara Falk Circulation Manager
Nancy A. Perri Assistant to the Publisher
Robert G. Kliesch Publisher

ADVERTISING SALES OFFICES
New York/Connecticut (215) 935-8522
D. Douglas Johnson
1625 Oak Hill Road
Chester Springs, Pennsylvania 19425

PA/VA/MD/New England (215) 254-9800
George T. Broskey, Eastern Sales Manager
994 Old Eagle School Road, Suite 1010
Wayne, Pennsylvania 19087

Southeast (215) 935-8522
D. Douglas Johnson
1625 Oak Hill Road
Chester Springs, Pennsylvania 19425

Midwest (312) 464-8505
Jack E. Bergren
Robert G. Hatfield, CBC
936 The Merchandise Mart
Chicago, Illinois 60654

Jack E. Bergren (414) 786-4286
2530 Coach House Dr.
Brookfield (Milwaukee), Wisconsin 53005

Edward R. Novak (708) 658-7133
E.R.&J. Assoc., Inc.
P.O. Box 648
Algonquin, Illinois 60102

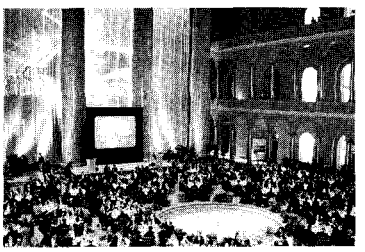
West/Northwest
James A. Anderson (714) 855-0808
Western Sales Manager
James D. Anderson
23591 El Toro Road, #209
El Toro, California 92630

Canada (905) 833-6200
Donald C. Fenn
Tony Hyland
2130 King Road, Box 1060
King City, *Ontario* L7B 1B1 CANADA

Italy (02) 58.31.02.19
Cesare Fiorucci
Viale Sabotino, 9
20135 MILANO
Fax: (02) 58.31.57.10

IN CELEBRATION OF EXCELLENCE

Voices of Accent on Architecture 1994



The American Institute of Architects and The American Architectural Foundation created Accent on Architecture to increase public awareness of the critical role that architecture plays in all our lives and to stimulate debate about design issues that affect people everywhere.

Through the awards gala, exhibitions, educational and television programs, publications, and other national and local events, Accent on Architecture seeks to foster a partnership of excellence between the American people and the architectural profession.

Secretary of Housing and Urban Development Henry G. Cisneros, Hon. AIA, on the importance of design in the cities:

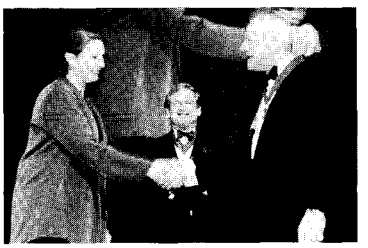
"...I have become more convinced than ever that improving the physical quality of buildings, streets, parks, and public spaces is critical to our mission to help people create communities of opportunity.... The idea that good architecture and urban design can make a profound difference for low- and moderate-income people and communities is an idea that we now need to nurture and help grow."

Sir Norman Foster, Hon. FAIA, 1994 Gold Medalist of The American Institute of Architects, on design:

"Architecture is about the spiritual needs of people as well as their material needs. It has much to do with optimism, joy, and reassurance; of order in a disordered world; of privacy in the midst of many; of space in a crowded site; of light on a dull day. It is about quality—the quality of the space and the poetry of the light that models it."

Jane Alexander, chairman of the National Endowment for the Arts, on architecture:

