

ARCHITECTURAL RECORD



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of Inner Realms

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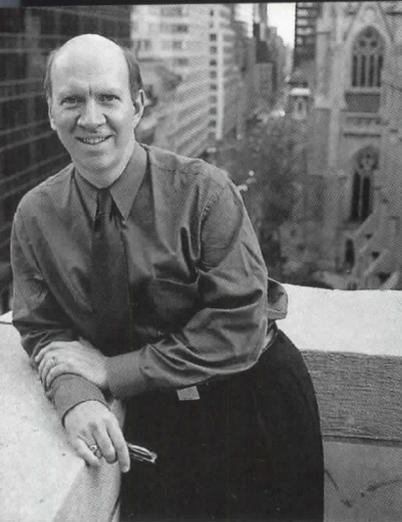
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One Year Later

Editorial

By Robert Ivy, FAIA

We may have been wounded, but we're still here. One year after the events of September 11, we have not only survived, we have transcended the blows. While we continue to grieve, the human and material losses at the World Trade Center and the attacks on the Pentagon have unleashed pent-up energies, flooding the world with creative ideas. What, we all wonder, should replace all that went before?

The search for an answer to that question has galvanized universal attention. In an outpouring of responses, private citizens and professional designers are inundating the media with schemes to replace the World Trade Center and alter the future of Lower Manhattan. Television, the magazines (including ARCHITECTURAL RECORD), schools of architecture, lectures and seminars, books, and Web sites are jammed with schemes, from studios to half-cracked. In the aftermath, it seems that everyone has become a designer.

As the suggestions flow in and the cast of characters changes, a singular event may enrich the discussions. On September 8, the Venice Biennale opens its doors to the public with a grand architectural show. It may seem ironic to tout a celebration of design simultaneously with the anniversary of 9/11, yet, in a sense, what better way to proceed? The fact remains, despite a year of economic and political uncertainties, war and rumors of war, we are poised to build again with innovation and hope.

This, only the eighth Biennale International Architecture Exhibition, promises to offer a comprehensive overview, focusing on the "physical and material, rather than the virtual," states director Deyan Sudjic. While large group shows can be overwhelming or superficial, Sudjic has assembled an all-star, heterogeneous cast of 130 architects together in a single exhibition entitled Next. In one visit, the interested viewer can see the work of the great, such as Alvaro Siza, and the lesser-known, like Thai architect Kanika R'kul, in actual projects for real clients. What better way to grasp the temper of the moment?

Next is organized around project types, such as housing; for example, the low-income housing project called the Great Wall in which China has engaged talented architects like the Japanese Shigeru Ban. His ideas are

strong and innovative. By contrast, tall buildings continue to be built worldwide, and the examples assembled in Venice will place the issue of scale squarely in public debate. Museums, arguably the laboratory for creativity during the recent past, will be represented by the work of Daniel Libeskind, Tadao Ando, and Sejima/Nishiwara—all with real examples that should broaden our global understanding.

The Biennale is larger, however, than the group show. In addition, approximately 50 countries are exhibiting projects at individual pavilions—a veritable world's fair of architecture spread among the trees of Venice's Giardini di Castello. What is happening in Argentina, Austria, France, or Brazil? Each country includes from one to 20 architects.

The exhibition at the U.S. Pavilion, The World Trade Center: Past, Present, Future, will approach Ground Zero in an uncommon way. Sponsored for the first time by the Department of State, with participation by the Peggy Guggenheim Collection, the pavilion (with yours truly as commissioner) will offer international visitors an encounter with events that, until now, may have seemed surreal or remote. Joel Meyerowitz's photographs of Ground Zero will be complemented by the Max Protetch show of designs for the World Trade Center site—a touring exhibition of 60 schemes that has provoked passionate responses and prompted strong debate about the future of Lower Manhattan.

New ideas. Real projects. Worldwide scope. Debate. The Biennale should add up to a worthwhile pilgrimage for architects, immersing us in the rich, ongoing potential of our professional work. Despite last year's horrors, the world did not stop spinning; instead, one year later, we have reclaimed our footing, and we are making new plans. Come to Venice and find out how. Ciao.

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Letters

Warped choices?

That we live in an *Alice in Wonderland* world is aptly demonstrated by Michael Sorkin's Critique in the July issue [page 61]. Here, concepts and principles of urban construction are applied to actions of urban destruction. Moreover, the use of the term *urbanism* in a pejorative sense cruelly twists its meaning in an attempt to achieve political correctness.

The intifada is a war being waged by Palestinians upon Israel. Elements of this war consist of sneak attacks upon the Israeli population and cities delivered by placing human bombs in public places. This tactic is not only immoral in its indiscriminate killing of noncombatants, but, further, serves to alter a people's sense of community by rendering the building blocks of community—cafés, markets, public squares, and public transport—potential killing zones. I agree with Mr. Sorkin that this antiurban act reduces the quality of the urban living experience. After all, who would want to go anywhere or meet with others if one fears for one's life?

However, to equate this aggressive act of destroying the urban experience through fear with the bulldozing of buildings in the Jenin Camp stretches the concept of metaphor to the breaking point. The bombings are an attack tactic upon a people; the bulldozing was a reaction to seek out the perpetrators of the bombings.

Further, to equate the bulldozing with the implementation of Haussmann's plan for Paris smacks of the ridiculous. Indeed, to equate war tactics with urban planning tactics shows how far one can warp logic. Mr. Sorkin asks us to look at plans that create broad straight avenues only as tools for the military control of the populace. In like man-

ner, then, we should look at the street patterns of the camp only as they are comparable to the military purposes of the similarly narrow and confused medieval street patterns, which, many hold, were designed to confound invaders of the community. It is clear that Mr. Sorkin is only telling part of the story in order to make the model suit his argument. This is an intellectually corrupt approach.

The Israeli-Palestinian situation has been politicized enough without the help of architects and planners, thank you. The intent of our training is to make us builders, not destroyers. To choose to interpret what are essentially war tactics as a misapplication—indeed, as a conspiratorial application—of urban-planning principles is to further sensationalize the issue. Perhaps Mr. Sorkin should spend more time working to perfect an architecture of quality and less time trying to explain acts of war and aggression in terms of the tools of urban design.

—Leslie S. Pollock
Chicago

Contributing editor Michael Sorkin responds: A number of letters have been written to *RECORD*—including two published last month—accusing me of taking an “anti-Israeli” position in a recent article. In both content and tone, these letters remind me of the kind of criticism I remember from the Vietnam era in which it was so often suggested that dissenters were “anti-American.” As someone who is strongly “pro-Israel,” I join many Israelis who feel that the continued occupation of the West Bank and Gaza corrupts Israel's soul and subverts its democracy. As in the invidious attempt to silence opposition during Vietnam by so-called “patriots,” the knee-jerk style of letter writers who can't look beyond calculations of equivalence (our killings are justified by their killings,

our hatred is the product of their hatred, etc.) is a moral dead end and prevents both sides from recognizing the tragic circumstances of the other. That architecture plays a role in this is depressing for those of us who wish to see both Israel and Palestine built rather than destroyed.

But the misuse of our tools is hardly fresh news: *Urbanism and its techniques have carried a political and military valence from their beginnings. Whether in the fortifications that dominated city planning for thousands of years, the boulevards of Haussmann, the forced de-urbanization imposed by the Khmer Rouge, the patterns of physical segregation still so visible in America, or the environmental disaster of sprawl, urbanism—always the reflection of large-scale social arrangements—cannot be disengaged from its wider ramifications. Because I am someone who has dedicated his life to producing an urbanism of “quality,” I understand the absurdity of trying to strip the city of the density of meanings it invariably expresses, just as I understand that there are—and must be—many versions of the good city. The wretched failure of negotiations for peace in the Middle East springs precisely from the inability of either side to understand and empathize with the real effects of their actions: To the Israeli child killed by a suicide bomber and the Palestinian child killed in an air strike, the moral differences being argued are surely unimpressive. Insisting that Israeli or Palestinian violence is simply a response to that of the other, or, for that matter, that urban values can be separated from ethical ones, is truly to slide down the rabbit hole of futility and violence.*

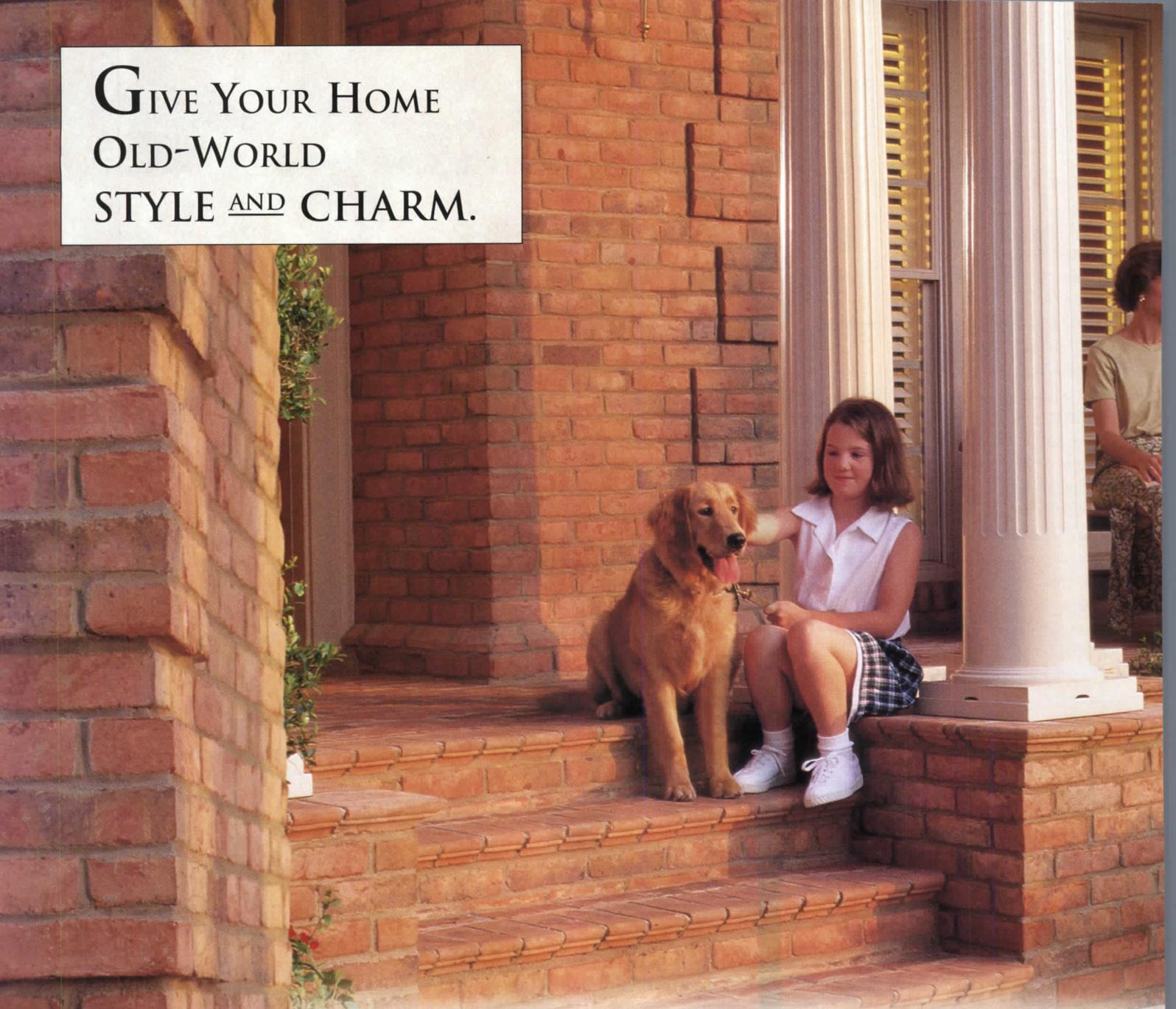
La isla bonita

I read the July Correspondent's File

[page 55] by James S. Russell, AIA, with interest, but I also found some parts of it unsettling. Being of Puerto Rican descent and familiar with Puerto Rican history and architecture, I am prompted to make several comments. I found redundant negative inferences about Puerto Rico and, in some cases, visionless interpretations. I did, however, find great delight in reading about the Condado and ongoing efforts to save historic buildings/hotels.

Puerto Rico possesses extensive history and an assortment of architectural styles concentrated in its 3,515-square-mile-island reach. Such a concentration cannot be found throughout other lands. A fine example of one architectural style is San Juan Cathedral, built in the 1520s. The Cathedral is an authentic and rare New World example of medieval architecture. Also, the second-oldest church in the Western Hemisphere is located in Puerto Rico; it is an example of 16th-century Spanish Gothic architecture. Spanish forts on the island date back to the early 1500s. San Juan is the oldest city under the U.S. flag, a 465-year-old neighborhood. Unequivocally, preservation is of the highest importance, hence Modern architecture needs to shake hands with historic. Should Puerto Rico mirror Miami, Havana, or any other city? I think not. Puerto Rico has a distinguished historic recognition of its own. Puerto Rico is a worldwide attraction for architecture enthusiasts and professionals. The article's title, “Will a New Wave of Tropical Modernism Restore San Juan's Luster?” implies that San Juan lost its richness, allure, and attraction. It never did and likely never will. The challenge is present for architects/developers to come up with interesting projects that would enhance the city of Old San

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Letters

Juan without eroding its historic significance.

—Daisy Vázquez

Project Manager, Finance and Operations, Plant Operations University of Houston

Drawing our future

I have noticed that on different occasions, RECORD has touched on the topic of drawing as a must-know ability for the young generation of architects. I am thankful that the years of my early architectural studies were on the cusp of where the hand started to be replaced by the mouse in a noticeable manner. My instructors always encouraged us to draw, even forcing us to forget the word "write." We were to draw letters, not to write words.

Cad programs and 3D graphics have undoubtedly revolutionized the way we produce drawings and develop projects, but they are not a replacement for creativity or a key for it. Creation comes from the pure spirit and mind of the designer, and it is translated onto paper by his or her hand. Creating in front of a monitor limits design to the commands of a given program. Those who know how to draw, sketch, and render their ideas are the ones who are able to gain a better understanding of the spaces they design and their

relationship to a whole building, its site, and even its cultural and social contexts. The architect or designer who understands this is capable of transmitting all of this sensibility to Cad drawings or 3D renderings.

It isn't hard to recognize the buildings that have not experienced any of this process. Unfortunately, this situation can be traced back to architecture schools around the world where even students at the graduate level are incapable of drawing readable floor plans or rough sketches to express architectural features. I found it shameful that instructors at that level are forced to spend time teaching basic techniques of drawing to students. The responsibility of learning to draw and sketch can't be left to undergraduate design instructors; it must be a course of its own during the first years of formation.

—Gustavo Carmona

Architect/graduate student Tempe, Ariz.

The call for a competition

The schemes presented last week for the redevelopment of the World Trade Center site demonstrate two separate endeavors. First, commerce: planning for the technocratic and commercial uses of the site; and second, emotion: memorializing

the loss of life at Ground Zero.

Separating our collective response to the tragedy into these two objectives, however, eliminates the possibility that the architecture of reconstruction will be able to express the symbolic power of the event and the public consciousness surrounding it. If we proceed along our current path, we will be left with an isolated monument at the foot of a more or less unremarkable commercial development.

This quandary is the inevitable result of a constrained and narrowly defined set of planning parameters, interpreted by architects and planners chosen for their demonstrated acceptance of commercial priorities. The clients—the Port Authority and the Lower Manhattan Development Corporation—have shown clear interest and motivation, but they are unaccustomed to confronting problems that require such a powerful and visionary solution.

Public reaction to the banal consequences of the current redevelopment process indicates that alternative visions must be imagined. Even in light of the unfortunate uniformity of commercial and retail uses concentrated in the program, the process has fallen short.

The situation at hand calls for a competitive process wherein the most creative and talented architects, planners, and engineers can explore a wide range of solutions. The context of a competition will encourage risk-

taking and will exponentially broaden the range of potential resolutions. A jury comprised of representatives from the Port Authority and the LMDC—as well as from the public, political, and professional ranks—would represent the full range of interests dedicated to this task.

This is the time to be bold. Reconstruction of the damage done at Ground Zero must invoke the promise, identity, and resolve of a nation that only grows stronger when it is threatened. An inclusive, democratic forum to investigate a representative set of talents and ideas is the best way to achieve a powerful architectural statement in Lower Manhattan that is both functional and symbolically evocative.

—James Garrison, AIA
New York City

Corrections

In the July Correspondent's file on Puerto Rico [page 55], design credit for the Museo de Arte de Puerto Rico should have read Otto Reyes Casanova, Luis Guttiérrez, and RKK+G. In the July Critique column, by Michael Sorkin [page 61], in the author bio, credit should have gone to Sharon Zukin, who was a coeditor of the book cited, *After the World Trade Center: Rethinking New York City*, which was published in May 2002 by Routledge.

E-mail letters to Robert Ivy at rivy@mcgraw-hill.com.

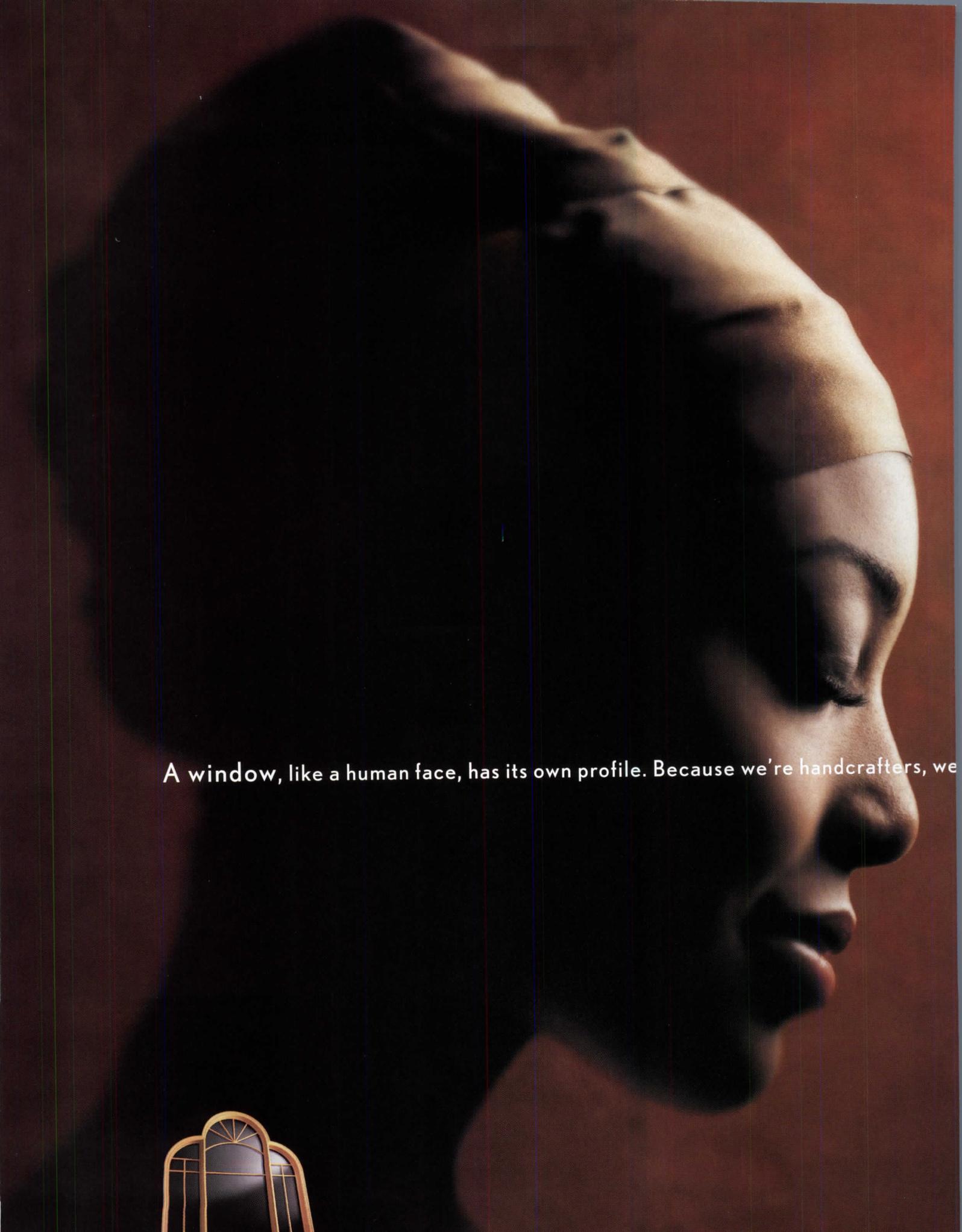
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Design modified for SOM's Trump Tower Chicago

A significantly modified design for what will be Trump Tower Chicago was unveiled by the Chicago office of Skidmore, Owings & Merrill (SOM) this summer. Adrian Smith, FAIA, is leading the design team for what is now planned to be an 86-story office and residential skyscraper where the *Chicago Sun-Times* headquarters currently stands at Wabash, by the Chicago River. Smith's latest design is eight stories taller, less bulky, more rounded, and more responsive to its context than the initial design unveiled in late 2001 [ARCHITECTURAL RECORD, January 2002, page 32]. At press time, the design was pending Chicago City Council approval.

The 1,125-foot-tall building will be the fourth-tallest in Chicago. It will have a broadcast antenna, which technically will not count in the official building height. With the antenna, though, the skyscraper will

be 1,300 feet tall and the second-tallest building in Chicago, and in the U.S., behind the city's 1,450-foot Sears Tower.

To build the skyscraper, New York developer Donald Trump is partnering with *Sun-Times* publisher Hollinger International. The 2.1 million-square-foot building will include a ground-level lobby, parking on floors two to seven, a health club on floors eight to 10, offices on 11 to 50, luxury condominiums on 52 to 84. The remaining floors will be mechanical space. The building, which Trump hopes to complete by 2006, will face a 30,000-square-foot riverfront plaza and river walk that will extend to Michigan Avenue.

Smith's enhanced design responds to its architecturally rich context along the north side of the river, including the Wrigley Building and Tribune Tower of the 1920s, the 1960s Marina City "corncob" towers,

and the IBM Building, by Mies van der Rohe, immediately across the street. The previous design, stepped like a wedding cake, would have awkwardly competed with neighboring buildings.

Trump, who has never built in Chicago before, had hinted in 2001 that this building was being planned as the world's tallest. Plans were scaled back after September 11. *John E. Czarnecki, Assoc. AIA*

Trump's building (right, next to Mies's IBM Building) will be the fourth-tallest in Chicago (center, below).



Michael Graves's Snyderman House, neglected in recent years, burns down

The 1972 Snyderman House in Fort Wayne, Indiana, a seminal early project of Michael Graves, burned to the ground on July 30 (above). The house was perhaps the best example of the Modernist work of Graves's

early career. Arson is suspected but was not confirmed at press time.

The home's original owners, Sanford and Joy Snyderman, left the house in 1998 and sold it in December 1999 to developers

Joseph Sullivan and William Swift, who initially had plans to tear it down and develop a number of homes on the property. Local architect Matt Kely, AIA, a partner in Kely Taylor Design, started a non-profit organization called Eleventh Commission Inc. (the house was Graves's 11th commission) to attempt to purchase the house and save it [RECORD, October 2000, page 38]. The building had remained on the site in disrepair since 1998, and vandals "tagged" it, knocked holes in interior walls, and broke glass.

The house was the subject of much attention in the past four years. Kely, crushed to see it destroyed, told RECORD, "More than 3,000

attended the two open houses sponsored by Eleventh Commission Inc., and at least two dozen student groups were provided private tours. Photographers of international fame visited to capture the deteriorating design on film, and members of academia who happened through the Midwest would visit the house." *J.E.C.*

The Snyderman House was a seminal Modern project in Graves's early career.



OFF THE RECORD

The Chicago Plan Commission has approved a design by Atlanta-based [Thompson, Ventulett, Stainback & Associates](#) for an \$800 million, 800,000-square-foot addition to Chicago's McCormick Place, increasing the convention center's exhibition space to 2.8 million square feet.

[Susan Henshaw Jones](#), president of the National Building Museum in Washington, D.C., since 1994, will leave the museum in January. She is planning to return to New York.

The National Building Museum has launched its first online exhibition, [Building America](#), at [www.nbm.org](#).

Applications for the [2003 Rome Prize](#) are due November 1. Visit [www.aarome.org](#) to learn more.

[Arquitectonica](#) has been commissioned for an 80,000-square-foot printing facility for the *Sarasota Herald Tribune*, owned by The New York Times Company. The building will be completed in late 2004.

The Commission of Fine Arts in Washington, D.C., elected [Harry G. Robinson III, FAIA](#), as chair of the commission, succeeding [J. Carter Brown](#), who died in June.

The four firms on the shortlist for the renovation of Two Columbus Circle by Edward Durell Stone, for a new home for the American Craft Museum, are [Smith-Miller + Hawkinson Architects](#), [Zaha Hadid](#), [Toshiko Mori](#), and [Allied Works Architecture](#).

[C. Robert Campbell, AIA](#), of Albuquerque, has been elected 2002-2003 president of the National Council of Architectural Registration Boards.

[Ann Beha Architects](#) of Boston has designed a \$21 million expansion for the Delaware Art Museum in Wilmington, to open in spring 2004.

UN Studio brings clarity to Atheneum

The Wadsworth Atheneum Museum of Art, in Hartford, unveiled a schematic design by Ben van Berkel and Caroline Bos of Amsterdam's UN Studio, with Fox & Fowle Architects of New York serving as executive architect. The plan is intended to unite four of the museum's five buildings, which were built between 1842 and 1969. The Wadsworth Atheneum is the oldest art museum in the United States.

The various buildings that make up the museum's current campus were designed in varying styles, from the Gothic Revival Wadsworth



building, the oldest, to the 1934 Avery Memorial building, the first International Style museum building in the U.S. The various floor plates of these buildings do not align, and the museum is notoriously hard for visitors to navigate. The current



UN Studio's addition to the Wadsworth Atheneum Museum will extend into what is now a central courtyard (above) with dramatic interior spaces (below).

museum configuration only allows for about 2 percent of the collection to be shown at any one time, and parts of the permanent collection must be taken down to install traveling exhibitions.

The design proposed by UN Studio would raze the 1969 addition to the museum, which has been problematic for curators, and replace that structure with a new main

entrance based on the idea of a public square. The new building would extend into what is now a central courtyard, where a "double helix" of spiraling ramps would connect the varying floor levels of the existing pavilions. The ramps would

circle around a central cylindrical skylight that would bring natural light into the interior of the building. Upper floors of the new building would provide a 6,300-square-foot gallery for contemporary art and an 8,400-square-foot temporary exhibition gallery. The schematic design model showed the exterior of the building clad in a perforated metal skin, though the final materials have not been specified.

The museum has begun a fund-raising campaign and has set a goal of raising \$80 million to cover construction costs. Ground breaking is scheduled for early 2004, with a construction period of 24 to 30 months, during which time the museum will be closed.

Kevin Lerner

AIA realigns national office leadership with three team vice presidents

A realignment of top leadership at the national office of the American Institute of Architects (AIA) was approved in August. The national office is now organized under three teams directed by team vice presidents who will report to James Dinegar, the AIA's chief operating officer. The team vice presidents are Barbara Sido, CAE, Team V.P., Knowledge; Charles Hamlin, Team V.P., Communications; and Helene Combs Dreiling, FAIA, Team V.P., Relationships. Sido, formerly the AIA's managing director of AIA

professional practice, will direct continuing education, professional practice, and knowledge resources. Hamlin, formerly the AIA's managing director of communications, will direct external and member communications, marketing and promotional activities, as well as conventions and meetings. Dreiling, formerly the AIA's managing director of stakeholder relations, will direct component affairs, government affairs, membership services,



AIA leadership includes (from left) Barbara Sido, Norman Koonce, FAIA, Charles Hamlin, James Dinegar, and Helene Dreiling, FAIA.

and alliances.

In a statement, Norman L. Koonce, FAIA, E.V.P. and C.E.O. of the AIA, said, "This realignment will result in a more innovative, focused, and effective AIA working on behalf of our members' success." *J.E.C.*



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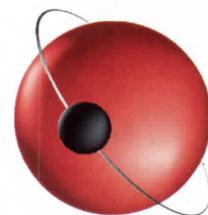
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SPECIAL REPORT

Opening WTC planning process adds more questions to mix; memorial design competition to come in 2003

The process of planning to rebuild at the site of the World Trade Center (WTC) became murkier and more confusing this past month. After the six concept plans presented in July were roundly criticized [RECORD, August 2002, page 23], the Lower Manhattan Development Corporation (LMDC) opened up the process with a call for architects, planners, and landscape architects worldwide to submit credentials to potentially "study" the site.

