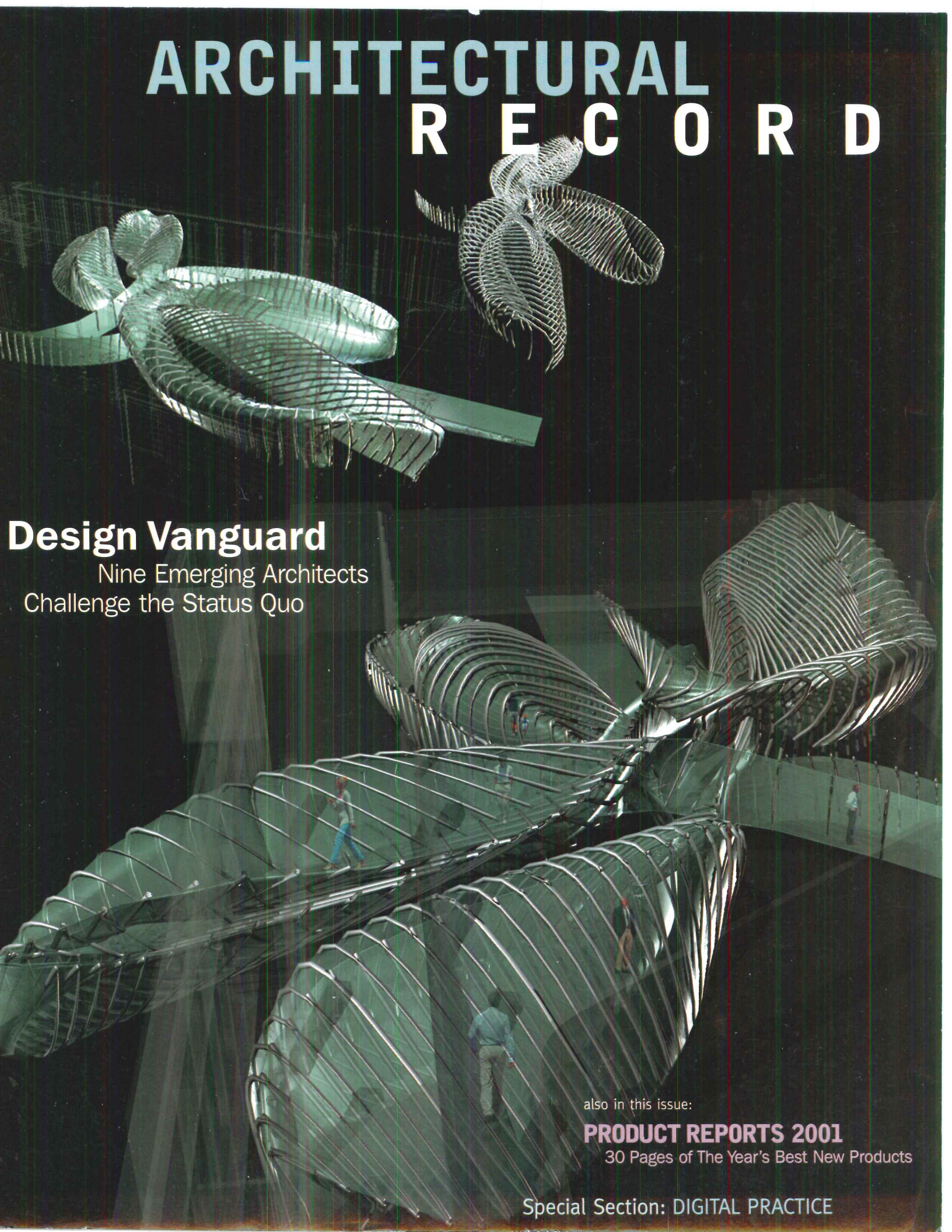


# ARCHITECTURAL RECORD



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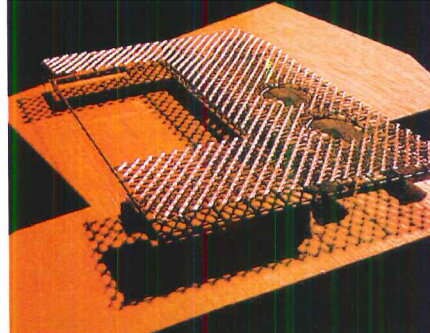


# ARCHITECTURAL RECORD

# 12.2001

On the Cover: Computer rendering by Hernán Díaz Alonso, Xefirotarch, for the Queens Museum, Queens, N.Y.

Right: Rendering by Lang Wilson PAC for the Colegio Chuquicamata, Calama, Chile



This year's nine Design Vanguard architects share a knack for the latest tools, and a tendency to push the envelope, as seen above in this rendering by Lang Wilson PAC.

## News

**21 SPECIAL REPORT: The skyscraper is here to stay**

**24 The AIA continues with its financial recovery plan**

**WWW** For continuous updates on the developing story at the World Trade Center, go to [www.architecturalrecord.com](http://www.architecturalrecord.com).

## Departments

**15 Editorial: Where do we go from here?\***

**17 Letters\***

**34 Dates & Events\***

**37 Critique: The best WTC memorial** by Robert Campbell, FAIA

**41 Books: Current architecture**

**45 Snapshot: The Oca** by Clifford A. Pearson

**214 Profile: Ayse Birsal** by Josephine Minutillo\*

## Projects

**51 Design Vanguard 2001** by Clifford A. Pearson\*

Our second annual group of emerging ones-to-watch, this year's nine Design Vanguard architects prove that risk is right.

**52 Lang Wilson PAC Culture, Vancouver** by Clifford A. Pearson\*

**56 David Guthrie Design Workshop, Houston** by Charles Linn, AIA\*

**60 Shuhei Endo Architect Institute, Japan** by Naomi R. Pollock, AIA\*

**64 Xefirotarch, Los Angeles** by Ingrid Whitehead\*

**70 Richard & Bauer, Phoenix** by Suzanne Stephens\*

**74 SYSTEMarchitects, New York City** by William Weathersby, Jr.\*

**78 Escher GuneWardena Architecture, Los Angeles** by Sara Amelar\*

**82 Studio Gang/O'Donnell, Chicago** by John E. Czarnecki, Assoc. AIA\*

**86 Ofis Architects, Slovenia** by Clifford A. Pearson\*

## Building Types Study 804

**91 Essay: Universities** by Clifford A. Pearson

**92 Nanyang Polytechnic, Singapore** by Clifford A. Pearson\*  
Gwathmey Siegel & Associates

**98 Perelman Quadrangle, Philadelphia** by Suzanne Stephens\*  
Venturi Scott Brown and Associates

**102 EGADE, Mexico** by Elizabeth Kubany\*

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For 10 additional university projects, go to Building Types Study at [www.architecturalrecord.com](http://www.architecturalrecord.com). The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

## Building Science & Technology

**107 Plastics Finally Get Respect** 

by Barbara Knecht\*

A new generation of plastics is emerging as a material of choice.

## Digital Practice

**121 Introduction**

**123 Digital Briefs**

**127 How Architects Use the Macintosh** by Louis B. Smith, AIA

**135 Digital Architect** by Jerry Laiserin, FAIA

**139 Software Reviews**

## Product Reports

**142 Introduction**

**144 Editor's Picks**

**147 General Data**

**151 Sitework, Concrete & Masonry**

**153 Metals, Woods & Plastics**

**157 Thermal & Moisture Protection**

**159 Doors & Windows**

**163 Finishes**

**169 Specialties**

**171 Equipment**

**173 Furnishings**

**179 Special Construction & Conveying Systems**

**181 Mechanical**

**185 Electrical**

**13 What's at [architecturalrecord.com](http://architecturalrecord.com)**

**196 Reader Service\***

**208 AIA/CES Self-Report Form\***

**198 Manufacturers' Spotlight**

**210 Classified Advertising\***

 **The AIA/ARCHITECTURAL RECORD Continuing-Education Opportunities** are "Plastics Finally Get Respect" [page 107] and "Achieving a Successful Building Envelope With Vinyl" [page 115] sponsored by The Vinyl Institute.

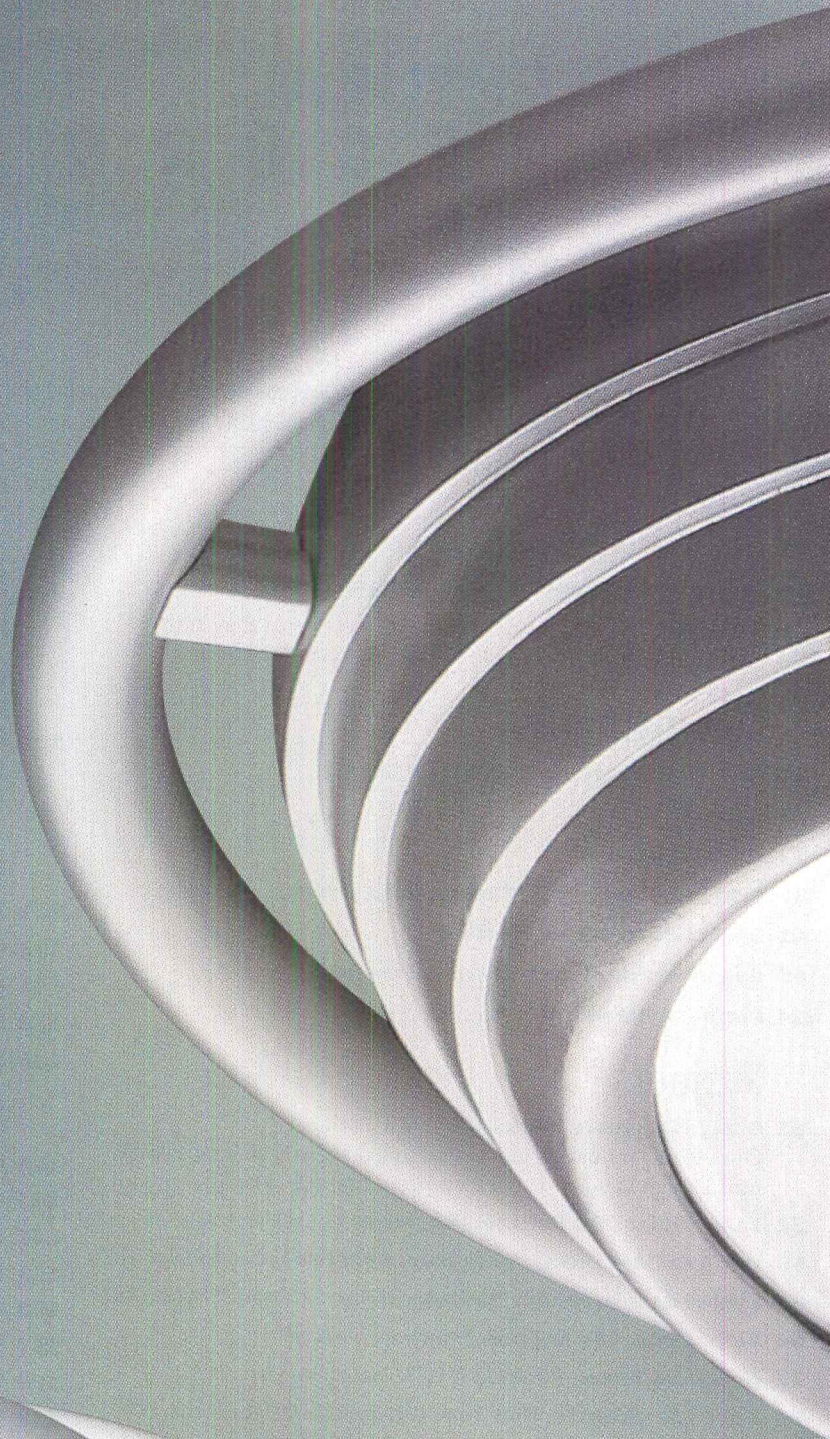
**WWW** \* You can find these stories at [www.architecturalrecord.com](http://www.architecturalrecord.com), including expanded coverage of the work of the nine Design Vanguard architectural firms featured in our Project section this month.



# Circa

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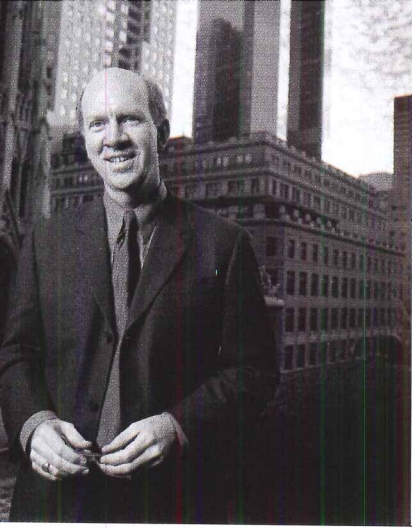
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CIRCLE 8 ON INQUIRY CARD



# Where do we go from here?

## Editorial

By Robert Ivy, FAIA

**S**eptember 11 thrust us into the spotlight in unforeseen ways. While it may be premature to speculate on specific solutions for the World Trade Center site, the country seeks direction and vision, two qualities that architects can provide. Listed below are trends that can inform our debate and our plans, for New York and beyond:

**Harnessing nature.** In an article in the New York Times magazine, William Pedersen, FAIA, proposed harnessing wind and solar power in tall structures. The rationale is obvious and timely: reducing our reliance on imported petroleum. At Baruch College, his firm has rethought an urban block, opening the interior of a high-rise campus from south to north, piercing its high vertical atrium with sunlight. Our challenge is to take buildings beyond sustainability to become productive, energy-making machines.

**Reclaiming damaged land.** There are some who are active in a movement of regeneration and hope for blighted environments, including the WTC site. Among these are the sculptor and landscape architect Julie Bargmann, who, with her firm D.I.R.T. Studio, is transforming abandoned toxic mining facilities and large industrial complexes, allowing the earth to wash itself clean.

**Enhancing productivity.** Urban towers such as Frankfurt's Commerzbank put office workers near light and air, opening up selected groups of floors for gardens in the sky.

**Greening the waterfront.** By more carefully controlling our ports and transshipment points, large areas of waterfront can

be freed as parkland, suggests urban theorist Jonathan Barnett.

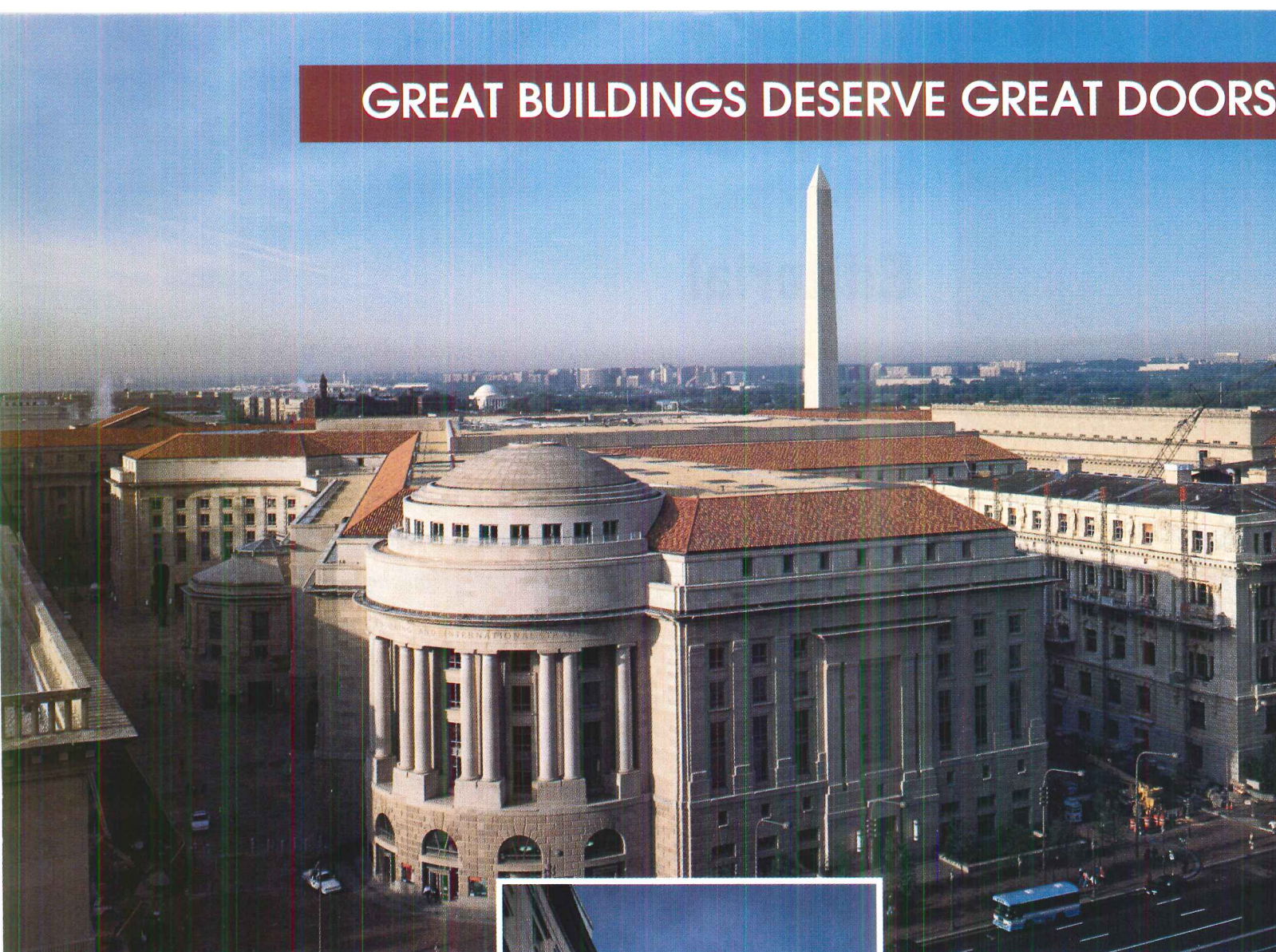
**Encouraging intermodal transportation.** We can design a world of easier links between the pedestrian, the automobile, buses, boats, and trains. According to the recently signed airline security bill, all baggage will be scanned in the future, which may slow check-in and increase travel time. Trains should benefit, says Barnett.

**Developing better building materials and systems.** Improved lamination or forming techniques and easier cleaning all point to new uses for glass. Almost single-handedly, Renzo Piano has revitalized the terra-cotta industry. The development of new materials like transparent foils, used by Nicholas Grimshaw at Britain's Eden project, permit lightweight, airborne structures.

**Increasing architectural research.** Some European firms set aside a part of their revenues for architectural research. In Philadelphia, architects Kieran and Timberlake translated a Latrobe grant from the College of Fellows of the AIA into a revolutionary dual glazing system.

The time is ripe to rethink the faster, cheaper mentality that has dominated development work and reduced the character of public life. Enlightened discussion of good ideas like these can result in high-value buildings with increased performance and satisfaction, but only if we speak up, and speak out.

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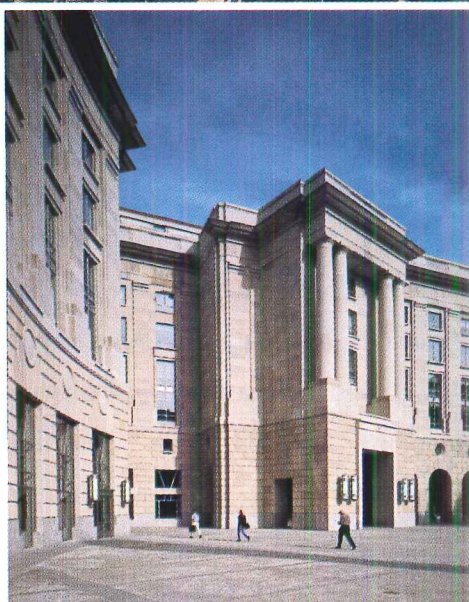


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# Letters

## Towers of babble

Hurray for Robert Campbell! His column in your October issue on ArchiSpeak [Critique, page 79] stuck a welcome needle in the balloon of verbal puffery so many architects seem to need to persuade others of their seriousness.

With the notable exception of Louis Kahn—a truly great artist who was as murky a writer as they get—the most verbose architects often produce the thinnest work, if they can get work at all. As Campbell points out, architecture schools do their students no favors by encouraging lingo at the expense of substance.

Perhaps architecture students should be required to read William Strunk and E.B. White's classic guide to clear writing, *The Elements of Style*. Two of the authors' basic recommendations are: "Avoid fancy words" and "Be clear."

I suspect Strunk and White would have got along fine with a pretty successful architect who, according to legend, proclaimed that "Less is more."

—Carter Wiseman  
Via e-mail

## The applause continues

Kudos to Robert Campbell for his excellent critique in October. I would like to thank Mr. Campbell for frankly drawing attention to a pervasive problem in architectural academia, and ARCHITECTURAL RECORD for printing it.

I agree with Mr. Campbell completely. Also a product of his alma mater, I have often suspected educators would accomplish a great deal more if their verbiage was not so filled with inscrutable, self-serving pomposity. Compared to other fields of study, not that much is actually learned during a student's three to four years in school. The argument is often proffered that there is simply too much to master within that time

to cover the field in much depth. I strongly disagree. Like Mr. Campbell, I suspect that knowledge is intentionally obscured in an attempt to self-aggrandize. And, yes, students do come to think ArchiSpeak should be imitated.

However, the good news is that architecture is truly a glorious, engaging, ennobling field that does not need false prophets to convince us of its power to move hearts and minds. Thoughts cleanly stated and intended to be grasped will win more converts and offer more far-reaching benefits to those both within and outside the profession. There is an enormous amount of material students can master (yes, *master*) during their brief time in school that can turn them into true professionals by the time they graduate—as long as educators become willing to regard this as their true goal.

—Zofia Rybkowski  
Hong Kong

## Pompous twittering

While it was invigorating to read Mr. Campbell's critique of ArchiSpeak, and amusing to see his examples of "incomprehensible babble," I must disagree with his conclusion. Mr. Campbell says: "Nobody is going to trust a dollar to a pompous twit." If this is so, then how did these masters of "gobbledygook" become professors at elite institutions in the first place? Harvard, Columbia, etc., have not only given dollars to these "pompous twits," they have also given them prestige.

And why is Mr. Campbell surprised? The architecture deans of the two institutions cited above (Mr. Silvetti and Mr. Tschumi, respectively) were appointed to their exalted positions because of "gems of pretentious illiteracy," not because of their built work. Is it any wonder, then, that these men would invite younger versions of them-

selves to fill faculty positions?

Clear writing (and its companion, clear thinking) will be rewarded at elite institutions when the deans of these schools embody these virtues, not before. Until then, strength and courage to Mr. Campbell. It pains me to think that this prize-winning critic is intimidated by charlatans, however prestigious their résumés.

—James Parsons von Duncker  
Via e-mail

## Speak low

Mr. Campbell says it right. What did all those funny-sounding descriptions of buildings and their purpose mean? Did we really need an obtuse explanation to understand whether a building was successful or not? And did enough references to esoteric sources elevate a bad design into a good one?

As a profession, let's all pledge to take up Mr. Campbell's challenge: talk straight and in a way that engages rather than alienates our paying clients. The results will bring us back from the fringe.

—Scott Levitan, AIA  
Executive Director for Real Estate Development  
Georgia Institute of Technology  
Atlanta

## The code

As a member of the National Fire Protection Association (NFPA) Board of Directors and the AIA Codes and Standards Committee, I would like to offer a different point of view to the article "One Code: An Idea Whose Time Has Come" [Practice Matters, August 2001, page 55]. The value of an integrated set of codes for the built environment is clear. However, state and local officials who are considering the adoption of a full set of codes should carefully consider the means by which that set was developed. Not all codes are developed through

the same process, and not all code organizations embrace full, open consensus. That is why I strongly support NFPA's decision to complete a full set of integrated codes for the built environment, including a consensus-based building code.

For more than 100 years the NFPA has been developing codes and standards through an open process that encourages anyone who has an interest in the health, safety, and welfare of the public to participate. Some in our profession have complained that the NFPA should have altered its code development process to "go along" with the International Code Committee (ICC), yet they have not held ICC to the same standard. NFPA made numerous, diligent efforts to work with ICC officials. However, when the ICC repeatedly ignored substantive issues raised by the NFPA, it became clear that the fundamental differences regarding consensus between the two organizations were too great. As a result, the NFPA and its partners committed themselves to developing a complete set of integrated codes.

The responsible thing for anyone involved in code adoptions is to fairly evaluate both NFPA's and ICC's building codes side by side before making an adoption decision. Even those jurisdictions that are currently using the International Building Code should compare the codes to ensure they have made the best choice for their community.

—Ronald P. Bertone, FAIA  
Via e-mail

## Corrections

The building described in the caption for the top photo on page 149 of the October issue should have been called the Conference Center of The Church of Jesus Christ of Latter Day Saints.

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## SPECIAL REPORT

### Engineers further study structural failures in World Trade Center



Why did the World Trade Center towers collapse as they did? And why did they stand for as long as they did after impact, even though the lateral force exerted in each crash was about 25 million pounds, and the planes took out about 35 of the 59 exterior columns on each side of the buildings? As engineers continue to study the collapses, they are understanding how the structures stayed in place and, conversely, failed.

**Ironworkers cut through WTC steel supports that remained standing in mid-November.**

As RECORD has reported [OCTOBER 2001, page 22], the steel trusses under floors immediately adjacent to the impact were the first to succumb to fire from explosions and jet fuel. As those floors buckled and sagged, they lost the link to the bolt and weld connections to interior and exterior columns and collapsed on floors below, causing a “pancaking” action, or progressive collapse.

One theory, however, is that the 47 steel interior columns buckled first because the fire heat may have been most intense in the center. Steel loses its strength at about 1,100 degrees Fahrenheit, but some interior spots may have reached over 2,000 degrees in seconds

because jet fuel burns at a high temperature. The core columns carried about 60 percent of a tower’s weight of 276,000 tons above the plaza level. The exterior column stiffness, however, kept the towers from collapsing immediately. The crashes would also have knocked loose a portion of the fireproofing sprayed on structural steel.

Because the exterior columns were tightly spaced (39 inches on center), the remaining columns above and adjacent to the hole on the damaged facade formed a Vierendeel truss—a form of arch—over the hole, which transferred loads downward.

*John E. Czarnecki, Assoc. AIA*

### Panelists: Despite terrorist attack, the skyscraper is here to stay

Leon Krier once described tall buildings as “vicious and immoral.” After September 11, James H. Kunstler, author of *The Geography of Nowhere*, declared “the age of the skyscraper is at an end.” Moderator Robert Campbell, FAIA, *Boston Globe* columnist and RECORD contributing editor, threw up these and other targets at a National Building Museum symposium and let four experts take their shots. The November 9 event, “The Future of the Skyscraper,” featured Leslie E. Robertson, FASCE, the structural engineer for the World Trade Center; Paul Katz, AIA, principal of Kohn Pedersen Fox; Bruce Fowle, FAIA, principal of Fox & Fowle Architects; and Witold Rybczynski, professor of urbanism at the University of Pennsylvania.

“We have to learn to keep airplanes away from buildings, not keep buildings from being struck

down by airplanes,” Robertson said. “We designed the towers [to withstand the impact of] a Boeing 707 flying slowly,” he said, and not for a much larger 767 full of fuel and flying at top speed. He pointed out that the terrorist bomb of 1993 did no structural damage to the WTC.

Rybczynski, in tracing the skyscraper’s evolution and impact on American cities, said the building type is tailor-made for a nation

enamored with novelty, technology, bigness, and big business.

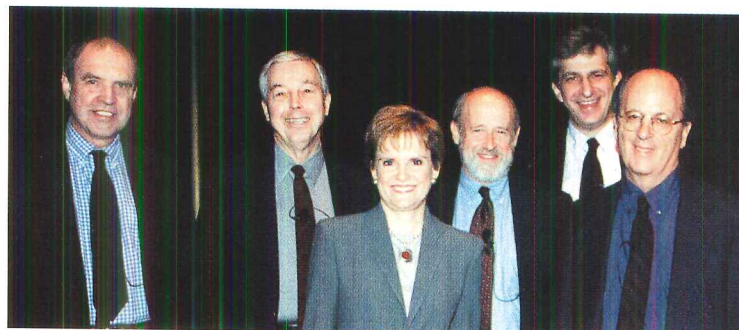
“American cities don’t have [public] plazas, boulevards, or palaces,” he said. “What we have is skyscrapers.”

The skyscraper will, in fact, be the building type of the twenty-first century, Katz predicted. By the end of this decade, the majority of the world’s population will be urbanized, and tall buildings make the most sense for accommodating high

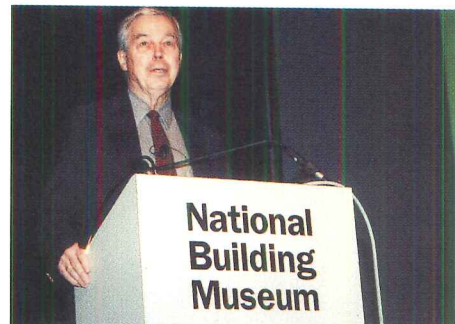
densities. For the West, London’s Canary Wharf provides counter-terrorist lessons: Ubiquitous cameras patrol the streets but “don’t disturb anyone’s freedom,” buildings have shatterproof, laminated glass, and they adhere to new codes that increase stair-to-floor ratios and provide smoke vestibules.

Looking at the bigger picture, Fowle said, “If we don’t build high-rise buildings, we’re going to get the ultimate in sprawl.”

*Andrea Oppenheimer Dean*



**Susan Henshaw Jones, president, National Building Museum (left photo, center) was joined by (from left) Witold Rybczynski, Leslie Robertson, Bruce Fowle, Paul Katz, and Robert Campbell. Robertson (right) spoke at the podium.**



## SPECIAL REPORT

### What is the impact on building safety and security issues? Experts consider the future

Three months have passed since the horrific events of September 11. With some time to digest what happened, RECORD asked architects and engineers to consider the implications on building safety and security.

"The public must understand that new design and engineering measures cannot "solve" the threat of terrorism against property. Buildings cannot be made to be terrorist-proof."

—MING WU, AIA,  
PRINCIPAL, EHRENKRANTZ ECKSTUT  
& KUHN ARCHITECTS

"Measures to protect tall buildings from events such as September 11 could include examining the impact resistance of structural fire protection materials. Additional protection to the escape routes could also be considered—'hardening' escape stairs and corridors to provide impact resistance and protection against extreme fire events is possible, as is detailed analysis of the risk of severe damage to structural elements

in the event of fire. Increasing the number or capacity of stairs, upgrading lifts with emergency power, and employing or training fire evacuation marshals could also be considered."

—ANDY PASSINGHAM,  
ASSOCIATE, ARUPFIRE

"The standard of care for the mechanical/electrical engineering profession has changed significantly as a result of September 11. The issues of indoor air quality, water quality, and energy efficiency have taken on global implications. Each owner and major tenant will have to assess the risks of a potential attack on their building to maintain life safety."

—ALAN TRAUOGOTT, PRINCIPAL,  
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"Our corporate clients clearly have a heightened awareness concerning the security of their buildings and sites. We have also been asked to explore increasing the width of exit stairs over code minimums to allow firefighters to travel up while still permitting the building occupants to exit."

—RAY C. HOOVER III, FAIA,  
PRINCIPAL,  
THOMPSON, VENTULETT, STAINBACK  
& ASSOCIATES

"We will have to learn to live with the fact that there is always a small risk involved with everything we do or wherever we live.

The building codes presently reflect the societal consensus based on decades of developments. The WTC attack will not cause major changes—only those that we as a society are willing to pay for."

—CHRISTIAN MEYER,  
PROFESSOR OF CIVIL ENGINEERING,  
COLUMBIA UNIVERSITY

"When building occupants see literal barriers, they experience a level of discomfort. Elements of safety and security can, however, be so integrated into the design that they appear as 'art.' For example, it's important to

achieve better control of entrances, such as integrated bollards and standards, which can act as barriers to protect entrances by vehicles."

—THOM MEEK, AIA,  
SENIOR DESIGNER,  
EARL SWENSSON ASSOCIATES

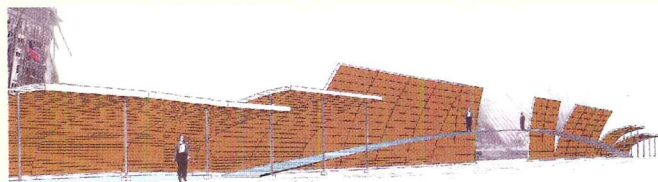
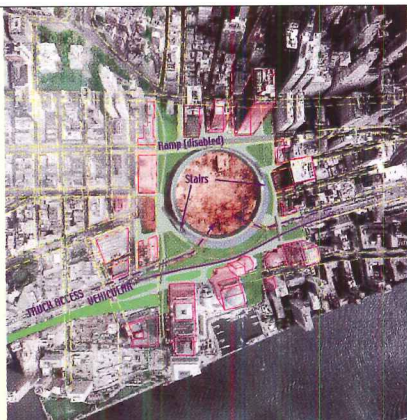
"There will be a great deal of attention paid to mechanical systems in terms of security and access, as well as filtering and detection. The possibility of a bioterrorism attack on an air-handling system is frightening."

—DAN MEIS, AIA,  
PRINCIPAL, NBBJ  
SPORTS AND ENTERTAINMENT

www For continuous updates on the developing story at the World Trade Center, visit our special section at [www.architecturalrecord.com](http://www.architecturalrecord.com) including:

- Updates on news events relevant to architects, revised as they happen.
- Firsthand accounts of the scene from RECORD editors

See the special WTC section at: [www.architecturalrecord.com](http://www.architecturalrecord.com)



### Urban design studio explores design for Ground Zero enclosure

A graduate urban design studio led by Michael Sorkin at City College of the City University of New York undertook a two-week charrette, sponsored by Sciame Construction, to design a temporary enclosure for Ground Zero (left). Students in the studio were Anna Borissevitch, Jonathan Cohen-Litant, David Sungsoo Han, Lisa Lulo, Namwook Kim, Bill Nagel, Jorge Marin, Rok Seong, and Evren Ulker. Here is the studio's design statement:

"Understanding that this site would be a construction zone for years, we investigated a series of strategies for protecting both the site and passersby during the period, for organizing access to surrounding buildings as they come back into use, for creating visual access to Ground Zero by the public, and for managing the flow of traffic in and around the site. Although we all felt that it was completely inappropriate to suggest final outcomes for the site, we were all comfortable dealing with what seemed an immediate necessity. We hope that our proposals can help both to dignify and to protect this hallowed ground."

A number of architecture school studios are developing plans for the World Trade Center site. We're interested in seeing those projects, and possibly featuring them on [www.architecturalrecord.com](http://www.architecturalrecord.com). If your architecture school has a studio that has developed plans for the World Trade Center site, e-mail: [kevin\\_jerner@mcgraw-hill.com](mailto:kevin_jerner@mcgraw-hill.com).

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## OFF THE RECORD

The Los Angeles County Museum of Art had planned to name an architect for its \$200 million renovation and expansion in November. Instead, the museum narrowed the field from five to two: **Rem Koolhaas** and **Jean Nouvel**. The five finalists included **Daniel Libeskind**, **Steven Holl**, and **Thom Mayne of Morphosis**.

The *Pittsburgh Post-Gazette* reports that the Carnegie Science Center is in contract negotiations with **Nouvel** for a \$90 million expansion. **Nouvel** was a finalist for the job with **Libeskind** and **UN Studios van Berkel en Bos**.

**Libeskind** won a competition to design his first European university project, a University of North London grad school.

The Dallas Center for the Performing Arts has two competitions under way to select architects for its largest theaters. For a 2,400-seat performance hall, finalists are **Christian de Portzamparc**, **Nouvel**, and **Foster and Partners**. Finalists for an 800-seat performing arts theater are **Koolhaas**, **Libeskind**, **Snøhetta**, and **UN Studios van Berkel en Bos**. Architects will be chosen by January.

London-based American architect **Rick Mather** has won his first major commission in the U.S.—a \$79 million expansion to the Virginia Museum of Fine Arts in Richmond. Finalists for this job were **Hardy Holzman Pfeiffer**, **Machado and Silveti**, **Polshek Partnership**, and **Smith-Miller + Hawkinson**.

**Frank O. Gehry**, **FAIA**, will design a science library at Princeton University.

New York's Lincoln Center has submitted plans to the city for a \$1.2 billion redevelopment [MARCH 2001, page 27]. The plan does not include a glass-roofed public plaza enclosure designed by **Gehry**, nor does it include a separate on-campus home for the New York City Opera, as the opera had wanted.

## With a net worth still negative by millions, AIA budgets for 2002

While the financial condition of the American Institute of Architects (AIA) took a substantial hit following the dissolution of AECdirect, the organization's level of net assets has improved. The institute continues to follow a financial recovery plan, which includes a number of cost reductions through 2003, approved by its board of directors last May. The board's latest challenge was to

## "I'M PLEASED TO REPORT THAT OUR FINANCIAL HEALTH IS MUCH BETTER NOW THAN WE HAD ANTICIPATED." —KOONCE

approve a 2002 budget at its meeting held on December 6 and 7.

As RECORD reported earlier this year [JUNE 2001, page 28], the AIA lost millions of dollars in net worth primarily due to the dissolution of the AECdirect Web site and deficit spending from 1997 to 1999. The AIA's net worth, which was \$9 million in 1996, is estimated at negative \$5.6 million today. Earlier this year, the worst-case scenario negative-net-assets estimate was as low as \$8.7 million. A combination of events have improved the institute's net assets deficit, as the AIA continues to plan for a positive net worth of \$2.5 million by the end of 2003.

"I'm pleased to report that our financial health is much better now than we had anticipated," Norman Koonce, FAIA, EVP/CEO of the AIA, told RECORD. Despite the negative net assets total, Koonce says the AIA will have a positive balance at the end of 2001, with a goal of just over \$1 million. Also, the AIA has received a "clean" audit for 2000, the year that AECdirect was started.

### Reductions in deficit

The institute's deficit was reduced by almost \$1.5 million through financial settlements by the AIA with

nearly 60 AECdirect creditors, the largest of which were IBM and IBM Credit Corporation. PricewaterhouseCoopers, the AIA's auditor, revised downward the AECdirect deficit that must be consolidated with the AIA operating budget, from \$4.4 million to about \$2.5 million. The exact total cost of AECdirect to the institute was not available at press time but was expected to be known by the end of the year, as the AIA settles with creditors. Koonce says the total should be "far less" than \$10 million.

Koonce outlined the financial situation in an October 24 letter to nearly 800 people in the AIA, including the board of directors and state

and local component presidents. Koonce wrote, "I am pleased to share this reasonably positive report with you, although much work remains to be done on financial issues."

### 2002 budget developed

While the 2002 planning and budgeting process was under way in November, specific line-item numbers were unavailable at press time prior to board approval. Koonce did not name any institute programs or projects that would be significantly

## "WE WILL BE PROMOTING OUR CONTRACT DOCUMENTS IN NEW AND DIFFERENT WAYS." —KOONCE

reduced or cut in 2002. He did note that staff cuts are not planned—national office staff had been significantly reduced in recent years.

The AIA was not expecting to meet its budgeted 2001 revenue from the licensing of AIA contract documents. Revenue in 2000 from contract documents was about \$8 million, and 2001 was budgeted for a slightly higher amount. The budget for 2002 contract-document revenue will be similar to 2000. "We will be promoting contract documents in new and different ways,"

Koonce says, noting that electronic documents will now be marketed to architecture firms.

As reported in June, contributions to related organizations will be reduced in 2002 and 2003. That includes \$250,000 annual cuts in contributions to the American Architectural Foundation (AAF), which has also had financial difficulties recently. Koonce says MBNA America, which is represented on the AAF board, will be giving the \$250,000 annual AAF contribution over the next two years that the AIA will be unable to make.

Although elimination of supplemental dues for AIA members in the late 1990s has had a lasting impact on institute revenue, Koonce says bringing them back is "not on the table at this point." The institute does not place an exact dollar amount on lost supplemental dues revenue, but, Koonce says, "The absence of supplemental dues requires us to budget in a more constrained fashion."

As the AIA moved toward a consolidated single-point dues system in the late 1990s, the institute spent money and time on implementing new membership database technology. When one form of technology for the database system was abandoned in 2000, the AIA had to write off the \$1.3 million cost. Koonce says the membership database technology in place now is

working as the organization would like for its purposes.

AIA membership has exceeded 70,000 in recent months. Koonce says the AIA, anticipating a recession, is planning for a slight decrease in membership in 2002. Looking back at past recessions, the AIA is projecting a 2 percent decline in members next year. In the 1991–92 recession, which was more severe than the AIA foresees for 2002, the institute membership dropped by 4 percent.

*John E. Czarnecki, Assoc. AIA*

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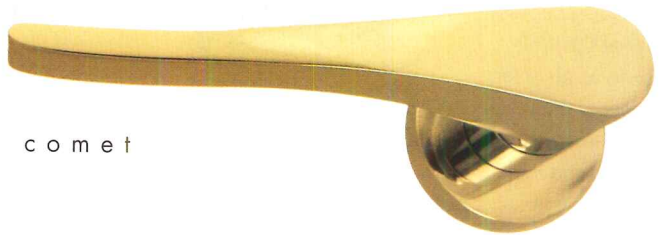
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## Cooper-Hewitt's second annual National Design Awards honor design pioneers

Celebrating excellence in American design in various disciplines, the second annual National Design Awards were bestowed at a ceremony in New York on November 14. Presented by the Smithsonian's

Cooper-Hewitt National Design Museum, the awards are an effort to increase public awareness of good design by promoting excellence, innovation, and lasting achievement. They were launched last year at the White House as an official project of the White House Millennium Council, and they

honor designers in six categories: lifetime achievement, corporate achievement, and design achievement in architecture, communications, environment, and product.

Architect Peter Eisenman, FAIA, won in the architecture category. Eisenman established his professional practice in 1980 in order to focus exclusively on building after many years of teaching, writing, and producing theoretical work. Eisenman's current projects

include a museum for the Staten Island Institute for the Arts and Sciences in New York, a 48-story office tower on the Friedrichstrasse in Berlin, and a cultural complex with an opera house in Santiago de

Compostela, Spain [MAY 2001, page 48].



Eisenman

David Kelley, founder and chair of IDEO, won in the product category. IDEO is a design and engineering consultancy that has generated more than 3,000 products, including the Palm V. John Maeda, associate director of the MIT

Media laboratory in Cambridge, Massachusetts, won in the communications category. Maeda, who has won numerous awards for his work in print and digital media, investigates the physical manifestations of digital data. The winner in the environment category was D.I.R.T. Studio of Charlottesville, Virginia, for its work in urging communities to transform their industrial sites and reconsider the impact on the surrounding landscape.

Robert Wilson won the lifetime achievement award for his work in the production of experimental theater, in which he often brings together multidisciplinary artists and performers. A corporate achievement award was given to Tupperware brand products—Earl Tupper's early plastic products revolutionized food storage and preparation.

Winners were selected from more than 300 nominations. The jurors were Jeffrey Keyton, Louis Lenzi, Clement Mok, Murray Moss, Kate Spade, Lucille Tenazas, and Bernard Tschumi. JEC



Above: D.I.R.T. Studio's "Testing the Waters" in Uniondale, Pa., 1995.

D.I.R.T. Studio's "Testing the Waters" in Uniondale, Pa., 1995.

## Construction starts to rebound in late 2002

The value of new construction starts in 2002 will be only slightly less than 2001 levels, with an improved second half of the year compared to sluggish opening months. That was the message in the annual construction forecast by Bob Murray, vice president for economic affairs for The McGraw-Hill Companies Construction Information Group. Murray delivered the forecast to industry leaders on October 30 at F.W. Dodge's Outlook 2002 Executive Conference in Washington, D.C.

Murray says hesitant home buyers, cautious real estate investors, the weaker financial standing of state and local government, and a reduced demand for commercial space will present the biggest challenges to the construction industry in the first half of 2002. Construction activity should pick up late in 2002 with low interest rates and a potential federal stimulus package. The value of construction starts for all of 2002 is projected at \$481 billion, just below the \$481.4 billion estimated for 2001. Construction starts were expected to increase 2 percent from 2000 to 2001 for the 10th consecutive year of expansion in construction activity, based on a current dollar basis.

"Against the backdrop of a slowing economy, construction has stayed reasonably healthy for 2001, helped by an offsetting pattern by project type," Murray says. "It's true that commercial building has lost considerable momentum this year, dampened by weaker business conditions and tighter bank lending standards. However, further expansion was reported for public works, electric power plants, and schools. In addition, single-family housing for much of 2001 has stayed strong. Even factoring in a fourth quarter decline, single-family housing should be able to match 2000 levels."

Murray says single-family housing will retreat early in 2002 as home sales and construction are impacted by the weak job market and diminished consumer confidence. The full year is projected at 1.175 million units, a 2 percent decline from 2000.

Institutional building construction will rise by 3 percent in 2002, with an increase in school construction and a moderate expansion in health-care projects. Manufacturing building will expand by 2 percent as its four-year decline reaches bottom early next year. Public-works construction is expected to increase by 2 percent as work continues on highways and bridges.

Murray says the aftermath of the events of September 11 will only lengthen the economic decline that was apparent before the terrorist attacks. "The impact will be to deepen and lengthen the economic slowdown already under way." JEC



John Maeda's Oikake-Zakura game design.

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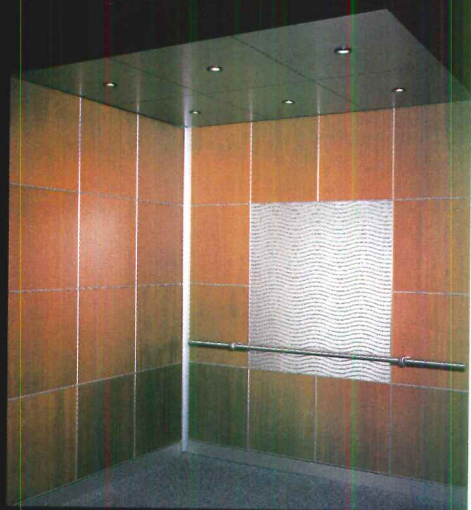
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## Record News

### Commission for Acropolis Museum, intended as home for Elgin Marbles, goes to Tschumi

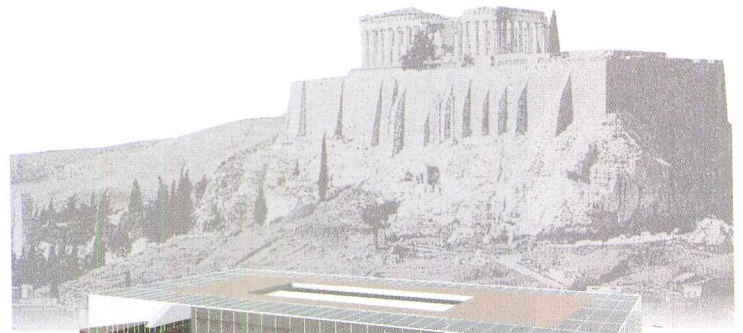
In a field with 11 other finalists, including Daniel Libeskind and Arata Isozaki, Bernard Tschumi, AIA, has won a design competition for a new Acropolis Museum in Athens. The 225,000-square-foot building will be located at the foot of the Acropolis, situated at the Makryiannis excavation site. Construction on the \$41 million project will begin next spring and finish in time for the 2004 Olympic Games in Athens.

"The concept is a simple but precise museum that reflects the mathematical precision and clarity of ancient Greece," said Tschumi.

The museum is designed for extensive natural lighting with glazing, louvers, and skylights. The three-story structure will have an entrance lobby facing the ancient ruins and space for temporary exhibi-

tions, shops, and support facilities. The second floor will also have a bar, restaurant, and auditorium, as well as a double-height, trapezoid-shaped gallery area that will accommodate sculptures from the Archaic through the Roman periods.

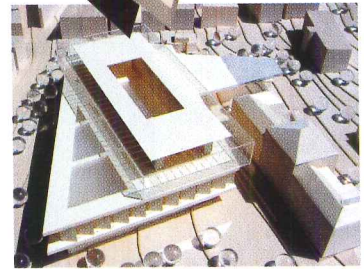
The new Acropolis Museum is part of the Greek government's latest push to reclaim the Elgin Marbles, also known as the Parthenon sculptures, from Britain in time for the Olympics. The top floor will be a glass-enclosed gallery, dubbed "Parthenon Hall," intended to house the marbles. Visitors would be able to view the sculptures against the backdrop of the Parthenon building from which they originated. The Greeks will keep that top floor empty until the Elgin Marbles are returned. Tschumi says he believes the mar-



**Tschumi's Acropolis Museum design features a top floor gallery for the Elgin Marbles.**

bles belong at the Acropolis Museum because they have "a very special meaning for the Greeks."

British Ambassador Lord Elgin removed the marbles from the Parthenon in 1801, and they are now on display in London's British Museum. The lack of a secure place to house the historic marbles has been one of Britain's strongest arguments for retaining them. *Tony Illia*



Water changes *shape*. Drops of rain.

Blocks of ice.  
Waves of ocean.

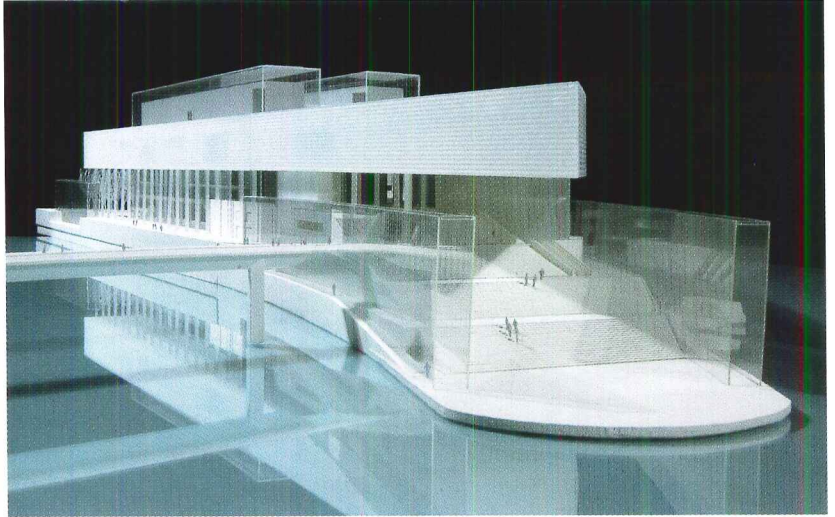
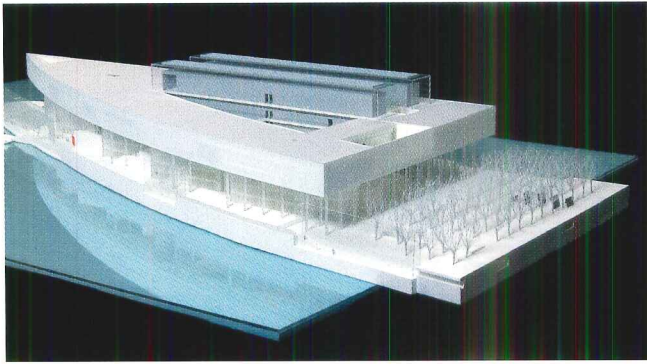
Water changes *color*.

From crystal clear.  
To earthy browns.  
To brilliant greens.

Water constantly  
*reinvents* itself.



Ando has named his design for the museum a "spaceship on the water." A grand staircase at the island tip (right) leads to the entrance.



## Tadao Ando wins competition for Pinault Foundation Contemporary Art Museum in Paris

French businessman François Pinault has announced that Tadao Ando has won a competition for the design of the Pinault Foundation Contemporary Art Museum. The \$132 million building, to be completed in 2006, will be built on Ile Seguin, situated in the Seine at the southwestern edge of Paris.

Pinault, the president of Pinault-Printemps-Redoute, which includes the Gucci group, considered five other competition

proposals, by Manuelle Gautrand, Rem Koolhaas, MVRDV, Steven Holl, and Dominique Perrault, the architect of the national library in Paris.

François Pinault's collection of art from the second half of the twentieth century will be shown in a 161,000-square-foot permanent gallery. The museum will have about 344,500 square feet of total gallery space.

Ando's triangular-shaped building, which he has named the

"spaceship on the water," has three floors. Administrative offices and a library on the first floor will join a Japanese-inspired forest and commercial space on the second. Exhibition space will be located on the top floor. A grand staircase flanked by glass walls will link the curved plaza on the southwest tip of Ile Seguin with a double spiral staircase in the central atrium of the building.

Ile Seguin has been at the center of political and architectural

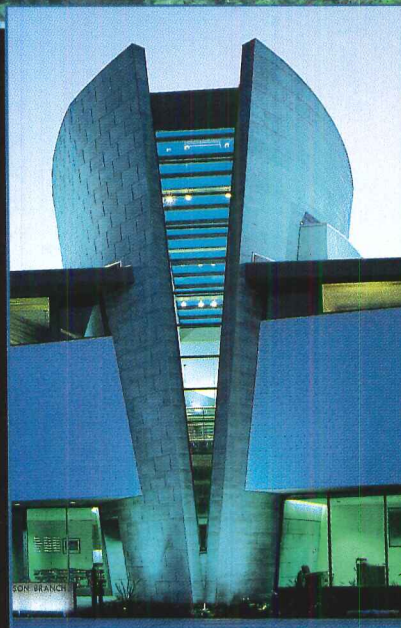
debate over the past decade. Unsuccessful competition projects for replacing French car manufacturer Renault's derelict factory on the island have included Renzo Piano's ambitious facade around the island and four skyscrapers proposed by Christian de Portzamparc.

The museum will occupy about one third of the island. A separate plan is in place for a science university and researchers' housing on the rest of the island. *Robert Such*

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## News Briefs

### Hadid wins Copenhagen museum competition

Zaha Hadid has won a competition for an extension to the Ordrupgaard Art Museum in Copenhagen. The competition included six finalists: Dominique Perrault Architecte, Paris; Fogh & Følner Arkitektfirma, Copenhagen; Henning Larsens Tegnesteue, Copenhagen; Bruun & Clementsen, Copenhagen; MVRDV, Rotterdam; and Architekten von Gerkan, Marg and Partner, Hamburg. The 12,380-square-foot, two-level extension is a partially sunken structure covered by a wavelike canvas shell with slits for indirect lighting. The concept calls for contours that "have been studied and abstracted, then lifted and twisted . . . [into] a formal language," Hadid says. The \$4.3 million extension is scheduled to open in 2004.

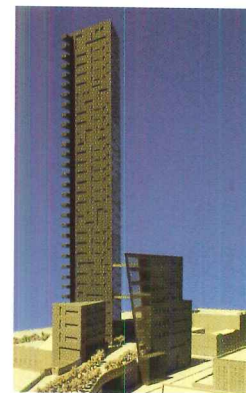
*Tony Illia*



Multiple views of Hadid's Copenhagen design.

### Koolhaas cleared in U.K.

**plagiarism case** Rem Koolhaas has been cleared of plagiarism charges in an eight-year British court case in which a former employee and student accused him of stealing drawings of Docklands Town Hall in 1986 and incorporating elements into the Kunsthal art gallery in Rotterdam.



Nouvel's New York tower.

### Nouvel designs 32-story tower

French architect Jean Nouvel has been hired by developer Landmark Development for a \$75 million, three-building complex in the Meatpacking District in the West Village of Manhattan. The proposed development includes a 32-story trapezoidal luxury condominium

tower, an eight-story mixed-use building, a five-story commercial building, and rehabilitation and landscaping for a portion of the adjacent abandoned High Line elevated rail platform [February 2001, page 34]. A lengthy approvals process is expected, with variances required from the city's Board of Standards and Appeals.

### Sidney Gilbert dies: founded social responsibility group

Sidney P. Gilbert, FAIA, a founder of Architects for Social Responsibility, died September 14 at age 63. He had his own New York practice, Sidney P. Gilbert & Associates, and, for the past decade, had a number of projects in Russia.

### McClure, former Clemson dean, dies

Harlan E. McClure, FAIA, dean of the Clemson University College of Architecture from 1958 to 1984, died on Wednesday,

November 1, at age 85. McClure began at Clemson in 1955 and was a visiting professor at the school from 1984 to 1992. He won the 1986 ACSA Distinguished Professor Award and the 1994 AIA/ACSA Topaz Medallion for Excellence in Architectural Education.

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By Barbara A. Nadel, FAIA

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Marvin's new Wood Ultimate Double Hung window provides flexibility for historic renovations and other special installations. This product can be configured numerous ways, including traditional double hung, single hung or an operating round top window. Custom details, such as divided lites or special hardware colors to coordinate with building décor, are available. For more traditional applications, the optional simulated thick sills and ogee lugs capture the charm of old windows.

Custom capabilities don't necessarily mean additional premium costs or lead times of 12 weeks or longer. Marvin offers many standard options, such as unusual divided lite patterns or special exterior casing, considered custom work by other manufacturers. For example, Marvin's *Made for you* manufacturing process provides one-of-a-kind windows and doors to meet specific project needs, such as custom clad color, special glazing options, or other unique design requirements.

## Standard Sizes for Historic Homes

"Marvin's standard window selections are also excellent," says Eileen Koenigsberg, AIA, principal of Moore Koenigsberg Architecture, in Denver, Colorado. When Koenigsberg designed a two story, 600 square foot addition to her home in a Denver historic district, she specified standard Marvin Windows and Doors because of the variety and increments available.

"The standard sizes perfectly matched the existing windows on the house. We used double hung cottage style windows on the first and second floors to maintain the historic look, along with regular double hung windows in the sun porch to let in more light," she says.

## "Turtle Glass:" Environmental and Energy Solutions

Glazing options are available to suit project and climate requirements. In the southeastern United States, particularly Florida, tinted glass (or "turtle glass") for coastal areas is popular for environmental reasons. According to Mike Hoffart, Marvin Architectural Division Manager, some southeast Florida building codes have a "Turtle Code", calling for tinted glass on coastal homes facing the water.

Sea turtles come to the shore to lay eggs, and follow the moonlight reflecting off the water to go back to sea. When homes built along the coastline reflect too much light on the beach, turtles get confused and go inland, explains Hoffart. Turtle glass maintains shading coefficients designed to minimize reflected light on the beach and guide the turtles back to sea.

For better energy performance and heating and cooling cost savings, Marvin offers insulating glass with Low E II coatings, to lessen conductivity of heat and cold from the outside.

Glazing with Low E II coatings reflect the high angle summer light and absorb the low angle winter light for temperature control.



## Small Town Courthouse Maintains Operations

In recent years, Marvin has provided windows for many non-residential applications, including universities, courthouses and healthcare facilities. In upstate New York, an area subject to cold temperatures and high winds, Marvin worked closely with architects and owners to meet the functional, environmental, acoustical and scheduling needs of a small town courthouse built at the turn of the century along a busy highway.

"During the renovation and new addition to the historic H. Douglas Barclay Courthouse for Oswego County in Pulaski, New York, Marvin was very willing to work within our constraints," says Sheila Weed, AIA, principal of Group 1 Design in Syracuse, New York, and former project architect with JCM Architectural Associates, of Syracuse for the courthouse.

"A small town cannot afford to close down a busy courthouse for even a few hours. The contractor replaced two or three windows at a time, and worked around the client's schedule, with no loss of downtime to the owner. As soon as the windows were installed, the work was done," Weed says.

Marvin customized over a dozen different window sizes and configurations for the project, including simulated divided lites to replicate the original windows in both the renovation of the existing building and the new addition. The double-paned, Low E II glass windows used in courtrooms, judges' chambers, and throughout the building effectively address cold climate concerns and block out ambient noise from adjacent highway traffic.

## Marvin Windows and Doors Custom Solutions

"Everything is in the details," says Hoffart. "Our project management personnel work with distributors and dealers for support on custom projects, proposals and drawings. We stay involved with ordering, production, delivery and field service through project close out. Our design support tools include the Marvin Design System, a CAD software package created with the design team in mind. The Marvin Design System runs either as a stand-alone format or with AutoCAD."

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Barbara A. Nadel, FAIA is principal of Barbara Nadel Architect, in New York City, specializing in programming, planning and design of institutional facilities. She is 2001 National Vice President of the American Institute of Architects and frequently writes about design and technology.

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**CIRCLE 16 ON INQUIRY CARD**

## New & Upcoming Exhibitions

### A New World Trade Center: Design Proposals New York City

*January 16–February 17, 2002*  
An exhibition featuring sketches, renderings, and multimedia projects created by established and emerging architects in response to the need to rebuild on the site of the World Trade Center and embrace the future of New York. At the Max Protetch Gallery. For information, call 212/633-6999 or e-mail [info@maxprotetch.com](mailto:info@maxprotetch.com).

### Modern Trains and Splendid Stations: Architecture and Design for the 21st Century Chicago

*December 8, 2001–July 28, 2002*  
Through plans, drawings, computer renderings, models, and photographs, this exhibition delves into the world of high-speed travel by presenting the latest innovations in train and station design. Examples include designs from the U.S., Europe, and Japan. At The Art Institute of Chicago. Contact 312/443-3600 for more information.

### A Matter of Art: Contemporary Architecture in Switzerland Lausanne, Switzerland

*December 5, 2001–January 25, 2002*  
The exhibition features 15 buildings constructed in Switzerland between 1997 and 2000 that embrace the notion of architecture as an art form. Works by such notable figures as Herzog & de Meuron, Diener &

Diener, Miroslav Sik, and Peter Zumthor highlight the show. At the Swiss Federal Institute of Technology. Contact 021 693 32 31 for more information.

### Isamu Noguchi: Sculptural Design

**Weil am Rhein, Germany**  
*December 8, 2001–April 21, 2002*

Bridging the gap between fine and applied arts, this exhibition features the astounding artistic versatility of sculptor Isamu Noguchi, whose work extends well into the fields of architecture and design. On view are more than 80 projects featuring sculptural works, furniture, stage sets, and public designs. At the Vitra Design Museum. Contact 011 49 7621 702 3351 for more information.

## Ongoing Exhibitions

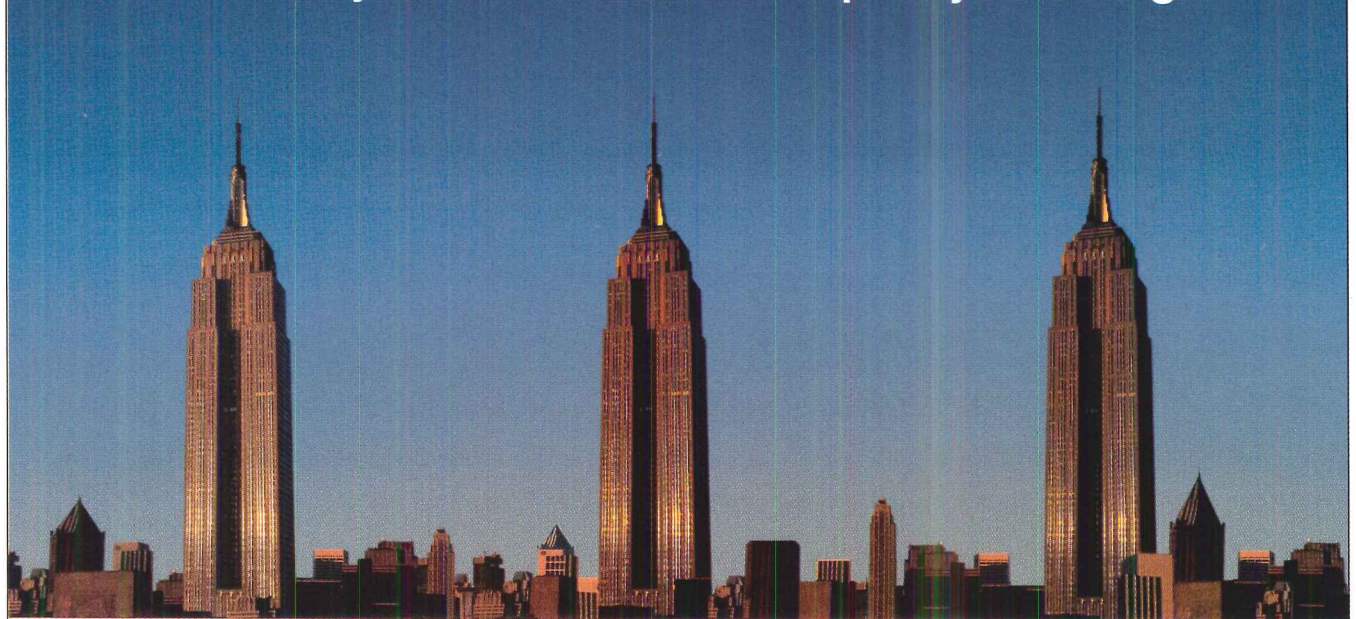
### Tadao Ando, Architect St. Louis

*Through December 30, 2001*  
A rare opportunity to experience the work of this self-trained Japanese architect through models, drawings, and photographs. Featuring 17 projects from Japan, the installation also includes several full-scale architectural elements and a reflecting pool. At the St. Louis Art Museum. Contact 314/721-0072.

### Perfect Acts of Architecture Pittsburgh

*Through January 6, 2002*  
Presents more than 140 drawings and collages on the architectural meditations of architects from the 1970s and '80s, when design was

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highly theoretical. Includes the work of Rem Koolhaas, Bernard Tschumi, Peter Eisenman, Daniel Libeskind, and Morphosis. At Heinz Architectural Center. For more information, contact stitelert@carnegiemuseums.org.

**Vital Forms: American Art and Design in the Atomic Age, 1940–1960**  
**New York**

*Through January 6, 2002*  
One of the first exhibitions to survey the use and influence of organic forms upon visual media. With more than 250 objects on display, the exhibition explores a multitude of mediums including painting, sculpture, clothing, architecture, industrial design, jewelry, and furniture. At the Brooklyn Museum of Art. Contact 718/638-5000 or [www.brooklynart.org](http://www.brooklynart.org).

**Monuments and Memory**  
**Washington, D.C.**

*Through January 13, 2002*  
A timely showcase regarding the memory of nationally significant events and the designs that help embody and maintain these memories. Washington-based architects exhibit competition entries for various war memorials, in addition to hypothetical projects. At the National Building Museum. Contact 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

**Steven Holl: Parallax**  
**Rome**

*Through January 13, 2002*  
Steven Holl complements his most recent publication by showing a similar group of projects in this exhibition. Holl exhibits his work as first and foremost fantasies, in their wee beginnings as ethereal watercolor sketches, study models, and notebook doodles. At the American Academy in Rome. Contact 011 39 06 58461.

**The Architecture of the American Folk Art Museum**  
**New York City**

*Through January 13, 2002*  
An installation of a model of the newly designed building by architects Tod Williams/Billie Tsien and

a photo essay documenting the construction process, from ground breaking to near completion, of the museum's new site at 45 West 53 Street. At the Lincoln Square Gallery. Contact 212/595-9533 or see [www.folkartmuseum.org](http://www.folkartmuseum.org).

**Richard Neutra's Windshield House**  
**Cambridge, Mass.**

*Through January 27, 2002*  
Renderings, blueprints, correspondence, photographs, and other objects document Neutra's design of a summer house for John Nicholas Brown and family on Fisher's Island, N.Y. At the Arthur M. Sackler Museum. Contact 617/495-9400 or visit [www.artmuseums.harvard.edu](http://www.artmuseums.harvard.edu).

**SFMOMA Experimental Design Award**  
**San Francisco**

*Through February 5, 2002*  
Featuring the work of this year's recipients, Thom Faulders, Donald Fortescue, and Post Tool Design, the exhibition delves into the breadth of material experimentation taking place among architects and designers in the Bay Area. Architectural compositions of wood and typography are reinvented to question notions of space, function, and communication. At the San Francisco Museum of Modern Art. For more information, contact 415/357-4000.

**Russel Wright: Creating American Lifestyle**  
**New York City**

*Through March 10, 2002*  
Dinnerware, textiles, and furniture by a master of industrial design. At the Cooper-Hewitt National Design Museum. Contact 212/849-8400 or visit [www.si.edu/ndm](http://www.si.edu/ndm).

**Cesar Pelli: Connections**  
**Washington, D.C.**

*Through April 28, 2002*  
One of the most comprehensive retrospectives on the life and work of distinguished architect and AIA Gold Medalist Cesar Pelli. Through photographs, photo murals, more than 100 drawings, and 30 original models, the show will explore over

a half century of his career, culminating with his most recent work. At the National Building Museum. For more information, contact 202/272-2448 or [www.nbm.org](http://www.nbm.org).

**Mathematica**  
**San Francisco**

*Through May 5, 2002*  
This Eames-designed exhibit from 1961 showcases mathematics as both a science and a tool for art. Forty years later, it remains the only Eames exhibit still in existence. Other Eames designs on display include toys, home electronics, and lesser-known furniture. At the Exploratorium. Contact 415/563-7337 or visit [www.exploratorium.edu](http://www.exploratorium.edu).