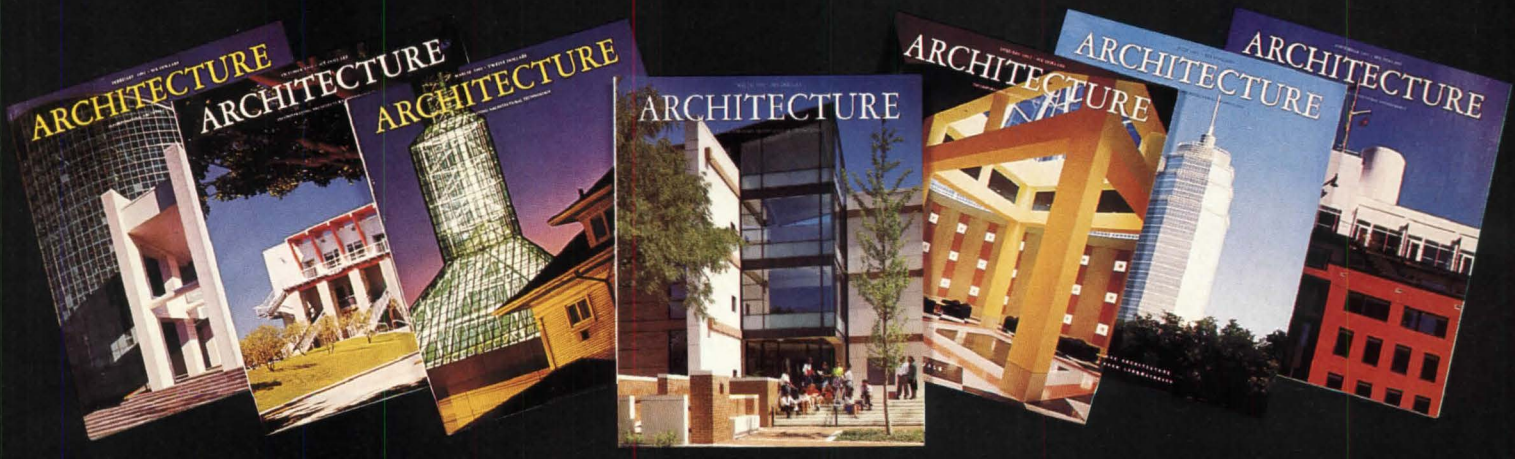
"Architecture...is the most public of the arts. It surrounds us. It shelters us. It touches us continually. It is inescapable. It affects all of us, all the time. Its importance cannot be overstated."



Accent on Architecture 1994 was made possible by the contributions of many sponsors, with none more generous that McGraw-Hill's Construction Information Group, including: *Architectural Record*, Construction News Publishing Network, F.W. Dodge, *Engineering News-Record*, and Sweet's Group.

Building The Future Together

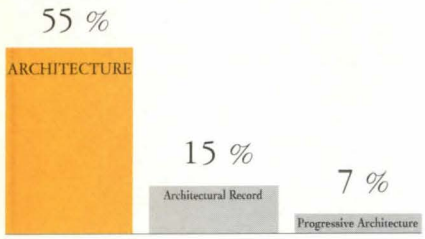
Architects agree there's no equal.



ARCHITECTURE is the leading publication in the profession–and independent research by Simmons* proves it!

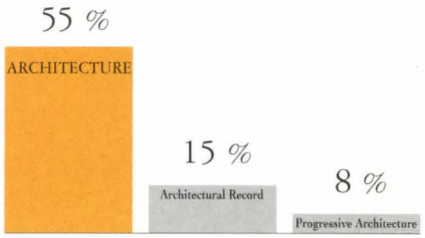
Preference

of a vast majority of architects for useful technical information.