A request for qualifications, released on August 19, is available on the LMDC Web site, www.RenewNYC.com. The deadline for response to the RFQ is September 16. To many in the design community in New York, this appears to be an open competition, but in fact it's not. The RFQ, in bold type, states, "This is NOT a design competition and will not result in the selection of a final plan. It is intended to generate creative and varied concepts to help plan the future of the site."

New York New Visions, a coalition of 21 architecture, engineering, planning, landscape architecture, and design organizations, will advise LMDC in selecting up to five teams by September 30 to prepare concept plans for the next phase of the planning process. According to a release from the LMDC: "The LMDC will work with New York New Visions to appoint a team of outside advisers who will narrow the field of potentially

thousands of respondents to between 10 and 20. An LMDC committee will then make the final selection of teams." The five teams must produce final presentation drawings by November 22.

The five teams will "be guided by new, flexible program alternatives developed in conjunction with the Port Authority of New York and New Jersey," according to the LMDC release. Those program alternatives were not made public at press time. Many question why flexible program alternatives were not developed before Beyer Blinder Belle (BBB) was brought on board to develop concept plans in the first place.

At the same time as five new teams are introduced, BBB and Peterson/Littenberg Architecture & Urban Design continue their own work. The LMDC release says: "[BBB] and Peterson/Littenberg will continue to explore varied approaches to the World Trade Center site based on the new program alternatives. All work will be ready for public review by the end of the calendar year, completing the second phase in the three-phase planning process."

BBB released an August 14 statement of support for opening the process to attract the world's top designers. The statement ends, however, with BBB defending its work thus far: "During its first six weeks on this project, [BBB] developed more than a dozen schemes for the WTC site, many of which went beyond the initial program restraints. We regret that our most creative work from this period was not presented for public view."

Peterson/Littenberg, which has been in-house consultants to the LMDC for six months, had its contract extended for three more months.

The LMDC also announced in August that an international design competition specifically for a memorial on the WTC site will begin early next year. A call for submissions will go out in early 2003, and the winning design will likely be chosen by September 11, 2003.

John E. Czarnecki, Assoc. AIA

Clarifying WTC plan designers

In the six concept plans for the World Trade Center site [RECORD, August 2002, page 23], the Memorial Plaza plan was based on a Cooper Robertson & Partners design with significant modifications by Beyer Blinder Belle (BBB).

Regarding the Memorial Garden plan, Louis Tomson, president of the Lower Manhattan Development Corporation, and BBB partner Jack Beyer, FAIA, both noted at a July 16 press conference that Skidmore, Owings & Merrill (SOM) had significant input on the plan. However, SOM chair Marilyn Jordan Taylor, FAIA, told RECORD the plan was "created, prepared, and presented by Beyer Blinder Belle. SOM is not the author or originator of the plan." J.E.C.

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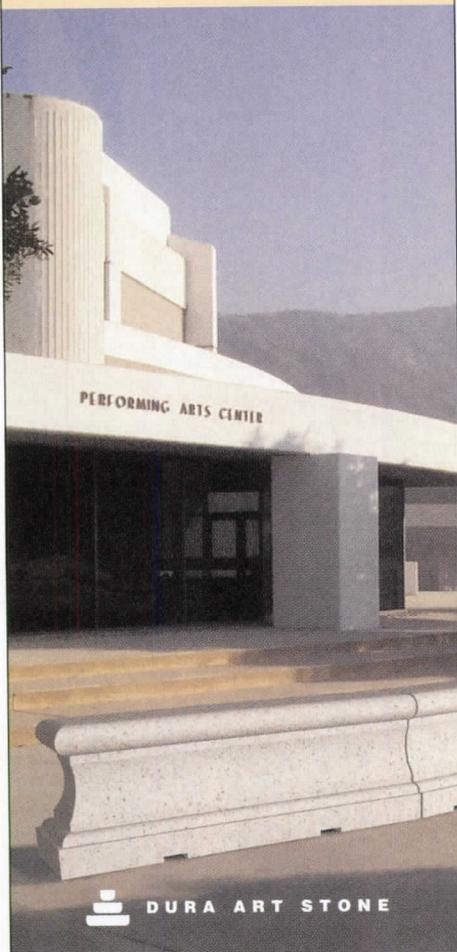
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Record News

Unique public spaces for East River side of Lower Manhattan

While the World Trade Center site is receiving great attention in Lower Manhattan, the Alliance for Downtown New York and Community Board 1 are releasing a plan this month focusing on the area just a few blocks east—the East River shore of Lower Manhattan.

Skidmore, Owings & Merrill, led by Marilyn Jordan Taylor, FAIA, in collaboration with urban designer Ken Greenberg of Greenberg Consultants, Toronto, and Arup as transportation consultants, conducted the study of Lower Manhattan along the East River from the Brooklyn Bridge to Battery Park. The plan's recommendations add up to 35 acres of new open space in a variety of forms to activate the waterfront. The plan anticipates that the Guggenheim may build a Frank Gehry-designed museum on the riverfront.

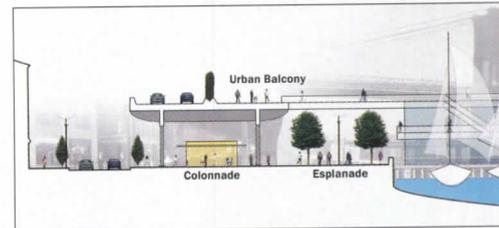
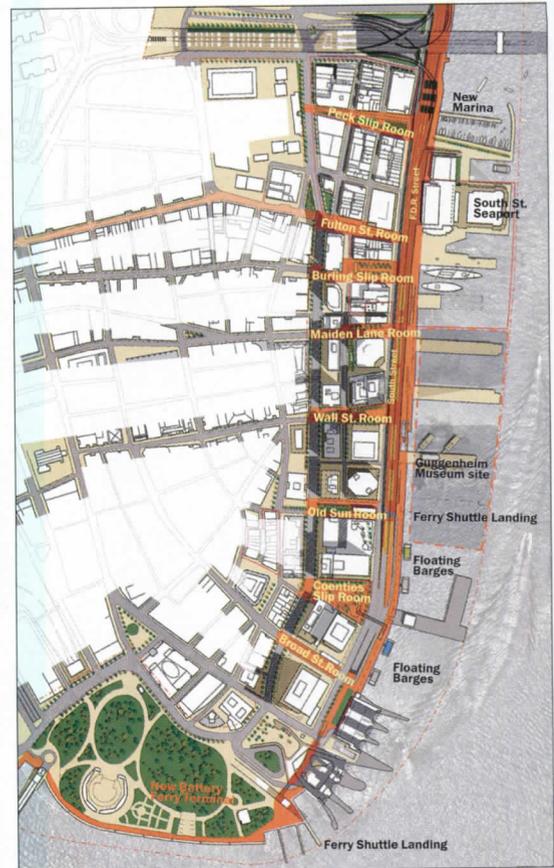
Lower Manhattan "is the northern prow of an absolutely wonderful water resource—New York Harbor—which is the reason that the city is here," Taylor says. To take advantage of this, the plan includes an esplanade along the East River, as well as a number of floating barges and possible ferry shuttle landings. The planners hope to encourage more connections between Lower Manhattan and the Brooklyn side of the East River.

The most radical aspect of the plan may be the recommendation to convert what are now the northbound lanes of the elevated FDR Drive south of the Brooklyn Bridge into a pedestrian promenade (see section drawing) while keeping two lanes of automobile traffic on what are now the southbound lanes. "There are really stunning vantage points [on the FDR] that you simply don't get on the ground," Greenberg says.

The planners considered taking FDR Drive down to grade, but "that's too big a move, we think, and too out of the question," Taylor says.

East-west streets would be enhanced as distinct "public rooms," and the FDR Drive underbelly would be beautified to create a public colonnade. "It's counterintuitive," Greenberg says. "I've come to appreciate the quality of space under the FDR." J.E.C.

What is now parking space under FDR Drive (above right) could become a colonnade with kiosks, proper lighting, and a walkway (below right).





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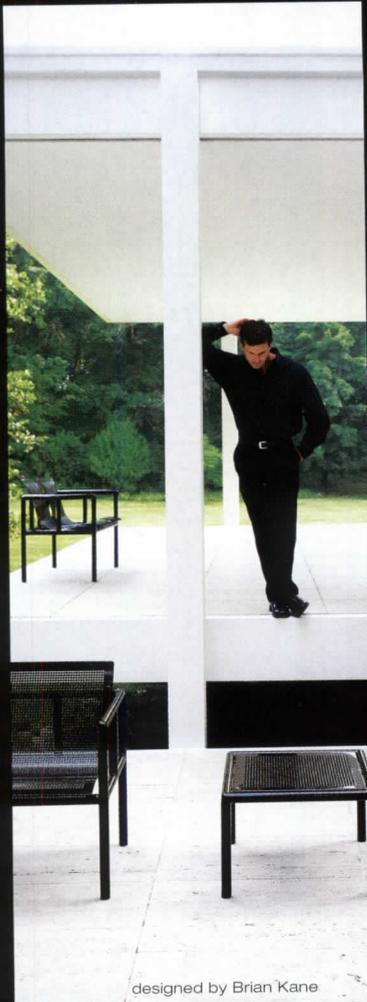
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With a necklace of water, Kathryn Gustafson wins competition for Princess Diana memorial

Seattle-based landscape architect Kathryn Gustafson, with her London-based partner Neil Porter, have won a competition to design the Princess Diana Memorial Fountain in London. The \$4.7 million scheme calls for a constantly flowing circular ring of water on a 1-acre planted area in London's Hyde Park near the Serpentine.

The competition attracted 58 submissions from architects and designers such as Sir Terry Farrell and Zaha Hadid, among others. The Memorial Fountain Committee narrowed the pool of entries to the Gustafson Porter design and a scheme by London's Future Systems, with Anish Kapoor, whose plan called for a pyramid of colored water jets. With a deadlock vote, British culture secretary Tessa Jowell intervened and selected the Gustafson Porter design.

The winning proposal, entitled "Reaching Out—Letting In," is meant to express Diana's open and gracious nature with the public, says Gustafson. It has a 164-foot-wide-by-262-foot-

long sloping oval that will "set lightly, like a necklace, across the existing contours of the site."

The channel ring, which ranges from 9 to 18 feet in width, will be lined in smooth-cut white stone and feature running water that alternately shimmers and cascades. From the highest point of the slope, the water will flow in two directions, collecting in a pool at the bottom, where it will be drained, cleaned, and recirculated in a seamless transition. With depths of $\frac{1}{4}$ inch to 10 inches, visitors will be able to touch the water and walk in it, Gustafson says. Surrounding foliage consists of light-colored trees, flowers, perennials, and low shrubs.

The memorial, scheduled to open in August 2003, the six-year anniversary of Diana's death, received some negative press in Britain for being too minimal and not fountainlike. *Tony Illia*

An oval of water to touch and walk through, the memorial will be interactive.



Biennale exhibiting the future of world architecture

The future of architecture is now on display in Venice, Italy, at the Biennale di Venezia, the international art and architecture exhibition. Curated by Deyan Sudjic, the installation *NEXT: the future of world architecture* features more than 130 projects being planned worldwide of multiple building types by both established and emerging architects, many of which have not been shown before.

The *NEXT* exhibition, showcasing the tactile qualities of form and materials in projects, examines how the designs will be built rather than simply displaying virtual representations of architecture. The projects are organized in the following categories: housing, museums, transportation (communications), education, towers, the workplace, shopping, religious and public buildings (church and state), performance venues, and master plans. The towers category, for example, includes the New York Times tower by Renzo Piano; Hearst headquarters tower in New York and Swiss Re London headquarters, both by Foster & Partners; and the Montevideo tower in Rotterdam, by Mecanoo. The Museum of Modern Art expansion in New York by Yoshio Taniguchi is one of the museums in the show.

An exhibition called *World Trade Center: Yesterday, Today, Tomorrow* [RECORD, June 2002, page 30] will comprise the United States entry in the Biennale, and ARCHITECTURAL RECORD editor in chief Robert Ivy, FAIA, serves as commissioner of the American pavilion.

The Biennale continues through November 3 (www.labiennaledivenezia.net). *J.E.C.*

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Miró's tile mural, Mur du Soleil (1957), at the UNESCO Building in Paris, France.

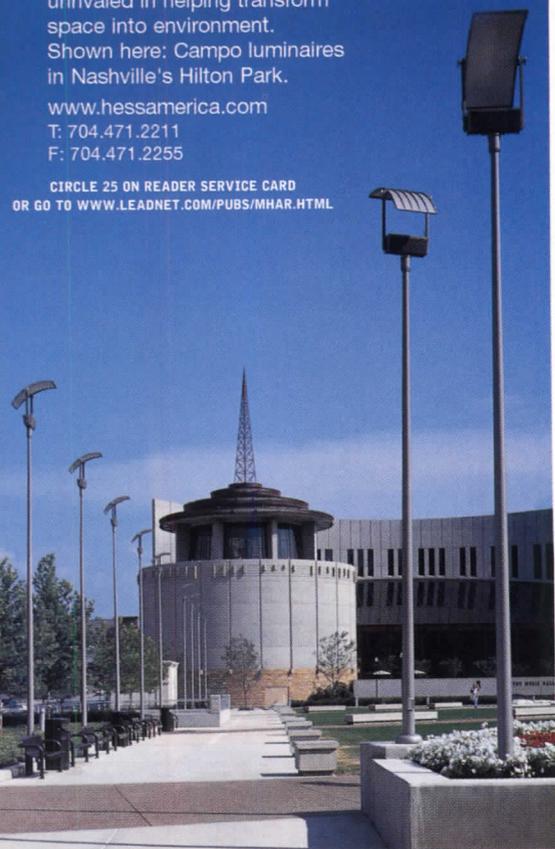


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Record News

Sasaki takes Beijing competition for 2008 Olympic plan

Beijing has allocated more than \$32 billion for infrastructure improvements in preparation for the 2008 Summer Olympics. Architecture, planning, and landscape design firm Sasaki Associates has developed a plan that will serve as a framework for the multiple Beijing construction projects. Sasaki, headquartered in Watertown, Massachusetts, won the \$250,000 grand prize in a competition for the design of the main 2008 Summer Olympic site in Beijing.

The conceptual design of the 2,800-acre "Olympic Green"—codeveloped with Chinese firm Tianjin Huahui Architect and Design Company—includes siting of a stadium in which the opening ceremonies will be held, a park, and the athletes' village. The scope of Sasaki's work for the site includes urban design; landscape architecture; and transportation, traffic, and utility planning.

Sasaki's entry was selected over approximately 55 others in the competition. "For us, it's very significant. We've been doing work in China for about three years," says Sasaki principal urban designer Dennis Pieprz. "It's nice to win this one because it puts us on another level in our work in China."

The Sasaki plan includes a 1,680-acre forest park to the north (top of plan above) and 22 million square feet of new development—such as an Olympic Village just southwest of the park—as well as an 80,000-seat stadium (red oval at lower right center of plan), an 18,000-seat gymnasium, a swimming center with 15,000 seats, archery ranges, a convention and exhibition center, a youth cultural center, and a Beijing City Planning Museum.

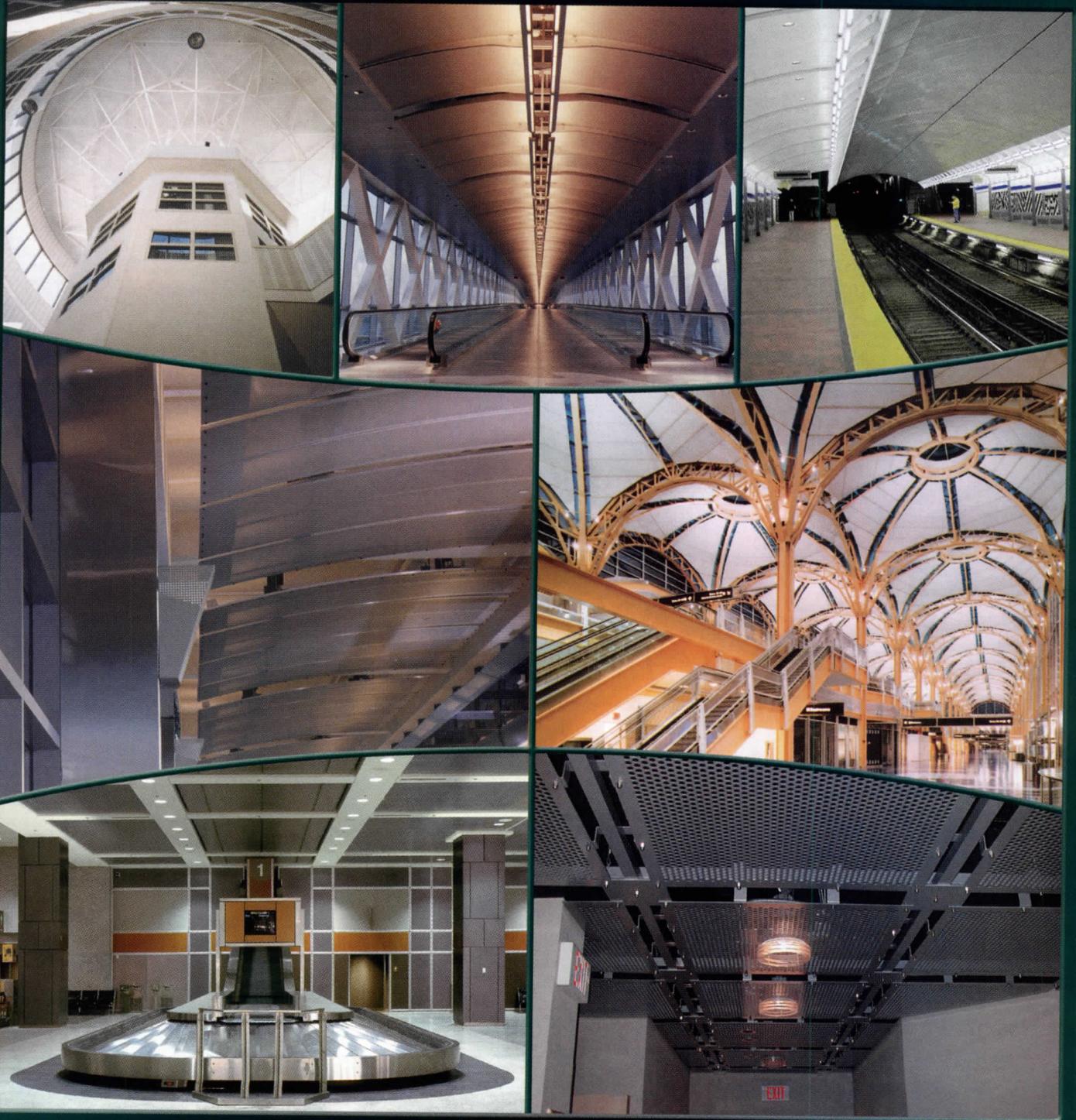
Sasaki called its design proposal the "Axes of Human Achievement." The Olympic Green is sited on an extension of the north-south imperial



The Sasaki plan includes a forest park (top), an Olympic Village southwest of the park, and a stadium (red oval at lower right center).

axis—the historic spine upon which Beijing has developed over time and along which the Forbidden City, Tiananmen Square, and the Temple of Heaven are located. Liu Thai Ker, a Singapore architect who chaired the competition jury, said, "[Sasaki] respected abstract concepts like cultural relevance and historic perspective, allowing for future generations to shape that site."

Sasaki was also one of two firms to be awarded second prize in a separate competition for the design of the Wukesong Cultural and Sports Center. J.E.C.



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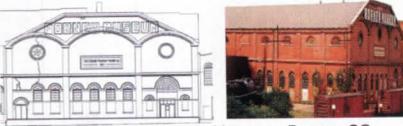
Record News



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Adaptive Reuse - Forney Museum - Denver, CO



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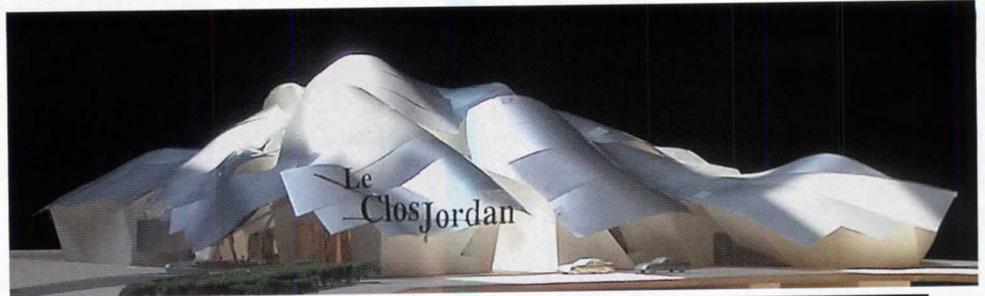
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"Silver blanket" to cover Ontario winery by Gehry

Burgundy, Napa, Sonoma and ... Ontario? Wine connoisseurs may soon be adding the Canadian province to their shortlist of pilgrimage sites—to experience a new high-end winery that its architect, Frank O. Gehry, FAIA, is calling "a cathedral for wine." The approximately 30,000-square-foot winery—named Le Clos Jordan—will occupy a 137-acre site on the Niagara escarpment near the town of Lincoln, about an hour's drive south of Toronto. The proposed building will be the first in Canada for Gehry, a Toronto native.

From the outside, the winery is dominated by its roof—an overlapping series of undulating metallic ribbons intercut with glass chasms to let light in. The choice of steel or titanium for the ribbons has yet to be made. "I wanted to make the building a landscape that floated through the vineyard," Gehry said. "That's hard to do—buildings are hard-edged—so I decided to make the roof like a silver blanket floating over the vine-



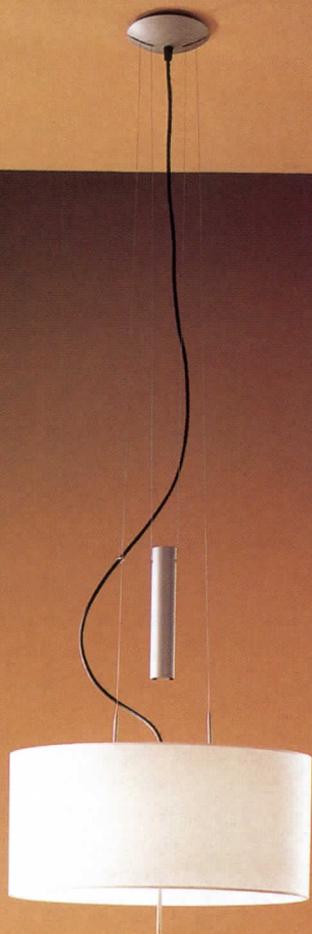
yard. I wanted to make it ephemeral and cloud-like so the closer you get, the more you realize it is a building."

The interior of the winery is based on a pinwheel form so that every stage of the wine-making process can be viewed at once from a multilevel Great Hall, rather than unfolding episodically. Five "pods" will include guest receiving and staff offices, grape receiving and pressing areas, fermenting rooms, and a tasting/sitting area. Catwalks around the edge of the atrium will allow visitors to view each of the pods from different perspectives. Eight floor-to-ceiling columns—possibly constructed of glass—will dominate the Great Hall. One idea still being considered is to have grape juice flow through the glass columns as part of a gravity-based system.

Le Clos Jordan is a joint venture between Vincor, Canada's largest wine producer, and France's Boisset, La Famille des Grands Vins. Vines from Burgundy have already been planted with the goal of creating ultra-premium estate wines. Completion of the building, expected to cost \$19 million, is planned to coincide with the first harvest in 2006 or 2007. *David Maurer*

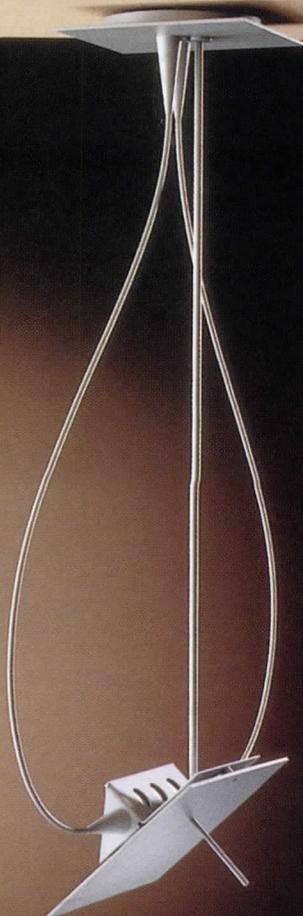


The wavy metal roof covers the Le Clos Jordan winery (top two) like a "silver blanket." Columns may be of glass filled with grape juice (left and above).



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Record News

National Trust reports on neighborhood teardown epidemic

An alarming number of houses in architecturally notable historic neighborhoods are being demolished to make space for speculative developments, according to a report issued in August by the National Trust for Historic Preservation.

The Trust's 25-page report, *Protecting America's Historic Neighborhoods: Taming the Teardown Trend*, examines neighborhoods where significant numbers of homes have been destroyed and replaced with oversized, contextually insensitive dwellings that the report refers to as "McMansions." Five case studies explore the causes and effects of the raze-and-rebuild trend in and around Chicago; Denver; Dallas; Newton, Massachusetts; and Bergen County, New Jersey. The Trust considers the problem to be so troubling that it included "Teardowns in Historic Neighborhoods Nationwide" on this year's list of America's 11 most-endangered historic places [RECORD, July 2002, page 38].

According to the report, inner suburbs are particularly at risk of teardowns as ex-suburbanites move nearer to a city but keep their preference for sprawl-scale houses. The teardowns seem to be driven by developers rather than by homeowners. Intended as a resource to



Older houses are being torn down (left) for large "McMansions" that tower over historic homes (above).



would-be preservationists, the report offers a sampling of successful preservation practices. It explains a range of approaches, including halting new construction and also zoning for contextually sensitive infill. Zoning suggestions include instituting requirements for bulk, setback, and open space, as well as framing sensitive

additions as an alternative to completely new buildings. The report also suggested mandating design reviews, creating tax incentives for preservation, and offering outreach programs to educate developers about the potential inherent in preserving historic buildings. *Tess Taylor*

Plan developed for secure yet beautiful D.C. public spaces

The number of Jersey barriers surrounding Washington, D.C., landmarks has increased dramatically since last year's terrorist attacks. Noting that such ad hoc security solutions "communicate fear and retrenchment" and disrupt street and sidewalk movement, the National Capital Planning Commission (NCPC) has released *The National Capital Urban Design and Security Plan*, which outlines strategies for redesigning public spaces to shield building occupants and visually welcome passersby.

Clearly influenced by the 1995 Oklahoma City bombing, the NCPC plan focuses on precluding vehicles carrying bombs through perimeter security measures. Lining curbs with decorative bollards and hardening street furniture are two suggestions for strengthening standoff distance while achieving sympathy with architectural context. The plan further tailors solutions according to specific places. For the Lincoln and Jefferson memorials, it recommends erecting perimeter plinth walls materially akin to the stone used in the monuments. To compensate for the loss of parking spaces on streets where parking has been restricted, the plan proposes constructing parking structures on sites throughout the city, as well as implementing a "Downtown Circulator" transit system to shift dependency away from the automobile.