## Conventions

**The National Ergonomics Conference and Exposition**  
**Las Vegas**

*December 11–13, 2001*  
An annual business-to-business event exploring new concepts, programs, and products in ergonomic design. Includes workshops, seminars, and exhibitions with the nation's leading experts. At the Las Vegas Convention Center. Visit [www.ergoexpo.com](http://www.ergoexpo.com).

**World of Concrete**  
**New Orleans**

*January 18–20, 2002*  
One of the largest annual construction trade shows, with more than 1,500 indoor and outdoor exhibits and more than 90 seminars concerning everything from the basics to specialized techniques in concrete design and technology. At the Morial Convention Center. For more info, visit [www.worldofconcrete.com](http://www.worldofconcrete.com).

## Competitions

**2002 AIA Architectural Photography Competition**

*Deadline: March 1, 2002*  
AIA St. Louis presents the competition, which is open to all architects registered in the U.S., as well as Associate members of the AIA and student members of AIAS. The top

14 entries will be exhibited at the 2002 AIA National Convention in Charlotte, N.C. Subject matter must be located in the U.S. Cash prizes will be awarded. For more information, call 314/231-4252 or e-mail [bookstore@aia-stlouis.org](mailto:bookstore@aia-stlouis.org).

**Jenn-Air Kitchen Competition**

*Deadline: December 28, 2001*  
Only new or remodeled kitchens that exclusively use Jenn-Air major appliances are eligible. A \$10,000 cash prize and a trip to Milan are offered. Contact 612/375-8541 or [vmelen@clynch.com](mailto:vmelen@clynch.com).

**The NCARB Prize**

*Deadline: February 1, 2002*  
In an attempt to bring together the academy with professional practice, the National Council of Architectural Registration Boards offers a grand award of \$25,000 for a fall 2001 term project that demonstrates this integration. For an entry packet, contact 202/879-0535 or [Mbourdre@ncarb.org](mailto:Mbourdre@ncarb.org).

**Material Process: 2001–2002 Young Architects Forum**

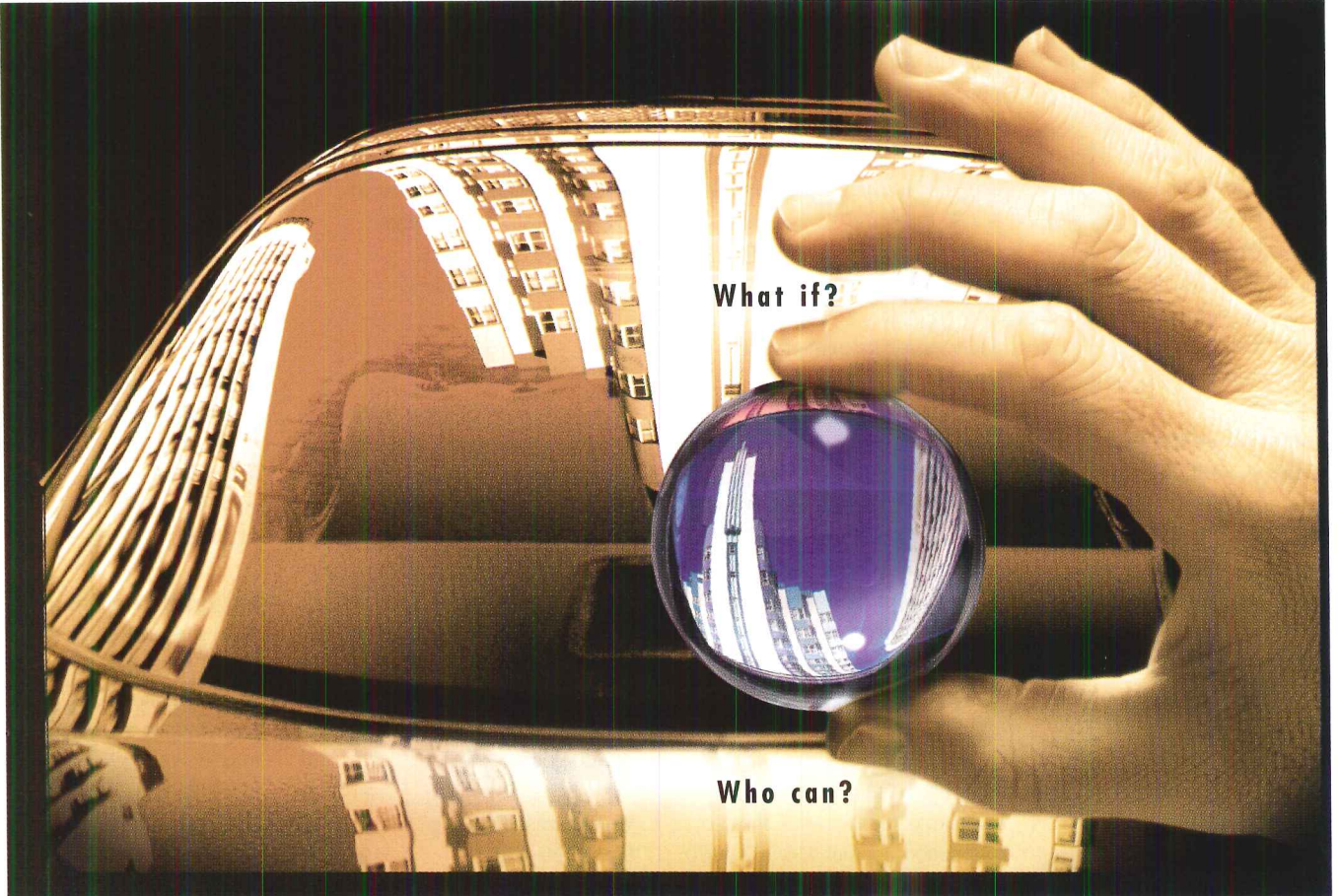
*Deadline: February 20, 2002*  
The Architectural League of New York is sponsoring this competition, open to architects and designers 10 years or less out of undergraduate or graduate school. Winners receive a \$1,000 cash prize, exhibit their work, and present lectures during May and June at the League in New York City. For more information and to get an entry form, call 212/753-1722 or visit [www.archleague.org](http://www.archleague.org).

**RIBA Competition**

*Deadline: February 28, 2002*  
Invited to explore the possibilities of environmental construction, the Government Energy Efficiency Best Practice Programme sponsored by the Royal Institute of British Architects has launched its fourth open ideas competition to promote sustainable architecture. Open internationally to students and architects, first prize is £10,000. Contact 01 13 234 1335.

*Submit Dates & Events to*  
[ingrid\\_whitehead@mcgraw-hill.com](mailto:ingrid_whitehead@mcgraw-hill.com).

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**CIRCLE 17 ON INQUIRY CARD**



# A better piece of New York will be the truest memorial to the World Trade Center tragedy

## Critique

By Robert Campbell, FAIA

It would be presumptuous to attempt a summation of any aspect of the tragedies of September 11. This is a column of fragments and shards, as befits its subject.

Everyone talks about what the attack will mean for the future of the skyscraper. But 9/11 wasn't supposed to be primarily about skyscrapers. One plane was headed for the White House. Another was headed for the U.S. Capitol. Only by chance were they stopped. One pilot couldn't find the White House and hit the more visible Pentagon instead. The other plane was wrestled to the ground in Pennsylvania by some brave guys. If events had gone as planned, we wouldn't be so obsessed with the impact on skyscrapers or on the urbanism of lower Manhattan.

I happened to be in Amsterdam on the 11th. A Dutch friend said, "New York will never look the same." The remark sounded strange. When I think of New York, I don't think of skylines. I think of the lively sidewalks of SoHo and Chelsea or the ever-renewing surge of the arts or the tree-lined townhouse streets of Brooklyn or the lakes and meadows of Central Park. To my Dutch friend, New York was a postcard, rather than a place he'd lived in. Skylines are for tourists. They don't matter.

The touristic response can be obscene. An acquaintance recently

*Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize-winning architecture critic for The Boston Globe.*

watched as a young couple visited the site. The woman posed for a snapshot with the wreckage as background. "Smile," said her friend.

"As an architect, if I had no economic or social limitations, I'd solve all my problems with one-story buildings. Imagine how pleasant it would be to always work and plan spaces overlooking lovely gardens."—Minoru Yamasaki.

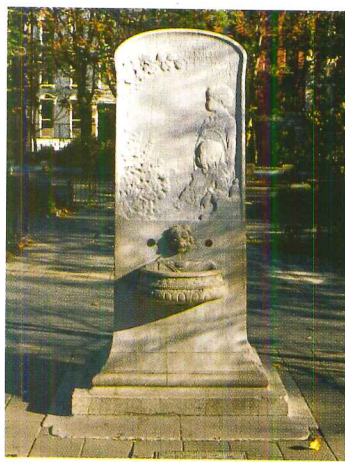
An irony: Yamasaki's high-rise Pruitt-Igoe housing underwent deliberate demolition, too—performed by the city of St. Louis in the very same year the WTC opened.

The newspapers and the Internet are flooded with proposals for a memorial. Perhaps we rush to make such proposals out of psychological need. When we talk about a memorial, we're talking, by definition, about an event that is in the past. We reassure ourselves that the tragedy is behind us, that the present is a time for memory and healing. But it isn't behind us. Terrorism goes on. What we are hoping to wrap up and label is, in fact, still a presence among us.

Three times I've been a juror in national competitions for memorials. All three juries left me impressed with the difficulty of creating a memorial to an abstraction. After the Civil War, we erected memorials to General Grant and President Lincoln at opposite ends of the Mall. The designers had icons to work with. But today we don't believe in heroes. We instead create memori-

als to generalizations—to World War II, to the Vietnam Veterans, to Women in Military Service, to the bombing of the Murrah Building. It's a much tougher design problem.

How do you memorialize a tragedy? More than a thousand people, most of them schoolchildren and those caring for them, died in a



**Understated: The only memorial to an excursion steamer fire that claimed more lives than any other New York City disaster prior to September 11.**

fire on an excursion steamer, the General Slocum, on the East River in 1904. Until the World Trade Center, it was the worst disaster in New York City's history. How many of us, even New Yorkers, know of the commemorative monument in Tompkins Square on the Lower East Side?

The kids lived there, in a neighborhood known as Witten Garten in a section of the city called Little Germany. Now the weather has worn the stone, and the relief inscription is almost invisible: "They were the earth's purest children,

young and fair." Many of the graves are in Lutheran All Faiths Cemetery in Queens, but I don't know whether anyone still visits them.

What remains of the Slocum is what always remains: the word, the text, the written record, in newspaper archives, in books, in the published recollections of the survivors. Maybe, just maybe, that's the way it should be. Certainly it never occurred to anyone to preserve the charred wreck of the Slocum as a memento. The Greeks wouldn't have wanted to save the Trojan Horse, either. They had Homer. But we live in a post-literate age, an age of gargantuan physical monuments like the proposed Holocaust Memorial in Berlin. We no longer trust poets to remember the past.

I'm talking on the phone to Stanley Tigerman in Chicago, who, no surprise, knows exactly what he thinks and is happy to be quoted. "Within a week of that incredible disaster there were prominent architects"—he names them, I won't—"vying for the job. They didn't even go through the motions of a wake before they were out there marketing. I find it so shocking, I can't even begin to tell you. I'm totally offended. There should be a waiting period where nothing happens, a period of mourning. There doesn't seem to be an awful lot of morality going in architecture today, and this is an awful example of it."

Architecture critics, too, have been "vying for the job" by telling the world exactly who should or who shouldn't get to redesign the site.

## Critique

Everyone, it seems, is trying to score off the disaster. Maybe a national crisis that touches our own field makes us all feel a little bigger, a little more important in the world.

Despite the posturing Tigerman speaks of, what's striking at this early writing is how many of us architects do not appear to be acting selfishly. Many of us are active in the numerous coalitions that sprang up after the disaster to think about what to do next. Organizations like the AIA, the Municipal Art Society, the Regional Plan Association, and many others, all more or less interlocking, are hoping to develop some principles to guide the rebuilding of the site, and at least get them on the table for discussion before the forces of money and politics take sole command. They hope, too, that the WTC can be a catalyst for thinking about larger issues. As with any

such tragedy—the great fires in Chicago and London, the bombing of cities in World War II—the World Trade Center disaster offers an opportunity to plan a better world.

Two proposals, at any rate, can be dispensed with. We should not rebuild anything like the World Trade Center. It was a terrible place for office workers. At street level, the area was a nightmare of vacuous alienation. We should also not devote the whole 14 acres to a memorial space. New York is about moving ahead, not about sentimental gestures. Perhaps, as several people have suggested, the actual footprints of the towers—about once acre apiece—should be treated as sacred space in a new development. The only virtue of the WTC was its density. High density makes it possible for an enormous number of people to work in walk-

able proximity to one another. That's good for business, for urban excitement, and for the creative exchange of ideas. But you don't need supertowers to achieve density. There's plenty of underdeveloped land nearby, enough to soak up the 50,000 jobs the WTC once housed.

Lower Manhattan is a small area, only about the size of Central Park, and for all its world fame it suffers many deprivations. It has no access to the regional rail network. It doesn't have a good park. It's disconnected from its waterfront. There isn't enough mixed use to make the place interesting. There are few residents and therefore few theaters, restaurants, stores, or other amenities. But the wealth and energy are unparalleled, and therefore so are the possibilities. Can this be our chance to create the model city for the twenty-first century? Would we even know how?

One begins to dream . . . a rich mix of different uses, dense but not skyscraping; a place that feels like a bubbling up of many initiatives rather

than the product of a simple top-down corporate order; a place of innovative and exciting architecture; a place in touch with nature and with the life of the street and of the harbor, but visibly in touch, too, with the electronic world culture of our time; a walkable place well served by trains and ferries, a world you'd delight to live or work in . . . why not?

The greatest memorial of our time was also the most controversial. The long debate that raged around the Vietnam Veterans Memorial was part of its success. Those angry arguments, among veterans and peaceniks, artists and architects, writers and government officials, were part of the healing process. They helped us discharge our distrust of one another. Is it possible in New York City, home of the power broker and the secret deal, that a similar debate about the WTC is possible? One that could bring us to a common understanding of what a city should be? The truest memorial will be a piece of a better New York. ■

An advertisement for TECTUM acoustical panels. The background is a close-up of a diamond-patterned acoustic ceiling panel. A baseball is shown in mid-air, having just struck the panel, with a bright yellow starburst effect indicating the impact. Several other baseballs are scattered around the panel. The text is overlaid on the image.

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# Three books and a new series explore current architecture

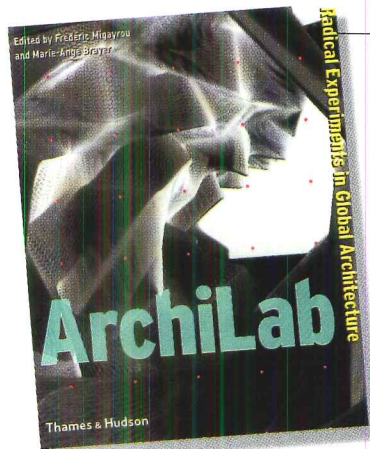
## Books

**Archilab: Radical Experiments in Global Architecture**, edited by Frédéric Migayrou and Marie-Ange Brayer. New York: Thames & Hudson, 2001, 528 pages, \$50.

Too often publications generated by an event arrive dated and out of touch with rapidly evolving architectural discourse. *Archilab: Radical Experiments in Global Architecture* is an exception, and all the more unusual because it is an edited version of catalogs that accompanied the first two Archilab conferences, those of 1999 and 2000.

Organized by the city of Orléans, France, the French government, and the FRAC Centre (boasting one of the fastest growing international collections of experimental architecture), the objective of the Archilab conferences—and of this book—is to bring together emerging designers from all over the world who are changing the course of pedagogy and practice, to showcase their work, and to discuss their ideas.

The book's essays, reflecting an international approach, are by contributors ranging from the German art and architecture critic Andreas Ruby to the director of design at the U.S. National Endowment for the Arts, Mark Robbins. One of the most illuminating essays, by the event's coeditor and co-organizer, Marie-Ange Brayer, explores recent notions of radical/experimental architecture and compares them to twentieth-century, predigital models.



Archilab looks at 60 architects who grapple with complex contemporary issues, including the globalization of architecture and the digitalization of design and production. The 60 include many who are well known—Greg Lynn, Kolatan/MacDonald, Reiser + Umemoto, Jakob + MacFarlane, NOX, FOA, dECOi, Archi-Tectonics, MVRDV, and UN Studio, to name just a few. But there are also lesser-known talents, such as Gregoire & Petein, Vincent Gaullart, laN+, Kovac Malone, Marcos Novak, Objectile, FAT (Fashion Architecture Taste), Oosterhuisassociates, and H-Kavya.

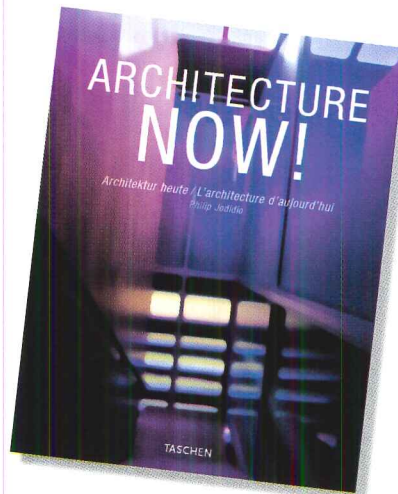
Most important, perhaps, this volume illustrates the extensive range and depth of contemporary global architecture and how it is changing as a pedagogical process and a cultural entity. The book is the first well-edited, readily available Archilab publication. It is hoped that Thames & Hudson will follow it with biannual catalogs of the group's conferences. *Joseph Rosa*

**Architecture Now!** by Philip Jodidio. Cologne, London, Madrid, New York, Paris, Tokyo: Taschen, 2001, 576 pages, \$40 (paper).

Leaf through *Architecture Now!* and you'll find as good an overview of contemporary building design as you're likely to find anywhere between two covers.

The second in a projected bi-annual survey of forward-thinking architecture by the German publisher Taschen, Philip Jodidio's book demonstrates, perhaps unintentionally, his assertion that one of the hallmarks of today's architecture is its breakneck rate of change.

The book gives you a look at up to three completed works by each of 60 architects, along with



biographical and contact information. Included are new works by the likes of Gehry, Meier, Foster, and Ando, but also perhaps less-well-known works, such as Jakob + MacFarlane's morphological restaurant at the Centre Pompidou

in Paris or Asymptote's proposed Virtual Museum. *Andrea Oppenheimer Dean*

**4 x 4: A Series on Contemporary Architecture**, New York: Thames & Hudson, 2001, 128 pages, \$23 per book (paper).

Among today's up-to-the-minute architectural trends, none are sexier than virtual architecture and dematerialized architecture. But both tend to disregard the richly expressive attributes of construction and to give short shrift to the sensual qualities of materials and their ability to convey timelessness while fusing tradition with invention and the new—tendencies that are the subject of this series of four books. Each volume presents four projects by four architects who are loosely linked by their design approach or sensitivity, not by style. All 16 designers share a fascination with construction as form and as a vehicle for expression.

*Techno Architecture: Jones, Partners; TEN Arquitectos; RoTo; Smith-Miller + Hawkinson*, by Elizabeth A.T. Smith, explores the use of technology as a carrier of cultural meaning by presenting the work of four designers who use technology to elevate structural expression. *Radical Tectonics: Enric Miralles, Günter Behnisch, Mecanoo, Patkau Architects*, by Annette LeCuyer, unites designers who probe the limits of poetic construction, surface form, and spatial complexity while championing craft. *Cool Construction: David Chipperfield, Waro Kishi*,

## Books

Eduardo Souto de Moura, Tod Williams and Billie Tsien, by Raymund Ryan, brings together architects whose work tends toward restraint and is shaped by indigenous climate, topography, and patterns of use but is tied neither to time nor place. By contrast, the projects appearing in *Concrete Regionalism: Antoine Predock, Tadao Ando, Wiel Arets, Ricardo Legorreta*, by Catherine Slessor, are rooted in the particular environments and cultures of their regions.

Each little book offers a thoughtful introduction, explaining the approach and attitudes conveyed by its title while reviewing the careers of its four architects and showing, for each, four of their built designs. The books are a pleasure to look at and read. Catherine Slessor's description of regionalism, in *Concrete Regionalism*, as mining "everyday life and perceptions for

intimations about a truly progressive future" is among several nuggets to be mined in this series. *A.O.D.*

**Architectural Design Portable Handbook: A Guide to Excellent Practices**, by Andy Pressman, AIA, NCARB. New York: McGraw-Hill, 606 pages, 2001, \$50.

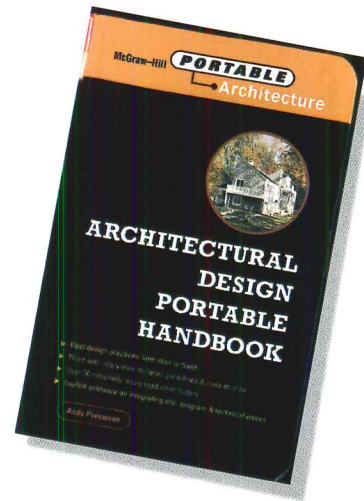
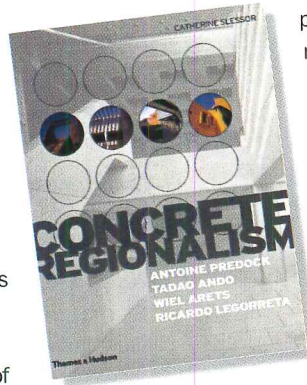
Every architect wants to become a better designer, and Andy Pressman, director of the architecture program at the University of New Mexico and a practicing architect, has put together a handy little volume to help both veterans and novices hone their skills. He identifies and discusses important issues

while focusing on the magical aspects of design, explaining that his left-brained approach is merely a necessary evil for organizing and clarifying heaps of material.

Among the numerous elements he covers are critical thinking in design; orchestrating client involvement; professional ethics; computing, drawing, site planning, and physical modeling; architectural photography; sustainability; structures, mechanical systems, lighting, and acoustics; daylighting; building codes and universal design; and time management.

He writes, however, that the essence of his book "lies in a departure from algorithms, easy solutions, and a business-centered culture." He has peppered his text with essays and interviews by more than 70 educators and practitioners, who draw on their

specialties and experience, and he unapologetically describes their contributions as patchwork. He's proud of having given a diverse range of individuals free reign, allowing them to write about what's on their minds. Useful to be sure, Pressman's handbook also has a lively design, is dotted with drawings and charts, and is fun to read. *A.O.D.* ■



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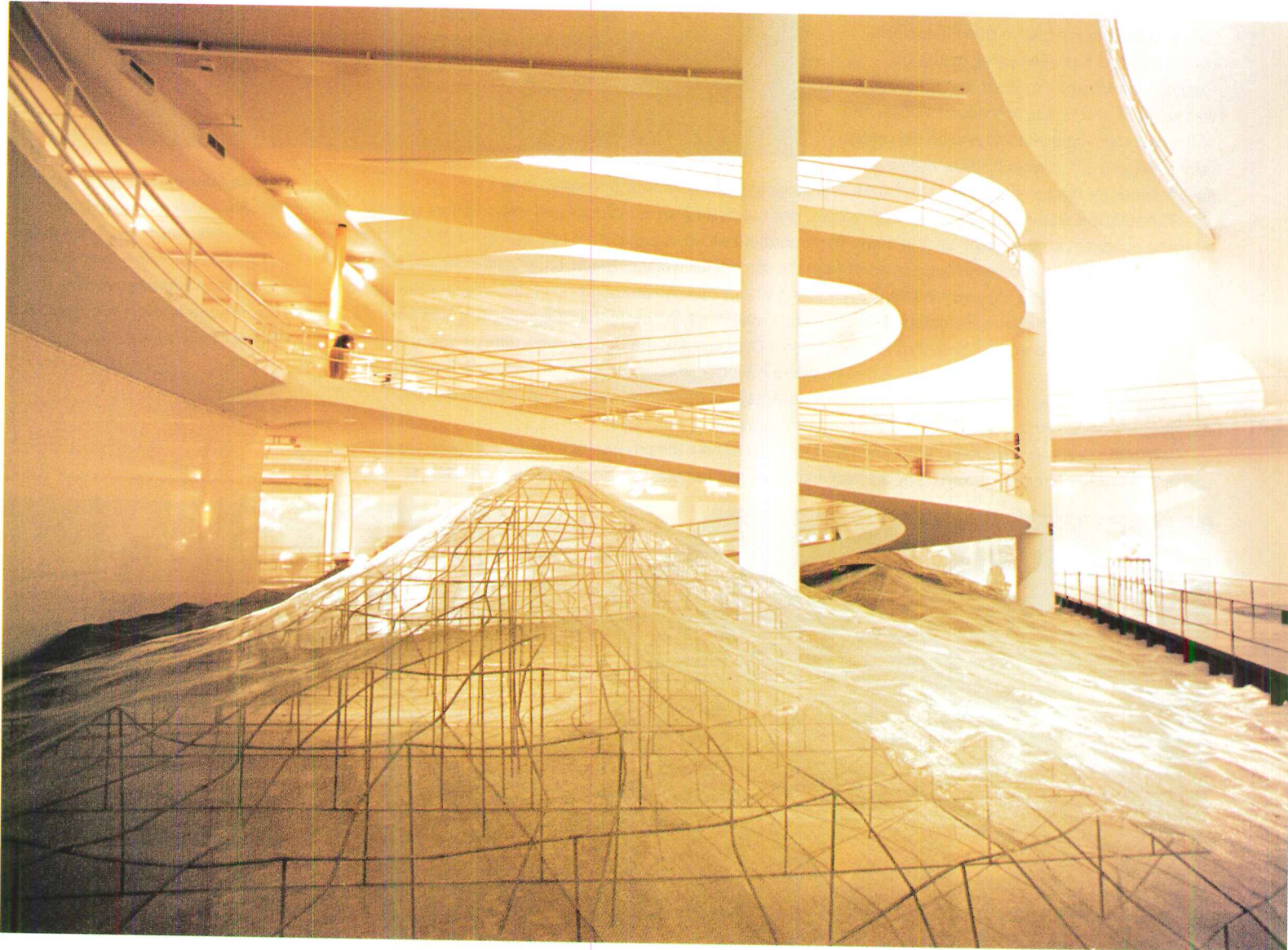
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# Snapshot



By **Clifford A. Pearson**

Like Brazil itself, the Pavilion Lucas Nogueira Garcez in São Paulo has a history of proud achievement and hard knocks. Designed by Oscar Niemeyer in 1954 as a key element in his cluster of arts and exhibition buildings in Ibirapuera Park, the saucer-domed hall epitomized Brazil's brash tropical Modernism at midcentury. Roberto Burle Marx worked with Niemeyer on the complex, enveloping the buildings in a swirling landscape reminiscent of a Miro painting. Nicknamed the Oca (after the circular huts built centuries ago by indigenous people from the area), the pavilion seemed to miraculously connect futuristic design with the country's precolonial past. But when a right-wing coup in 1964 toppled the civilian government, the Oca fell into the hands of the military. For the next two decades the building served as an unloved, poorly maintained air-force museum, its seamless space cluttered with airplanes and clumsy display areas. Then for 14 years it lay abandoned.

Now the Oca is back, its concrete shell restored to mint condition, and its mechanical and air-handling systems

## Face-lift brings a Niemeyer landmark back to life



## Snapshot

totally rebuilt. Sponsored by banker Edegar Cid Ferreira, who is active in São Paulo's arts community and has been trying to lure the Guggenheim Museum to Brazil, the renovation was supervised by Paulo Mendes da Rocha, one of the country's top architects and an old collaborator of Niemeyer's. Now in his 90s, Niemeyer gave Mendes da Rocha his blessing to renovate the building but wasn't directly involved in it.

The 100,000-square-foot Oca once again plays host to traveling art exhibitions and wows visitors with its dramatic concrete ramp spiraling up and down. Thirty porthole windows provide the only daylight in the building, heightening the sense of being in a space adrift from the orthogonal world of traditional architecture. For its reopening in April 2000, the Oca showed modern artworks as part of a multiveneue exhibition of 500 years of Brazilian art. (A different part of this exhibition, featuring Baroque and modern art, is now at the Guggenheim in New York under the title *Brazil: Body and Soul*.) Like Frank Lloyd Wright's Guggenheim, the Oca can be a difficult space to display art, but for designers up to the challenge, it can provide a memorable stage on which to show off. The inventive contemporary works in the inaugural exhibition took full advantage of the domed space (page 45), as did Ralph Appelbaum's design for the next show, *50 Years of Brazilian Television* (below).

When the Oca was built nearly 50 years ago, it seemed to hold the promise of a country propelled by innovation and optimism. After being waylaid by political and economic troubles, Brazil may be back on track. ■



**The Oca (above) sits in Ibirapuera Park, where Niemeyer designed several other buildings. An exhibition on Brazilian television (below) was designed by Ralph Appelbaum. A show of contemporary art (page 45) filled the building last year.**



# Design Vanguard 2001

**OUR SECOND ANNUAL SELECTION OF TALENTED UPSTARTS IS A DIVERSE GROUP. WHAT THEY ALL SHARE, THOUGH, IS A TENDENCY TO PUSH THE ENVELOPE.**

By Clifford A. Pearson

**R**isk. It's inherent in all architecture, even when purposely minimized. In the work of young architects, though, it's often glorified, treated as an asset in challenging old ways of doing things. Think of it as extreme architecture, not for the faint of heart.

For the second consecutive year, the editors of ARCHITECTURAL RECORD have selected a group of emerging architects to showcase in our December issue. Instead of a warm-and-fuzzy holiday gift, we offer a design collection with a decidedly edgy feel to it. We plan to continue presenting our Design Vanguard at the end of each year, though we would hate to use so comforting a word as "tradition" to describe it.

This year's designers stretch from Tokyo to Ljubljana, with stops along the way in Vancouver, Houston, Phoenix, Chicago, Los Angeles, and New York. Three firms are based outside the U.S., but even the domestic ones have either cultural ties to or work experience in Argentina, Sri Lanka, the Netherlands, Germany, the Czech Republic, and Slovakia. These firms are small, but they're hardly provincial. Some of the architects teach in countries other than the ones in which they base their practices. Many of them lecture and attend conferences around the world. Indeed, I first met two of them presenting their work in Costa Rica. Borders don't mean much to this

group, unless they're seen as lines to be crossed, jumped, or blurred.

Some of this year's firms have built more than others, but each is represented in these pages by a portfolio of work that includes completed projects and work still on the boards. Our goal is to show not only what these designers have done, but where they are headed. The issues grabbing their attention range from the nuts-and-bolts of materiality and construction to esoteric questions of representation and metaphor. The scale of work also varies—from an obsessively detailed "prosthetic" limb for a chair to a new town for Chilean mine workers. Some of the projects are for the desert, others for cyberspace.

A few of the designers have worked on theater and performance pieces, happy to engage in cross-discipline dialogues that might spark new ideas or reveal new perspectives. In a world where everyone seems to be connected, ideas travel at the speed of light, morphing along the way and picking up unexpected meanings and intriguing accents. Look at the work shown in the following pages and you may see the influence of Archigram, comic books, and botanical drawings. Peek around a few corners and you'll find the long shadow of Rem Koolhaas, architecture's indefatigable multitasker whose writings, musings, and research projects on the ways of the world in a global, image-driven culture have shaped a new generation of architects' views of design, capitalism, communication, airports, and even shopping.

Not all of the work in this issue will pass the test of time. Some of it will look forced or dated or misguided in hindsight. While we hope at least a few of the architects will make lasting contributions to the profession, we know others will quietly disappear. That's the risk we take when we bet on new talent. ■

The firms featured are:

1. Lang Wilson PAC
2. David Guthrie
3. Shuhei Endo
4. Hernán Díaz Alonso
5. Richârd & Bauer Architects
6. SYSTEMarchitects
7. Escher GuneWardena
8. Studio Gang/O'Donnell
9. Ofis: Oman and Videcnik

**www** For more information on the people and products involved in these projects, go to Projects at [architecturalrecord.com](http://architecturalrecord.com)



PROJECTS INTRODUCTION



## Lang Wilson PAC pushes (and often crosses) boundaries to apply art to business

By Clifford A. Pearson

**Architect:** Lang Wilson Practice in Architecture Culture

**Location:** Vancouver

**Date founded:** 1997

**Design staff:** 6

**Partners:** Cynthia Wilson, Oliver Lang

**Education:** Lang: Technische Univeersitaet Berlin, Dipl. Ing. Arch., 1993; Columbia University, MSAAD, 1995; Wilson: University of British Columbia, B. Arts, 1986, B. Arch., 1991

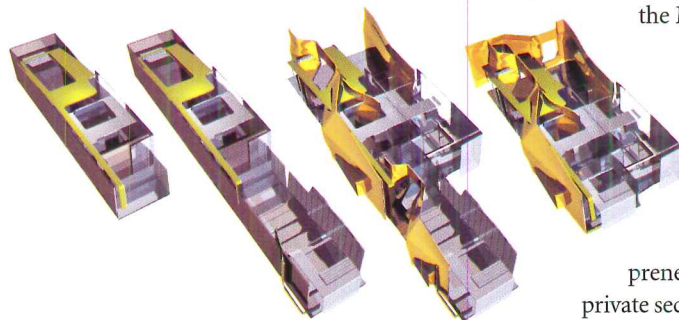
**Work history:** Lang: Naegeli-Vallebuona, Berlin, 1992; Behrendt + Stutzer, Berlin, 1993; Greg Lynn Form, Hoboken, N.J., 1995; Peter Eisenman Architects, N.Y., 1995; Smith-Miller + Hawkinson, N.Y., 1996–98; Wilson: Zeidler Roberts Partnership, Barcelona, 1991; RKS Marina Stankovic, Berlin, 1992–93; Steinebach + Weber, Berlin, 1993–94; Annabelle Selldorf, N.Y., 1994–95; Greg Lynn Form, Hoboken, N.J., 1996

**Key completed projects:** Expansion, School of Architecture, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile, 1999

**Key current projects:** Museum of Extreme Culture, British Columbia; PAC House, anywhere; 2010 Olympic Bid, Vancouver; Discovery Sales Centers, throughout North America

**Web site:** www.lwpac.net

Lang Wilson initiated the PAC House project (below) and hopes to find investors for manufacturing these “mass customized” units.



Most firms tack “Architects” or “Associates” at the end of their names. Oliver Lang and Cynthia Wilson use a less compact suffix: Practice in Architecture Culture. Their goal is to alert everyone that this husband-and-wife team is running a different kind of firm, one that looks beyond the architect’s traditional role and connects the built environment with what’s going on in the larger culture. Itinerant, interdisciplinary, and research-driven, the partners love talking, teaching, and building architecture. Since meeting in Barcelona, where both were graduate students, Lang and Wilson have worked or studied in Berlin, New York, and now Vancouver. In addition, Lang is a visiting professor in Valparaiso, Chile, where he and Wilson designed an addition to the school of architecture at the Universidad Tecnica Federico Santa Maria.

“Our ideas about practice evolved from our time in Barcelona [in the early 1990s] when there were incredibly vibrant discussions on architecture, urbanism, and how design affects the way people live,” recalls Lang. Using digital technologies and techniques (such as storyboarding) borrowed from other arts, the firm likes to collaborate with a team of consultants assembled for a particular project and work closely with the client, users, and contractors. “We don’t see our role as one of providing solutions but of reformulating problems,” says Wilson. Talking to these partners, you hear certain words a lot: for example, “fluid” (as in borders, disciplines, and forms) and “platform” (as in starting point, shared ground, and computers). Rather than searching for the perfect form or enclosure, Lang and Wilson want to create architecture that can adapt and change over time, that can let “different scenarios coexist in one place.”

The firm is currently working on a Museum of Extreme Culture (MoX-C), an exhibition and business center being planned by a private developer for an undisclosed site in British Columbia. The program calls for a facility that would take visitors to the top of a mountain where multimedia exhibits and films would present the world of extreme sports such as snowboarding and snowblading. Lang Wilson designed a gondola station and a lightweight, prefabricated structure for use as a museum/conference/media center and also created a video that the client has been using to raise funds for the project. The architects are fascinated by “evolving, artificial urban areas,” such as those developing around airports, office parks, and shopping malls, and they see the hybridized program of the MoX-C as another example of this trend, says Lang.

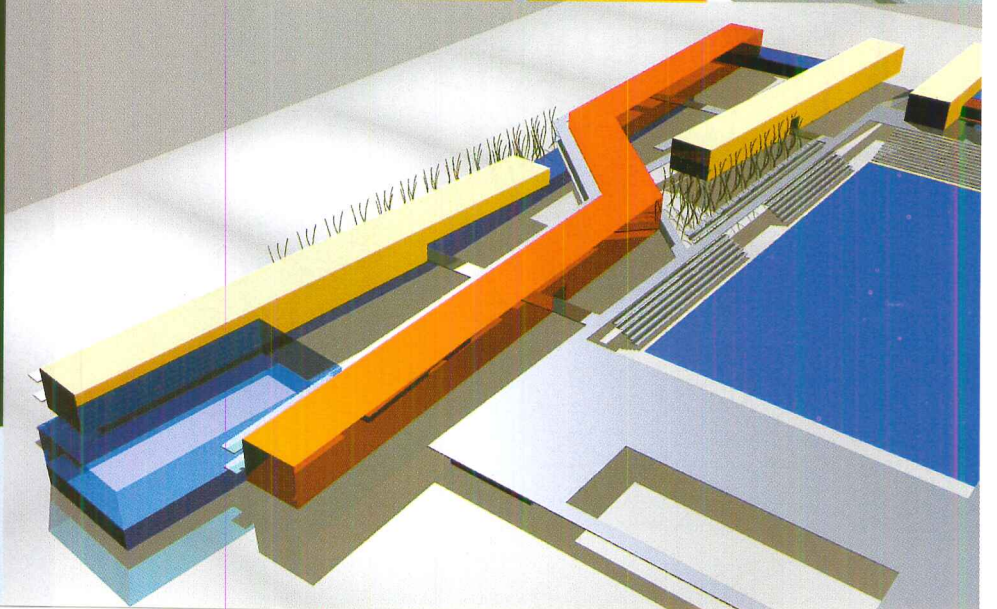
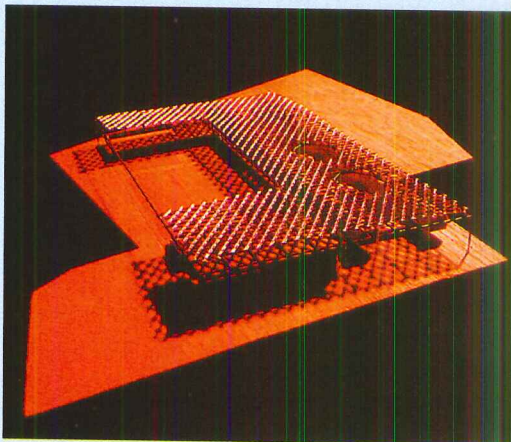
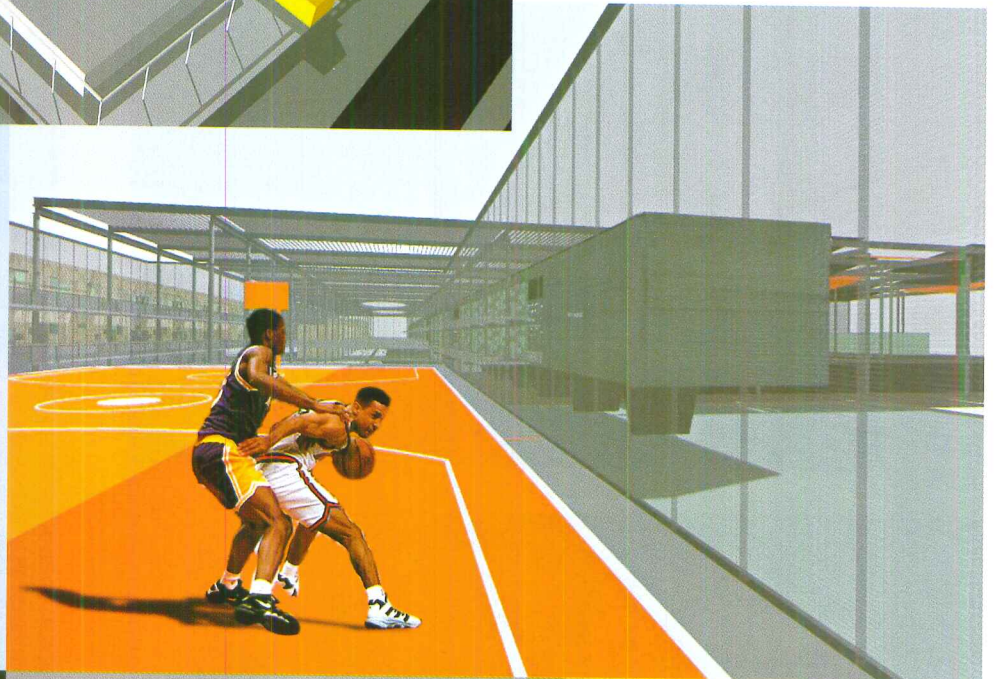
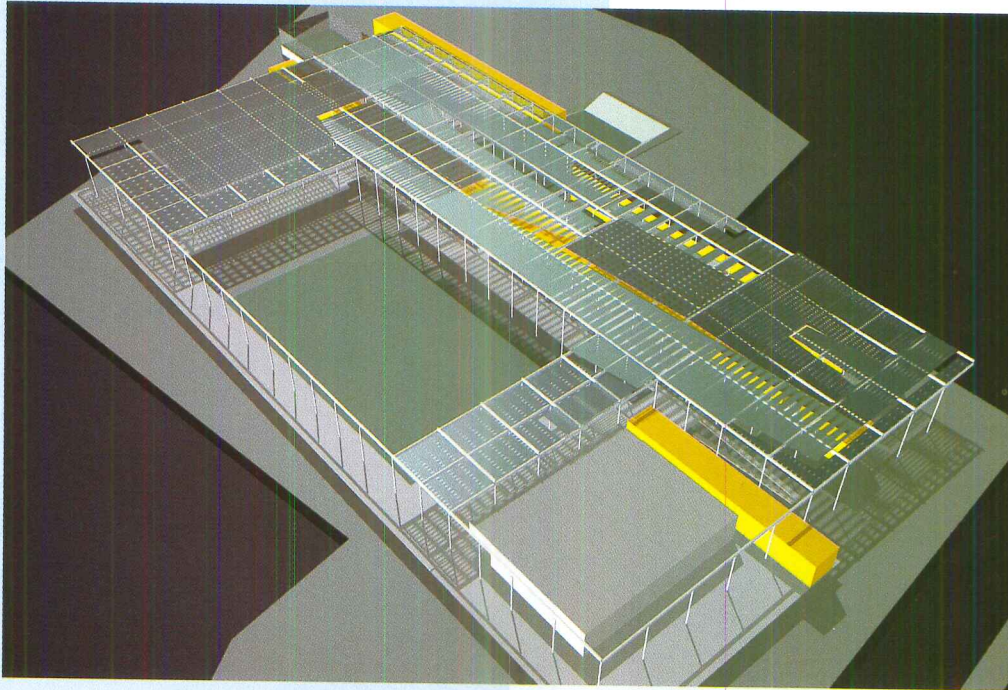
The firm is also exploring the potential of “mass customization” in a project for manufactured housing (left). Envisioned as a product that customers can order with particular features, these so-called PAC Houses combine custom design with mass production.

Like other young architects with an entrepreneurial bent, Lang and Wilson are eager to engage the private sector and a new digital economy. “We’re trying to project culture onto business,” says Lang. “The idea is to create value—cultural value and dollar value.” ■



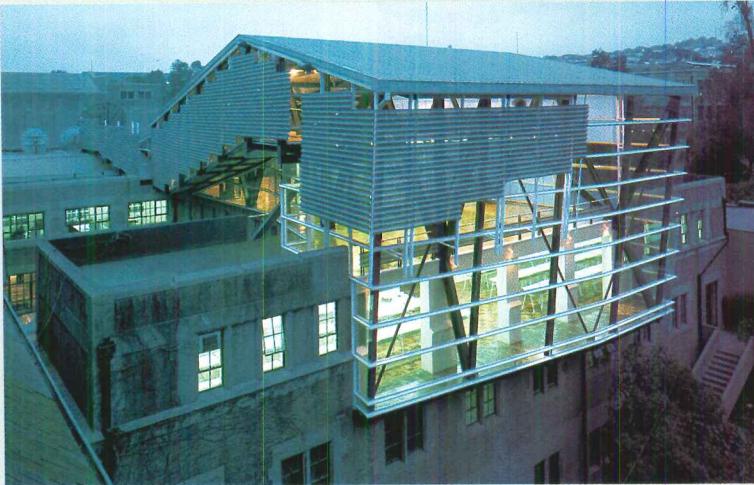
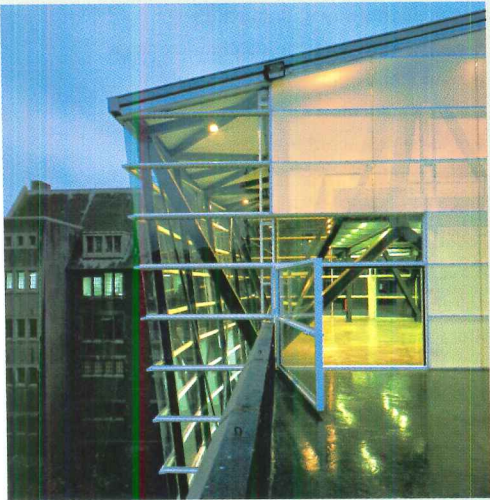
Colegio Chuquicamata  
Calama, Chile

Codelco, the operator of the largest copper mine in the world, plans to move 20,000 workers from its Chuquicamata mine in northern Chile's Atacama desert to the nearby city of Calama. Lang Wilson's entry in a competition to design a school and community center in Calama calls for a set of buildings that would be protected from the full impact of the sun by a 50-foot-high grid of shading material. The idea is to create a "connective landscape" rather than a closed institution, says Lang. The firm collaborated on the project with Mathias Klotz and Carolina del Campo.

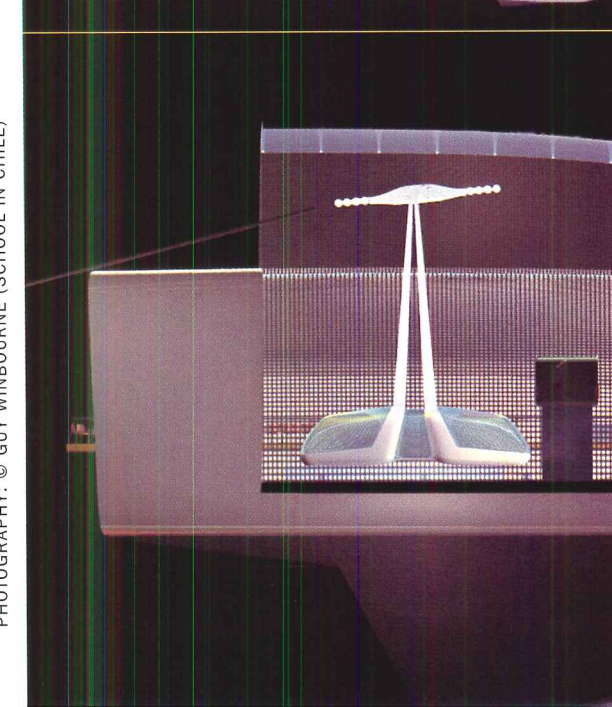
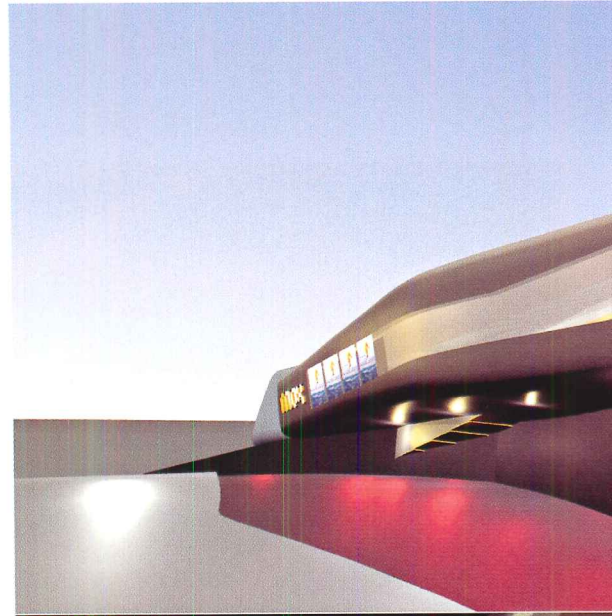


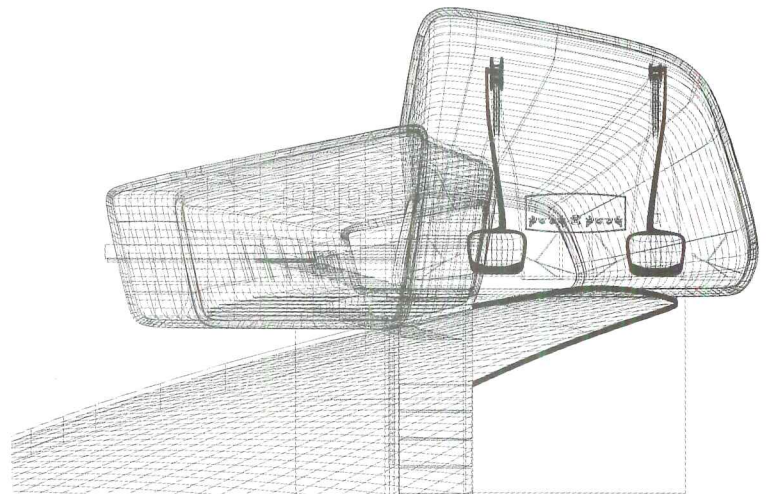
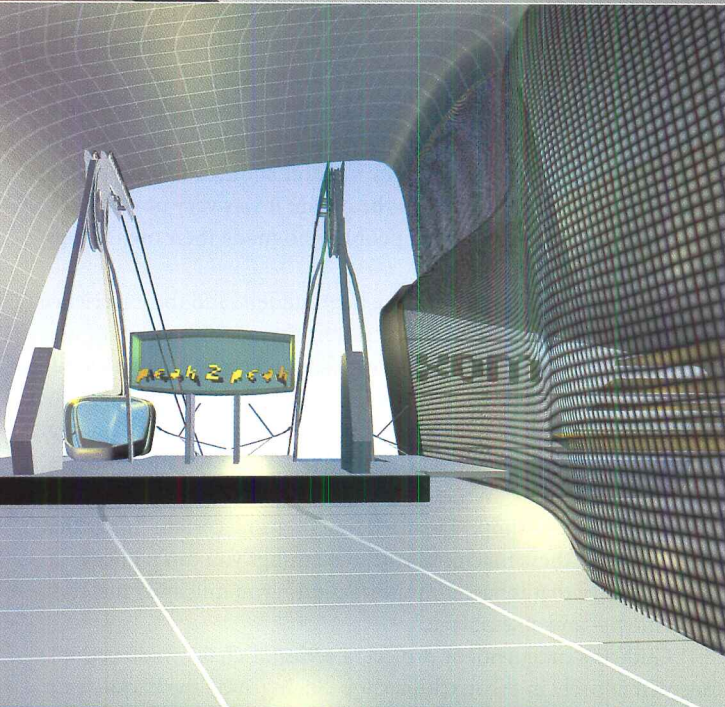
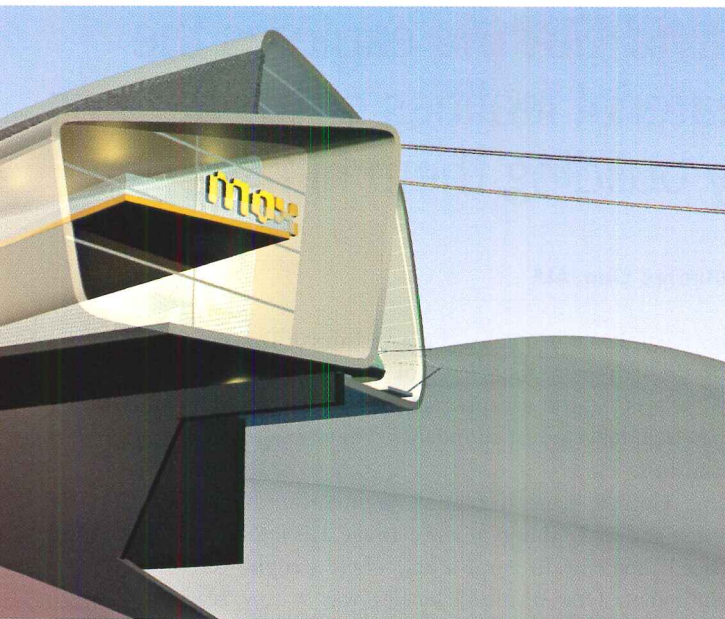
Expansion, School of  
Architecture  
Valparaiso, Chile

Given just 10 months to design, bid, and build a 7,500-square-foot addition to the school of architecture at the Universidad Tecnica Federico Santa Maria, Lang Wilson created an airy nest perched on top of an existing neo-Gothic structure. The goal was to provide a flexible environment that could accommodate design studios, a computer lab, and temporary events such as exhibitions and parties. "There needed to be a degree of incompleteness, so we approached the building as spatial infrastructure rather than prescriptive form," explains Lang. Built for just \$390,000, the addition opened in May 1999. A second phase will include an outdoor auditorium on the roof for 250 people.



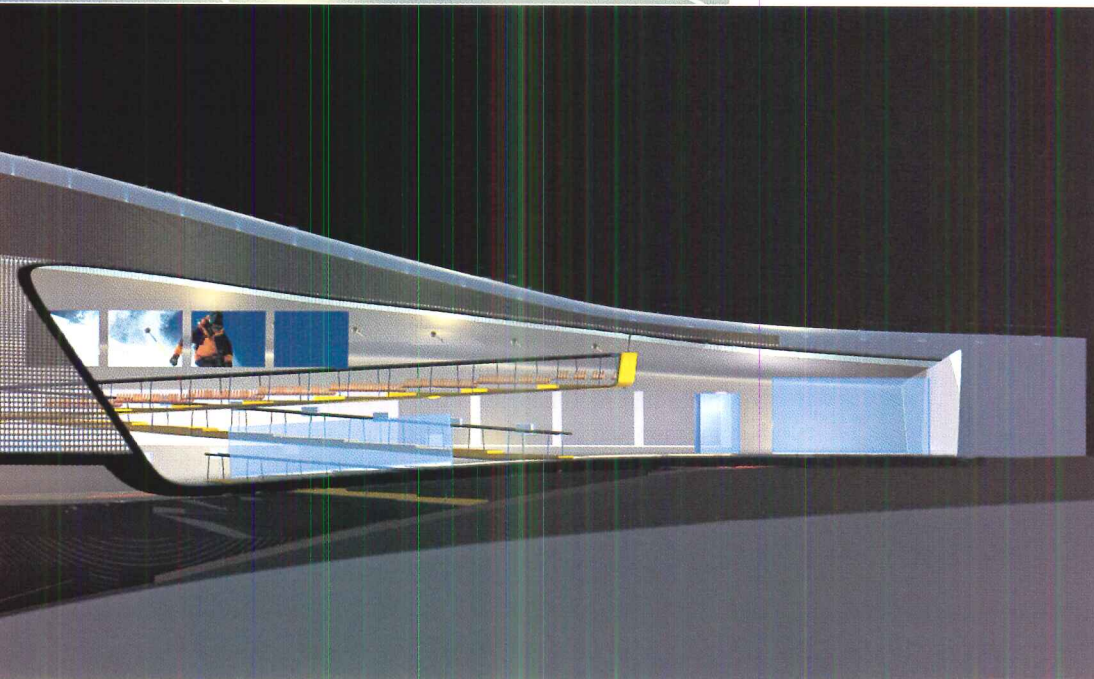
PHOTOGRAPHY: © GUY WINBOURNE (SCHOOL IN CHILE)

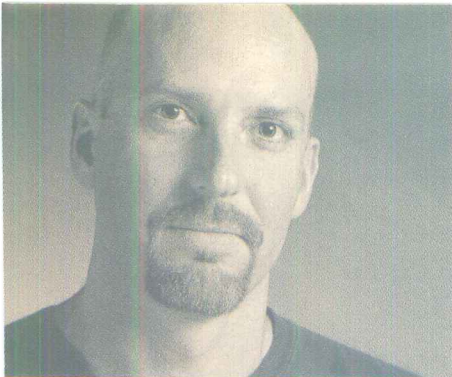




Museum of Extreme Culture, British Columbia, Canada

Part museum, part conference center, part Alpine transportation structure, this project would sweep visitors into the world of extreme winter sports. Working with E&S Envisioning & Storytelling, Lang Wilson not only designed the building but also the gondola and gondola station, and even a presentation used by the sponsor to attract investors to the project. The architects designed the center as a lightweight, prefabricated monocoque structure that could be delivered by helicopter and assembled quickly on site.





## David Guthrie explores the material realities of his designs by building them himself

By Charles Linn, AIA

**Designer:** David Guthrie Design Workshop

**Location:** Houston

**Date founded:** 1990

**Design staff:** 1

**Principal:** David Guthrie

**Education:** Hendrix College, Conway, Arkansas, B.A., 1981; Rice University, Houston, M. Arch., 1990

**Work history:** Morphosis, 1977–81; Barton Meyer Associates, 1988

**Key completed projects:**

Machinist's Garage, Spring Branch, Texas, 1991; Greenway Plaza Penthouse, Houston, 1993; Suhm Coil Spring Works, Houston, 1998; 55 Ferris Street, Red Hook, Brooklyn, New York, 2000

**Key current projects:** Woolf

Apartment in Four Leaf Towers, Houston; Offices for Industrial Information Resources, Houston; Kaldi Café, Houston; Kansas Street House, Houston

**Web site:** [www.fluidg.com](http://www.fluidg.com)

One of the most notable characteristics of David Guthrie's work is the extremely high level of craftsmanship. The materials he selects, which are precisely shaped to respond to how they will be used, reflect great confidence. They are also expertly assembled and finished.

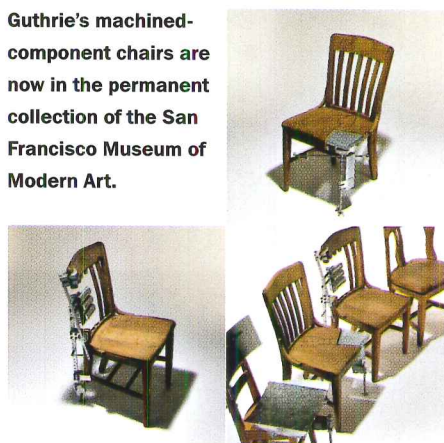
Guthrie began to acquire an understanding of what it means to design and make things at an early age. His father was a doctor who practiced medicine in rural areas, where people were, by necessity, self-sufficient. One of these locales was a tiny seaside village in Newfoundland, Canada, where boatbuilding made a strong impression on David while he was still a boy. "When the weather begins to get cold, they skin the dry docks in plastic, so they have a sort of a translucent warehouse. And every winter they would build two wooden boats, just alike, side by side. When I was a kid, the fellows would let me hang out and watch. There was something very visceral about watching people make these vehicles that could cross the ocean; it was very powerful for me to witness the independence of people who made their own things. And the boats were beautiful."

The influence of watching the boatbuilders, and the experience Guthrie picked up later working in the extremely specialized area of tennis court construction, started to gel years later when he began to study architecture at Rice. "When I got there, I brought a certain amount of practical experience along with a fairly well-developed sense of spatial literacy—compositional and visual awareness—along with the physical experience with materials." While taking a certification course to use tools in the school's machine shop, "I realized that there are certain things that you can make with these machines and some things you can't; I began to develop a language that is based on subtraction—you mill away material, carving, almost—and assemblage."

Guthrie's independent project, a series of chair constructions, was executed entirely in the machine shop. Slicing away the backs, seats, and legs of several vintage wooden chairs, he replaced them with machined metal assemblies made from found and machined components. "In a way, this project describes how I like to work: The chairs are a direct expression," he says. "They don't have to answer to anything except the framework I set up, which was that they still had to work and be comfortable. I didn't have a client or a professor guiding me. It is interesting to me how seminal this experience was—there's kind of a thread through everything that I've done that leads back to this project."

Guthrie explains that it can be hard to trace that thread sometimes, but that his process is still the same. "Solutions come from searching, filtering for an idea that resonates," he says. "This can only come from seeing the material reality of what you're making during construction." He concludes that he is happiest when he is making things, but that it has become more difficult to find the time to do it. "It's so easy to turn architecture into an exercise where everything is at arm's length. You become engaged with it intellectually instead of physically. But there is something that happens when your hands touch the work. Alexander Pope calls it 'the intellect of the hands.' And you can't get at that any other way." ■

Guthrie's machined-component chairs are now in the permanent collection of the San Francisco Museum of Modern Art.



Suhn Coil Spring  
Works Offices  
Houston

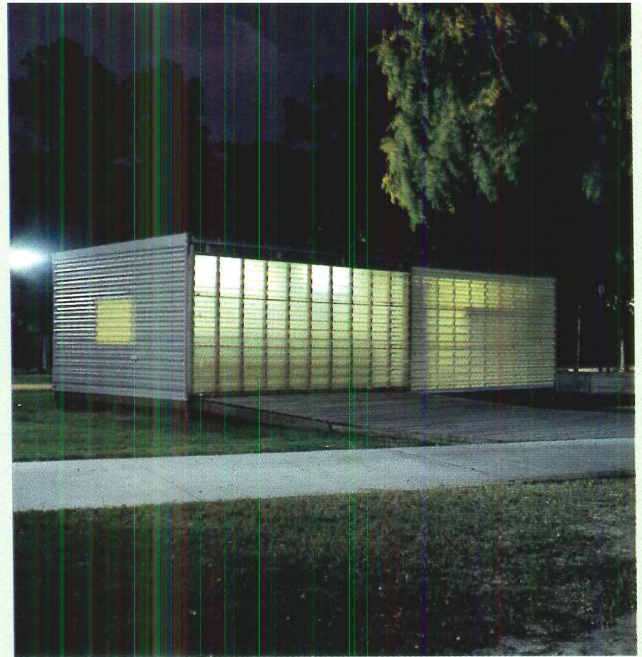
When asked to add an office for a maintenance man to Suhn Coil's existing space, Guthrie saw an inefficient layout, ugly walls skinned in vinyl, and dropped ceilings that left a third of the room height unused. When the office was done, it was immediately appropriated by a V.P. and Guthrie was asked to redo the entire office space—10,000 square feet. The offices continued to function during the work, executed at night and on weekends.



Concession Stand  
Hermann Park  
Houston

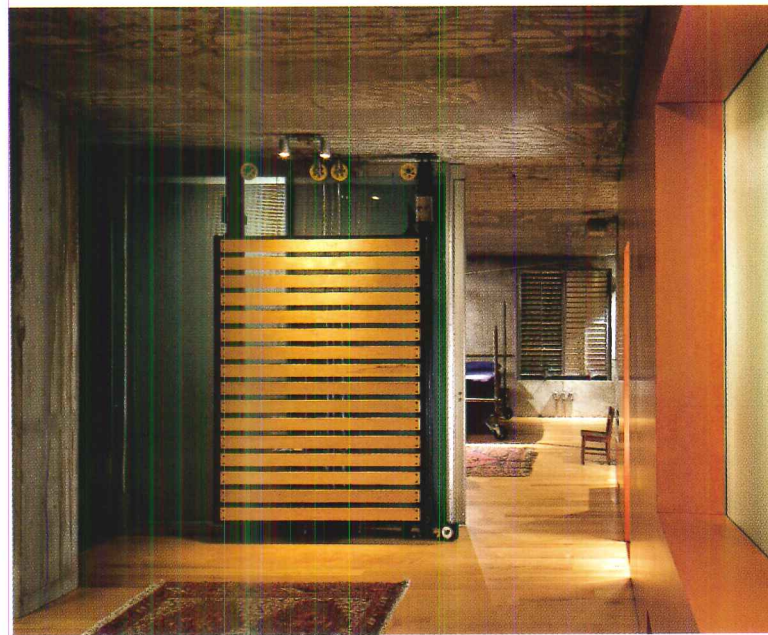


The fast-track construction of this concession stand started a day after the first project meeting—the parks department poured footings and a slab while Guthrie initiated the search for in-stock, off-the-shelf, galvanized aluminum and translucent skin materials. He found the material priced at a discount because it had been shipped in the wrong color, and started building. The stand opened in 10 days.



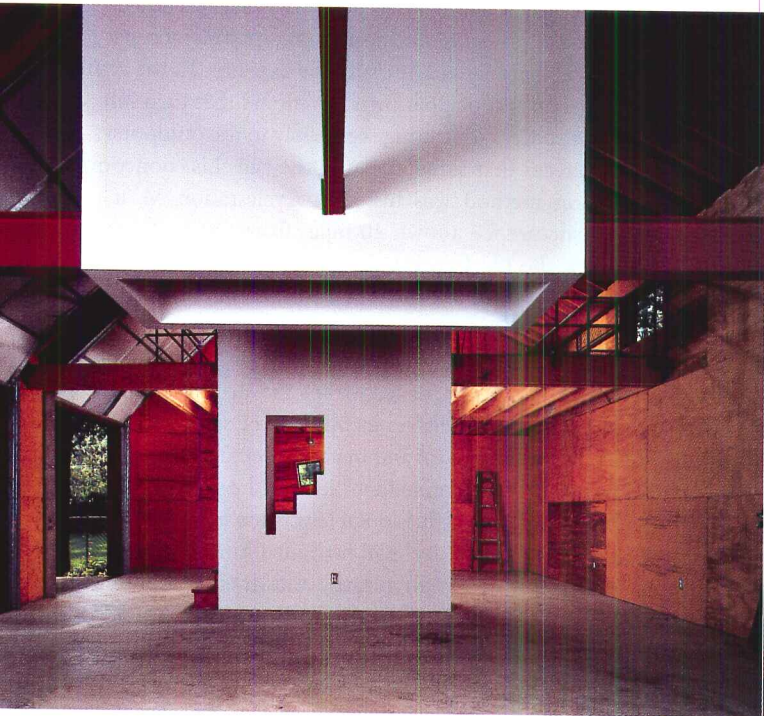
Greenway Plaza  
Penthouse, Houston

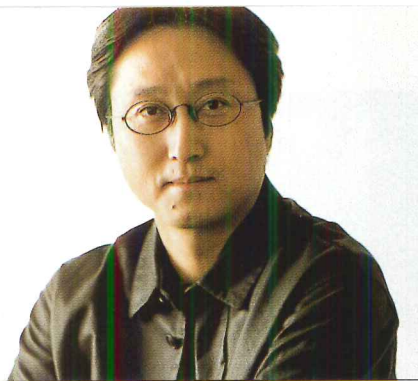
Work on this penthouse apartment began with the demolition of a previous owner's faux-antebellum interior. Left with a fixed structural grid and plumbing locations, the open area was treated as a "site" and freestanding objects were built inside it. The entry (left) is a box made of fiberglass and steel studs. A system of counterweights and trolleys (below) raises the custom-made Murphy bed headfirst from the floor.



Machinist's Garage  
Spring Branch  
Texas

Guthrie's first project after graduating from architecture school was this garage. He and two friends built it for a machinist Guthrie had worked with at Rice University. "We focused a lot of extra time on the special pieces on this project, like the doors, hardware, and workbenches," Guthrie says. He prefers doing much of the work himself, although on larger projects this is usually too time-consuming.





## Shuhei Endo coils and curves corrugated steel, seamlessly weaving indoors and out

By Naomi R. Pollock, AIA

**Architect:** Shuhei Endo Architect Institute

**Location:** Osaka, Japan

**Date founded:** 1988

**Design staff:** 8

**Principal:** Shuhei Endo

**Education:** M. Arch., Kyoto City University of Art, 1986

**Work history:** Osamu Ishii & Biken Associates, 1986–88

**Key completed projects:** Cyclestation M, Maihara-cho, Shiga, Japan, 1994; Healtecture K, Takatsuki, Osaka, 1996; Transtation O, Sakai-cho, Fukui, Japan, 1997; Halfecture F, Fukui, 1997; Springecture H, Shingu-cho, Hyogo, Japan, 1998; Roofecture O, Shimizu-chu, Fukui, 1998; Roofecture Y, Yamasaki-cho, Hyogo, 2000; Roofecture B, Biwa-cho, Hyogo, 2000; Roofecture K, Nishinomiya, Hyogo, 2000

**Key current projects:** Roofecture M, Maruoka-cho, Fukui, 2001; Springecture B, Biwa-cho, Shiga, 2001; Complex Project, Maihara-cho, Shiga, 2002; Office Building, Osaka-Shi, Osaka, 2002; Kindergarten, Maihara-cho, Shiga, 2002; Crematory project, Taishi-cho, Hyogo, 2003

**Web site:** [www.2c.airnet.ne.jp/endo](http://www.2c.airnet.ne.jp/endo)

Japan gives rise to some pretty unusual buildings, but Osaka architect Shuhei Endo's curling ribbons of corrugated steel are in a class of their own. Instead of enclosing space with a standard system of roof, floor, and wall, Endo envelopes it in metal sheets, glass, and even reinforced concrete. "It's like the difference between a wooden box with discrete top, bottom, and sides and a traditional *furoshiki* wrapper [a gift wrap] made from a single square of cloth," he explains. In the resulting buildings, walls turn into roofs that turn into floors that turn into walls again, with interior spaces connecting seamlessly to the outdoors.