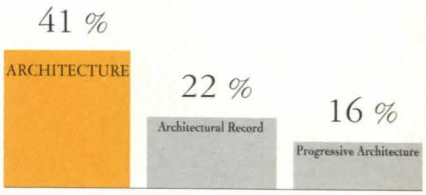
Choice

of a majority of architects for useful professional practice information



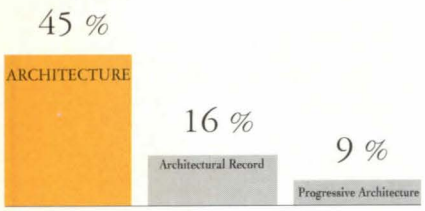
Leader

for useful design information



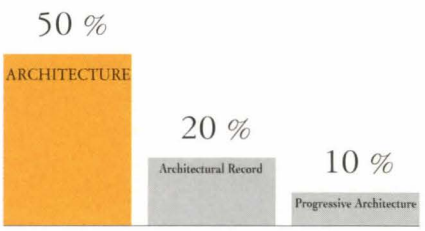
Most helpful

magazine to a majority of architects in their work



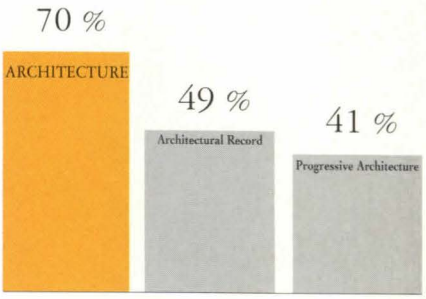
Most respected

and valued magazine in the industry



Best read

with the greatest readership among a majority of U.S. architects



ARCHITECTURE continues to build excitement by providing editorial coverage of both the design, practice, and technological aspects of architecture to a degree unequalled by any other magazine in the architectural field.

ARCHITECTURE

* Based on the results of the Sixth Annual Study of U.S. Architects conducted by Simmons Market Research Bureau, Inc., an independent research company.

Last Chance

Did you miss valuable information offered by advertisers in last month's issue of ARCHITECTURE?

The manufacturers listed below were advertisers in last month's issue. They are anxious to provide you with their latest product information and literature for your planning needs. To receive this information, circle the appropriate numbers on the self-addressed, postage-paid response card. For product literature from advertisers in this issue, circle the appropriate numbers shown on the advertisements.

ACCI Business Systems
Find out more about our Project Management/Accounting Package. *Circle No. 64*

ACI Glass Products
Get the facts on the entire ACI Glass product line. *Circle No. 80*

American Olean Tile
Ask about our "Design Takes Shape" booklet. *Circle No. 42*

Andersen Corporation
In today's designs, it's the brand that helps architects take value to new heights.

Architectural Area Lighting
Call or write for information on our vandal resistant site lighting. *Circle No. 106*

Armstrong World Industries
Send for more information on Cirrus® Themes acoustical panels. *Circle No. 40*

Artifice, Inc.
Get more details on our Design Workshop™. *Circle No. 26*

Bobrick Washroom Equipment
Introducing Contura™; A new dimension in the washroom. *Circle No. 76*

Bradley Corporation
Get details today on our Terreon™ Solid Surface Material. *Circle No. 50*

Brite Vue Glass
Call or write for more information on our Full-Framed Clad Doors. *Circle No. 74*

Calcomp, Inc.
Find out more about our Precision-Matched Calcomp supplies. *Circle No. 38*

Calcomp, Inc.
Introducing the TechJET™ Personal—send for more information today. *Circle No. 22*

California Products Co.
Write or call for samples and information on Aquafleck. *Circle No. 112*

Case Window & Door Co.
Send for specs, drawings and project assistance. *Circle No. 20*

Cedar Valley Shingle
Send for your free design and specification packet. *Circle No. 116*

Certainteed Corp.
Send for a brochure on our Grand Manor Shangle. *Circle No. 140*

CNA Insurance
Find out about our Professional Liability Insurance Program. *Circle No. 114*

Dal-Tile Corp.
Send for your free 1994 products catalog today. *Circle No. 88*

Digital Equipment Co.
Find out more about our DECpc™ LPv+line of Personal Computers. *Circle No. 86*

Dover Elevator Systems
Get free advice on how to make your present elevators ADA-O.K. *Circle No. 98*

Dow Chemical
Send for technical literature on STYROFOAM CAVITYMATE brand insulation. *Circle No. 126*

DuPont Antron
Send for more information on Antron® carpet fiber. *Circle No. 68*

EFCO
Find out more about our complete line of windows. *Circle No. 130*

Elf Atochem North America
Get details on Kynar 500-based finishes. *Circle No. 70*

Eliason Corporation
Get the facts on our Easy Swing® double action impact doors. *Circle No. 24*

Follansbee Steel
Send for samples of our TCS® finishes. *Circle No. 78*

Georgia Pacific
Call or write for more information on G-P PrimeTrim. *Circle No. 154*

Grohe America
Get the facts on our collection of products for your kitchen and bath. *Circle No. 136*

Hewlett Packard
Get details on our new DesignJet 200 monochrome inkjet plotter. *Circle No. 16*