The plan, which is estimated to cost \$800 million to implement, is expected to reach Congress this fall. Visit www.ncpc.gov to read the document. *David Sokol*

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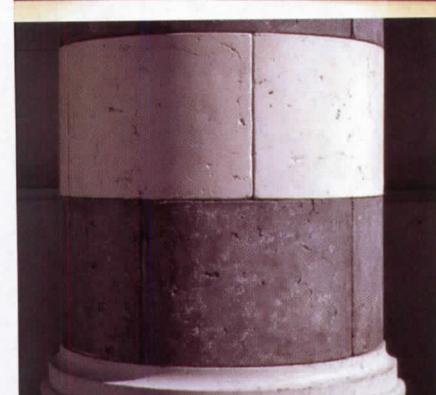
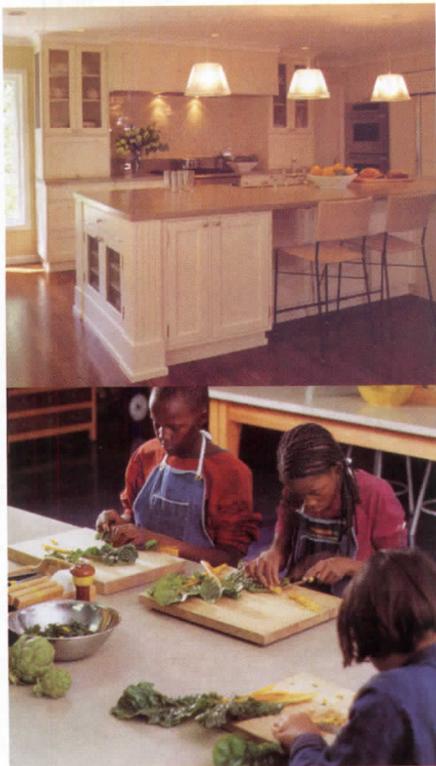
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Inspired by landscape, Predock wins two federal courthouse competitions

Antoine Predock, FAIA, has recently won two competitions for U.S. federal courthouses through the U.S. General Services Administration's Design Excellence Program. Predock, who has not had a courthouse project built before, won a competition for a courthouse in El Paso, Texas (shown here), which has a planned ground breaking in spring 2004. He also won a competition for a Las Cruces, New Mexico, courthouse (he was in contract negotiations at press time for that building).

With fellow Albuquerque firm BPLW Architects & Engineers as executive architect, Antoine Predock Architect won the El Paso competition against Enrique Norten of TEN Arquitectos of New York, Leers Weinzapfel Associates of Boston, and Lake/Flato Architects of San Antonio. Jurors were John Meunier of Arizona, Ronald Filson, AIA, of New Orleans, and Mehrdad Yazdani of Los Angeles.

The site for the El Paso courthouse, which is planned for a summer 2006 opening, is adjacent to a relatively small, 1930s Beaux Arts-style courthouse on the edge of downtown. The program required the building to be approximately 232,000 gross square feet with 60 secured parking spaces and 11 courtrooms, including six district courtrooms and five magistrate courtrooms.

Predock designed the El Paso courthouse to relate to the mountains, the west Texas landscape, and the "majesty of land and sky," he told RECORD. The complex will include an entry portal or gateway between building masses with a view to the Franklin Peaks beyond. This design

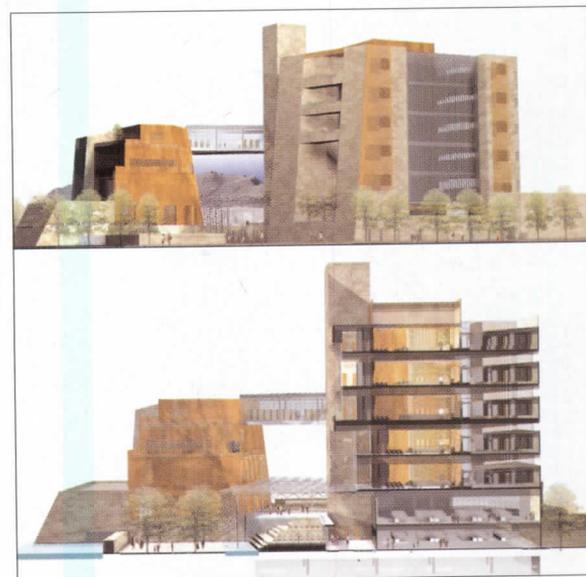


Indoor (above) and outdoor public spaces are integrated in El Paso.

responds to the Paso del Norte that defined the pass from south to north and the Rio Grande that defined the pass through the mountains from east to west. A glass-enclosed library (in images

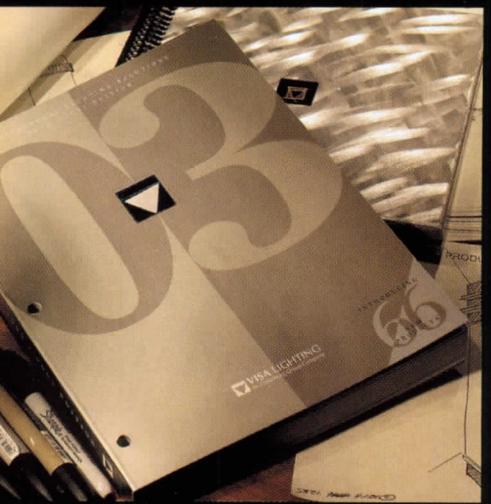
below) spans this portal between the special proceedings courtroom and the main courthouse structure.

For the Las Cruces courthouse, Predock, again in association with BPLW, won the competition against Will Bruder Architects of Phoenix, Fentress Bradburn Architects of Denver, and TEN Arquitectos of New York. The Las Cruces building



Seen in elevation and section (above), a glass-enclosed library spans the portal between building masses in El Paso.

will include 205,000 square feet of space with 10 courtrooms—four district, five magistrate, and one bankruptcy. The jurors for the Las Cruces competition were Julie Snow, AIA, of Minneapolis, William Hellmuth, AIA, of Washington, D.C., and Michael Rotondi of Los Angeles. Roger Schluntz, FAIA, of Albuquerque served as adviser for both competitions. J.E.C.



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Record News

With lessons learned from 9/11, New York plans building-code changes for high-rises

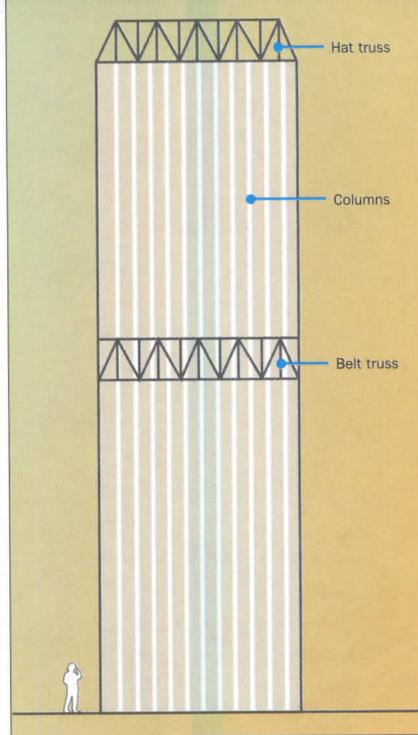
A task force of New York City building, construction, and fire officials, as well as engineers and real estate leaders, is recommending safety improvements to the city's building code based on lessons learned from the collapse of the World Trade Center towers. The World Trade Center Building Code Task Force, led by the city buildings department, will present the guidelines to the New York City Council by year-end, and they may have a nationwide influence. Task Force member James Howie, a senior associate at Perkins Eastman Architects, says, "I'm hopeful that other cities will look at the recommendations as an outline to formulate some of their own."

Many of the findings and recommendations are similar to those released this spring by the Federal

Emergency Management Agency and the American Society of Civil Engineers [RECORD, June 2002, page 28], and to research currently being conducted by the National Institute of Standards and Technology.

The New York City task force, which has been working on this since March, will propose that the building code include new standards for emergency lighting, egress markings, and higher-visibility signage. Another recommendation is to move intakes for air-conditioning and heating systems away from street-level locations. Yet another possible measure is the creation of "safe areas" or "refuges" in elevator lobbies, where people could congregate in case of emergency.

For buildings to stand while sustaining structural damage, one



possible recommendation will call for the implementation of belt trusses and hat trusses (see diagram, above) in new construction. Belt trusses could wrap around a building, transferring loads to undamaged columns and holding

The building-code changes may call for hat and belt trusses to be included in new high-rise construction.

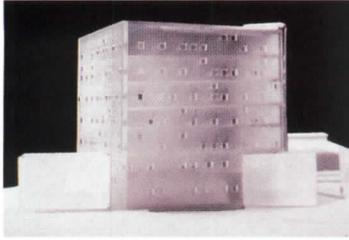
up floors after a collapse. Similarly, hat trusses on top of buildings could transfer loads from damaged to undamaged columns.

In addition to a public hearing held in August, the Task Force is forming its recommendations in collaboration with 9/11 victims' families and the local real estate community in order to strike a balance between protectiveness and economic practicality. Certain recommendations will be phased in over time.

Alterations to the building code must be approved by the city council and Mayor Michael R. Bloomberg. New operations standards, which the group is also now outlining, will be implemented by the New York City Fire Department. D.S.



News Briefs



Holl's Cornell building won't be built.

Holl design for Cornell architecture school will not be built Although Steven Holl won the competition to design the new home for the Cornell University Department of Architecture [RECORD, June 2001, page 35], his building will not be built. The university and Holl mutually agreed to dissolve their relationship this summer. A university architect-selection committee will choose a new architect, based on qualifications, later this month.

In a joint statement by Cornell University and Steven Holl

Architects, Harold D. Craft, Jr., vice president for administration and chief financial officer of the university, said: "Converting [Holl's] design concept into detailed plans that would meet the program developed by the department was a difficult assignment for all involved."

In the same statement, Holl said: "Like a brain surgeon operating on his own brain, making architecture for an architecture school is a peculiarly difficult challenge. I've been involved in the process of five different architecture schools and believe it is one of the most difficult architectural commissions. The unresolvable dialogue with Cornell is indeed an unfortunate situation."

Holl, whose scheme was chosen unanimously by the jury, won the competition in April 2001 against Thom Mayne of Morphosis, Tod Williams Billie Tsien and Associates, and Peter Zumthor.

Robbins leaves as NEA director of design—unclear if position will be filled; New Public Works ends Mark Robbins, the director of design at the National Endowment for the Arts (NEA) since 1999, announced in late July that he would not seek a renewal of his position. He left the NEA at the end of August and has



The Charles M. Schulz Museum shows whimsy in its forms and colors.

accepted a one-year fellowship at the Radcliffe Institute at Harvard University.

Robert Frankel, the newly appointed NEA director of visual arts, media, and literary arts, will have interim oversight of the NEA design programs beginning this month. A spokesperson for the NEA

noted that the position of design director has not been eliminated, but the NEA will "consider the possibility of recruitment for the position" when it reviews its fiscal year 2003 budget in October.

Also, the NEA's three-year-old New Public Works program, which funded national design competitions for a range of public works projects, is coming to an end after this year's grant recipients are announced.

Charlie Brown featured in Schulz Museum

San Francisco firm C. David Robinson Architects designed the Charles M. Schulz Museum to be—like



Schulz himself—modest, low-key, and comfortable, to honor the creator of the *Peanuts* comic strip. The 27,000-square-foot museum opened in August in Santa Rosa, California, where Schulz lived before his death in 2000. J.E.C.

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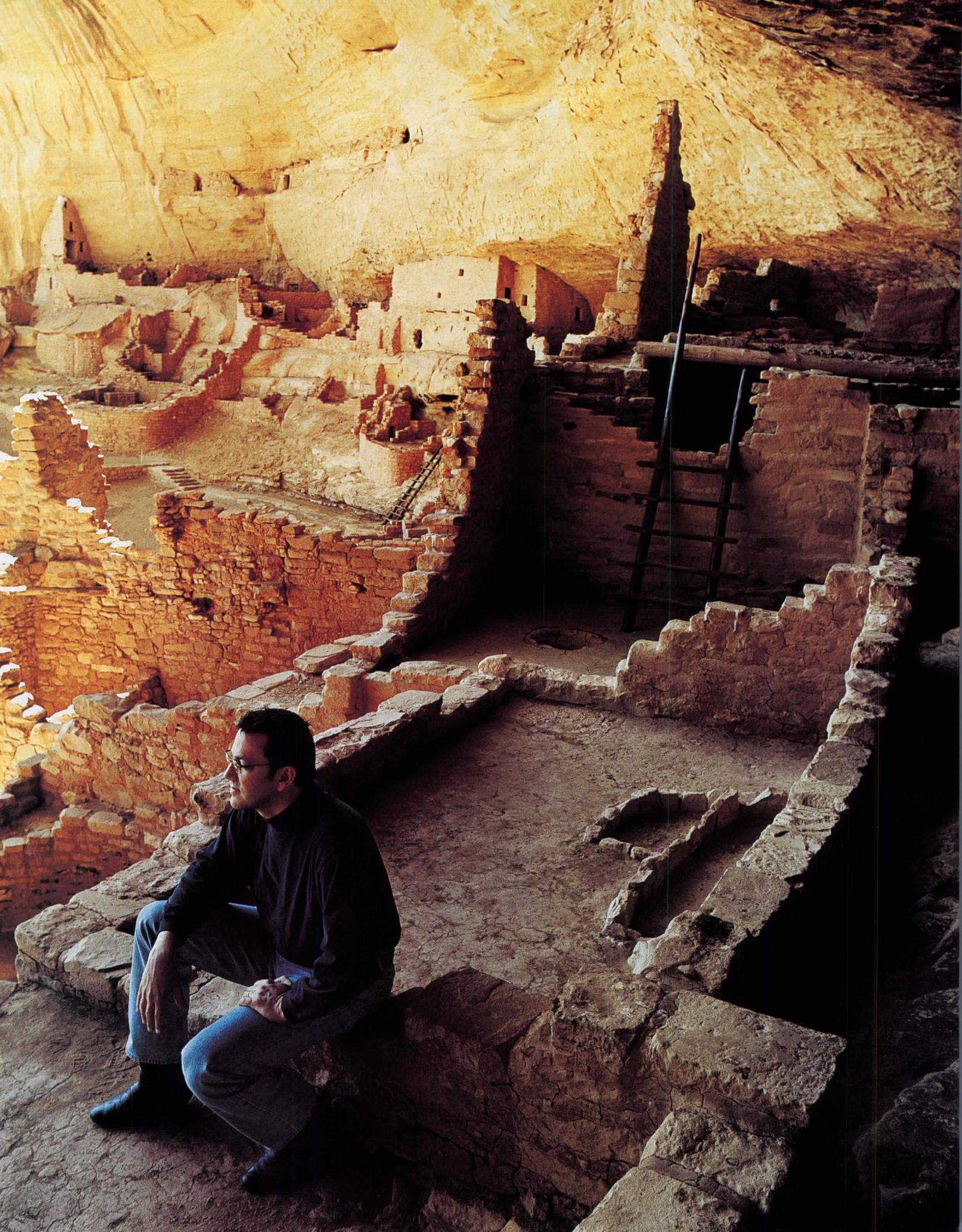
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Dates & Events

Ongoing Exhibitions

The City of K.: Franz Kafka and Prague New York City

August 11, 2002–January 5, 2003
With video, light, sound, and photographs, this exhibition enters into the world of Kafka's imagination and gives a visual presence to the environments of his writings. With a focus on Prague from the end of the Austro-Hungarian empire through the Great War, the show illuminates the urban landscape that sustained the writer. At the Jewish Museum. Call 212/423-3271 for more information.

Consuming Places Brooklyn, New York

August 15–October 27, 2002
Making use of a neglected public space in DUMBO (Down Under the Manhattan Bridge Overpass), this exhibition includes site-specific work that activates its waterfront setting, and it incorporates the site's historic 19th-century structures. Works are by architects and designers Asymptote, Bill Fontana, and 212box. On Water Street between Main and Dock streets. For more information, call 212/206-6674 or visit www.creativetime.org.

Zaha Hadid Laboratory Washington, D.C.

August 17–November 17, 2002
Zaha Hadid, the "queen-bee" of the international superstar architect clique, exhibits her recent projects in drawings, photographs, paintings, and models. The Yale School of Architecture organized the show. At The National Building Museum; visit www.nbm.org for more information.

Helmut Jacoby: Master of Architectural Drawings Chicago

August 31–October 27, 2002

Quite possibly the best-known architectural renderer of the 20th century, Jacoby has worked for some of the brightest stars in architecture—from his earlier days in America with Philip Johnson, Eero Saarinen, I.M. Pei, Marcel Breuer, and others to his later work with international architects such as Sir Norman Foster and Helmut Jahn. His work serves to document the evolution of architecture from the '50s through the '70s. At Kisho Kurokawa Gallery, Art Institute of Chicago. Call 312/443-3600.

Trespassing: Houses x Artists Bellevue, Washington

August 31, 2002–January 5, 2003
New York City-based architecture firm OpenOffice invited nine artists to reimagine the possibilities of the house in conceptual terms. Ideas generated were mediated through OpenOffice into architectural proposals that redefine the spatial, psychological, and technical conventions of domesticity. At the Bellevue Art Museum. Call 425/519-0754 or visit www.bellevueart.org for more information.

3D City: MVRDV New Haven

September 4–October 5, 2002
MVRDV, the Rotterdam-based architecture firm, uses complex data systems to inform its urban designs, which emphasize density and verticality as prime issues in city environments. This installation showcases MVRDV's obsession with information as a means to visualize the city. At the Yale School of Architecture. Visit www.architecture.yale.edu for more information, or contact 203/432-2288.

Skin: Surface, Substance + Design New York City

Through September 15, 2002
This exhibition skims the surface to explore the different ways skin is articulated in design. On display are a variety of objects and artifacts by such designers as Greg Lynn, Petra Blaisse, Ross Lovegrove, and Marcel Wanders, organized into five themes. Each theme delves into questions of beauty, technology, and artificial life. At the Cooper-Hewitt National Design Museum. Contact 212/849-8400.

Living in Motion—Design and Architecture for Flexible Dwelling

Weil am Rhein and Berlin
Vitra Design Museum, Weil am Rhein: through September 8, 2002; Vitra Design Museum, Berlin: September 21, 2002–January 26, 2003

This exhibition covers furniture and houses that reflect flexibility, multifunctionalism, and mobility, prime examples being Rietveld's Schroeder House, Shigeru Ban's Naked House, and Steven Holl's Fukuoka Apartments, among others. It covers a wide variety of cultures in its attempt to portray domestic flexibility. At the Vitra Design Museums, Weil am Rhein and Berlin. In the U.S., call 212/539-1900; in Europe, call 49 7621 702 3351.

Designing Oakland Pittsburgh

Through September 22, 2002
This exhibition discusses Oakland—the neighborhood in Pittsburgh, not the city in California—and is the second of the series of *Pittsburgh Neighborhoods Projects* exhibitions organized by the Heinz Architectural Center. It tells the story of the evolution of the neighborhood from an urban getaway to a cultural center sharing the spotlight with downtown. At the Heinz Architectural

Center in the Carnegie Museum of Art. Call 412/622-3131 or visit www.cmoa.org.

Visions from America: Photographs from the Whitney Museum of Art, 1940–2000 New York City

Through September 22, 2002
The museum's first photograph exhibition comprising work from its own permanent collection consists of images by established as well as emerging artists whose photography has been collected by the Whitney over the past 11 years. At the Whitney Museum. Call 212/570-3633 for information.

SHOPPING Frankfurt

September 24–December 8, 2002
This exhibition analyzes the cultural phenomenon of shopping in the art of the 20th and 21st centuries. More than 70 artists are featured, all of whom, in some way or another, have dealt with consumer culture through visual art, architecture, and film. Among the artists on display are Rem Koolhaas, Marcel Duchamp, Jeff Koons, Claes Oldenburg, Gerhard Richter, and Andy Warhol. At the Schirn Kunsthalle Frankfurt. Call 069 29 98 820.

Out of Site New York City

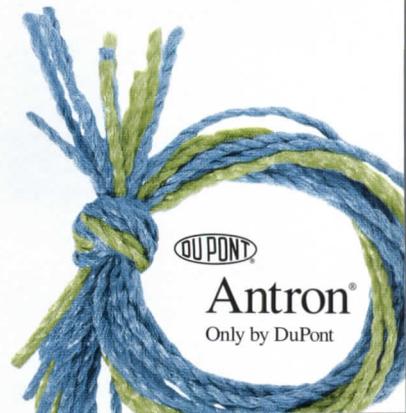
Through October 13, 2002
This exhibition focuses on how technology and communication have impacted modern-day culture. A team of international artists have come together and responded to this question by reshaping space using different forms of media for analysis. The show will be held at the New Museum of Contemporary Art. Call 212/219-5328 for more information.

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Dates & Events

Challenging Structure: Frank Gehry's Peter B. Lewis Building Cleveland

October 6, 2002–February 24, 2003

This exhibition illustrates the development of Gehry's School of Management building at Case Western Reserve University, opening September 2002. The show is a convenient city-block away from the real building. See the work in all stages, from initial conception, and then experience the built reality. At the Cleveland Museum of Art. Contact 216/707-2261 or www.clevelandart.org.

On Track: Transit and the American City Washington, D.C.

Through October 29, 2002

Transportation is arguably the most important element in a city's infrastructure; its development dictates the changing forms of the city. This exhibition showcases the spatial and technological relationship between transit and urban environments. Visit www.nbm for more information.

Krier/Eisenman: Two Ideologies New Haven

November 4, 2002–February 7, 2003

The debate between the opposing architectural philosophies of Krier and Eisenman is the subject of this exhibition. Work by Krier, who focuses on considerations of context, site, and function to inform his designs, will be displayed across from Eisenman's, who regards abstract form as the architect's singular consideration. The exhibition is supplemented with a symposium on November 8–9 (see below). At the Yale School of Architecture. Contact 203/432-2288 or visit www.architecture.yale.edu.

Lectures, Symposia, & Conferences

Architecture Week 2002 Washington, D.C.

September 7–14, 2002

Architecture Week in D.C. includes appropriate end-of-summer activities, such as an exhibition of giant structures made out of canned goods, free walking tours, and lectures by Thom Mayne and others. At various locations. Call 202/667-1798 or e-mail reservations@aiadc.com for more information and event reservations.

5th International Architecture Symposium Pontresina Pontresina, Switzerland

September 12–14, 2002

This symposium is tackling a wide variety of issues that are of importance in the world of architecture today. The main discussion points will be the development of a new form of architecture for minority groups in poor cities, and the concept of the Global Guggenheim and the complex relationship between architecture, art, and business. At Congress Centre Rondo, Pontresina, Switzerland. Call 41 081 838 8318 or visit www.archisymph.com.

Insecure: Architecture in an Uncertain World Montreal, Canada

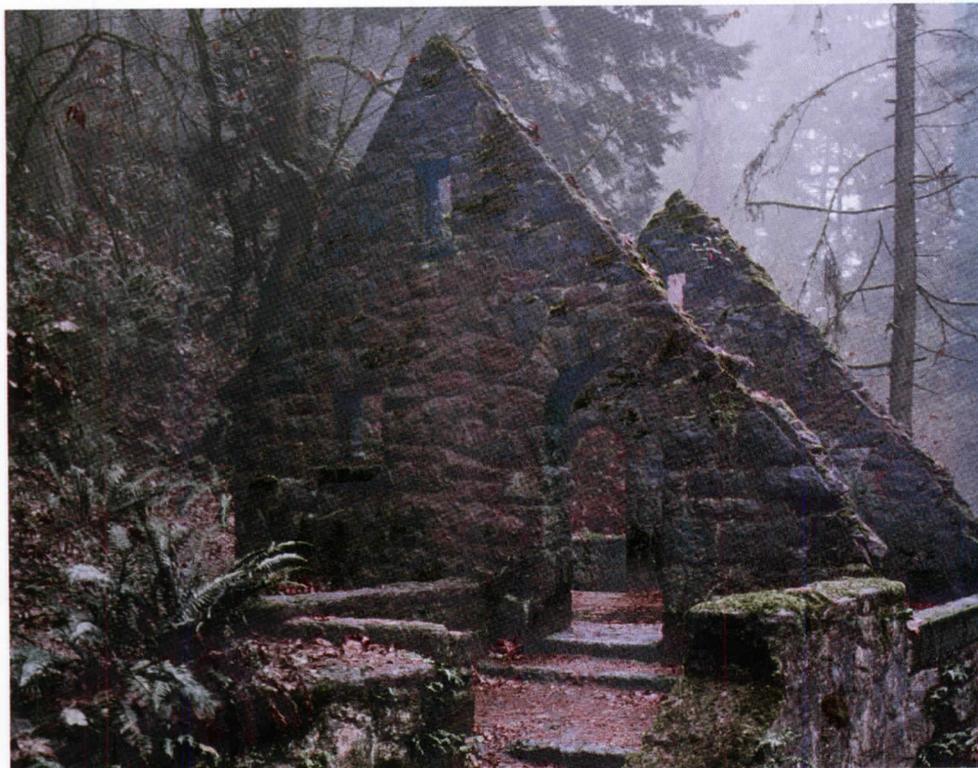
September 14, 2002

A discussion of the impact on architecture of the events of September 11, 2001, with a focus on insecurities that architects and developers now confront. Discussions led by Federic Migayrou of the Centre Pompidou and Mark Wigley of Columbia University. At the Canadian Centre for Architecture. Call 514/939-7000 or visit www.cca.qc.ca for more information.

Make It New Downtown Los Angeles, California

September 16 2002

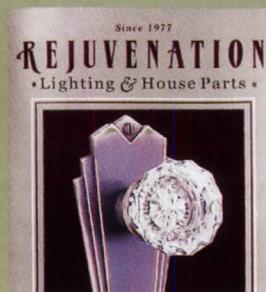
To kick off Sci-Arc's "Make It New" fall lecture



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VENTILATED WALL SYSTEM

Energy Efficient and Stylistically Unique

DESCRIPTION

A Ventilated Wall System that provides external cladding with the highest level of customization and has a significant aesthetic impact.

The system comprises several elements:

- Thermal insulation on the wall exterior;
- Substructure to support the cladding;
- Outer facing to protect the building against atmospheric agents, which is separated from the insulation by an air gap.

BASIC PRINCIPLES

In terms of thermal protection and the mechanism of vapor diffusion, the performance of the Ventilated Wall System is exceptional and totally guaranteed provided that:

- The thermal resistance of the various layers of the façade increases from the inside of the building outwards.
- The resistance to vapor diffusion, on the contrary, decreases from the inside outwards.



BENEFITS

- Reduces the dampness on walls in new and renovated buildings with a ventilated façade
- Prevents the formation of thermal bridges
- Provides a comfortable climate indoors by preventing heat from escaping in the winter and/or entering in the summer
- Lowers energy consumption
- Improves the sound absorption in new and renovated buildings

FEATURES

- Long life and great strength
- Cost-efficient structure for both building and maintaining
- Modern architecture created by using a wide array of sizes, colors and ceramic types

A.G.V. SYSTEM

(Marazzi Tecnica's Ventilated Wall System with ceramic face using **exposed hooks**.)

The A.G.V. Exposed Fixing System is achieved by applying ceramic plates to the load-bearing structure with stainless steel hooks of the Standard Type (for four plates) and of the Base Type (for two plates).

The complete system; ceramic, substructure and fixing is certified by the Construction Institute of Berlin with No. Z-33.1-74 for ceramic sizes up to 24" x 36". The system is composed of:

- **Ceramic Face:** Ceramic tile obtained with Firestream technology (glazed on an incandescent body), and Marlit technology (Fine Porcelain Stoneware).
Sizes: 24" x 36", 24" x 24" and small sizes obtained by cutting;
- **Substructure:** Hooks in AISI 316 L stainless steel, load-bearing structure in extruded aluminum with minimum thickness of 2.5 mm, rivets and expansion screws;
- **Thermal Insulation:** Self-bearing panels in fiberglass are water-repellent.



A.G.S. SYSTEM

(Marazzi Tecnica's Ventilated Wall System with ceramic face using **concealed hooks**.)

The A.G.S. Concealed Fixing System is achieved by fitted screw anchors on the back of the plates. Tapered-cylindrical holes are made on the back of the plate to house the anchors.

The complete system; ceramic, interface with the structure (screw anchors), substructure and fitting is certified by the Construction Institute of Berlin with No. Z-33.1.44 for ceramic sizes up to 24" x 36". The system is composed of:

- **Ceramic Face:** Ceramic tile obtained with Firestream technology (glazed on an incandescent body), and Marlit technology (Fine Porcelain Stoneware).
Sizes: 24" x 36", 24" x 24" and smaller sizes obtained by cutting;
- **Substructure:** Plate-structure interface by means of screw anchors in stainless steel, load-bearing structure formed by brackets for fastening to the plates, vertical and horizontal framework, brackets for applying to the walls in extruded aluminum, rivets and screw anchors;
- **Thermal Insulation:** Self-bearing panels in fiberglass are water-repellent.