The architect's first foray into what he calls his "noncompositional" construction method was his 1994 Cyclestation M, a public bicycle-parking structure for a town 40 miles from Osaka. In commissioning the project, the local government did not really care how the building looked as long as it came in on budget and could hold 300 bikes.

Endo's solution is a cross between a lean-to and a streamlined machine—reminiscent of a bullet train whipping past. A single plane of three-millimeter-thick corrugated steel wraps the structure on one side and bends to cover the top but leaves its other three sides entirely open.

While Cyclestation's form and material seem inextricably linked, Endo maintains that the shape came first. "In fact," he says, "it could have been any number of materials." But concrete was too heavy and glass too expensive. Besides, corrugated steel had intrigued him since his student days. Commonly used in Japan for tunnels and drainage conduits, the sheet metal is cheap and strong yet light and malleable. Taking full advantage of these properties, his projects bend, curl, and mold the sheets and, in so doing, elevate a lowly, industrial material to a dynamic art form.

For Endo, the lure is not the material per se, but its capacity to give shape to his brand of spatial continuity. Straddling the line between open and enclosed, Springecture H, a 1998 park structure, is a loose coil of steel sheet partially embedded in the earth. Resembling abstract sculpture, it actually shelters public toilets within its rising and dipping loops.

Though glass and masonry partitions screen those areas needing the most enclosure, interior/exterior boundaries remain ambiguous.

Adapting the concept to a larger format, Springecture A, Endo's 1999 competition entry for an art museum, addresses multiple functions and spatial requirements with five steel strips instead of one. Though structurally sophisticated, the scheme retains flow between indoors and out.

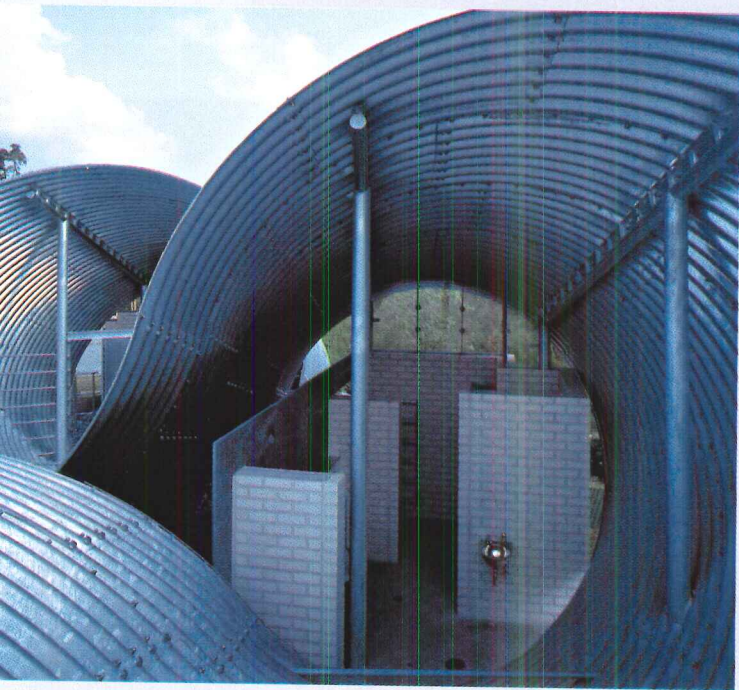
Endo recently completed Roofecture K, a small office building, and Roofecture B, a market for local agricultural products. His strong ideas work well on a relatively modest scale, but it will be interesting to see what happens with larger

projects. Still focused on the notion of continuous space, he has begun experimenting with different materials and more complex programs. Most of his work to date has been in and around the Kansai region, but we can expect Endo to play on a bigger field. ■



**Cyclestation M, completed in 1994, offers parking for 300 bicycles near a small town's railway station.**





Springtecture H  
Shingu-cho, Hyogo,  
Japan

This park structure of 1998 is a loosely furled spiral of corrugated sheet steel, partly submerged in the earth. Initially, it appears as an abstract sculpture—a great, expressive earthwork—but it actually shelters public toilets within its serpentine twists. Often merging exterior with interior space, it has glass or masonry partitions where privacy or security demands the greatest degree of enclosure.



Roofecture K  
Nishinomiya, Hyogo,  
Japan

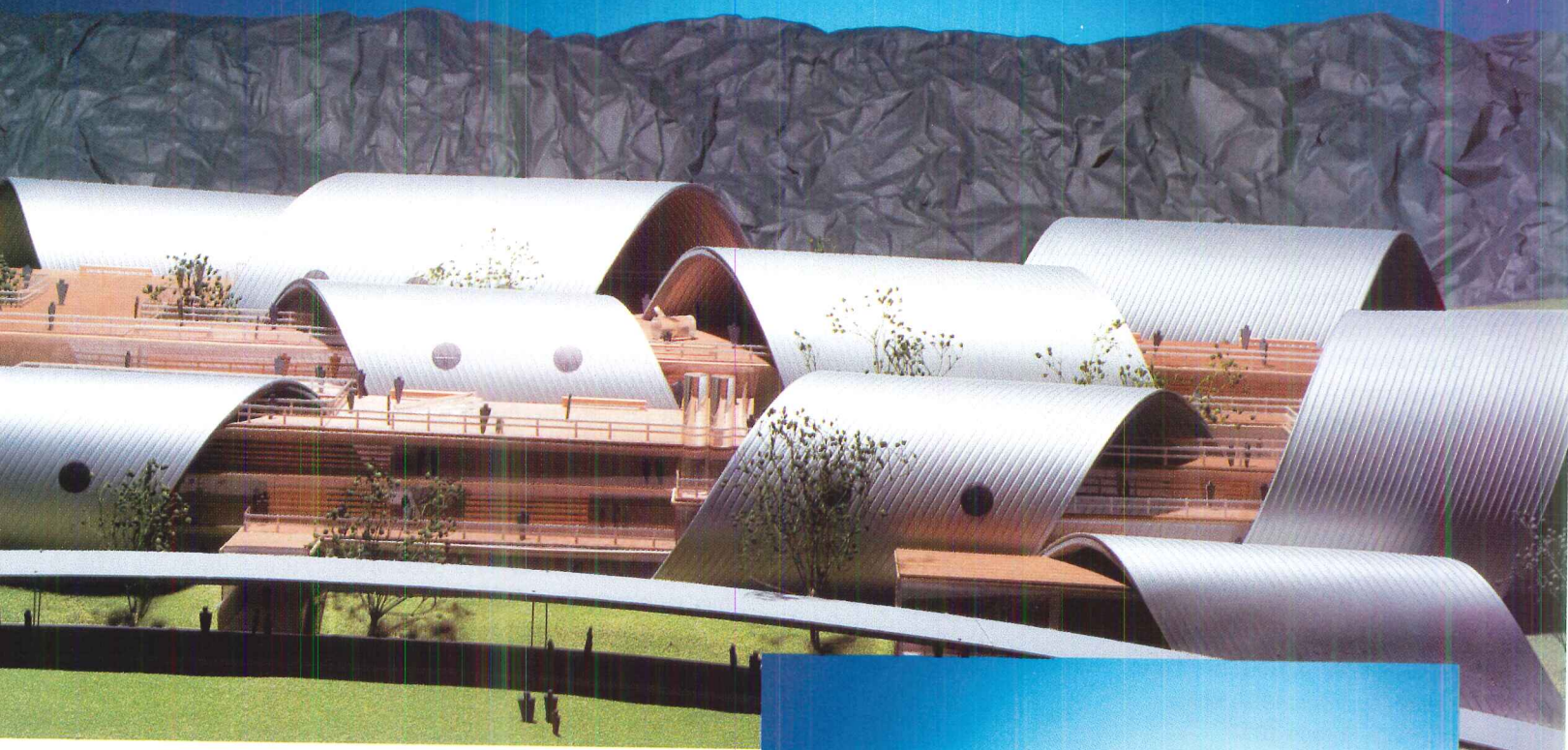
This three-story office building for a construction company stands on a busy urban site in Nishinomiya, near Osaka. Composed of four interlocking elements of curved steel with expanses of glazing, the building has four distinct elevations. Responsive to site conditions and programmatic needs, the facades vary markedly in openness. The ground level houses a stockyard with parking space beneath a second-floor office area and top-floor meeting and president's rooms.



Roofecture B  
Biwa-cho, Hyogo,  
Japan

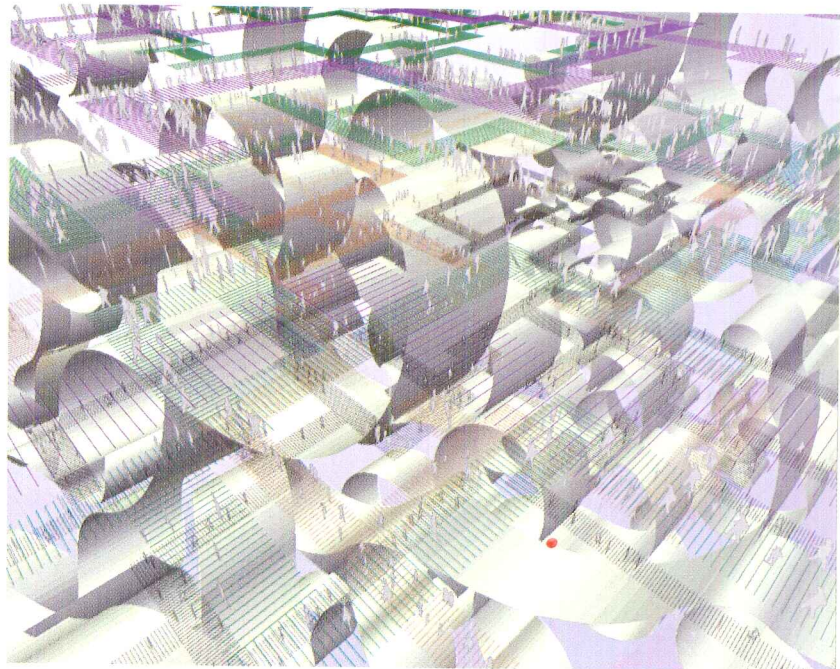
This market—featuring warehouses, shops, and processing areas for local agricultural products—lies on a flat landscape near a lake. The three low-slung buildings were sited to accommodate independent but cooperative functions. Varying degrees of openness and enclosure allow for communication between the buildings and fusion between indoor and outdoor space.





## Springecture A Aomori, Japan

This competition entry for an art museum in northeastern Japan uses repeated forms to generate a versatile and rich architecture. The scheme integrates five continuous, winding plates of corrugated steel with a series of horizontal walkways. The coiled ribbons of steel have the apparent potential energy of springs, but this tension is balanced by the geometry's calm consistency. The rolling steel forms also engage in a dialogue with the mountain range behind them. In the complex's fluid interplay of space, indoor and outdoor areas become equally important.





## Hernán Díaz Alonso seeks a balance between technology and romanticism

By Ingrid Whitehead

**Architect:** Xefirotarch

**Location:** Los Angeles

**Date founded:** 1999

**Design staff:** 4

**Principal:** Hernán Díaz Alonso

**Education:** Universidad Nacional de Rosario, Argentina, degree in architecture, 1995; Columbia University, M. Arch., 1999

**Work history:** Enric Miralles Architects, 1996; Eisenman Architects, 2000–2001

**Key completed projects:** SPY Store, Rosario, Argentina, 1997; Munoz Bookstore, Rosario, 1997; Happening Cigars store, Rosario, 1998

**Key current projects:** ETNADE School, Rosario, Argentina; Metro Plaza, Lexington, Ky.

**Web site:**

[www.xefirotarch.com/Movie1.swf](http://www.xefirotarch.com/Movie1.swf)

**B**old statements turn up often when architect and educator Hernán Díaz Alonso works on his designs, teaches at SCI-Arc, or engages in conversation. “Something is wrong with architecture,” he says. “It’s not relevant.” When this passionate remark gets attention, he explains, “architecture is nobody’s first priority, and it is not necessary to define a lifestyle.”

But while the Argentinian-born Díaz Alonso says he accepts the irrelevance of his chosen profession with the general public, he also believes strongly in the cultural importance of architecture and strives to make his work “matter” on a cultural level. He uses the words of his former employer, Peter Eisenman, to explain: “Architects should give the people what they would want, if only they knew what it was they wanted.”

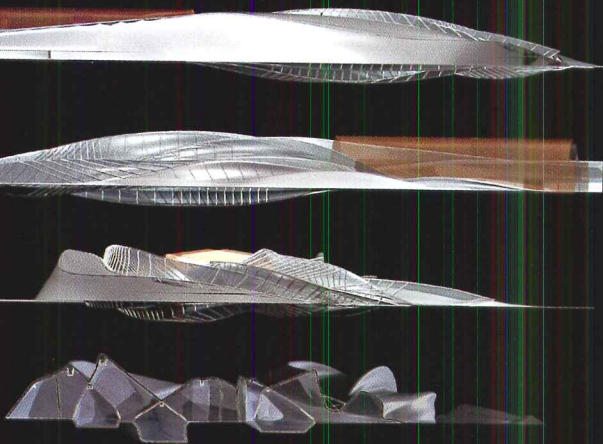
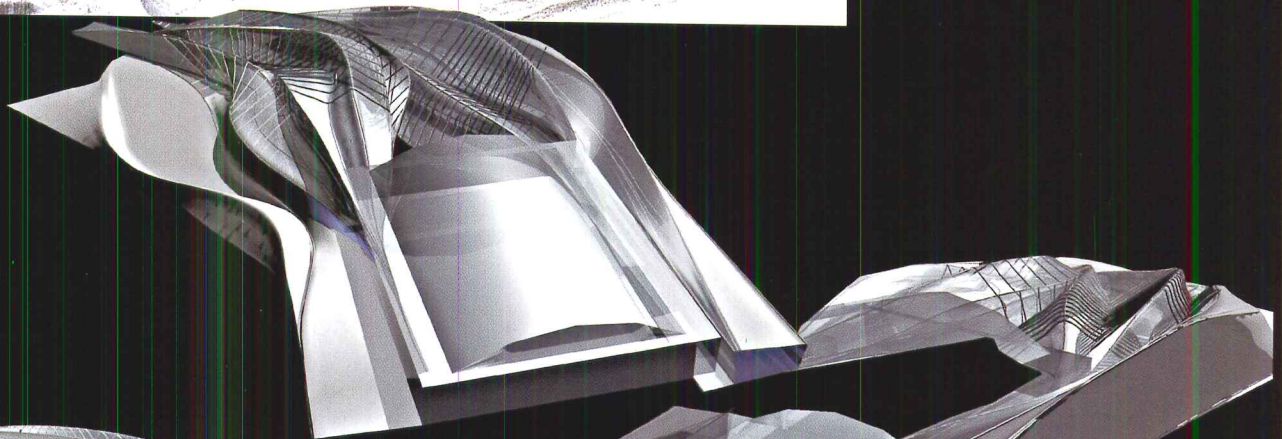
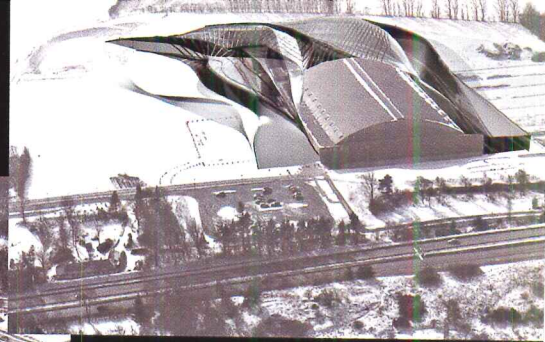
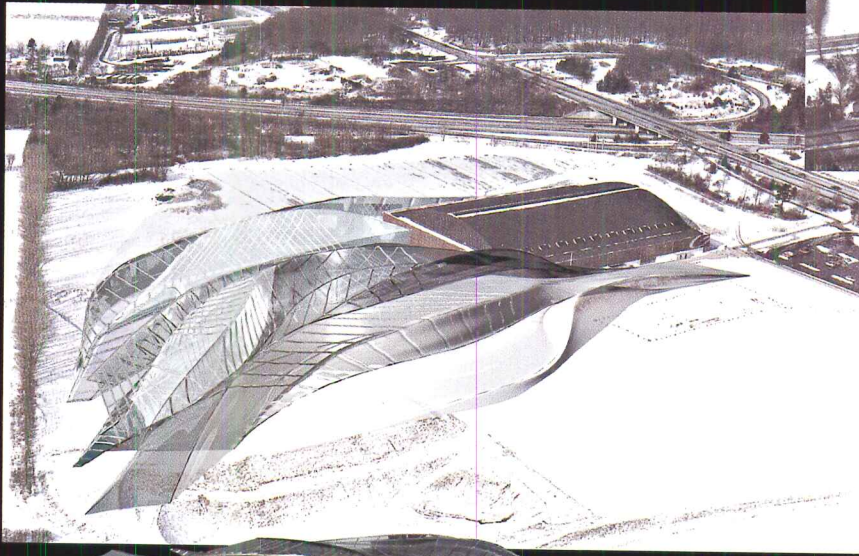
Díaz Alonso also worked for the late Enric Miralles, and, armed with the experience of working with two prominent architects, he began Xefirotarch (a name he claims has no significance except that it’s neither an English nor a Spanish word) in Los Angeles in 1999. Adamant in his regard for Eisenman and Miralles, he states, “Enric is my hero, and Peter is the most important cultural figure in the U.S.”

For Díaz Alonso, it was Miralles who gave him the design methodology that has shaped his work. Like Miralles, Díaz Alonso thinks of each new project as a continuation of the last; he sees his work as one, ever-evolving project. “Enric blurred theory and practice for me,” he says. “He was the person who taught me that a vase of flowers can become a stadium, if you just understand how.” Evidence of this methodology appears in the designs shown on the following pages. One could imagine, for example, how the Aqua Center in Denmark, with its overlapping pools and multiple planes, could morph into the Queens Museum’s flexible, circus-tentlike pods. In his designs, Díaz Alonso wants to attain static expressions of dynamic processes in a structure, not just isolated, singular moments. Computer-driven and based on form rather than materials, his work is not about finding final solutions, but rather it is concerned with flow and change and intuition, and finding the balance between the romantic view of architecture and technology. “My design is about exploring arbitrary ideas. Intuition is arbitrary, while inspiration is random. My work is based on intuition, not inspiration.”

Intuition is also what he asks his students to look for when creating their own work. He says that because he teaches master’s classes, he has more freedom to explore intellectual approaches in the studio with students. “It’s a laboratory of ideas, really,” he says. “I learn with the students, because I don’t teach what I’ve already done, I teach what I’m trying to do.”

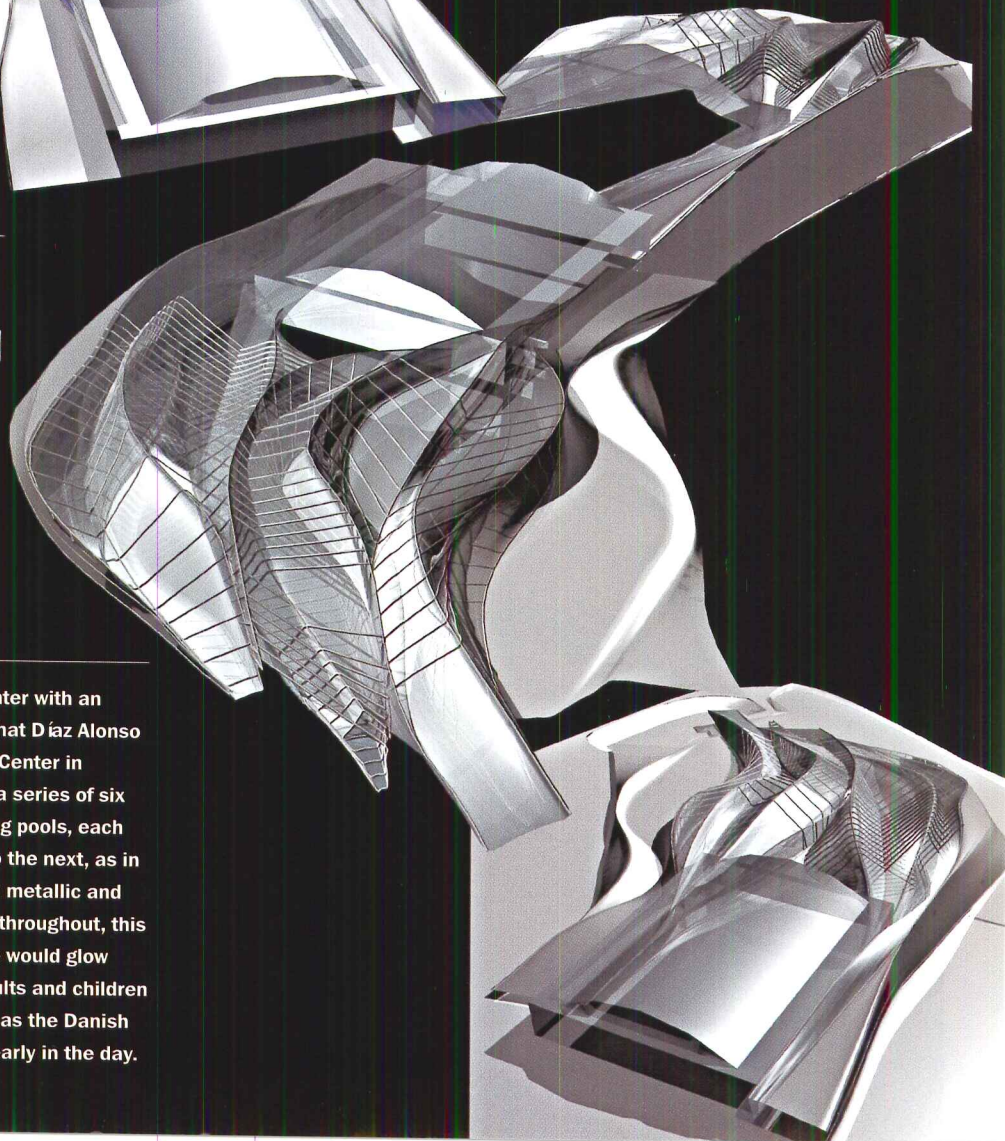
One thing Díaz Alonso is trying to do is bring good design to a greater audience, which is why he competes for public spaces, such as the Queens Museum or Lexington Plaza in Kentucky. His competition-winning design for Lexington will insert some controlled wilderness into a central city plaza. Yet despite attempting to reach a wider public, he still wants to do it his way, which may not always mean staying within accepted boundaries.

“The process of architecture has to be corrupt,” he says. “I really believe you have to break the rules to produce the best work.” ■



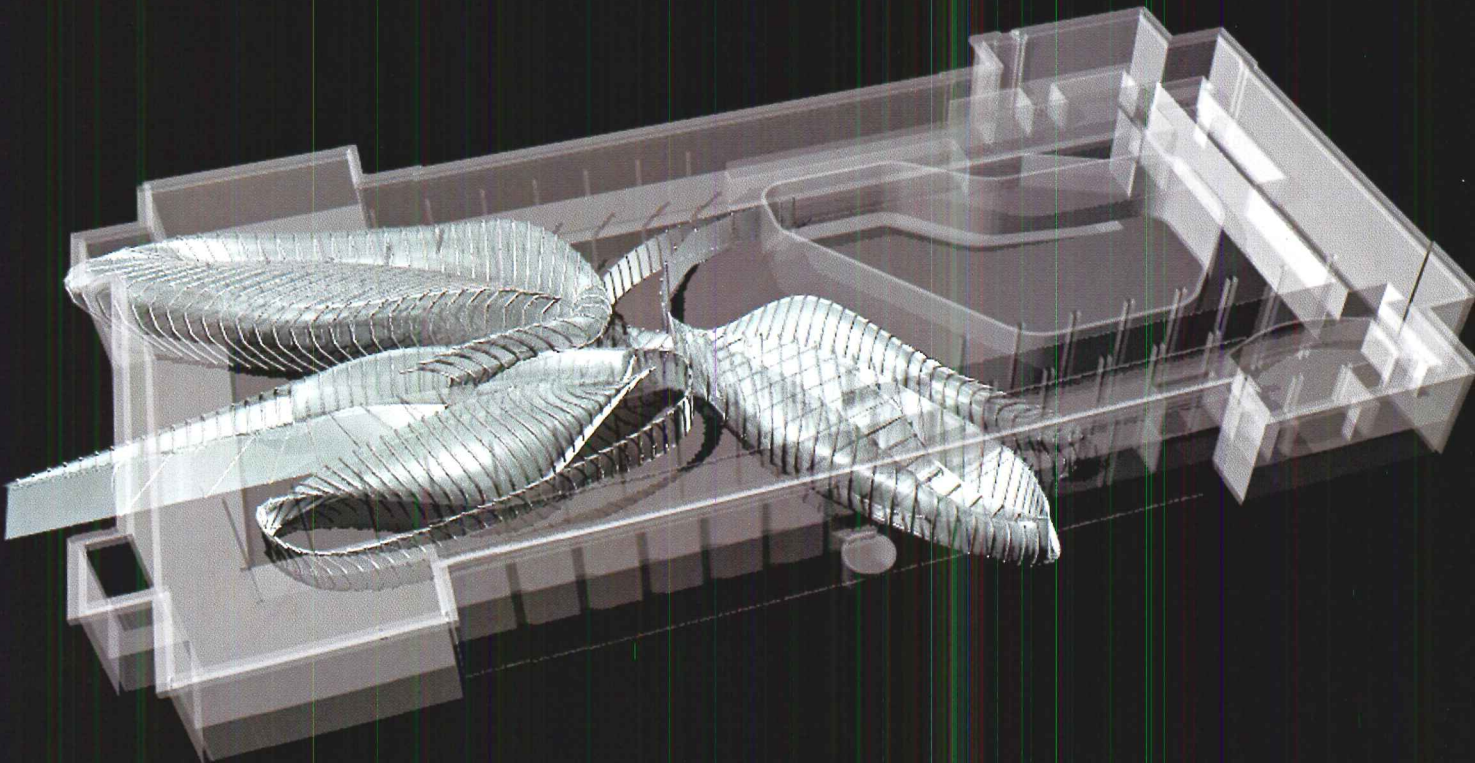
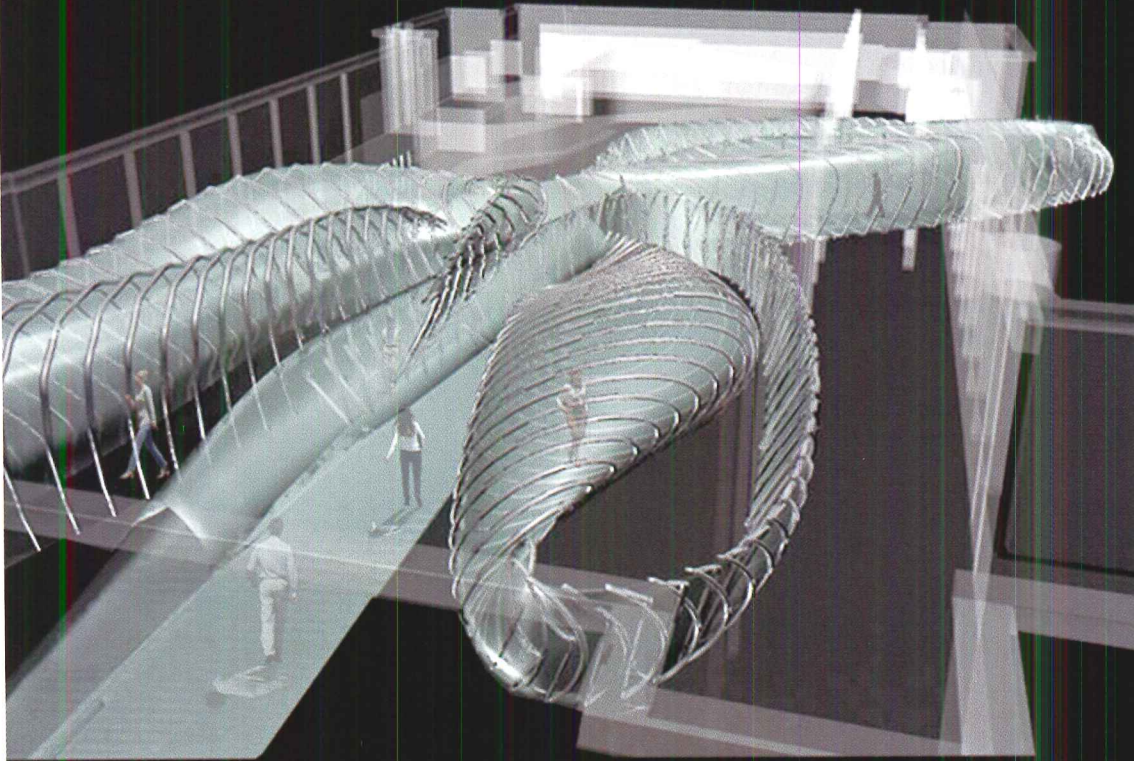
Aqua Center  
Aalborg, Denmark

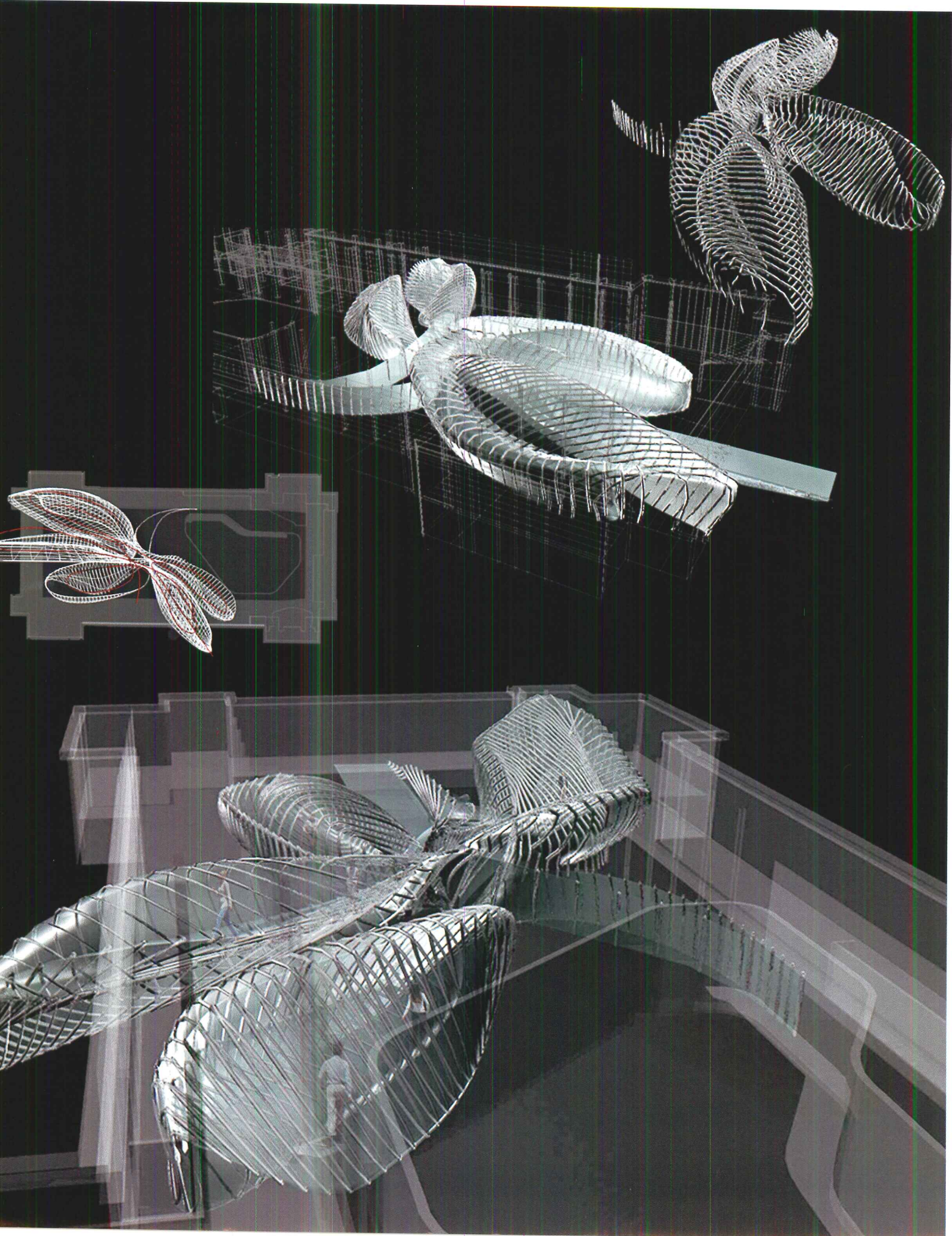
An indoor recreation center with an outdoor experience is what Díaz Alonso envisioned for the Aqua Center in Denmark. Consisting of a series of six interconnected swimming pools, each pool appears to flow into the next, as in a mountain stream. With metallic and fiberglasslike materials throughout, this translucent public space would glow from afar, beckoning adults and children to come and swim, even as the Danish darkness begins to fall early in the day.



## Queens Museum of Art Queens, New York

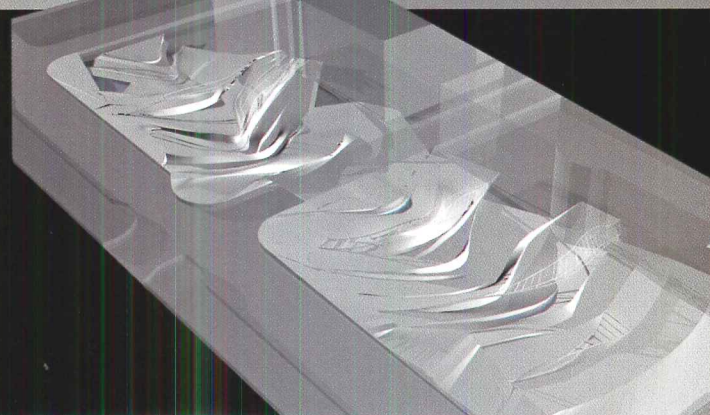
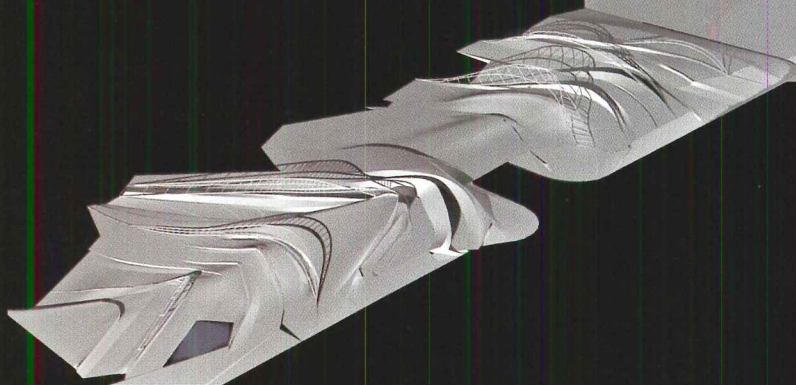
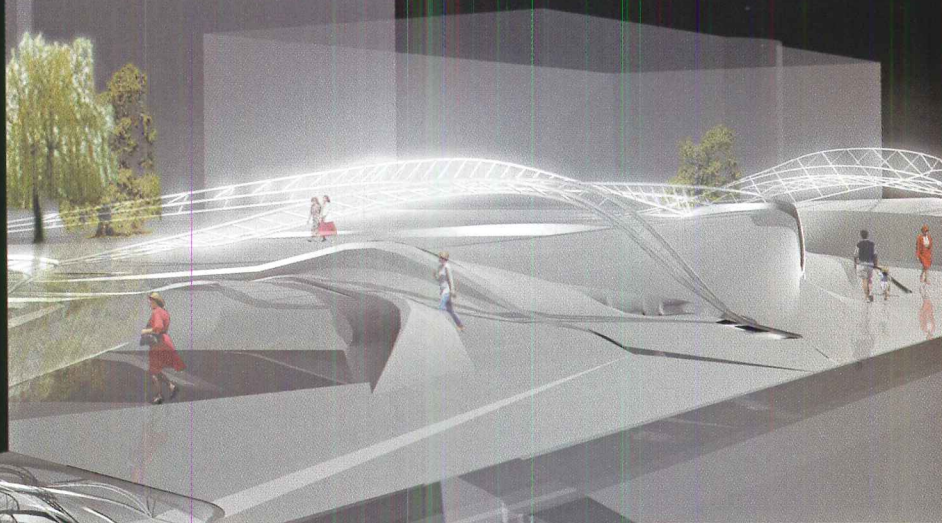
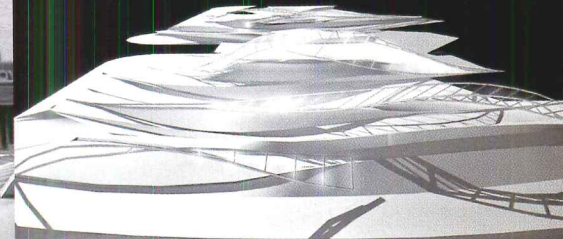
With a call for extreme ideas, the competition for the expansion of the Queens Museum of Art gave Díaz Alonso the opportunity to let his imagination go wild. The architect's priority for the design was not to have the museum be overshadowed by the many hallowed art spaces in New York City. His proposal, done with architects Chen Ho-Tsu and Shan-mei Sun, incorporates a futuristic structure reminiscent of a circus tent, inside an existing building that once housed an ice-skating rink. The scheme is flexible and contradictory—permanent yet temporary, as the tubular metal and fiber-glass panels can be disassembled and reconstructed in different configurations, depending on the installations exhibited within. At press time, the museum had narrowed the competition to a shortlist of five firms, which, unfortunately, did not include Xefirotarch's inventive design.



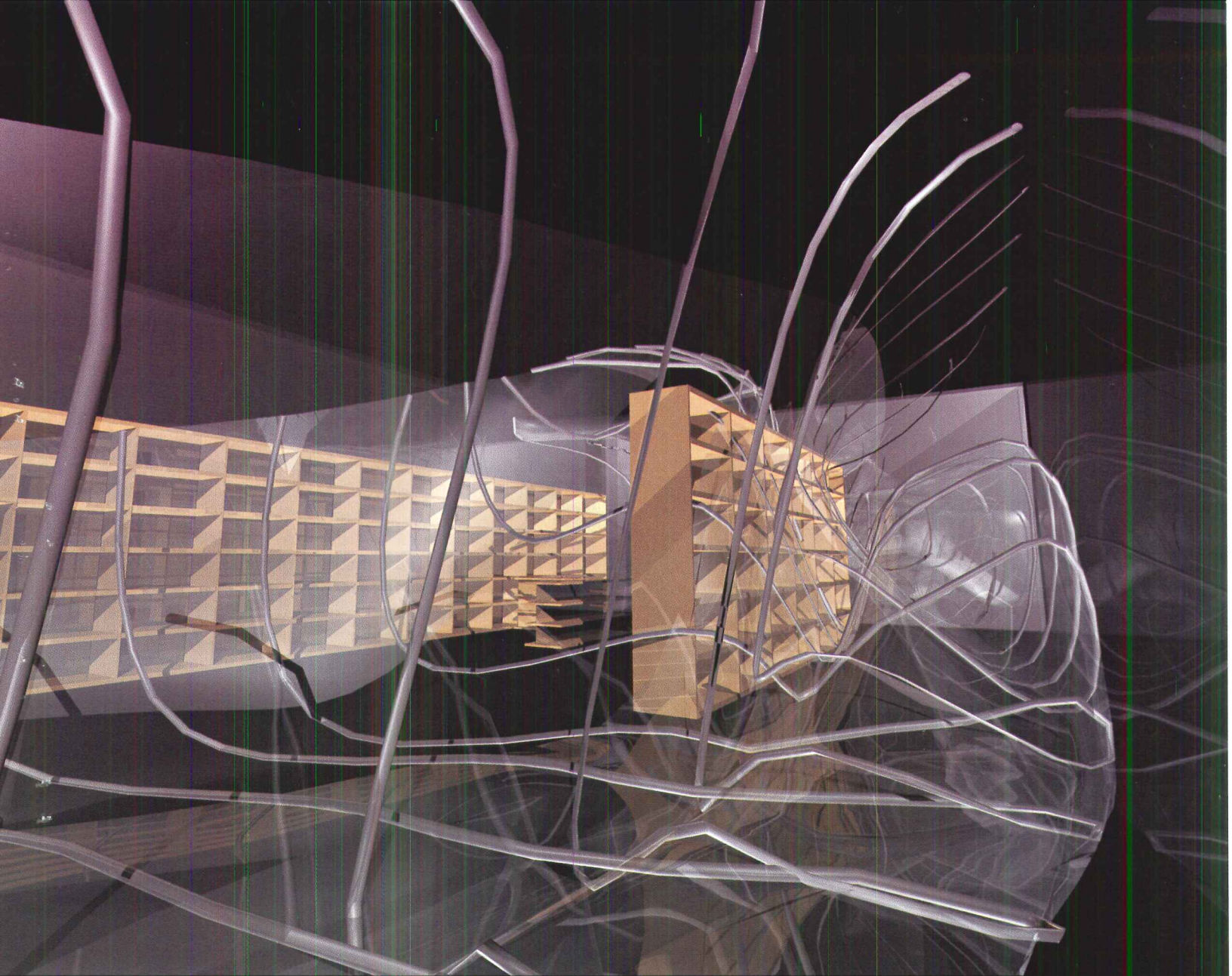


City Plaza  
Lexington, Kentucky

This winning competition entry for a central plaza in Lexington, Kentucky, is envisioned as an out-of-town getaway in the center of the city. The landscape is like a collage of greens, ponds, and fields of flowers. An intricate lighting scheme completes the plaza. Díaz Alonso worked with golf-course designers to bring elements of a manicured landscape in concert with nature, to create a public space that would be dynamic with or without human presence.

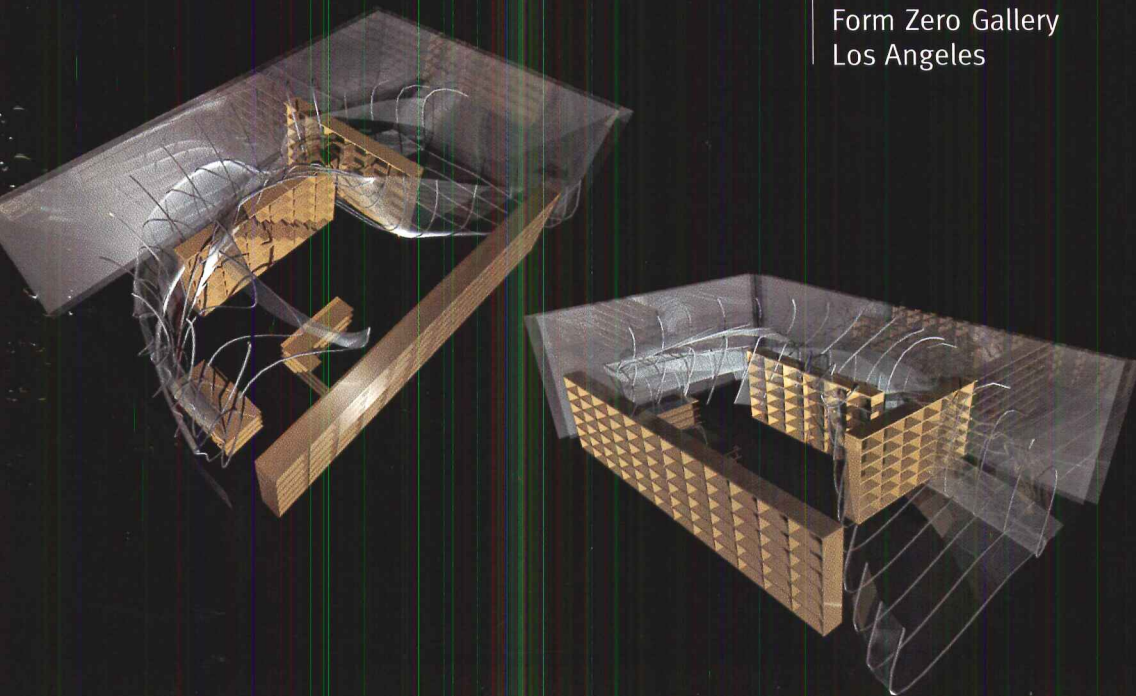






## Form Zero Gallery Los Angeles

The proposed design for the Form Zero Gallery, an architectural bookstore/art gallery, takes art and objects to a new level. Contradictory elements suffuse the space, with criss-crossing metal tubes twisting around traditional wooden shelves containing books for sale. Form Zero will host art and architectural exhibits that change every two months.





## Richärd & Bauer Architecture transforms pieces of Arizona's desert sprawlscape

By Suzanne Stephens

**Architect:** Richärd & Bauer  
Architecture

**Location:** Phoenix, Arizona

**Date founded:** 1996

**Design staff:** 8

**Partners (left to right):** Kelly Bauer, IIDA; Stephen Kennedy, AIA; James Richärd, AIA

**Education:** Richärd: University of Arizona, B.Arch., 1985; Bauer, University of Arizona, B.A., 1982; Kennedy, University of Arizona, B.Arch., 1986

**Work history (all principals):** Anderson DeBartolo Pan, Tucson and Phoenix, 1985–94; Smith Hinchman & Grylls, Phoenix, 1994–95

**Key completed projects:** Mesquite Branch Public Library, Phoenix, 1998; Glendale Community College, Glendale, Arizona: Physical Sciences Building, 1999, Mathematics Classroom, 1999, Faculty Office Building, 1999, Library Media Center, 2000; Academic Technology Building, University of Arizona, Sierra Vista, Arizona, 2001

**Key current projects:** Glendale Community College, Glendale: Student Services Building, Fine Arts Building; Meinel Optical Sciences Research Laboratory, University of Arizona, Tucson; Quincie Douglas Library and pedestrian bridge, Tucson; Wilson Residence, Scottsdale, Arizona; Dillon Residence, Phoenix; Synhorst Residence, Phoenix; Carline Howard Residence, Phoenix

**Web site:** www.richard-bauer.com

It may seem odd that James Richärd, AIA, and Kelly Bauer have never worked for Will Bruder. Why? Because Bruder and talented architects spawned by his office, such as Wendell Burnette and Rick Joy, have turned southern Arizona into a hotbed of design. Bruder's modernist sensibility, which enriches taut, flat planes and shifting geometries with rugged, tough materials, can be seen as emblematic of the newer generation's affinities. It is a sensibility that is also evident in the work of Richärd & Bauer, a five-year-old firm that includes a third partner, Stephen Kennedy, AIA. All three principals met in the Tucson office of Anderson DeBartolo Pan and later worked in the Phoenix office of Smith Hinchman & Grylls. Both firms are known for large-scale commercial and institutional work. Not very Bruder-like.

Ironically, Richärd & Bauer's first project was to expand and renovate a library designed by Bruder in 1985. The Mesquite Branch Public Library, completed in 1998, keys off the original concrete structure, using a light steel and tilt-up concrete construction to extend the building from a new south-facing entrance. The design drew the interest of public-sector clients, as did its reasonable cost. "Ninety percent of our work is for low-bid public projects," explains Richärd. "We look for affordable materials with intrinsic beauty—such as tilt-up concrete left in its raw state—which still express the building's tectonics."

The firm feels that part of its competitive edge in attracting public work comes from the makeup of its practice, in which each principal brings a different set of skills to the project. While Richärd and Bauer both work on programming and space planning, Bauer, an interior designer, plays another significant role. "I make sure everything—lighting, furniture—fits with the big idea that Jim has set up," she explains. Meanwhile, Kennedy is in charge of production, including documentation, coordination of engineers, and construction supervision. "This level of differentiation," notes Richärd, "is more typical of large offices."

The firm has a number of projects on the boards, including an extensive renovation and expansion of Glendale Community College, an architecturally unappetizing campus built in the mid-1960s on the west side of Phoenix. In 1999 the firm completed a new 33,800-square-foot physical sciences building there, and spiffed up an old one for a mathematics building, as well as adding a faculty office facility. More recently, it finished renovating the 42,000-square-foot library/media center and is currently working on a 17,000-square-foot student services complex, comprised of both old and new components, plus renovating a 16,000-square-foot building for fine arts.

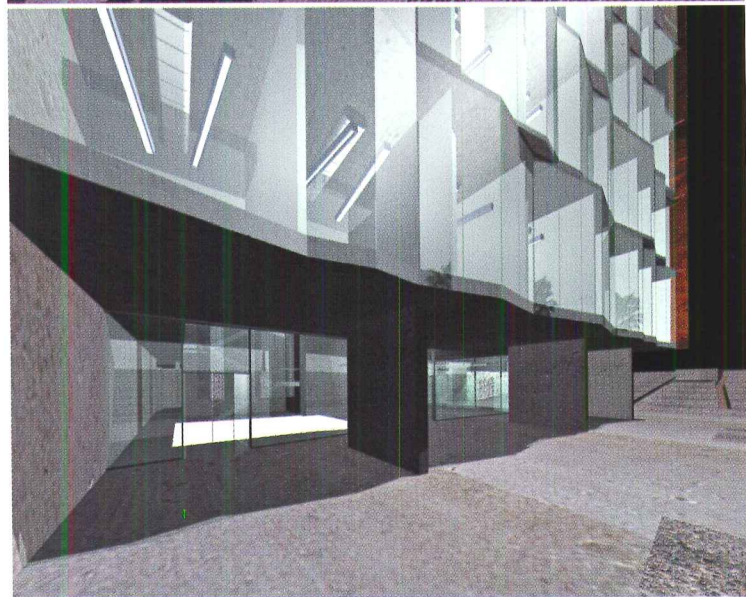
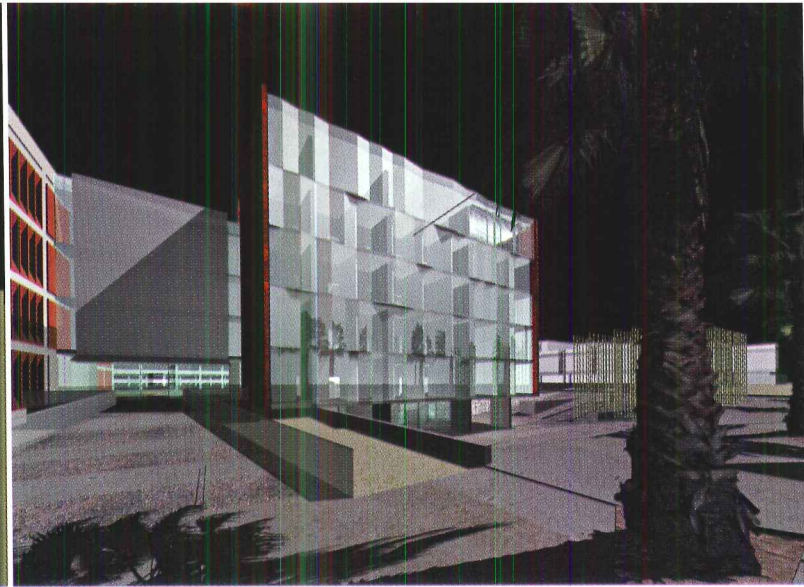
"Our major effort has been to get natural light into all the spaces," says Richärd about the Glendale work. The manipulation of light and shadow plays a dominant role in the firm's work. But design responses to a bright sun, desert vegetation, and mountains are not the only elements of the Arizona environment that interest the firm. James Richärd talks about its desire to take on the nondescript areas of the sprawling sunbelt cities of Arizona. "We want to reclaim the parking lots and import themes from desert architecture back to the 'disturbed sites.'" So far, as their low-scale work indicates, they are making a worthwhile dent in this often unremarkable suburban landscape. ■



### Mesquite Branch Public Library, Phoenix

This renovation and expansion of an existing 10,000-square-foot building originally designed by Will Bruder was Richârd & Bauer's first commission, in 1996. The total project is now 18,000 square feet. The new spaces of tilt-slab concrete construction and light steel fan out from the existing rectilinear structure. Exposed trusswork allows for a column-free interior with a sense of openness.



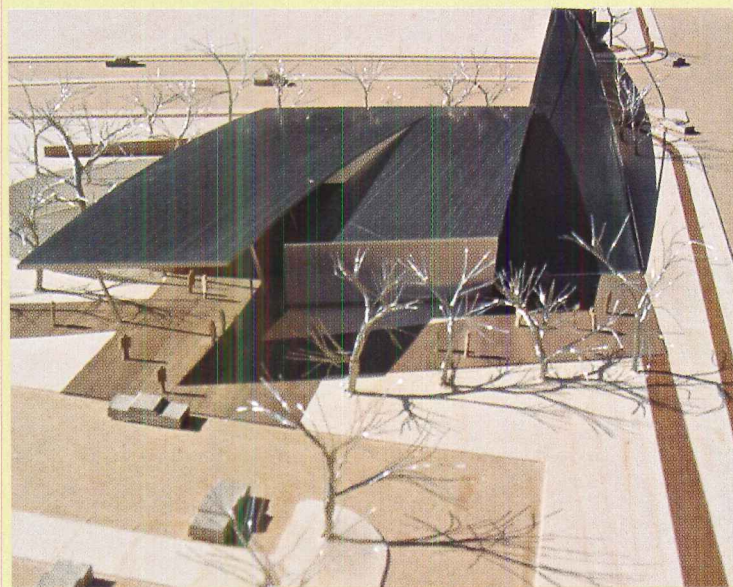
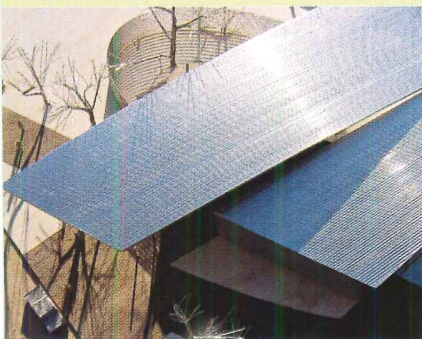


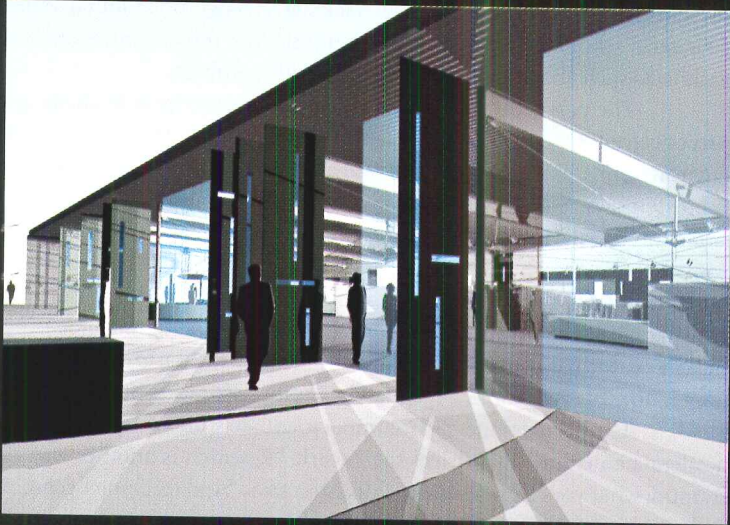
**Meinel Optical  
Sciences Research,  
U. of Arizona, Tucson**

In creating a 47,000-square-foot plant for an optical science research laboratory, Richârd & Bauer brought extra daylight into the core of the five-story building by cutting three vertical shafts into the flat-slab concrete structure, which is enclosed on all sides by a screen of treated copper panels. The facade, oriented to the north, is surfaced in butt-jointed transparent and translucent glass.

**Quincie Douglas  
Library and Pedestrian  
Bridge, Tucson**

Richârd & Bauer combined a 10,000-square-foot library and 400-foot-long pedestrian bridge over a six-lane road, in a scheme that is planned to begin construction in early 2002. The zinc-coated-steel roofs of the library and the bridge are supported by a poured-in-place-concrete and steel column structure. Located in a low-income area, the design is geared to make it easy for the children living in a residential section on one side of the highway to walk to a park and the library on the other side.





### Student Services, Glendale Community College, Phoenix

The firm's fourth project for Glendale Community College, on the west side of Phoenix, comprises three renovated buildings and a new one. The existing structure is predominantly poured-in-place concrete with terra-cotta masonry, while the addition uses tilt-slab construction. The 17,000-square-foot complex houses enrollment, financial aid, and related services for the 22,000 students. Large pivoting doors of perforated metal give access to a courtyard, defined by concentric rings of low concrete walls.





## SYSTEMarchitects navigates the intersections of nature, cities, and architectural form

By William Weathersby, Jr.

**Architect:** SYSTEMarchitects

**Location:** New York City

**Date founded:** 1997

**Design staff:** 3–6

**Partners:** Jeremy Edmiston and Douglas Gauthier

**Education:** Edmiston: University of Sydney, B. Arch., 1989; Columbia University, M. Arch., 1992; Gauthier: University of Notre Dame, Bachelor of Art History and Architecture, 1985; Columbia University, M. Arch., 1992

**Work history:** Edmiston: Harry Seidler & Associates Architects, 1983–91; Bernard Tschumi Architects, 1992; Emilio Ambasz & Associates, 1994–97; Gauthier: Holt Hinshaw Pfau Jones, 1986–90; Bernard Tschumi Architects, 1992–93; Holt Hinshaw Jones, 1994

**Key completed projects:**

Kindergarten and Youth Center, West Berlin, Germany, 1997–98; Sleep Center 8, Astoria, N.Y., 1998; Fish Residence, New York City, 1999; Rankin Residence, New York City, 1999; “Second Nature” installation, The Architectural League of New York, New York City, 2000; Carrier Sofa prototype, 2000; Fulcrum Stair, New York City, 2001

**Key current projects:** Parish House, New Haven, Australia; Feeley/Zimmerman House, Prague, Hungary; Housing development, Bugon Valley, Australia

**Web site:** [www.systemarchitects.net](http://www.systemarchitects.net)

The four-year-old New York City partnership of Jeremy Edmiston and Douglas Gauthier, SYSTEMarchitects, projects a shared sensibility, an architectural yin and yang. The architects’ published texts, speculative project proposals, and built works balance thorough research and programmatic improvisation, intellectual depth and aesthetic precision. In *Second Nature*, an exhibition at the Architectural League of New York last year, the partners offered a manifesto whose gravity was defused by its first statement, a one-liner borrowed from Woody Allen: “I’ve never felt at one with nature—I am at two with nature.” Likewise, although the architects are seasoned academics—former Fulbright scholars now both teaching at the City College of New York and Columbia University—their work is not circumscribed by theory alone. They spent years tackling a range of building types (theaters, schools, housing) while working on three continents for architects such as Bernard Tschumi and Emilio Ambasz.

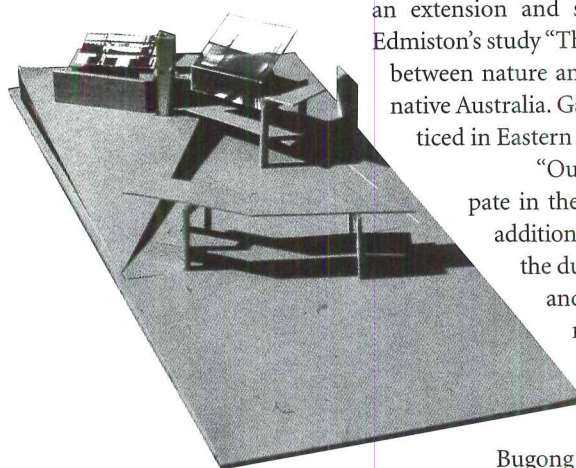
The partners say a central goal of their practice is to challenge preconceived typologies and organizational systems within the built environment. “Take the romanticized notion of nature, for example,” Edmiston says. (That’s where Woody’s punchline comes in.) “The opposition of the natural world and the urban landscape is a manmade construct—even Central Park is a synthetic environment.” Adds Gauthier: “Architecture is about creating a dialogue between inside and outside. Our work investigates enclosures and infrastructure, rather than focusing heavily on formal composition. We examine how the parts of a building plug in to a layered whole, engaging the multiple contexts of a site.”

The partners met as Columbia graduate students and consider academia an engine that drives their work. “Research is another way of framing what your designs seek,” Edmiston says. “And teaching becomes an extension and sounding board that keeps your ideas moving.” Edmiston’s study “The Green Cyborg” examined the architectural overlap between nature and technology, citing aboriginal structures from his native Australia. Gauthier, meanwhile, has studied Modernism as practiced in Eastern bloc countries during the Cold War.

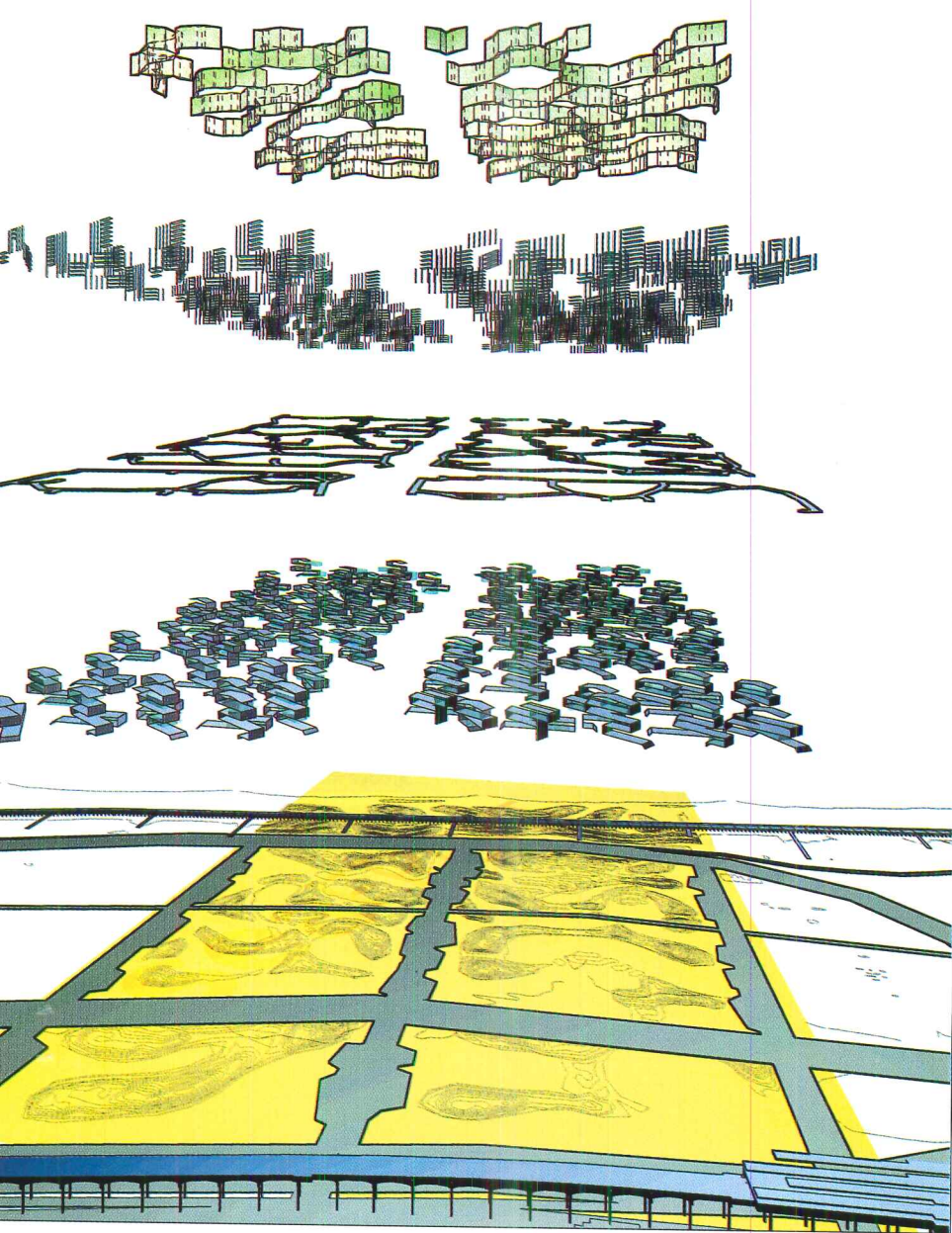
“Our practice affords a platform from which to participate in the broader culture of architecture,” Gauthier says. In addition to a roster of residential lofts in downtown New York, the duo has completed workspaces for a software company and a sleep-disorder clinic, collaborated on large-scale master plans for waterfront redevelopment projects in the U.S. and France, and designed houses on Shelter Island, New York, and in Sydney. They currently are analyzing 70 acres in Australia’s remote

Bugong Valley, where they will build three houses.

The partners embrace digital media full-tilt. Inspired by the graphics of skateboard culture and Japanese comic books, they manipulate pixels and vectors to advance a signature style of architectural rendering rich in color and detail. The firm’s Web site is its own virtual world; animated graphics, multiple perspectives, and a vortex of words and pictures reveal the many levels of thought at work—and at play. ■

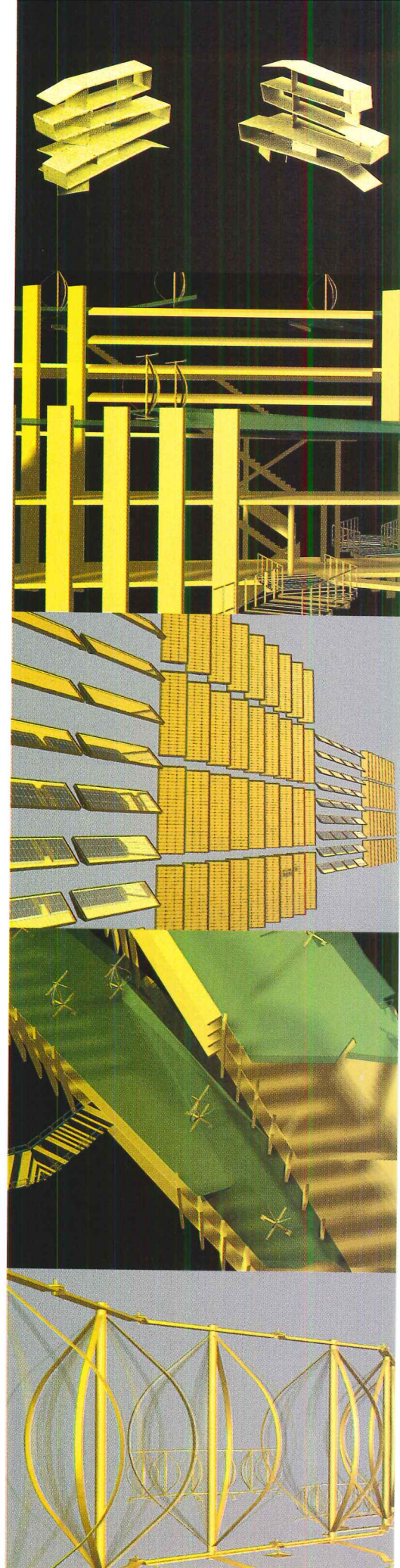


A model for a Shelter Island, N.Y., house combines live/work space.



Seafront  
Far Rockaway,  
New York

Designed with Michael Sorkin and SHoP Architects, a proposed master plan for a residential development focuses on the functional relationship between housing and the urban landscape, rather than on typical multihousing forms. Ecologically sensitive elements, including arbors, bridges, wind machines, and photo-voltaic cells create an infrastructure that weds urban and natural terrain.





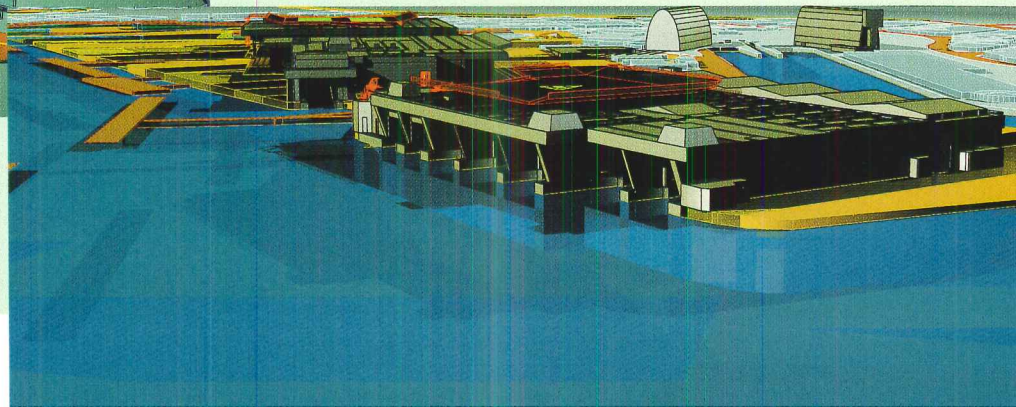
### Day Care/Youth Center West Berlin, Germany

With architects Frank Barkow and Regine Leibinger, Gauthier designed two buildings to house a day care/kindergarten and an activities center for older children. The kindergarten is a concrete-framed building, while the youth center is wood framed. The north facades of both structures feature tongue-and-groove larch siding. Some roofs are planted with indigenous grasses; others are clad in standing-seam aluminum.