Hoover Treated Wood
Send for information on PYRO-GUARD® fire retardant treated lumber and plywood. *Circle No. 32*

Intergraph Corp.
Write for more information on Project Architect for Windows NT. *Circle No. 102*

Intergraph Corp.
Send for free brochures and demo disks on MicroStation and DesignWorks. *Circle No. 118*

Jerong Marble Products
Call or write for your free brochure on our marble products. *Circle No. 18*

Kim Lighting
Find out why our Outdoor Tube System offers a distinctive solution to site lighting. *Circle No. 44*

LCN Closers
Find out why the best closers just got better. *Circle No. 122*

Louisiana Pacific
Learn more about the FiberBond advantages. *Circle No. 82*

Louisiana Pacific
Learn more about the FiberBond advantages. *Circle No. 84*

Mannington Mills
Call or write to find out what your Mannington options are. *Circle No. 54*

Nixalite of America
Send for information on Nixalite® superior bird control. *Circle No. 14*

Oce USA
Write today for a demonstration on our engineering copiers and plotters. *Circle No. 134*

OSRAM Sylvania
Get details on our OCTRON® T-8 Lamp and QUICKTRONIC® electronic ballast combinations.
Circle No. 72

Pearce Systems Intl.
Send for more information on our space frame system. *Circle No. 132*

Pella Corporation
Call or write for a free Pella® Architectural Design Manual.
Circle No. 48

Portland Cement Assn.
Find out why masonry cement helps make watertight walls.
Circle No. 120

Portland Cement Assn.
Send for your entry brochure for our 1994 concrete building awards.
Circle No. 92

Pozzi Window Co.
Call or write for a free catalog.
Circle No. 128

PPG Industries
Find out how Azurlite glass can help your designs dominate the skyline.
Circle No. 58

Recreational Vehicle Prdts.
Call or write for details on LiftAire Elevator Air Conditioner.
Circle No. 100

Robertson Co.
Find out why Formawall emerges as the material of choice for exterior walls. *Circle No. 124*

Roppe Corporation
Send for information on our Rubber Cove Base. *Circle No. 66*

Schuller Roofing Systems
Get information about Schuller Phenolic Foam Roof Insulation and possible steel deck corrosion.
Circle No. 28

Seiho Intl. Inc.
Get more information on our Aluminum Vent Louvers. *Circle No. 34*

Shakertown Corp.
Send for our new, free builder's packet or architect's binder.
Circle No. 142

Siedle Communication
Get further details on the Siedle-Vario® System. *Circle No. 60*

Sloan Valve Co.
Find out more about our new Optima Plus® for closets. *Circle No. 56*

Softdesk, Inc.
Send for a demo on our AutoCAD Release 12 for Windows.
Circle No. 94

Spacesaver Corp.
Get more information on our mobile storage systems.
Circle Nos. 2, 4, 6, 8, 10, 12

Spec Line, Inc.
Find out about unlimited telephone access to SpecLine®. *Circle No. 36*

Stylemark
Send for our free Product Catalog Supplement featuring our new lines of Stainable Woodgrain Millwork and more. *Circle No. 30*

Summitville Tiles
Get more information on our new S-500 Setting and Grouting Epoxy.
Circle No. 90

Tischler und Sohn
Get details on our complete line of windows and doors. *Circle No. 144*

Truebro, Inc.
Get details on our Handi Lav-Guard® insulation kits. *Circle No. 96*

Vistawall Arch. Prdts.
Find out why we're the pioneer in stone curtain wall. *Circle No. 104*

Weather Shield Mfg., Inc.
Find out why there's more to see in a Weather Shield Window.
Circle No. 52

Weyerhaeuser Door
We take pride in making the finest solid wood doors in the world.
Circle No. 150

W&W Sales Ltd.
Write for details on the Pilkington Planar System. *Circle No. 46*

Xerox Engineering Systems
Send for more information on the Xerox 2515 Engineering Copier.
Circle No. 62

Zero International
Find out why Zero Sound Trap Systems can help reduce sound control problems. *Circle No. 152*

TO ALL THOSE LOOKING FOR A MORE COMPLETE LINE OF COMPACT FLUORESCENT LAMPS: DON'T WASTE YOUR ENERGY.