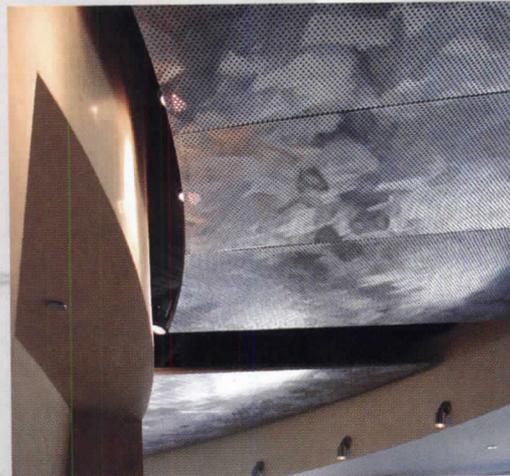


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Dates & Events

series is a panel discussion led by director Eric Owen Moss. The emphasis will be on reinventing ideas of the city, in a style that bridges academic considerations and real-life practicality. Lectures continue on a biweekly basis through December. At SCI-Arc Gallery. Visit www.sciarc.edu/calendar for more information.

Frank Lloyd Wright and the Modern Metropolis

White Plains, New York
September 18–22, 2002

The annual conference of the Frank Lloyd Wright Building Conservancy is directed toward Wright's documented affinity to New York City, despite the general belief that he was "anti-urban." His ideas for reconstructing the metropolitan region in organic terms will be discussed, with architecture critic Herbert Muschamp of *The New York Times* as the keynote speaker. At the Renaissance Hotel. For more information, call 773/324-5600 or visit www.savewright.org.

Montreal: City of Contrast

Montreal
September 19–22, 2002

This conference comprises a discussion, tour of, and reflection about the architecture and urban development of the culturally diverse city. Lectures by professors at McGill University and the Canadian Centre for Architecture, and student and young architects' presentation of work, give insight into the potential of the city's future developments. At the Hilton Bonaventure Hotel. Call 514/878-2332 for more information.

Mixed-Use Development

Des Moines
September 27–29, 2002

Addressing the current urban context of Des Moines and the potential for future developments, this conference will attempt to use the city as a model for other Middle-American river cities with similar terrain and layout. It will also showcase the architectural achievements in the city by architects such as I.M. Pei and Eero Saarinen. For more information, call 515/283-4754 or visit www.aia.org.

The First Symposium on Space Architecture

Houston
October 10–19, 2002

With recent discussions on the potential to inhabit the Earth's orbit, questions arise as to what kind of

visual form new space vessels will take. The Symposium on Space will discuss the related research by architects, industrial designers, and sociologists, and their ideas and forms for space habitation. Designs and experimental studies for orbital, lunar, and planetary dwelling will be examined. At The World Space Congress 2002. Call 703/264-7500 or visit www.aia.org.

Krier/Eisenman: Two Ideologies

New Haven
November 8–9, 2002

In conjunction with the exhibition of the same name at the Yale School of Architecture, this conference will put the two architects in real-time debate over architecture's relevance as a social enterprise and the focus on architectural form. Panel speakers will include Stan Allen, Kurt Foster, Kemitri Porpyrios, and Mark Wigley. At the Yale School of Architecture. Contact 203/432-2288 for more information, or visit www.architecture.yale.edu.

Constructing Beijing 2008

Beijing
November 13–14, 2002

This conference brings together international architects and engineers to discuss the development of Beijing, with emphasis on the 2008 Olympic Games. Construction will take place over the next five years and will include sports complexes, public spaces, landscape, signage, and public transportation; the project is a microcosm of a city embedded within a city. It coincides with a design competition for design students in Hong Kong and Beijing. At the Beijing New Century Hotel. Call 852/2238-9940 for more information, or e-mail kate.newman@hongkong.messefrankfurt.com.

AIA California Council Desert Practice Conference 2002

Indian Wells, California
November 15–17, 2002

This conference attempts to clarify the business of the practice of architecture. The conversation will cover project delivery, business and practice management, emerging practices, future trends, and expanded services. At Renaissance Esmeralda Resort. Call 916/448-9082 or visit www.aiacc.org/conferences.

35th International Making Cities Livable Conference

Monterey/Carmel, California
December 8–12, 2002

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DESCRIPTION

The modular Raised Floor System is a truly self-contained system which allows the creation of a new unobstructed space for the installation of technical components for present and future use.

The system is made up of different elements:

- Bearing and leveling substructure;
- Support panel for the surface covering;
- Surface finish serving as a walking floor.



BENEFITS

- Adds flexibility into the design process; changes that are normally required between the design and execution stages can be assimilated quickly and easily.

FEATURES

- A steel substructure with "square"-headed columns to be used with or without cross-pieces; the latter are available in the following types: light, medium and heavy.
- The following types of supporting paneling: calcium sulphate, high density particle board and mixed (a layer of particle board bound to a layer of calcium sulphate).
- Floor surface in ceramic using the following technologies: Firestream (glazed incandescent body) in nominal sizes 24" x 24" and 12" x 12"; Marlit (Fine Porcelain Stoneware) in sizes 24" x 24" and 12" x 12".
- Protective edging for the ceramic tile and paneling manufactured according to the following technologies:
 - **C.B. System:** Ceramic tile is "pre-grouted" using a rigid, colored polyurethane material and bound to the paneling by means of adhesives. The combination is protected by a lateral border of PVC or ABS laminate;
 - **M.B. System:** Ceramic tile and panel are bound together and protected by means of rigid, colored, injection-molded polyurethane, thus forming a single monolithic block;
 - **B.P. System:** Squared tile and panel are bound together by adhesives and at the same time are protected along their edges through a PVC or ABS laminate.



BASIC REQUIREMENTS

The Raised Floor System must:

- Provide a free surface for technical plants using interchangeable modular components;
- Be capable of withstanding the working loads for which it has been selected. The recent UNI 10466 regulations dealing with raised floors provide a classification system based on the effective loads exerted on the floor when the plant is running:
 - Class 1: Use with light loads
 - Class 2: Use with medium loads
 - Class 3: Use with heavy loads
 - Class 4: Use with special loads
- Guarantee satisfactory acoustic properties;
- Be made out of materials which do not generate noxious or unpleasant emissions;
- Be covered by guarantees under a System of Quality Control in compliance with the regulations currently in force.



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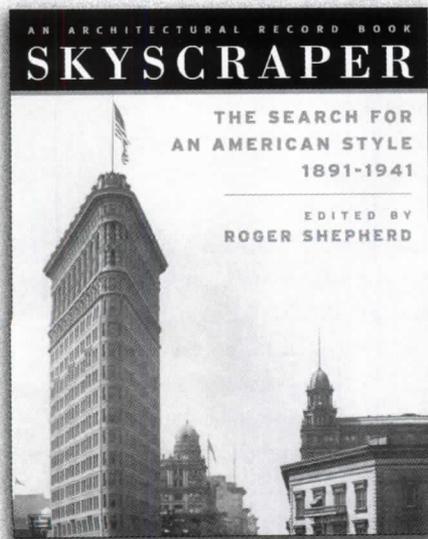
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Professional

Dates & Events

designers, city planners, landscape architects, transportation planners, social scientists, city managers, and public officials. A call for papers is currently under way. The deadline for submission of 200 word abstracts is October 30. For more information and to view topics for papers, see www.livablecities.org, call 831/626-9080, or e-mail suzanne.lennard@livablecities.org.

Conventions

Rail-Volution 2002 Washington, D.C.

October 3-6, 2002

This year's conference focuses on the community's role in making transit and land-use decisions and brings a unique cross section of citizen activists, business leaders, elected officials, and planners to the table to discuss the issues. Rail-Volution features a variety of sessions, including hands-on workshops, case studies, and moderated panel discussions. Contact 800/788-7077.

NOMA International Congress and Exposition

Ft. Lauderdale, Florida

October 15-18, 2002

An opportunity provided by the National Organization of Minority Architects to showcase their work and interact with other architects and design professionals. At the Wyndham Bonaventure and Spa. Call 301/941-1065 or e-mail avery@noma.net.

[Un]Bounding Tradition Hong Kong

December 12-15, 2002

For the eighth conference of the International Association for the Study of Traditional Environments, the theme is land border and regional tensions. Academic papers will be presented on topics such as ethnicity and regionalism, border spaces, and hybridity. Speakers include professors Neil Leach and Ackbar Abbas. Contact the IASTE at 510/642-6801 or visit www.arch.ced.berkeley.edu/research/iaste.

Competitions & Awards

Shinkenchiu Residential Design Competition 2002

Deadline: September 2, 2002

This competition, held annually by The Japan Architect, invites architects from around the world to explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The

entire competition will be judged by Daniel Libeskind. Sponsored by the Shinkenchiu-sha Company. Visit www.japan-architect.co.jp for more information.

Pentagon Memorial Design Competition

Deadline: September 11, 2002

An open, two-stage competition to select a design for an outdoor memorial on the grounds of the Pentagon, near the site of impact of the September 11, 2001, attack. The goal is to honor the victims, and any individual or team may enter. For more information, call Mary Beth Thompson at 410/962-2809.

Seattle Case Study Homes

Deadline: September 20, 2002

Architects and designers are invited to submit designs for a publication. For information about submissions, see the Web site www.seattlecasestudyhomes.com.

Messe Frankfurt Architecture & Technology Award Frankfurt, Germany

Deadline: September 30, 2002

Freelance architects and engineers are invited to submit design proposals for renovations of an existing European commercial building. Focus is on sustainability and building operations. For more information, contact www.messefrankfurt.com or call 49 69 7575 6477.

Tilt-Up Construction Association Achievement Awards Program

Deadline: October 1, 2002, with supporting materials due October 15, 2002

The purpose of this awards program is to recognize outstanding site-cast Tilt-Up structures. There is a \$100 entry fee for each project submitted. Submittal forms and directions can be found on the TCA Web site, www.tilt-up.org, or obtained by contacting TCA at 319/895-6911.

International Competition for the Urban Development and Planning of Sustainable Housing in Guanajuato, Mexico

Deadline: October 15, 2002

The Federation of Architects of the Mexican Republic invites architects to submit designs for a sustainable urban housing complex. The program calls for 6 housing prototypes, with emphasis on sustainable public spaces, energy management, and water and waste recycling. For more

information and to submit a design, call
52 5 5550 6049.

26th Annual Cooper Source Awards

Deadline: October 25, 2002

Open to any lighting designers, architects, interior designers, or other professionals who use light in an interior or exterior application. Two categories are available, one for professionals, the other for students, who will compete for a \$1,500 cash prize. For more information, visit www.cooperlighting.com.

The Rome Prize

Deadline: November 1, 2002

The prestigious Rome Prize, whose historic winners include Louis Kahn, offers hefty stipends for advanced research and independent study in architecture, design, and other humanities-related fields. For more information, contact the American Academy in Rome at 212/751-7200 or visit www.aarome.org.

Mobile HIV/AIDS Health Clinic

Deadline: November 1, 2002

Architecture for Humanity, a nonprofit organization, announces its 2002 international design competition. Architects are invited to submit designs for a fully equipped mobile medical unit and HIV/AIDS treatment center for use specifically in Africa. Entry fees, donations, and additional fund-raising sources will be used to build the winner's prototype. Visit www.architectureforhumanity.org for information.

International Competition for the Design of "Ephemeral Structures in the City of Athens"

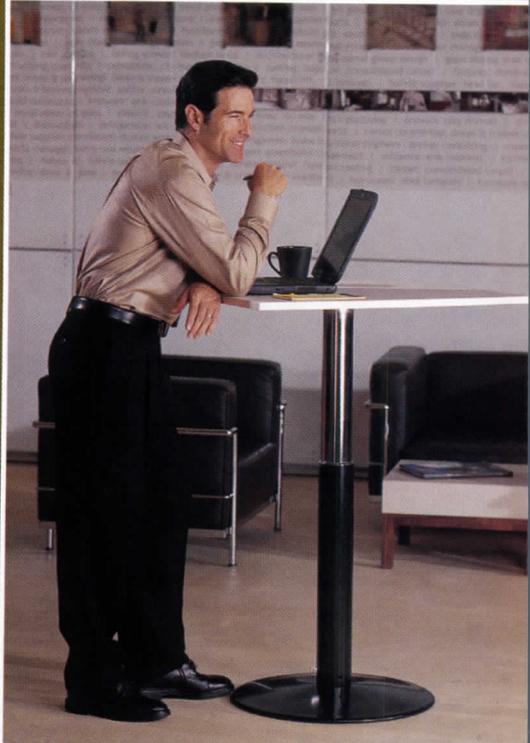
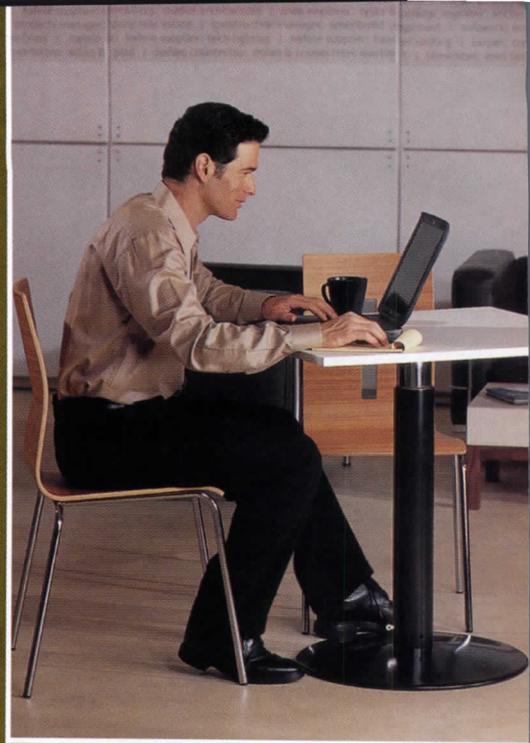
Deadline for dispatch or handing in of entries: November 11, 2002

Deadline for receipt of mailed entries: November 25, 2002

The Hellenic Cultural Heritage SA, supported by the Hellenic Ministry of Culture, is organizing this competition for the 2001-2004 Cultural Olympiad and the Athens 2004 Olympic Games. The program includes event platforms for music, dance, and other events that don't require seating; open-air theaters; and semi-open exhibition spaces, among others. For more information, call 33 10 976 95 10, visit www.culturalolympiad.gr/ephemeralcompetition, or e-mail ephemeral.competition@eeogroup.gr.

Please send event dates and information to ingrid_whitehead@mcgraw-hill.com.

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FOR THE EMERGING ARCHITECT

DEPARTMENTS

September means back to school, and this month **archrecord2** tries something different in honor of that. Instead of the usual **Design** profile, the lead story this month takes a look at a studio at the University of Arkansas, and the low-budget house the team designed in one semester and built in the next. The other story in this issue is also a **Work** story, and again focuses on schools, this time a high school in Philadelphia that teaches design. For **Live and Talk**, check out the Web site.

WORK

Low cost, high design, extra credit

Phillip Todd, a recent graduate of the University of Arkansas's architecture program, describes northwest Arkansas as "the Tyson Chicken and Wal-Mart capital of the world." So when he was called upon to submit a house design for a design-build studio he was taking in the 2001–2002 school year, he decided to make the best of his surroundings. "I tried to go along with the local vernacular," Todd said, "which is barns and chicken houses. So we have a lot of materials like corrugated metal and barn hardware available to us."

His approach worked with his classmates and with the Bank of Fayetteville, which underwrote the project. The course's professors, Eva Culterman and Greg Herman, set an ambitious program for the yearlong course: Take a low-budget house from design to completion in a single semester. During the fall semester, the 16 students in the class worked individually on designs for a 1,200-square-foot house and met once a week on an informal basis to discuss their progress. By the end of the term, the 16 designs had been narrowed to four by a vote of the class. These four designs were presented to the board of the bank, and Todd's design came out on top. The bank and the school had collaborated before, with the same program: three bedrooms, two baths. In addition to the construction budget, the bank provided the lot and chose the family who would eventually live in the house.

"I've actually met the family that's getting the house," Todd said. "They've been an active part of the process. They came out once or twice a week, to see how things were going and give feedback. I was glad to see that it was going to someone who was really excited about the house, instead of someone chosen based just on income. I think it was a big advantage to the entire class; we felt a lot better about it knowing that it was going to be enjoyed."

Todd used his winter break to secure permits for the house. When they finally came through in mid-January, 2002, the team began work. Besides the foundation, insulation, plumbing, and electricity, every part of the house was built by the 16 students. In addition to Todd, the team included Steve Click, Carolyn Pike, Heiko Mueller, Justin Couch, Mark Herrmann, Brett Abbott, Deric



Design-Build House, Fayetteville, Ark., 2002

University of Arkansas design-build studio—Phillip Todd, lead designer. Constructed over the course of a single academic semester, this house cost \$65,000 to build. Students did every job except for the insulation, foundation, plumbing, and electrical work.

(continued from previous page) Louton, Katie Breshears, Josh Danish, J.B. Mullins, Ben Butler, John Bredehoeft, Aaron Scott, Davide Tinto, and Cory Whalin.

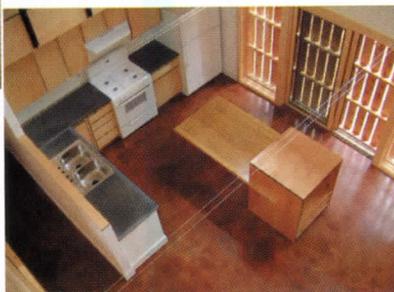
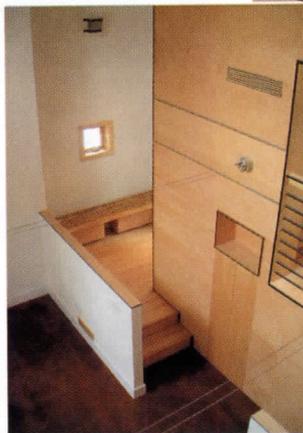
They worked well together. "We were ahead of schedule for a long time," Todd said. "But we had some rain delays, and finished right on time. I'm surprised how fast it went."

The late Sam Mockbee, the respected master of the low-cost design-build studio, was surprised, as well. He visited the program in the 2000–2001 school year and told the professors that he was amazed that a building could be completed in a single semester. According to Todd, the University of Arkansas's program is the only studio that completes an entire house in one semester.

Now that he has his degree, Todd has moved on to the working world, but he hasn't fallen far from the nest. Still working in Fayetteville, Todd joined a design-build studio that specializes in houses.

"Lots of people move into Fayetteville to subdivisions with huge houses for \$700,000 dollars that look just like the ones next to them," Todd said. "People come to our firm wanting that stuff, and we just tell them no, because it's against what we're trying to go for." *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 for more images of the University of Arkansas design-build house, and pictures of the team.



The double-height interior gives the house an open feeling, despite being smaller than a previous plan for the same program.

WORK

Fast Times at Architecture High

For the students who signed up for the first year of courses at Philadelphia's Charter High School for Architecture and Design (CHAD)—one of the few schools in the nation devoted to educating young designers—design wasn't on their minds so much as was getting out of the city's public school system. CHAD was one of eight public charter schools that the State of Pennsylvania approved in 1999. Since then, the school has gone from simply a decent place to spend school hours to a hub of creativity that makes some B.Arch. programs look downright remedial.

Straight out of eighth grade, students are directed into a drawing course taught by a medical illustrator. "Out of middle school, the vast majority haven't had formal art train-

ing," explains Cristina Alvarez, assistant principal for admissions. Freshmen also take a model-making course. Sophomores double their design-related courses to two periods a day. Juniors and seniors may add more design courses, increase their studio time, or take advantage of outside mentoring programs.

At CHAD, the course work and after-school activities—which include shadowing professionals and working with the city's celebrated Mural Arts Program—are supplemented by a sense of mission that permeates the school.

Educators and others involved with CHAD pursue their work at a level of excitement that's rare and infectious. David Macaulay, author of *The Way Things Work* book series,

spends two days a year with students and speaks highly of their "sense of professionalism." After only a few moments watching a CHAD student film at a meeting of arts educators at the Cooper-Hewitt, National Design Museum this July, Doreen Nelson, founder of the Center for City Building Education, was smitten. Recent visitors like Hani Rashid and Lise Ann Couture of Asymptote make return visits or pull students into projects and exhibitions.

Barbara Chandler Allen, the school's director of development and mentoring, has a simple explanation for CHAD students' enthusiasm: "We help them find their purpose in life." *Jason Clampet*

Read an extended version of this article at architecturalrecord.com/archrecord2.

On the Web, architecturalrecord2 presents an archive of exciting young designers. Go to architecturalrecord.com/archrecord2 to see their portfolios and to participate in an ongoing forum for emerging architects.

Power plays at Ground Zero: backroom schemes, laptop democracy, and a howl of protest

Critique

By Michael Sorkin

DEPARTMENTS

Admittedly, I went to the July 20 “Listening to the City” meeting at the Javits Center with visions of myself as that woman in the legendary Macintosh commercial, running through an auditorium of passive plebs to hurl her hammer at the monster screen on which Big Brother was proclaiming what a fine and orderly place the Orwellian world was. The setup seemed to confirm my worst fears for the event: 5,000 people arbitrarily assigned to 500 tables, watching speakers and images on giant video screens, each participant equipped with a remote-control keypad for “voting,” each table with a volunteer “facilitator” (ours a German from Toronto) and a laptop on which to communicate with a team of compilers who would determine opinion trends in the room.

No more reassuring was the parade of the usual white men—from the Port Authority, the Lower Manhattan Development Corporation (LMDC), the city government, and the Regional Plan Association—who extolled the importance of the process and presented the famous six schemes compiled by the LMDC and its consultants [RECORD, August 2002, page 23]. The working portion of the event was conducted by Carolyn Lukensmeyer, a professional facilitator—who, for me, combined the more annoying aspects of Oprah

and Kim Il Sung. Indeed, as the meeting wore on, I increasingly felt like a delegate to a 1950s Soviet Party Congress: the Central Committee has carefully selected this list of identical candidates for your consideration (in this case, the six schemes for street grid, office, shopping, hotel, memorial, and transit complexes of precisely the same areas): You may now vote. My own strained ability to participate in well-behaved Nielson-family fashion finally evaporated when Lukensmeyer (“give yourselves a nice round of applause”) embellished her script with a pep talk on how the meeting was democratic as all get-out because, “in democracy, the people have a chance to speak!” Seizing upon this right, I rose to my feet to shout, “Buuuullllshiiii! Democracy means the people have the power to choose!”

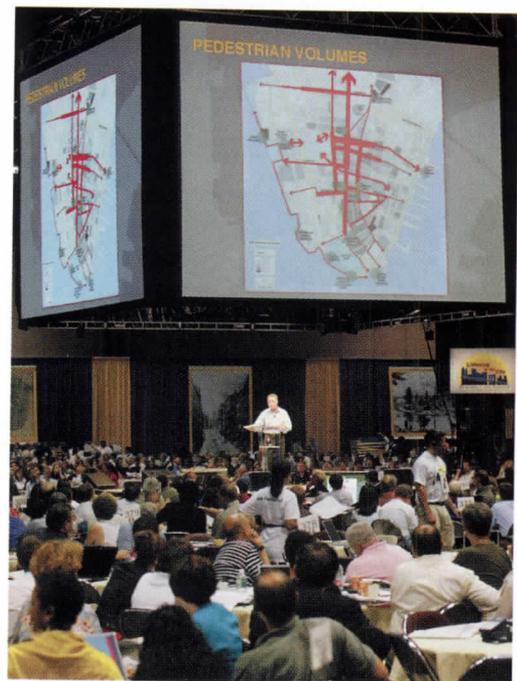
This tiny act of insurrection went almost completely unnoticed. Inaudible over the amplified pronouncements being broadcast from the central stage, invisible in the vast hall and crowd, my outburst attracted a smattering of applause from nearby tables and not the slightest notice from anyone else. Not the first time for me, but telling nonetheless. The charade of “electronic democracy” was burst by the asymmetries of power in that room, the careful control of both agenda and process from above. Like most planning, decision-making belongs to the powerful, reaction to the people. At the Javits Center, original ideas were excluded because they—naturally—lacked a constituency: All the opinions that we wrote on our

computer were vetted to see if enough people shared them to have them played back to the audience. Creativity was thus foreclosed by stifling the new or the unusual and by total control of what could be discussed. For example, there was not even the *mention* among the alleged “choices” of a scheme that would preserve the entire site as a memorial.

But something constructive nevertheless happened at the meeting and in its aftermath. This had nothing to do with changing the underlying institutional structures—the virtually unaccountable quasi-governmental agencies that are running the process—but rather in the clarity of the audience response to the uninspiring and profoundly mediocre goods on offer. Emerging from the self-congratulatory and coercive process was a genuine act of protest: the audience clearly exercised the one planning power that’s left in the hands of citizens, the power to say no. Given the opportunity to vote scheme-by-scheme, the crowd offered a pox on all houses.

Power had certainly anticipated this. Indeed, no sooner had Beyer Blinder Belle (BBB)—the firm chosen to produce the six “alternatives”—revealed the schemes during the week preceding the big meeting than a fusillade of gunfire

rained on them from every direction. Even John Whitehead, chairman and patriarch of the LMDC, mumbled with embarrassment about this being “only a beginning,” at the press conference at which his misshapen offspring were first presented. Likewise, the mayor (who has



In July, 5,000 people attended the “Listening to the City” event at the Javits Center.

recently called for the inclusion of housing on the site), the media (including Paul Goldberger, Ada Louise Huxtable, and Herbert Muschamp), and the person in the street responded with a raucous ho-hum. Even the governor (up for reelection in November and the man with the most power to influence events) came out for preserving the towers’ footprints and argued for a

Contributing editor Michael Sorkin is the coeditor with Sharon Zukin of the book *After the World Trade: Rethinking New York City*.

design that looks beyond the limits of the site. And in the post-Enron environment, there is a growing sense that the leaders of the development community may not be the most dedicated keepers of the commonweal and that their plan simply to restore business-as-usual intolerably ignores both ethical and civic values.

The dreadful work presented in this first round was not simply a product of failed democracy, the avarice of power, and of programming that grew primarily from the imperative to make money; the design process was also conceptually flawed. Democracy, after all, has only a tenuous relationship to great art, and a vote cannot create it, only sanction it. The real problem with this (nondemocratic) process is its acceptance of one of the cherished myths of modernity—that planning is essentially a rational, objective procedure. The LMDC has offered up a model of design by deduction, based on the idea that a “correct” solution can be derived by a hard-headed look at the facts and by progressive analyses of possibilities

the LMDC, is knowledgeable, dedicated, and skilled, he has no track record as a friend of the imagination. Ideologically, he is squarely in the Andres Duany/New Urbanist camp, and his vision appears hemmed by his traditionalist sensibility. Moreover, every architectural firm “officially” working on the site shares this proclivity. And they are remarkably supine: No one from any of the architectural firms or official bodies involved in the process has publicly spoken out for a change in the office building program, for a more far-reaching planning process, or for a competition. All are hopelessly behind the curve of public opinion.

Real decisions continue to be made behind the scenes, without formal accountability, despite the pretense. The same impropriety characterizes the LMDC’s design process and style of inclusion. BBB was allegedly chosen as the site designers through an “open” RFP and stand to make a huge fee (out of a total contract of \$3 million). But to call the RFP open is like saying that Trump Plaza is open to anyone

firm that would never have qualified via the official process) was hired by the LMDC to be its “in-house” design consultants. This particular choice was presumably based on long personal association with Garvin, deriving from shared traditionalist taste and collegial days at the Yale architecture school.

In the run-up to designating the six schemes for public presentation, the LMDC looked at nine plans from BBB and two from

theory, should only have qualified the plans produced by the architects “publicly” designated to do so.