### Lorient Redevelopment Normandy, France

Reprogramming a military submarine base in France—a relic of World War II—for mixed commercial use has engaged Edmiston and Gauthier's exploration of architectural meaning on many levels: political, technological, historical, ecological, and economic. "These installations are laden with meaning; they are our ruins, the Easter Islands of the Nuclear Age," says Gauthier. By removing existing support and peripheral structures, the architects have made the bunkers an active focus of civilian life along the waterfront.





Lot 49 Apartments  
New York City

In this unbuilt project, a dilapidated tenement in the East Village was renovated into a live/work cooperative. The plan extends the building to the south and adds a fifth floor, with a mezzanine along the facade to enhance the continuity of the street edge. A new western wall wraps around to the south, while perforated enclosures overlook the rear garden. A grid infilled with a variety of glass defines the southern elevation.





## Escher GuneWardena find the essence in both new work and iconic restoration

By Sarah Amelar

**Architect:** Escher GuneWardena  
Architecture

**Location:** Los Angeles

**Date founded:** 1995

**Design staff:** 5

**Principals:** Frank Escher and Ravi  
GuneWardena

**Education:** Escher: Federal Institute  
of Technology (ETH), Zurich, Diploma  
in Architecture, 1987; GuneWardena:  
California State Polytechnic  
University, Pomona, B. Arch., 1984

**Work history:** Escher: Meyer & Allen  
Associates, Architects, Los Angeles,  
1989–91; Escher Design and  
Planning, Los Angeles, 1991–94;  
Escher & Olgiate, Los Angeles,  
1994–95; GuneWardena: Craig  
Combs Associates, Newport Beach,  
Calif., 1984–87; David Jay Flood  
Architects, Santa Monica, Calif.,  
1987–93

**Key completed projects:** Electric  
Sun I, Los Angeles, 1997; Hillside  
Residence, Los Angeles, 1999;  
Jamie Residence, Pasadena, Calif.,  
2000; Chemosphere Restoration  
Phase I, Los Angeles, 2000; Electric  
Sun II, Los Angeles, 2000; Sharon  
Lockhart Installation, Museum of  
Contemporary Art, Chicago, 2001;  
Electric Sun III, Los Angeles, 2001;  
Fernando Residence, Nanaimo,  
British Columbia, 2001

**Key current projects:** Zugsmith  
Residence, Sherman Oaks, Calif.,  
2002.; Sola Residence, Los Angeles,  
2002; Pho Café, Los Angeles, 2002;  
Richard Neutra House addition, Los  
Angeles, 2002

It's a bit like playing ping pong," says architect Frank Escher of the creative back and forth he and his partner, Ravi GuneWardena, strike up when generating their designs. Intrigued by the subtleties of spatial perception, movement through built settings, and play of light, both architects favor pure forms akin to Minimalist sculpture of the '70s and '80s—but they arrived at similar architectural interests via contrasting routes.

While Escher grew up in Switzerland, immersed in what he describes as "controlling and logical perfectionism," GuneWardena spent his first eight years in Sri Lanka, inspired by an elegantly pared-down Buddhist aesthetic that accepts, even embraces, imperfection. Challenging each other with their differences, the architects share a drive, says Escher, "to discover what's inherent in a project, what's already there."

They made such a discovery while designing three Los Angeles tanning salons: Electric Sun I, II, and III. Here, a serendipitous effect of technology—ultraviolet rays spilling over the tops of tanning booths—generated the projects' central metaphor and aesthetic. At Electric Sun I and II, surreal light plays against a white-on-white landscape of opaque tanning booths on high-gloss floors—a rarefied gallerylike setting, punctuated occasionally by primary colors. In Electric Sun III [September 2001, p. 148], the exploration of luminosity goes further, with glowing, translucent tanning cabins that bear vivid imagery—a bold response to their mini-mall site.

For Jamie House—on a steep Pasadena, California, hillside—the architects once again took aesthetic and conceptual cues from the site and from technological or structural exigencies. The precipitous parcel on which they erected the house was long deemed unbuildable. They responded with a dramatically cantilevered box that hovers above the slope.

Besides projects from scratch, the firm has also taken on ambitious renovations and remodeling of such key Modernist structures as John Lautner's Chemosphere House in Los Angeles (a three-year endeavor completed in 2000) and a house by Richard Neutra (not yet underway).

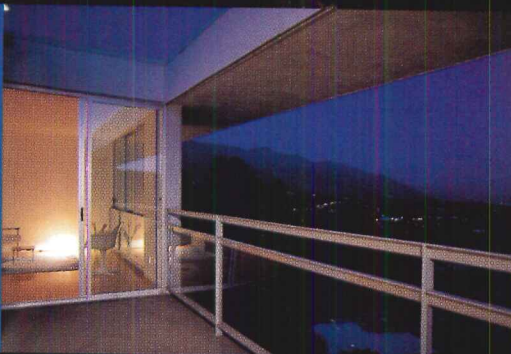
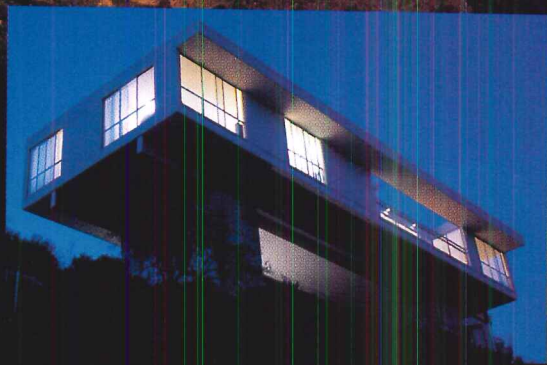
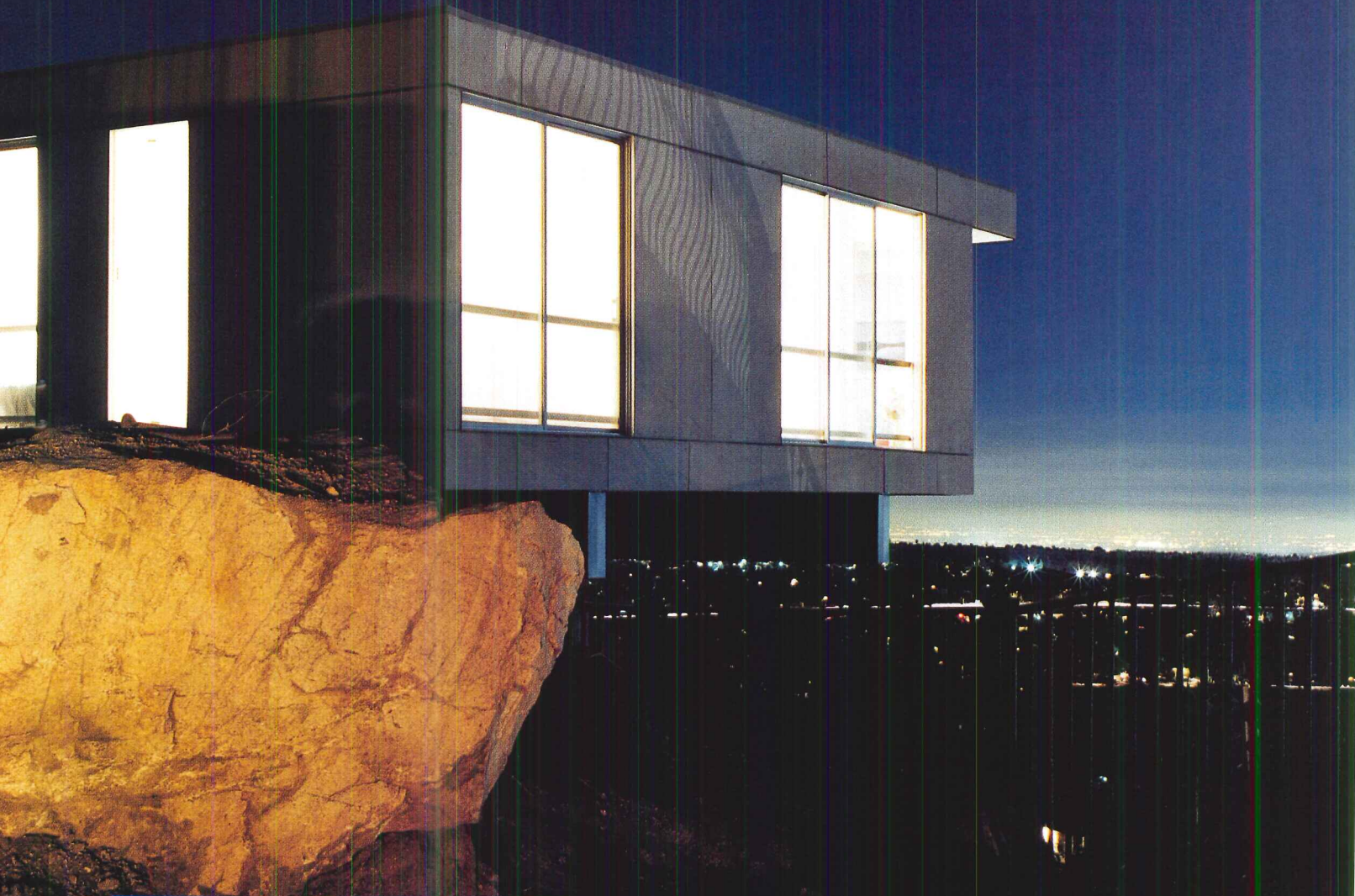
Though Lautner's work does not share the Minimalist vocabulary of Escher GuneWardena's projects, Escher was drawn to it from his early days in Los Angeles in the late '80s. His interest eventually led him to edit a major Lautner monograph, and following the architect's death in 1994, he was appointed administrator of the Lautner Archive.

When asked to renovate the iconic 1960 Chemosphere House, Escher and GuneWardena confronted the perennial questions of how much to preserve and how much to change. Unrestricted by landmark legislation, they sought to analyze the building's intrinsic nature and edit out materials and features—even if original—that seemed to conflict with it. As it turned out, the perceived aberrances had often resulted from limitations in technology or budget at the time of construction. So the architects, for example, replaced conventional windows with frameless butt-jointed glass, eliminating small verticals to give a purer reading of structure and openings. The project won a preservation award from the Los Angeles Conservancy.

"You don't show respect by simply restoring a building to what it first looked like," maintains Escher. "It needs to change with time and use." With this project, as with the firm's own designs, the goal has been, adds GuneWardena, "to bring out the essence, to find what's significant." ■

Jamie House  
Pasadena,  
California

Perched on a steep hillside, Jamie House rises on concrete towers, with two steel beams spanning 84 feet. The living, dining, outdoor deck, kitchen, and family areas (bottom right) form a continuous fluid space along the entire length of the building, providing spectacular, 180-degree views of the Pasadena cityscape. A simple bridge connects the ground plane, high up on the slope, with the entry—a gesture recalling Lautner's Chemosphere House (page 81).



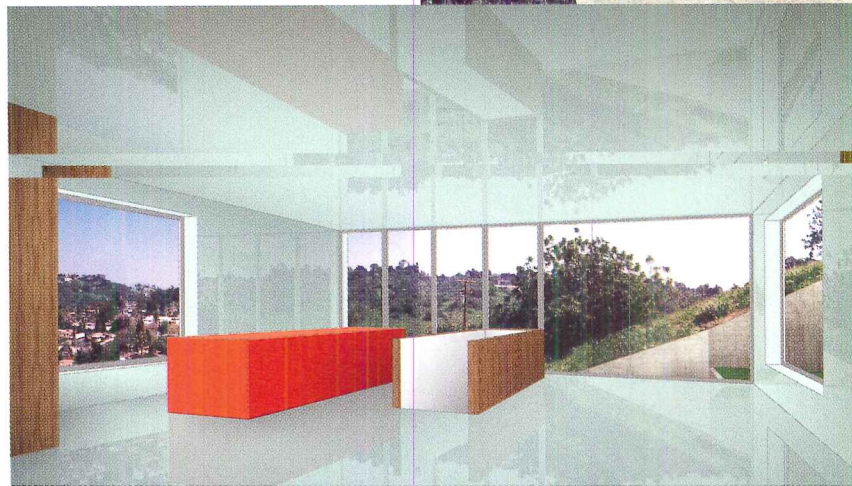
Electric Sun I and II  
Los Angeles

In two tanning salons—Electric Sun I of 1997 (below) and Electric Sun II of 2000 (right)—the architects took advantage of ultraviolet rays emanating from tanning booths. Similar to light sculpture, the luminous source generates atmospheric qualities through its changing patterns. As the sole decoration, the beams play against high-gloss floors and spare, cubelike furnishings. In contrast to typical tanning salons, the mood is serene and the space austere as an art gallery.



Sola Residence  
Los Angeles

Scheduled for construction in 2002, the Sola Residence features three stacked, glass-ended boxes, ascending a Los Angeles hillside. Each volume sits with apparent lightness on a level formed by excavations and concrete retaining walls. On the inside, stairs and utility zones occupy smaller wooden volumes—positioned and shaped to manipulate horizontal movement and the discovery of views.



Chemosphere House  
Renovation/Remodel  
Los Angeles

For German publishers Angelika and Benedict Taschen, the architects extensively restored and remodeled John Lautner's iconic house. They replaced the living area's small, dirty-yellow floor tiles with jagged slate (below), akin to Lautner's original drawings. Reconsidering built-ins, they reconfigured a bedroom to allow for views from the bed (bottom left), and shaped a study in response to the house's overarching form. Phase II, the entry bridge and exterior, is in progress.





## Studio Gang/O'Donnell finds its own niche, after working for OMA and SOM

By John E. Czarnecki, Assoc. AIA

**Architect:** Studio Gang/O'Donnell

**Location:** Chicago

**Date founded:** 1997

**Design staff:** 10

**Partners (left to right):** Kathleen O'Donnell, Mark Schendel, and Jeanne Gang

**Education:** Gang: Harvard GSD, M. Arch. 1993; University of Illinois, B.S., 1986; Schendel: Harvard GSD, M. Arch. II, 1988; Ohio State, M. Arch., 1986, B.S., 1983; O'Donnell: University of Illinois, Chicago, B. Arch., 1980

**Work history:** Gang: OMA/Rem Koolhaas, 1993–95; Booth/Hansen, 1995–96; Schendel: OMA/Rem Koolhaas, 1989–95; Cooper-Carry and Associates, 1996–97; DeStefano + Partners, 1997–98; O'Donnell: Harry Weese, 1978–79; Skidmore, Owings & Merrill (SOM) Chicago, 1980–89 and 1994–96; SOM London, 1989–94

**Key completed projects:** Belden loft interior, Chicago, 1997; Gethsemane Garden Center green house and master plan, Chicago, 1997; Collins house alterations, Chicago, 1998; Bellow House alterations, Chicago, 1998; Lake View High School pavilion structure, Chicago, 1998; Starlight Theatre, Rockford, Ill., 2000; Museum of Contemporary Art *Material Evidence* exhibition installation, Chicago, 2000; IIT open house exhibitions, 1997–2001

**Key current projects:** Two-family house, Chicago, 2002; Chicago Historical Society Collection Center, Chicago, 2002; Chinese American Service League Community Center, Chicago, 2003; TAG, Chicago, 2003; Rock Valley College Arts Instructional Center, Rockford, 2004; Art Institute of Chicago exhibition, Chicago, 2004

A century ago, Chicago was the center of architectural innovation as architects developed, to quote Louis Sullivan, “the tall office building, artistically considered.” As years passed, many Chicago firms grew and became more corporate. These firms had the brawn needed to build the City of Big Shoulders, but their stranglehold on large projects made it a challenge for smaller firms to get work. Today, Chicago client perceptions of the appropriate architect for a building may be changing, and Studio Gang/O'Donnell may be one of the reasons.

A 10-person firm with a diverse range of projects, Studio Gang/O'Donnell has established itself as one of the most creative firms in the city. Partners Jeanne Gang, Mark Schendel, and Kathleen O'Donnell recognized that they could break into the Chicago market when they formed the practice in 1997. Gang and Schendel had recently returned to their midwestern roots after years practicing with OMA/Rem Koolhaas in Rotterdam, and O'Donnell joined them after working for SOM for 16 years. “We had a desire to build at a larger scale, and there just seemed to be more opportunities here in Chicago,” says Gang.

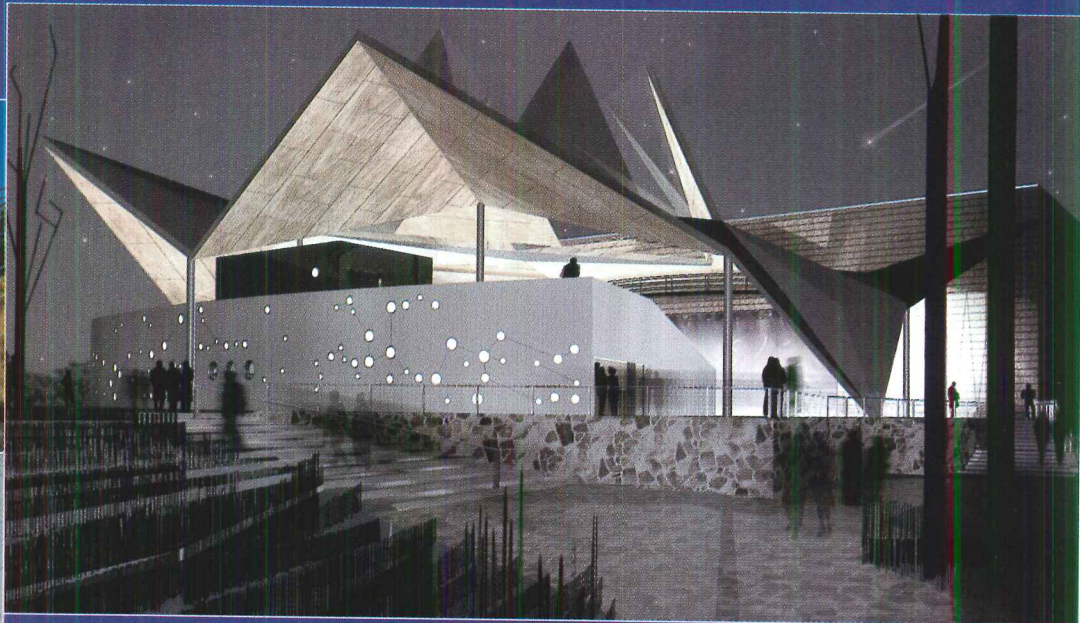
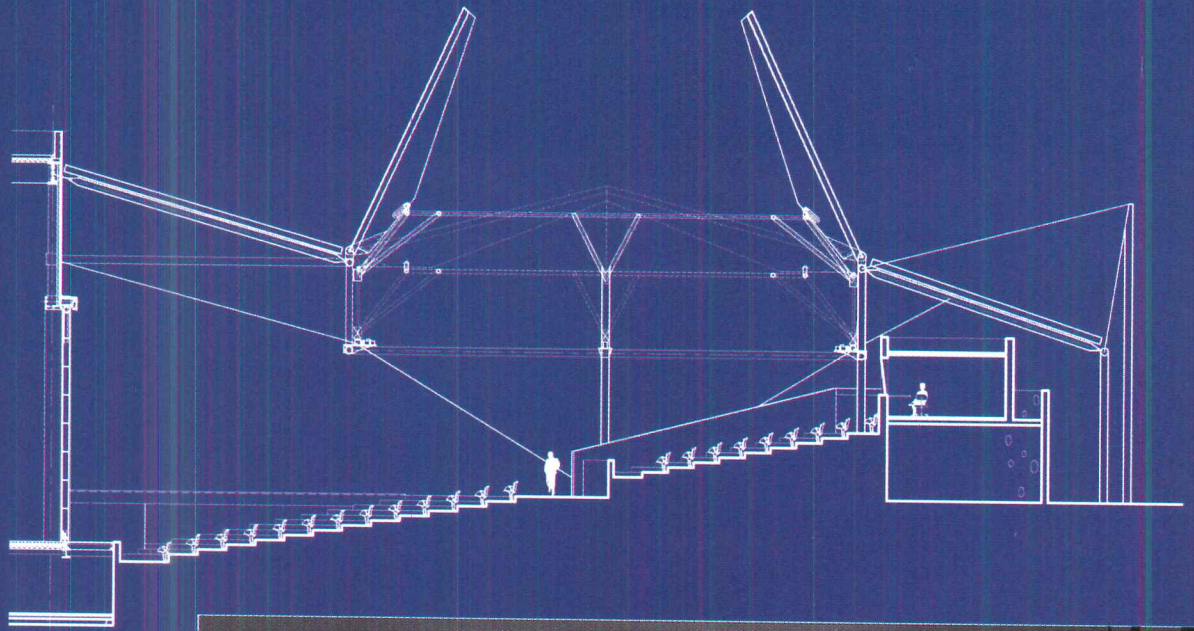
They found clients who were not getting enough attention from tried-and-true older, established firms, and they enlightened those clients that a large firm is not necessary to design a project like a theater. The firm currently has \$50 million worth of work on the boards. “It’s actually been easier than we initially thought to get bigger projects,” says Gang.

Perhaps some of the clients were sold on the firm’s lack of pretensions, as well as its design savvy. Having an office in a nondescript building adjacent to an auto repair shop on the North Side of Chicago seems appropriate—Studio Gang/O'Donnell is serious about its craft and about exploring materiality, experience of place, and movement through spaces. “There is a great urge on our part to create spaces that change over time,” Schendel says. “We’re completely unafraid to let our projects tell us about where the process will go. When we look at the design problem, we see everything we need.”

O'Donnell points to the firm’s efforts to bring engineers and other collaborators into the design process, and to engage the client in that collaboration, as well. “We’re not just bringing architecture products to the client,” O'Donnell says.

For the outdoor Starlight Theatre (opposite) at Rock Valley College in Rockford, Illinois, Studio Gang/O'Donnell developed a roof structure of fin elements supporting faceted roof panels. This roof, combined with a concrete exterior wall with window openings that appear like constellations at night, heightens the experiential qualities of the structure. Lessons from the stars, as well as earthly objects, science, and theater itself informed the design of the facility. “We look at a lot of things outside of architecture for inspiration, not just formal design explorations,” Schendel says. “We’re constantly pulling in from the outside.”

While the theater is a lively outdoor venue, the firm is currently designing a rather quiet civic space—the renovation of a building that will become the Chicago Historical Society Collection Center, including a research center, gallery, and auditorium. A space of permanence and time, perhaps this will mark Studio Gang/O'Donnell’s Chicago moment. ■



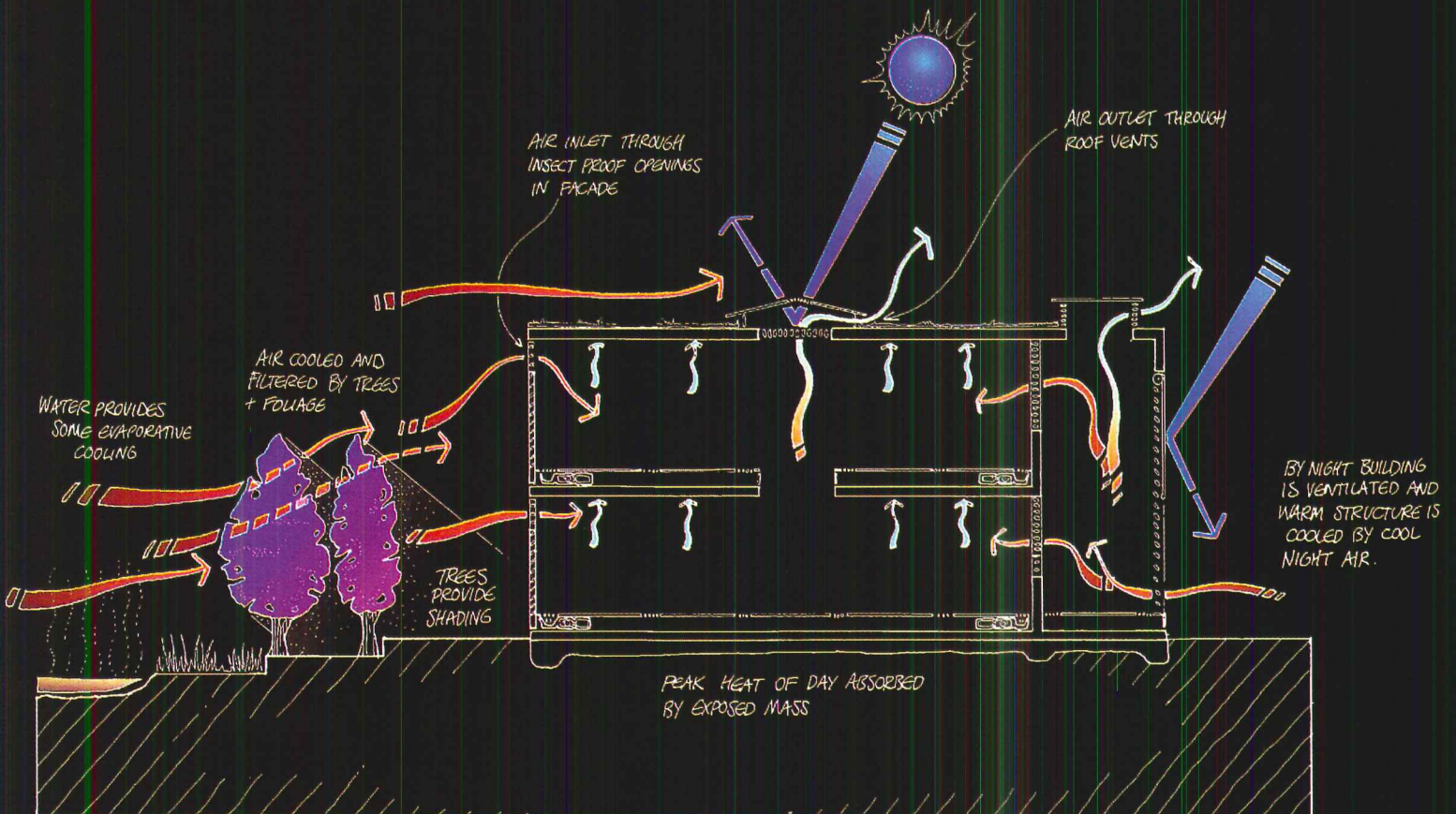
Starlight Theatre,  
Rock Valley College  
Rockford, Illinois

This outdoor theater includes seating for 1,200, a proscenium with a fully rigged fly tower, and a kinetic roof structure (above) that can be closed in inclement weather. The exterior wall of the theater is punctuated by voids that look like constellations (below left) at night. The interior toilet rooms (middle left), which could have been mundane, show some verve, with exposed concrete and random window openings for sunlight.



## TAG warehouse Chicago

This warehouse (below) and an office building (left) are intended for a Chicago company that places bar codes on items for distribution. Studio Gang/O'Donnell designed the office facade of concrete panels and glazing to imitate the seemingly random interplay of voids of a bar code. Adjacent to the Chicago River, the warehouse is designed to take in cool air off the river and vent it through the roof (bottom). Green roofs would also help the long, low spaces of the warehouse and office stay cooler.



MIDSEASON OPERATION NATURAL VENTILATION + NIGHT TIME COOLING



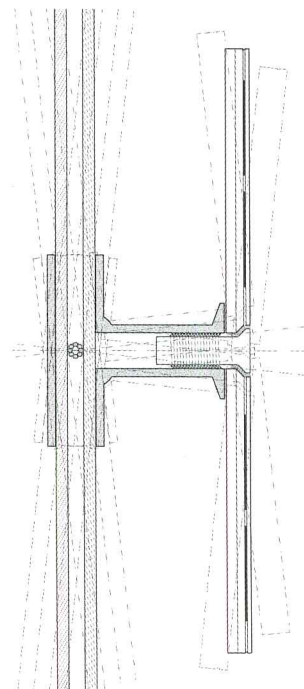
IIT Crown Hall instrument and suspended exhibit Chicago

For last spring's open house at IIT, Studio Gang/O'Donnell reinterpreted Mies van der Rohe's Crown Hall as a musical instrument. The building was strung with 28,000 linear feet of brass wire that can be vibrated to make sounds and used to hang student work (right). The group Mass Ensemble (left) composed and performed the site-specific "Mies Piece." This installation won an AIA Chicago Divine Detail Award.



Windy City Sequins—Chicago Visitor Center Chicago

In its competition entry for the Chicago Visitor Center facade in downtown Chicago, Studio Gang/O'Donnell implemented a curtain of hexagonal photovoltaic cells that visualizes movement and saves energy. The "solar sequin" (plan, below) would be a laminated glass photovoltaic module hung on a lightweight cable net. The sequins would yield 48,000 kilowatts of energy per year. Studio Gang/O'Donnell worked with Battle McCarthy UK on wind and energy studies for the project.





## Oman and Videcnik use design to make connections both physical and cultural

By Clifford A. Pearson

**Architect:** Ofis Architects

**Location:** Ljubljana, Slovenia

**Date founded:** 1995

**Design staff:** 7

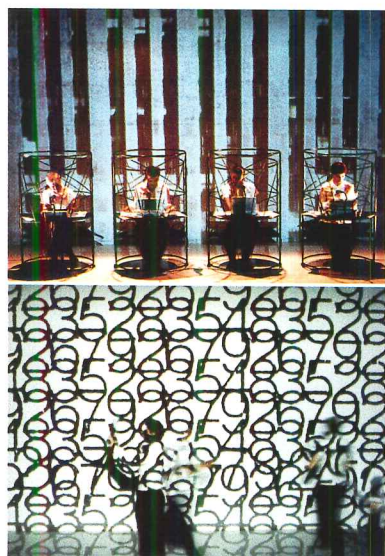
**Partners:** Rok Oman and Spela Videcnik

**Education:** Oman: Faculty of Architecture in Ljubljana, 1998; Architectural Association, London, 2000; Videcnik: Faculty of Architecture in Ljubljana, 1997; Architectural Association, London, 2000

**Key completed projects:** Housing blocks, Koseze, Slovenia; Complete My Sentence video performance

**Key current projects:** Villa extension, Bled, Slovenia, 2002; City Museum, Ljubljana, 2003; sports stadium, Maribor, Slovenia, 2004; European 6 housing, Graz, Austria, 2004

**Web site:** [www.ofis-a.si](http://www.ofis-a.si)



Ofis has designed sets for theater pieces like *Paracelsus & Frankenstein*.

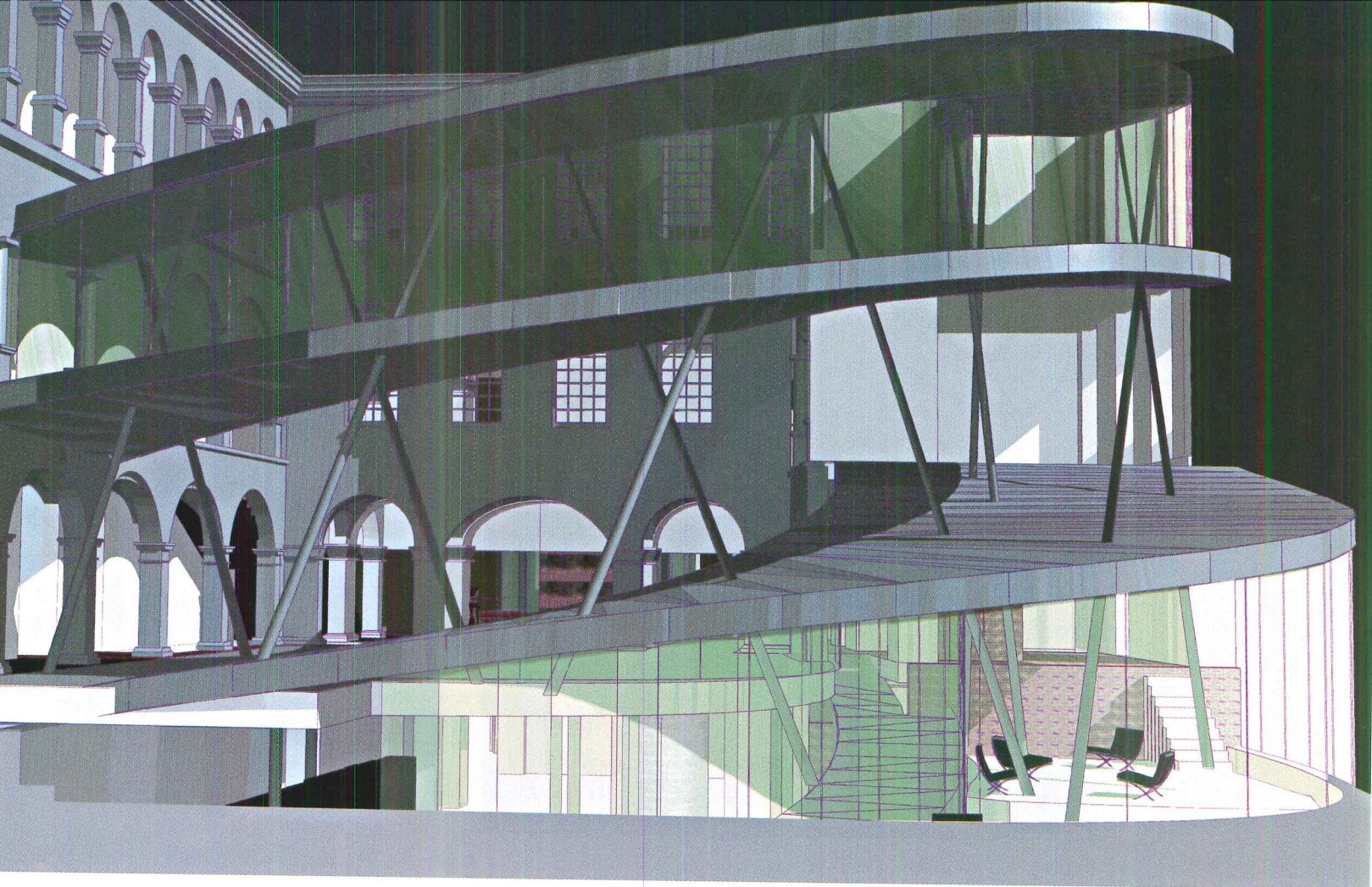
With one foot in London and the other in Ljubljana, the Slovenian team of Rok Oman and Spela Videcnik represents the new face of Europe—looking east but still connected to old centers of power. Multilingual and fluent in the ways of the media, the firm is busy pursuing an architecture of integration—one that weaves together old and new, building and landscape, indoors and out. Rather than smoothing over differences, though, their projects use contrast and juxtaposition as design strategies for reconciliation.

Even before they began their master's programs at the Architectural Association in London in 1999, Oman and Videcnik—who call their firm Ofis Architects—had won important competitions in Slovenia: to design a trio of apartment blocks in Koseze, the City Museum in Ljubljana (with architect Lidija Dragisic), and a sports stadium in Maribor (with Ales Znidarsic and Katja Zlajpah). Competitions continue to be good to Ofis, with the firm's radical scheme for a housing project in Graz, Austria, taking first place in the European 6 contest this summer. Best of all, Oman and Videcnik are turning competition victories into built work. Their apartment blocks in Koseze opened earlier this year and the City Museum—which involves renovating and adding to a historic palace—is under construction. The stadium in Maribor also is moving forward, with construction scheduled to start in 2003.

Though still in their early 30s, Oman and Videcnik know their modern architectural history and say they “keep books on Le Corbusier's work open all the time.” The sensuous curves and dramatic ramps of their City Museum project, for example, recall late Corbu, as does their use of circulation spaces to drive the building's form. At the same time, the firm looks to Rem Koolhaas—not so much for his formal invention, but for the process he employs in developing a project. “We're doing a lot more research on our projects,” examining issues of context, history, structures, and forms, says Videcnik. While Koolhaas can muster teams of students and colleagues to analyze phenomena such as shopping and travel, Oman and Videcnik try to apply his big-picture approach to design on a smaller budget. Their proposal for a cineplex in Maribor, for example, rethinks entertainment complexes, opening the building to its surroundings with outdoor spaces and views across the city's river. “We wanted to integrate the building with the landscape and perforate its skin to expose as many of its functions as possible to people on the street,” explains Videcnik.

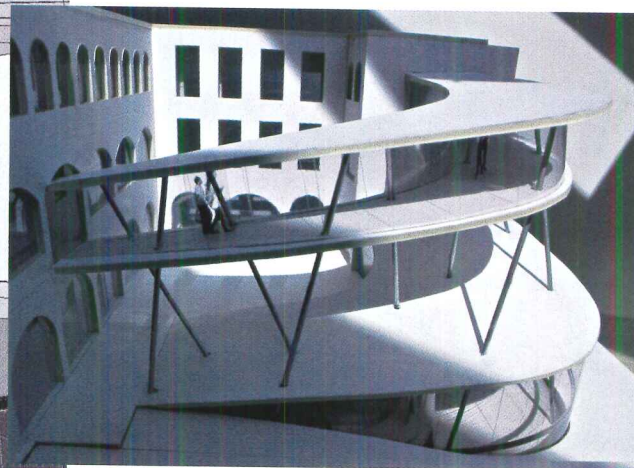
Just as their City Museum uses modern forms and materials to develop a seamless narrative for the history of Slovenia's capital, Oman and Videcnik's design for an extension to a villa in the town of Bled and their European 6 housing scheme in Graz create a sense of continuity between structure and landscape. In these projects, roofs function as green outdoor rooms and living spaces nestle in the land. The architects are also happy to mix it up with other artists, collaborating with directors, writers, choreographers, and lighting designers on theatrical pieces, even envisioning a lighting showroom as part architecture, part performance art.

The firm's home base may be Ljubljana, but Videcnik teaches in England and operates a “mobile” office from there. With their sights set on a broad European practice, these architects are on the move. ■

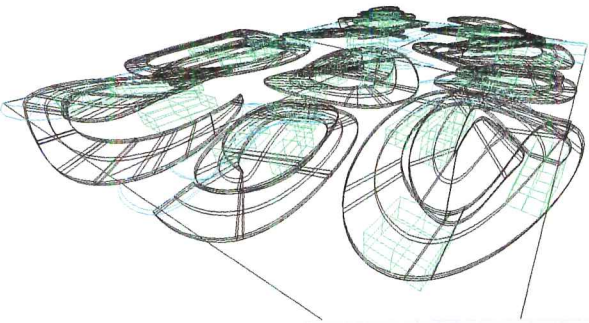


City Museum  
Ljubljana, Slovenia

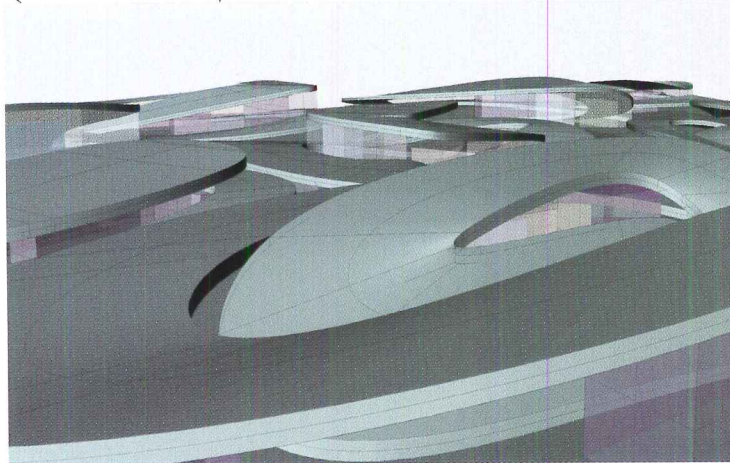
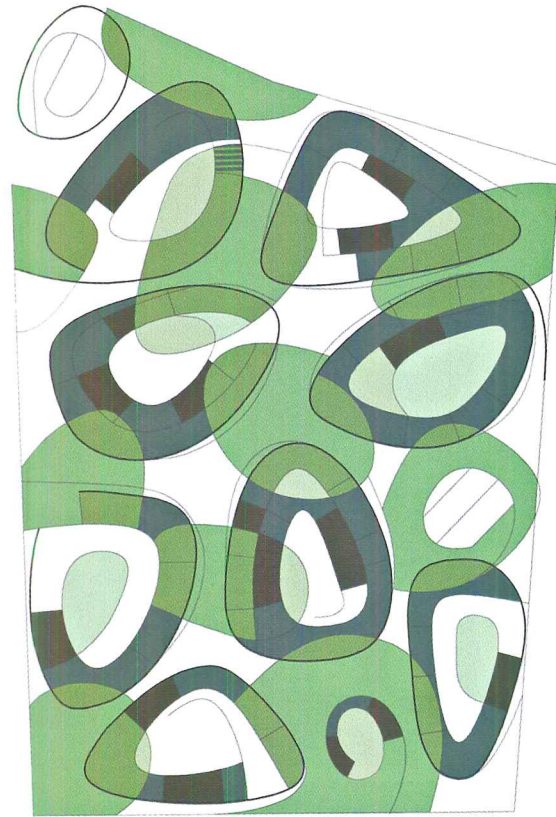
Set in Ljubljana's medieval center, the museum occupies a palace with a complex history of Gothic and Neoclassical construction. Oman and Videcnik's design transforms old labyrinthine interiors into a bold new cultural center that points to the city's future as well as its past. A spiraling, glass-enclosed addition connects the various levels and incorporates archaeological remnants found on the site. Completion in 2003.



European 6 Housing  
Graz, Austria

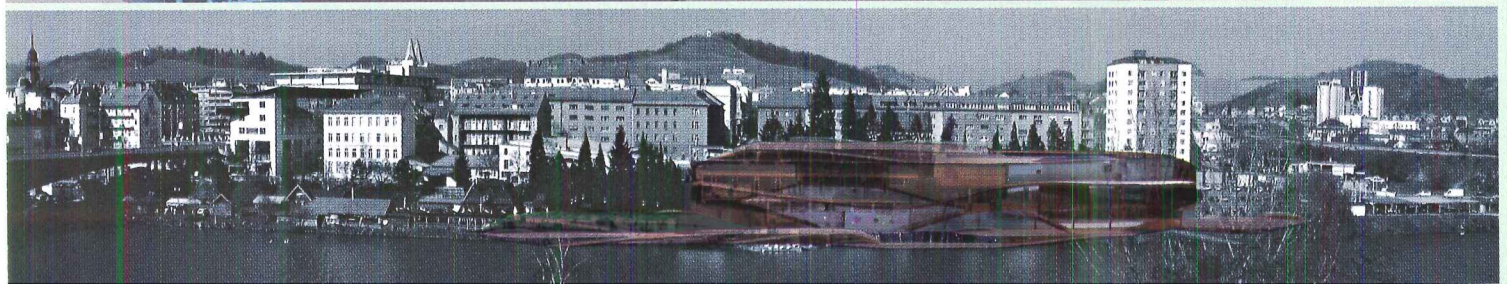
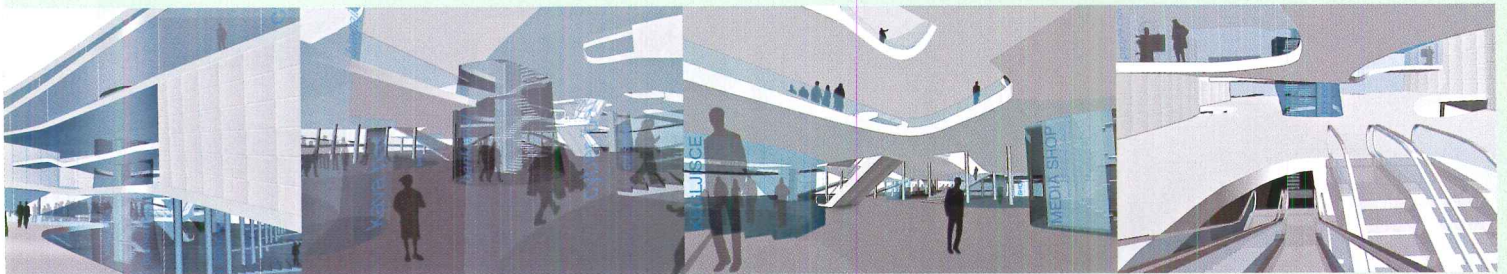
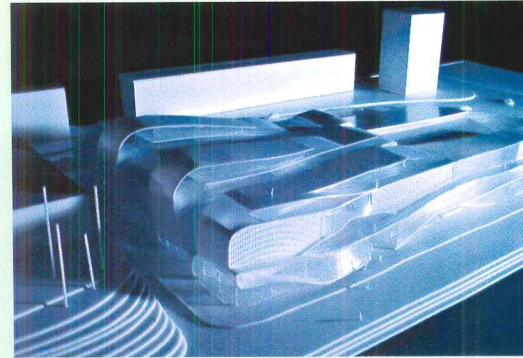


This competition-winning scheme for a suburban site in Graz integrates building and landscape. The design clusters four to seven live/work units in "mounds" that combine shared and private spaces. The mounds will be poured-concrete structures with "green" roofs that will form a connected parklike surface where people can relax and enjoy the outdoors. An initial phase of the project calls for building 76 units.



Cineplex  
Maribor, Slovenia

Although they didn't win the job, Oman and Videcnik feel this project is an important one for them—allowing them to explore ways of engaging a large entertainment complex with its urban setting. Because the roof would be visible from across the city's river, the architects treated it as a "fifth facade" and made the river elevation as transparent as possible. The fluid form helps reduce the apparent size of the project.



## Apartment Blocks Koseze, Slovenia

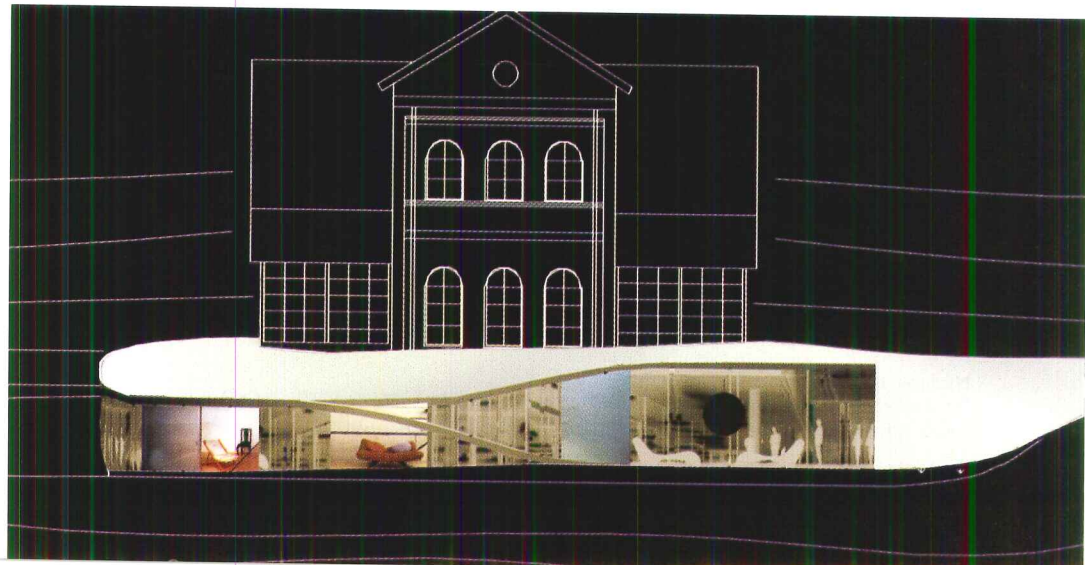
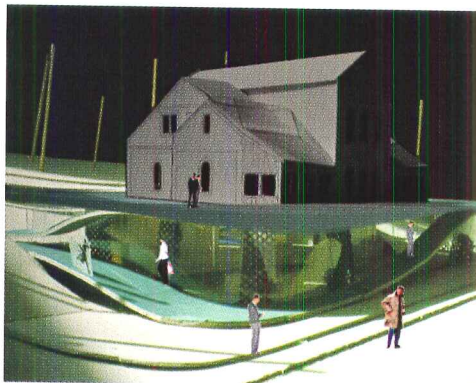
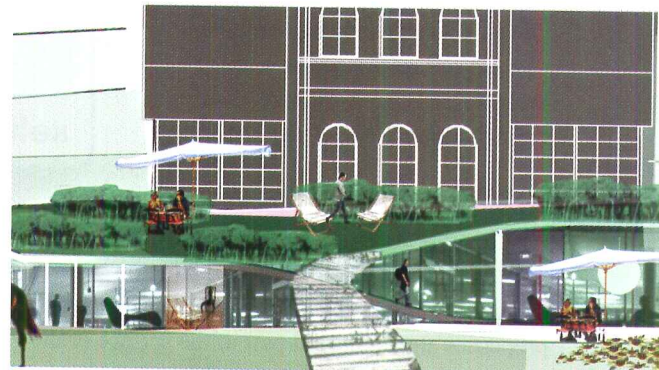
Completed earlier this year, this privately developed project just outside of Ljubljana comprises three blocks of apartments. Each building has 36 one-story apartments, ranging in size from about 400 to 1,400 square feet. The

architects say they took advantage of views of a nearby lake by orienting units to the water and alternating glazed loggia with covered balconies. Underground parking lets much of the site remain open and keeps cars out of the way.



## Villa Extension Bled, Slovenia

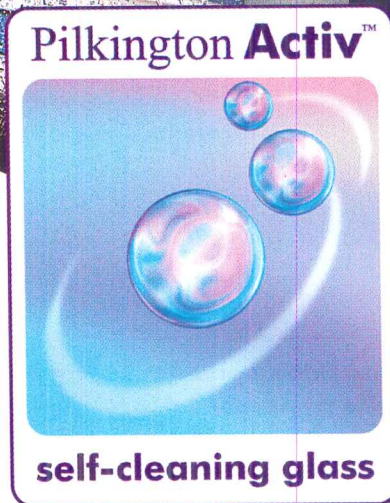
Asked to design an addition to a nineteenth-century villa, the architects envisioned a swirling glass plenum that establishes an artificial landscape around the old building. A spiraling ramp accommodates the owner's extensive library, and generous glazing offers views to a nearby lake. The project, which includes a total renovation of the villa's existing interiors, began construction this year and should be completed next summer.



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**CIRCLE 25 ON INQUIRY CARD**

# Cohesive Campuses

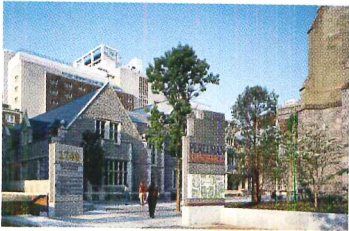
THREE APPROACHES TO DESIGNING AN INTEGRATED CAMPUS ADDRESS DIFFERENT CLIMATES, CULTURES, AND CONTEXTS.



1.

**Singapore**

*Nanyang Polytechnic Institute by Gwathmey Siegel demonstrates the rigorous cohesion of a large campus designed by one firm.*



2.

**Philadelphia**

*Venturi Scott Brown and Associates make planning, preservation, and architecture a seamless effort at the University of Pennsylvania's Perelman Quad.*



3.

**Monterrey, Mexico**

*At the EGADe graduate school of business by Legorreta + Legorreta, a spiraling concrete form provides a singular campus for 500 students.*

By Suzanne Stephens

College campuses have long been afflicted with a case of architectural *polyglotitis* as buildings in various styles are added over the years. With a growth rate in the past decade much like the 1960s, campus planners have to deal with fitting new buildings into a jumble of historical styles. Indeed, a record \$14.7 billion was spent during the year 2000, according to *American School and University's* 27th annual Official Education Construction Report. While the economic forecast since September 11 has been particularly bleak, Martin Van Der Werf, senior editor of *The Chronicle for Higher Education*, says it is still too soon to tell how much college construction will be affected.

What is good for architects—such as more construction—may not be so good for college campuses, particularly if rapid expansion leads to a loss of sense of place. One way of solving the problem is by having design-oriented architectural firms undertake comprehensive master plans with an eye to the physical end results, as much as to traffic, pedestrian circulation, and land-use planning. For example, Venturi Scott Brown and Associates (VSBA) has executed master plans at the University of Michigan, a plan for Dartmouth's north campus, and is currently undertaking the master plans or related components at Williams College and at Radcliffe Institute (formerly Radcliffe College) at Harvard. For the University of Pennsylvania, as part of an entire land-use plan, VSBA brought life back to an historic locus, now called Perelman Quad, through planning, programming, restoration, and design.

Starting from scratch is a more direct, albeit sometimes perilous, way of guaranteeing a cohesive campus. With EGADe, a graduate business school in Monterrey, Mexico, Ricardo and Victor Legorreta chose to give the new campus its unity by designing a large, single spiral concrete form to house the various functions. While the idea of conceiving a campus as one building harks back to the 1960s megastructure, Legorreta + Legorreta's version mitigates possible monotony and blandness through the use of an intense color palette and well-scaled, contoured forms.

Gwathmey Siegel's Nanyang Polytechnic in Singapore also follows the megastructure concept. To offset the blandness inherent in a 2½-million-square-foot concrete campus, the architects took advantage of the tropical climate. Lush planting and landscaped spaces are woven throughout the rectangular site and clustered geometric forms.

The only problem with the new megastructures is that they can't benefit from the rich architectural vocabulary found on campuses that have evolved over time. Sometimes a touch of the polyglot is good. ■

For 10 more university projects go to Building Types Study at [www.architecturalrecord.com](http://www.architecturalrecord.com). The monthly expanded Web BTS features project descriptions, photographs, drawings, statistics, and links to people and products.

# Nanyang Polytechnic Singapore

**GWATHMEY SIEGEL AND DP ARCHITECTS TAKE ADVANTAGE OF A TROPICAL CLIMATE TO CREATE A GARDEN CAMPUS WHERE ARCHITECTURE AND LANDSCAPE WORK TOGETHER.**

By Clifford A. Pearson

1

**Architect:** Gwathmey Siegel & Associates—Robert Siegel, FAIA, Charles Gwathmey, FAIA, partners; Joe Ruocco, associate in charge; Frank Visconti, project architect; Nelson Benavides, Peter Brooks, Greg Epstein, Mark Hill, Lance Hosey, Joseph Hsu, John Hunter, Jay Lampros, Richard Lanier, George Liaropoulos, Wei-Li Liu, Greg Luhan, Cheryl McQueen, Christine Straw, Frank Thaler, project team

**Associate architect:** DP Architects—Gan Eng Oon, Wu Tzu Chiang, Lesley Lim, Francis Lee, Jeremy Tan, project team

**Engineers:** TY Lin (structural); Rankine & Hill (mechanical)

**Landscape architect:** Clouston

**General contractor:** JDC & Kim Seng Heng JV

**Size:** 75 acres, 2.5 million square feet  
**Completion date:** Late 1999

## Sources

**Curtain wall:** Flamelit

**Aluminum windows:** Yodac Window System; Kum Leng Aluminum

**Glazing:** Glascon Glazing

**Skylights:** Pacific GoldHill; Prime Structures

**Interior ambient lighting:** Zumtobel and Dinmex

## WWW

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Imagine Thomas Jefferson in the tropics. Or, more specifically, the University of Virginia two degrees north of the equator: a community of learning with a rotunda at its center and lawns defined by repetitive buildings. That's what Gwathmey Siegel & Associates tried to do when designing Nanyang Polytechnic, a start-from-scratch campus in the north-central suburbs of Singapore. There are differences, of course—painted stucco instead of Virginian brick, a modernist vocabulary instead of Jeffersonian classicism, and an initial phase in scale with the ambitions of a rising international trading power rather than those of an 18th century state most proud of its gentlemen farmers.

## Context

Nanyang is the latest in a series of large polytechnical schools that Singapore is constructing to develop technicians and middle-level managers for the twenty-first century. Like Temasek Polytechnic, designed by James Stirling and Michael Wilford [RECORD, May 1997, page 102], Nanyang offers an alternative to a university education, directing students to specialized fields of study. At Nanyang, the specialties—engineering, health sciences, information technologies, and business management—function as individual schools sharing a 75-acre campus. With nearly 12,000 students and 2.5 million square feet of



space, Nanyang presented the formidable challenge of making a giant institution both easy to navigate and friendly in scale.

## Solution

Working with DP Architects (the Singapore firm that also collaborated with Stirling Wilford at Temasek), Gwathmey Siegel devised a campus plan that connects buildings with covered walkways and cloisters (as Jefferson did with his Great Lawn). A central pedestrian spine runs north-south, with buildings for the four schools on either side and cars moving along a loop road around the perimeter of the campus. Although each school has surface parking adjacent to its buildings, most students commute to school by bus or monorail.

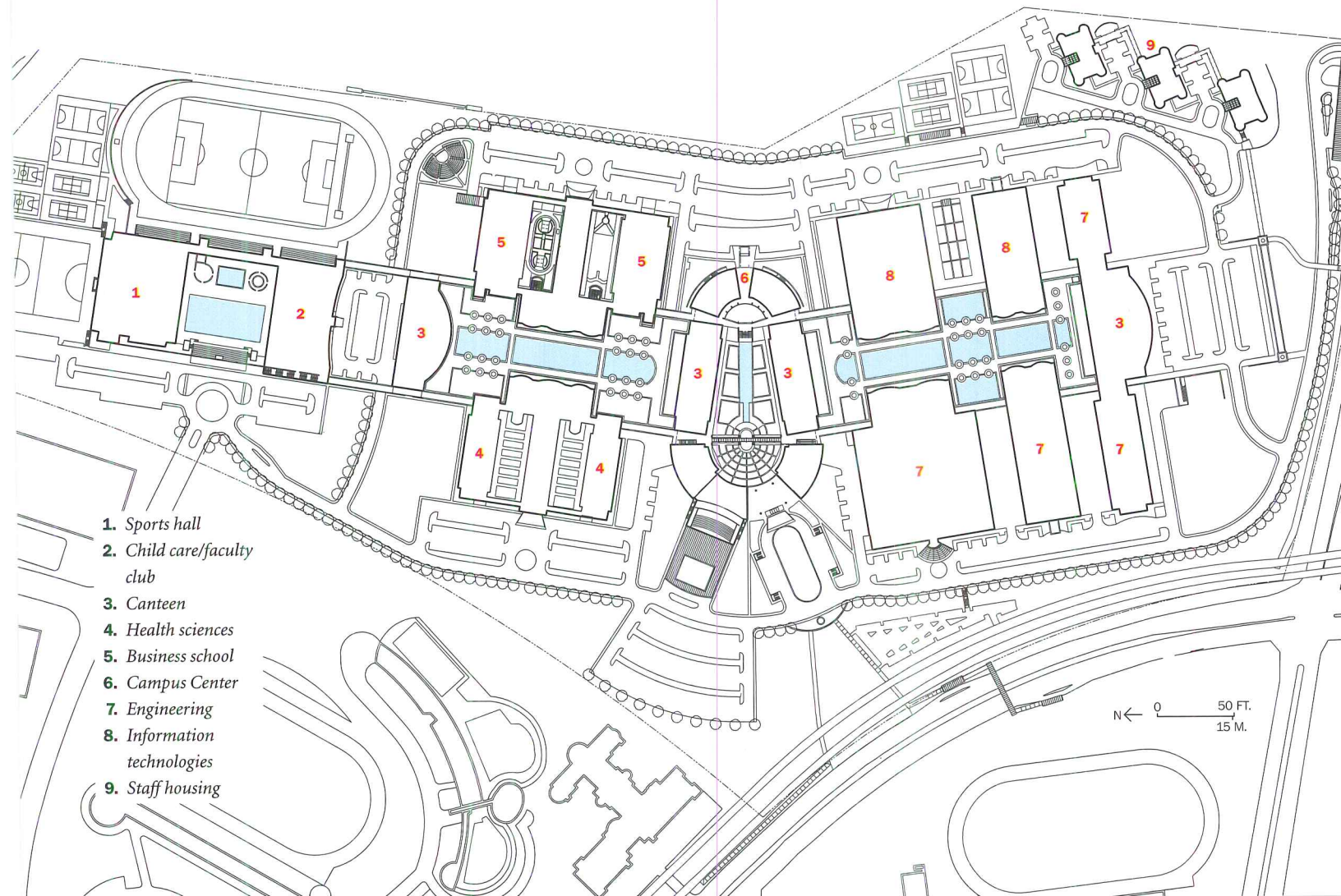
At the heart of the plan stands the 550,000-square-foot Campus Center—a great oblong structure housing administrative offices, a library, and other shared facilities. With the main vehicular drop-off and monorail stop in front of the building and the most imposing shared spaces inside it, the Campus Center is Nanyang's literal and symbolic hub. "The original idea was to cover the courtyard at the center of the building with a fabric roof," says Robert Siegel, FAIA. Although the roof wasn't built, it could be added later, says Siegel. "But the building and courtyard work so well right now, I doubt the client will ever add the roof."

Because it is at the center of campus, the hub is no more than a five-minute walk from anywhere



The main entrance (right) introduces key elements used throughout the campus: water, greenery, and poured concrete. The south quad (bottom and opposite) orients classroom buildings around a large water feature.







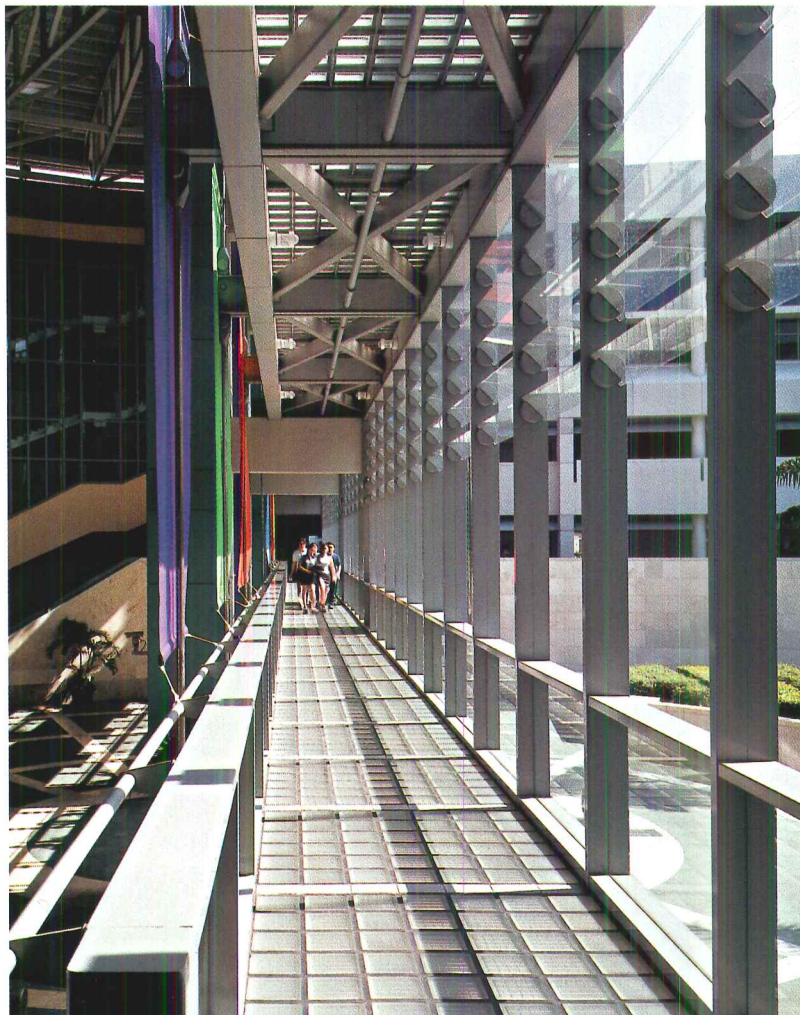
Designed for 12,000 students, Nanyang Polytechnic has room to grow by about 25 percent. Taking into consideration Singapore's location just north of the equator, the architects oriented classrooms to the north and south, where the angle of the sun does not vary much. Services such as rest rooms and elevators occupy the east

and west ends of classroom buildings to block the sun in the morning and afternoon. The designers used trees to shade surface parking areas adjacent to each of the four schools and the 1,200-seat auditorium. Covered walkways and stairways provide protection against rain and sun while eliminating the need to enclose and air-condition such circulation areas.





The six-story Campus Center building (above, opposite, and right) serves a variety of functions—from receiving and orienting visitors to housing administrative offices and a 140,000-square-foot library. While vehicles arrive on the main level, pedestrians enter the campus one level below and take escalators or stairs up. A 1,200-seat auditorium (far right) is located right off the Campus Center.



else. “What drove everything was the need to make this an easily understandable campus,” says Siegel. “We wanted it to be a great place to walk.” The architects took advantage of the tropical climate to weave gardens and water throughout the campus. “The idea was to take Singapore’s image as a garden



city and apply it to our scheme.”

The architects also took advantage of a sloping site to create outdoor spaces on three different levels with the parklike main axis running along the middle level. “We wanted to offer a variety of outdoor spaces, so we alternated large gardens with more cloistered courtyards between the classroom buildings,” explains Siegel.

All of the buildings are poured-concrete structures with precast brise-soleils. Exterior finishes include painted stucco and ceramic tile. The massing, profiles, and sub-elements of the buildings vary, to create individual identities, but all share a common vocabulary.

#### Commentary

As with any campus designed by one group of architects at one time, Nanyang suffers from a sameness in form and articulation. Yet the variety of outdoor spaces and the buildings’ close relationship between indoors and out create an attractive place. It may lack the University of Virginia’s intimacy in scale and detail, but Nanyang draws strength from a clear plan and rich landscaping. ■

The atrium of the main campus library is a "signature" space that establishes a strong image for the sprawling institution. The library is one of the main tenants of the Campus Center building.



# Perelman Quadrangle University of Pennsylvania

# 2

**VENTURI SCOTT BROWN AND ASSOCIATES REINFORCE A STUDENT PRECINCT THROUGH A CAREFUL WEAVING OF PLANNING, RENOVATION, AND DESIGN.**

By Suzanne Stephens

**Architect:** Venturi Scott Brown and Associates—Denise Scott Brown, Robert Venturi, principals; John Hunter, project manager; Rich Stokes, Jon Wagner, Aaron Young, Susan Lockwood, project architects

**Client:** University of Pennsylvania

**Consultants:** Keast and Hood (structural); Marvin Waxman (mechanical); Steven J. Lit (electrical); Andropogon Associates (landscaping); Grenald Waldron Associates (lighting); George Izenour & Associates (acoustical); Urban Engineers (civil)

**Size:** 323,000 gross square feet

**Cost:** \$87,000,000

**Completion date:** 2000

## Sources

**Windows (leaded lights):** Winslow Stained Glass

**Glass:** Graboyes (Irvine Auditorium); McKeon

**Acoustical ceilings:** Armstrong (mineral fiber); Alpro Acoustics (perforated metal) Wallcore Technology (acoustical panel)

**Paints and stains:** Jack Smith; Benjamin Moore

**Plastic laminate:** Formica

**Carpet:** Durkan, Karastan Bigelow; Shaw/Stratton

## WWW

**For additional universities**

and more information on the people and products involved in this project, go to Building Types Study at

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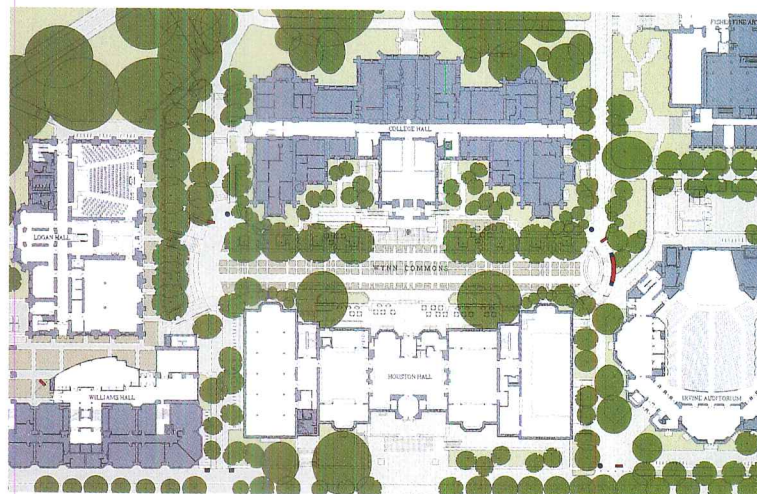
As colleges and universities expand, too often they lose their sense of cohesion. Such a blurring occurred at the University of Pennsylvania in west Philadelphia, where a core of historic buildings, including a student union, had gradually been drained of its role as the campus center. To bring vitality back to this ensemble, Venturi Scott Brown and Associates developed a strategy as part of the master-planning efforts they were undertaking for the university. Now called Perelman Quadrangle, after financier and alumnus Ronald

Perelman, the group of buildings and open spaces demonstrates the critical relationship of architecture and design with planning, programming, and restoration.