Don't even bother. Because with lamps ranging from 7 watts to 23 watts, nobody offers a more extensive line of energy efficient compact fluorescent lamps, globes, and reflectors than OSRAM SYLVANIA.

Which is good news for those who specify lighting for commercial markets. It's also good news for those looking to save money. That's because our DULUX® EL compact fluorescent lamps save over 70% in energy costs and last 10,000 hours. That's 13 times longer than ordinary 750 hour incandescent lamps.

And now that we're one company, OSRAM SYLVANIA has the most complete line of lighting systems solutions (lamps and ballasts) in the business.

Not only do we offer an outstanding product line, we offer outstanding innovation, technical support, product availability and power quality technology.

We also offer one more impressive feature: the SYLVANIA brand name. It's shining brighter by the day. So put your energy to better use. Like calling us for more information. 1-800-LIGHTBULB.

Circle 103 on information card

TECHNOLOGY BROUGHT TO LIGHT

OSRAM SYLVANIA

FLOORING

GO WILD WITH COLOR! ENOUGH OPTIONS TO CONFOUND A CHAMELEON.

Forbo's vinyl flooring offers so many colors, even nature's best quick-change artist can't adapt. But what an opportunity for you to go wild with design! MultiStep,* ColourStep and TractionStep share similar palettes, but mix the colors as solids and complementary chips for a nearly inexhaustible source of coordinated designs. New Colorstyle gives you swirls of marbleized color. Rugged Smaragd lets you combine a strong design statement with the easy maintenance and great durability necessary in hospitals and labs. Ask us about the higher vinyl content in Forbo vinyls. It's your assurance of finer quality flooring that lasts longer and performs better.

Go wild with
FORBO VINYL
FLOORING.

The new standard in vinyl.

Forbo Industries Incorporated
Hazleton, Pennsylvania

*1993 Neocon Gold Award Winner

FORBO
VICRTEX WALLCOVERINGS
CONTRACT
FORBO FLOOR COVERINGS
SURFACES

Forbo

Circle 125 on information card

No excuses after this information exchange

Exterior Insulation and Finish Systems

CSI Section 07240

Reinforced fabric overlaps

One of the most common and difficult-to-correct mistakes when applying the base coat and fabric layer of an exterior insulation and finish system (EIFS) is poor handling of the overlapping reinforcing fabric. These overlaps can stick out from the flatness of the wall and cause problems with the application of the finish. The resulting "bump" acts as a curb that prevents a smooth application of the exterior wall finish. Improper fabric overlaps can also cause cracks. If a continuous reinforcing membrane is not applied to the insulating board, the base coat will be pushed out as the structure moves, causing a break in the building skin.

The reinforcing fabric may be applied vertically or horizontally. Joints should be overlapped $1^1/_2$ inches to 2 inches. There must be an adhesive base coat under the fabric, as well as between the laps. Enough base coat should be spread to cover the entire width of the installed fabric. Once the first piece is embedded and before it starts to dry, the next piece should be applied down or across the wall in the same manner.

Fabric should be applied to the base coat wet-on-wet, or wet-on-completely dry. For wet-on-wet applications, smooth the two layers with a trowel down the length of the joint line. Then double back and smooth out the transition line in the fabric pieces. If you have been consistent, the joint should virtually disappear. For wet-on-dry, some "flanking in" is necessary to smooth out the joints, but like joints in sheetrock, the width of the trowel or blade determines the smoothness of the transition. It is easier to manipulate two wet layers of material than one wet layer and one dry layer.

Ted M. De Vit, Jr.
Master Wall
Columbus, Georgia

Code Requirements

CSI Section 01060

ADA-compliant toilet rooms

In a single-occupancy toilet room designed to comply with the guidelines of the Americans With Disabilities Act (ADA), the minimum floor clearance typically required results in a 5-foot width to accommodate a turning wheelchair. However, this dimension is usually too small to accommodate both the ADA-required 36-inch-long grab bar across the back of the toilet and the lavatory on the wall adjacent to this grab bar.