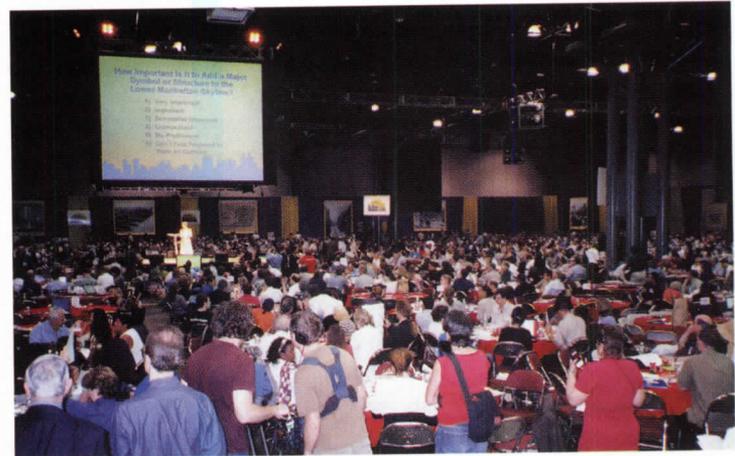
By the end of July, the LMDC—barraged with criticism from all sides and losing its political backing from the mayor and the governor—itsself came out in favor of opening the process to smaller firms and to offices from abroad. But there’s no real reason to be confident that even this opening will be based on more than crony-

THE AUDIENCE EXERCISED THE ONE PLANNING POWER LEFT IN THE HANDS OF CITIZENS: THE POWER TO SAY NO.

and constraints. This allows a false distinction to be made between planning (something on which all reasonable people should be able to agree) and architecture (the fickle realm of taste). By representing the six proposals as planning (this was not architecture, we were endlessly told, despite what we could plainly see were buildings, parks, streets, and squares), the LMDC covered its ass by acting as if the most fundamental issues of form, organization, and character were simply the outgrowth of logical thinking.

The mediocrity of the results so far is also attributable to the mindset of those designers to whom this project has been entrusted. Although Alex Garvin, the head of planning for

who wants to live there. The LMDC’s RFP—which attracted only 15 proposals—was carefully restricted (by a requirement that each firm had worked on at least three \$100 million projects) to ensure that only very large corporate offices would be eligible. At the same time the RFP was proceeding, however, three other firms were working away semiofficially without having gone through any public process at all, save favoritism. Skidmore, Owings & Merrill (SOM), Larry Silverstein’s architect, was producing plans for the site. Cooper, Robertson was master planning on behalf of Brookfield Properties, owners of the World Financial Center. And Peterson/Littenberg (a very small



Laptops, big screens, and facilitators: Democracy in action or Big Brother?

Peterson/Littenberg, as well as at the plans commissioned by Brookfield and Silverstein. The board members then voted to select two of the BBB plans, two from Peterson/Littenberg, and one each from Cooper, Robertson and SOM. This choice caused a number of people to go ballistic, among them John Beyer who—according to the *New York Post*—went to Joseph Seymour, head of the Port Authority, to grouse about the substitution of the two developer plans in lieu of similar schemes his office had done. He also complained that the firms responsible for the plans were not being properly credited. At this point, Seymour and Lou Tomson—director of the LMDC—agreed to replace the two developer plans with the BBB versions, a move which, in turn, caused a number of members of the LMDC task force to become enraged at the high-handed violation of “the process.” Arguably, though, the coup executed by Seymour and Tomson can be seen as restoring the process that, in

ism. Bromides about participation notwithstanding, it is clear that the architects with millions in public money to spend and with the sanction and public relations efforts of officialdom are working at an advantage. Other ideas simply cannot be heard.

Perhaps it is time for a little less management and a little more democracy. One possibility is to open the process to everyone with an idea. Let us immediately have not a competition, but an open call for ideas from around the world. Let us spend some money on a wonderful exhibition. Let us give the people some authentic choices instead of an elaborate scheme for pulling the wool over everyone’s eyes. Let us have the kind of real discussion that can only come from having real alternatives.

To that end, I invite anyone with a scheme to post it at the following Web site: www.not-ground-zero.org. ■

This fast-moving story changes daily. For up-to-date news, go to www.architecturalrecord.com.

How Ground Zero Planning Can Get Beyond Window-Dressing Democracy

Commentary

By James S. Russell, AIA

DEPARTMENTS

As the abundant tributes to those who fell in last September's terror attacks unfold this month, the eyes of the world will turn to Ground Zero for an expression of the nation's resilience and a portrayal of its deepest-held universal values in the plans to rebuild. They will see American values at work, but not the ones Americans are most proud of. They will see public agencies that have allowed the public to believe representations they had no intention of honoring and will hear officials that keep talking about what they can't do instead of seeking a compelling vision and finding a way to get it done. They will not see a process in place to achieve a result to match the gravity of the event.

What should have been an orderly, confidence-building process has degenerated into a sordid (but all too familiar) New York City political brawl.

The unraveling of the planning process could not have come at a worse time—in the midst of a corruption-inspired meltdown in the financial markets. The Port Authority's prediction that delay would damage recovery looked at press time to be a self-fulfilling prophecy—but not one that the Port seemed ready to take its share of the credit for. A *New York Times* report only days after the plans were unveiled described a continuing exodus of firms from Lower Manhattan. Companies expressed dismay with the rudderless redevelopment and the lack of progress on long-needed transportation improvements and other amenities that were supposed to be the focus of post-

September 11 planning. Even the New York Stock Exchange—the very keystone of downtown's financial-district preeminence—floated the idea of building a satellite trading floor outside the city.

No one should underestimate the difficulties that face Ground-Zero planners. Whatever is built must unite the concerns of an enormous variety of people who have both financial and emotional stakes in the place. But creating complex, large-scale projects with a high level of public participation is no longer rare worldwide—it has simply become something of a lost art in much of America and particularly in New York.

If officials truly learn from best practices worldwide (from which the items below are culled), they could build the Lower Manhattan the city and nation deserves, and they could forge a model for other cities to emulate.

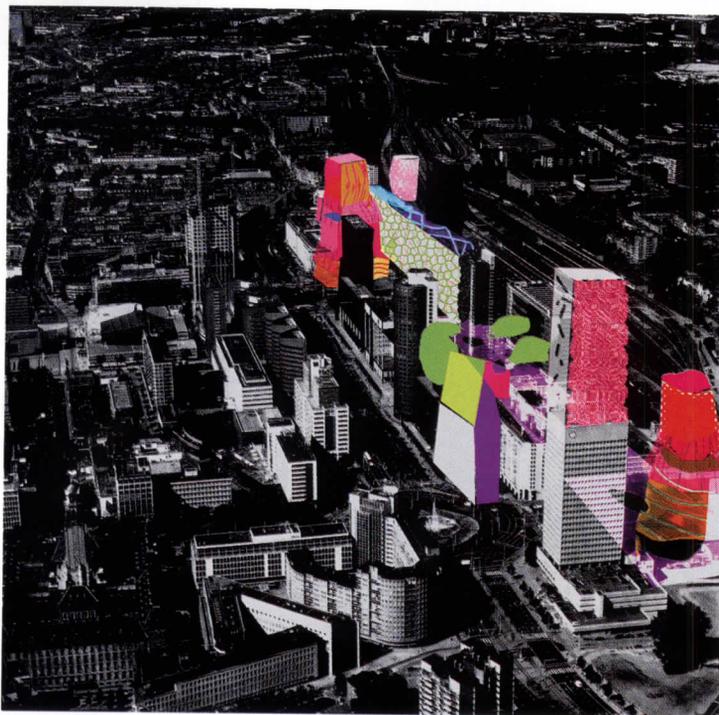
Work with information, not preconception

Planning 101 should have told Alex Garvin, head of planning for the Lower Manhattan Development Corporation (LMDC), and the Port Authority that you can't devise a development with enormous potential impact on the city without accurate information. As one observer has pointed out, "You are building for what might be 150 years!" Pushed to show progress by politicians and the press, LMDC and the Port tried to shortcut the data-collection process.

Unfortunately, neither the city nor the Port have planned strategi-

cally in the past and so had little data and no coordinated long-range plans to give the consultants as a starting point. The urban designers were forced to come up with their proposals with only the most basic understanding of the transportation possibilities or the district's urban-

Frankfurt might offer lessons to a district brutalized over decades by lowest-common-denominator developer boxes? Can anyone know what to plan without comparing Lower Manhattan's economic possibilities with those of other business centers—locally, nationally, globally?



A quick montage by Alsop Architects spurred public dialogue in Rotterdam.

development potential.

Lacking any vision of what Lower Manhattan could be, LMDC's urban designers, Beyer Blinder Bell, fell back on generic real estate formulas. How could anything inspiring—or appealing to tenants—come out of such massive, overbearing lumps? Did anyone look at whether architecturally and environmentally innovative buildings in London, Berlin, or

Don't solicit "input"—create dialogue

For all the lip service to openness, the LMDC has adopted an imperial "we know best" attitude about involving people with a stake in the outcome at Ground Zero. Cities that redevelop successfully recognize that people want their voices heard but also want to consider others' ideas and respect the proposals of

Commentary

designers and planners. (In the numerous public forums held after September 11, citizens voiced support for a number of ideas they had gleaned from the work of such expert volunteer consortia as New York New Visions.)

An “electronic town meeting” in July hastened the demise of the plans it reviewed, and has, therefore, been declared a success. It is, however, dubious as a model for public participation. It is one-way: “You, the people, tell us, the public servants, what you want.” It allows politicians to hide behind such “consensus”—“I’m only doing the peoples’ will”—rather than requiring them to exercise leadership or ask important questions. And, as Michael Sorkin notes (Critique, page 67), their output of boilerplate bullet points ends any dialogue based on ideas rather than starting one (see www.listeningtothecity.org).

Carefully structured dialogues on a smaller scale can engage specific interests (local businesses, the nearby Chinatown neighborhood). Consensus is important, but small workshops can “try on” a variety of ideas, even what may at first seem

unlikely ones. These other discussions, stirring in real data and expert analysis and involving a wider spectrum of people and users, may reconcile the concerns raised in the earlier groups. Many cities use charrettes or other kinds of hands-on workshops to turn talk into engagement [ARCHITECTURAL RECORD, “Form Follows Process,” March 2001, page 127].

Such interactive processes, when well run, usually identify key areas of agreement or consensus (even among interests nominally at odds), while highlighting the areas of greatest contention, which can then become the focus of planning and design effort.

Be a great client

Large, complex projects steeped in controversy—such as Frank Gehry’s Guggenheim Museum in Bilbao; the transformation of central Barcelona; the Jubilee Line in London; Sir Norman Foster’s Reichstag, in Berlin; I.M. Pei’s Louvre; and Richard Meier’s Getty—all owe their success to clients of vision and tenacity.

Great clients understand that

highly talented architects make more than pretty shapes. These clients don’t saddle their architects with the limitations they perceive at the very beginning (as the Port did in demanding the replacement of exactly the destroyed 11 million square feet), because they know that dedicated designers can often overcome limitations. Such clients are aware that a brilliant design can rally support, soften opposition, and open purse strings. They recognize how architecture can benefit a city, and they can articulate to skeptics—as well as to officials, taxpayers, and private interests who will be affected by the project or must fund it—both the owner’s vision and the designer’s approach.

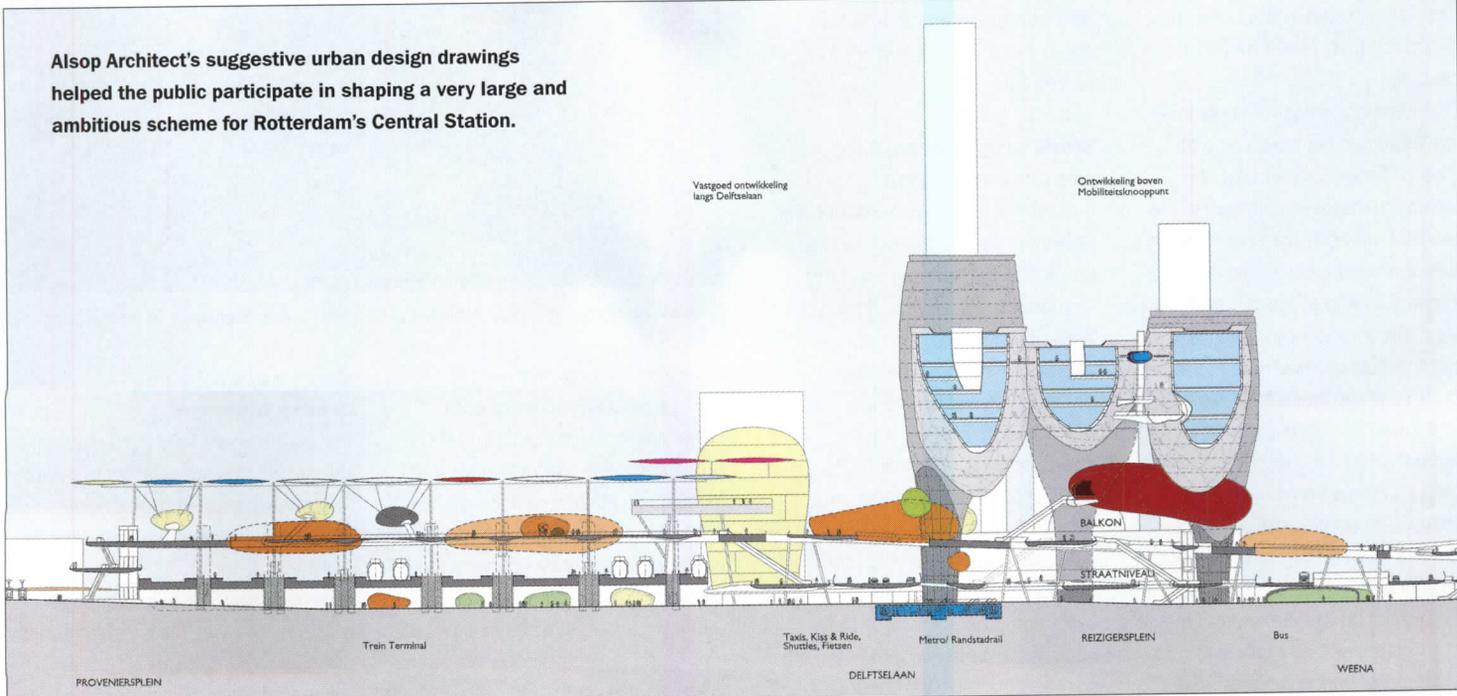
In Lower Manhattan, the “vision thing” can’t be shortcut. It must propose answers to obvious, critical questions: What kind of place should the neighborhood be in the 21st century? What would it take to keep it a world financial capital? Or should it become less of a “downtown” and more of a mixed commercial and residential neighborhood? Almost all of these questions have been asked by someone, but the LMDC has not found a way to make a compelling vision out of the answers. Its blueprint remains little more than a

laundry list of ideas. The LMDC has yet to compare these ideas, to prioritize them, to consider what choosing any one of them would mean, or to engage in a real dialogue about them.

Use design proactively

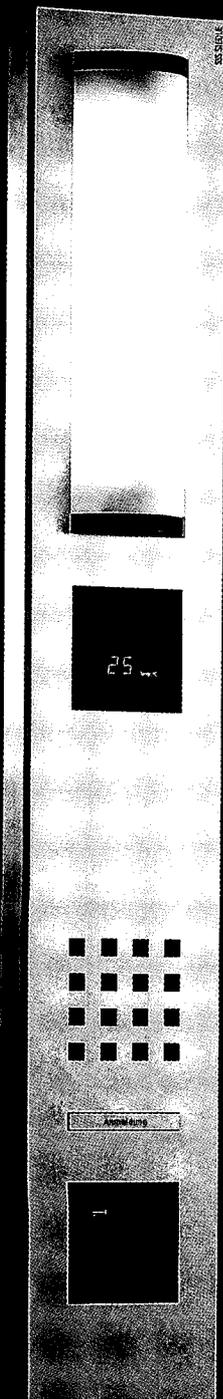
Projects of enormous urbanistic and engineering complexity seem to pop up every week or so in Europe and Asia, many featuring striking architecture. But what appears to be the product of a single hand is almost always the summation of a long process that exhaustively tests ideas. A site may be developed pursuant to a government-sponsored urban-planning scheme over which is layered a district urban design. Parcels may then be handed off to developers who build from competition-winning designs. Each iteration represents a testing and critique of the previous team’s work. The product of such a process may be a bland compromise or a spectacularly scintillating work of architecture, but everyone involved is assured a voice and everyone knows that numerous possibilities have been considered along the way. The design that looks like a singular, personal artistic vision may subtly incorporate numerous community-driven aspirations.

Also Architect’s suggestive urban design drawings helped the public participate in shaping a very large and ambitious scheme for Rotterdam’s Central Station.



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Commentary

Architecture can play a key role in such a "what if" process. Consider the mammoth replanning of Rotterdam's Central Station and the area around it. An elaborate consultation process involving citizens and business groups is typical in Holland. But throughout an 18-month planning process, Alsop Architects did not just poll the public's will, but guided a dialogue using what project director Stephen Pimbley calls a "sacrificial scheme"—a sketch design that embodied the architect's early best guesses. "It was intended to stimulate a conversation," says Pimbley. "We did not want people to feel it was finished. And they felt comfortable seeing their hopes and dreams in what we were drawing." The planning is about to enter a new stage, requiring architectural design of a large intermodal station. It will be a distinctive work, perhaps ultimately

competing with Ben van Berkel's Erasmus Bridge as symbol of the city. And it is going ahead with little of the acrimony that often accompanies such large-scale change. Playful blobs, an Alsop signature, suggest a future in a planning-stage report, rather than assert what it is. At the same time, drawings and diagrams clearly present the key elements necessary to proceed.

Critics have suggested LMDC hire one great designer or sponsor an international competition [RECORD, Editorial, May 2002, page 23]. Mark Robbins, director of design at the National Endowment for the Arts, who stepped down last month, offers a more nuanced view: "I think it's unrealistic to attempt the master stroke all at once." He favors competitions, but competing teams in NEA's New Public Works program also participate in intense conversations with clients and

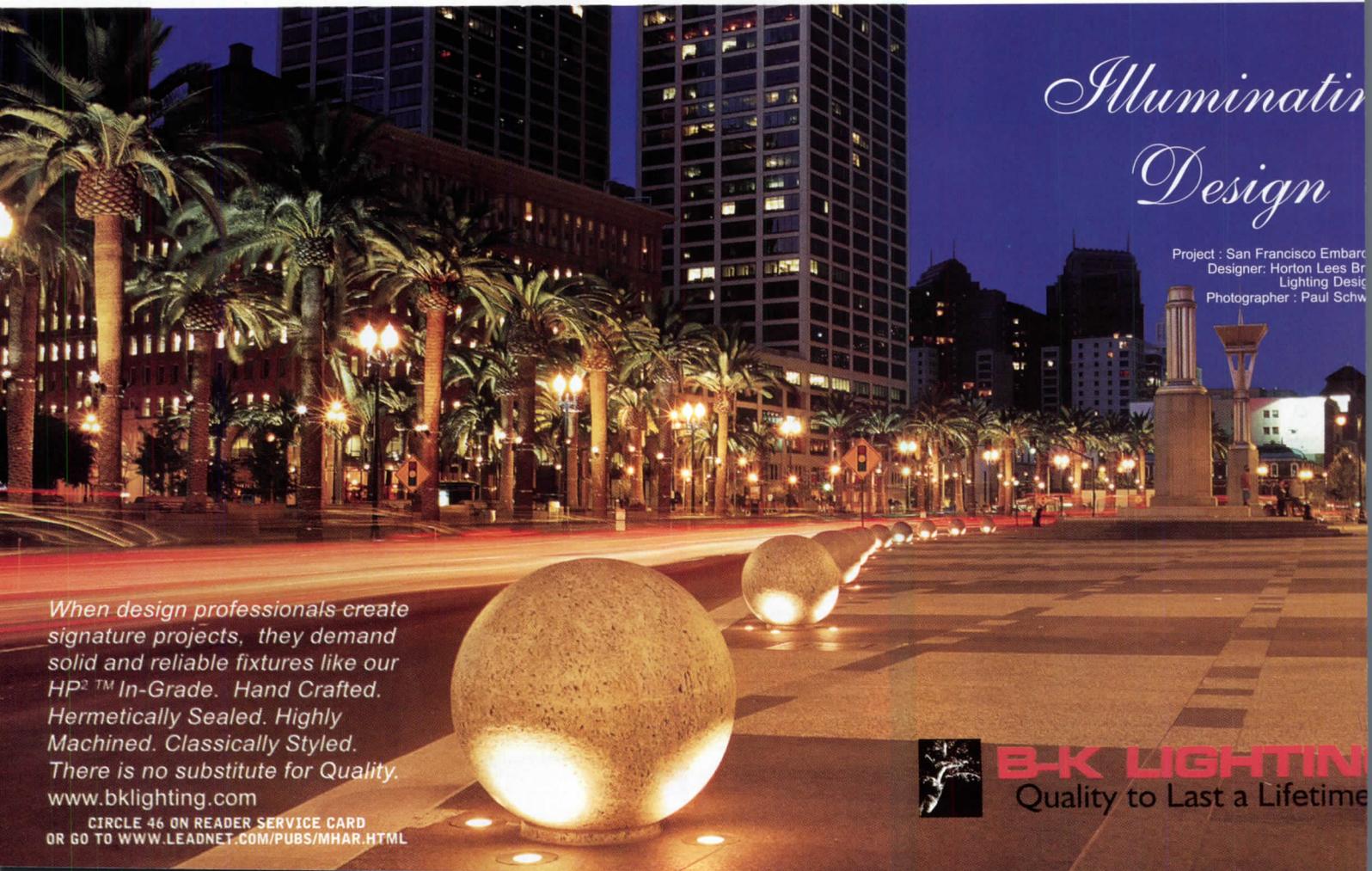
interest groups along the way.

It would be enormously difficult to structure a competition to produce a compelling, overarching strategy. A series of competitions, involving a variety of carefully considered scenarios, would test concepts around which consensus has developed—like restoring the streets severed by the Trade Center's construction. But they could also test little-discussed ideas, like whether a suitable commemoration could be developed out of the very fabric of the redevelopment, rather than as a stand-alone memorial, as politicking has so far dictated. "You want to generate proposals that fall between the fantasy scale of 'ideas' competitions, like the one Max Protech sponsored [RECORD, March 2002, page 59]," says Robbins, "and LMDC's very stolid approach, which does not further dialogue."

No process, however good on paper, can work if people don't trust officials to take it seriously. The trust the Port and LMDC have

squandered calls into question whether either agency is suited to manage so vast and complex a rebuilding. A proposal launched by city officials to arrange a land swap as a means to get the Port Authority out of the process was surprisingly well received, though such a swap will be complex and probably very expensive for the city. It's an enormous rebuke to a huge, once powerful agency that long ago ceded the regional leadership it was formed to promote. LMDC, which was created to lead the rebuilding, failed, too, and it does not deserve to continue in existence if it cannot quickly right its course, taking a leadership role with defined powers, a defined agenda, an independent mandate, and a clear commitment to serve the public. With businesses voting their lack of faith with their feet, it could not be more urgent to build trust now, and build it fast. ■

This fast-moving story changes daily. For up-to-date news, go to www.architecturalrecord.com.



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The Party's Over: Professional Liability Insurance Premiums are Increasing Dramatically

Practice Matters

By Roger C. Brady, AIA

DEPARTMENTS

Virtually every architectural firm has been getting discounted professional liability insurance rates for more than a decade. Now, the rate pendulum is swinging from low to high. If you haven't experienced your increase yet, you will soon. Several factors are contributing to the current cycle of premium increases.

Changing market conditions

The property and casualty (P&C) carriers in general—and professional liability (PL) carriers in particular—are returning to their senses and trying to become profitable by doing what insurers do: They want to collect more on premiums than they pay out on claims. In the go-go 1990s, carriers wanted to keep shareholders happy by gaining market share and increasing revenues. They charged firms less than cost to get their business and to keep it. Back then, they could count on strong performance from their investment portfolios to make up underwriting shortfalls.

In those days, carriers were willing to live with combined “ratios” (claims costs plus overhead) of up to 120 percent premium revenue and higher! But the party is over. Since midyear 2000, the Dow Jones Industrial Average has lost as much as 2,000 points and insurance carriers can no longer rely on windfalls from their investment income. They must return to prof-

itability, based on rigorous underwriting, immediately.

September 11 and reinsurers

The events of September 11, 2001, were not a major cause of the current PL premium increases, but they did not help matters any. Conservative estimates are that \$45 to \$75 billion will be paid to settle claims resulting from the events of that day. Both P&C carriers and their reinsurers have less capacity to underwrite than they did before.

Because of September 11 and other big losses, some reinsurers have fallen by the wayside. Those that remain are much more gun-shy about their potential risk, both real and imagined, related to buildings. And surplus capital—which is the basis upon which a carrier has the capacity to take on risk—has evaporated to some extent. The strongest and most reliable reinsurers, with solid assets, good liquidity, and surplus capital, are really in demand these days, and they are driving hard bargains with carriers. As the supply of reinsurers declines, prices to reinsure go up. Your insurance carrier adds these hidden costs onto your premium.

The effect of claims

Underwriters tell me that claims are up slightly. Unfortunately, the effect of the PL industry's heavy discounting of premiums for a decade is essentially the same as an increase in claims.

Claims are up in one area, and that is project insurance. This type of policy covers the entire

design team, with a dedicated limit, for a specific project. Insurers have seen a marked increase in claims. Again, the effect has been exacerbated by the low premiums charged in the past. The increase in claims has occurred because clients who took on extremely risky projects bought this guaranteed coverage and all too often used it.

Future claims may also go up

If history is an indicator, the construction boom that occurred through 2000 will result in an increase in claims within the next two to four years. Architects, engineers, construction managers, and contractors all had trouble finding good people. When stressed-out management, inexperienced staff, or fast-tracking come together, the likelihood that problems will occur is increased. If your firm hasn't yet been tripped up by a claim resulting from the craziness of the recent boom, it still may.

What it means to you

You will pay more, and as your firm recovers and grows, your PL premiums will go up, maybe a lot. For firms with fewer than five employees, your PL premiums will actually exceed those for your car insurance. Traditionally, many of the smallest firms “went bare,” with no coverage at all, but in the '90s, carriers decided these comprised a market that was ripe for development. Small-firm programs sprang up at the leading insurers and made money for them. But any claims against these small premiums upset

the risk-reward equations the carriers had predicted, and higher premiums will be the result.

In case your broker hasn't mentioned it, if you have a medium-to-large size firm, you can expect 20 to 30 percent increases in premiums. For firms that specialize in high-risk work, or have had a claim in recent years, good luck; increases of 50 percent are common. If your agent gets multiple quotes from first- and second-tier providers, there will likely be a “low bidder,” in spite of the hard market—although some carriers appear to be playing by different rules. Regardless of this, you should still make your decision based upon the quality of the insurance carriers and products available.

Another change is that you will get less. Previously, carriers would lock in either a premium or a firm's rate per \$1,000 in fees, for up to three years. In this marketplace, that kind of deal is only available to the smallest, lowest-risk firms.

The “first-dollar defense,” where the insurer pays what would normally be your deductible, is a thing of the past. It's too expensive to insure this risk, because on an actuarial basis it's almost a sure claim. The “shared deductible,” where the insurer might pay, say, either 80 percent of your deductible or your cost of defense, is endangered. Some carriers are moving away from this endorsement, though others think it is still okay. Project insurance is gone, going, or available only on less favorable terms.

Roger C. Brady, AIA, offers risk- and practice-management consulting services to design firms. Reach him at roger@onlinestrategicsolutions.com.

Practice Matters

Out of business

When the market gets tough, the Johnny-come-lately carriers drop out. In the 1990s, P&C carriers jumped into the PL game offering copycat policy language and lower prices. They will be the first to go. Yesterday's bargain will be tomorrow's nonrenewal notice. Guy

IF YOUR FIRM SHOWS IT IS COMMITTED TO A RISK-MANAGEMENT PROGRAM, ITS INSURANCE COSTS WILL BE DECREASED.

LeVan, director of national industry relations with DPIC Companies, in Monterey, California, says, "Select a carrier who has weathered the market over the long haul and stuck with the design community through thick and thin. There have already been carriers exiting today's market."

The remaining carriers are reducing their risk portfolios. They

will decide which firms to insure and how much they will charge based on the litigiousness of the state where the firm does business, its size and project types, and the number of claims it has had. A knowledgeable broker will know the particulars and each carrier's preferences. The name-brand carrier

ers will compete for business in all the same markets. But in order for them to become profitable again, they will likely drop the 10 to 30 percent of firms they perceive are the most problematic, risky, or costly to the carrier, or else charge them big premium increases. Alternative carriers, when presented with these "damaged goods" firms, may not like what

they see either. Everyone is pushing for better underwriting profitability, and recent claims history is a "key indicator" for any carrier, as is firm involvement in certain project types, especially condos and convention centers.

The bottom line is that the products offered by the better carriers will be in demand, with only a limited supply of excess capacity and reinsurance flexibility.

There are solutions

There are many proactive steps you can take that will help you gain control of risks and protect your profits from being consumed by premium increases. Here are some simple ones.