## Context

The oldest structures on the west Philadelphia campus, College Hall (1873) and Logan Hall (1874), are mansard-roofed, Victorian Gothic buildings designed by Thomas Richards, a professor on the faculty. His long-ago choice of a green Chester serpentine stone for the upper floors and granite for the base caused critic Montgomery Schuyler [RECORD, September 1910] to lament the addition of “bizarre contrasts of color to that which had already a rather restless animation.” But that was then.

On the opposite long side of the quad is the student union, housed in the Collegiate Gothic-style Houston



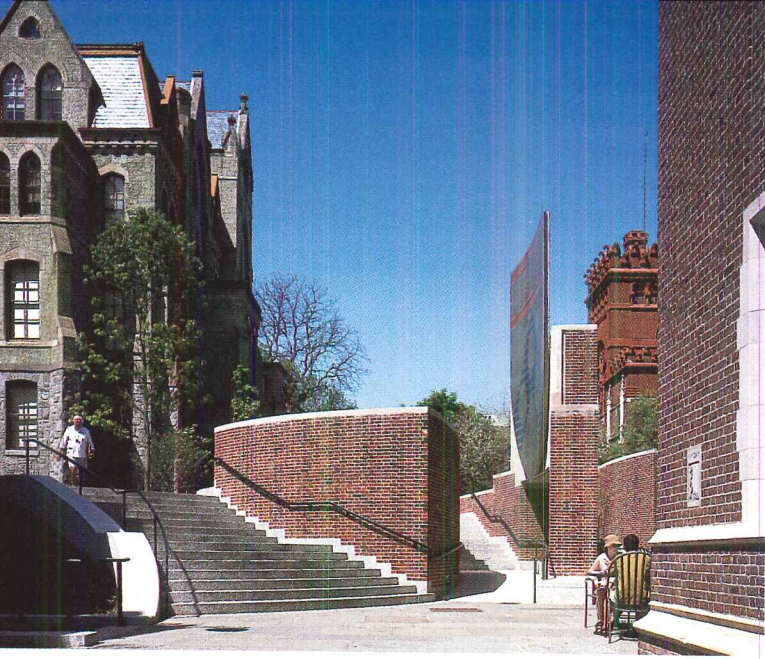
Hall. Designed by two architecture students, William Hays and Milton Medary, it was executed under the aegis of Frank Miles Day in 1896 in a Pennsylvania schist, with two large end bays added in 1936. Looming above Houston and Logan halls is the clunky Brutalist, brick Williams Hall, designed by Nolen Swinburne and Associates in 1972, while down at the lower east end of the quad rises the stalwart Moorish-style Irvine Hall designed by Horace Trumbauer in 1932.

## Solution

In VSBA's master-planning studies undertaken between 1989 and 1992, Denise Scott Brown identified, among other things, paths of pedestrian movement through and around these buildings. VSBA decided that Houston Hall, while needing to be the main student center, shouldn't be the only building with cafés, lounges, and

other meeting areas. Hence these activities were threaded through the lower floors of most of the buildings around the quad. Although VSBA was not in charge of renovating the exteriors of College and Logan halls (that was assigned to Marianna Thomas Architects), its plan called for the entrance from the admissions office in College Hall to open once again onto the Commons. In addition, the firm renovated the lower floors of Logan into a series of multipurpose spaces, leaving the floors above for arts and science classrooms. Williams Hall, a language classroom building, received “conservative surgery,” according to Scott Brown, including a single-story, glazed café and study room (Silfen Study Center) that juts out from the building at ground level to attract students at all hours.

The major student center, the traditional, clubby-looking, wainscoted Houston Hall, was restored

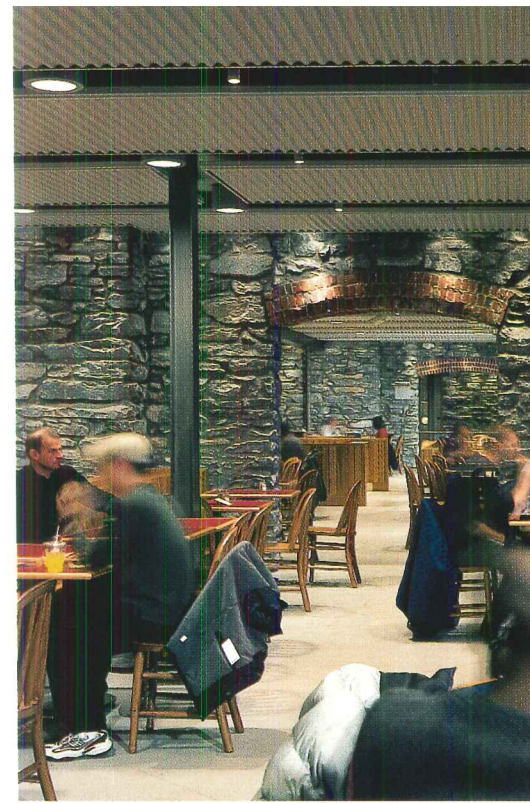


The "ontogeny of Perelman," in Denise Scott Brown's words, emanates from a combined land-use pattern and circulation that is carried through the various floors of the buildings.





In Houston Hall, a 40-foot-high room (left) is used for dining and other functions. Additional dining space has been inserted in the basement, with areas defined by the original stone walls and steel columns. A new study center and café juts out from Williams Hall (below).





and renovated for study areas and cafés. The lighting and the furniture, including the design of a central information desk, all reflect the firm's penchant for the jazziness of pop culture, melded with the traditional formality of yesteryear. Houston's basement, which had been used for mechanical systems, storage, and some food service, was cleaned out, with the mechanical rooms and related services moved underneath the outdoor plaza. That left an ample 20,000 square feet for various dining areas subdivided by existing field-stone walls and steel columns.

In restoring and renovating the steel and concrete Irvine Auditorium, VSBA removed balconies on either side of what had become a 1,250-seat auditorium, making room for a café and a 125-seat recital hall. The most compelling aspect of Irvine Auditorium is, without doubt, the painted polychromed interior, restored to the original color scheme added at the end of the building's construction. (In its palette and pattern, the paint job alone would make it seem that Venturi Scott Brown had been predestined to refurbish this hall.)

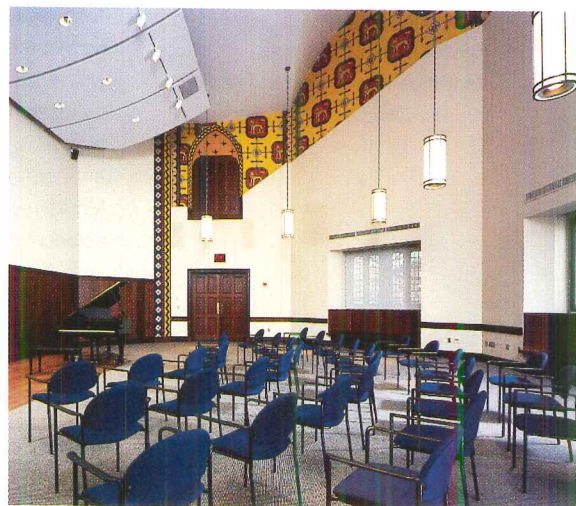
Outdoors, the center stage of Perelman Quad is occupied by Wynn Commons, a rectangular plaza named after Vegas casino-omeister and alumnus Steven Wynn. Here, a small amphitheater in front of Logan Hall and a speakers platform with the Penn crest at the Irvine end help enclose the space, while seating is provided by low granite retaining walls.

### Commentary

Considering the scope of this effort, it is unfortunate that VSBA did not do the interiors of College Hall. The absence of telltale VSBA motifs, colors, and detailing in the college admissions area is all the more noticeable after visiting the rest of the enclave. Inside and out, the firm's brash design elements act as signs of its planning and preservation strategies. The result is a place that can attract students while still respecting Penn's historic legacy. ■



In the Moorish-style Irvine Auditorium, designed by Horace Trumbauer in 1932 (left), side balconies were removed for a new 125-seat recital hall (right) and a café. An acoustical glass-reinforced-gypsum canopy over the stage (top) and panels along the sides of the 1,250-seat auditorium are detailed in VSBA's variation of Czech Deco.



# EGADE

## Monterrey, Mexico

# 3

**LEGORRETA + LEGORRETA DESIGNS A SPIRALING BUSINESS SCHOOL ATOP A PARKING STRUCTURE, CREATING A COMPACT SYMBOLIC FORM FOR AN ARID URBAN LANDSCAPE.**

**By Elizabeth Kubany**

**Architect:** Legorreta + Legorreta—Ricardo Legorreta and Victor Legorreta, principals; Noé Castro, Miguel Almaraz, Adriana Ciklik, Victor Figueroa, design team

**Client:** ITESM—Monterrey Institute of Technology for Superior Studies

**Consultants:** Dr. Francisco Yeomans, Department of Engineering, ITESM (structural); Tecnos Ingenieria and Enrique Garay (electrical and mechanical); Harari Arquitectura y Paisaje (landscape); Tecnos Ingenieria (lighting); Multisistemas BVC

**Size:** 86,111 square feet (school); 258,334 square feet (parking)

**Cost:** \$15 million

**Completion date:** May 2001

### Sources

**Concrete:** CEMEX

**Glass curtain wall:** Grupo Vitra

**Precast colored-concrete panels:** PRESCO Productos Especiales de Concreto

**Carpeting:** Lees Carpets

**Metal ceiling systems:** Luxalon, Hunter Douglas

### WWW

**For additional universities**

and more information on the people and products involved in this project, go to Building Types Study at [www.architecturalrecord.com](http://www.architecturalrecord.com)

“We needed a landmark,” says Victor Legorreta, who, with his father, Ricardo, designed a spiral form for the Monterrey campus of Mexico’s premier business school.

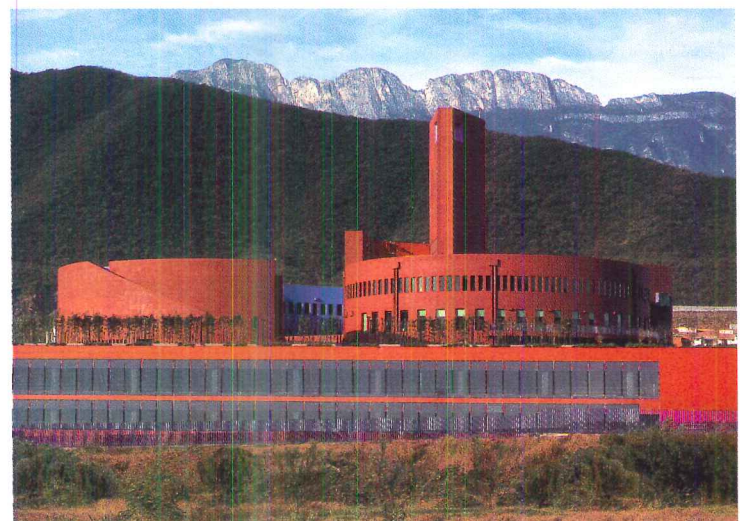
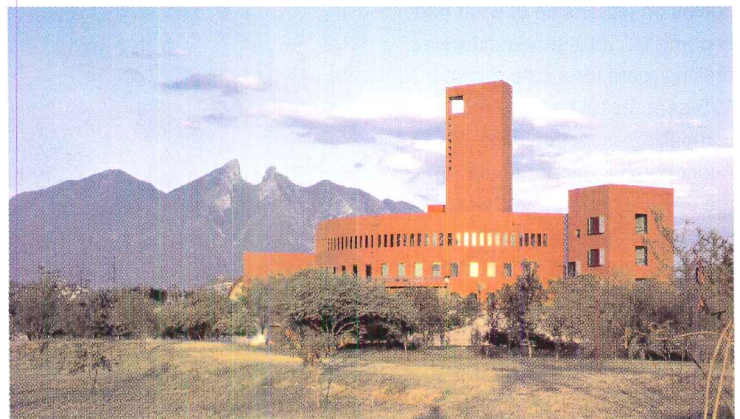
The problem, Legorreta explains, was that the location lacked a strong architectural identity.

Factories and other manufacturing buildings are typical of Monterrey, the capital of the industrial state of Nuevo León. As Mexico’s third largest city, it is at the center of the country’s technological and business communities. About 528 miles north of Mexico City, it is situated in a desert near the Sierra Madre mountains.

### Program

EGADE (the Spanish abbreviation for the Graduate School of Business Administration and Leadership) is part of the prominent Instituto Tecnológico y de Estudios Superiores de Monterrey, known as “El Tec,” which has 26 campuses in 25 cities for its graduate and undergraduate programs. This newest campus is on a 4-acre site apart from the existing Monterrey campus and directly adjacent to a large, verdant park.

According to Victor Legorreta, El Tec places heavy emphasis on technology. For instance, the school is an international leader in using satellite technology to beam in lectures from experts around the world. As a result, the school wanted a building that would foster interaction



among the 500 students and faculty as a way to counter the isolating, impersonal effects of virtual learning. In addition, because the EGADE project is the first building on the campus—and the first phase of a long-range master plan (also designed by Legorreta + Legorreta) that calls for a conven-

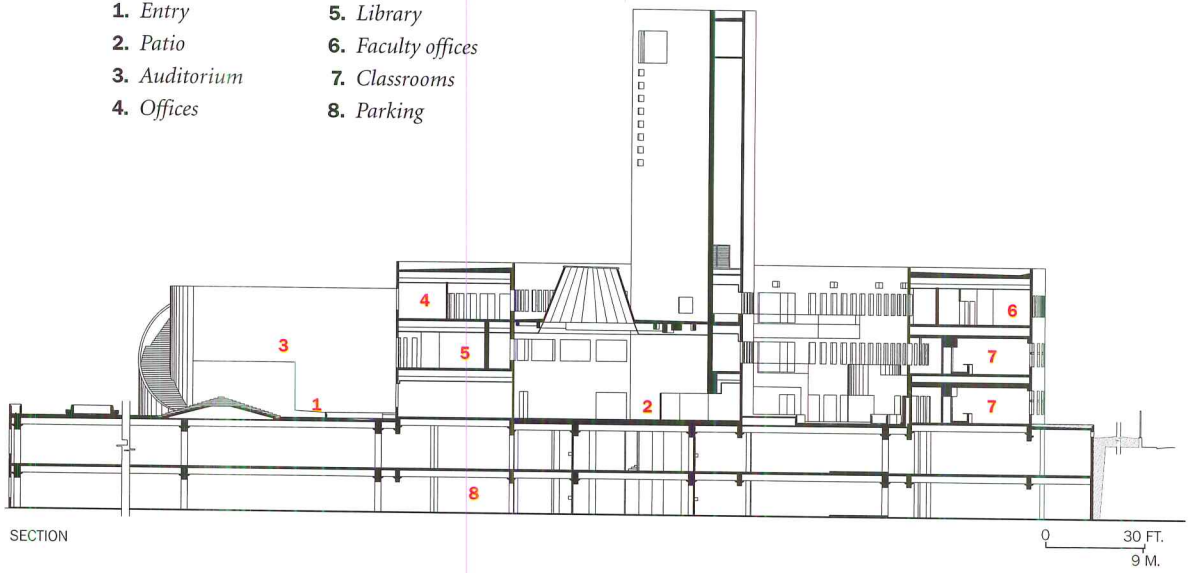
tion center, corporate offices, retail, restaurants, and a hotel—the school wanted it to make a grand symbolic statement.

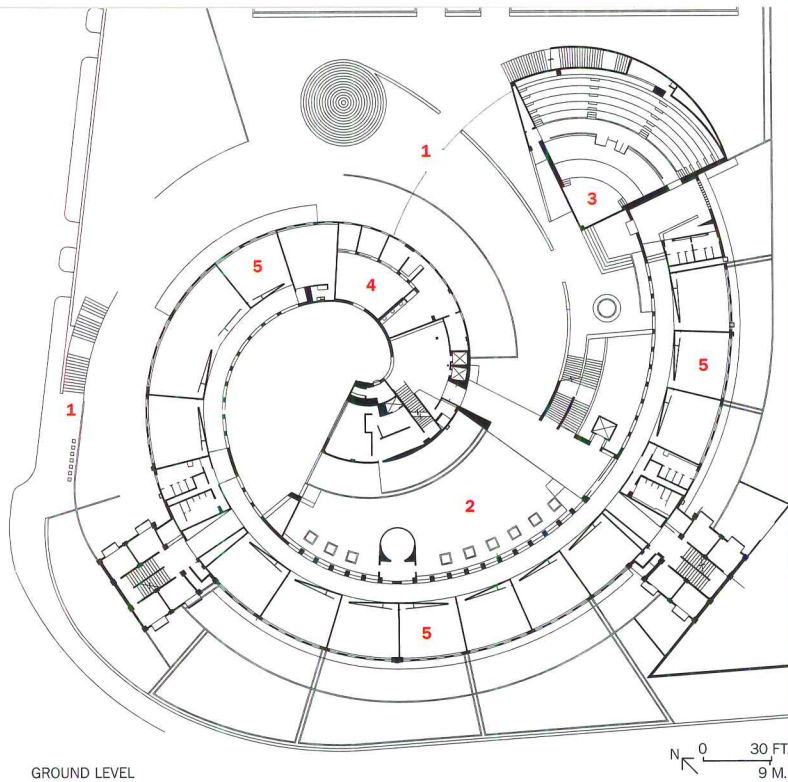
### Solution

Think of it as a snail on top of a box. The base of the poured-concrete building is a long, two-story parking

The helix form atop the parking garage leaves room for an ample plaza at the entry (below) and access to the three-story school building. Deep red pre-cast concrete panels form outer walls, while blue stucco coats the inner walls of the spiral.

- |               |                    |
|---------------|--------------------|
| 1. Entry      | 5. Library         |
| 2. Patio      | 6. Faculty offices |
| 3. Auditorium | 7. Classrooms      |
| 4. Offices    | 8. Parking         |





GROUND LEVEL

1. Entry
2. Patio
3. Auditorium
4. Offices
5. Classrooms

A 30-foot-high atrium occupies the center of the spiral, where a café brings students together (below). The cone-shaped skylight admits daylight into the interior corridors and offices (right) that wrap around it.



garage with slots for 500 cars. Perched above it is a helix-shaped main building, which allowed the architects to create a series of public spaces that narrow from a large public plaza used for public gatherings at the entrance to smaller and more intimate spaces at the end. The entire sequence culminates in a dramatic, 30-foot-high atrium, which is enclosed by a skylight.

As you enter the building from the plaza, you arrive at a 300-seat auditorium, a quarter circle in plan. The exterior of the auditorium, like the exterior walls of the rest of the building, is clad in red, 2-foot-square precast aggregate concrete panels and a local Magenta stone. A stucco finish, painted blue, covers the wall that lines the interior of the spiral. This blue, which coolly contrasts with the unbearable desert heat, draws you into the spiral. Halfway through the coiled space is the main entrance to the interior of the building and the atrium. All the classrooms have views toward the park and the mountains, and windows are recessed into the 14-inch-thick walls to ensure that daylight enters, while interior heat gain is minimized.

Out of the center of the building rises an enlarged, rectilinear water tower, 88½ feet high and clad in the red tile that makes the building impossible to miss.

#### Commentary

Not that you were likely to miss this building. While at first glance it may appear to be an architectural flourish, the EGADE graduate school facility is a seemingly complex solution that actually makes good sense on two levels. Programmatically, the variety of spaces created by the spiral makes the building self-sufficient as a campus. It can accommodate ceremonies, classes, and meetings of all sizes, in a thoughtful progression of spaces. Symbolically, in a city sorely lacking architectural landmarks, EGADE is sure to turn heads. The structure is a powerful marker that, while proclaiming the presence of the school, also signals the importance of learning. ■



# Plastics Finally Get Respect

**NO LONGER A SECOND-RATE SUBSTITUTE FOR QUALITY MATERIALS, A NEW GENERATION OF PLASTICS IS EMERGING AS THE BUILDING MATERIAL OF CHOICE FOR MANY ARCHITECTS AND DESIGNERS.**

By Barbara Knecht

It seems as if every dot-com office has been using plastic interior office partitions, so that it has become part of the standard lexicon," remarks San Francisco-based architect Peter Pfau, commenting on the popularity of a new generation of synthetic materials. While it is true that almost every industry in the world has benefited from the invention and evolution of plastics—medicine, electronics, automotive, aeronautic, construction, fashion, furnishings—it's only been in the past decade or two that plastics in all their polyforms have shed their proletariat status as utilitarian products serving the infrastructure behind walls and under floors to be appreciated as architectural materials in their own right. Architects enjoy regulatory latitude in using plastics in buildings, especially in interior applications; however, like all materials that are not fire-rated, their use in areas requiring fire ratings is limited.

For all their polysyllabic names, plastics are actually polymers (chains of molecules that can be transparent, translucent, or opaque), not more complicated than compound materials that are capable of being shaped by molding, extruding, and casting or by drawing into filaments. All the processes that form plastics include heat. Plastics that can be reheated and reformed many times are called thermoplasts, and they tend to be better candidates for recycling. More durable are thermosetplastics, which can be heated and formed only once and are much harder to dis-

*Barbara Knecht is an architect and principal of a New York City-based consulting firm. She writes about architectural technology, design, and housing policy.*



**Milky white epoxy is mixed with recycled glass to form a terrazzolike floor for IBM's E-business Center for Innovation in Chicago. The finish has more visual depth than conventional terrazzo.**

pose of. Both types of plastics are used extensively in building design and construction, from insulation, vapor, and roof membranes to windows, gutters, and floor tiles.

Plant cellulose was the basis for some of the earliest man-made plastics, including celluloid, which was invented by John Wesley Hyatt in 1863 as a substitute for ivory in making billiard balls. The first wholly synthetic plastic, Bakelite, is a phenolic resin invented in 1909 by an American chemist named Leo Baekeland. Its applications have ranged phenomenally from electrical insulation to jewelry. Petroleum and natural gas became the building blocks of plastics in the 1920s and 1930s, ushering in an era of experimentation and industry expansion, which led to the development of more utilitarian products (thermal insulation, chemical and water resisters, lightweight and durable structures, and intricately molded parts). The projects here, however, show how some architects are experimenting with plastic materials that are transparent and translucent, such as acrylics, polycarbonates, and fiberglass.

Peter Pfau and others have found ways to push the use of off-the-shelf acrylics and polycarbonates to dazzling effects. In the conversion of Green Glen, a former food-service supply operation in San Francisco, into a multimedia office complex, Pfau used a commercially available system of polycarbonate glazing, typically used for greenhouses, to remake the 25-foot-high facade around a new stair. The polycarbonate panels can be extruded to any length that can be transported to the site. "Polycarbonate carries light well; it bounces around the cells for an amazing effect," said Pfau. "And because it is such a hard material, there is no concern about scratching or damage in an exterior application." In their Green Glen project, the architects increased the thermal properties of the



## CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To receive credit, turn to page 207 and follow the instructions.

### LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe innovative ways plastics are being used in architecture.
2. Explain where different types of plastics are used in a building.
3. Describe the characteristics that make plastics desirable.

**WWW** For this story and more continuing education, as well as links to sources, white papers, and products, go to [www.architecturalrecord.com](http://www.architecturalrecord.com)



Bathroom walls of polycarbonate divide and define spaces in both houses. The degree of opacity at 216 Alabama (left) or the addition of color at 1603 Random Road (right) are used to vary the effects of light and shadow.



**216 Alabama and 1603 Random Road  
Lawrence, Kansas**

**Architect:** Dan Rockhill, Kent Spreckelmeyer, Studio 804, University of Kansas, Lawrence, Kansas

**Date of completion:** 2000, 2001

**Fabricators and manufacturers:**

Lexan (polycarbonate) from GE Structural Plastics

plastic by sandwiching the aluminum frame with two 3/8-inch layers that were translucent green on the exterior and translucent white on the interior. The interior wall is washed with floor-mounted lights, which create very different lighting effects in the day and night, and inside and out.

Polycarbonates are popular with the graduate students in Studio 804, a design-build studio taught by Professor Dan Rockhill at the University of Kansas in Lawrence. Students design and build a house that is sold to a low- to moderate-income family. Design-build is conducive to

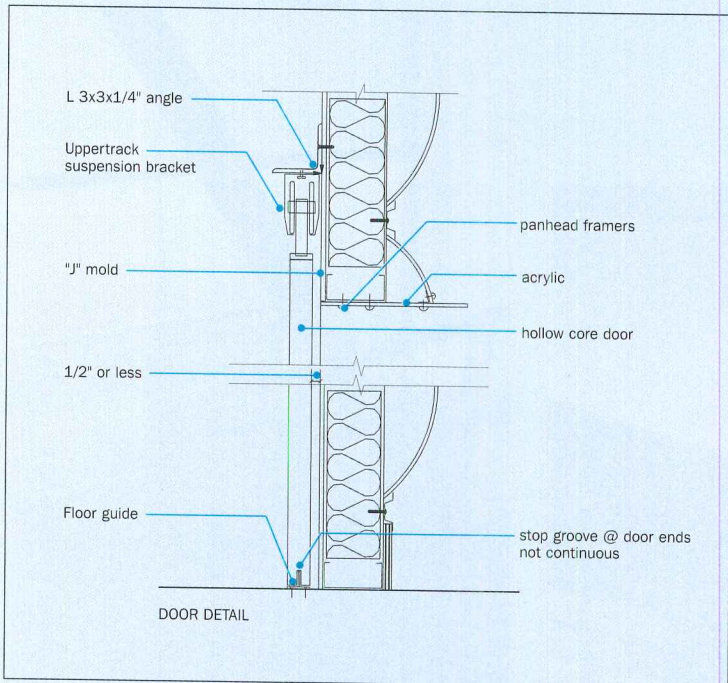
**RECEPTIVE MANUFACTURERS AND FABRICATORS CAN HELP ARCHITECTS ACHIEVE INVENTIVE SOLUTIONS.**

understanding the possibilities and limits of materials. “Plastic has more flexibility and is more forgiving than glass,” said Rockhill. “We can work with the material ourselves on site, drilling holes, cutting it, fitting it up.” Last year, they enclosed the bathrooms of a house called 216 Alabama

with double layers of translucent polycarbonate. The walls, which have the opacity of skim milk, provide the spatial divisions of the interior; the ghosts of the plumbing pipes and the aluminum structural frame are visible within the wall, but there is complete privacy within the room itself.

A 2001 residential project called Random Road had a design that called for stacked bathrooms, and the effect was varied this time by coloring the polycarbonate. Half-inch-thick clear sheets were sanded with a floor sander to “cloud” them, and then they were painted. “The paint is made exclusively for plastic and results in a translucency more like a stain,” explained Rockhill. On-site experimentation led to the final solution: painting one surface of the plastic to get the balance of privacy and translucence they sought.

Receptive manufacturers and fabricators to work with can help designers achieve inventive solutions. Lorcan O’Herlihy, a Los Angeles-based architect, has had success working with a local supplier on several projects. For the offices of YouBet.com (realized in collaboration with Larry Scarpa of Pugh + Scarpa Architects), they used acrylic sheets curved to



The data center at **YouBet.com** is enclosed by curved acrylic panels fastened to the stud wall with hat channel clips (above and far right). Workstations (right) are enclosed with single sheets of heated and bent acrylic.



**YouBet.com**  
**San Fernando Valley, Calif.**  
**Architect:** Lorcan O’Herlihy Architects (Lorcan O’Herlihy, principal), Pugh + Scarpa Architects

(Larry Scarpa, principal)  
**Plastics suppliers:** Hastings Plastics (workstations); Fisher Lumber (curved wall); Crommie Construction (contractor)

form workstations and separately to form a wall around the data center.

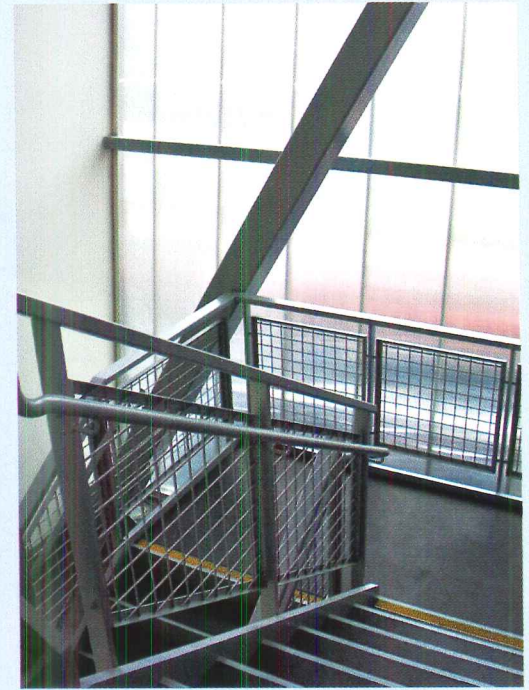
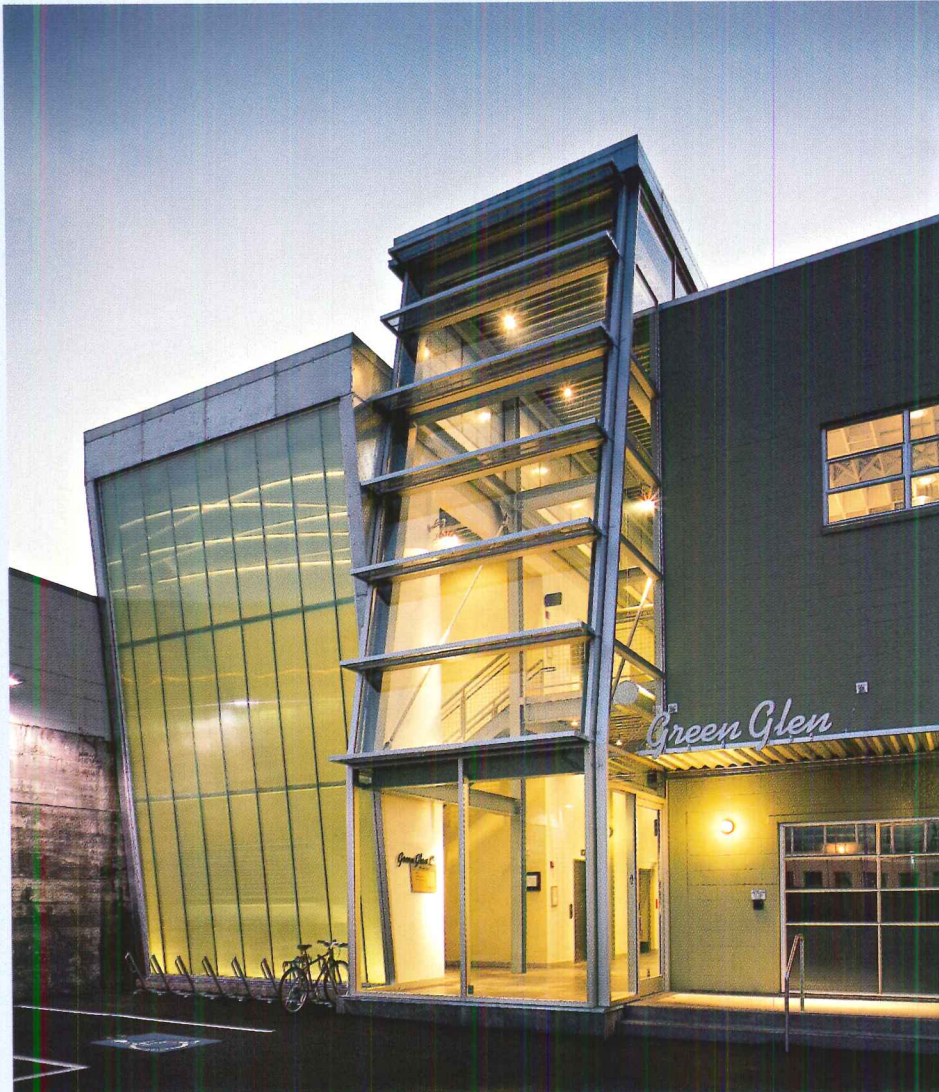
Reinforcing the words of Dan Rockhill, O’Herlihy said, “We like to use this material because it is more malleable than glass; you can put it in an oven and heat it and bend it. The suppliers and manufacturers give us the basic capabilities of the materials and then we work to try to push the limits—for example, increasing the radius of the bend.”

“The suppliers are getting more excited about nonconventional, architectural applications [because they mean new markets], but on-site installation is still labor-intensive. Contractors haven’t necessarily worked with these materials, and some of them require more care than conventional wall materials,” continued O’Herlihy. At YouBet.com in the San Fernando Valley, a single ¼-inch-thick sheet of acrylic is bent with a 2-inch radius at the corners and screwed into a custom-fabricated steel frame for the workstations. A middle-range opacity provides sufficient privacy while enhancing the transfer of light throughout the space. By contrast, the freestanding data center walls are composed of 12-inch-high curved sections of acrylic sheets that run horizontally. Off-the-shelf hat

channel clips attach the sheets to the stud wall, which is lit from within the lowest panel. The overall light quality in the translucent panels can be very even and energy saving, because more daylight is transmitted between and among the spaces.

Experimentation with new materials can be time consuming, often requiring testing and prototype production to uncover a material’s full potential. IBM asked George Yu and his partner Jason King, principles of Design Office in Los Angeles, to renovate 40,000 square feet on two floors in the IBM building in Chicago for their E-business Center for Innovation. Completed in 1971 and designed with C.F. Murphy, the building is Mies van der Rohe’s largest and last building in North America. Design Office, working in collaboration with media design firm Imaginary Forces, wanted to amplify the building’s openness and ethereal boundaries in the renovation. Collaboration and experimentation with various plastics manufacturers led them to select a fiberglass resin for a retractable coat closet and a reception-desk enclosure, an acrylic terrazzo for the floors, and a solid surface material for an

By using green translucent polycarbonate on the exterior layer of the facade and white translucent polycarbonate on the interior, the effect changes from inside to outside.



**Green Glen**  
**San Francisco, Calif.**  
**Architect:** Pfau Architecture  
(Peter Pfau, principal)  
**Manufacturer:** CPI International

interactive conference table.

For the coat closet, Design Office sought a seamless profile in a lightweight and translucent material with some integral color. They brought the problem to a Los Angeles fabricator called Performance Composites, which manufactures fiberglass products for industrial and architectural uses. The fabricator accepted the challenge of making a

## **MORE PEOPLE ARE USING FIBERGLASS, BECAUSE IT IS COST-EFFECTIVE, LIGHTWEIGHT, AND EXTREMELY VERSATILE.**

translucent product using fiberglass, the common name for fiber-reinforced plastic (FRP). Glass fibers and polyester resin are combined into a material that is usually filled or sanded and then painted to remove and hide imperfections. According to Francis Hu, President of Performance Composites, "More and more people are using fiberglass, because it is cost-effective and lightweight, and extremely versatile. It is a good designer's

material because it is extremely malleable." For the 6-by-2½-by-3-foot closets, wooden molds were constructed, lined with wax to permit removal, and then a clear layer of gel coat was applied. Over that, fiberglass mat, wetted with tinted resin, was layered into the mold to a thickness of ½ inch. In order to achieve the correct color, thickness, and translucency, numerous samples and prototypes were produced to insure that the final finish would be flawless.

The same process for the much larger 12-by-3-by-2-foot reception desk yielded a different appearance. "People have described it as looking like a huge piece of taffy, with the imperfections, such as cloudy spots and bubbles, of a piece of candy," remarked George Yu. Besides the effort of achieving the desired visual impact, the architect had to solve a major technical problem. The enormous size and weight (2,000 lbs) of the ¾-inch-thick enclosure required that stiffening ribs be cast into the form to prevent it from deflecting once it had cured.

On the floor, Design Office looked for a material that would give a sense of depth. After considering tile, sandblasted glass, and thick resin,





**IBM E-business Center for Innovation  
Chicago**

**Architect:** Design Office (George Yu and Jason King, principals), Los Angeles; Hellmuth, Obata, & Kassabaum, Chicago

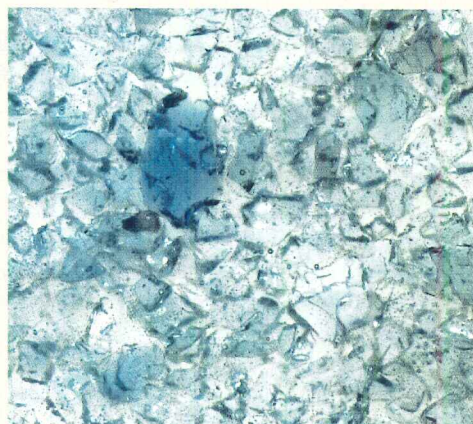
**Suppliers/manufacturers:** Performance Composites (coat closets, reception desk enclosure); KB Manufacturing (conference table); Northwestern Terrazzo & Flooring (acrylic terrazzo)



BUILDING SCIENCE



Acrylic terrazzo flooring (top left, bottom right) gives depth to floor surfaces and reflects light throughout the space. Fiber resin coat closets and a reception desk enclosure, made by same process, yield different effects when completed.



they convinced a local terrazzo maker to experiment with clear epoxy and recycled glass. After several tests to get a satisfactory ratio of glass to epoxy and degree of translucency, they put it down in 20-foot-wide alternating bands of clear and milky colored epoxy embedded with colored glass. As Yu describes it, "With the clear epoxy, it feels as if you are standing on a frozen lake, and the milky colored one is the like coleslaw. When the sun

**PLASTICS WILL USE MORE RECYCLED MATERIALS AND HAVE INCREASED INSULATING AND STRUCTURAL PROPERTIES.**

is high, the blues and greens of the recycled glass reflect off the ceilings and walls." The final product had effects that neither the designers nor the manufacturer imagined, but it has been so successful that the manufacturer is now marketing the product commercially.

For the conference table, Design Office used Vesta, a product that starts with the same solid surface liquid material that is used to make

sheet goods, such as Corian, but is processed differently. It is applied around a core, typically wood, so the final product is a single, seamless piece of any size and shape—in this case, a 19-foot-long freeform table. Compared to sheet material, Vesta has a higher impact strength and less thermal expansion. It can also be inlaid with a second color or material by carving out a design to the wood substrate, pouring in new material that is then sanded smooth.

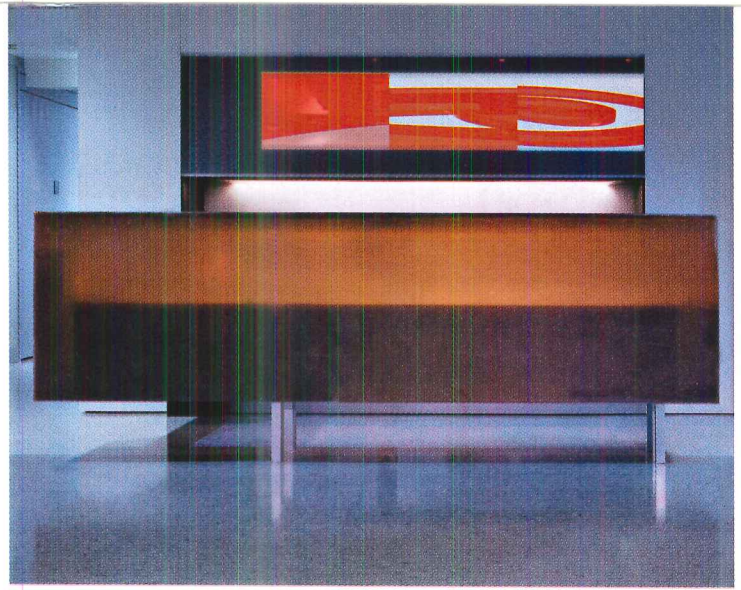
Speed and versatility led Imagination (USA), international design consultants, to a fabric-covered space frame for the Samsung Pavilion at the upcoming winter Olympics in Salt Lake City. Durable, yet lacking thermal properties in this application, the chief advantage of the space frame is that it can be erected and removed in a matter of weeks. The pavilion demonstrates the versatility and widespread application of plastic materials. The sides, back, and roof will be covered with a single-ply, PVC-coated polyester fabric with an acrylic lacquer finish. The front facade will be clear PVC preceded by a deeply layered entrance zone, resembling a wave in footprint, which will be con-

structured from molded fiberglass and internally illuminated. Exhibition space within the pavilion will be made in freeform polycarbonate, and display spaces will be acrylic spheres.

Exciting possibilities for new and dazzling architectural effects aside, no one can ignore the impact of petroleum-based products on the environment. There are plenty of landfills and waterways swamped with plastic products that will never biodegrade. The very characteristics that make plastics durable and resistant to chemical and organic deterioration are what make them so tough on the environment. And, still today, petro-

## INNOVATION WILL NECESSITATE COLLABORATION AMONG ARCHITECTS, ENGINEERS, FABRICATORS, AND MANUFACTURERS.

chemicals continue to be the major raw material used in manufacturing plastics. But there are credible arguments that show how favorably plastic compares to glass, for example, with regard to the energy needed for manufacturing and transportation; other arguments point to the durability of plastic lumber products for decking and railroad ties, as protection of forests. Research is underway by manufacturers, such as Cargill Dow, DuPont Dow Elastomers, and Exxon, as well as at many universities, to develop new plastics that will not depend on fossil fuels but on a variety of natural products, including beets, corn, and bio-based plastics made from living, renewable organisms. The new generation of plastics will use more



**Weighing close to a ton, the reception desk has cast ribs for extra strength.**

recycled materials and will have increased insulating, durability, and structural properties. Developments that make plastics environmentally friendly will, in turn, increase their appeal to architects and designers and their clients. Furthermore, innovation will necessitate collaboration among architects, engineers, fabricators, and manufacturers, a by-product that promises to alter the practice of architecture. ■



### AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

#### INSTRUCTIONS

- ◆ Read the article “Plastics Finally Get Respect” using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers [page 207].
- ◆ Fill out and submit the AIA/CES education reporting form [page 207] or download the form at [www.architecturalrecord.com](http://www.architecturalrecord.com) to receive one AIA learning unit.

#### QUESTIONS

1. Which was the first wholly synthetic plastic?
  - a. celluloid
  - b. Bakelite
  - c. polycarbonate
  - d. Plexiglas
2. What was the building block of plastics during the 1920s and 1930s?
  - a. petroleum
  - b. plant cellulose
  - c. organic compounds
  - d. acrylic
3. Translucent walls are often made from which type of plastic?
  - a. polyurethane
  - b. melamine-formaldehyde
  - c. polycarbonate
  - d. polyethylene
4. Which type of plastic is the best candidate for recycling?
  - a. thermoset
  - b. polyvinyl chloride
  - c. thermoplastic
  - d. phenolic resins
5. Why do students in the graduate studio prefer to work with plastic rather than glass?
  - a. plastics are cheaper to buy
  - b. plastics come in more colors
  - c. plastics are lighter weight
  - d. plastics are easier to cut and fit
6. What type of plastic would be used in curved sheets?
  - a. phenolic resins
  - b. polyester
  - c. acrylic
  - d. polyurethane
7. All of the processes that form plastics use which?
  - a. recycling
  - b. heat
  - c. glazing
  - d. spinning
8. How can clear polycarbonate be made translucent?
  - a. sanding it
  - b. heating it
  - c. adding milk to it
  - d. tripling the thickness
9. One of the advantages of translucent wall panels is which?
  - a. they are labor-intensive
  - b. they distribute light evenly
  - c. they reduce noise
  - d. they distribute heat evenly
10. Fiberglass is used because of which property?
  - a. it is rigid
  - b. it is normally translucent
  - c. it is clear, with no cloudy spots
  - d. it is versatile



Courtesy of VEKA Inc., Fombell, Pa., and Republic Windows and Doors, Chicago



## Vinyl By Design: ACHIEVING A SUCCESSFUL BUILDING ENVELOPE WITH VINYL

**B**uilding owners want performance from every component of the new or renovated building delivered through their architect's design process. Amid growing pressure to deliver better buildings faster and at lower cost, architects reach for the materials that they know and trust to help them meld form, function and aesthetics in ways that achieve the performance clients demand.

As a building material, vinyl combines characteristics of traditional materials with advanced technologies and innovation that give it versatility in many applications. As with products of any material, optimum performance of vinyl products requires not only a clear understanding of how they perform once put into service, but also proper specification and a commitment to ensuring that qualified installers deliver the workmanship on which optimum performance depends.

This continuing education section examines three applications in which vinyl can be an appropriate design solution for the building envelope – roofing, siding and windows. Discussion of each vinyl application offers guidance on design and specification that can help to ensure the product performs as expected while protecting design intent and reducing exposure to design liability.

### ROOFING

Reflective (light-colored) vinyl roofing membranes can be engineered to withstand decades of wear and tear and remain watertight under the most demanding weather conditions while, in many geographic locations, reducing a building's space conditioning energy consumption.

Today's vinyl membrane roof – a clean, safe, energy-efficient and less costly alternative to asphalt built-up roofs – is typically internally reinforced with a woven fabric such as polyester or incorporates internal glass fibers, making it highly durable and able to withstand both the elements and stresses imposed by building movement. Vinyl roofing systems are also naturally fire retardant, can have dirt-resistant coatings and generally offer a long service life.

ASTM D4434: "Specification for Poly (Vinyl Chloride) Sheet Roofing" sets minimum standards for weathering performance of vinyl roofing membranes. Under these test criteria, a vinyl sheet must show no evidence of cracking or crazing and only negligible evidence of discoloration after 5,000 hours of exposure to a xenon arc light source, water spray and elevated temperatures – all factors that can degrade roofing membranes and lead to failures once they are placed in service.

### AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Vinyl By Design: ACHIEVING A SUCCESSFUL BUILDING ENVELOPE WITH VINYL**. To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 119, and follow the reporting instructions on page 210 or use the Continuing Education reporting form located at [www.architecturalrecord.com](http://www.architecturalrecord.com).

#### LEARNING OBJECTIVES

- Write specifications for vinyl roofing, siding and windows to avoid product and installation failures.
- Describe the standards applicable to vinyl building products to ensure performance.
- Identify the resources available to contact for further information on vinyl building materials.

Vinyl roofing systems are not off-the-shelf installations; each one is a customized, engineered fit. The numerous variables involved make it important to take into account manufacturers' guidance when designing and specifying a project. A 1996 study by DPIC, a professional liability insurance provider for the design community, found that roofs were the element most often involved in claims against architects (10 percent) over the studied time period. Some issues to keep in mind:

**Seaming.** Vinyl roofing membranes can be fabricated in a variety of widths and lengths to meet the exact dimensions of a roof, but for most installations, roofing sheets are joined by hot-air welded seams. The performance of a single-ply membrane roofing system depends on the strength of these seams. When these seams are properly joined following the manufacturers' instructions, they are highly effective in preventing water and even root penetration, which is why vinyl membranes are commonly used as a component in the new green, or planted, roof systems.

**Substrate Compatibility.** When considering a vinyl membrane over an asphalt or polystyrene substrate, the two materials should be separated to prevent premature aging of the membrane and/or the extraction of the plasticizer in it that makes it flexible. Typical separator sheets used for this purpose are made from polyester or fiberglass. Some vinyl roof manufacturers produce asphalt-resistant membranes.

**Weatherproofing.** Wall flashings should be carefully located at an elevation far enough above the anticipated finished roof level to ensure that minimum base-flashing heights can be met for maximum positive mechanical weatherproofing. By doing this, it is possible to limit the reliance on sealants as a primary means of making the system weathertight. Sealants may have a shorter service life than the other components of the roofing system.

**Moisture Control.** Because of seasonal thermal cycles that affect inward and outward movement of water vapor, the presence of insulation and vapor retarders in the roof system can increase the likelihood of condensation entrapment. Due to its water vapor permeability characteristics, a vinyl roof membrane can actually aid in a

drying-out process by allowing trapped moisture to aspirate through the membrane. This "breathing" process can maximize the thermal performance of the roof insulation by keeping it dry, and can also reduce the potential for corrosion of steel roof decks and fasteners.

**Warranties.** A warranty should be carefully selected when specifying vinyl roofing, as warranty issues can have an impact on long-term owner satisfaction. Unless a full-system warranty is provided, roof insulation, fasteners and other roofing components may be excluded. Another consideration is a warranty that continues coverage even under water ponding conditions which sometimes occur despite skillful design and workmanship.

## SIDING

Vinyl siding's combination of durability, affordability, attractiveness, low maintenance and design versatility makes it a popular material choice for residential and light commercial projects. Today, more dramatic shadow lines and thicker planks plus dozens of finishes, colors and architectural trim accessories are causing architects to rethink their exterior cladding design approaches on even high-end projects.

Better products are driving this renewed popularity as manufacturers strive to meet or exceed ASTM D3679: "Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding." This consensus standard includes 12 different tests to evaluate the quality of vinyl siding, measuring such performance attributes as weathering, wind load resistance, impact resistance, surface distortion and heat shrinkage.

To help architects identify products that meet or exceed ASTM D3679, the Vinyl Siding Institute (VSI) sponsors the VSI Vinyl Siding Certification Program and maintains up-to-date listings of certified products. Before a product can be certified – and in order to maintain certification – an independent testing laboratory conducts unannounced product inspections and reviews manufacturing facility quality programs. Specifying that panels be VSI-certified ensures that the quality standards established by ASTM D3679 are confirmed by Architectural Testing, Inc., a company specializing in comprehensive testing services for building envelopes.

In addition to specifying reference standards, it is beneficial to go even further using a prescriptive approach, describing the desired siding characteristics in the Product section of the specification. Providing exact detail on the following items can go a long way to ensuring client satisfaction.

### DESIRED SIDING CHARACTERISTICS

<b>Profile</b>	Examples: Double 4-inch, Triple 3-inch, Dutch lap, clapboard
<b>Texture</b>	Matte or grain (low gloss) for a finish more like painted wood
<b>Thickness</b>	Equal to or greater than .040 inch for best impact resistance
<b>Butt Height</b>	Greater than 1/2 inch for deeper shadow lines

When installed correctly, certified vinyl siding can add to the overall water resistance of a building. In particular, it will provide the first line of defense against water penetration of the building envelope. Tests conducted in 2000 at Building Science Corporation (Westford, Mass.), a building science consultancy with an emphasis on moisture dynamics, concluded that virtually all of the 10 liters of water poured into the top of a vinyl-sided wall panel drained off in the top half of that panel, dispersing so effectively that no water was observed on the backside of the panel at the middle and lower view ports.

In order to make the most of vinyl siding's benefits, specifiers should require installers to follow manufacturers' instructions. Awareness of the following key variables associated with installation will help specifiers deliver what they promise in their design:

**Selection of Related Building Materials.** Proper sheathing or other substrate, wall preparation and accessories will ensure vinyl siding's ability to perform as expected. Unseasoned framing lumber should be avoided as a substrate because warping wood can affect the straightness and appearance of the siding. A weather-protective barrier such as a house wrap or building felt should be applied before installing siding, and J-channels and corner posts sized to match the siding panels.

## VINYL'S ENVIRONMENTAL AND ECONOMIC BENEFITS

Some vinyl window and roofing products carry the ENERGY STAR® designation from the U.S. Environmental Protection Agency and U.S. Department of Energy, meaning these products perform as well as or better than comparable models while using less energy and saving money.

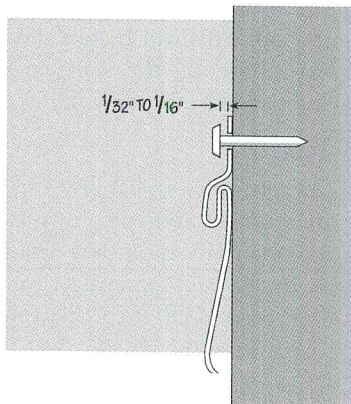
The National Fenestration Rating Council (NFRC) qualifies windows for the ENERGY STAR rating on the basis of the products' U-factor (rate of heat loss via the window) and Solar Heat Gain Coefficient (solar heat gain stemming from a window's performance). Windows that qualify bear a label from the NFRC. Qualifying U-factors and SHGCs for the three climate zones are:

	U-FACTOR	SHGC*
Windows for Northern States	0.35 or below	N/A
Windows for Middle States	0.40 or below	0.55 or below
Windows for Southern States	0.75 or below	0.40 or below

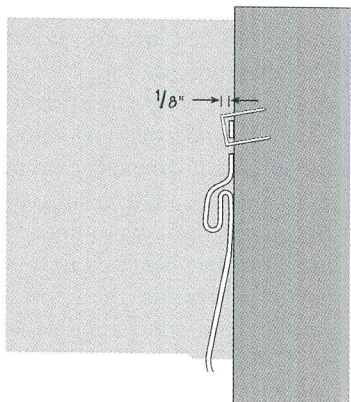
\*Solar Heat Gain Coefficient

All ENERGY STAR-qualifying vinyl roofing systems have been tested as having an initial solar reflectivity of at least 0.65 – meaning that 65 percent of the solar heat is reflected, and only 35 percent absorbed. Some manufacturers offer roofs reflecting in excess of 80 percent. Benefits of using these products include extended roof life, reduced air-conditioning demand and lower surrounding air temperature or reduced "heat island effect." Asphalt built-up roofs, by comparison, reflect between 6 percent and 26 percent solar heat.

In a federal study released in June 2001, researchers at the Lawrence Berkeley National Laboratory measured and calculated the reduction in peak energy demand associated with a vinyl roof's surface reflectivity. Its findings: compared to the original black rubber roofing membrane on the Texas retail building studied, a retrofitted vinyl roofing membrane delivered an average decrease of 42° F in surface temperature, an 11 percent decrease in aggregate air conditioning energy consumption and a corresponding 14 percent drop in peak air conditioning energy consumption.



Leave 1/32" to 1/16" between nail heads and the nailing flange.



Aim the gun upward, with anvil positioned about 1/8" from wall to achieve correct depth.

Courtesy of Alside, Inc., Akron, Ohio

### Accommodation for Material Movement.

All building materials have expansion and contraction characteristics, and vinyl siding is no exception. Vinyl siding needs to have room to expand and contract longitudinally in the normal course of daily temperature changes as well as over seasonal extremes. The length of a typical panel could vary as much as 3/8 of an inch, depending on whether it was installed in extremely hot weather or extremely cold weather. If not allowed space to adjust to temperature fluctuations, the surface distortion known as "oil-canning" may result. To avoid locking the siding to the building substrate, nails or other recommended fasteners should be affixed in the center of the nailing slot and not overdriven. In addition, a minimum of 1/4-inch clearance should be left at all openings and stops.

**Avoiding Blow-Offs.** Although proper installation plays a major role, in areas where high wind pressure is a concern, specifying a panel with a rollover nail hem will help ensure long-term performance.

**Assuring Appearance.** To enhance the overall appearance of an exterior design incorporating vinyl as the cladding, all panel joints should face the same way, typ-

ically away from building entrances and the building's most common focal points. This can be facilitated by making sure panels overlap by one half the length of the notch at the end of the panel (1 inch), and staggering end laps so that no two courses are aligned vertically unless separated by three courses. Specifying a reinforced top lock makes a panel more resistant to following variations in the wall, thus maintaining a straighter and truer appearance.

### WINDOWS

Vinyl windows offer the same performance characteristics and design flexibility that specifiers rely on from windows made of traditional materials, with the added benefits of high thermal energy efficiency, low maintenance and high durability. The compounds used in vinyl window manufacture incorporate ultraviolet inhibitors for improved weather resistance, as well as stabilizers to protect the frames from cracking, splitting, pitting, peeling or chalking.

The type of building and its orientation, geographic location, wind zone, exposure and terrain, as well as local code requirements, determine the performance criteria for a given window application. Although vinyl currently is not specified for commercial high-rise windows due to extreme wind

load resistance requirements, vinyl-aluminum composite window products are being developed for these applications.

The American Architectural Manufacturers Association (AAMA) certifies window products. AAMA-certified windows are tested by an independent laboratory for heat resistance in a 300° F hot-air oven for 30 minutes and for dimensional stability in a 180° F water bath for 30 minutes. Window profiles must also pass accelerated outdoor exposure tests in South Florida, Arizona and northern industrial climates for impact strength, wind load resistance and heat buildup. Requirements for wind load, structural load and water resistance are spelled out in ANSI/AAMA/NWDA 101/I.S.2-97, "Voluntary Specification for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors."

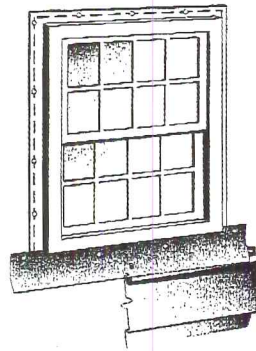
When installed correctly and maintained properly, vinyl window products will deliver long and reliable service and energy savings. AAMA's Installation Masters™ Installer Training and Certification program for all window products provides an avenue for installers to learn the window installation techniques that have been adopted by the fenestration industry. Training and certification of installers provide architects the ability to assure their clients that professionals qualified to do the work have installed the windows. Other specification concerns include:

**Accurate Measurement of Product.** Vinyl windows must be installed with the appropriate clearance between the frame and the rough opening to maximize performance. Failure to do so can lead to frame distortion which, in turn, can lead to expensive water damage to the wall or window cavity, broken glass, damage to the insulated glass seal or inoperable windows – in addition to increased heating and cooling costs from air infiltration and exfiltration.

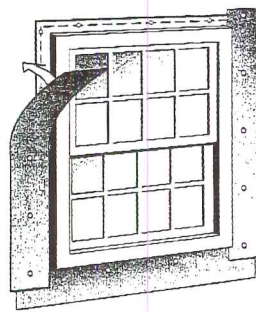
**Accessories.** The accessory components used in the installation of vinyl windows also support their optimum performance, and must receive special attention during the specification process.

• **Nails and Screws.** All nails should be aluminum or galvanized steel, and steel screws should be galvanized or otherwise protected from corrosion. These fasteners will resist staining, oxidation and deterioration. Correctly sized nails and screws provide adequate anchorage and prevent frame distortion, leaks and loosening.

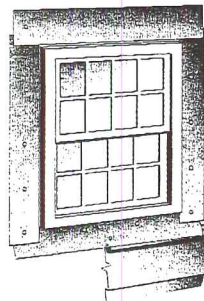
- **Shims.** Vinyl windows should be supported along the full length and width of the sill with solid stock, such as flat shims. If spaced shims are used, they should be spaced according to manufacturers' instructions. When shims are not applied properly, the vinyl sill can sag between supports, which can cause rough operation of horizontal slider windows.
- **Flashing.** To allow any residual water entering the wall cavity to exit freely, adequate flashing should be provided around the entire window perimeter. The specification should indicate that



Flashing width is determined by the type of trim surrounding the window and where the last full course of siding stops below it. The flashing should extend past the nail flanges of the trim. The width of the flashing under the window must be adequate to divert water to the exterior.



Vertical flashings should be applied by overlapping the previously-secured bottom flashing. Here again, flashing length and width is determined by the type of trim used.



Apply and secure the top flashing by overlapping the side pieces. For optimal protection at the window head, make two vertical slits in the building wrap, inserting the top flashing behind it. Seal the resulting seam with a compatible water-resistant tape.

Courtesy of CertainTeed Corporation, Wolverine Vinyl Siding, Valley Forge, Pa.

flashing is to be installed in weather-board fashion, in proper sequence so that each piece is overlapped by the piece above it. Every effort should be made to ensure that the flashing is installed during construction.

**Sealant.** As the first line of defense between the elements and a building's interior, sealant provides a barrier between two adjacent materials against the penetration of water and air, making it an important product choice. It is important to consult with sealant manufacturers for recommendations on a given application; adverse chemical reactions with the window, mounting surface and finished wall can compromise the seal and damage materials. In general, elastomeric joint sealants – including polysulfides, polyurethane and silicone – adhere well, remain flexible and are fully compatible with vinyl.

It is important to specify that sealant be applied between the window frame and the rough framing, flashing and/or house wrap or building paper, integrating all of the components and providing effective water management. Sealant should also be specified at the joint between the window jambs and sill. This will reduce the possibility of water entering the wall cavity as it runs down the face of the window or wall.

## CLOSING

Managing design liability and avoiding risk are founded upon a conscious awareness of the small but important details. The key is to understand potential problems before they occur and to proactively specify the solutions to them.

Familiarity with the inherent characteristics of any building material, along with the performance capabilities of specifiable products made with that material, aids in this process. Documenting the selection of a product through drawings and specifications should take this understanding into account, and the important role of its proper installation should not be underestimated. Each part of the process has a major impact on the building ultimately delivered to the owner. In the best of all worlds, the result will be a successful, high-performing building – delivered on schedule and within budget – that will be a continuing source of satisfaction to both the architect and the client.

## TECHNICAL ASSISTANCE

Technical assistance on vinyl roofing, siding and windows is available from the following resources:

### ALL APPLICATIONS

The Vinyl Institute's electronic binder on all vinyl building products, including roofing, siding and windows – Vinyl By Design™: An Online Resource for Building Professionals – is at [www.vinylbydesign.com](http://www.vinylbydesign.com). Product manufacturers are included.

For the full text of individual ASTM standards, go to the ASTM Store at [www.astm.org](http://www.astm.org).

### ROOFING

A database to assist with the selection of reflective vinyl roofing materials, sponsored by the Lawrence Berkeley National Laboratory, is at <http://eetd.lbl.gov/CoolRoof/>.

For more information on vinyl roofing product manufacturers that have partnered with the ENERGY STAR® program, visit [www.energystar.gov](http://www.energystar.gov).

Further information on the single-ply roofing membrane industry is available from SPRI at [www.spri.org](http://www.spri.org).

### SIDING

A complete list of certified vinyl siding products is available at the Vinyl Siding Institute's Web site, [www.vinylsiding.org](http://www.vinylsiding.org), or by calling the Vinyl Siding Information Center, 888-FOR-VSI-1. Installation guidance can be found in VSI's "Vinyl Siding Installation: A How-To Guide."

For more information on the Building Science Corporation tests of vinyl siding, go to [www.buildingscience.com](http://www.buildingscience.com) or call (978) 589-5100.

### WINDOWS

For a directory of certified vinyl window products, the American Architectural Manufacturers Association's Installation Masters™ training manual or the full text of ANSI/AAMA/ NWWDA 101/I.S.2-97, go to the Publications Store at [www.aamanet.org](http://www.aamanet.org).

For more information on vinyl window product manufacturers that have partnered with the ENERGY STAR program, visit [www.energystar.gov](http://www.energystar.gov).

### INSTRUCTIONS:

Refer to the learning objectives on page 115. Complete the questions below. Then answer test questions and fill out the reporting form on page 210 and submit it or use the Continuing Education reporting form on *Record's* Web site - [www.architecturalrecord.com](http://www.architecturalrecord.com) - to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

### Questions

**Q: 1. Vinyl membrane roofs are typically reinforced with any of these materials except which?**

**A:** a. woven fabric; b. polyester; c. asphalt; d. glass fibers

**Q: 2. Vinyl roofing membranes are tested to withstand hours of exposure to all except which?**

**A:** a. water spray; b. extreme cold temperature; c. xenon arc light; d. elevated temperature

**Q: 3. The standard specification for vinyl siding establishes minimums for which?**

**A:** a. performance attributes; b. installer qualifications; c. range of colors available; d. number of courses to be aligned vertically

**Q: 4. Vinyl membranes need to be separated from asphalt or polystyrene substrates to prevent which?**

**A:** a. dark staining on the light reflective vinyl; b. condensation forming between the vinyl and the substrate; c. algae growing on the surface of the vinyl; d. extraction of the plasticizer that makes vinyl flexible

**Q: 5. Guidelines for assuring appearance of vinyl siding include which?**

**A:** a. facing all panel joints toward the building's focal points; b. specifying a reinforced top lock; c. aligning end laps vertically; d. making sure panels do not overlap

**Q: 6. The water vapor permeability characteristics of vinyl roofing are beneficial for all except which?**

**A:** a. allowing trapped moisture to aspirate through the membrane; b. reducing the potential for corrosion of steel roof decks and fasteners; c. keeping water off the roof membrane; d. keeping the roof insulation dry

**Q: 7. The most important reason elastomeric joint sealants are used for vinyl windows is which?**

**A:** a. other types of sealants take longer to set up; b. other types of sealants are more expensive; c. elastomeric sealants remain flexible; d. elastomeric sealants can be painted while others can't

**Q: 8. The AAMA certifies window products for all of these except which?**

**A:** a. heat resistance; b. dimensional stability; c. accelerated outdoor exposure; d. permeability

**Q: 9. Failure to measure accurately for vinyl windows will not result in which?**

**A:** a. damage to the insulated glass seal; b. inoperable windows; c. increased heating and cooling costs; d. oil-canning

**Q: 10. Which of these should be avoided to protect the appearance of vinyl siding?**

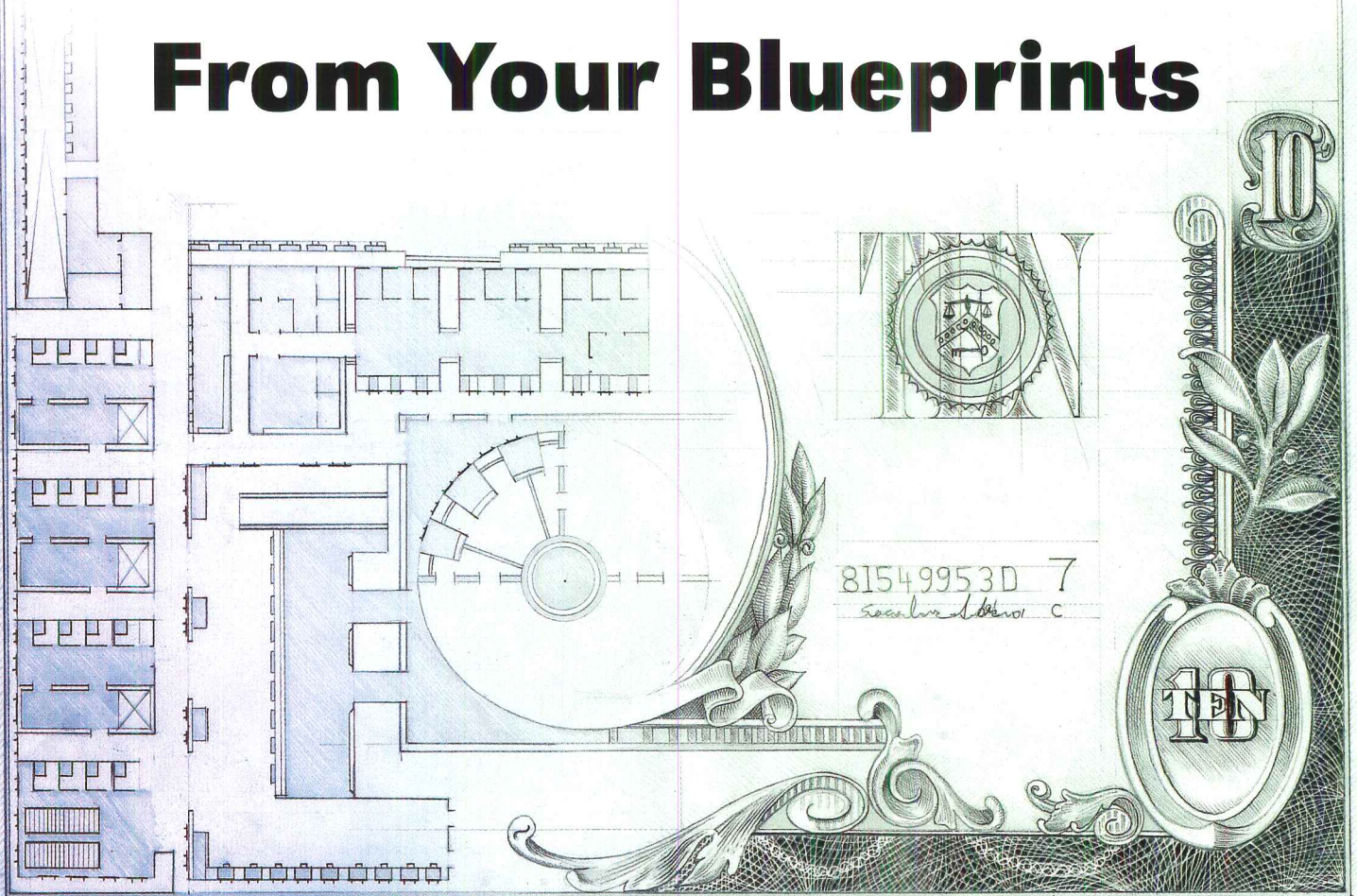
**A:** a. house wrap; b. unseasoned framing lumber; c. building felt; d. J-channels

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# THE DIGITAL PRACTICE

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work a day later?