The problem occurs when the grab bar, which is actually 39 inches long in its out-to-out dimensions (including the flanges), and the lavatory, which usually has a built-in backsplash and measures $20^1/_2$ inches wide, are mounted on the same wall. Locating the lavatory center 15 inches from the adjacent wall to provide minimum cleaning clearances required by the Building Officials and Code Administrators International plumbing code and allowing an additional 4 inches for grab bar fitting clearances adds up to a total wall space of 5 feet, $8^1/_4$ inches.

The pertinent diagram in the ADA accessibility guidelines indicates that the grab bar may overlap the lavatory, but it doesn't take into account either backsplashes or the clearances required by the 6-inch wrist-blade lavatory handles so often specified in these situations. Our solution is to allow a minimum width along the plumbing walls of 5 feet, 10 inches to adequately accommodate the wall-mounted fixtures.

John T. McGrann, Jr., AIA
Baskervill & Son
Richmond, Virginia

Gypsum Drywall

CSI Section 09250

Finishing alternatives

One of the big problems we have with drywall finishing occurs when a column or soffit is finished out with a small 4-inch or 6-inch putty knife. Finishing with a small knife between corner beads that are less than 24 inches apart does not place enough mud between the beads, and consequently, the edges appear to flare outward. This unsightly flaring is especially noticeable when a base or trim is installed around the surface, because wood does not lie flat against the curved surface, and vinyl or rubber adheres tightly but further accentuates the curve.

An alternative is to have the drywall subcontractor feather out from all corner beads a minimum of 24 inches, employing regular joint compound. Another equally acceptable method that subcontractors have recommended is to utilize a thin drywall compound applied with a large-nap roller. The compound is then troweled off with a 12-inch or larger knife, and the entire surface is sanded. Skim coating and sanding can be repeated to smooth out surfaces. This technique does not waste effort, since more area is covered in less time than with conventional mud-application methods.

It is also possible to employ a standard compound that is thinned and whipped. Conventional dry-mix compound can be mixed to a consistency stiffer than a thick paint but thinner than a properly proportioned compound. The compound should just hold soft peaks after mixing.

The key to flat, smooth drywall surfaces is this skim-coat type of application, which we have employed recently on three projects with great success. In addition to filling in the surfaces between corner beads, the skim coat covers an entire surface, concealing any tape joints or imperfections. It is an especially good method for light-washed surfaces and surfaces that are to receive dark or glossy paints. The key to ensuring this type of installation and setting the proper construction standard is to hold a preinstallation meeting with the general contractor and/or subcontractor before the drywall finishing work begins.

The preinstallation meeting should include the person in charge of the actual field installation. Drawings and specifications should be reviewed together and should clearly indicate those critical areas requiring skim coating or wide feathering. If skim coating or wide feathering is neither specified nor noted in the drawings, be prepared to face additional project costs. While these methods produce high-quality finishes, they are not standard practice in the drywall industry.

Elizabeth R. Baird, AIA
O'Neal Construction
Ann Arbor, Michigan

Architects are encouraged to contribute their practical suggestions about specifications and detailing, including drawings, for publication. Send submissions to:
ARCHITECTURE
1130 Connecticut Avenue, N.W.
Washington, D.C. 20036
or fax them to: (202) 828-0825

Your Interiors Earn Top Grades With Precast Terrazzo Flooring

New ground-in-place installation method makes design options even easier and more contemporary. Install precast Wausau Tile terrazzo flooring with a 1/16" minus joint, grouted flush with the surface. Follow with a light grinding and final polishing. It's easier, faster, cleaner to install. With less visible grout joints, smooth, even surfaces. A more eye-appealing look that retains its original beauty with a minimum of maintenance.

Choose from the NTMA color palette or let your own imagination take flight with a unique blend of aggregates and matrix colors.

Design special effects with field or water-jet precise factory cuts. Then add the finishing touches with standard or custom matching precast accessories: base, treads, risers, planters, benches.