Managing principals must reconnect to PL issues. The office manager or accountant can do some work, but a principal's involvement is more important as a symbol of commitment toward PL issues in the eyes of a broker and carrier.

Relationships are key. Yours

with your broker is extremely important in getting and keeping coverage, and often your broker's relationship to your carrier is also key. Some carriers have exclusive relationships with brokers they trust. Other carriers are more open, but they are still less inclined to give a new or "non-expert" broker the time of day, much less a good quote.

Of course, your choice of carriers is important. Some have been there forever, and some of the newer ones say they are committed to the profession and intend to stay in business. Some carriers offer more risk-management services than others, better claims handling, and the policies they write may be better—the fine print really does matter.

Increase your deductibles. This is risky business, depending on your firm's ability to pay. If you can come up with more of the first-dollar defense and damage costs, you will reduce the carrier's risk and lower your premium. If

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## Practice Matters

you've been profitable and have some liquid assets—old accounts receivable don't count—you may in fact be able to increase your potential out-of-pocket expense for a claim by 50 to 100 percent. If not, get ready for an increase.

Decrease the limits of your coverage. The decision to do this

norm for the architecture and engineering professions seems to be a \$1 million limit, with more than 75 percent of firms at that level.

Save for a rainy day. When it is time to renew, you can count on your rates and premium going up by a minimum of 15 to 30 percent if your firm is "clean as a

### IN THE CURRENT INSURANCE ENVIRONMENT, YOU NEED TO PRACTICE WITH ALL ASPECTS OF RISK IN MIND.

must be discussed with your broker and your partners. To calculate the risks, you must consider who your clients are and what expectations they have; what kinds of projects your firm does, and their size; project delivery method; the value of your practice; and what your competition typically carries. The most difficult variable to adjust is what your carriers are willing to offer. The

whistle" and your fees have not increased. If your firm has some red marks for claims frequency or severity, claim reserves set aside of \$25,000 or higher, risky project types, dramatic growth in fees, or management or ownership changes, increases of 20 to 50 percent and higher are common.

Make PL a reimbursable expense. Consider charging your

client for increased coverage limits that exceed your basic policy coverage. For example, a client wants a \$2 million limit on a project, but your practice policy is only \$1 million. You can get increased coverage for that project for a discreet price. You can pass that cost onto your client. Be sure to address not only the first year, but also the next several years when a claim is more likely to occur.

Make risk management a top priority. Even upstanding firms with solid PL applications occasionally have claims. If your firm goes out of its way to document that it is committed to improving its risk-management techniques and can document its successes, this can only help with its insurance costs.

How do you convince your insurance company? Consider an AIA/ACEC organizational peer review. These are facilitated by the national components of each organization. A firm's willingness to go through the process says a lot about its commitment to loss pre-

vention. Some insurers offer a premium credit for this in-depth look at your firm. Alternatively, you can also employ

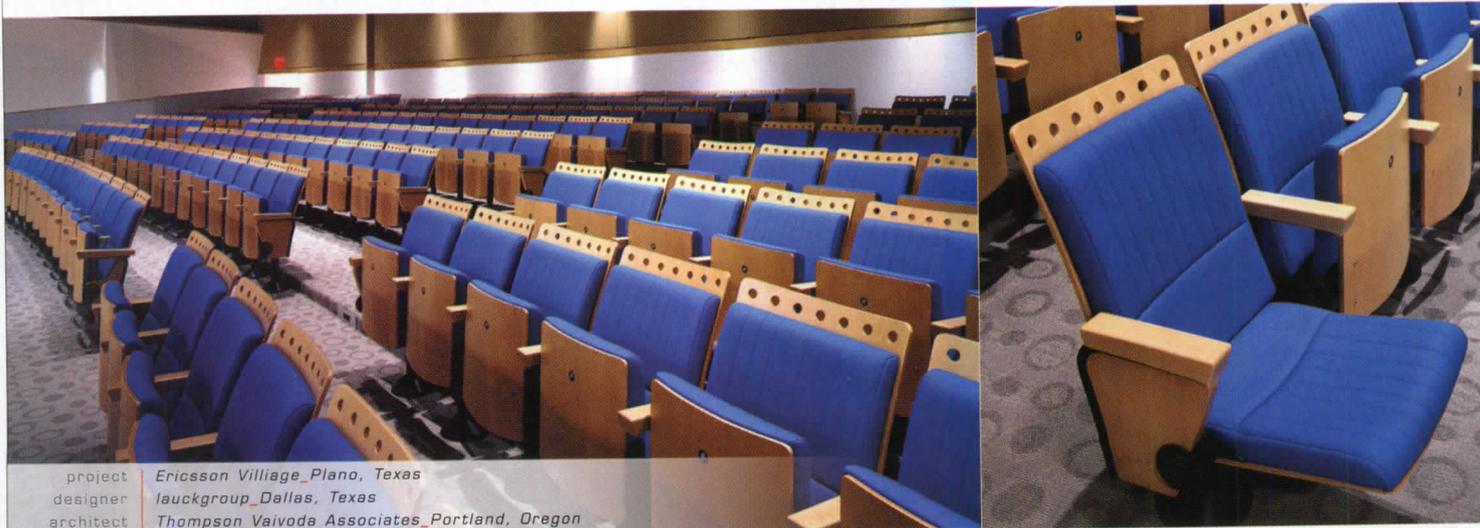
a consulting firm that focuses on risk-management issues, or do it yourself. The important thing is to dig below the surface of your operational structure and really take objective stock of your practice.

Regardless of how you identify your "blind spots," it will put your firm in a better light if you demonstrate you have implemented measures to improve the negative aspects of your risk profile before your policy is up for renewal. It's important to start early. Underwriters want to know you have done the right things—not that you intend to do them.

In the current insurance environment, you can't afford not to take these steps, but optimizing your PL insurance premiums shouldn't be the only goal you have in mind. Practicing with all aspects of risk in mind is just a good way to manage an office. ■

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# Is the pen mightier than the mouse? Helmut Jacoby's drawings make a strong case

## Exhibitions

By Clifford A. Pearson

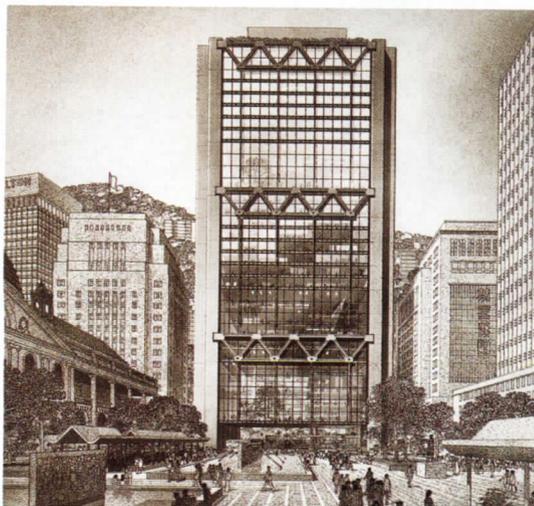
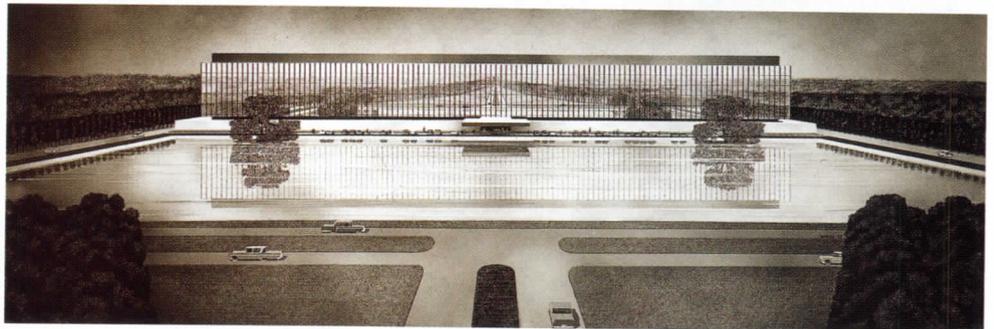
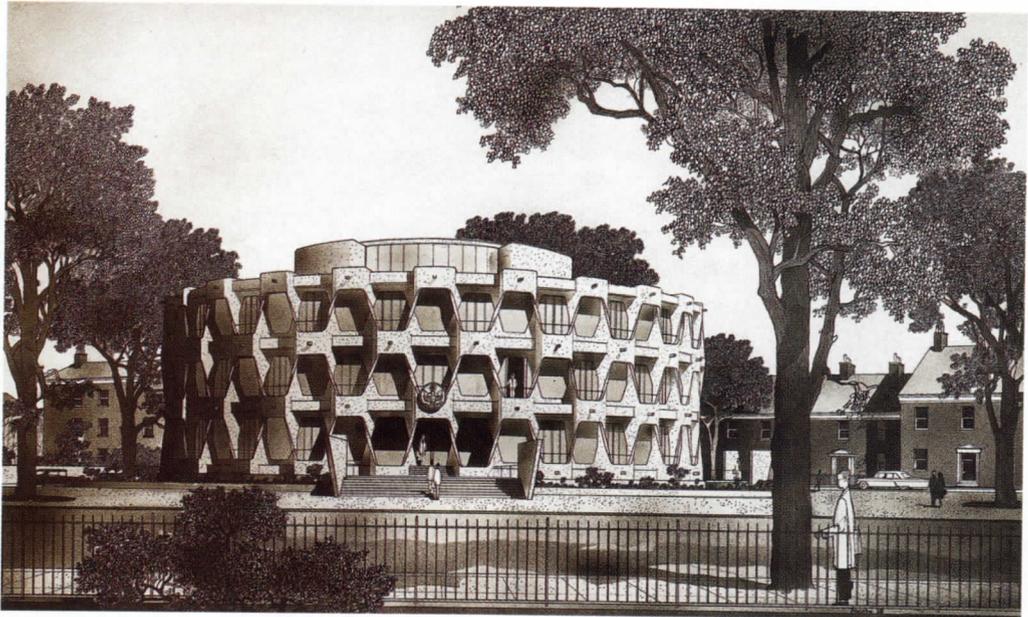
DEPARTMENTS

**Helmut Jacoby: Master of Architectural Drawing.** *The Art Institute of Chicago, August 31–October 27, 2002. Curated by John Zukowsky.*

Now that the computer has largely taken over the world of architectural rendering, putting together an exhibition of exquisite, handcrafted drawings might seem perverse. But, in fact, the timing of this show couldn't be better. We have seen the future and can now truly appreciate the past. Hand-inked, hand-colored drawings grab our attention as never before. Once common, now rare, they have assumed a deeper meaning, tinged with shades of nostalgia and the lure of a disappearing tradition.

In the 1960s and '70s, Helmut Jacoby was the king of architectural renderers, commissioned by the top architects in the world to turn their designs into memorable images. At architectural schools, students tried their damndest to draw like Jacoby. A native of Germany trained at Harvard's Graduate School of Design in the 1950s, when Walter Gropius was in charge, Jacoby soon focused on his talent for architectural perspectives and caught the eye of Philip Johnson.

While freelance renderers were rare in Europe at the time, Jacoby was kept busy by American architects such as Johnson, I.M. Pei, Eero Saarinen, Paul Rudolph, Kevin Roche, and Skidmore, Owings & Merrill, who valued his drawings as important elements of their competition entries, as presentation documents, and as study tools.



Jacoby captured the swagger of postwar Modernism in drawings of John Johansen's U.S. Embassy in Dublin (top) and Eero Saarinen's Bell Labs in Molmdel,

N.J. (above). In 1985, he created the rendering of Norman Foster's competition-winning entry for the Hong Kong and Shanghai Bank Headquarters (left).

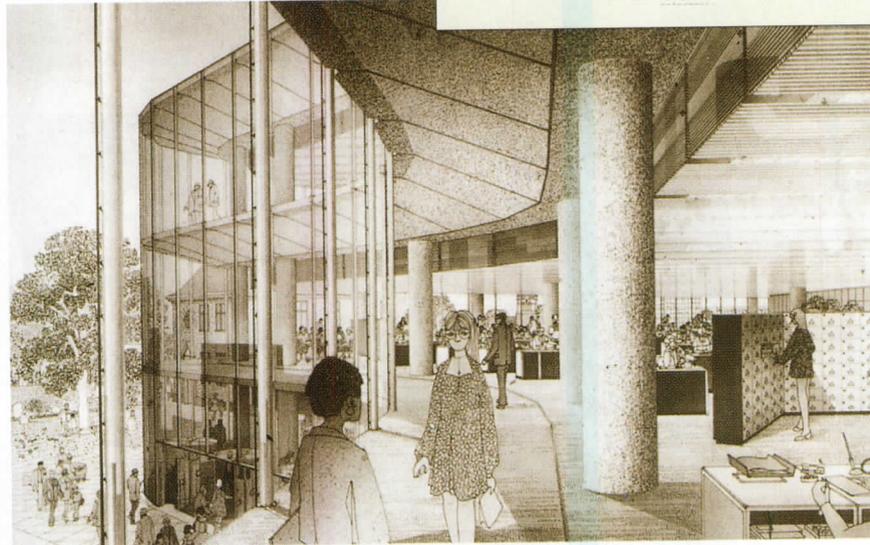
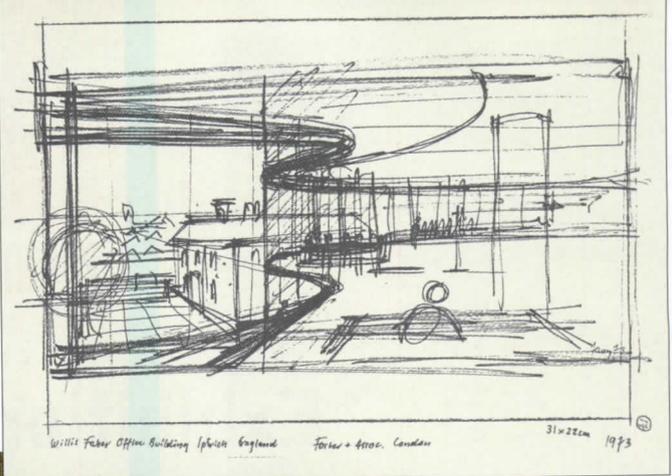
## Exhibitions

Using ink lines and ink spray, he would add shadows and tones just where they were needed. His precision and ability to capture architectural detail helped communicate his clients' intentions to professionals and laypeople alike.

In 1968, Jacoby returned to Germany and began attracting an international clientele that included Norman Foster, Günter Behnisch, and Ove Arup. He remains active today, drawing and lecturing.

The exhibition presents more than 100 original drawings, ranging from a crisp street view of Johnson's extension of the Museum of Modern Art in New York (1956) to evocative sketches of a transit station in Stuttgart by Ingenhoven, Overdieck & Partner (1998). In addition to their remarkable level of detail, Jacoby's drawings impress us with their unfailing ability to place buildings in their physical and human contexts. ■

A sketch of Foster's Willis Faber Building in Ipswich, England, (right) and a final rendering of the project (below) show Jacoby's drawing process.



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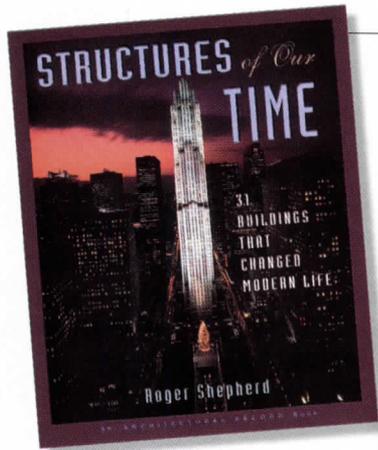
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# Architecture's greatest hits— from Kahn to Greg Lynn, from Bangladesh to Wyoming

## Books



**Structures of Our Time: 31 Buildings that Changed Modern Life**, by Roger Shepherd. New York: McGraw-Hill (an Architectural Record Book), 2002, 244 pages, \$45.

Building a book around the winners of a particular awards program is rarely a good idea. The result is almost always formulaic, repetitive: And the next winner is ... Yawn.

*Structures of Our Time* is a delightful exception. Ostensibly a collection of the 31 winners of the American Institute of Architects' annual 25 Year Award, the book is really a quirky, episodic look at Modern architecture from 1930 to 1970 (the period from which the featured buildings date). The person doing the looking is Roger Shepherd, who teaches at the Parsons School of Design in New York City and designed ARCHITECTURAL RECORD's Web site.

As Shepherd admits in his introduction, "The spaces between 31 buildings as disparate as these are vast indeed." Shepherd fills these gaps with a fascinating array of sidebars on, for instance, Le Corbusier's famous book *Vers Une Architecture*, Lewis Mumford's writings, iconic films such as *Metropolis* and *Things to Come*, women at the Cranbrook Academy, and projects like the Pan Am Building that haven't won any awards lately. He shows us film stills, magazine covers, cartoons, sketches, and museum catalogues, in addition to the expected photographs of buildings.

Shepherd, who designed the

book himself, presents several layers of information on nearly every page: a running text, a vertical sidebar, and photo captions. The feel of the book is packed, sometimes a bit crowded. But it's lots of fun to skip from the story of Kahn's Yale University Art Gallery to an aside on Bucky Fuller's use of geometry, or to detour from Eero Saarinen's Dulles Airport to Alvar Aalto's Finnish Pavilion at the 1939 World's Fair. Occasionally, these side trips seem a little forced or arbitrary (gotta mention Adolph Loos and CIAM), but they show an impressive level of research (quotes from Wright on Mies facing ones from Mies on Wright, or a photo of Michelangelo's stair to the Medici Library in Florence above one of Kahn's stair at the Philips Exeter Academy Library in New Hampshire).

The cumulative effect of all this material is to wipe away any institutional flavor to the presentation of 31 award winners. Shepherd wisely steered clear of the awards program's structure (one year's winner followed by the next year's) and organized the buildings into eight

themes: Rockefeller Center and Clarence Stein's Baldwin Hills Village, for example, fit into a chapter on "The Garden in the City"; and Belluschi's Equitable Savings and Loan, Mies's 860-880 Lake Shore Drive, Bunshaft's Lever House, and Mies's Seagram Building share a section called "A Sense of Proportion." What could have been simply a "greatest hits" collection of buildings has been cleverly shaped into one man's view of modern architecture and the culture that surrounds it. *Clifford A. Pearson*

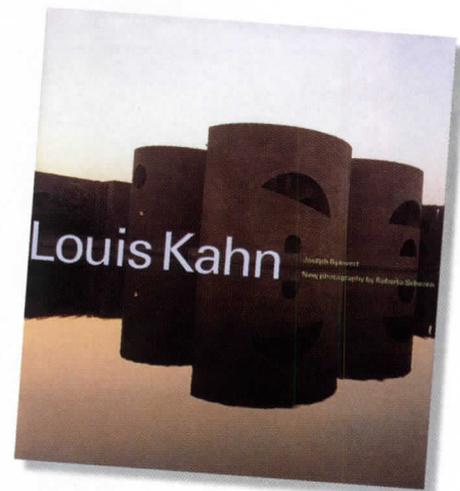
**Louis Kahn**, by Joseph Rykwert, photographs by Roberto Schezen. New York: Abrams, 2001, 217 pages, \$75.

Imagine a Muslim nation today asking a Jew to design a great public building. That happened in 1962 when Bangladesh, soon to break away from Pakistan, selected Louis Kahn as architect of its capitol in Dhaka. The 16-sided building wasn't finished until 1983, when the young nation posthumously honored the Philadelphia architect.

Kahn was known as many things: the ruffled mystic who rambled about light, space, and stone; the teacher who inspired a generation; and the perfectionist professional whose first important building, the Yale University Art Gallery, wasn't completed until 1953, when he was 52. Kahn was also known for two then-radical and practical notions. One was that any building must be rooted in its "materiality," writes Joseph Rykwert in this

book about the architect; the other was that a building must concern itself with the "anatomy of society," and therefore with its institutions. Indeed, Kahn's most important works were public buildings—synagogues, churches, educational buildings, and museums—many for his home city of Philadelphia.

Other scholars have accepted the premise put forth by Vincent Scully in 1962, in the first book written about Kahn, that Kahn found his way only after discovering Roman



ruins during a stay at the American Academy in Rome in the early '50s. But Rykwert places Kahn more squarely within a forward-looking modern tradition. In Kahn's view, Rykwert writes, Le Corbusier was the one figure who seemed to tower over Kahn's own time, and he would constantly ask himself, Ed Kochlike, " 'How am I doin', Corbusier?' " Not that Rykwert denies Kahn's attachment to the past.

A major biography of Louis Kahn has yet to be written.

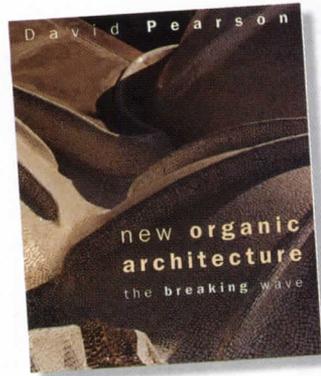
## Books

Rykwert's analysis, published to coincide with the 100th anniversary of Kahn's birth, is, at best, an introduction to Kahn and his work. The quality of the photography is nothing to write home about, but Rykwert's concise text hits the high points of Kahn's career and puts a new spin on his contribution.

Andrea Oppenheimer Dean

**New Organic Architecture: The Breaking Wave**, by David Pearson. Berkeley: University of California Press, 2001, 224 pages, \$35.

I have a soft spot for off-beat, expressive architecture whose design is attuned to nature and made of natural materials. It's often called organic architecture. Among its adherents are Frank Lloyd Wright, Bruce Goff, Bart Prince, Herb Green, and the Finnish architect Reima Pietila. And before them came Louis



Sullivan, Antoni Gaudí, and the Austrian Rudolf Steiner.

It is to David Pearson's credit that he recognizes organic architecture as "not a unified movement but ... diverse, perverse, contradictory, and mercurial." But like many others, he endows it with touchy-feely, spiritual meaning and claims for its roots "in a passion for life, nature, and natural forms," as though other forms of expression are less firmly anchored in a love of life and nature. He says that in a well-designed

organic building, we feel better and freer, implying that the same can't be said for all beautifully designed buildings. In conclusion, he makes the highly doubtful proclamation that organic architecture is becoming less a fringe style than a mainstream design trend. But Pearson has delivered a visually lovely book. It briefly reviews the roots of organic architecture and the work of architects from 15 countries, each of whom writes a few words about his or her own work. AOD

**All American: Innovation in American Architecture**, by Brian Carter and Annette LeCuyer. New York: Thames & Hudson (distributed by W.W. Norton), 2002, 256 pages, \$40 hardcover.

About the time Henry Ford automated the assembly line, American architecture hitched its star to industrialization and U.S. Modernism was launched. In simplified form, that's how British authors Brian Carter and Annette LeCuyer see it.

And in the recently revived symbiosis between architecture and industry—this time in the form of digital technology—they see redemption for contemporary architecture, which they characterize as "commodified," homogenized, anonymous, overly specialized, conservative, and risk-averse. Digital technology, the authors believe, is "rekindling an optimism and interest in innovation." It is allowing small practitioners to work with increasing sophistication and efficiency at large scale; it is eliminating the separation of design and fabrication; and, by allowing mass customization, it is renewing interest in craft.

The book presents the work of 20 architects who, rather than relying on ready-made, generic catalogue components, are incorporating industrial and commercial innovations to develop new building forms, materials, and production processes, while pushing traditional construction methods to new limits. Among the 20 are Greg Lynn, Diller & Scofidio, Kennedy & Violich, Charles Rose

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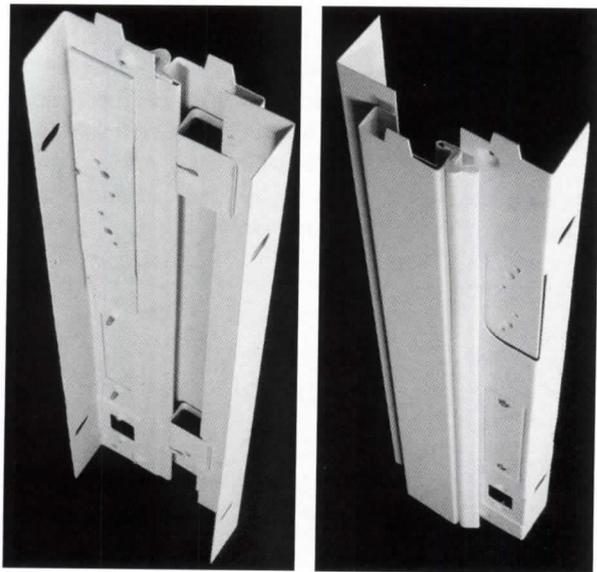
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## Books

(formerly of Thompson and Rose), Leslie Gill, SHoP/Sharples Holden Pasquarelli, and Kuth/Ranieri. The architects are organized loosely by region—an arbitrary framework, since the authors don't discuss regional differences, and one that fails to sort or highlight emerging design inventions and directions and their variations. The book's design reinforces the somewhat arbitrary organization: Pages are tightly packed with beautiful photographs and undifferentiated text with small type. It gives the volume the feel of a picture book, albeit a handsome and useful one. *AOD*

**The Look of Architecture**, by Witold Rybczynski, *New York: The New York Public Library/Oxford University Press: 2002, 20 pages, \$18 (hardcover), \$10 (paper).*

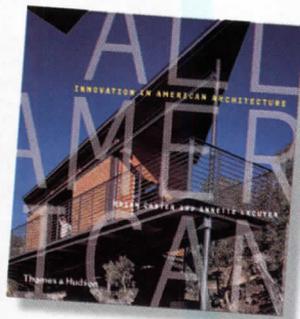
Like Franklin Roosevelt's fireside chats during the 1930s, the tone of

this small volume is casual and descriptive. It affects a genial familiarity and touches the surface of many things, while only occasionally straying into weightier subject matter. Rybczynski guides the reader on a meandering journey through the advent and what he deems the collapse of Modernism. Along the way, he strolls past buildings that range from Furness's library for the University of Pennsylvania and Mies's Tugendhat House in Czechoslovakia to the Vanna Venturi House in Philadelphia and the Guggenheim in Bilbao, with a substantial detour past New York's Bryant Park.

But, like presidential fireside chats, Rybczynski's parochial tone serves to front a political agenda. It favors the traditional and conservative, the marbled rather than the Modernist.

Although the book focuses on the question of style in architecture,

it is unclear about what constitutes a style. The author accepts style as the antithesis to fleeting fashion and agrees with Chanel's well-worn dictum that fashion passes, style remains. He cites J.F. Blondel's statement that style in the organization of facades and in the decoration of rooms is the poetry of architecture.



True enough, architecture cannot escape being labeled fashionable or stylish, and Rybczynski is justified in castigating architects for their reluctance to acknowledge the significance of style. But to argue that the seasonal creations of sartorial fashion exert a substantial influence on contemporary building construction

seems curious indeed. Architects have their own history to plunder, as is amply demonstrated by many of the Postmodernist houses discussed in the book. They do not need to turn to fashions in wallpaper, tapestry, or garments for quotation.

Despite its stated objective, Rybczynski's thesis does not actually challenge the historiography of changing appearance in architecture. It merely describes the changes and equates Modernist buildings with fashionable ones. The International Style is consistently equated with passing trends, reinforcing the traditional public preference for narratives and decoration in architecture and its related critique of abstraction.

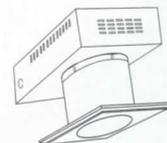
The populist tone of a fireside chat has its place when addressing cultural issues. However, the discussion has to leave the cozy confines of the den and engage with the social and political ramifications of constant change in modernity if it wants to investigate how we should view the "look" of architecture and its underpinnings. *Ulrich Lehmann*

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# Snapshot



By Ingrid Whitehead

## Modern hovers within medieval in historic Ghent

Where can you go when you're craving *gentse stoverij*? If you're in Ghent, in Belgium's province of East Flanders, you can find the Flemish beef stew, made with beer, at the Groot Vleeshuis, or Great Meat Hall—home of the Center for the Promotion of Products from East Flanders—designed by the firm Coussee & Goris Architects. Partners Klaas Goris and Ralf Coussee have created a place where dishes and products typical of the region can be tasted and purchased, in a contemporary structure as different from its medieval site as *waterzooi van riviervis* (made with fish) is from *waterzooi van kip* (made with a chicken base). Yet, like the two Flemish dishes, the modern structure and its ancient site both fit perfectly into the urban fabric of Ghent.