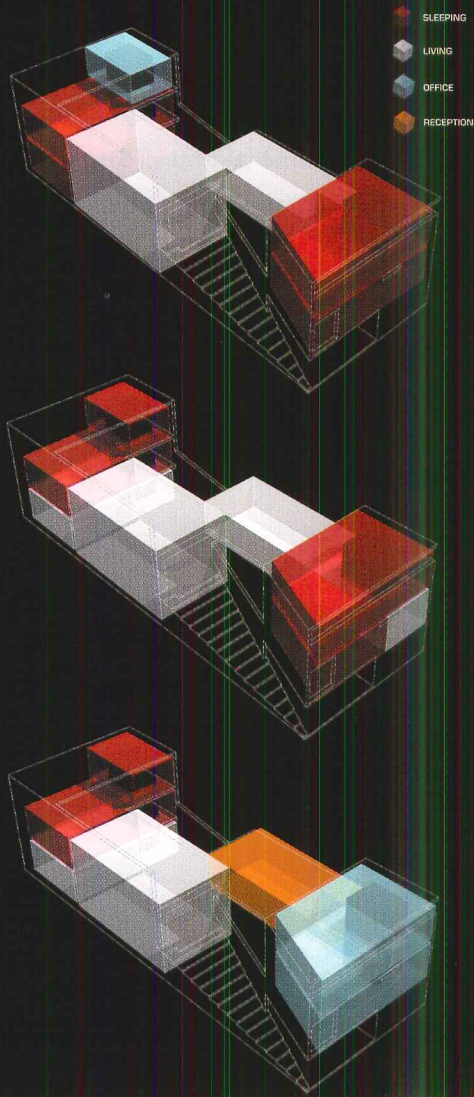
No subject is without its post-September 11 implications. For two architecture firms in lower Manhattan, the World Trade Center tragedy was underscored by the need to find new space and recover data as quickly as possible. As RECORD

reported in October [page 26] and November [page 35], the offices of Mancini Duffy and Gruzen Samton were destroyed when the twin towers were attacked. Mancini Duffy retrieved CAD files from their clients and recovered financial data from an off-site archive. Gruzen Samton had to pry open a partially melted safe to get at their backup tapes. They also retrieved some data from their consultants.

If the importance of backing up and storing digital data off-site was doubted before September 11, it became crystal clear in light of stories like these [see also *Digital Architect*, April 2001, pages 177–178]. With more and more of a firm's work stored in digital media, the value of having backup measures in place is enormous compared to the modest sum needed to invest in them.

Now, on to this quarter's feature: a story on how Macintosh computers are used in architectural practice. This is the first time a major article devoted to the Mac has appeared in these pages. I suspect many architects love Macs for their winsome appearance, even if they don't use them. And why not? A computer is nothing if not a miniature building: a place where interactions happen, knowledge is stored, decisions get made, and a thousand invisible mysteries unravel. Like good architecture, the Mac's design transcends its mundane functions, rendering them sublime. *Deborah Snoonian, P.E.*

Variations on "The Uphill House," by New York firm Artifact Design + Construction. The project can be seen on Etekt.com, a new marketplace for design (page 124).



## 123 Digital Briefs

*Jerry Laiserin, FAIA, and  
Christina Rogers*

## 127 The Macintosh Computer in Architectural Practice

*By Louis B. Smith, AIA*

## 135 Digital Architect: Using Digital Tools to Enhance and Expand Services

*By Jerry Laiserin, FAIA*

## 139 Digital Product Reviews

*By Jerry Laiserin, FAIA*



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# Digital Briefs

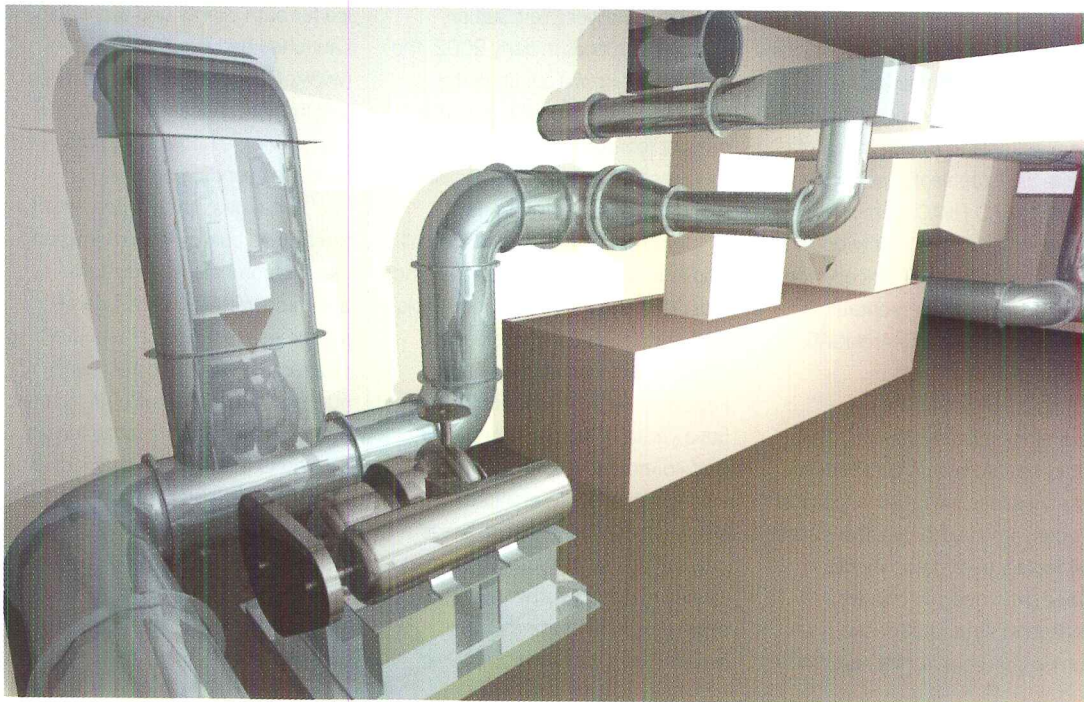
A new trend in CAD software: solutions that coordinate information among all the design disciplines • Architects team up to create an online marketplace for residential design

## With More Powerful Hardware, Multidiscipline Design Software Has Its Genesis

Ever since the earliest CAD systems were conceived, the Holy Grail for software developers, vendors, and users alike has been the single building model—a software representation of a building project that integrates all design data for all design disciplines. However, until now, slow processor speeds and memory limitations of computer hardware curbed software's capabilities to provide such an application. In the past, architects, landscape architects, and engineers have settled for 2D drafting software that delivered digital equivalents of paper drawings but did little to aid coordination of drawings within or across disciplines. But this past year, several leading software developers announced releases or plans to release multidiscipline design tools that address the long-standing coordination challenges for the A/E industry.

This trend toward automatic, electronic coordination of data from all the building disciplines has been in the making for some time. In the late 1990s, improved hardware speed and performance coupled with lower prices supported the development of intelligent 3D design software, sometimes called object CAD or parametric modeling, which simplifies the coordination of 2D drawing views within a single discipline, such as architecture or HVAC engineering—but which still does not enable cross-checking between building trades. Interference checking (or clash detection, as it's called in Britain) helps avoid costly construction problems that go

**www** For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at [www.architecturalrecord.com](http://www.architecturalrecord.com)



Tools that automatically convert single-line HVAC schematics to fully modeled ductwork help architects and MEP engineers verify equipment clearances during the design phase.

undetected during design—such as pipes that penetrate ducts, ducts that cut through beams, or mechanical equipment rooms that are too small for the machinery they're intended to house. Manual compari-

### A/E SOFTWARE OUTFITS ARE UNVEILING TOOLS THAT CROSS-CHECK DESIGN INFORMATION AMONG THE DISCIPLINES.

son or overlaying 2D drawing files for architectural, structural, mechanical, and other trades remains slow, costly, and error-prone. But intelligent 3D software that accommodates the design work of multiple disciplines in a single representation can solve this problem. Benefits go beyond interference checking to improved communication and coordination between architects and their consultants throughout the design process, and potential results include faster project delivery, lower cost of production, and

fewer errors.

Leading CAD vendors have begun capitalizing on this opportunity, and they believe their latest products will meet an increasing demand for these solutions. What

started as a distant blip on the radar early in 2001 will emerge as a full-blown competitive trend among these developers in 2002.

Among the first products on the market was Nemetschek North America's LandMark program for landscape architecture and site-work, which comes bundled with its flagship VectorWorks Architect (VWA). Building and site information can be modeled separately and then integrated, or modeled together interactively. For example, by defining a building model's first-

floor slab as a pad and setting an elevation for that pad, the user can let the building digitally dig its own foundation in the site model. VWA, which runs on both Macs and PCs, also includes libraries of structural components that are parametric—easily customized to represent real structural shapes like wide flange steel sections.

Market-leading Architectural Desktop (ADT) from Autodesk has added Autodesk Building Systems Mechanical and Building Systems Electrical (ABM and ABE), for engineers to model their work within 3D models generated by architects (ABM and ABE run on top of ADT, ensuring consistency among the disciplines). These products automatically generate 3D duct layouts, check for interferences, and create schedules—including panel schedules with accumulated electrical loads by circuit and device. Autodesk's subscription service

## Digital Briefs

provides unlimited access to new extensions and upgrades as they're released, for additional modeling capabilities and electronic libraries of custom objects representing real components such as pumps, valves, air handlers, and luminaires.

Rather than provide engineers with new tools to match those of architects, Graphisoft positioned its new ArchiCAD HVAC to import engineers' traditional ductwork schematics and automatically convert them to 3D representations of ductwork inside the ArchiCAD building model.

Market upstart Revit Technology has announced integrated structural and site design capabilities for the latest release of its eponymous software. Consistent with Revit's parametric model approach to design software, changes to structural or site information are automatically coordinated with the building model.

Bentley Systems, which recently shipped a major overhaul (version 8.0) to its MicroStation product line, expects to deliver MicroStation Industry Portfolios in early 2002. The portfolio lineup will continue the TriForma name of Bentley's earlier product for architects but will add modules for structural, electrical, and other engineering disciplines.

No vendor has yet covered all trades in its software solutions, and most of these first-generation tools fall short of the complete design needs of the targeted engineers. Furthermore, software companies have yet to address the challenge that confronts an engineer who works with multiple architects using different software. Despite these growing pains, the upswing in multi-discipline design software bears close attention in the months ahead. *Jerry Laiserin, FAIA*

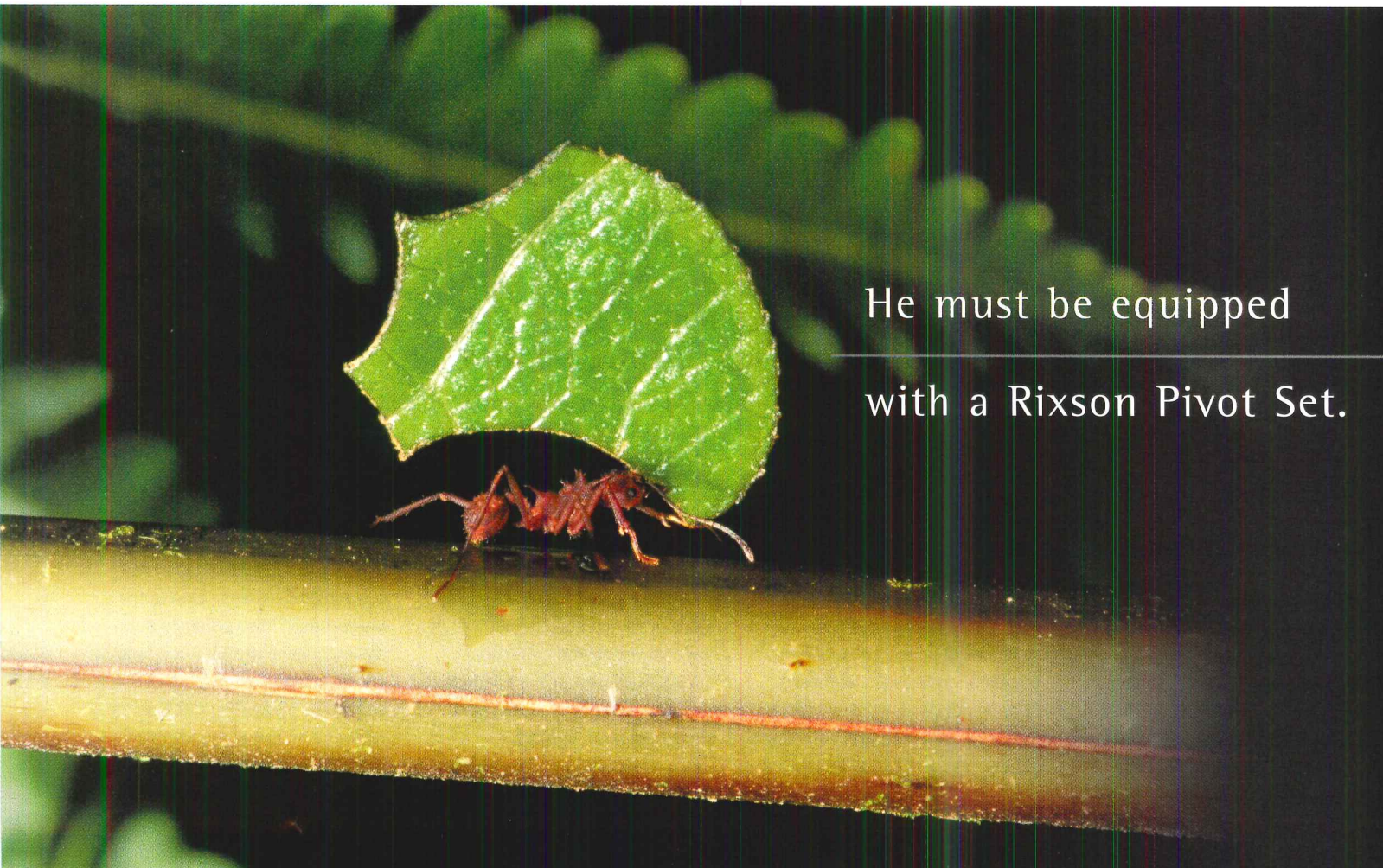
## New Web-based service helps architects gain entrée into residential design market

Frustrated with the domination of predesign stock plans in the residential design market, three young architects developed an online service for both clients and architects. Launched this summer, Etekt ([www.etekt.com](http://www.etekt.com)) is an interactive studio that makes marketing and customizing a home design as simple as sending an e-mail.

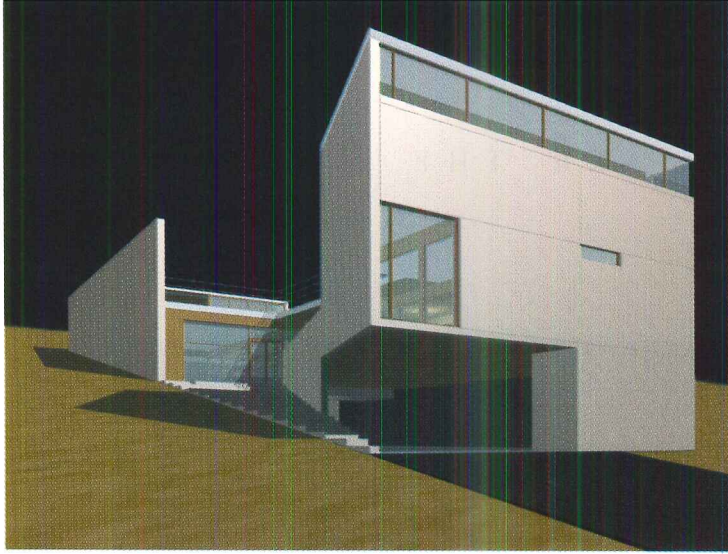
Today, less than 5 percent of the homes built in the U.S. rely on direct communication with an architect. With the multitude of resources, books, and computer programs available to aid home builders in their design efforts, more and more Americans opt to forego architects' fees for the opportunity to customize their own plans. "One of the things we found in our research," says Etekt's cofounders, Bruce Fisher, Mark Rose, and Matthias Hollwich, "is that people's ability to access information inde-

pendently via the Internet and other resources has allowed them to rely less and less on professional services." It's a trend that Etekt hopes to combat by offering those services online as a new means of collaboration between client and architect.

Etekt combines Internet-based communication with the one-on-one dialogue traditionally found in architecture studios, allowing clients to make individual decisions and customizations without sacrificing the opportunity for professional guidance. Architects can upload plans, sections, and renderings of a residential design to a database on the site. Clients then use the site's tools to select site, spatial, and lifestyle preferences, which are then matched with an appropriate design from the database. Finally, the client can select a plan and contact the architect to begin formal, contractual collaboration on the final



He must be equipped  
with a Rixson Pivot Set.



A residential design on Etekt.com, by Artifact Design + Construction.

design. Etekt collects a portion of the architect's fee for each contract made through its Web site—a common (though not always acknowledged) business model among Internet companies.

A forthcoming parametric design engine, developed by Mark Rose at the Federal Institute of Technology (ETH) in Zurich, will allow real-time manipulations of the plan via the Internet. Clients will be able

to move walls, view 3-D renderings from above and below, and even take a virtual tour of the design. Traditional redlining will also be made possible, and clients will be able to comment on potential changes by marking up the digital plan with notes and questions for the architect. Rose hopes that the design engine may one day be a key representational tool for architects and designers, over and above its

use on the site.

Etekt is gaining notice within the architectural community and from clients. A number of firms, including Lewis.Tsurumaki.Lewis of New York City and OOS AG in Zurich, have already uploaded designs to the site. They've seen responses from clients and other architects in Europe, Asia, and South America. Fisher is confident that Etekt will expand architectural practice beyond national borders. "Chances to design overseas will be available to firms that would otherwise not have had the opportunity," he says, later adding, "With architects collaborating worldwide, we have the opportunity to pique interest beyond the typical iconography of residential design. We can persuade clients to look beyond aesthetics and toward possibilities of energy efficiency and green materials."

While the site's founders continue to pursue their own projects, they're committed as a team to expanding Etekt and are actively

seeking contributing architects and clients. Fisher, who holds an M. Arch. from Columbia University and now has his own firm in New York City, met Hollwich when they were coworkers under Rem Koolhaas at OMA in Rotterdam. Hollwich has worked for several firms in Europe and the U.S., including Diller+Scofidio and Peter Eisenman Architects. He currently teaches at ETH, where he met Rose (a colleague of digital-architecture guru Maia Engeli), an architect who develops Internet-based architectural tools.

Although Fisher admits that marketing the site has been a bit of a challenge lately, he's confident that Etekt will prevail in transforming the market for residential design. "There's a real chance here to merge theory and strong spatial ideas with the mass market and upgrade the quality of living worldwide," he says. "Who knows? One day this just may be the world's largest architectural studio." *Christina Rogers*

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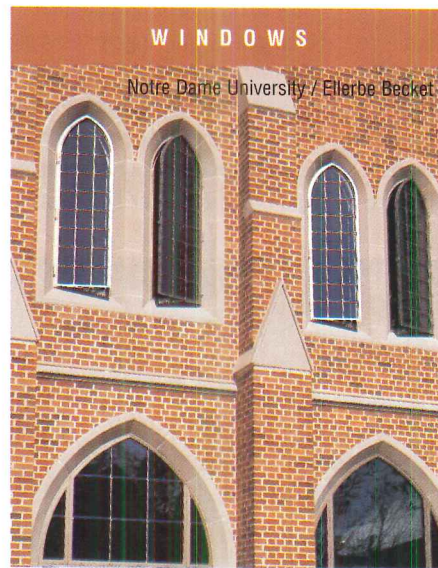
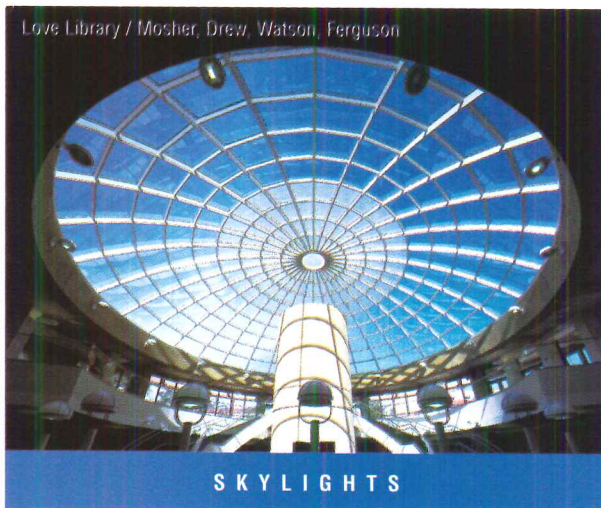
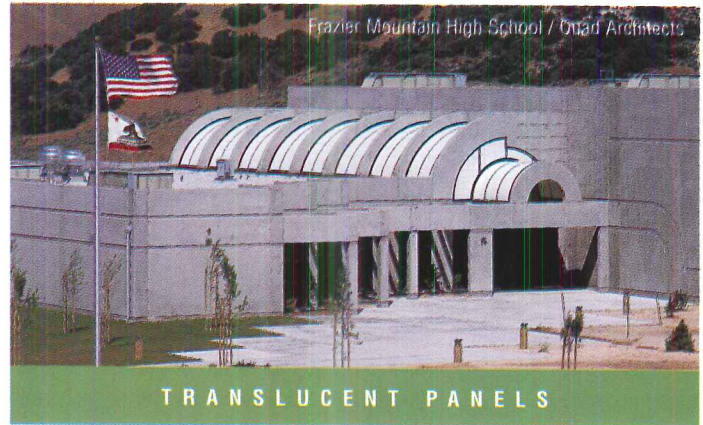
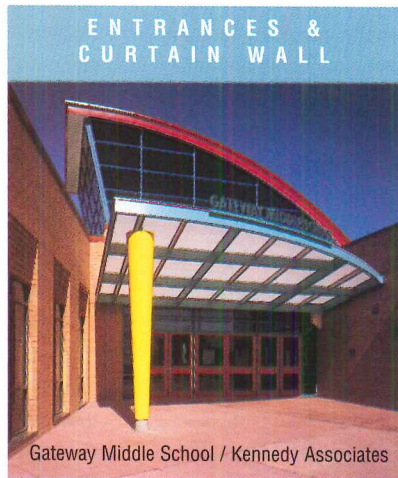
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# The Big Apple: How Architects Use the Macintosh in Practice

**DESIGNERS DIG THE MAC'S ICONIC LOOK, BUT LOWER-PRICED, FASTER PCS HAVE EATEN INTO APPLE'S MARKET SHARE IN RECENT YEARS. IS THERE A PLACE FOR THE MAC IN TODAY'S DESIGN PRACTICE?**

By Louis B. Smith, AIA

The use of computers worldwide will undergo a major shift due to the release of seminal new software. In September, Apple Computer released the latest version of its operating system, OS X (pronounced "O-S Ten"), and, in October, Microsoft countered with Windows XP, the latest version of their operating system. Both of these systems have underpinnings in the same Unix programming language, which provides certain advantages in their performance and stability. With these releases, both companies have made pledges they must now live up to: Apple promises a wealth of industrial-strength scientific applications, and Microsoft assures its users that XP will reduce the occurrence of the dreaded "blue screen of death" caused by system errors that have plagued Windows users for years. Both systems will be put to the test by businesses and consumers in the next several months.

As architects, we are in for years of massive software upgrades no matter what platform is in use currently. Most businesses will change to one of these new operating systems over the next few years as they update their hardware. And nothing about the old and new systems will be similar except for the use of a graphical interface.

As such, this is an opportune time to examine the use of Macintosh computers in architectural practice. How are architects currently using Macs? What types of software and tools are available that

practitioners need? What are the major compatibility issues between Macs and PCs? And, overall, what advantages does the Mac platform have—if any—over its Windows-based counterpart?

## The designers' machine

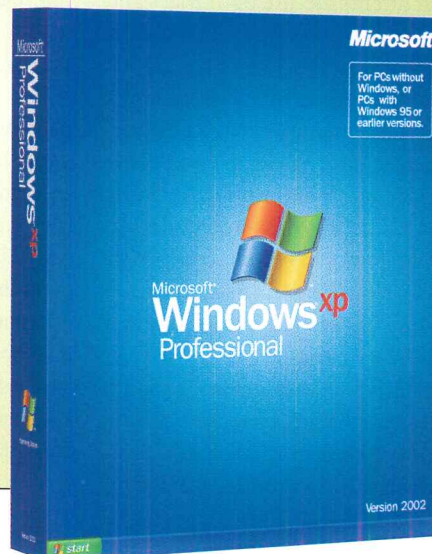
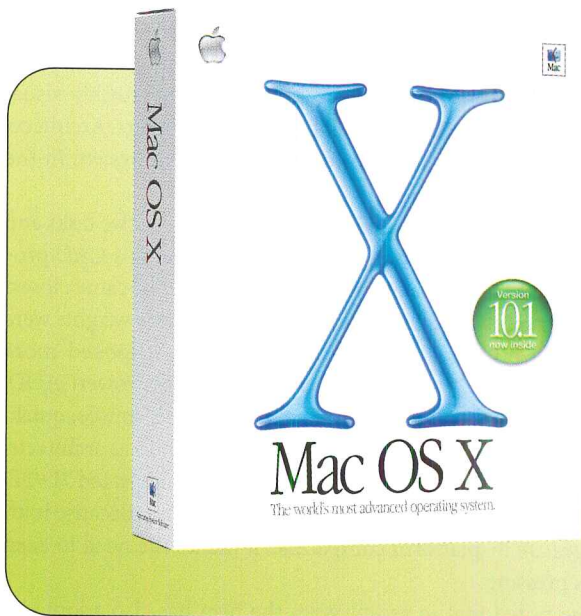
Ever since its introduction in 1984, the Macintosh has proved itself to be a viable business computer. Apple introduced to the computing world a graphic user interface that was so smooth and effective that its success prompted Microsoft to develop its popular Windows operating system. The Mac's simplicity and ease of use—especially with regard to hardware

## THE MAC'S GRAPHIC CAPABILITIES MADE IT POPULAR AMONG PUBLISHERS, ADVERTISING AGENCIES, AND DESIGNERS.

connection, networking, and Internet connectivity—gained it acceptance in many homes and schools. For business use, the graphic appeal of the Mac made the platform a favorite in the publishing, advertising, and graphic arts industries. Creative people in other fields, especially music and architecture, were also attracted by these same characteristics.

Ironically, many of the features that have made the Mac appealing have also compromised its market share. As a market leader, Apple has created innovations that have later stimulated or bolstered the market for PC hardware and software. The most recent of these efforts are AirPort wireless networking (via the IEEE 802.11b wireless standard) and FireWire (IEEE 1394), a high-speed connection interface that has become

*Louis B. Smith, Jr., AIA, is an architect practicing in Michigan. He was recently elected vice president of AIA's Huron Valley, Michigan, chapter.*



**Both Apple Computer and Microsoft released new versions of their operating systems in 2001. The improvements are significant enough that many will want to switch to the new systems in the upcoming months.**



The award-winning 5th Street Family Housing project in Santa Monica, California, (left) was designed by Koning Eizenberg

Architecture on Macintosh computers using PowerCADD software. The image shown below was modified using Adobe Illustrator.



standard across both platforms. In a similar fashion, graphics packages created originally for the Macintosh, including Adobe Photoshop and PageMaker, are now available on both platforms.

### Bridging the differences

The hardware and software compatibility issues that once plagued users trying to integrate Macs and PCs aren't as complex or burdensome as they were several years ago. New hardware design and connectivity devices, along with software that's been developed for both Macs and PCs, has eliminated many of the headaches of moving data from one

## THE TYPE OF CAD SOFTWARE A FIRM USES PLAYS A MAJOR ROLE IN DECIDING WHETHER TO SUPPORT MACS OR PCs.

platform to another. However, firms that attempt to use both Macs and PCs should plan for adequate technical support for both systems, and for the connection and compatibility issues that may arise.

Perhaps most critical for architecture firms that may want to use Macs is the selection and availability of CAD software. Market leader AutoDesk's AutoCAD and Bentley's MicroStation are both compatible only with PCs, and newcomer Revit's 3D CAD program is also being developed, for the moment, only for PCs. Graphisoft's ArchiCAD and Nemetschek's VectorWorks Architect (VWA) both have Mac-compatible versions; the latest release of ArchiCAD, version 7.0, runs natively on OS X. As many architects will attest to, moving files created in one program across platforms or between programs can prove tricky.

Other types of software, particularly those for general productivity such as Microsoft Office and desktop publishing programs offered by Adobe Software and others, are fully cross-platform operable and present few troubles when moving files between the Mac and PC platforms.

Some of AIA's digital products are moving to platform-neutral formats, as well—most notably the popular *Handbook of Professional Practice*, which is now offered in Acrobat's portable document file (PDF) format. A cross-platform version of the AIA Electronic Documents set is slated for release next year.

Firms of various sizes report different levels of experience and satisfaction with using the Mac platform. Examining their stories sheds light on the ways architects are utilizing Macs for design or practice management functions.

### A visual, stylish presence

Koning Eizenberg Architecture, a 19-person design-oriented firm in Santa Monica, California, has been using Macs since the mid-1980s when the platform first became viable for business use. Hank Koning, a firm principal, states that this was primarily because "the Macintosh's visual interface was more comfortable for visually oriented thinkers. Architects tend to be visually and not verbally oriented—and so the system fit the firm well."

At this firm, Macs were used mostly for administrative tasks and general office productivity. Eventually the firm began using a CAD program called PowerCADD, made by Engineered Software. "It came closest to producing the graphic qualities we wanted. Lines and line weights were presented correctly on the screen and when printed. It looked more refined, like hand drafting," says Koning. The firm still uses PowerCADD, even though it is strictly a 2D program; Koning says, "It's simple, quick, and handles most of the day-to-day production work we do as architects. Still, we are looking at whether it is time to move to an integrated 2D/3D program like VectorWorks Architect or ArchiCAD," he says. Because both of these packages are bi-platform compatible, it makes the need to keep using Macs less pressing.

Koning noted that in recent years the firm has also adopted a



number of presentation and production software packages, including FormZ from Autodesk for 3D modeling. The firm also maintains a PC in their office to ease the transfer of files with consultants and to run PC software. They don't use emulation programs such as Virtual PC (see "Mind the Gap," right) because their modestly powered PC operates faster than an emulator on a high-end Mac. They have suffered no real compatibility problems between Macs and PCs with documents other than CAD files.

Now the firm is reassessing its commitment to the Mac platform. Koning states, "We have an affinity for Apple because it pushes the envelope of computer design. Machines like the now-discontinued Cube and the current Powerbook not only worked well, but made a stylish statement." He likes the progressive image this presents to clients. When asked about the switch to OS X, Koning responded, "Each operating-system upgrade has been relatively easy, but the improvements have been incremental. Each works only a little better than the last [version]." The firm's policy is to wait to see how others fare with the upgrade before adopting it themselves. Still, and more significantly, the Windows interface has come fairly close to operating in the smooth manner that attracted Koning to Macs in the first place. "If I were starting from scratch right now, I might not be so quick to pick the Macintosh," he admits. "It depends on price, performance, software choices, and the like. But I wouldn't automatically rule it out either." Like many architects considering the adoption of new tools, Koning is concerned that a switch from Macs to PCs will result in a period of lower productivity due to training time and costs.

#### Software-driven changes

Not every firm is conflicted about their computing choices. Bohlin Cywinski Jackson, a 90-person firm with three offices in Pennsylvania, along with offices in Seattle and Berkeley, California, are moving deliber-

## MANY FIRMS USE MACS FOR SPECIFIC TASKS SUCH AS PREPARING MARKETING MATERIALS OR DIGITAL 3D MODELS.

ately away from using Macs. Doug Speckhard, the firm's corporate IT manager, says, "The decision wasn't based on the inherent value of either platform, but rather on the firm's decision to continue using Bentley's MicroStation as the primary CAD platform." (Bentley Systems stopped producing Mac-compatible versions of MicroStation in 1998). This has forced the firm to move more of its CAD workstations to PCs to gain the benefits of the most current CAD technology.

Speckhard notes that the firm began using Macs in part because, "at the time, [we had] few technical problems with the machines. The software was less complex, and users could provide their own IT support." As the firm grew, the number and complexity of its computer systems increased. "More non-Mac users joined the firm, as well, and we have had to hire people to provide tech support at least half of their working hours as we grew," he noted. It is clear, though, that purchase and utilization policies for the firm vary by location. The firm's Wilkes-Barre, Pennsylvania, and Philadelphia offices use Macs almost exclusively, whereas its Pittsburgh and Seattle offices are both dominated by PCs (over 75 percent), and its Berkeley office is evenly split.

#### A solution for going solo

Another firm with clarity on its platform strategy is Marc A. Lindsell, Architect, of San Francisco. Lindsell is a solo practitioner who specializes in residential and small commercial work. He switched to the Mac plat-

## MIND THE GAP: Solutions for working across the Mac and PC platforms

A variety of software and hardware products help Macs and PCs work together seamlessly. An emulation program called Virtual PC, from Connectix, allows a Macintosh G3 or higher to run Windows 95/98/ME/NT and 2000, as well as the Linux operating system. This gives Mac users the flexibility to run programs designed only for PCs. Architects surveyed for this article have found this setup useful for saving AutoCAD DWG files and then later opening them in VectorWorks Architect, and also for running the digital version of Architectural Graphics Standards and opening manufacturers' product literature on CD.

For networked computers, Thursby Software makes an emulator called "Dave" that allows Macs to communicate easily with Windows-based networks, with little extra configuration necessary. If file transfers are the primary goal, a small shareware program for PCs called Slim FTP (file transfer protocol), from Whitsoft Development, allows a Mac with FTP software to upload, download, and configure new directories.

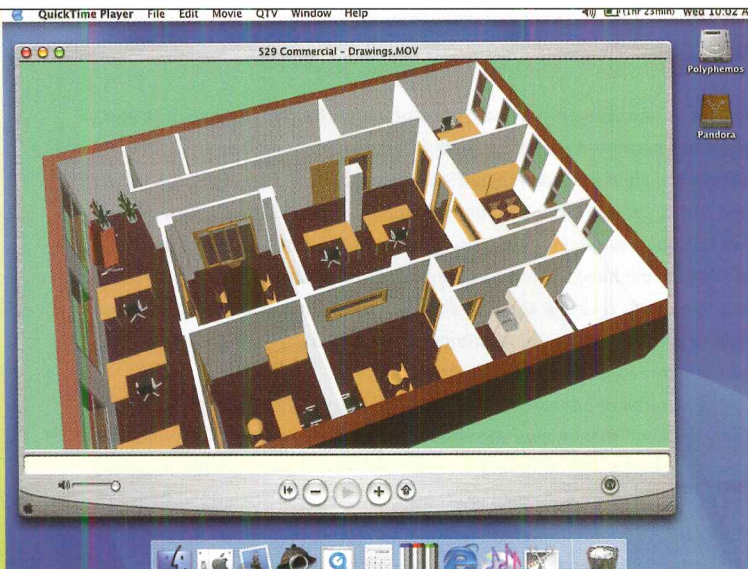
Apple provides an "idisk" with each copy of OS X, which lets users create a 20-megabyte public FTP site on an Apple server. With system 10.0.1, users can manage and upload to the server from Windows platforms as well. However, the FTP account must be originated on a Mac.

Moving data between platforms has been simplified over the past several years by numerous hardware and software improvements. Simple file sharing between dual-platform products, including most Microsoft and Adobe software, is usually transparent as long as both platforms are using the same generation of software. Many Macs are also now equipped with rewritable (CD-RW) drives that read and record CDs from both platforms. *LBS*

form about three years ago and has been very happy with the change. "Before switching to the Mac, I used to struggle with AutoCAD and the blue screen of death," he says. "Now I use ArchiCAD, and I sometimes find myself sitting there working and laughing out loud at how easy it is. I don't regret switching at all." He particularly likes ArchiCAD's 2D/3D integration, which gives him the seamless kind of experience in production that he was seeking. "ArchiCAD works the way an architect thinks," he says. "If I place a window in a wall on a plan, and then I decide to adjust its position when I see it in elevation, I want the software to change the plan for me automatically when I change the elevation."

Lindsell also uses his Mac for accounting purposes and is switching from Quickbooks Pro (for which Intuit is no longer providing Macintosh upgrades) to MYOB Account Edge, an accounting package that runs natively on OS X. Like many Mac users interviewed for this article, he uses the Microsoft Office software suite for general office productivity.

Lindsell reports that he will be upgrading to OS X soon, and he also makes extensive use of Apple's iTools, a service package available free with purchase of OS 9 or OS X when the purchase is registered on Apple's Web site. The package includes hard-drive space on Apple's server, a Web site with a public folder, a free e-mail account, and consumer-oriented services such as electronic greeting cards. These services offer benefits with little investment, particularly for solo practitioners whose resources for marketing and technical support are limited. Lindsell maintains an iTools Web page that allows him, as a Web novice, to post photos, renderings, and plans on his site for his clients to view. He does this himself without having to know HTML or hire outside IT support. "My residential clients often have family in a different part of the country," he explains. "My Web sites allow them to see the progress of a project being



**In the Macintosh desktop environment, point-and-click buttons (bottom of screen) open applications and utilities. Here, an architect is using Apple's QuickTime to create a video of an ongoing design project.**

“while the platform differences are less important nowadays, the vendors we work with [printers, type houses] prefer Macs.” But Swanson does report some problems with platform differences. “Annoying things come up—like not having the same fonts on each system, and minor networking problems between the PC and Mac versions of Microsoft Outlook.” But McLellan is not concerned about minor glitches. “We team with firms all across the country, and we share graphics and files seamlessly,” she says. “Basically, we can open anything on our Macs.”

As platform differences between Macs and PCs have become easier to overcome, it's also less important for businesses to consider using only one type of machine. FTCH may in fact migrate away from Macs eventually because they don't run all of the software used by the firm, particularly some of the accounting and office

productivity packages. Recently the firm gave PCs to people in the marketing department so they could use online time sheets and other corporate forms and files that are PC-based, including Microsoft Outlook.

designed or built.” His clients appreciate seeing virtual-reality tours of his ongoing projects, which he creates using Apple's Quicktime technology (see image above). Using his Mac and iTools, Lindsell feels he has achieved a graphic presence that's on par with that offered by larger firms with more resources.

#### **A niche for marketing**

For various reasons, many firms remain committed to using both the Mac and PC platforms. Amy McLellan, marketing coordinator of Fishbeck Thompson, Carr and Huber (FTCH), reports that the 265-person firm, based in Grand Rapids, Michigan, uses Macs only in their marketing department. McLellan believes the graphic capabilities of the Mac are better matched for creating high-quality publications quickly and easily. “We use Quark Xpress and Adobe Photoshop and Illustrator to create a company newsletter, invitations, promotional material, team charts, and other planning and marketing documents,” she says. The decision to use Macs for marketing was largely based on how familiar people in the department were with the platform.

Bryan Swanson, a graphic designer at FTCH, comments that

#### **Measured use for traditional skills**

Rob Pfaffmann of Pfaffmann & Associates is clearly in favor of Macs, and his 12-person firm in Pittsburgh uses them exclusively. The firm's work is split between corporate work with a distinctly technological bent and urban design work with an emphasis on historic preservation. His firm produces reports and book-format documents as frequently as they do drawings and construction documents—and he feels that Macs are a better fit for this mix of work. Pfaffmann also believes that using Macs balances the experience of the firm's staff and is consistent with his vision of how work is carried out.

For reports and other text-and-graphic material, the firm uses Adobe's PageMaker, Photoshop, and Illustrator. For CAD and design work, the firm uses VWA along with FormZ for 3D modeling. For practice management, Pfaffmann uses two programs made for PCs—Quickbooks Pro and the AIA's electronic document software—and runs

## **THE TENTH GENERATION: Kicking the tires on Apple's new operating system**

Test-driving OS X quickly leads to some conclusions about what to expect and what its useful features are. Expect a rich visual experience: Buttons pulse in light blue; semitransparent dialog boxes (called sheets) are context-sensitive, attached to the windows they relate to; drop shadows are everywhere. Expect speed: For day-to-day tasks, OS X used with a G4 Mac is as fast as any Pentium 4-class machine using Windows 2000. If you have a multiprocessor Mac, OS X may run even faster.

For newcomers to the Mac, OS X should be simple to learn and use. The stylish icons are easy to understand because of their detail and clarity, and the spatial relationships in the interface are made apparent by the motions and shadows of the icons and windows. Experienced Mac users, however, may have difficulty adjusting to the changes that OS X offers. The system handles applications and files that run on the OS 9 (Classic) system differently from those that run natively in OS X, which is initially confusing.

Historically, Apple operating systems have provided a great deal of backward compatibility with previous versions, but OS X does not offer as

much flexibility in this regard. Networking of Macs remains easy, but the more extensive security measures added to OS X to make file sharing safer also makes access more limited.

The thousands of applications that were designed to run under Mac OS 9 will run in the so-called “Classic” environment of OS X, which allows a portion of the OS X environment to act as though it's a separate computer running the older operating system—much like an emulation program helps a Mac run PC software. The range of programs includes many packages used by architects and their collaborators, such as Dr. Beam, part of the Dr. Software structural series, and the University of Oregon's Energy Scheming software for DOE-2 energy analysis. Unfortunately, this flexibility in mimicking OS 9 means that crash protection and active memory management, along with many other desirable features of OS X, will not run on the older system. On the upside, a software crash in the “Classic” environment can bring down other programs that use OS 9, while leaving other OS X applications unharmed and operating. **LBS**

## Web Resources for Architects Who Use the Macintosh

SITE NAME	ADDRESS	DESCRIPTION
ARCHITOSH	www.macnn.com	A site dedicated to news and information on the use of the Macintosh in architecture.
MADE4MAC	guide.apple.com/usindex.lasso	A searchable Apple product guide with listings for business, engineering, and architecture software and hardware from around the world.
APPLE CREATIVE	www.apple.com/creative/business	A site focusing on software and methodology for the business side of creative industries.
OS X	www.apple.com/macosx.	Information on the 1,400 products released or planned for release for the new Mac operating system.
MACINTOSH NEWS NETWORK	www.macnn.com	Daily updates of manufacturers' announcements of new Mac products, along with upgrades of existing products.
ACD SYSTEMS	www.acdsystems.com	Provides a useful digital-image viewer and media-asset-management (MAM) tool.
VECTORWORKS	www.nemetschek.net	Major CAD Vendor for Macintosh systems.
ARCHICAD	www.graphisoft.com	Major CAD Vendor for Macintosh systems.
ARTLANTIS	www.artlantis.com	Advanced third-party rendering engine that works with VectorWorks and ArchiCAD.
DESIGN WORKSHOP	www.artifice.com	3D modeling software, in free and professional versions.
FORM Z	www.autodesys.com	3D modeling software, with some working-drawing capability.

them on a Mac using Virtual PC, an emulator program. Pfaffmann especially likes the way that Macs can be used to create dynamic 2D presentations for his clients. "Drawings can be moved smoothly back and forth from VectorWorks Architect and Photoshop to Illustrator or PageMaker," he says.

As for upgrading to OS X, the firm does not anticipate doing so until there is a compelling reason, such as a client requirement or a major software upgrade. "It's not useful for the firm just yet," says Pfaffmann. Right now, few software packages the firm uses run natively under OS X, so there is little incentive to invest right away.

### Beyond firms to practice changes

One of Apple's core directions is the close integration of multimedia technology. They hope to do for desktop video what they did for desktop

## THE MAC'S MULTIMEDIA TOOLS MAKE IT A GOOD FIT FOR FIRMS THAT DEVELOP VIDEO PRESENTATIONS OF THEIR WORK.

publishing—take it out of the realm of skilled technical jockeys and make it an easy and worthwhile effort for everyone. Many Macs come equipped with iMovie video editing software, a beginning-user tool for making simple movies and videos. The program can also be downloaded free of charge from the iTools service center after creating an account. Apple also markets a professional-level editing program called Final Cut Pro, which is finding some acceptance in the television and film industries for intermediate-level video and audio editing tasks.

Apple has been promoting its solutions for multimedia projects (iTools, iMovie, Final Cut Pro, and others) as affordable, high-quality products that require little user expertise to design and develop an effective system, and its machines are built for the task. The G4 processor includes an on-board parallel processing unit that is intended to speed up graphics processing, and OS X is written to take advantage of this computing power. Other lower-power Macs feature multiple processors that are needed to handle the extra hardware demands of multimedia technology.

Architects may find that Apple's tools are a good introduction to using and producing multimedia content. Ed Goldberg, AIA, who coordinates the industrial design program at Towson University in Maryland, thinks architects should be embracing this technology as a skill and a tool that will enrich their traditional practice. "I think this [is something that] excites my clients," he says. "Clients are used to seeing high-quality presentations on television and in shopping malls. If you present less than they expect, then your firm appears to be less skilled—even if it's a good-size firm." Goldberg sees architects using desktop video to document various aspects of a project, including construction, existing site conditions, site context, and the like. Of course, videos can also be used to create animations of projects themselves. "Eventually, all this can be put on streaming servers on the Web and be available in real time with no download necessary," says Goldberg.

However, Goldberg believes the multimedia solutions provided by Apple can also be assembled on PCs—often at a lower cost for a more powerful machine. "PCs are faster, and most come with CD-RW drives. DVD drives can be bought for a few hundred dollars more," he says. He also believes the power of Apple's digital video solutions cannot match the performance of third-party PCI cards for PCs, many of which include connections for analog equipment and multiple monitors, which Macs do not. PCs also present video work faster without having to render a transition, he says. But he admits that any serious solution for multimedia work will require high-speed Firewire devices, and that Apple is wise to include these in their systems.

All this points to an often-debated issue within the profession at large that transcends technology itself: Despite the significant advances and improvements in CAD, multimedia technology, and other electronic tools of the trade, many architects are still uneasy about the increasing digitization of their work. Opponents claim that hard-edge 3D models, flythroughs, and animations look too high-tech and distance them from their clients. Advocates, such as Goldberg, want architects to harness technology's power and possibilities to reclaim territory lost to engineers and other tech-savvy building professionals. This controversy is one that no single digital tool—however inexpensive and easy to use—can overcome.

### The choices are many

Clearly, the Macintosh has its place in architecture firms large and small. It can be used for any function of practice: design, marketing, general office productivity, or management—or a combination of these tasks.

The broadest consideration firms have when selecting a platform is its sustainability—meaning how long the firm can reasonably expect its hardware and software to be used before upgrades and expensive technology reinvestments are necessary. Pfaffmann remarked that firms should “look carefully not just at the computer industry as a whole, but at the market that you participate in. The Mac is estimated to have only 5 percent of the computer market as a whole, but it’s closer to 50 percent of the advertising and creative market, and my hunch is that it’s close to 30 percent of the market for architects.” The design-conscious have long shown an affinity for the Mac’s look on their desktops.

Because both Macs and PCs are boasting radically new operating systems that will eventually require investment in new software—and because compatibility issues are less a concern than in the past, prior technology investment and training issues are not as important in selecting one platform over the other. But the preferences, needs, and long-term goals of users and others are important factors to consider. Macs may be a good fit for small firms with practitioners that handle all aspects of the practice, from design to accounting, because some say that technical support for Macs is less complicated and doesn’t always require the full-time expertise of an IT specialist. Many younger practitioners will have used Macs in college and will be more adept with them as they enter the workforce. People who work in marketing or desktop publishing will also generally be more familiar with Macs than PCs because of the higher proportion of Macs used for those functions. A firm’s preference for a particular CAD program will remain a major driver in selecting a platform, as well. And exchanging files with clients and collaborators such as structural engineers, code consultants, and others who have a preference for one platform over another will also influence the selection process.

But in the end, technical and cost issues aside, choosing Macs over PCs is often simply a matter of preference. And with the advent of new operating systems for both platforms, it pays to be prepared for the inevitable changes that lie ahead in the realm of computing. ■

### A PIECE OF THE PIE: how big of a market share does Apple really have?

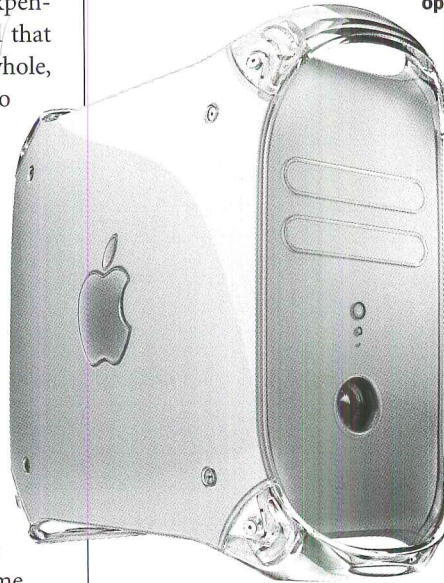
Apple Computer claims that the Macintosh maintains a 5 percent share in the U.S. computer market, but this number is hard to verify. Because Apple maintains tight control over the development of its hardware and operating systems, its systems often

remain in use longer than their PC counterparts, so yearly sales figures probably underestimate the number of people and businesses using Macs. In addition, the sale of software that’s made for both platforms is usually credited to the PC side of industry sales-tracking records, unless the manufacturer specializes in being a “Mac only” operation.

Apple states on its Web site that its market share “may not sound like a lot, but it is actually higher than BMW’s and Mercedes-Benz’s share of the automotive market.” It appears Apple wants to cast the Mac as a

niche product for computer users with special needs and discerning tastes.

Even so, it’s obvious Apple wants its market share to grow. In an attempt to double their sales, the company is opening a series of retail outlets across the country. At press time, 16 stores were open; Apple hopes to have 25 online by the end of 2001. While some analysts think this strategy will boost sales, at least one—Arne Alsin of TheStreet.com, considers the retail store initiative to be a sign that Apple has come to “desperation time.” But from a purely financial perspective, Apple remains strong for the moment. They have avoided the massive layoffs that have beset many PC makers, and they recently turned a quarterly profit, while PC manufacturers were suffering significant losses. LBS/DS



A cutaway view of a residential project designed using Graphisoft’s ArchiCAD software on the Macintosh. Several 3D views of the project were posted to an iTools Web site by the architect so that his client can review images online at any time.

# Digital Architect

## Using Digital Tools to Expand and Enhance Services

By Jerry Laiserin, FAIA

Ask a group of architects about innovations in digital practice, and the answers will range from 3D modeling and real-time visualization to Internet-enabled project delivery and intranet-based practice management. However, a few of the savviest principals will wink knowingly and whisper the words “expanded services,” followed by a steadfast refusal to divulge any details. A partner in one midsize firm that has enjoyed considerable success outside traditional design and document delivery insists that his firm “would lose our competitive advantage if we publicized how we do this.”

Easy translation of digital information among participants in building projects has opened the way for management consultants, space planners, value engineers, and a dozen other disciplines to offer computerized services to building owners on matters that were once the exclusive domain of architectural services. Some architects bemoan these encroachments, but others are harnessing digital tools and data to turn the tables on this trend. Simply put, they’re using digital technology—just like some of their new competitors—to market, enhance,

*Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.*

**www** For more information on technology for architects, including reviews, vendor lists, and links, go to [architecturalrecord.com/digital](http://architecturalrecord.com/digital)

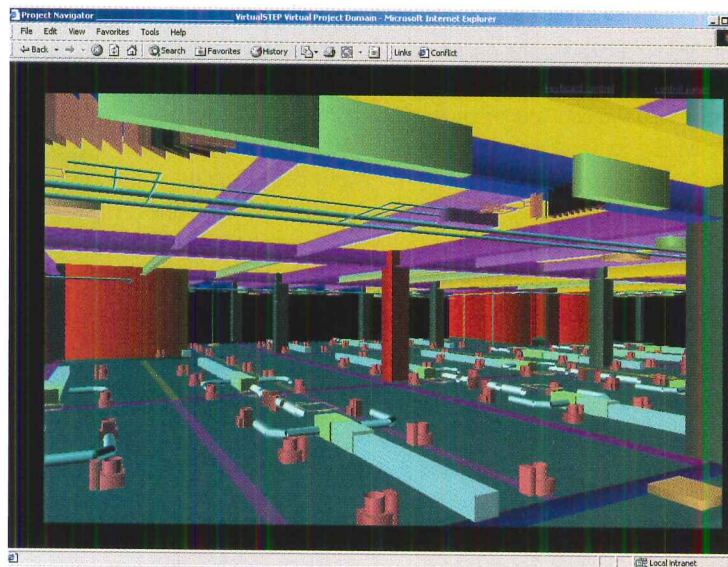
and expand their services to clients.

Although many architects engaged in these endeavors do not want their firms identified or the details of their offerings disclosed, it is possible to examine a range of opportunities for using digital tools to enhance traditional architectural practice and to identify tips and potential pitfalls.

### Expanding upstream

Engaging clients before design services traditionally begin means having to move “upstream” in the flow of project information. One route to winning predesign services is analyzing or “mining” prior project histories for information that can help sell future work. One midsize practice that focuses on interior design maintains a lease-expiration database for spaces occupied by its clients and by others for whose work the firm had been short-listed. Two years before each lease expires, the database reminds a firm principal to send the client a proposal for a renew/move analysis. Many of these proposals result in paid consulting engagements, and some lead to new interiors commissions.

Another firm that specializes in progressive-care communities recognized an opportunity to capitalize on their expertise in this building type. The firm paired a retiring partner and a computer-savvy intern to assemble a space-planning and cost database based on project histories. These data provide the basis for predesign project-planning services that the firm often sells to clients independent of any design work. Other firms with specialties in medical



**Digital technology enhances the profitable reuse of design data for services such as construction management and design-build.**

facilities or K–12 schools have turned their efficiency in digitally processing and expediting regulatory documents into client support services for obtaining necessary project authorizations. A few architects with business degrees use spreadsheets to integrate financial pro forma analyses with zoning envelope calculations—a skill prized by developers of speculative commercial, residential, or retail projects.

### Enhancing design

Digital technology can enlarge the scope of conventional design services, as well. In a project for the Greater London Authority (GLA), Foster and Partners teamed with Arup Acoustics to create digital visualizations using software developed by Arup to predict speakers’ intelligibility in a proposed design for GLA’s new council chamber. Frank Gehry, FAIA, whose firm employs advanced digital techniques for design documentation and project delivery,

designed and analyzed the convoluted skin of the Disney Concert Hall in Los Angeles using CATIA software. Besides its 3D-modeling capabilities, CATIA enabled Gehry to balance budget and design considerations while selecting the best combination of variously priced straight, curved, and compound-curved stone blocks for the facade. Although many architects fear value engineering as an after-the-fact discipline that devalues design, digitally adept designers use software to design value into their projects from the beginning.

“Architects are increasingly sought after for their abilities not just to be creative and knowledgeable, but also to be strategic,” says Sarah Lynn Garrett, AIA, director of the architectural project management program and assistant professor of architecture at Portland State University in Oregon. Garrett believes that “the way architects think” makes them natural for what

## Digital Architect

she calls “smart architecture—managing all the services and value of a full project life cycle, including economic analysis of buildings and return on investment.” In her consulting practice, Garrett relies on spreadsheets she developed herself in Microsoft Excel to perform project pro forma analyses, and on schedule and resource programs such as Primavera Project Planner and Vité SimVision, to help owners manage risk and improve outcomes.

Garrett believes construction-phase services are especially important for architects to master because, as her research shows, the lack of information transfer at the bidding-and-contract handoff is the primary marker for project failure. One reason owners are taking more interest in design-build and other accelerated methods of project delivery is because project teams provide digital support for better information flow from design to construction. Architects engaged in designer-led design-build projects rely heavily on digital coordination of design and construction documents, such as CAD files, construction schedules, and other information.

### Expanding downstream

Most of a building’s total life-cycle cost is incurred long after traditional

## ARCHITECTS CAN USE DIGITAL TOOLS TO INCREASE THEIR SERVICE OFFERINGS AND IMPROVE TRADITIONAL PRACTICE.

architectural services are complete. Maintenance, repair, and operations costs (MRO), plus the cost of occupant moves and changes, exceed original construction costs many times over. Digital information created by the design team plays a crucial role in managing life-cycle costs—yet traditional design practice and “instruments of service” fail to capture any of this value.

Some architects, like Robert Visser, AIA, of Visser Software Services in New York, use their dig-

ital expertise to provide facility-management support services to clients such as American Express, JP Morgan Chase, Lehman Brothers, and Morgan Stanley. Other firms continue to maintain and manage facility data, such as drawings, for former design clients. For example, one firm with a reputation for rigorous in-house AutoCAD standards provides drawing quality-management services (conformity to layer guidelines, drawing file setup, and so forth) for all a client’s construction documents, including those prepared by competing designers.

During the heyday of high-growth dot-com startups, a few California architects experimented with providing design services to these new-economy clients for a nominal up-front fee plus recurring fees for the use of digital design data over the life of the building. This business model was adapted from heavy construction engineering outfits such as Bechtel or Black & Veatch, who have long offered such services to their clients in process manufactur-

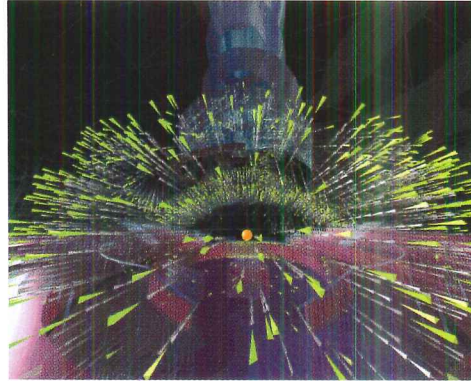
ing industries. While an appealing model, architects should be aware of the long-term stability and creditworthiness of clients to whom they offer such services, so they’re not saddled with debt or worthless contracts from failed companies.

### Tips and traps

Jamie Frankel, Esq., a partner in the Construction Industry Practice Group (CIPG) of international law firm Buchanan Ingersoll, observes that the incremental cost of providing

expanded services by digital means can be extremely low, especially for firms that are repurposing existing digital data from prior projects. The risk profile of predesign and post-occupancy services also is favorably low for insurance-rating purposes.

Some firms might consider spinning nontraditional services into a business entity distinct from the professional service firm. Such a move could extend firm ownership



Arup engineers and Foster and Partners collaborated to create a 3D digital acoustical analysis of the new Greater London Council chamber.

to nonarchitects such as software programmers or technology managers. However, CIPG cautions that operating as a general business poses uninsured risks that most architecture firms are not prepared to address. The key question is whether expanded services are covered by the professional liability policy or can be covered by endorsement. If expanded services don’t represent a large proportion of total revenue—a rule of thumb is one third or less—keeping all services in the professional firm, under its liability coverage, may be the best course.

“Even the most appealing digitally driven opportunity for enhanced or expanded services presents new practice-management issues,” says Ralph Steinglass, FAIA, president of Teambuilders, a New York–based organizational consulting firm. Steinglass, who helps firms manage change and improve productivity, adds, “In our riskier times, there still is much to be learned about safeguarding our records, providing

adequate security, and making contingency plans for alternate means of communication in times of crisis. Some of us can still draw or redraw plans by hand, but how do you reconstruct a database without a computer?” Providing expanded services by digital methods entails creating nontraditional deliverables in digital form, such as spreadsheets, reports, and presentations, which requires greater investment in backup procedures and data protection.

Steinglass has seen several firms expand into new markets through network technology that successfully delivers national, firm-wide expertise to local and regional clients and projects without the need for full-blown local offices. But, as many businesses have found, such “virtual” operation has its drawbacks. “The disadvantage is a depersonalization of the workplace—and of the work itself,” he says. “Lack of personal contact among remote team members can impair the synergy that comes from working together physically.” Similarly, a few large firms create project Web sites, which they market to clients as additional services. Steinglass says, “While project Web sites facilitate coordination of information and allow instant sharing of files and job-progress images, they don’t solve the more complex human relationship issues on projects and may accelerate tendencies to make decisions reactively and engage in confrontational communication styles.”

Although using digital tools to enhance traditional practice or offer new services affords firms a chance to increase their revenues and expand their skills, it’s wise to consider how these tools serve the needs of both clients and staffers. Digital products and services themselves are no substitute for sound thinking, good design, or adequate business planning. As Garrett says, “The tools we use are only as good as our understanding of the input and output. There is still no program that simulates the critical judgment of a well-trained architect.” ■

# Digital Product Reviews

## Tools for accounting, modeling, and image management

By Jerry Laiserin, FAIA

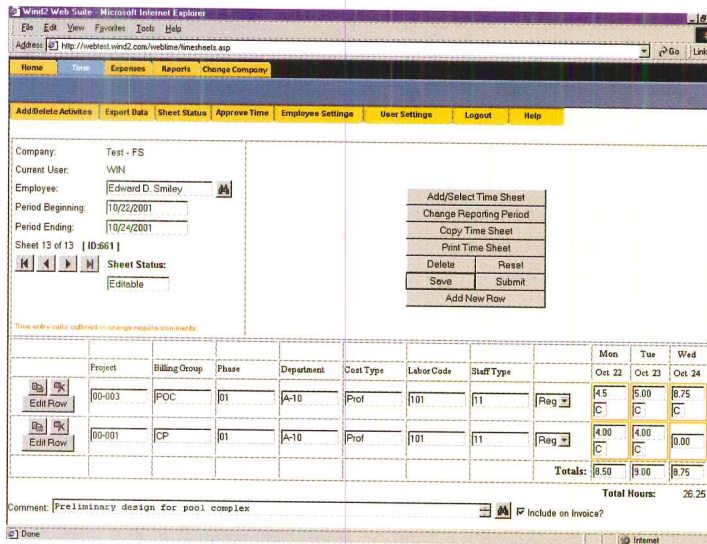
### Wind2 Financial Management System

Wind2 Software

Architects may be completely at ease revisiting interventions or contextualizing gestalts, but many are dumbstruck at the mere mention of debits and credits. Yet accounting is essential to running a design practice. Besides the financial statements required by bankers and the government, architects need tools to transform time-sheet data into accurate invoices and to monitor project progress against the available fee. Solo practitioners and small firms can accomplish these tasks with generic small-business software such as QuickBooks Pro from Intuit, but larger firms need more elaborate software designed to account for project-based professional services. In recent years, mergers among software vendors have narrowed the choices for architects, with Deltek Systems acquiring many of its former competitors. Among the survivors, Wind2 Software stands as a long-term innovator, initially bringing A/E accounting to Windows, then to the Web, and now to the arena of professional services automation, which integrates project and practice management [RECORD, August 2001, pages 137-138].

Contributing editor Jerry Laiserin, FAIA, provides strategic consulting services to architects and their technology providers.

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**ACCOUNTING AND MORE:** Wind2 Financial Management System.

Wind2's Financial Management System (FMS) offers all the bells and whistles of financial reporting and project accounting. The latest version is Web-enabled, both for time-sheet entry and for viewing reports of project and firmwide financial performance. The recent acquisition of A/E Award! (now Wind2 Award!) marketing software from Infomax, and the addition of optional document management, human resources, and asset management, enable Wind2 to expand beyond its accounting role to be a central repository of information for an entire firm. Any architect whose practice is outgrowing QuickBooks or who is looking to switch to a different accounting package should give Wind2 serious consideration.

**System requirements:** Pentium PC, Windows 98/NT4/2000.

Wind2 Software, 1825 Sharp Point Drive, Fort Collins, Colo. 80525; 800/779-4632; [www.wind2.com](http://www.wind2.com).

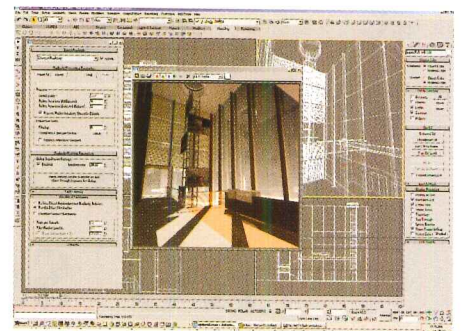
### 3D Studio Viz 4 Discreet (division of Autodesk)

Architects have always experimented with techniques and media for representing design, from the huge wood-and-plaster models of Renaissance churches to the latest digital simulations. Today, digital model construction breaks down into several component programs. Modeling itself is unadorned 3D computer representation, whether derived from CAD drawings or constructed from scratch. Rendering or visualization adds lighting effects and material textures, and animation adds motion. Many programs specialize in one of these functions, but few combine modeling, CAD file import, rendering, visualization, and animation in a single package. Add top-notch simulation of lighting behavior to the desiderata, and the list of programs is reduced to one:

3D Studio Viz, version 4, from the Discreet division of Autodesk.

Viz started out as a lightweight version of 3D Studio Max, a high-end program used for cinematic special effects. In successive releases, Viz sprouted more features of its big sibling, such as support for plug-in effects, and also extended its CAD compatibility. Viz 4 supports round-trip file exchange with Autodesk's AutoCAD 2002, Architectural Desktop 3.3, and the forthcoming Architectural Studio. This makes Viz 4 useful for design exploration and team communication during design, not just after-the-fact presentation.

The big news in Viz 4 is its elegantly done (but awkwardly named) integrated global illumination rendering technology. Discreet has developed a new approach to calculating accurate representations of lighting behavior that can deliver, in



**SEEING THE LIGHT:** 3D Studio Viz 4.

five minutes, a level of rendering quality that previously took seven hours of computation. The new technique is not only faster, more accurate, and more natural looking than Lightscape, Discreet's previous lighting solution [RECORD, December 1999, page 43], but fully integrated into Viz 4 so that most models and views can skip the preprocessing

## Digital Product Reviews

required with Lightscape. It also leaves architects free to design with light without the constraint of having to program lighting software. With Autodesk's iDrop functionality for dragging photometrically correct luminaire data models from manufacturers' Web sites into design models, Viz 4 becomes a truly enlightening experience.

**System requirements:** Pentium III or better (certain Intel P4 chips will be optimized for Max and Viz rendering), Windows NT4.0/2000 professional, 512MB RAM (1–2GB RAM recommended).

Discreet, 10 Rue Duke, Montreal, Canada H3C 2L7; 514/954-7479; www.discreet.com.

### Cumulus 5 Digital Asset Management System

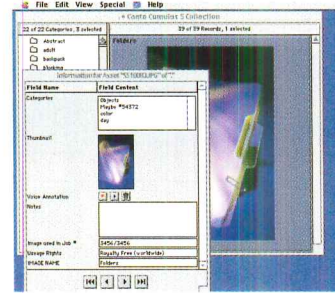
Canto Software

As architects computerize their practices, digital image files are replacing paper drawings, photographs, and slides [RECORD, March 2001, pages 164–170]. Some digital files are scanned versions of print or film media, while others are digital originals direct from software or digital cameras. With minor tweaking, the same image can be used on the Web, in a computerized slide show, and as a full-color tear sheet on glossy stock. Given this versatility, it's not surprising that even a small firm can accumulate hundreds or thousands of image files.

Like any asset, digital image libraries cost money to create but pay their way the more they are used. However, opening image files individually to find the right one is slow and frustrating. Descriptive file names (such as "bilbao-sunset") speed the process, but what's really needed is the ability to save, search,

and index images using other categories, such as project type, date, and location. Specialized software for digital asset management (DAM) offers these options; one of the most popular DAM programs is Cumulus, from Canto Software.

Cumulus accepts over 110 image formats, indexes and stores



PICTURE THIS: Cumulus 5.

the files in a proprietary high-speed database optimized for image searching, and allows users to add metadata—searchable descriptions and keywords—to each image. For rapid browsing, Cumulus shows thumbnail views of stored images and allows users to drag-and-drop

images directly into other software, such as Photoshop, QuarkXPress, HTML, Microsoft PowerPoint, and Apple QuickTime.

Available in single-user, workgroup (networked), and enterprise (customizable) versions, investment in Cumulus quickly pays off by making storage and retrieval of digital images faster, easier, and less expensive. Highly recommended.

**System requirements (single user):** Macintosh PowerPC, System 7.1.2 or better, or PowerMac G4, OS 9.1 or better, 64MB RAM; or Pentium PC (P90 minimum, PIII850 preferred), Windows 95/98/ME/NT4/2000, 128MB RAM. Workgroup and enterprise versions have similar requirements on client PCs, and require multi-user operating systems (OS/X, Windows NT/2000, or UNIX) for the host PC.

Canto Software, 289 Division Street, Suite 400, San Francisco, Calif. 94103; 415/703-9800; www.canto.com.