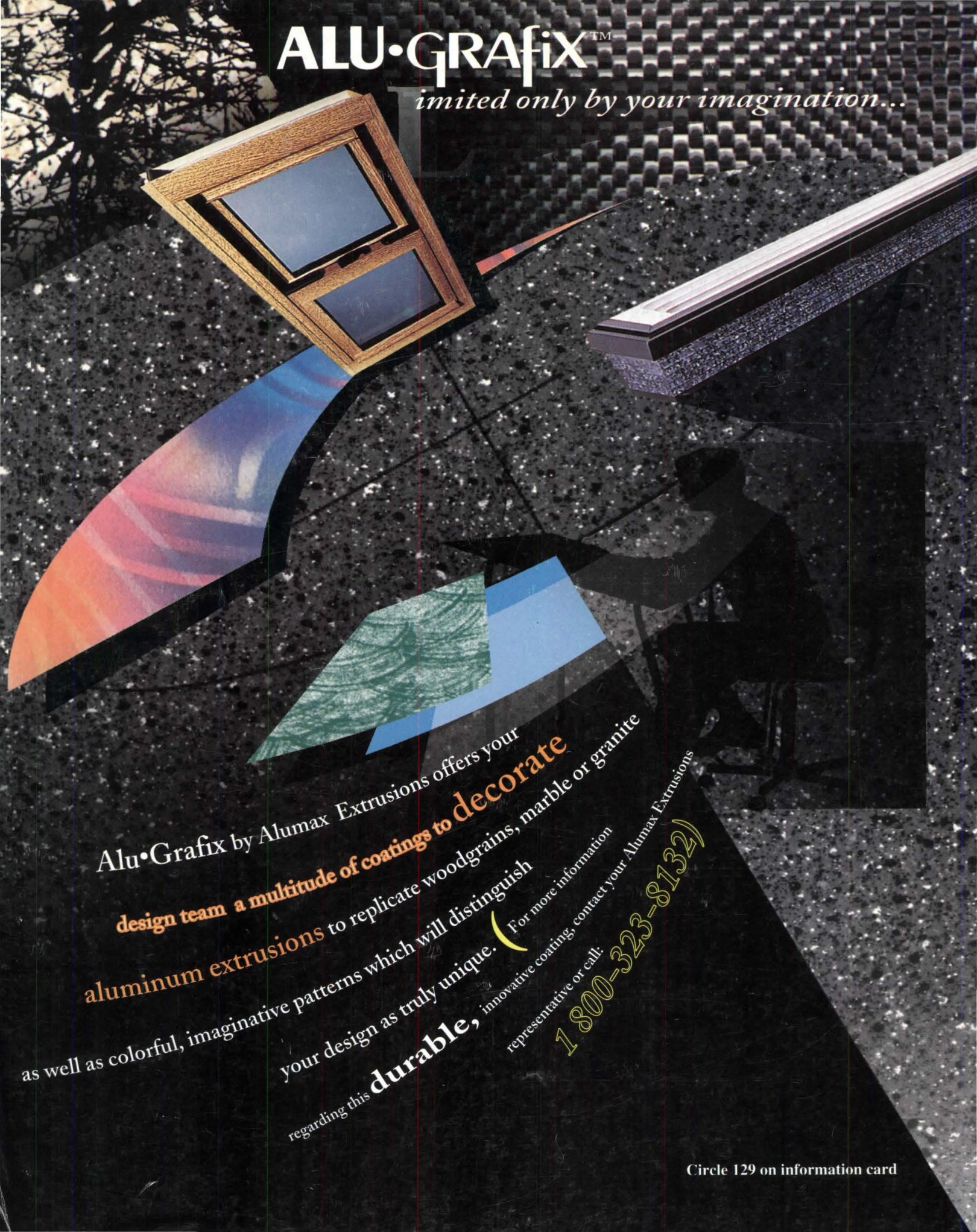
Find out more about the only cementitious precast terrazzo flooring made in the USA. Contact customer service for samples, specifications, literature, and technical assistance. We'll help your interiors earn top grades.

Terra Paving Products

Division of Wausau Tile, Inc.
PO Box 1520 Wausau, WI 54402-1520
(800) 388-8728
(715) 359-3121
(715) 355-4627 FAX

Circle 127 on information card

93004



Circle 129 on information card