According to Goris, a contemporary design like that of the Vleeshuis would not have been built in Ghent some years ago. "The city has undergone a real change," he says. "In the past decade, Ghent has become a prototype for cultural investigation in Belgium." Goris points to the flamboyant Jan Hoet, curator of the new Museum of Contemporary





The Groot Vleeshuis often serves as a starting point for guided tours of the city, inspired by the architectural dialogue between the new galvanized steel and glass volume and the medieval hall with its impressive wooden roof beams. The shop, which is accessed by an entrance lobby, consists of a long glass counter that displays products (left). A wide catwalk in galvanized steel (below) that leads to the new structure spans the old building like a bridge and accentuates the length of the hall.

Art (SMAK), as one of the leaders of the effort to innovate. When Hoet sponsored a competition for a cultural forum building in Ghent's historic center, it yielded a shortlist of designs from such international luminaries as Rem Koolhaas, Toyo Ito, Claus & Kaan, and Samyn and Partners.

The new Groot Vleeshuis is a classic example of a contemporary structure giving new life to an ancient site while respecting the original. The site, a 15th-century *vleeshuis*, was an indoor meat market during the Middle Ages, evidenced by the massive wooden beams once used for hanging meat.

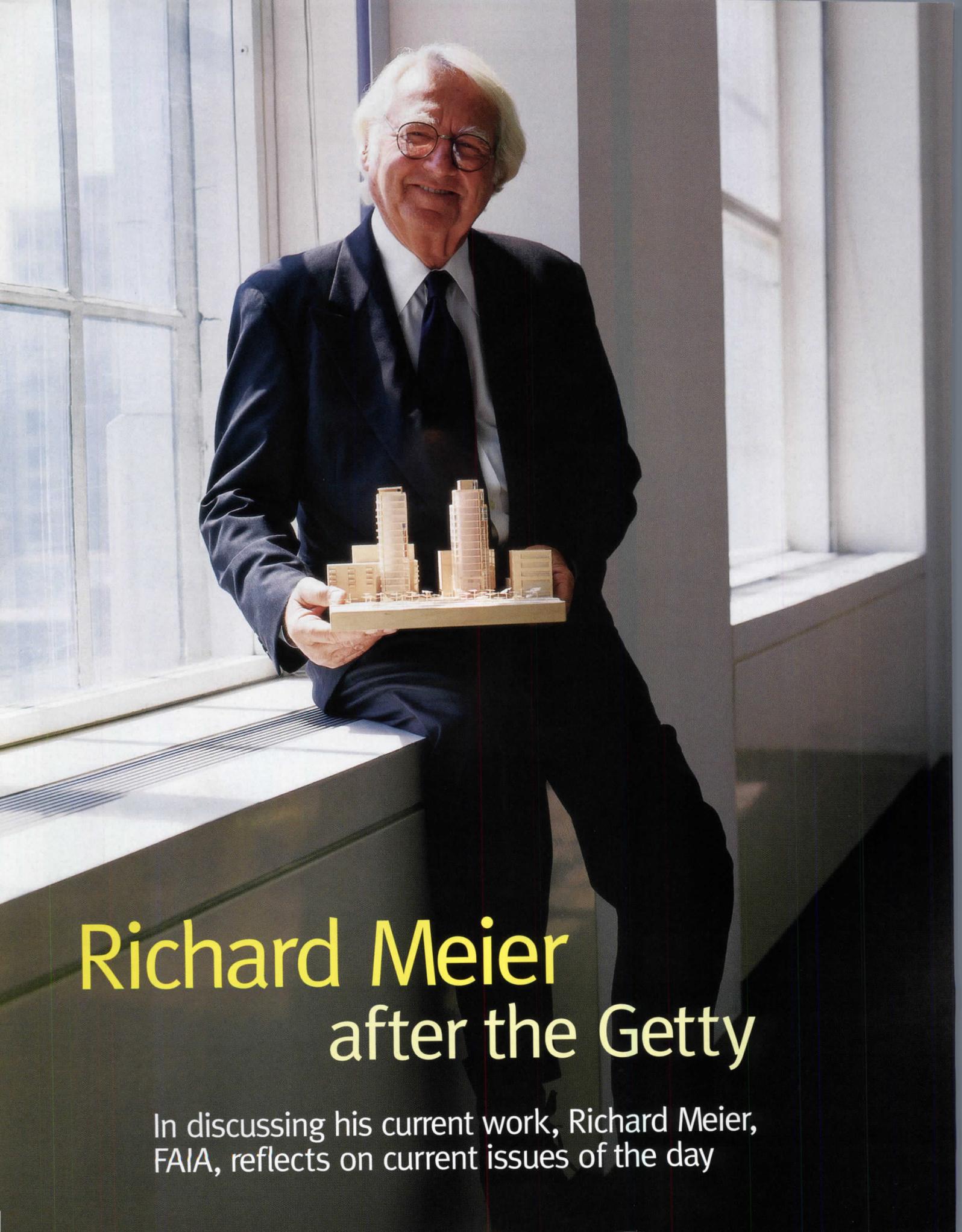
The new pavilion comprises several zones: a shop and bar, a service zone with a kitchen, a storeroom, a small office, and a tasting area with tables and chairs to accommodate 70 people. The structure has a steel frame and floors of oak plank. Spotlights illuminate the historic walls outside the boxlike enclosure.

To avoid disturbing archaeological remains in the soil, the new pavilion's foundations are two steel girders that go no deeper than 50 cm. The structure appears to hover above the original floor.

Locals and tourists alike use the center as a place to enjoy two of Belgium's pastimes that remain as heralded today as they did in medieval times: eating and drinking. ■







# Richard Meier after the Getty

In discussing his current work, Richard Meier, FAIA, reflects on current issues of the day

Interviewed by Robert Ivy, FAIA

**I**t's been five years since the opening of the Getty Center—the Big Kahuna of Richard Meier's career [ARCHITECTURAL RECORD, November 1997, page 78]. Since the Getty was completed, the eminent architect has found himself working on a number of smaller projects, while still keeping offices in New York and Los Angeles. On the eve of his 40th year with his own practice, ARCHITECTURAL RECORD visited Meier to discuss his current work and his thoughts on a number of topics, such as the difference between European and American architecture, the importance of technical innovations, the influence of the computer on design, and the planning for the World Trade Center site. As is well known, after he got his B.Arch. from Cornell in 1957 Meier's career began with houses. He worked for Davis Brody Wisniewski, then Skidmore, Owings & Merrill, and finally, Marcel Breuer before opening his own office. His designs for houses immediately brought him renown, and he became known for his mastery of scale, detail, and simplicity. During his career, Meier has never wavered from his commitment to the Modernist vocabulary, nor suc-

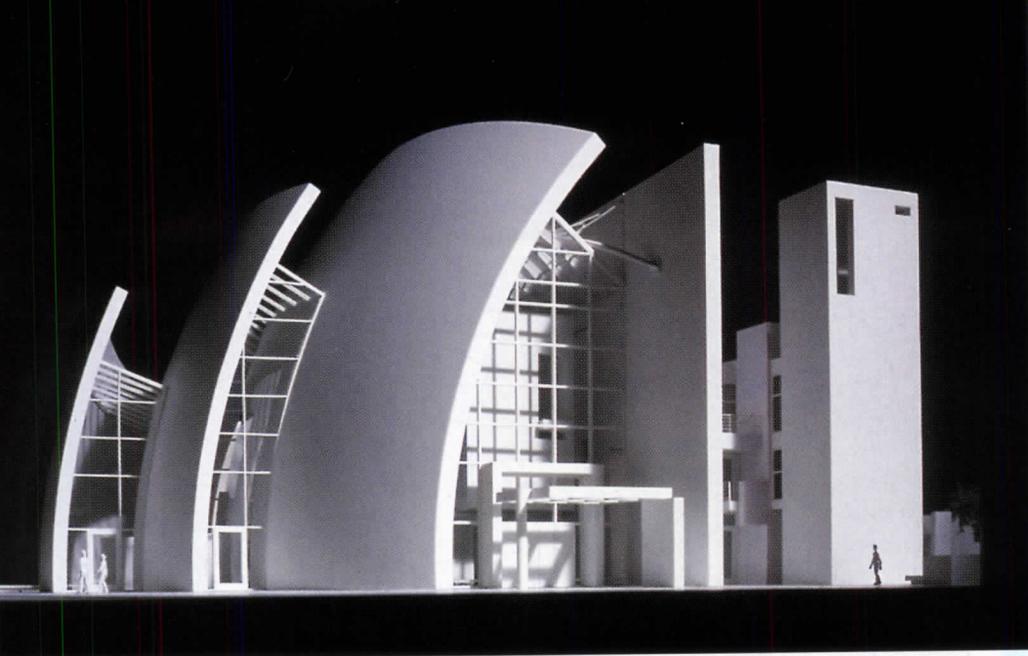
cumbed to the vicissitudes of fashion. Instead, he has been able to accomplish a difficult thing for an "established" architect with an expanding practice: maintain rigorously high standards of design.

**ARCHITECTURAL RECORD:** Your career took off with the Smith House in New Canaan, Connecticut, in 1965, which was followed by other residential projects, museums, schools, office buildings, and town halls, until finally the Getty Center, finished in late 1997. Where do you go after the "commission of the century"?

**RICHARD MEIER:** Ironically, right now we're doing a number of small-scale projects. At the time we were working on the Getty, I was doing many other things. I would spend two weeks a month at the Getty and then two weeks working on other projects. When the Getty was completed after 18 years, other work was finished, as well, such as Siemens in Munich (1986). And shortly after the Getty, the federal courthouses in Islip, New York, and Phoenix opened. More recently, we finished the Rickmers Headquarters in Hamburg, Germany, and the Canon

The 173/176 Perry Street Condominium Towers in New York City, shown in a photomontage, is nearing completion.





**Jubilee Church, in the Tor Tre Teste area of Rome (left), is under construction; completion is expected in 2004.**

Headquarters in Tokyo.

Yet I hadn't thought the Getty would leave as much of a void as in fact it has. The current economic and political situation has slowed things down. Universities seem to be our most active source of work right now; for example, we are designing the new building for the History of Art department and Arts Library at Yale, and a Life

Science Technology Building at Cornell University. But the private sector has pulled back the greatest amount in terms of their planning for the future.

**AR:** Which small-scale projects are of particular interest to you?

**RM:** We're doing a small, private art museum in Baden-Baden for Frieder Burda—an entrepreneur who has an extraordinary collection of contemporary art. The project, which is in a city park next to the Kunsthalle, is like a big house. Burda is giving the building and the collection to the city. We're also doing the Peek & Cloppenburg Department Store in Mannheim, Germany, and a bridge in Alessandria, in northern Italy, which did have some problems but is going ahead. In the United States, our L.A. office is adding onto Philip Johnson's Crystal Cathedral in Orange Grove, California, with a Hospitality and Visitors Center. And we are designing some houses—one in Katonah, New York, the other in Santa Barbara, California.

**AR:** Yet you still design houses. Why? Often architectural offices of a certain size don't want to be bothered.

**RM:** I enjoy houses—that's why I got involved advising Coco Brown on selecting architects for his Sagaponack development on Long Island. A house goes quickly compared to a public building. And you can do different things with houses, such as explore energy conservation by making use of location, climate, orientation to the site. We've explored the use of glass louvers on the Katonah house to cut down glare.

**AR:** And, of course, there is the Jubilee Church in Rome, which is not so simple. This series of curved shells has a more plastic expression than much of your previous work. Is this fluidity a design direction on your part?

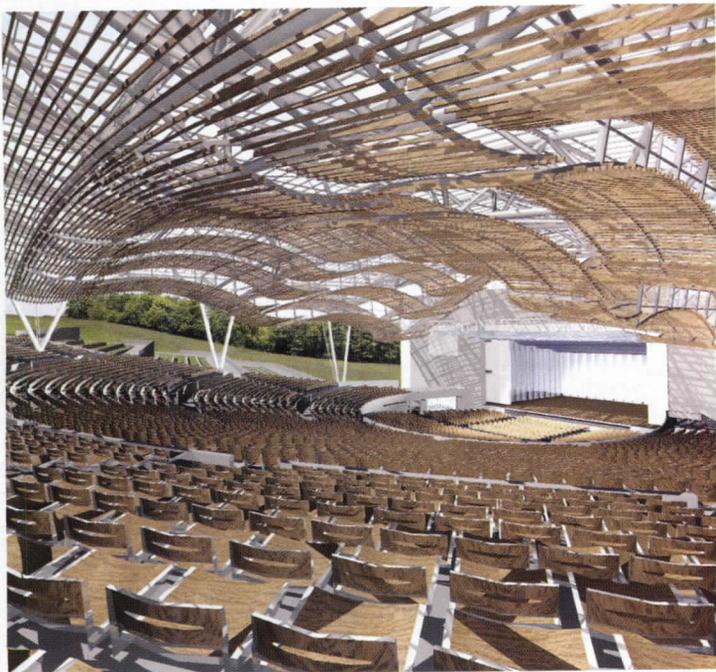
**RM:** This church really demanded a different attitude and a different approach. The sanctuary space is composed of three sections of a sphere, which enclose the day chapel, the baptistry, and the atrium, with natural light coming in from above. These curved walls are cantilevered vertically from the ground, with glass all around and between them. Rather than being poured-in-place concrete, they are precast, since it was easier to control the form of the sphere and give the sections the same smooth, white surface inside and out. By the way, we're using the concrete originally developed by Nervi, when he designed the Palazzo and Palazzetto dello Sport stadiums in Rome in the late 1950s.

In the church, each segment of the sphere weighs about 8 tons. The segments were shipped to the site, where a crane moved along a track and installed the pieces, which were then posttensioned. No one's ever erected anything of this scale in terms of a precast assembly system. And I must say, we have extraordinary structural engineers, Italcementi, who

**The Cittadella Bridge, Alessandria, Italy, awaits approvals for a go-ahead.**



**The Bethel Performing Arts Center was designed in 2001 for Bethel, New York.**



# Everest takes style to new heights.



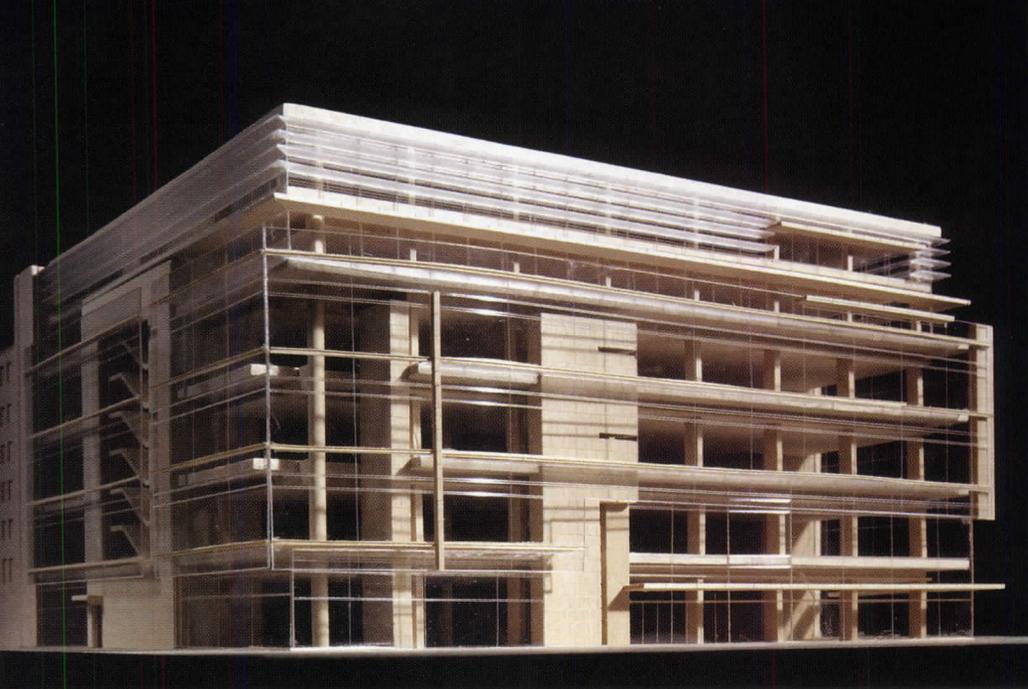
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The Peek & Cloppenburg Department Store, in Mannheim, Germany (above), to open in 2004, features a three-story-high glass enclosure cantilevered from the main structure.



The Rickmers Reederei Headquarters, in Hamburg, Germany (right), has just been completed. Notable is an elegantly glazed screenlike wall.

The Burda Collection Museum, in Baden-Baden, Germany (below), goes into construction this fall.



worked with us in Italy and figured out how this thing could be manufactured, taken to the site, and erected.

**AR:** Initially you described a challenging business environment, but intellectually, you're involved with new ideas here. Although the church has been going slowly, doesn't it explore form and material differently from anything you have done?

**RM:** No one's done it before! With another project, the Performing Arts Center in Bethel, New York, we designed a curved glass roof over a louvered timber ceiling, all supported by a space frame that spans 200 feet. Unfortunately, the project is not going ahead, but the concept, which we worked out with Arup, would have provided an outdoor roofed space sheltering 3,500 people, with additional seating on the lawn for 10,000.

**AR:** As an architect, you have been readily accepted in Europe. Here in Manhattan—other than the renovation for Westbeth artists' housing (1970)—you hadn't had a major new building until you designed the Perry Street apartments now being completed in the West Village. How did you get involved with an American developer?

**RM:** The Perry Street project is actually owned by a consortium of developers, including Richard Born, Ira Drukier, Charles Blachman—and other investors, one of whom suggested me. Certain ones in the group have been involved in boutique hotels. This is also a small project: There are only 14 floors and 28 apartments in two buildings. Each building stands on the corner of Perry Street and West Street to create a gateway for the Village near the water. It makes Perry Street a symbol of the regeneration of this area.

**AR:** Why are the buildings split into two towers and placed across a street from each other?

**RM:** The consortium owned the two sites, and one site is almost twice the size of the other one. The smaller one, on the north, has 2,200 square feet per floor, while the southern side has 4,400 square feet. They are designed as simplexes, or to be combined into duplexes and triplexes.

**AR:** Are you going to live there?

**RM:** I think so.

**AR:** It is said that one reason the architecture is so good in Europe is the widespread competition process. Do you agree?

**RM:** The Jubilee Church resulted from a competition. Almost all of our European projects resulted from competitions, which enable architects to do very important work.

**AR:** You had both municipal and corporate clients there?

**RM:** That's right. And they were all competitions.

**AR:** If the competition model were accepted in America, would that be beneficial to architecture?

**RM:** That's a good question, because I keep saying I'm not doing any





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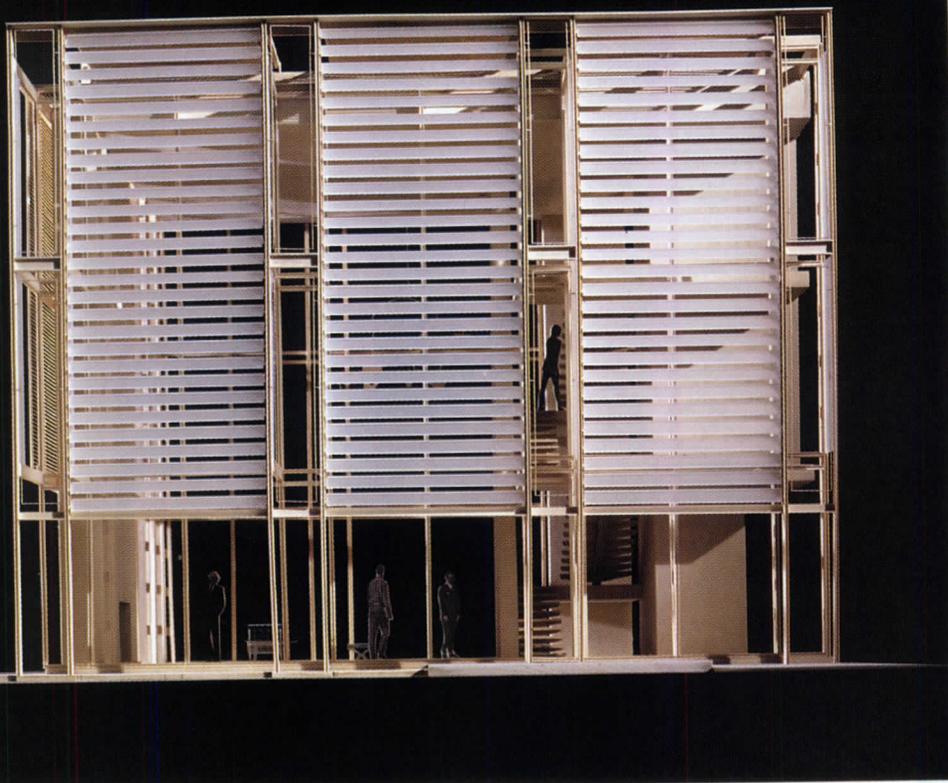


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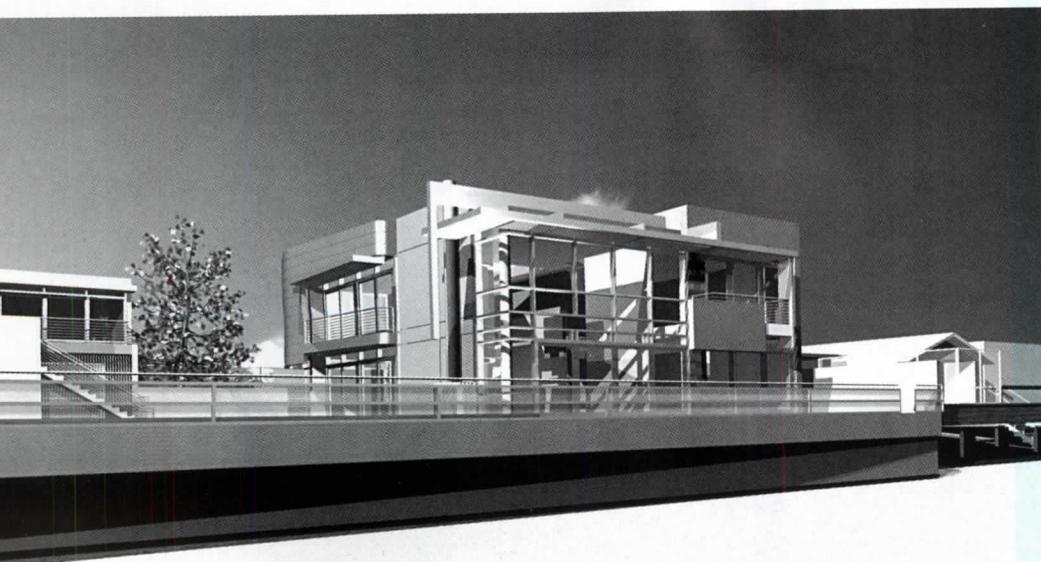
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A house in Katonah, New York, unbuilt, was designed to be covered with a skin of glass louvers and stainless-steel rods. A portion of the model shows the triple-height living room facing south.

A Southern California house, just finished, has painted aluminum wall panels.



more competitions. And yet, I'm working on one now—in New York. It's for the redevelopment of Lincoln Center's Avery Fisher Hall, and I'm doing it with Arata Isozaki. But often a competition requires a huge amount of work for very little payback. I was a young architect when I began entering competitions in Europe. Also, European offices are set up in a way to do them—where a whole portion of the office just works on competitions. And European competitions are run well. It is the way of selecting an architect for a building that's going to be built. In America, a competition is often used to throw out some ideas and then decide what to do.

**AR:** Here the competition is the beginning stage for the fund-raising.

**RM:** That's exactly right. And you're just being used. For that reason, many competitions in America are a sham. Another drawback is that

too often the winning design is not thought through—the architects just move on. There's no new engagement with a client as a result of it.

**AR:** Do you think Lower Manhattan could benefit from a competition for the World Trade Center site?

**RM:** No one knows enough about how to write the program for this site in order to conduct a competition. Ground Zero is such an emotionally and politically complicated situation that it's going to take time to figure out what ideas are appropriate. Everyone has to be heard.

**AR:** Let's assume that the Development Authority comes up with a realistic program five or six months from now, and there's a real competition process set up. Then ...?

**RM:** Then a competition would be fabulous. Of course, you'd have to have a good jury. It should not be open. It should be an invited, limited competition. Some people wouldn't like that because it raises the question about why X is chosen and not Y. Nevertheless, it puts a certain seriousness into the process.

**AR:** And then there is that old question about building tall buildings. Where do you weigh in? Do they have a place in our future?

**RM:** The 21st century should be a century of tall buildings—as was the 20th. Now there is a hesitation to design an important tall building because of the fear of creating a symbol of something wonderful, which then becomes a target for terrorism. Eventually, I hope and pray this will no longer be the case. But it is going to be difficult, especially at Ground Zero, to design very tall buildings. They could sit empty for quite a while. But, tall is relative. Towers don't have to be 110 stories. Buildings of 50, 60, 70 stories make sense (continued on page 248)



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# Tunneling into the depths of color and light

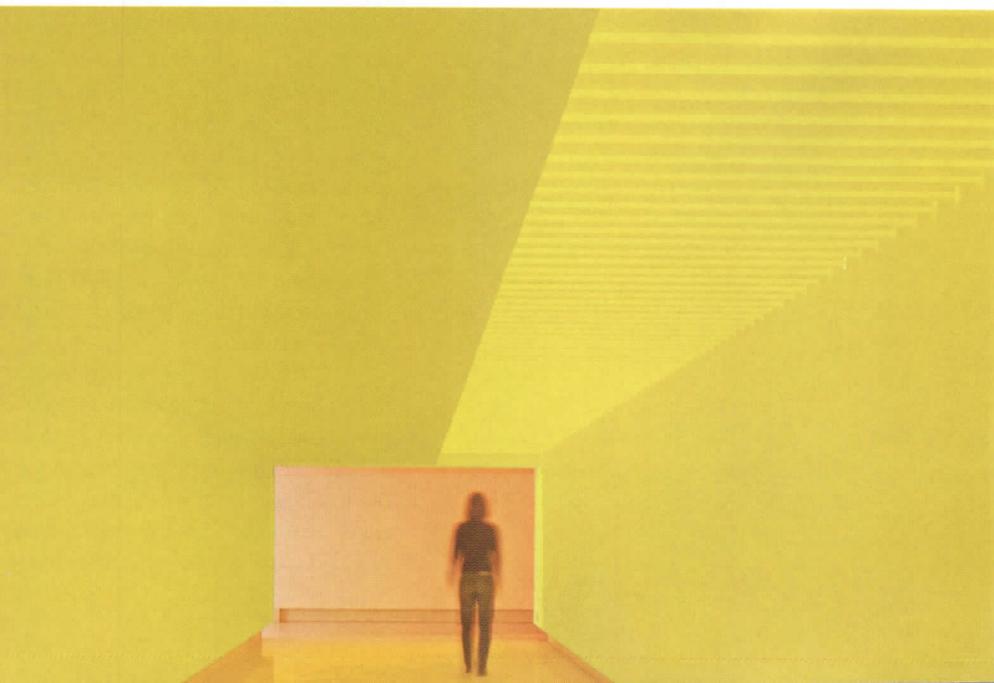
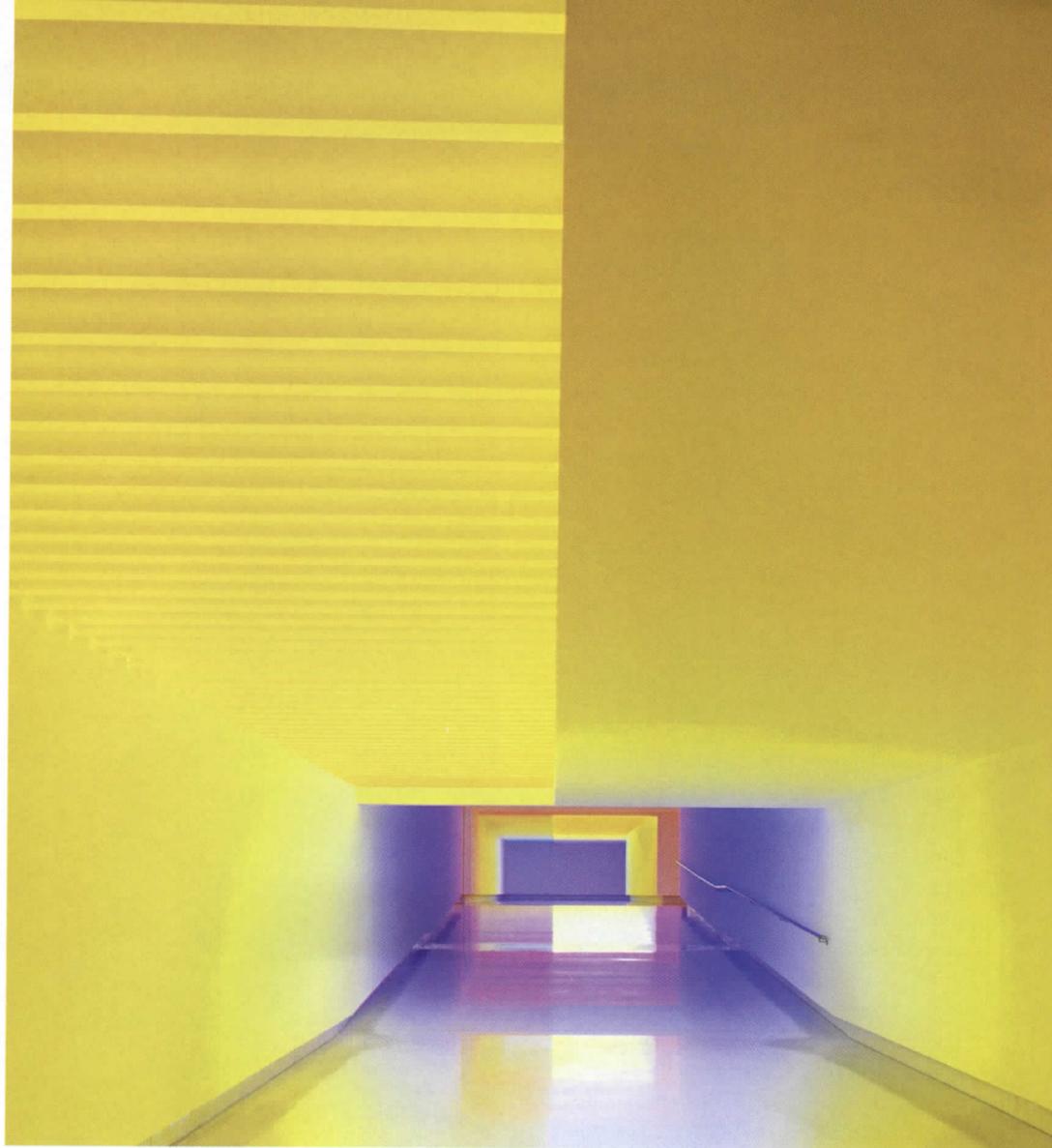
By Sarah Amelar

It's like walking through sheets and volumes of color," says American artist Keith Sonnier of his recently completed *Verbindung RotBlauGelb (RedBlueYellow Corridor)*. Created for a sequence of underground passageways in Munich, this permanent light installation bathes architectural spaces in luminous, saturated colors, producing a rich atmospheric effect that visually dematerializes solid edges, subtly altering perceptions of scale, form, and distance.