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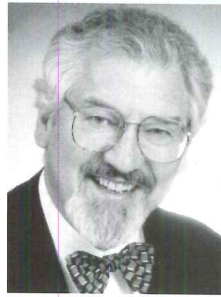
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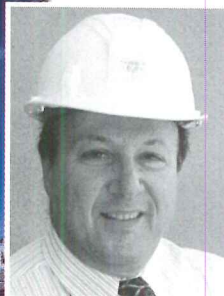


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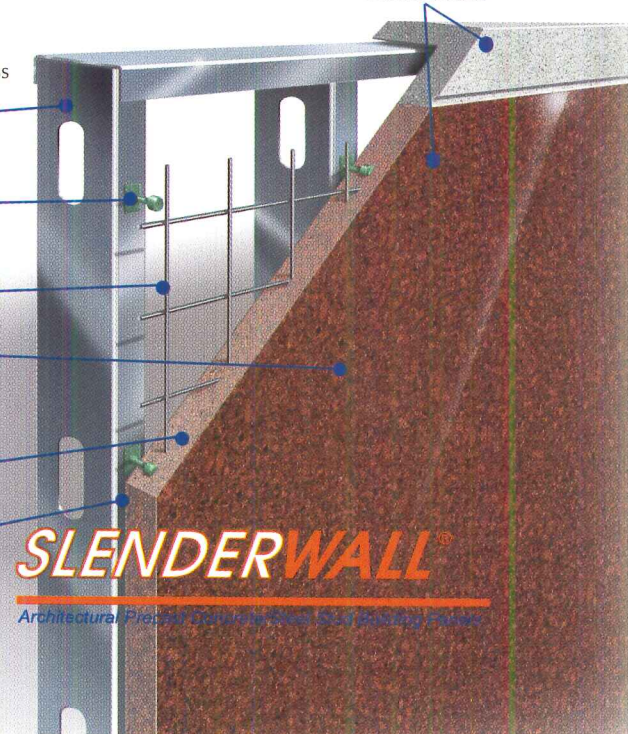
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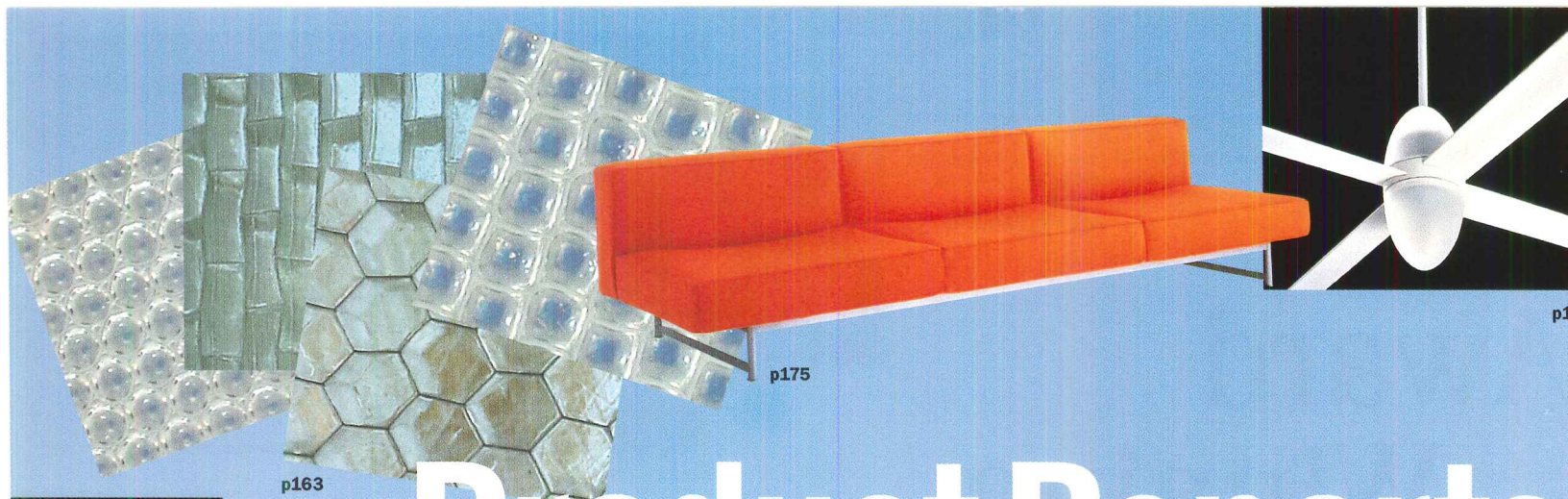
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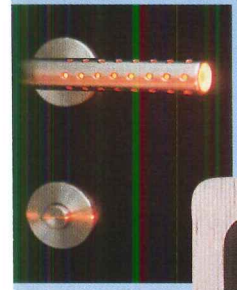
CIRCLE 39 ON INQUIRY CARD



p175

p163

# Product Reports



p159



p153

To quote the Victorian designer William Morris, an architect should never specify a product “they do not know to be useful, or believe to be beautiful.” This year I scouted a variety of trade shows—from a furniture fair in Stockholm to a lighting show in Las Vegas—with the goal of finding products that are not only well designed, but functional. I’m always excited when I get a chance to test the product myself—you never know how easily adjustable that sexy ergonomic chair truly is until you sit in it yourself and give it a try. Nothing replaces firsthand experience.

This is also the challenge for our Product Report’s jury each year: They need to analyze hundreds of submissions based on text and pictures, with only the occasional personal experience. This year, for the first time, we invited manufacturers to submit small samples of their products along with their submissions, so our jury could feel some of the fabrics, tiles, glass, metals, and other materials for themselves. This direct contact became particularly important in a year when manufacturers developed products with several new material combinations and technologies, including hard surfaces made of textile and resin, insulated glass with woven metal, and wallcoverings made of wood pulp and recyclable polyester.

New techniques emerged as well this year, especially in the solid-surfacing arena: Corian’s Bas Relief 2-D modeling process produces new textures of varied depth, while Avonite’s Glass Series replicates the translucency and texture of natural glass. One caveat: Although there were a few new notable “green” products introduced this year, our jury was surprised at the lack of products entered in the eco-realm.

### What do you think?

Do you have an opinion about what was the best new building product of 2001? Check out the Product Reports 2001 poll on our Web site this month to comment on the products that did or did not make it into our pages this year. [www.architecturalrecord.com](http://www.architecturalrecord.com)



p169



p175

# 2001

## 2001 Editor's Picks

Although we hate to play favorites, readers often ask which products stood out during the year, and why. The 10 products featured as Editor's Picks (next page) made the cut because they offer solutions for architects while also strongly proclaiming the object's aesthetic and utility. Here is a brief selection of our choices:

The Go chair, claimed to be the first furnishing ever designed in magnesium, recalls a giraffe—it's elegant and leggy, but also solid and strong. The spare, skeletal looking Cachet chair features a balanced action rocker mechanism that works like a tendon to allow you to gently recline as the seat flexes. Pilkington's Activ self-cleaning glass uses the power of the sun to maintain clean windows, saving owners time and money, while palm wood contributes a new addition to sustainable woods. Oxygen modular carpet, created by Gensler, allows designers to compose their own graphic art on the floor, and MesoOptics is an incredibly researched new holographic lighting material. Ergo Discus uses daylight sensors to put light only where it is needed; sok recirculates water as it spills off the edge of the tub; i ceilings shifts the role of the ceiling tile from an acoustical to a technological tool; and, last but not least, Aero is a flexible corrugated metal finish that opens up an array of design possibilities. —Rita F. Catinella

<b>144 Editor's Picks</b>	<b>163 Finishes</b>
<b>147 General Data</b>	<b>169 Specialties</b>
<b>151 Sitework, Concrete &amp; Masonry</b>	<b>171 Equipment</b>
<b>153 Metals, Woods &amp; Plastics</b>	<b>173 Furnishings</b>
<b>157 Thermal &amp; Moisture Protection</b>	<b>179 Special Construction &amp; Conveying Systems</b>
<b>159 Doors &amp; Windows</b>	<b>181 Mechanical</b>
	<b>185 Electrical</b>

## Product Reports 2001 Jury

Royce Epstein (seated) is an associate and FF&E specialist for Hillier. Epstein manages the firm's Resource Center in Philadelphia and provides expertise on furniture and finishes for projects and clients firmwide. Epstein also teaches at Moore College of Art and Design and is the national president of the Resource Directors Association.

Martin Munter, AIA, CCS, (standing, far right) is a registered architect and certified construction specifier. Since joining HLW International LLP in 1999, he has researched building systems, materials, and products, and prepared specifications and project manuals. He is based in New York.

Stephen D. Empie, AIA, CSI, CCCA, (standing, left of center) is an associate vice president at RTKL Associates in Baltimore. Empie serves as project manager on a wide range of RTKL's technical and corporate office projects. His responsibilities include coordinating documentation to ensure that design intent is successfully maintained and overseeing the allocation of resources. Empie joined RTKL in 1973 and was promoted to associate V.P. in 1986.

David W. Altenhofen, AIA, CSI, CCS (standing, far left) is an associate and chief of architectural technology at Kling Lindquist in Philadelphia. Altenhofen's expertise includes waterproofing, roofing, masonry, precast concrete, curtain walls, window systems, sealants, coatings, flashing, testing and inspection, building codes, UL and FM requirements, ADA, specifications, contracts, construction law, risk management, forensics, and sustainable designs.

Katherine Chia (standing, right of center) earned her M. Arch. degree from M.I.T in 1991. She currently serves on the board of trustees of Amherst College, where she earned her B.A. Prior to founding Desai/Chia Studio in New York City, she worked at Maya Lin Studio and Prentice & Chan, Ohlhausen Architects. Chia is a registered architect in the state of New York.

Senior editors Sara Hart, Charles Linn, AIA, and Deborah Snoonian, P.E., and contributing editors Jerry Laiserin, FAIA, and William Weathersby, Jr., also helped in the judging.





# Editor's Picks

**LEFT TO RIGHT, TOP TO BOTTOM:**  
 Go Chair, Bernhardt Design, page 173; Activ  
 Self-Cleaning Glass, Pilkington, page 159;  
 Palm Wood, Smith & Fong Plyboo, page 164;  
 Oxygen, Milliken Carpet, page 163;  
 MesoOptics, Ledalite, page 185; Ergolight  
 Discus, Ledalite, page 185; Sok Overflowing  
 Bath, Kohler, page 179; Cachet Chair,  
 Steelcase, page 175; Aero, Forms+Surfaces,  
 page 153; i Ceilings, Armstrong, page 164.

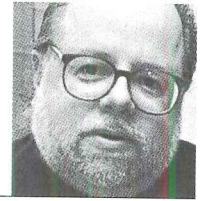
The ten products below, in no particular order, are the Editor's Picks for 2001. The preceding page outlines the essence of why they stood out from the hundreds of products introduced this year. I hope that in the following pages you find the product solutions that you have been searching for.—Rita F. Catinella

PRODUCT REPORTS 2001



# General Data

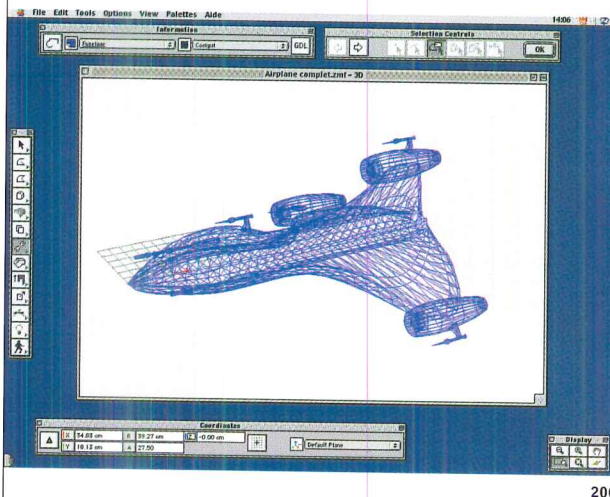
Computer software • Computer systems • Design office equipment & materials • Electronic literature • Web-based tools



Intelligent design requires intelligent software objects based on real building products. ZOOM GDL marks an important step toward filling that need. —JERRY LAISERIN, FAIA

## Object modeling

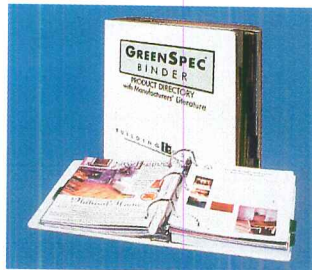
Using classic design tools such as extrusion, piping, and curved surfaces, Zoom GDL 1.0.1 users can create an exhaustive range of architectural elements, including such complex objects as free-shape roofs, tensile structures, elaborate windows, and soft furniture. 800/452-9241. Abvent North America, Montreal, Quebec. **CIRCLE 200**



200

## Green information

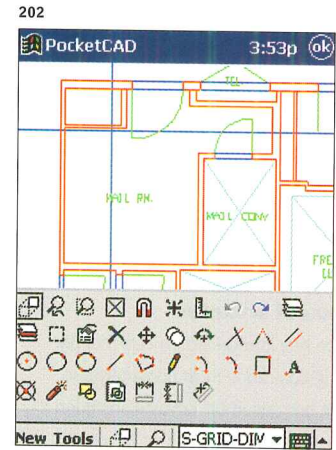
The 362-page *GreenSpec Product Directory* is a guide by the publishers of *Environmental Building News*. Comprehensive information can be found on more than 1,500 environmental products. The directory is organized by the industry-standard 16-division CSI MasterSpec system. 800/861-0954. BuildingGreen, Brattleboro, Vt. **CIRCLE 201**



201

## Tyke-size cad designers

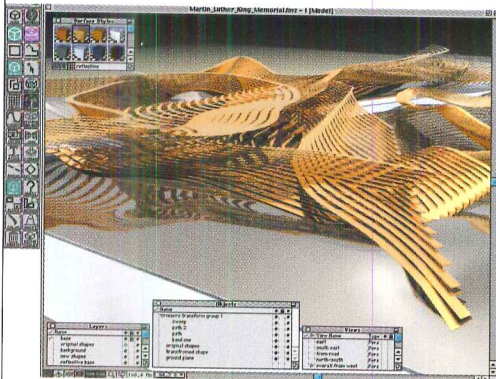
An etch-a-sketch for professionals, the PocketCAD Pro 4.0 allows for the unrestrained mobility of construction drawings. This palm-size computer drawing tool simplifies site visits and can automatically update edited drawings. 703/435-5400. Arc Second, Dulles, Va. **CIRCLE 202**



202

## Automatic drawings

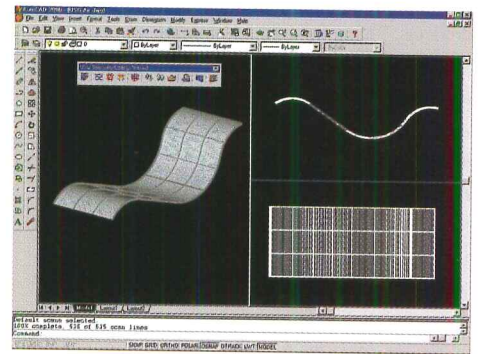
Autodesk Desktop 3.3 is the newest version of the affordable 3-D design format, with new functions such as automated change updates and leading Web functionality. 415/507-6908. Autodesk, San Rafael, Calif. **CIRCLE 203**



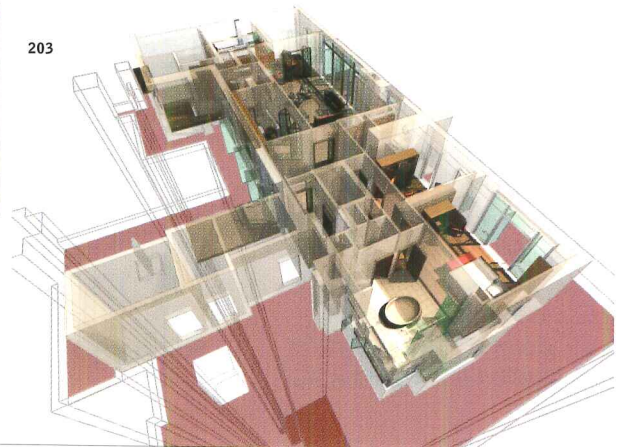
203

## Ceilings like magic

Design Wizard software works as a plug-in to AutoCAD r14 2000 and 2000i and is free of charge on USG's Web site. Relying on Autodesk's ObjectARX functions, the Design Wizard allows designers to create a wealth of options for ceiling layouts, in 2-D and 3-D renderings, and runs as a menu item on the standard AutoCAD toolbar. 800/USG-4YOU. USG, Chicago. **CIRCLE 204**



204



# General Data

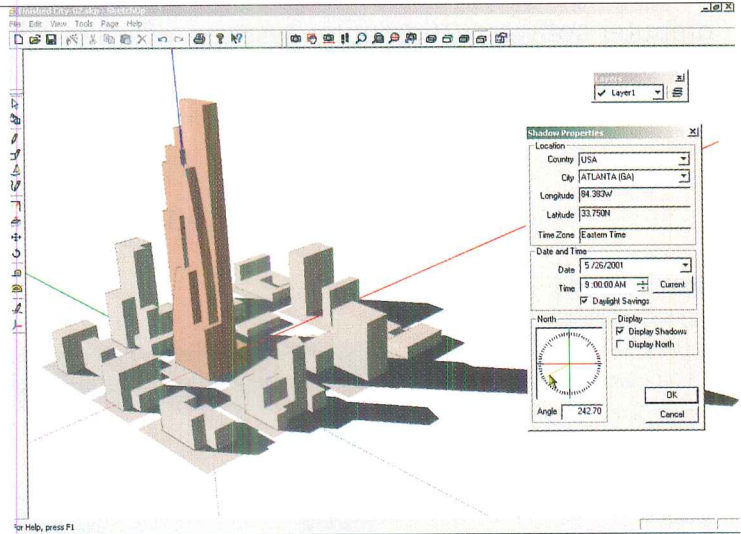
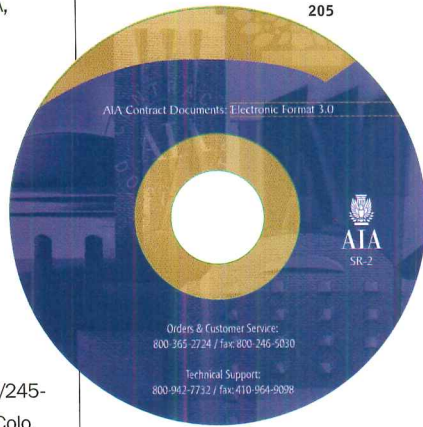
Computer software • Computer systems • Design office equipment & materials • Electronic literature • Web-based tools

## AIA contracts

The new version of AIA contract documents in an electronic format contains more than 70 contracts and forms for all phases of the design and construction process. The EF V3.0 upgrade provides a system that is more flexible for changing legal demands. 202/626.7463. AIA, Washington, D.C. **CIRCLE 205**

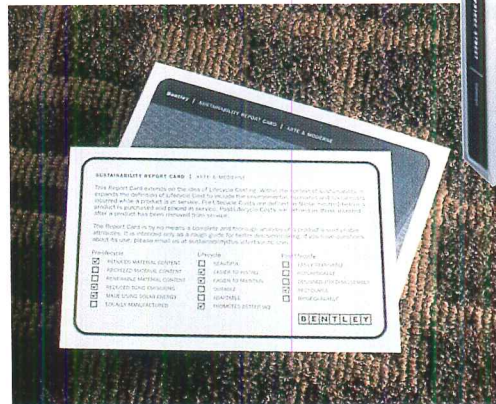
## Computer sketches

With Sketchup, early design thinking can be exported to conventional CAD or other advanced rendering software. Its main feature is a "jitter-line" mode that mimics the appearance of freehand drawing, incorporating an innovative fusion of CAD-compatible modeling and cocktail-napkin convenience. 303/245-0086. @Last Software, Boulder, Colo. **CIRCLE 206**



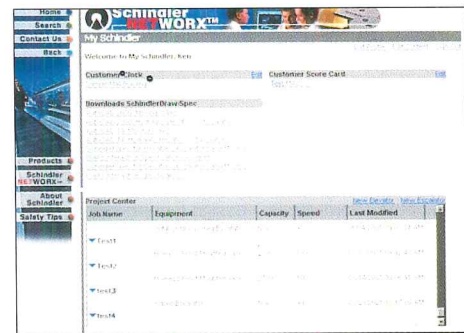
## Eco-box of samples

Interface has introduced an eco-friendly sampling box made from polypropylene that can be reused or recycled. Included are "Sustainability Report Cards," providing a framework in which to evaluate the full ecological impact of floor-covering products. The report card and grading system will be issued with all Bentley, Interface, and Prince Street carpet products. 770/437-6800. Interface, Atlanta. **CIRCLE 207**



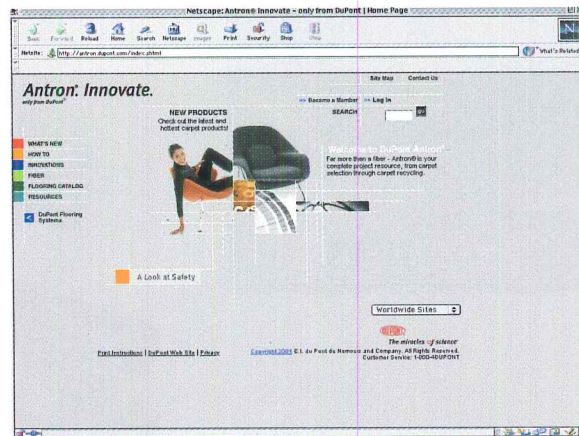
## Elevator shortcuts

My Schindler, a new feature on Schindler Elevator's Web site, www.us.schindler.com, allows users to customize their own Schindler Web page with shortcuts to their most frequently used Schindler programs. It can also store user drawings and specifications for future editing directly from the Schindler server. 973/397-6500. Schindler Elevator, Morristown, N.J. **CIRCLE 208**



## Carpet experts

Visit DuPont Antron's Web site, www.dupont.com, for carpet information, including new products, carpet lifecycle maintenance and recycling, style issues, technical information, and inventory access. The site has a membership option and a print screen link on every page. 800/4-DUPONT. DuPont, Atlanta. **CIRCLE 209**



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### "Circle of Peace"

Bronze, 4' high x 10' wide

"Circle of Peace" is a symbol and a participatory teaching aid for life. I watched an interview with a former white supremacist. At age 18 he was imprisoned because of his violent anti-racial acts. The interview got extremely interesting as he recounted his reformation while in prison. Prior to his sentence he vehemently avoided other races. They were to be hated, abhorred and despised. Overnight he was placed in an environment where interaction with all of mankind was a welcome experience to solitary confinement. Play was introduced in the form of team sports. Relationships developed, bias subsided and upon release from prison he was free from the prejudices and bonds that had tied his hands and soul. Today he takes a radical stand against his past by speaking out in public forums exposing the violence and thought processes of hate groups. Today he coaches youth hockey to multi-cultural kids.

The story is fascinating to me. The prejudice could only occur when there was no interaction. When the associations occurred the barriers went down and friendships happened.

"Circle of Peace" depicts children from all walks of life playing and enjoying each other. The circle the children form represents the continuum of humanity. The clasped hands represent the interaction and cooperation that engenders a humanity full of compassion and respect. Respect for each others uniqueness and compassion that bridges the gap between any indifference. You'll notice I created a space in the circle. It's fascinating to watch children interact with the piece. The second they notice the gap they automatically clasp the two out-stretched hands and complete the circle! Exactly so! Each and every child is a vital link in this wonderful circle of life we call humanity.



# Sitework, Concrete & Masonry

Earth retainage • Landscape accessories • Paving specialties • Site, street & mall furnishings • Concrete materials • Concrete formwork • Formliners • Masonry units



The durability of exposed concrete and the control of shrinkage cracks for concrete with bonded finishes is important to a client's long-term operating costs. —DAVID ALTENHOFEN, AIA, CSI, CCS

## Bending balustrades

Haddonstone has expanded their balustrade collection to include eight new standard balusters and 15 non-standard designs appropriate for both interior and exterior locations. 856/931-7011. Haddonstone, Bellmawr, N.J.

CIRCLE 210

## Complex curved solutions

Curvatex is a new technology for developing complex surfaces. The method can create large-scale, weatherproof, stable curved surfaces without the need for formwork or framing structures. 44 020 7689 5660. b consultants, London.

CIRCLE 211

## Supporting fibers

The SI Concrete Systems concrete reinforcement fibers help prevent plastic shrinkage and settlement cracking, reducing the typical construction time of poured concrete up to 50 percent.

800/635-2308. SI Concrete Systems,

Chattanooga. CIRCLE 212

## Colored concrete

Con-Color is a permanent sealer that fastens colors to interior and exterior concrete, limestone, and terrazzo surfaces. Available in 50 standard colors and an array of custom combinations.

800/854-2094. Bomanite, Madera, Calif.

CIRCLE 213

## Pedestals and stools

SiteForm+ launches two new lines of exterior furnishings. The vibrantly colored Bantam Collection of chairs, barstools, and tables are durable for high-traffic and exterior settings, while Orbit cast table pedestals offer a choice of spoke, dot, ring, or sandstone designs.

877/929-0011. SiteForm+, Carpinteria, Calif.

CIRCLE 214

## Wall innovations

iForm flat wall insulating concrete form is easily installed and is appropriate for a variety of applications. 800/468-6344. Reward Wall Systems, Omaha. CIRCLE 215



210



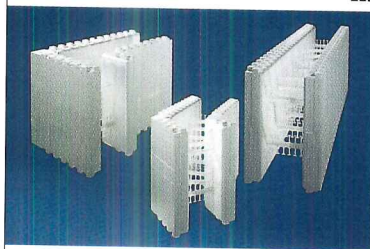
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215



214

ART & SOUL.



{ *cobalt blues* }

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CIRCLE 44 ON INQUIRY CARD

# Metals, Woods & Plastics

Structural metal framing • Railings & handrails • Metal coatings • Wood treatments • Wood veneers • Laminates • Structural plastics



The Tabu dyed veneers have a great color range. A larger variety of wood species gives architects more to choose from. —KATHY CHIA

## Corrugated surfaces

New to the market, Aero is a flexible and formable corrugated anodized aluminum sheet that creates textures of depth and thickness to applied surfaces. 877/626-7788. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 216**

## Luminating glass

Skyline Design launches Lumicast, a line of translucent panels that capture embedded 3-D objects in a clear polymer glass. Available in 12 standard designs with the option of backlighting and customized effects. 773/278-4660. Skyline Design, Chicago. **CIRCLE 217**

## Beneath the surface

DuPont introduces Corian Bas Relief Signature Surfaces, a technology that transforms Corian surfaces via a 2-D molding process, producing new textures of varied depth. 800/4-CORIAN. DuPont Corian Solid Surfaces, Wilmington, Del. **CIRCLE 218**

## Dyed veneers

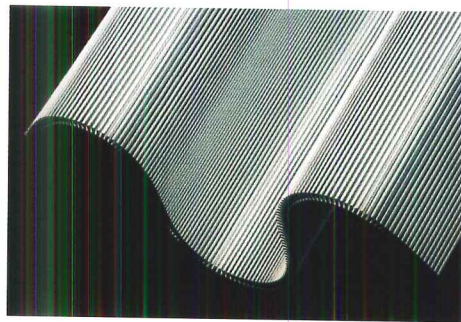
Available for the first time in the U.S., Tabu's line of natural dyed veneers includes hundreds of colors, patterns, and species that retain the characteristics of wood while eliminating color variation. 866/989-1111. WTP, Englewood Cliffs, N.J. **CIRCLE 219**

## Sleek steel

Circum Stainless Steel guardrailings and handrails are mechanically assembled without weld joints, producing a clean and sleek design. 877/HEWI-INC. Hewi, Lancaster, Pa. **CIRCLE 220**

## Translucent solids

The Glass Series from Avonite is a solid surface material that replicates the translucency and texture of natural glass. This year the series is available in two new colors, Cobalt and Frosted Glass. 800/428-6648. Avonite, Albuquerque. **CIRCLE 221**



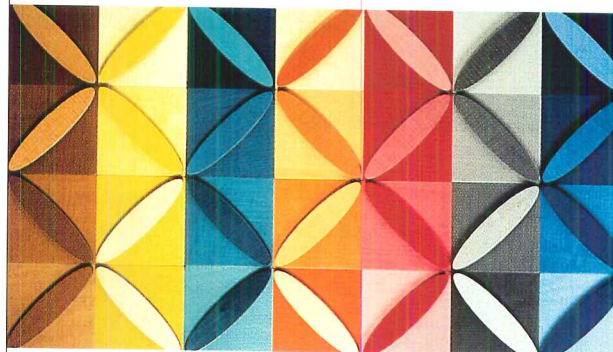
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220



221

# Metals, Woods & Plastics

Structural metal framing • Railings & handrails • Metal coatings • Wood treatments • Wood veneers • Laminates • Structural plastics

## Graphic laminate

Graphic Standards offers 30 digital and silk-screen laminated designs that can be used for a variety of applications, including store fixtures, tabletops, or cabinets. 800/433-3200. Wilsonart, Temple, Texas. **CIRCLE 222**

## Metallic finishes

Metallon launches its new line of cold spray metallic finishes, available in seven natural metal colors. They can be applied to any surface, and they age exactly like the metals they mimic. 800/542-9118. Metallon, Parkersburg, W.Va.

**CIRCLE 223**

## Organic metals

Formica DecoMetal introduces a variety of new laminates including organic, perforated, and geometric wood designs that provide an alternative to traditional metal surfaces. 800/FORMICA. Formica, Cincinnati. **CIRCLE 224**

## Drier wood

Fraserwood operates a Radio Frequency/Vacuum Kiln dedicated solely to the drying and subsequent dimensional stabilizing of timbers and logs up to 40 feet long. In a matter of days, timber will be dry enough to prevent shrinkage and warping. 604/892-7562. Fraserwood Industries, British Columbia.

**CIRCLE 225**

## A hardy alternative

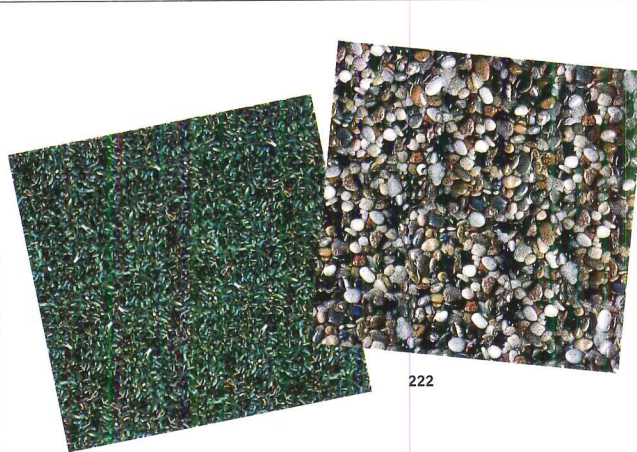
The ICBO-approved Hardy Frame, engineered from light-gauged steel, is designed to resist earthquake and wind loads, providing architects with greater structural flexibility. 800/754-3030. Hardy Frames, Ventura, Calif. **CIRCLE 226**

## Recyclable laminates

Abet Laminati has launched Tefor, its first recyclable material. Tefor, an alloy of high-pressure laminates and chemically inert polypropylene, can be used for a variety of interior applications. 800/228-2238. Abet, Englewood, N.J. **CIRCLE 227**

## Railing rally

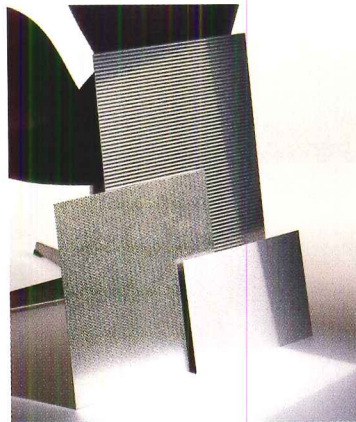
P&P Artec offers a complete line of customized stainless-steel railings that will curve and bend to fit almost any space, whether residential, commercial, or urban. 630/860-2990. P&P Artec, Wood Dale, Ill. **CIRCLE 228**



222



223



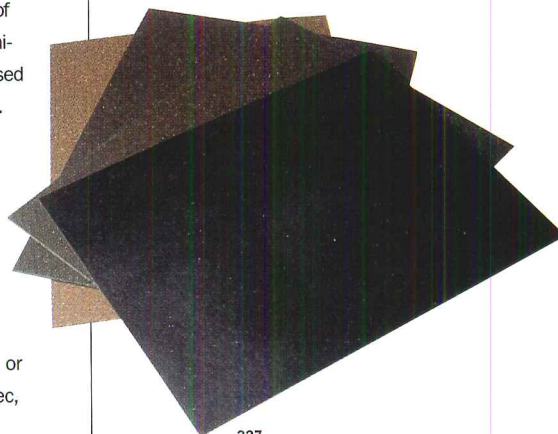
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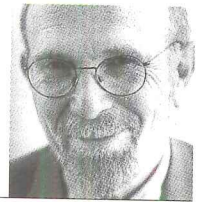
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228

# Thermal & Moisture Protection

Waterproofing & dampproofing • Flexible flashings • Roof specialties & accessories • Membrane roofing • Wall panels



Two novel products I found interesting were the Velux skylight and the operable dome skylight. —MARTIN MUNTER, AIA, CCS

## Flexible wrap

DuPont Tyvek FlexWrap is a flexible, self-adhering flashing tape that protects vulnerable areas of square and arched rough openings. 800/44-TYVEK. DuPont Tyvek Weatherization Systems, Wilmington, Del. **CIRCLE 229**



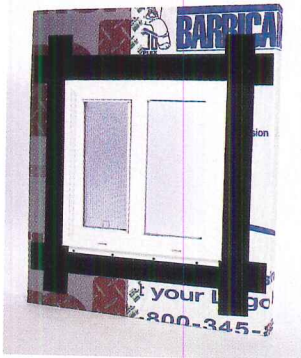
## Roof coating system

Neogard's Elasta-Gard engineered roof coating system is designed for application directly over new and existing smooth or gravel built-up, modified bitumen, and metal roof systems. 800/321-6588. Neogard, Dallas. **CIRCLE 230**



## Weather protection in a flash

OptiFlash is a premium butyl rubber flashing that provides a weatherproof seal for all window, door, and skylight installations. 804/876-3135. Ludlow Coated Products, Doswell, Va. **CIRCLE 231**



## See the stars

OpenAire designed and installed this custom skylight application to meet the needs of an amateur astrologer. The dome can open to up to 50 percent of its area. 905/819-8535. OpenAire, Mississauga, Ontario. **CIRCLE 232**



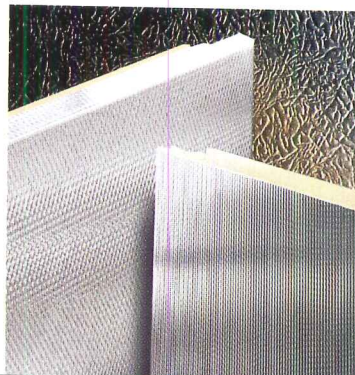
## Automatic closing skylight

Velux's Electric Venting Skylight comes with a pre-installed motor and control system, an infrared remote control, and two automatic rain sensors. 800/283-2831. Velux America, Greenwood, S.C. **CIRCLE 233**



## Steely options

Patterned Stainless Steel finishes are available in two grades of architectural stainless steel, three standard finishes, and six textured and three embossed patterns. 412/299-8218. Centria, Moon Township, Pa. **CIRCLE 234**

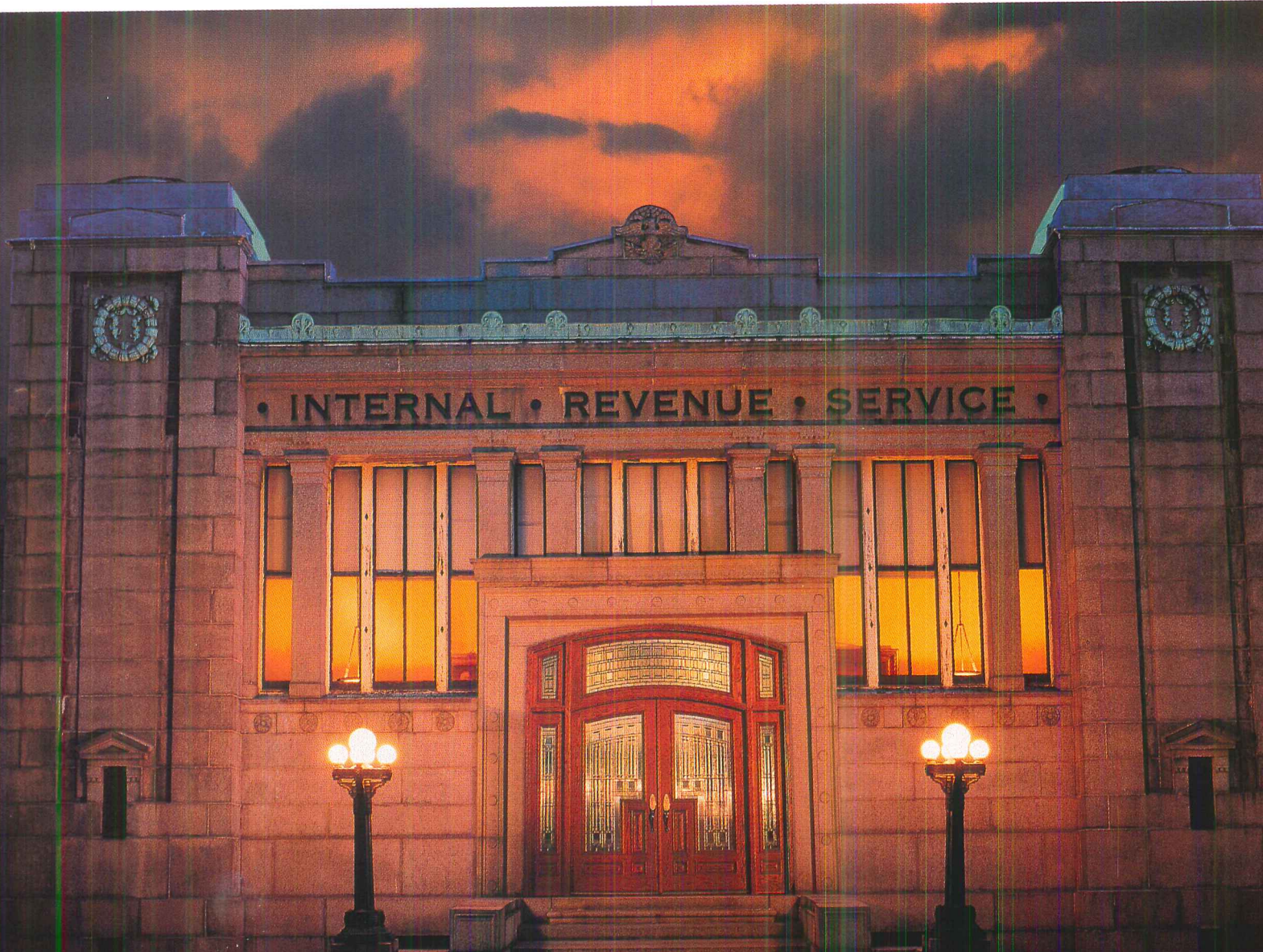


## Automatic fire vent

The Lumivent automatic fire vent's multi-wall cover construction provides an increase of more than 40 percent in insulation performance when compared to traditional domes. 203/934-6363. The Bilco Company, New Haven. **CIRCLE 235**



The right door can make any place more inviting.



Now, think what our custom doors could do for your home. A door with no boundaries, save those of your imagination. A door handcrafted in the Old World style from the most beautiful hard woods available: Genuine Mahogany, Cherry, Maple, Walnut and Northern Red Oak. International Wood Products can deliver this door. All the way from your mind straight to your dream home. 1-800-877-9482 ext. IWP2 [www.iwpdoor.com](http://www.iwpdoor.com)

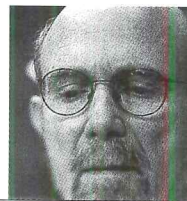


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**CIRCLE 47 ON INQUIRY CARD**

# Doors & Windows

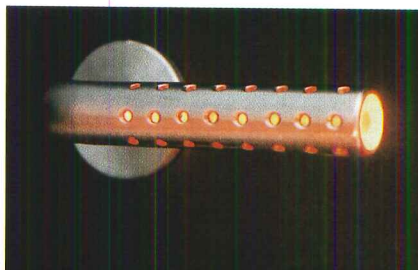
Wood & plastic doors & frames • Wood windows • Door hardware • Glass • Decorative glazing • Glazing film • Glazed curtain walls



Pilkington's Activ self-cleaning glass is a major innovation and can reduce maintenance costs significantly. —MARTIN MUNTER, AIA, CCS

## Bright idea

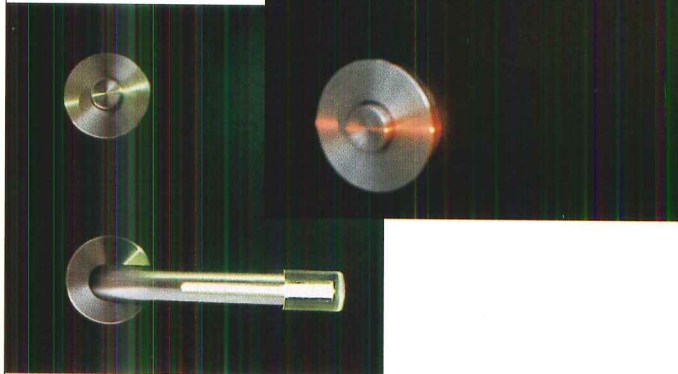
Brighthandle communicates with colored light; light is transported from a diode in the bolt to the handle through fiber optics, ensuring that there is no electricity in the handle itself. Brighthandle may be used as a safety feature or to communicate room occupancy in hotels, rest rooms, or conference rooms. 46 08 222201. Brighthandle AB, Stockholm, Sweden. **CIRCLE 236**



236

## Meshed glass

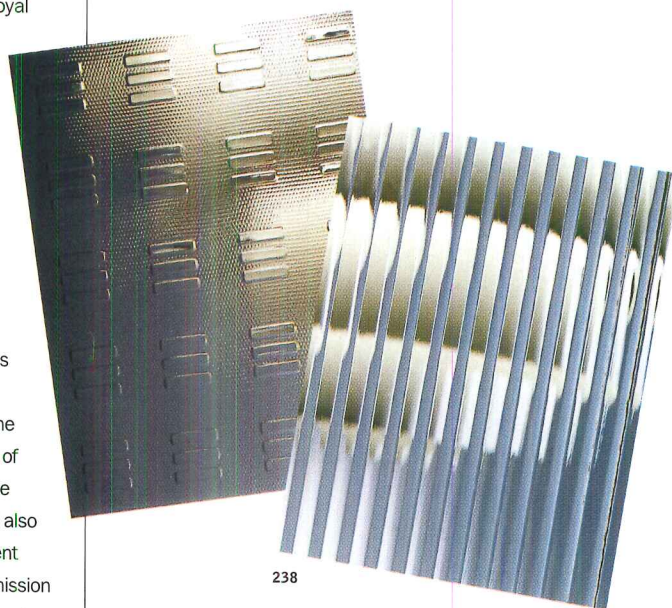
Well suited for facade glazing, Okatech insulating glass combines the possibilities of patterned mesh with the performance of insulating glass. Natural light is both refracted within the mesh apertures and reflected from the mesh surfaces, resulting in changing illumination effects. 914/378-3839. Schott Corporation, Yonkers, N.Y. **CIRCLE 237**



237

## Fit for a king

Royal glass is a precision-rolled glass that comes in four patterns. Available exclusively through Bendheim, Royal Glass can be tempered, laminated, mirrored, or bent and is suitable for insulated units. Applications include floor-to-ceiling partitions, ceilings, shelving, building facades, shower doors, or furniture. 212/226-6370. Bendheim, New York City. **CIRCLE 238**



238

## Solar scrubbing

Pilkington Activ Self-Cleaning Glass uses the sun's UV rays to break down organic dirt while at the same time reducing the surface tension of water, allowing it to sheet down the surface and wash away the dirt. It also provides an approximate 20 percent reduction in ultraviolet light transmission over clear glass and equivalent energy efficiency. Available in thicknesses ranging from 3/8" to 1/2". 866/88-ACTIV. Pilkington North America, Toledo. **CIRCLE 239**



239

# Doors & Windows

Wood & plastic doors & frames • Wood windows • Door hardware • Glass • Decorative glazing • Glazing film • Glazed curtain walls

## Handy security

In less than a second, HandKey IIv hand reader verifies your identification by the size and shape of your hand, eliminating the hassle of cards or keys. The product contains a complete door controller for entering and exiting and is compatible with most electrical locks. The hand reader is designed for single opening applications and is used as a stand-alone system anywhere from computer rooms to pharmacies. 800/999-0408. Von Duprin, Indianapolis. **CIRCLE 240**

## Colorful solutions

Traditionally used as an exterior component in buildings, architectural laminated glass is now seeing increased use as an artistic design option in interior spaces. Solutia's colored plastic interlayers are made with heat and light-stable pigments, instead of dyes, to produce truer colors. 877/674-1233. Solutia, St. Louis. **CIRCLE 241**

## Snap to it

The Cara Snap lock system holds doors and drawers securely in position and, unlike other catches or snaps, allows them to open noiselessly and without resistance. Fabricated of nylon coupled with a stainless-steel spring, the Cara Snap is also suitable for the boating and caravan industries. 800/423-3531. Häfele America, Archdale, N.C. **CIRCLE 242**

## The 'wright' window

Andersen Windows now offers forest green (above) as a standard exterior color option available for no additional charge with Andersen 400 Series windows and patio doors. Also included in the 400 series launched this year by Andersen is the Frank Lloyd Wright series art glass collection (below). The collection is inspired by four of the renowned architect's projects. 800/426-4261, ext. 1232. Andersen Windows, Bayport, Minn. **CIRCLE 243**

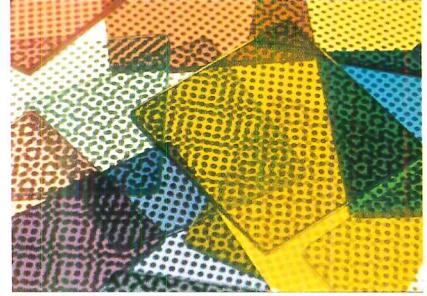
## Decorative glazing

Three new patterned-glass options, Floralite, Glue Chip, and Radiance, can be used in architectural applications where privacy or a decorative appearance is desired. 714/449-7860. Guardian Industries, Fullerton, Calif. **CIRCLE 244**

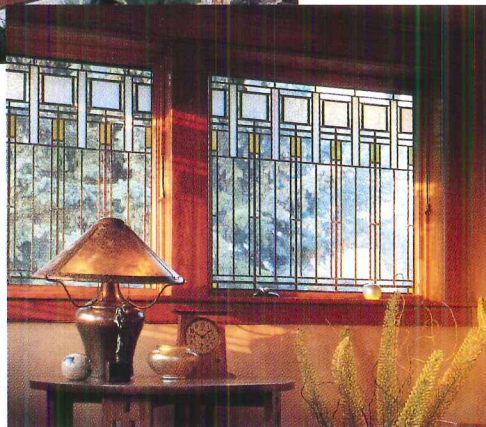


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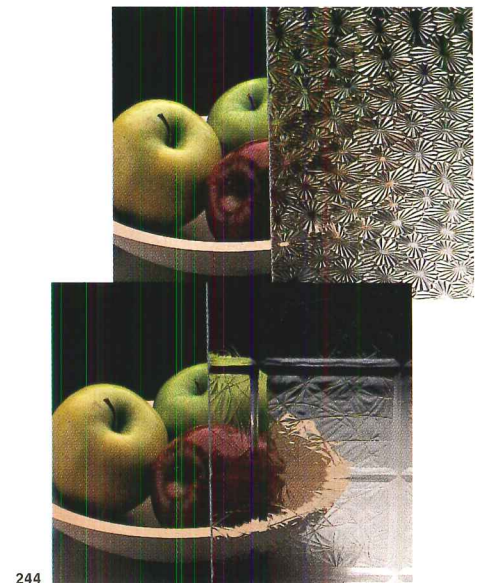
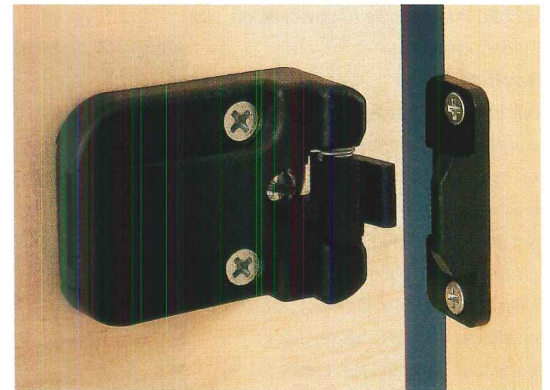
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243



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244



# Doors & Windows

Wood & plastic doors & frames • Wood windows • Door hardware • Glass • Decorative glazing • Glazing film • Glazed curtain walls

## Mies-inspired

Named after the glass-walled 1929 German Pavilion in Barcelona, the Pavilion system, designed by Antonio Citterio, is a fixed- and sliding-door program with frames available in five types of profile finishes. Doors come in five tempered, transparent, or frosted glass, and in veneered canaletto or white chestnut oak. 212/935-5955. Tre Piú, New York City. **CIRCLE 245**

## A new species

The Wood Species by Eagle offers a variety of soft and hard woods for doors and windows to complement interior decor and furnishings. Options are available in pine, fir, maple, oak, mahogany, cherry, or walnut. 800/453-3633. Eagle Window and Door, Dubuque, Iowa. **CIRCLE 246**

## Transparent fire walls

Pilkington Pyrostop is a fire-rated (up to two hours), impact-safety-rated, transparent wall panel that helps block heat transfer. 888/397-FIRE. Technical Glass Products, Kirkland, Wash. **CIRCLE 247**

## A traditional look

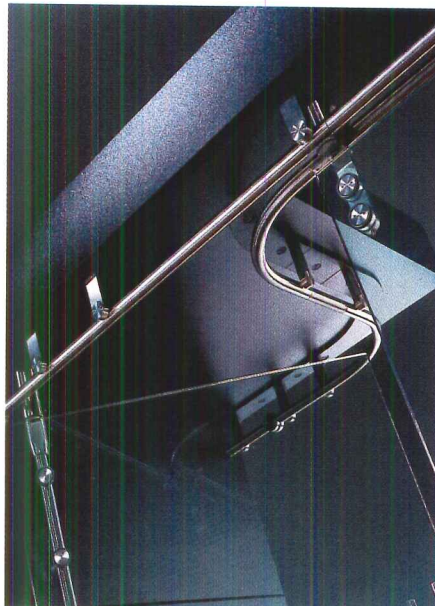
The Wood Ultimate Double Hung window features a frame constructed for maximum stability and an exterior surface with a solid wood profile that meets most historic restoration criteria. The sashes easily tilt for cleaning. 888/537-8266. Marvin Windows and Doors, Warroad, Minn. **CIRCLE 248**

## Cyberlock and key

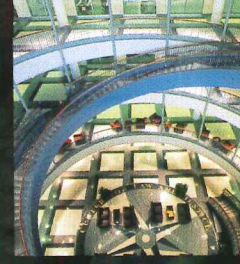
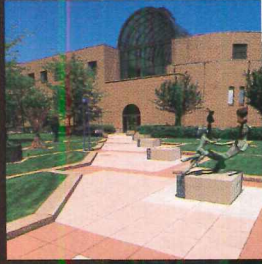
CyberLock is an electronic programmable core that converts a mechanical lock into a fully functional access control system without a power source. It also ends key-control problems by eliminating costly rekeying or recoring of hardware. 866/287-4274. Videx, Atlanta. **CIRCLE 249**

## Sleek system

Designed for use on  $\frac{3}{8}$ " and  $\frac{1}{2}$ " sliding and pivoting tempered-glass doors, the Manet Compact system features stainless-steel fixtures and components for a clean, modern look in corporate offices, meeting facilities, and other applications. Components that attach directly to the glass surface feature strong, flush-fitting, single-point fixings for an uncluttered appearance. 301/390-3600. Dorma Glas, Upper Marlboro, Md. **CIRCLE 250**

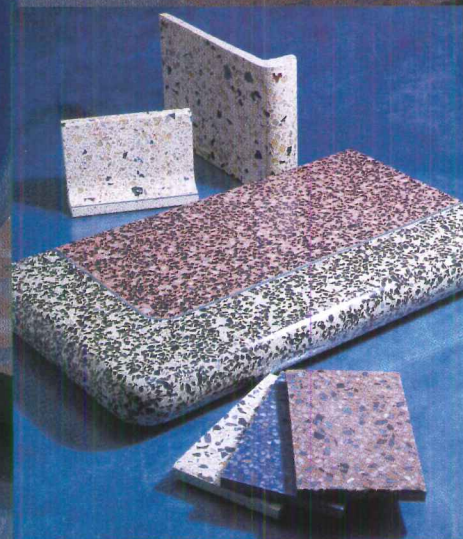


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Terrazzo Tile and precast terrazzo accessories from Wausau Tile are your best choice when it comes to completing your next flooring project on a tight deadline. Terrazzo tile is quicker and easier to install compared to traditional poured terrazzo. And, adding color accents or an intricate logo pattern into the floor is much simpler, thanks to our water-jet technology for precise cutting of the terrazzo pieces.



## NEW EPOXY TERRAZZO

Wausau Tile now introduces our new Epoxy Terrazzo for your precast terrazzo accessory needs. In addition to matching our regular terrazzo colors, the new Epoxy Terrazzo will be available in deeper, richer colors to enhance your setting. Inquire for more details today!

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CIRCLE 48 ON INQUIRY CARD

# Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint



The large-scale patterns and clear color palette of Oxygen are a wonderful marriage to Milliken's tile performance. I can't wait to spec this. —ROYCE EPSTEIN

## Honeycomb walls

Panelite translucent panels combine a bonded sandwich construction with a structural honeycomb core to provide a novel look and strength and rigidity at a minimal weight. Ideal for sliding, pivoting, or partition walls, as well as furniture applications, the panels provide varying degrees of visual privacy or exposure. 212/343-0995.

Panelite, New York City. **CIRCLE 251**

## Carpet composition

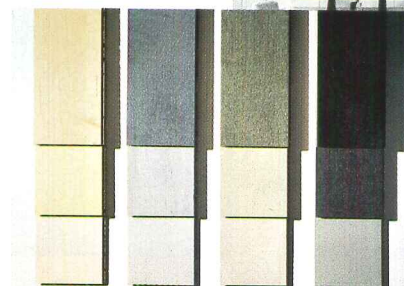
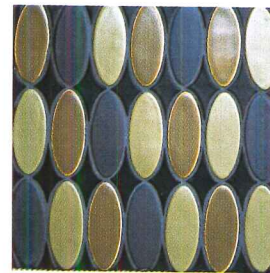
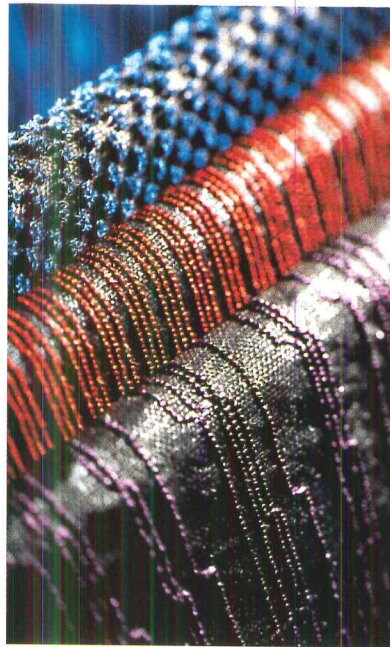
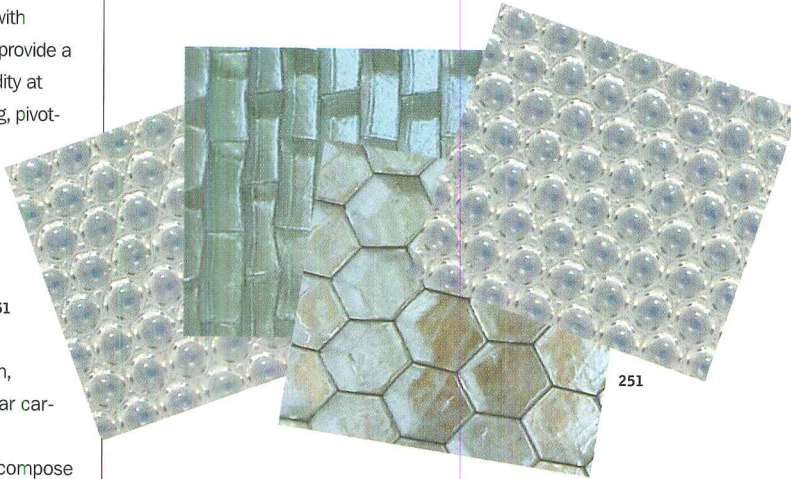
Designed by Gensler for Milliken, Oxygen is a collection of modular carpet tiles that can be mixed and matched to allow designers to compose their own graphic art on the floor. The carpet tiles are engineered with precise modulation to ensure that patterns match. 800/241-4826. Milliken Carpet, LaGrange, Ga. **CIRCLE 252**

## Exposing the underside

Metafloor is a hybrid carpet and hard surface flooring that celebrates the synthetic woven properties typically found on the backing material of carpeting. Available in a range of vibrant colors. 800/523-5647. Lees Carpets, Greensboro, N.C. **CIRCLE 253**

## Gotham and grooves

Ann Sacks expanded its offering this year with a selection of new tiles and flooring. Gotham (top) is a modern-retro porcelain tile available in Ovals, Round Rectangles, and Drops. Groove (center), by Barbara Barry, incorporates the grout line into the design of the tile by "grooving" the tile itself. Perlot wood planks (bottom) can be used for both floors and walls. Perlot comes in two, three, four and six foot lengths, has a 3.6 mm hand-selected Northern hard maple wear layer, and a tongue-and-groove milling. The plank is 5/16" thick by 5" wide. 800/278-8453. Ann Sacks, Portland, Ore. **CIRCLE 254**



# Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

## Terrazzo tiles

Petrae terrazzo-style tile derives its look from combined glass chips and quarried stones in a resin mix. Lightweight, thin, and flexible, Petrae can be installed directly on top of existing floors and surfaces or as a veneer on furniture. 305/597-4099. Bisazza, Miami, Fla. **CIRCLE 255**

## Textiles take shape

Shatterproof and highly impact-resistant, Xorel Surfaces is a woven hard surface material that can be manipulated to create a variety of design possibilities. 800/727-6770. Carnegie, Rockville Centre, N.Y. **CIRCLE 256**

## Turning walls into gold

Innovations has designed overprints on its Eco-Alchemy wallcovering products. Comprised of wood pulp and recyclable polyester, the prints are breathable, reducing mold and mildew. 212/807-6300. Innovations in Wallcoverings, New York City. **CIRCLE 257**

## Integrated systems

The new i ceilings invisibly integrate sound and wireless systems by embedding antenna and sound panels into standard ceiling panels, increasing employee mobility and speech privacy while avoiding unattractive antenna installations. 877/276-7876. Armstrong, Lancaster, Pa. **CIRCLE 258**

## Standing over a palm tree

Smith & Fong Plyboo's recently introduced palm-wood flooring is gathered throughout Southeast Asia from plantation-grown coconut palms that would otherwise be discarded. 866/835-9859. Smith & Fong Plyboo, San Francisco. **CIRCLE 259**

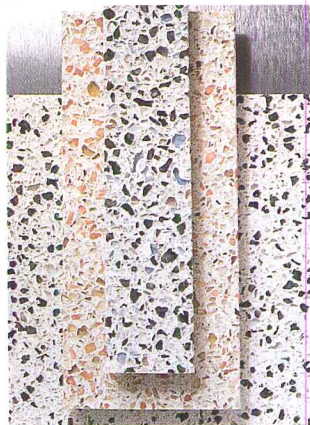
## New options for offices

Interface's new striated patterns, Chenille Warp and Sabi, were developed in response to the desire to get bold colors and textures on the corporate office floor. They are manufactured almost entirely from post-industrial recycled nylon. 706/812-6113. Interface Flooring Systems, LaGrange, Calif. **CIRCLE 260**

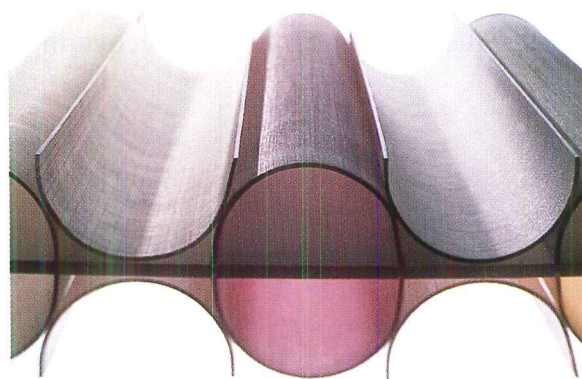
## Creative light covers

Corniche is a linear lighting system available in a variety of architectural metals and painted materials that can be perforated with a choice of patterns. 800/822-3411. Ceilings Plus, Los Angeles. **CIRCLE 261**

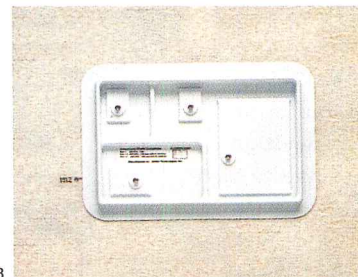
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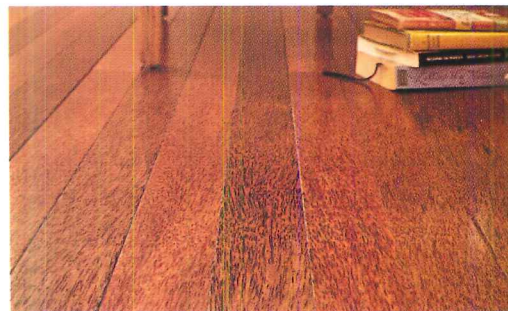
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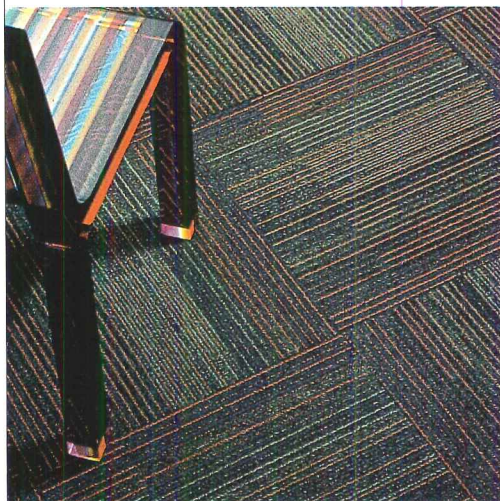
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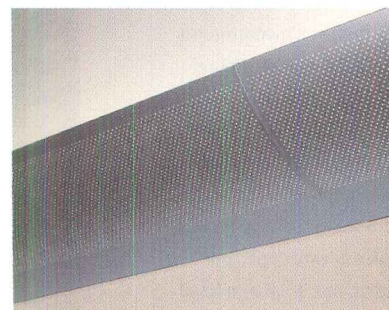
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# Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

## Bold carpets

The 501 Collection includes eight new styles in a rectangular tile format and features patterns that use natural pigments, coarse woven structures, tribal imagery, and ancient icons. 800/5-PRINCE. Prince Street, Cartersville, Ga. **CIRCLE 262**

## Legendary inspiration

The look of jasper (*diaspro* in Italian), used by ancient civilizations to test the purity of gold and silver, is reproduced in the new Diaspro di Lidia series from EmilCeramica. These glazed porcelain tiles are suited for indoor and outdoor use. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 263**

## Far out flooring

Amtico's Colormetrics line offers psychedelic color lines in eight "fruit flavors." The Techno range offers metallic styles using Amtico's magnetic embossing technique to give the tiles a simulated 3-D effect. 800/268-4260. Amtico International, Atlanta. **CIRCLE 264**

## A reason to look up

Translucents Luminous Infill panels can be integrated with lighting to create a variety of visual effects. They accommodate both curved and flat ceiling systems and can be matched with coordinated suspension ceiling colors. 800/USG-4YOU. USG, Chicago. **CIRCLE 265**

## Drawn from nature

The elegant new Symmetries line by Interlam includes wall and ceiling acoustical panels as well as door skins, in either sculptured, embossed, or perforated finishes. 888/551-2772. Interlam, Ft. Lauderdale, Fla. **CIRCLE 266**

## "KorQ" floors and walls

ProntoKorQ is a series of floor and wall tiles in striped, cork-terrazzo, solid, and chunk styles. A layer of nonformaldehyde MDF is sandwiched between layers of insulating and high-density granulated cork. 212/758-2593. KorQinc, New York City. **CIRCLE 267**

## Liquid tiles

Vitrum Liqua tiles from Ceramgres come in a variety of lustrous colors and numerous square or rectangular sizes. 866/845-3766. Italian Trade Commission, New York City. **CIRCLE 268**



262



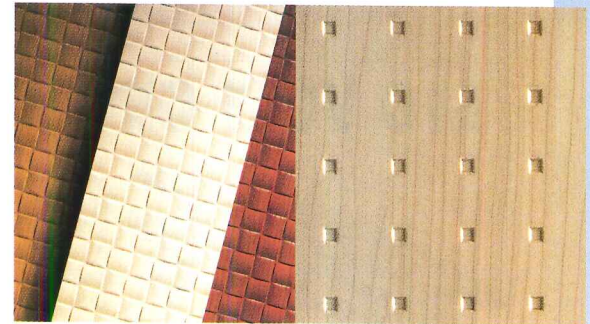
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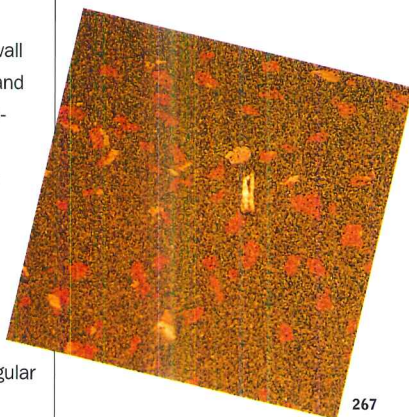
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# Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

## Super safety floor

Polyflor Supratec safety floor has a soil-releasing polymer system that eliminates the need for harsh cleaning chemicals. It features enhanced hygiene protection.

800/852-8292. Bonar Floors, Newnan, Ga. **CIRCLE 269**

## Art of ceramics

Newly available in the U.S., Appiani offers three lines of ceramic tiles for residential and commercial projects: Anthologhia Colori, Appianissima, and Arco Techno.

866/845-3766. Italian Trade Commission, New York City. **CIRCLE 270**

## Makes no scents

The Harmony Low Odor Interior Latex line offers a complete interior paint line, from primer to topcoat, without disruptive odors. 800/321-8194. The Sherwin-Williams Company, Cleveland. **CIRCLE 271**

## Sea you again

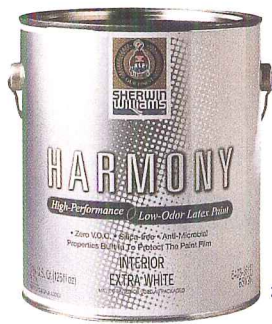
Using a special technique, designers at Cotto Veneto have given Vetro Del Piave mosaics the smoky effect of sea glass.

866/845-3766. Italian Trade Commission, New York City. **CIRCLE 272**

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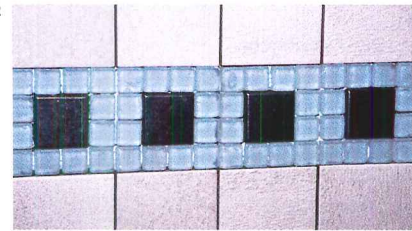


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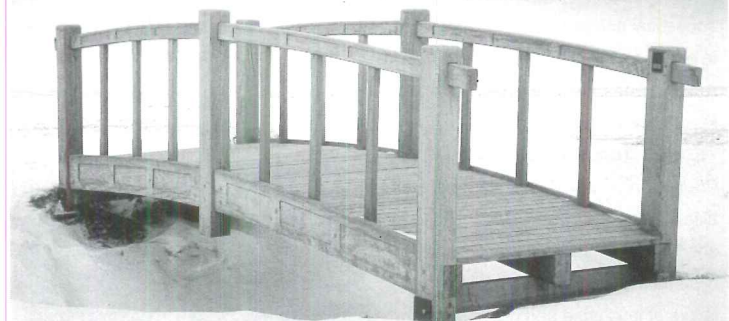
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# Finishes

Tile • Glass mosaics • Terrazzo • Ceilings • Wood/resilient/laminate flooring • Carpet tile • Sheet carpet • Wall coverings • Paint

## Fusing color and glass

Handmade in Italy, the Fusion glass tile collection is available in 17 translucent colors and several sizes, either as mosaic pieces on 12" mesh-mounted sheets or nonmosaic, single tiles (6" squares or 3" x 6" bricks). 877/611-0199.

Walker Zanger, Sylmar, Calif. **CIRCLE 273**

## Joie de vivre

Part of the Book Ends series, Joie de Vivre, Shaw's new broadloom collection, is designed so that variations, and product delivery, are easy. 877/502-7429.

Shaw Contract, Dalton, Ga. **CIRCLE 274**

## Gem of a tile

Crossville's new Gemas series of porcelain tiles has the appearance of almost translucent stone. Gemas is available in ten colors ranging from water blues to blue greens to colored naturals. Because the tiles are all perfectly square (18" x 18"), it is possible to create a high-tech look using very thin grout joints.

800/221-9093. Crossville Porcelain Stone/USA, Crossville, Tenn. **CIRCLE 275**



273



274



275

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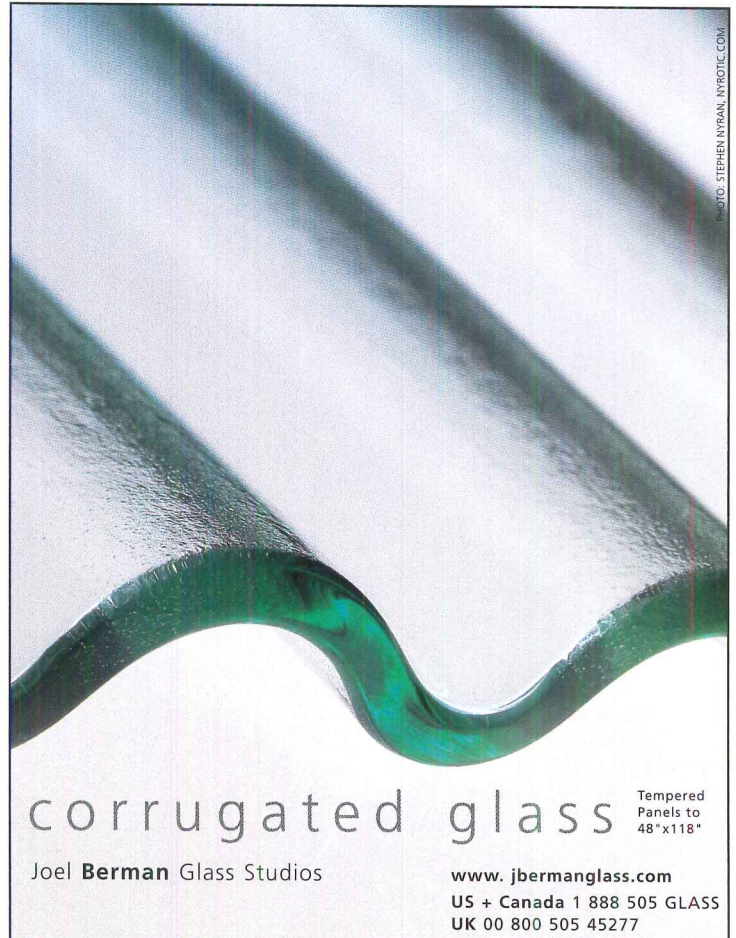


PHOTO: STEPHEN NYRBAI, NYRBAI.COM

corrugated glass Tempered Panels to 48" x 118"

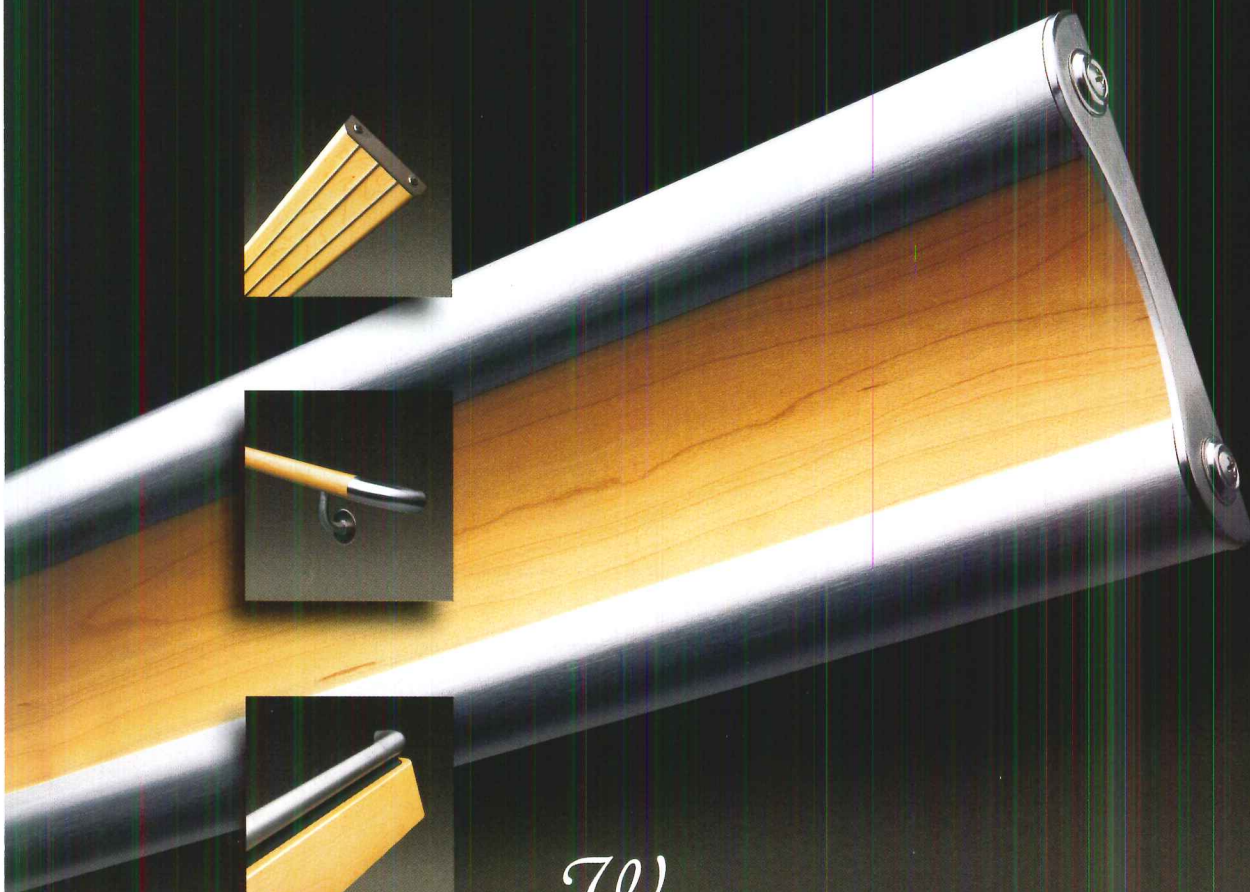
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# Specialties

Access flooring • Signage & graphics • Wardrobe & closet specialties • Wall & corner guards • Hat & coat racks & accessories



Our designers are looking for more finish options for raised access flooring other than high-pressure laminate and carpet.

—STEPHEN D. EMPIE, AIA, CSI

## Italian stilo

Italian product design shrinks the blob aesthetic down to handheld objects, exhibited in Confalonieri's new collection of coatracks and handles for doors and drawers. The designs are absent of sharp edges, and the opposing combinations of metals and plastics is consistently fluid. 877/652-6274. Confalonieri USA, San Francisco. **CIRCLE 276**

## Concrete office

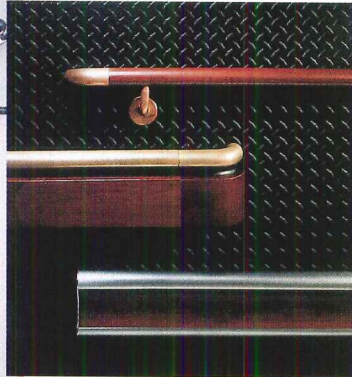
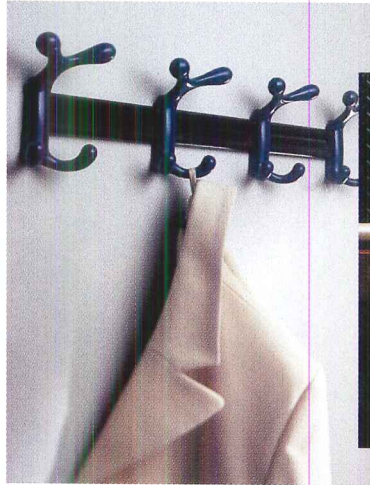
Walking on raised access flooring covered in TecCrete can feel like a stroll on a city sidewalk. This patented flooring system is designed specifically for office spaces, to provide a sturdy ground for an elevated environment. TecCrete uses the structural strength of concrete reinforced with steel to produce a flooring finish that does not require carpeting. TecCrete is part of Interface's iRise system of modular power, data, and HVAC delivery solutions. 312/755-2113. Interface AR, Grand Rapids. **CIRCLE 277**

## Media prop

Profile One Infomast provides support for three levels of engagement with the body: eye, hand, and foot. Floor-to-ceiling aluminum mounts are encased in stainless steel, and information monitors are flexible, to provide for individual or collective reception. 800/553-7722. Cornelius+, Pittsburgh. **CIRCLE 278**

## Technological signage

The Ariadne eases the flow of circulation in any high-capacity space. A technological sign system, Ariadne combines plasma screens embedded into its own freestanding object, providing greater visibility than ceiling-mounted monitors. The display of graphics or text as a discrete architectural element results in faster-moving crowds in congested places. 800/ASI-SPEC. ASI Sign Systems, Dallas. **CIRCLE 279**



276



278



277



279

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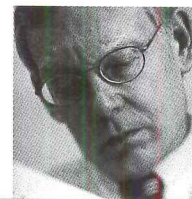


bulthaup Kitchen Architecture

CIRCLE 54 ON INQUIRY CARD

# Equipment

Countertops • Kitchen hood & ventilation equipment • Athletic & recreational equipment  
• Residential appliances • Merchandising/display equipment • Projection screens



**Mat Lifter** is a clever extension of Draper's traditional shade and screen business. —STEPHEN D. EMPIE, AIA, CSI

## Curvy countertops

Snaidero introduces Sistema ES, an "S" curve kitchen countertop designed by Italian architects Roberto Lucci and Paolo Orlandini. Already available in Italy, Sistema ES will make its North American debut in Spring 2002.

877/SNAIDERO. Snaidero Kitchens + Design, Los Angeles. **CIRCLE 280**

## Unsightly mats?

Draper now offers three models of the Mat Lifter for single, double, and sectional mats. 765/987-7999. Draper, Spiceland, Ind. **CIRCLE 281**

## Venting canopies

Exclusively designed and manufactured in Italy, the Torino is the signature piece of the Zephyr's Europa Collection of stove ventilation systems. Torino is available with six variable speeds and touch-pad controls. 888/880-VENT. Zephyr Ventilation, San Francisco. **CIRCLE 282**

## Smart laundry

Whirlpool introduces Duet, a front-loading washer and dryer that uses 68 percent less water and 67 percent less electricity than the standard washing machine. 800/253-3977. Whirlpool, Benton Harbor, Mich. **CIRCLE 283**

## Visplay it better

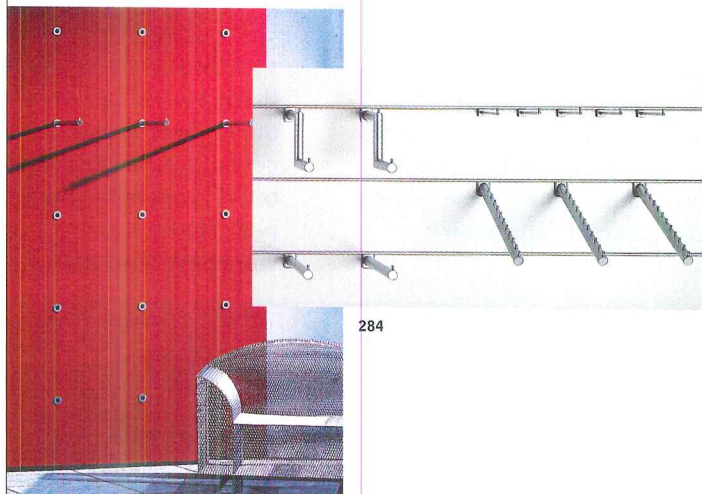
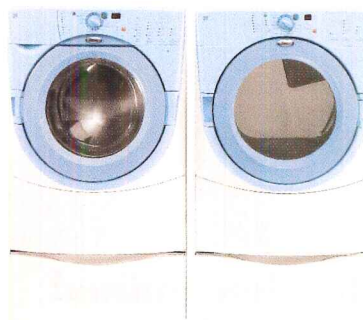
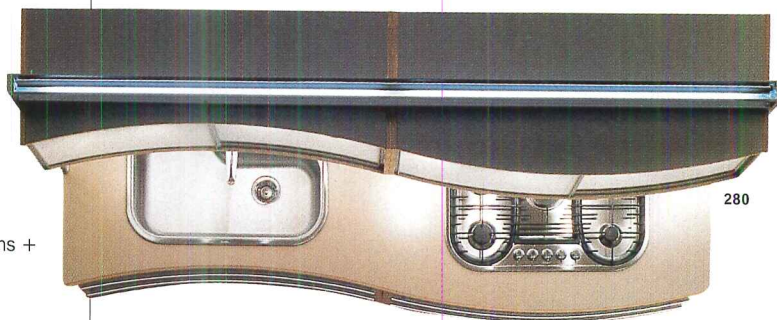
Marlite in conjunction with Visplay, a Vitrasshop company, launched their new collection of hanging systems with the debut of Mono and Stripes—a clean, stainless-steel socket and stripe system that creates sleek horizontal displays. 330/343-6621. Marlite, Dover, Ohio.

**CIRCLE 284**

## Project your presentation

The Rear Projection Smart Board 3000i is an interactive whiteboard that turns your computer into a presentation and collaboration tool. 888/42-SMART.

Smart Technologies, Calgary. **CIRCLE 285**



So Jerry, tell me just what exactly are your favorite things about specifying doors and hardware? Jerry? Jer?

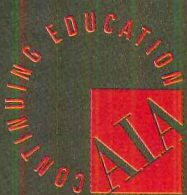
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DHI offers a CD-ROM self-study course on the *Fundamentals of Architectural Doors and Hardware*. It's the equivalent of a five-day classroom course that covers hollow metal doors and frames, wood doors, builder's hardware, electrified hardware and access control products, codes, standards and specification tips. It contains 15 complete lessons that offer you up to 29 AIA/CES points (23 of which are health/safety/welfare). This course offers a formal education in Division 8 products and their applications.

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CIRCLE 55 ON INQUIRY CARD

# Furnishings

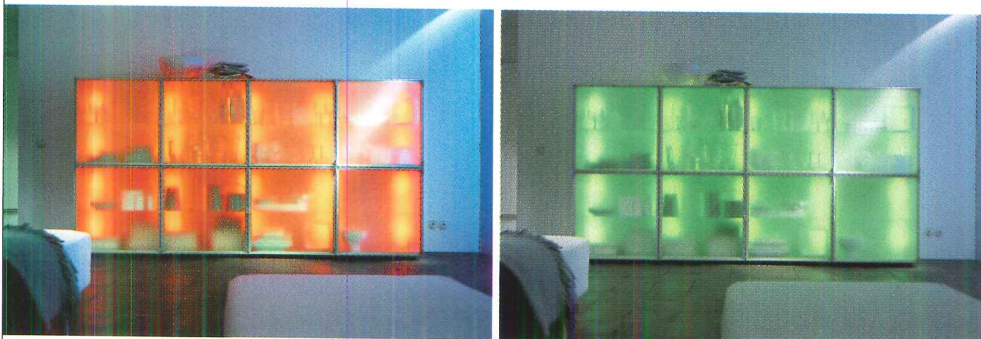
Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture



Whoever thought you could deconstruct Ethospace and make it look fresh and also function in the open-plan environment? This is a great example of nonobsolescence in the furniture world. —ROYCE EPSTEIN

## Moody cabinets

The Modular cabinet system "eo" consists of cubes with glass walls and doors held in a filigree metal structure. LED strips emitting the primary colors are installed in the back edges of each cube. With the remote control, users can mix the primaries to create every conceivable color, from sunflower yellow to deep violet. Four storage variations are available for a CD system, a minibar, dishware, or wine shelves. 800/319-8222. M2L, New York City. **CIRCLE 286**



286

## Magnesium chair

Using magnesium, a material never seen before in furniture design, Bernhardt Design launches its new Go Collection designed by Ross Lovegrove. Lighter than aluminum and possessing the highest strength-to-weight ratio of any more commonly used material, magnesium makes the Go Chair's organic construction suitable for a variety of settings. 866/634-0191. Bernhardt Design, Lenoir, N.C. **CIRCLE 287**



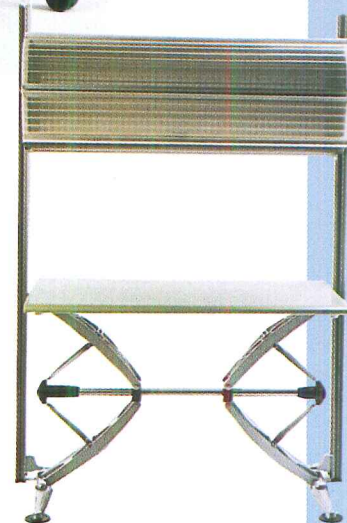
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## Multitask furniture

Herman Miller had several introductions this year, including the Caper multitask chair, featuring a perforated polypropylene seat and back with contoured surfaces and adjustable controls. The redesigned Ethospace system, first developed in 1984, now offers a lighter appearance and new structural components to increase workspace flexibility. The heart of Ethospace is a new system of stacked zones that support power functions at the foundation level, mid level, and upper level. The Avio table system, designed by husband and wife team Lisa Bottom and John Duvivier, is height adjustable; comes in rectangular, corner, and curvilinear work-surface shapes; and can support shelves, whiteboards, tackboards, and overhead storage. 888/443-4357. Herman Miller, Zeeland, Mich. **CIRCLE 288**



288



# The Wave of the Future

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Get help when you need it. Call 1-800-CELOTEX and talk to the experts at our Customer Response Center about technical information, installation instructions, shortcuts and availability of Flextek gypsum board and our other wall and ceiling products.

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# Furnishings

Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture

## Evolving furnishings

The Reef Collection, designed by Piero Lissoni, offers an assortment of armchairs and sofas. The sofa is available in three widths and offers two different back positions, while its accompanying oversize armchair swivels 360 degrees. 800/770-3568. Cassina U.S.A., Huntington Station, N.Y. **CIRCLE 289**



289

## Elevated living

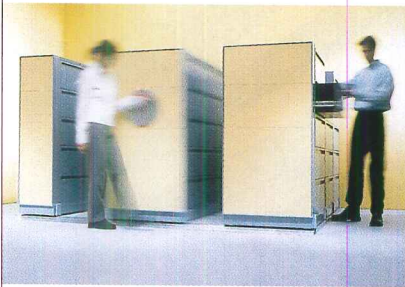
Designers can create custom lofts for the preschool, classroom, or library reading area with Gressco's ADA-compliant HABA loft system. Also from Gressco is the HABA solid beechwood Platform system, with durable dowel construction. Platform is covered with carpet and is available in different heights and shapes, including mountains, valleys, bridges, and ramps. 800/345-3480. Gressco, Waunakee, Wis. **CIRCLE 290**



290

## Mobile storage

The new Traversa line of storage shelves and cabinets increases filing and shelving capacity by up to 40 percent while also offering a flexible alternative to permanent installations with its track-and-floor system. 877/410-0035. Traversa, Fort Atkinson, Wis. **CIRCLE 291**



291

## Cool stool

The adjustable-height stool Zanzibar, designed by Raul Barbieri for Rexite, may be the next ubiquitous stool for the home, office, or bar. Thanks to a gas-lift mechanism, the height is easily adjusted by pressing any one of the three colored buttons. Zanzibar comes in six colors, has an ergonomic polymer seat to encourage correct posture, and a leg and base in chromium-plated steel. 39 029 0390013. Rexite Spa, Cusago, Italy. **CIRCLE 292**



292

## Back friendly seating

Two new products from Steelcase help relieve back pain at work. Lean Too takes the weight and strain off of the lower spine, legs, and torso of people required to stand while working. The Cachet chair, available in two versions, allows individuals to recline gently with the new balanced action bar. 888/STEELCASE. Steelcase, Grand Rapids. **CIRCLE 293**



293



# Furnishings

Fabric/window treatments • Blinds, shades & interior shutters • Manufactured casework • Multiple-use fixed seating • Healthcare/school/library/hotel furniture • Systems furniture

## Singular chaise

LCP, a new chaise longue by Maarten van Severen, represents the first in a series of collaborations between Kartell and the Belgian designer. The soft elastic design produced in a single polycarbonate mold is completely transparent and is available in five colors: crystal, blue, brown, green, orange, and gray. 212/625-1419. Kartell U.S.A., New York City.

CIRCLE 294

## Getting light to work

The Screen Plus sunshade offers two levels of solar protection, although it is woven from a single piece of material. The upper section of the blind allows 22 percent of the outside light to pass through, while the lower section provides increased filtration. 33 0472 444000. Hexcel Fabrics, Cedex, France. CIRCLE 295

## Stack in style

A Best of NeoCon Gold Award winner, Rhythm by Stylex is distinguished by its ergonomic design and assortment of color options, which include translucent. The new design also offers a selection of new options, including roll-away casters for easy mobility. 800/257-5742. Stylex, Delanco, N.J.

CIRCLE 296

## Seeing RED

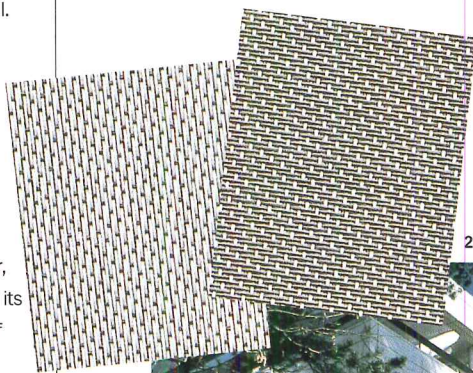
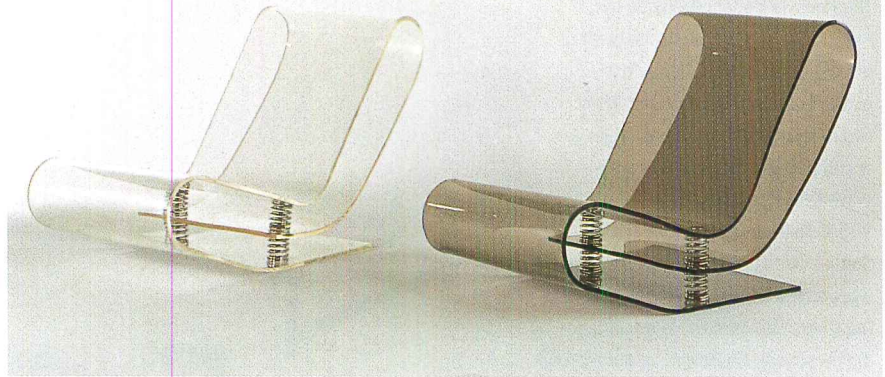
To meet the needs of fast-growing small businesses and their culture, Herman Miller didn't merely create a new product but an entire new division. Positioned as a middle point between store-bought, ready-to-assemble furnishings and more expensive contract furniture, Herman Miller RED can be on the job in about a week. The collection will come with an assortment of accessories to provide cable management, storage, and privacy. 616/654-3000. Herman Miller, Zeeland, Mich. CIRCLE 297

## Nature meets technology

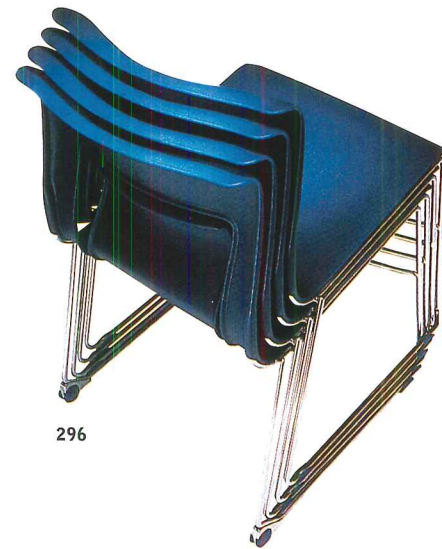
The new Provenance woven wood shades from Hunter Douglas offer 11 new styles in bamboo, grass, reed, and wood slats and an opacity system that uses micropleated shades to provide a variety of light-filtering options. 800/937-STYLE. Hunter Douglas, Bloomfield, Colo.

CIRCLE 298

294



295



296

297



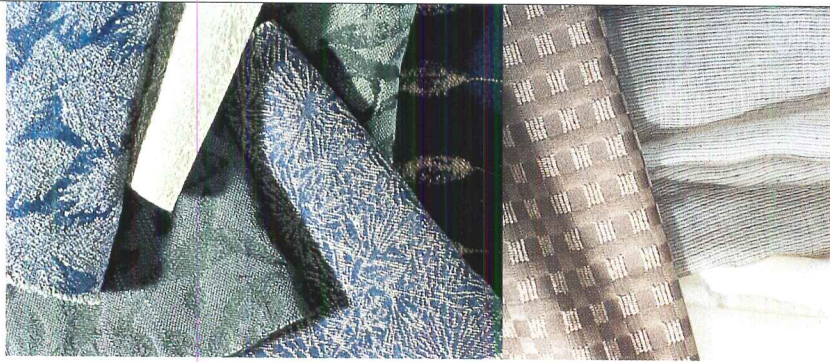
298



## Blossom inspiration

Inspired by the work of German photographer and plant collector Karl Blossfeldt, Pallas introduced a new line of fabrics designed by Lori Weitzer. The "Ode to Blossfeldt" collection (left) features four styles of Crypton-treated textiles, repellent against liquid, moisture, and bacteria. The window treatments in the Contours fabric collection (right) include Quadrare, a sheer casement constructed of 100 percent Trevira CS and Cubido, a wool/polyester blend. 800/4-PALLAS. Pallas Textiles, Green Bay, Wis. **CIRCLE 299**

299



## Nap time, revisited

Ypsilon's mechanics allow a smooth transition when sinking back from the upright into the lounging position. It also features a Techno Gel Pad that provides lumbar support and an integrated coat hanger. 212/539-1900. Vitra, New York City. **CIRCLE 300**

## Sleep on the go

KI introduces the ADD Sleep Chair designed by Roger Kenneth Leib. Simply pull the lever, and the armchair transforms into a bed. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 301**



300

## Taking utility to the next level

The Utility Two Collection of office components, designed by Brian Graham and Brian Kane, offers a selection of useful features, including height-adjustable legs, casters, shelving units, and privacy screens. 800/888-4693. Howe Furniture, St. Louis. **CIRCLE 302**

## It's a pair

The MoJo Table series, by Tom McHugh, includes two table designs, Mo and Jo, available in a number of shapes, sizes, and wood surfaces. A new composite material made from sunflower-seed shells is available for the table surface. 800/724-5665. Keilhauer, Toronto, Ontario. **CIRCLE 303**



303

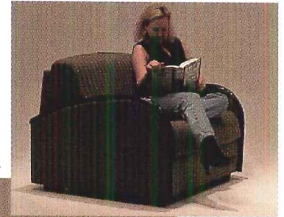
## Stack 'em up

Dauphin's Eddy stackable chair by Design Office offers a writing-table arm that does not have to be removed before stacking. The chairs are available in an assortment of colors with a choice of a black powder-coat or chrome-plated frame. 800/995-6500. Dauphin, Boonton, N.J. **CIRCLE 304**

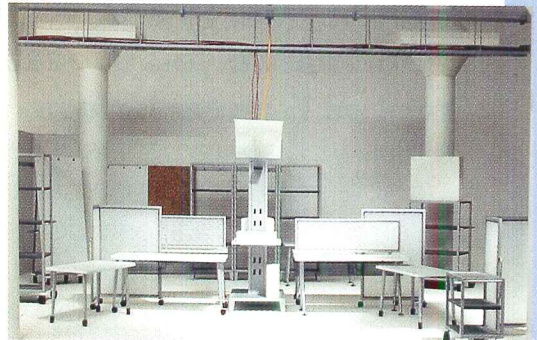


304

301



302



*New From Bilco.*

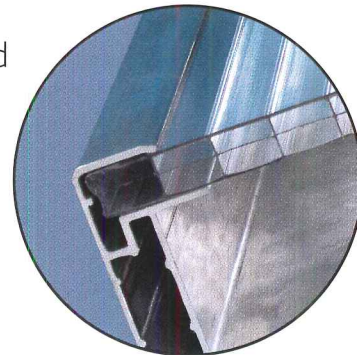


# The Lumivent™

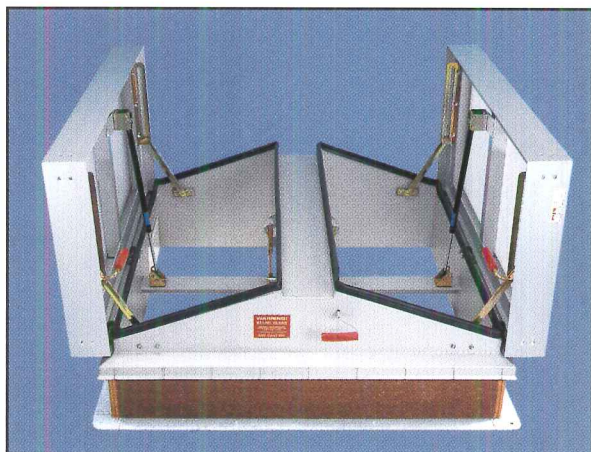
Bilco has re-engineered its domed fire vent to provide a new low profile cover design and to enhance its thermal insulation. The Lumivent™ gives you natural daylight, energy efficiency, and the protection you need as well as the performance you expect from Bilco — all at competitive pricing.

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- Cover design maximizes light transmittance while minimizing solar heat gain
- Covers are surface treated to resist UV degradation
- Covers are fully gasketed for weathertight construction
- Available in standard UL Listed and FM approved sizes



Cross-section of covers



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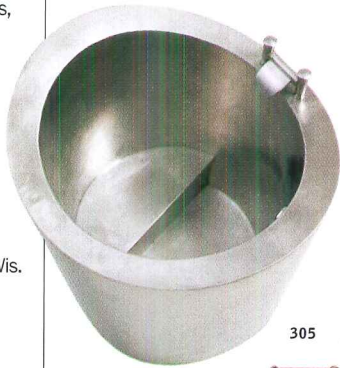
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## Metallic soak

Diamond Spas' hand-fabricated, self-standing, circular stainless-steel Japanese soaking bath (top) and full-skirted copper ellipse soaking bath (bottom) are available in whirlpool, self-rimming, or undermount models. 800/951-7727. Diamond Spas, Broomfield, Colo. **CIRCLE 305**



305

## Steamier baths

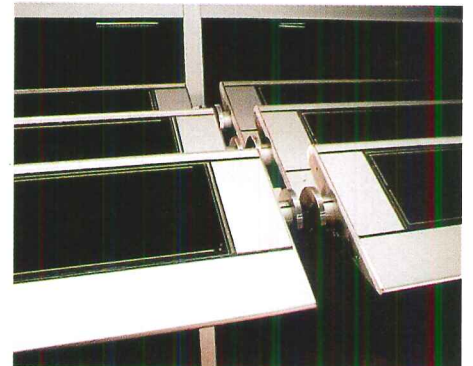
Kohler's Steam Generator Kit disperses steam evenly, reducing hot spots. The unit's steam head protracts from the wall when it is heating and retracts when it is not in use. 800/4-KOHLER. Kohler, Kohler, Wis. **CIRCLE 306**



306

## Powerful shade

The pre-engineered 1600 Powershade sunshade system reduces solar heat gain, generates solar power, and reduces energy use. Its design allows for efficient, cost-effective recycling upon disassembly. 877/767-9107. Kawneer, Norcross, Ga. **CIRCLE 307**



307

## Fourth floor, lingerie

Schindler's 330A elevator features a design that eliminates the below-grade jack-hole, expanding the company's holeless hydraulic offering to 2-, 3-, or 4-stop configurations. 973/397-6500. Schindler Elevator, Morristown, N.J. **CIRCLE 308**



308

## New horizons

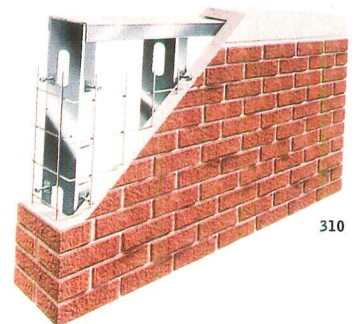
The Sok overflowing bath puts bathers at eye level with a pane of water that continuously spills over the tub's rim into a water channel and is recirculated back into the tub, conserving water. 800/4-KOHLER. Kohler, Kohler, Wis. **CIRCLE 309**



309

## Earthquake insurance

Slenderwall protects against seismic shock by isolating the exterior precast concrete skin from the building frame. The panels are a lightweight alternative to conventional precast. 800/547-4045. Easi-Set Industries, Midland, Va. **CIRCLE 310**



310



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to choose? Ask someone  
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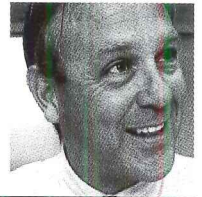
As an architect or designer you embrace a look that's different. And nobody gives you more styles and colors to choose from in washroom fixtures and accessories than Bradley. Your reputation depends on the quality of the products you specify, which is why we rely on an old-fashioned principle of making products that are built to last. For 80 years, Bradley has been the leader in both quality and innovation.

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**CIRCLE 58 ON INQUIRY CARD**

# Mechanical

Duct insulation • Plumbing fixtures • Fittings, trim & accessories • Heating, ventilating & air-conditioning equipment • Air distribution



**Whirlybird by The Modern Fan Company has a graceful design for a normally clunky fixture. —DAVID ALTENHOFEN, AIA, CSI, CCS**

## Translucent fans

The Modern Fan Company introduces Whirlybird, designed by architect Laurinda Spear, FAIA. Whirlybird's translucent body, made entirely of hand-blown glass, is available in white or clear frosted finishes. 888/588-3267. The Modern Fan Company, Ashland, Ore.

CIRCLE 311

## Make a splash

Duravit offers the Vero rectangular washbasin as an alternative to ordinary bathroom furnishings. Also from Duravit is architect Norman Foster's new collection of elegantly proportioned Minimalist ceramic fixtures. 888/DURAVIT. Duravit, Duluth, Ga. CIRCLE 312

## Spinning shower

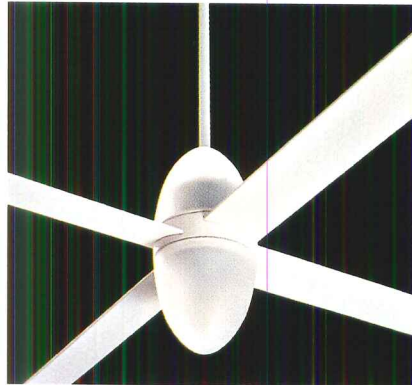
Moen's Revolution massaging showerhead takes ordinary water, spins each drop, and then twirls the entire stream. The increased speed in movement leaves the impression of warmer water, higher flow, and higher pressure. The controls are conveniently located at the bottom of the showerhead. 800/BUY-MOEN. Moen, North Olmstead, Ohio. CIRCLE 313

## Smart sinks

Hansgrohe's Axor Starck Electronic Lav Mixer, designed by Philippe Starck, is an ADA-compliant, stainless-steel faucet. The mixer features battery-operated infrared sensor technology, making it suitable for public rest rooms and office buildings. 678/762-6910. Hansgrohe, Alpharetta, Ga. CIRCLE 314

## Solve drafty dilemmas

The KE-Inject Ventilating System's new patented orifice design eliminates stagnant air and draft problems by using the entire injection duct as a long delivery unit. The system is suitable for rooms up to 20 feet in height. 877/229-0695. KE Fibertec, Oro Valley, Ariz. CIRCLE 315



311



312



313



314



315

# Mechanical

Duct insulation • Plumbing fixtures • Fittings, trim & accessories • Heating, ventilating & air-conditioning equipment • Air distribution

## Tech toilet

TOTO's new Jasmin Washlet offers several technologies, including warm-water spray; pulsating, massagelike water flow; an LCD control panel; and a battery-operated remote control. 770/282-8686.

Toto, Morrow, Ga. **CIRCLE 316**

## Faucet for your palm

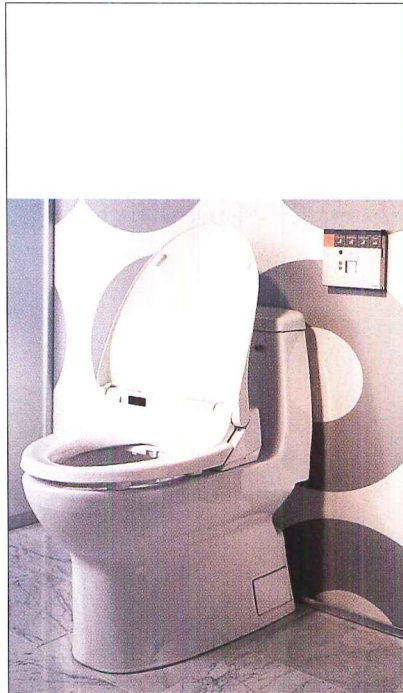
The new Galileo electronic faucet will review diagnostics and perform field maintenance from your handheld palm. 847/803-5000. Chicago Faucet Company, Des Plaines, Ill. **CIRCLE 317**

## HVAC liner

The new HVAC system ToughGard Duct Liner repels moisture and provides acoustical performance with its EPA-registered, antimicrobial-enhanced surface. 800/233-8990. CertainTeed, Valley Forge, Pa. **CIRCLE 318**

## Forget your jacket?

Vanguard introduces its Easy Angle Patio Heater, which features up to 50 percent fuel savings and up to an 11-foot heating radius. 800/432-2382. Vanguard, Bowling Green, Ky. **CIRCLE 319**



316



317



318



319

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# Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications • Ballasts



The Lastra chandelier from Flos is an elegant decorative fixture that expresses the lighting circuitry like a computer chip. The design takes an innovative leap in form and function. —KATHY CHIA

## Lighting the path

Stealth is a compact 2¾", square recessed step and path light designed for either fiber-optic or LED sources. Stealth features a deeply recessed slot aperture for controlling glare. 800/879-9797.

Lucifer Lighting, San Antonio.

CIRCLE 320

## Sculptural light

The suspension system in the Aliante light fixture gives the appearance that its curving aluminum body is floating. Light is distributed evenly from the top of the fixture through a patented technology of 26 graduated semi-opaque louvers.

215/830-1408. Ivalo Lighting, Willow Grove, Pa.

CIRCLE 321

## Sensible lights

The winners of Best New Product of the Year and Energy Product of the Year at the 2001 Lightfair were MesoOptics (left), a new form of optical-control materials made with holographic techniques; and Ergolight Discus (right), which features energy management such as daylight sensors.

604/888-6811. Ledalite Architectural Products, Langely, British Columbia.

CIRCLE 322

## Signs of the times

The RoomWizard by Steelcase provides offices with one of the first Web-based information appliances for display at meeting locations. The RoomWizard can be placed outside of each conference room and connects to an organization's network, allowing people to review and reserve meeting space from wherever they have computer network access.

888/STEEL-CASE. Steelcase, Grand Rapids.

CIRCLE 323

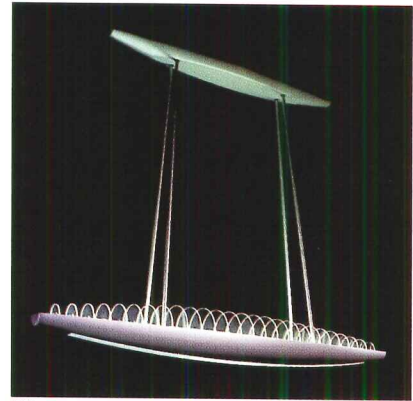
## Adjustable street light

The Flex lighting fixture is named after its multiple arm designs and mounting options. Flex is composed of a lamp, ballast, and post top module linked together by two stainless-steel arms.

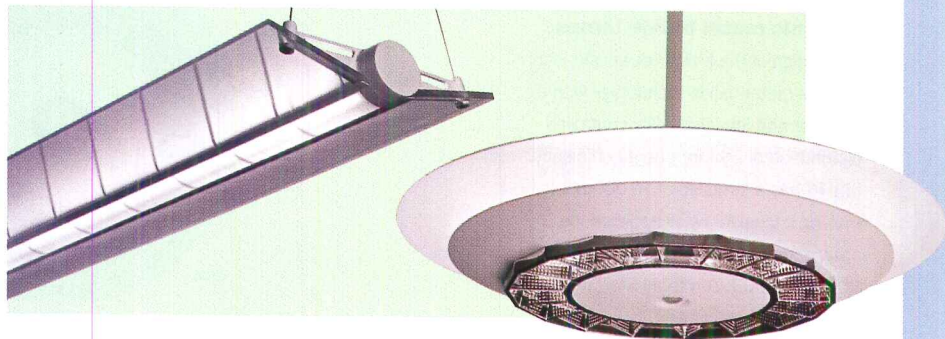
714/994-2700. Architectural Area Lighting, La Mirada, Calif.



320



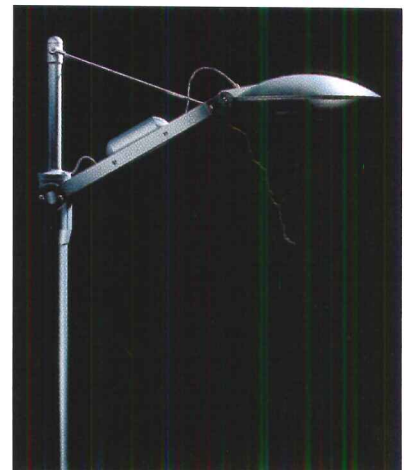
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322



323



324

# Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications

## Conversation piece

The Star•Led mobile lamp can be used as a centerpiece in lieu of a candle or flower arrangement. Star•Led has an aluminum body and polycarbonate head and runs on eight white-light LEDs powered by batteries. 212/989-6265.

Luceptan USA, New York City. **CIRCLE 325**

## Yellow brick road

Paver features a rugged plastic casing with a frosted tempered-glass lens that is illuminated by Optiance Englow cable lights. Paver can be easily mounted within a variety of paving-stone configurations, concrete pour, or wall-stone applications. 912/924-8000. Cooper Lighting, Americus, Ga. **CIRCLE 326**

## Circuit-board chandelier

The electric current to each individual fixture on the other-worldly Lastra chandelier is distributed by silk-screened flat wire with a protective ceramic coating over tempered glass. Lastra includes six to eight 35-watt MR11 halogen lamps in white glass. 800/939-3567. Flos USA, Huntington Station, N.Y. **CIRCLE 327**

## Ceramic metal halide lamps

The design of the MH-T6 downlight incorporates metal-halide technology with a reflector and lens that offer controlled distribution of light for energy efficiency. MH-T6 has a lamp life of 10,000 hours, making it ideal for retail applications, atria, and other spaces with high ceilings. 800/932-0633. Zumtobel Staff Lighting, Highland, N.Y. **CIRCLE 328**

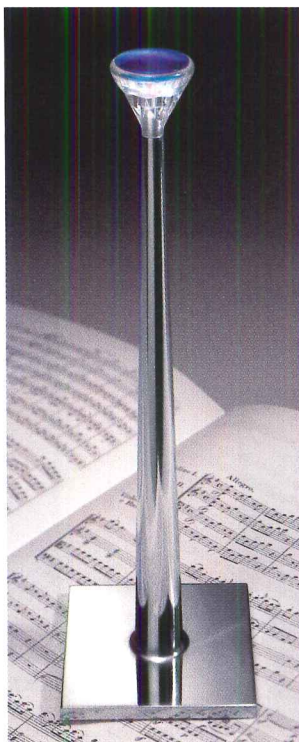
## Together at last

The Vista series allows architects and designers to incorporate full data/communications and power into any space. Two end channels contain wires and support a decorative center panel of solid metal, perforated metal, glass, and wood and metal laminates. 860/233-6251. The Wiremold Company, West Hartford, Conn. **CIRCLE 329**

## Coloring space

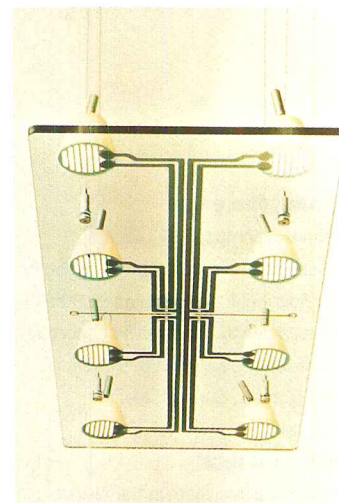
The iColor Fresco (left) uses LED-based Chromacore to create color-changing lighting effects; its underwater counterpart is the C-splash (center). At the controls is the iPlayer 2, which stores show sequences at the push of a button. 617/423-9999. Color Kinetics, Boston.

**CIRCLE 330**

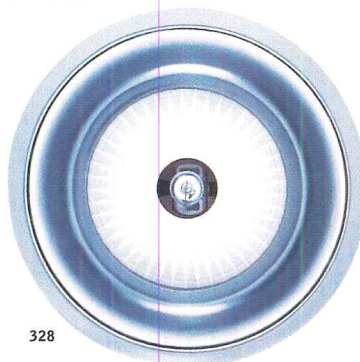


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327



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# Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications

## “Perfy” fluorescence

Litecontrol introduces the new “all-perf” design in two styles with a rounded-edge cap detail. Videre offers a choice of T8 or T5HO lamping in a two-lamp design for flexible luminary requirements. 781/294-0100. Litecontrol, Hanson, Mass.

CIRCLE 331

## Cabinetry chic

The Slique T2 undercabinet lighting system is an ultra-compact fixture that packs in powerful illumination. Its small size ( $\frac{3}{4}$ " x  $1\frac{3}{4}$ ") makes it discrete without becoming ineffective. 847/451-0700. Alkco Lighting, Franklin Park, Ill.

CIRCLE 332

## House lighting

HomeTouch Wall Modules replace a residence's preexisting switches and dimmers with computer-programmed timed settings. The Timer Module can control 112 timed events. 888/LITETCH. LiteTouch, Salt Lake City. CIRCLE 333

## Directional lighting

LED Light Strip modules by Ledtronics provide energy-efficient lighting for applications such as emergency lighting, showcase-cabinet lighting, and task lighting. LED Light Strips run on 12-volt systems and are available in all LED colors and lengths up to 27 inches. 310/534-1505. Ledtronics, Torrance, Calif. CIRCLE 334

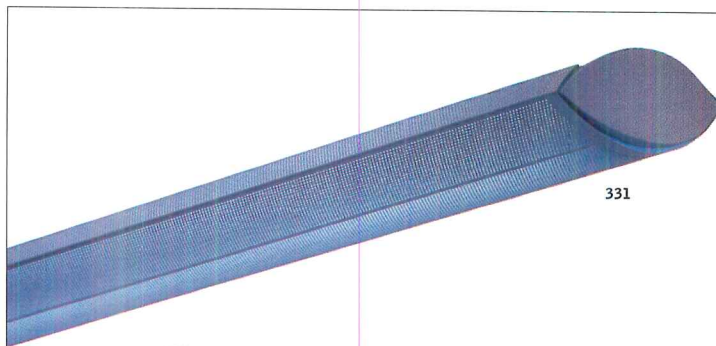
## Outdoor coloring lights

The Martin Exterior 200 brings all facets of color, adjustability, and control into an outdoor-resilient casing. Built-in sensors and memory presets provide independent functioning. 954/858-1800. Martin Professional, Sunrise, Fla. CIRCLE 335

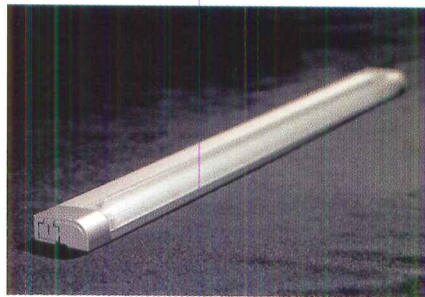
## Lighting detail innovations

It is possible to dim smaller T5HO fixtures with Lutron's expanded T5HO Hi-lume ballast line. The ballast features a physical cross section that is only 1" high x  $1.18$ " wide, which makes it ideal for one- and two-lamp slim-profile fixtures. Satin Colors (bottom) is a line of color-matched preset dimmers, switches, receptacles, window-shade controls, and cable TV phone jacks. 800/523-9466. Lutron Electronics, Coopersburg, Pa.

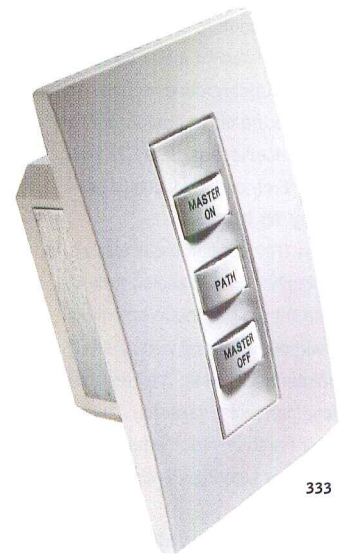
CIRCLE 336



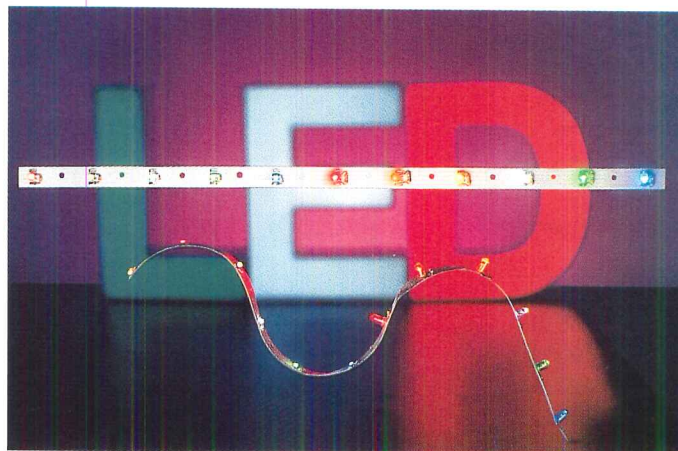
331



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334



335



336

# Electrical

Wiring devices • Interior/exterior/roadway luminaires • Stair & walkway lighting • Fiber-optic lighting • Underwater lighting • Dimming control • Communications

## Buried power source

Underground is Fiberstar's newest fiber-optic illuminator for outdoor environments. UL-rated for direct burial applications, Underground requires no ventilation to the burial box, simplifying landscape installations. 800/327-7877. Fiberstars, Fremont, Calif. **CIRCLE 337**

## This way to leave

Sure-Lites TRX Self-Luminous Exit features phosphor-coated sealed tubes filled with Tritium gas that create illumination without electrical wiring, energy, and maintenance costs. They are vandal-proof and can resist hazardous, humid, and other harsh environments. 770/486-4800. Cooper Lighting, Peachtree City, Ga. **CIRCLE 338**

## International sensation

Sensor Switch claims that its International Occupancy Sensor, used by the U.S. State Department at the Embassy in Laos, will work where no other sensor will. The passive infrared unit operates on any voltage or frequency available worldwide and requires only two wire connections. 800/727-7483. Sensor Switch, Wallingford, Conn. **CIRCLE 339**

## Get back on track

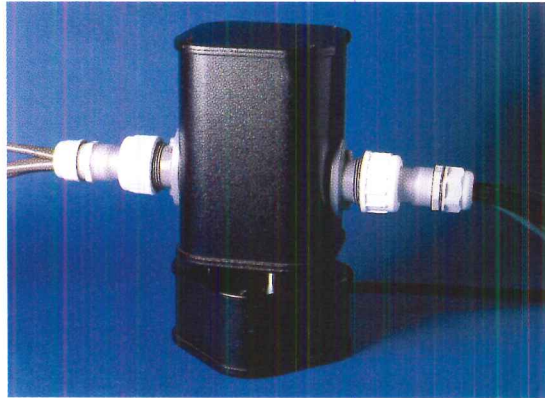
The Addressable Track Module System (ATOM) allows for the individual dimming and switching of track lights. ATOM provides up to seven programmable scenes, plus time delays and fading and cycle effects, by grouping fixtures on the same or separate circuits. 508/679-8131. Lightolier, Fall River, Minn. **CIRCLE 340**

## The angle of light

To illuminate large wall surfaces, the Vertical Surface Illuminator (VSI) projects a 180-degree band of light from its patented optical system. Since the light source is from the same surface, the end result has low glare and minimal light pollution. 805/684-0533. Bega US, Carpinteria, Calif. **CIRCLE 341**

## Flexibility in ballasts

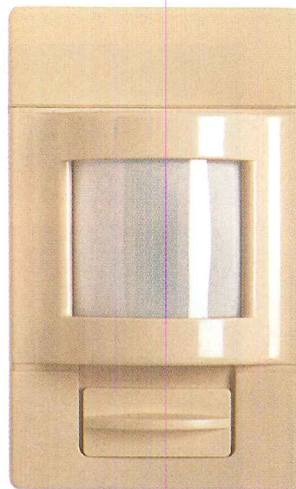
New ballasts for compact fluorescent lamps include the C242UNV, operating on a variety of lamps in the 22- to 57-watt range. Features include auto-reset and shutdown and rapid starting. 800/BALLAST. Universal Lighting Technologies, Nashville. **CIRCLE 342**



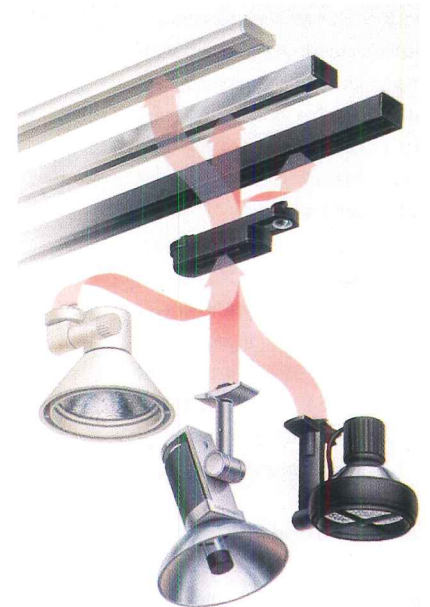
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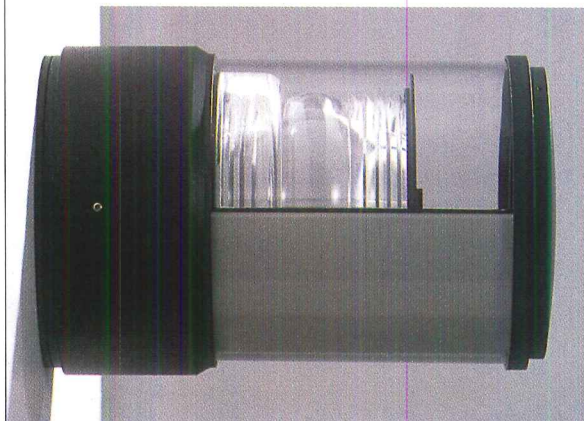
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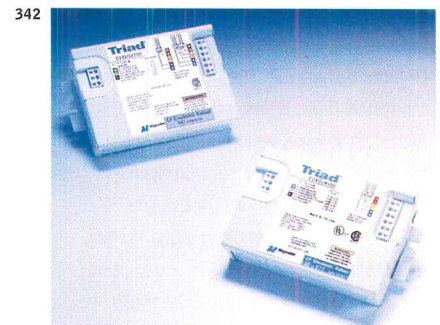
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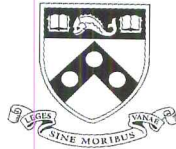
**ASSOCIATE OR FULL PROFESSOR OF ARCHITECTURE**

The Graduate Group in Historic Preservation in the Graduate School of Fine Arts of the University of Pennsylvania is seeking applicants for a full-time tenure track position at the rank of Full or Associate Professor of Architecture beginning in the fall of 2002. The position requires the ability to teach graduate courses in historic preservation. Teaching will take the form of required and elective courses, taught as lectures, seminars and studios in at least three of the following areas of specialization: history and theory of historic preservation, documentation methods, building investigation, historic building technology and preservation planning. The candidate should possess a first-hand knowledge of the preservation field through education as well as experience in private and/or public sector work. In addition to demonstrating effectiveness in teaching, applicants must demonstrate a commitment to scholarship through publication and applied research. Professional experience at the international level is highly desirable.

Applicants should respond with a letter of interest, curriculum vitae, examples of research and scholarship (published and unpublished), and the names and contact information for three professional and academic references. Applications will be reviewed beginning on December 1, 2001 and will continue until the position is filled.

Applications, nominations, and inquiries should be sent to:

**Frank Matero, Chair, Search Committee**  
Graduate Program in Historic Preservation  
Graduate School of Fine Arts  
115 Meyerson Hall, University of Pennsylvania  
Philadelphia, Pennsylvania 19104-6311



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and administrative operations for the Architecture Department. Specific responsibilities include: instrumental participation in the continued development and implementation of a coherent curriculum; the coordination of all courses in the program with faculty coordinators; playing a responsible role in faculty development, complete compliance with NAAB accreditation standards; the development of collaborative venues with other divisions of the College; instruction of at least one Architecture course; and fundraising. Applications should include a curriculum vitae, a portfolio, three professional and academic references, and a letter of interest that addresses possible pedagogical and curricular exploration. For a full position description, see our website: [www.ccac-art.edu](http://www.ccac-art.edu). Closing date: February 15, 2002. Applications should be forwarded to: CCAC, HR#1477, 5212 Broadway, Oakland CA 94618, fax: 510-594-3681 e-mail: [mhopper@ccac-art.edu](mailto:mhopper@ccac-art.edu) EOE

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**Dean of the School of Architecture**

Princeton University is seeking a Dean of the School of Architecture for a full-time appointment, starting July 1, 2002. Qualifications for appointment to the tenured faculty in the School of Architecture are required. The School of Architecture offers an undergraduate Bachelor of Arts and graduate degree programs leading to the professional degree, Master of Architecture and Doctor of Philosophy. The School's mission combines excellence in teaching, research and scholarship with the professional requisites in design and technology. Members of the School (approximately 10 full-time faculty; 50 undergraduate concentrators; 70 enrolled students in advance degree programs) engage in the study of the theory, design and history of architecture.

Leadership experience in an academic setting, professional distinction and proven ability to bridge disciplines and areas of interest are required. Applicants should send a letter of application and a curriculum vitae to **Chair, Architecture Search Committee, One Nassau Hall, Princeton University, Princeton, NJ 08544**. Review of applications will begin December 30, 2001. Princeton University is an equal opportunity, affirmative action employer.



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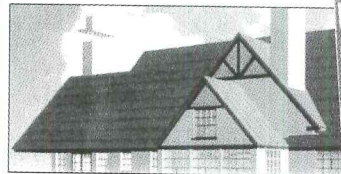
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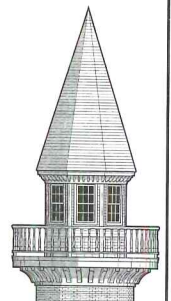


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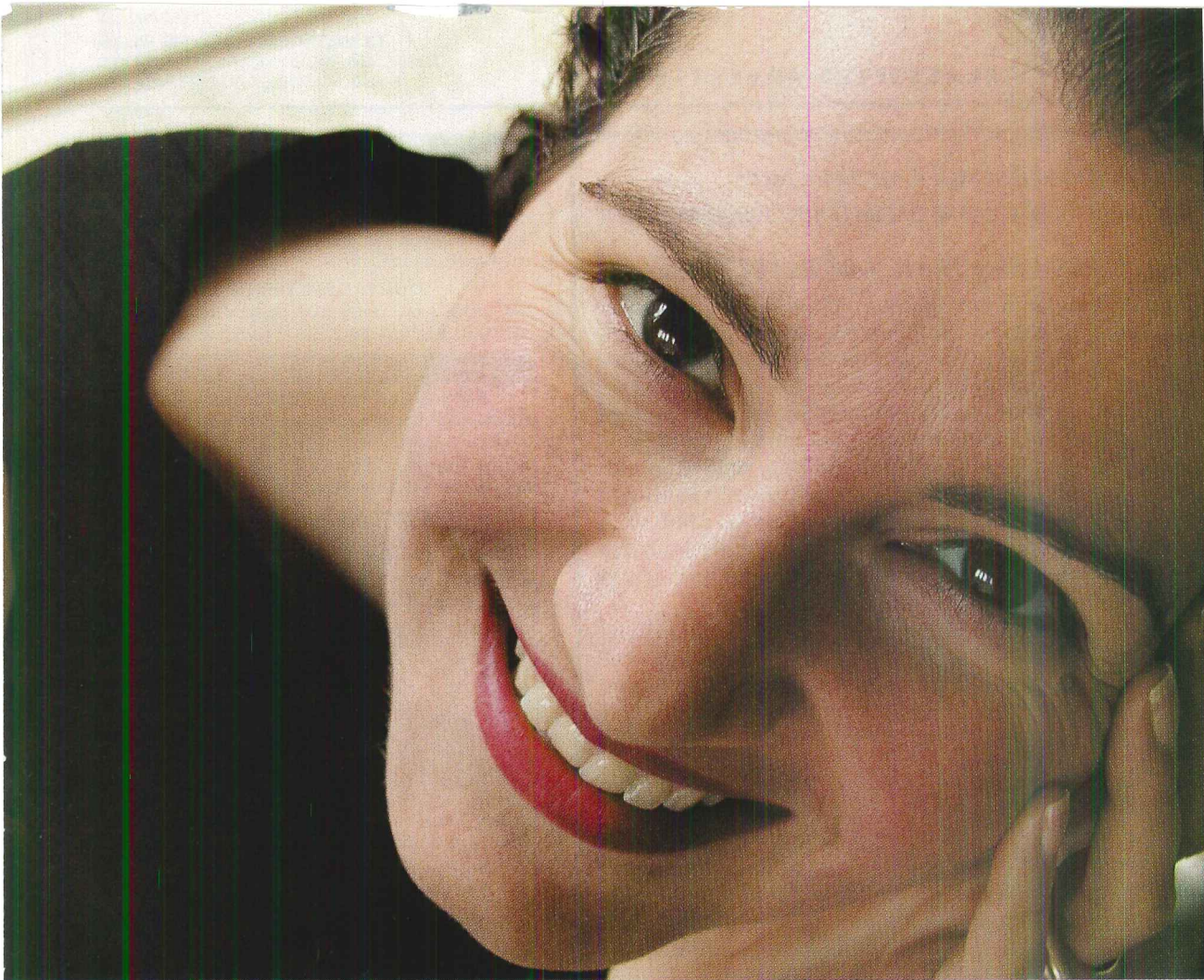
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## One on one with Olive 1:1 product designer Ayse Birsel

**Interviewed by Josephine Minutillo**

*From tabletop to office to bathroom, Ayse Birsel has already tackled a variety of design challenges in her young career. A native of Turkey, Birsel is the recipient of numerous design awards, including the Brooklyn Museum of Art/MODERNISM Young Designer Award for 2001. A design principal of the Olive 1:1 firm in New York, Birsel has collaborated with such companies as Knoll, Authentics, Toto, Vitra, and, most notably, Herman Miller, where her Resolve Office System helped redefine the workplace and was the most successful product launch in the company's history.*

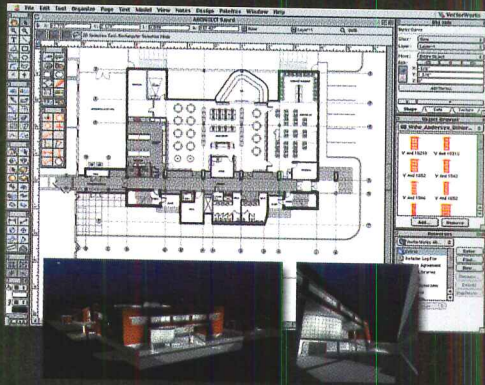
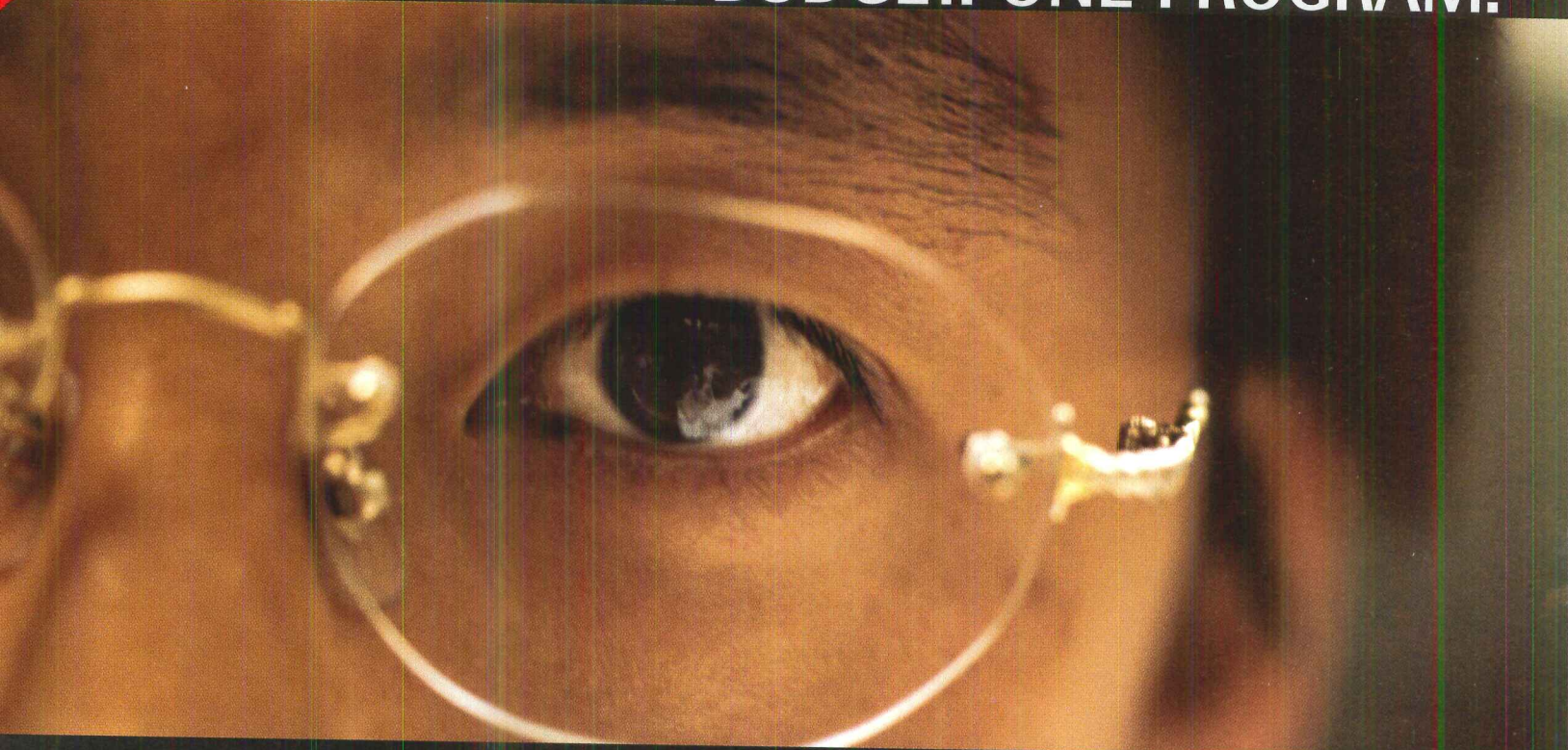
**Q:** *What aspect of design interests you the most?* I like to look beyond styling and approach design systemically. Style and form actually come into play very late in the game for me. Once you know what you are trying to accomplish and why, the form falls into place. Looking at the surroundings helps define a product, as well. For example, the desks I designed for Herman Miller Red (see page 176 in Product Reports) are, at their simplest, just tables, but even though they are nonsystemic products, we approached their design systemically, thinking of it as a complete environment and taking into account places for trash or a telephone or a place to store your backpack. There is even a display for photographs of your friends and family.

*What projects are you currently working on?* I believe in working with a few good clients at a time. I'm continuing to work with Herman Miller on another office system, but one that this time goes beyond the individual to deal with issues such as information display. I'm also working on something that is completely outside the realm of office furniture.

*Are there any designers who inspire you?* Isamu Noguchi is a big inspiration for me. I look at his work at the start of almost every project and it gives me hope about what can be done. I connect with his work, perhaps because it represents a meeting point of East and West. His mastery of materials and three dimensions is something I especially admire. In my work, I try to tell people certain things three-dimensionally that they can understand intuitively. I try to be honest and straightforward without being literal or cartoonish.

*Has anything changed for you now as far as working in New York City after the events of September 11?* Well, for one, it made me realize how much I owe to New York; it made me fall in love with the city all over again. Everything that I consider a success about my work or about who I am today— all of it is more or less coming from New York. Work has become a luxury in the sense that I've realized what a wonderful experience it is to be creating or imagining something. I'm lucky to be here and to be a designer. **Photograph by Olive 1:1**

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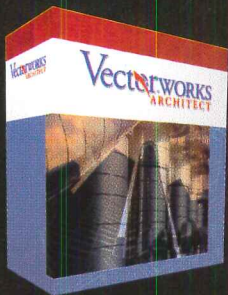


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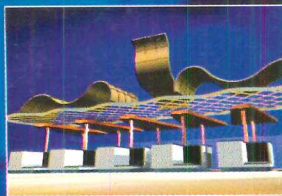
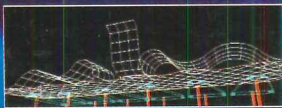
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