The work was commissioned by Munich Re, the world's largest reinsurance company, as part of its ongoing program of permanent, site-specific art pieces for a 740-meter-long network of underground passageways linking its 10 office buildings in Munich-Schwabung. The company's arts program effectively began in 1912 when Munich Re's founder purchased and commissioned art for a new structure.

But the tunnel installations, a symbiosis between art and architecture using light as the medium, date back only to 1994. Now including pieces by James Turrell, Mauricio Nannucci, Rolf Waltz, and four others, the subterranean corridors are accessible to company employees on a daily basis and to visitors during special viewings.

Many of Sonnier's previous chromatic investigations—exploring movement through space and the very nature of architectonics—had related intimately to the arteries, capillaries, and nodes of modern traffic systems. In the 1990s he completed his 1,000-meter-long *Lightpath* for the Munich Airport; *De Rouge à Bleu* for a Rouen, France, metro station; *Miami Heliotrope* for a Florida airport helicopter platform; and



*Tunnel of Tears* for P.S.1 in New York City. Focusing on the qualities of architecture and open urban space, rather than traffic routes per se, his installation done in 2000 at architect Peter Zumthor's Bregenz Art Museum, in Austria, illuminated and reinterpreted the orthogonal building's translucent facades.

Some of Sonnier's projects have been created for existing conditions, but many have involved spaces constructed specifically for the installations. For *Verbindung RotBlauGelb*, the artist collaborated fully with architects Carlo Baumschlager and Dietmar Eberle as they carved out a zone for this piece. The architects' pragmatic mandate was to devise passageways connecting their new office building for Munich Re with the company's well-developed underground network.

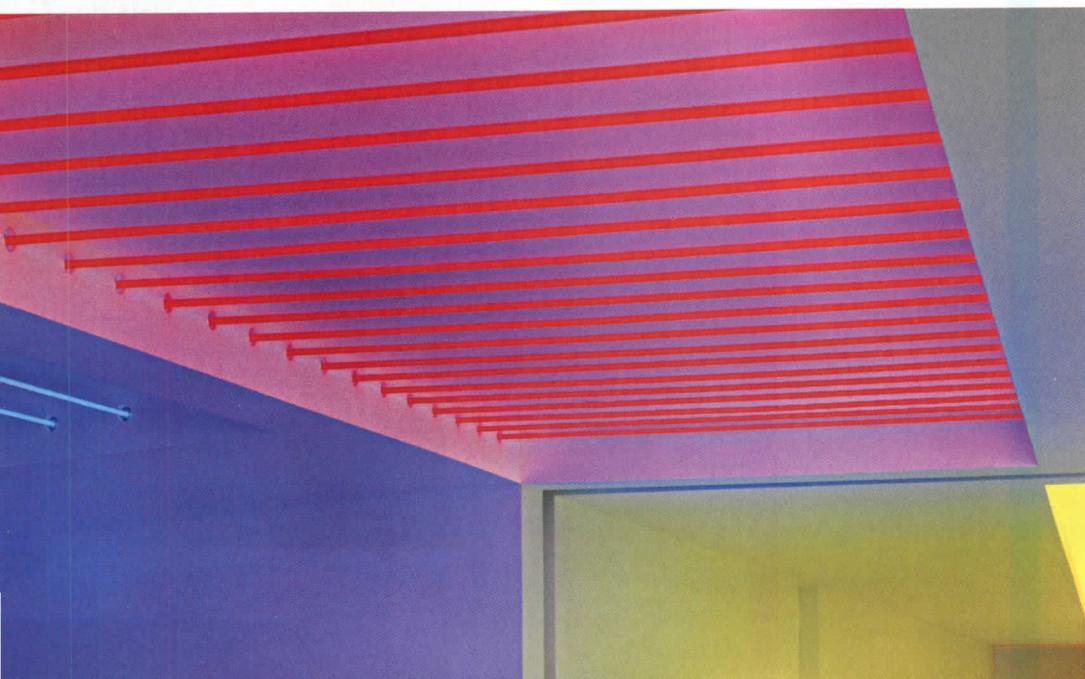
Given a choice of tunnel sites, the artist says he rejected a "straight-shot corridor," in favor of a far more challenging sequence of passageways, approximately 150 meters long in total, varying in width from 2 to more than 6 meters across, and punctuated by ramps, multiple turning points, and access to elevator banks and exit stairs.

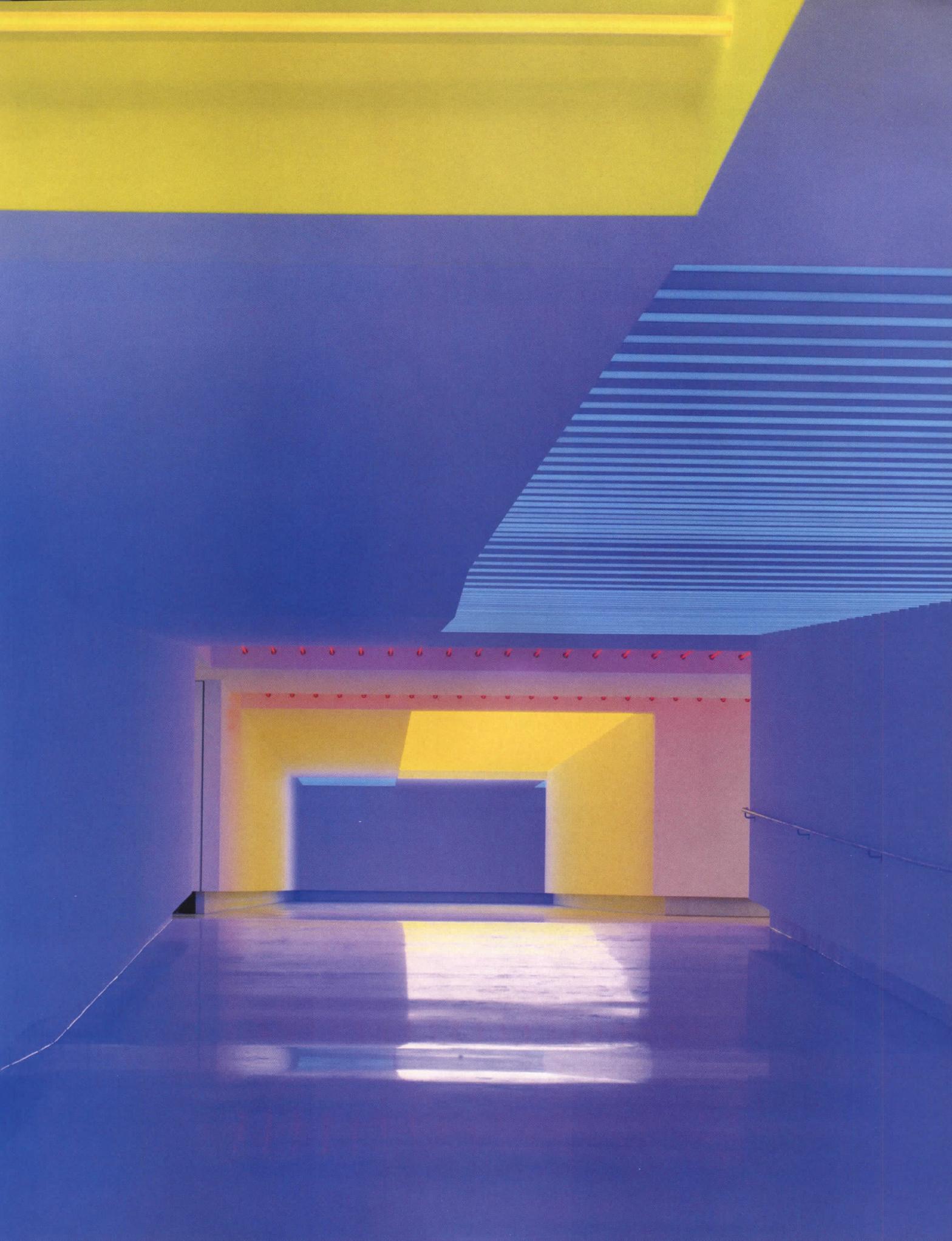
Working closely with Sonnier from the start, the firm Baumschlager + Eberle created a streamlined "canvas"—a series of corridors as smooth and free of obstruction as possible—that enabled the artist to recess his light sources, parallel tubes of colored gas, in the ceiling. Like much of the artist's earlier work, *Verbindung RotBlauGelb* is based on a trio of stable primary colors (neon gas for red, argon gas for blue, and a combination of fluorescent pigment and argon gas for yellow) that allows emitted light to spill from one zone to another, blending to form purple where red meets blue, or green where

blue diffuses into yellow, and so on.

For all their lush beauty, Sonnier's interventions have a practical component, endeavoring, as the artist has written, "to render the urban context more readable." And so, he assigned red—a color that summons alertness and is traditionally associated with exit signs—to Munich Re's elevator banks. Discerning among the qualities of the three colors, he considers yellow easiest on the eyes, and therefore chose it for the longest stretches.

In *Verbindung RotBlauGelb*, all the light emanates from overhead, in part, says Sonnier, because "I don't believe art should be an obstruction." Baumschlager + Eberle's pure, clean-edged geometry—with walls generously revealed from the floors and seemingly



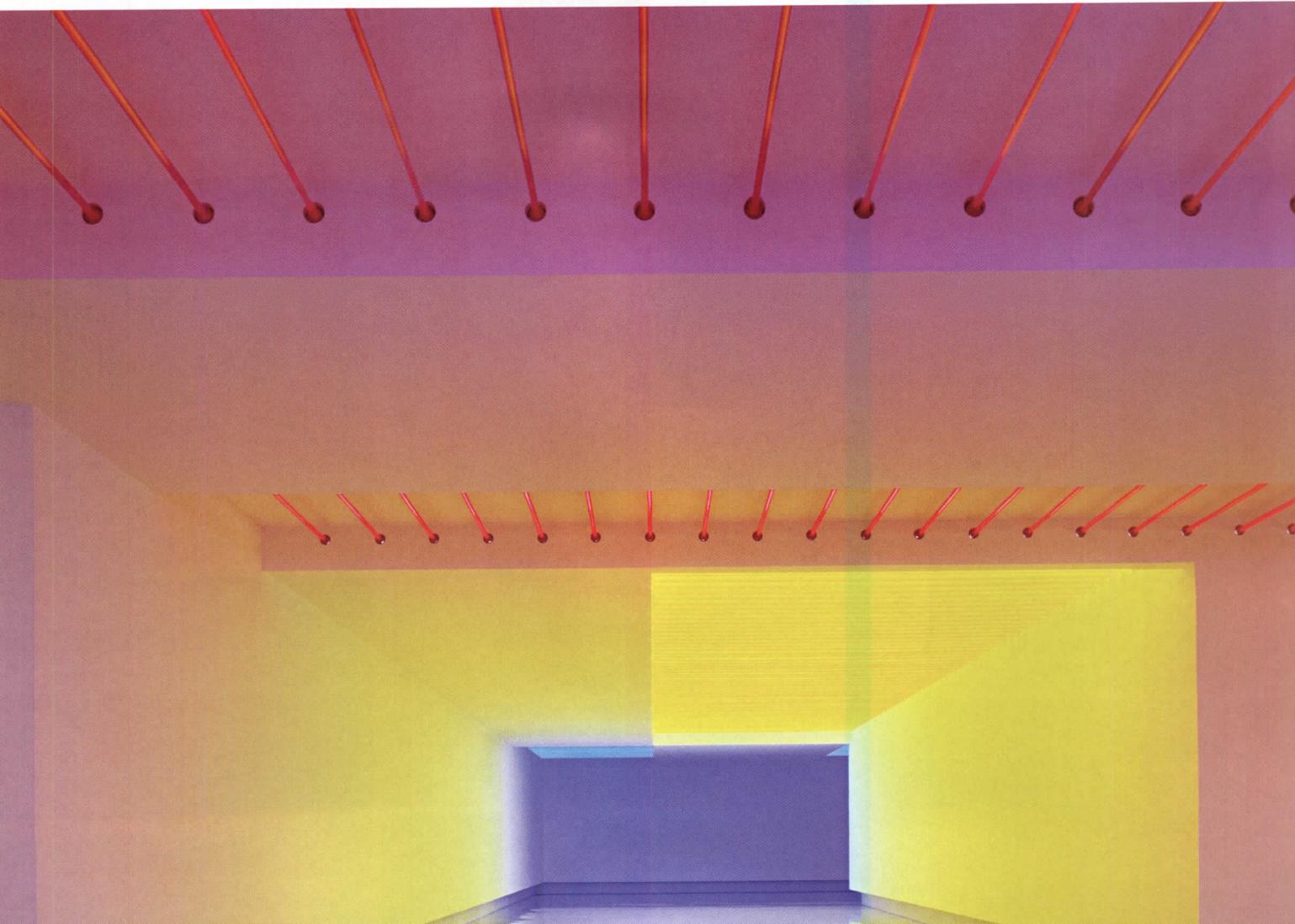
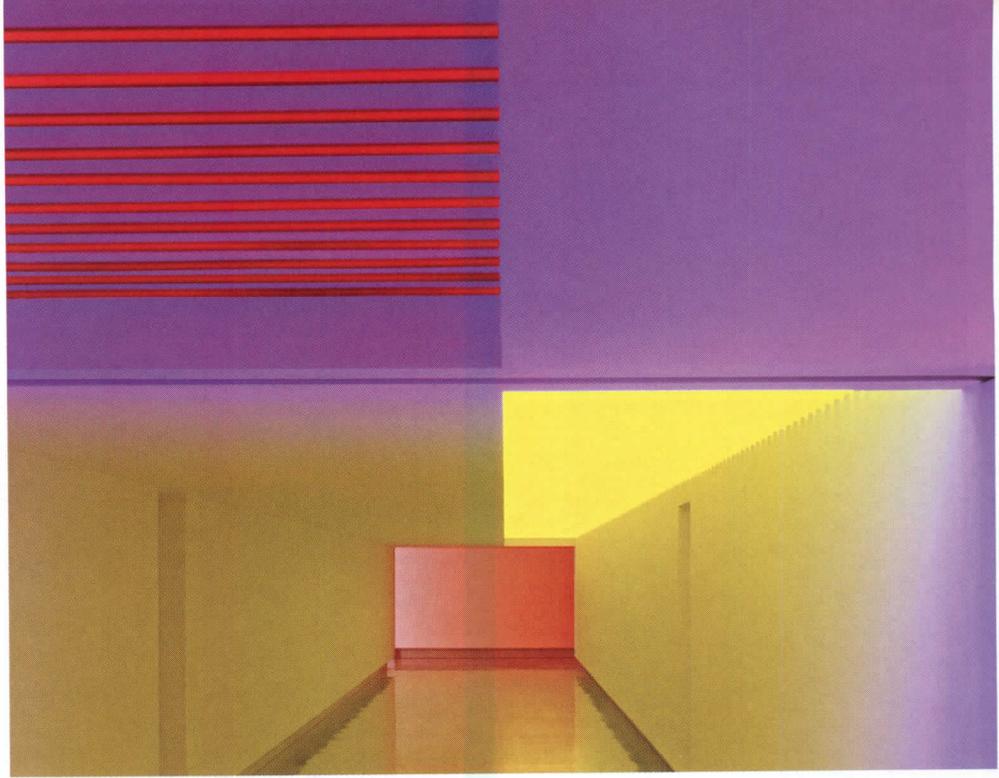


jambless doors—allowed the artist to shape, with light, a succession of entirely ethereal as well as more solidly formed lines, planes, and volumes. Some of these elements appear completely discrete, while others intersect or bleed into one another.

Throughout the *Verbindung RotBlauGelb*'s continuous sequence of corridors, the artist crosses the path of movement perpendicularly overhead with parallel, evenly spaced lines of light—reminiscent of ties on railroad tracks—that set up a rhythm accentuating perspectival convergence. This arrangement of luminous tubes also generates a sense of momentum, as the parallel lines approaching infinity appear to get closer and closer together. Reflective white surfaces on the floors and walls further enhance the installation's experiential qualities.

*Verbindung RotBlauGelb* offers deep immersion into sheer light. And before the elevator doors spring open, marking the entrance back into daylight reality, the tunnel provides a brief foray into an otherworldly realm. ■

**Credits:** Dr. Susanne Ehrenfried—curator of arts program, Munich Re; Wolfgang Häusler—representative in Europe for Keith Sonnier.





# Record Interiors

# 2002

BUILDING TYPES STUDY 813

Interior design at its best can offer mind-altering—or at least *perception*-altering—experiences. Approaching existing conditions, an architect may selectively reveal what’s already there, plumbing its spatial, metaphoric, or experiential potential. Intrinsic features—such as views, structure, or overall proportions—may appear transformed through their interplay with new elements. Balancing, masking, celebrating, or transcending the so-called flaws or limitations of a place, an interior design may lead you to perceive a space in entirely unexpected ways.

Throughout Record Interiors 2002, the featured projects all began with existing spaces, where such scenarios played out successfully, but with markedly different results. In two of the interiors, wave forms became essential in redefining the spatial character. At Marmol Radziner’s TBWA\Chiat\Day offices, for instance, a veritable two-story tsunami, crafted in wood, surges up in the lobby, channeling views upward within a timber-frame warehouse. The immediate effect is powerful, giving the space clear vertical thrust or focus.

At Klein Dytham’s Beacon offices in Tokyo, waves are also present, but in a lower, more attenuated flow. Shaped partly by train tracks beneath the building, the space has long, narrow proportions, which Klein Dytham accentuated with a whimsically undulant and colorful wave, or “ribbon,” of functions that traverses the project, giving the entire space a distinct rhythm.

In some of the other projects, reflectivity, rather than wave action, greatly influences the spatial impact. At ImageNet, for example, architect Rand Elliott suspended 18 sheets of clear acrylic, printed with text, between two mirrored walls. With mind-boggling effect, multiple reflections of the viewer and the texts appear to telescope into infinity. Through this optical sleight of hand, the visitor occupies a

place conceptually inside the copying process, as the basic principals of photocopying—reflection, repetition, reproduction—are revealed, and ordinary spatial relationships seem momentarily upended.

In Joel Sanders’s Lee Residence, hinged mirrors, moving wood panels, and glossy epoxy surfaces play against the shadowy, veil-and-reveal qualities of backlit, sandblasted glass and sheer window shades. Sanders gutted an ordinary city flat, replacing its cramped network of rooms with open space around a single core. The plan yields wide interior panoramic views with dual vanishing points, emphasizing the apartment’s now-expansive horizontality. Within this spatial flow, the contrasting surfaces and kinetic panels and mirrors produce a compelling collage effect.

In a SoHo loft, Dean/Wolf Architects responded to remarkable—in places, iconic—urban views by creating a sequence of panels and screening elements that establish an ongoing dialogue with the scene outside, exposing, reflecting, or denying it to the viewer. The cityscape resonates in changing ways throughout the space, not only through images—virtual views—caught in glassy surfaces, but also through material choices that echo the colors, textures, and quality of light outdoors.

And at the Cruise bar and restaurant, Landini Associates places a light sculpture in dynamic counterpoint to a spectacular view, using reflective surfaces to amplify the visual impact.

In the W Hotel, Yabu Pushelberg turned the major flaw of an existing hotel building into a virtue (in this case, using neither waves nor reflections). Here, a once-awkward collection of detached spaces is no longer perceived as such. Instead, the configuration becomes a bento-boxlike array of compartmentalized offerings, contrasting in scale, hue, texture, and function, yet together forming a balanced whole.

The way we experience anything is, of course, related to who we are and what we bring to it. But clearly architects and designers can also play significant roles in uncovering, paradoxically, vast possibilities in finite places. ■

1. Joel Sanders
2. Marmol Radziner
3. Elliott + Associates
4. Klein Dytham
5. Dean/Wolf
6. Yabu Pushelberg
7. Landini Associates





Within a play of mirrors and hinged planes, a fold-out guest bed is partially revealed (this page). From the entrance, a closet's contents and the activity in a shower stall—conventionally hidden realms—may appear through veils of translucent glass (opposite).

# Blurring boundaries between hidden and revealed, work and play, **Joel Sanders** fashions the highly flexible **LEE RESIDENCE**

By **Raul A. Barreneche**

**N**ew York architect Joel Sanders denounces many of the accepted norms of domesticity. He is right to try to shake off now-outdated notions of the home—modern life is increasingly fluid, flexible, and full of contradictions and blurry distinctions between work and play, entertainment and recreation. In 1999, the Museum of Modern Art made that case in the successful and provocative exhibition, *The Un-Private House*. The show posited that changes in domestic life and technology are liberating architects and their clients from outdated, centuries-old typologies of rigidly programmed cellular rooms and inherently private dwellings. One of the 26 house designs featured in the exhibition was Sanders's transformation of a hermetic 1950s suburban ranch into an open, voyeuristic bachelor pad centered on a sunken gym instead of a Lucy-and-Ethel-era kitchen.

That bachelor pad was never built, but Sanders's design for a recently completed Manhattan pied-à-terre puts many of his hypotheses about the modern home into practice. His clients, a Midwestern couple, called the architect after seeing the neatly tailored loft Sanders had created for their son in New York City. Although they had purchased a formal two-bedroom flat in a 1996, 32-story condominium tower, they wanted Sanders to completely transform the 1,850-square-foot apartment with a flexible, unorthodox program that included a dance-practice area for the wife, two convertible sleeping spaces for overnight guests, and a study. Sanders stripped the place—which he found to be a rabbit warren of small, awkwardly laid out rooms—down to its concrete shell. His transformation starts with the unexpected exposure of traditionally private areas and concealed infrastructure. The front door now opens onto a tiny vestibule defined by a closet to one side and, surprisingly, the acid-etched glass curve of the master shower on the other. The entry fronts another translucent glass wall thinly veiling the contents of the master closet. This glazed wall extends deeper into the apartment, enclosing a utility closet and a guest shower and offering more provocative peeks at domestic functions.

The translucent wall forms the back edge of the master suite, a self-contained zone—conceived as a glass box or a crystalline tea house—that Sanders inscribed into an otherwise open, loftlike space. The boundaries of the box are delineated by its surfaces: the glass wall on two sides of its exterior and a seamless continuum of slick epoxy floors, walls,

Raul A. Barreneche is a New York-based contributing editor for *RECORD*.



**Project:** *Lee Residence*

**Architect:** *Joel Sanders Architect—Joel Sanders, principal; Brian Kimura, project architect; Adam Dayem, Christophe Mueller-Rosellius, Charles Stone, project team*

**Interior designer:** *Andy Goldsborough*

**Engineer:** *Jack Green Associates*

**Lighting:** *Lighting Collaborative—Lewis Herman*

**General contractor:** *Foundations—Saif Sumaida*

With a single central core, the project yields wide panoramic views with dual vanishing points, here including the master bedroom and living area.



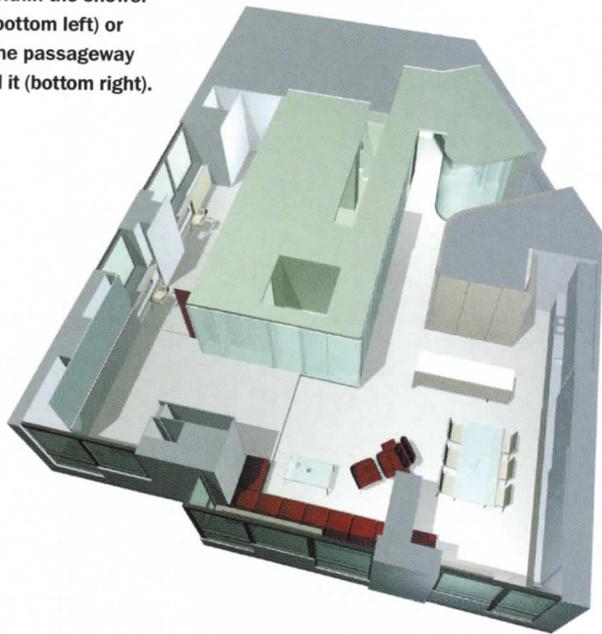




A ballet barre backed with mirrors forms an end wall for the living room (top). Like a luminous sculpture, glass-fronted cabinets

glow with vertical fluorescent bulbs (right and top). Epoxy seamlessly lines the master bathroom and its curvy molded tub (above).

Around the central core, the space remains open and fluid (below). In the guest bathroom, the shadow of a figure may appear from within the shower stall (bottom left) or from the passageway behind it (bottom right).



FLOOR PLAN

- |                        |                             |
|------------------------|-----------------------------|
| 1. Foyer               | 7. Fluorescent-lit cabinets |
| 2. Master bath         | 8. Living                   |
| 3. Master bedroom      | 9. Dining                   |
| 4. Study               | 10. Kitchen                 |
| 5. Ballet barre/mirror | 11. Bath                    |
| 6. Fold-out guest bed  | 12. Closet/dressing         |



The mirrored ballet-practice area catches reflections of the master bed and the fold-out guest bed (right). Simple custom seating plays against veiled views of the cityscape (below). The study occupies a zone poised for transformation through movable panels (as captured in a time-lapse image, opposite, bottom).







and ceilings inside. Sanders's treatment of the core and its contents is a complete inversion of expectation: Prosaic objects, such as brooms and coat hangers (not to mention bathing bodies), are exposed. And unlike a traditionally opaque core, this translucent nucleus emanates light.

Crafting the epoxy bathrooms and getting floors, walls, and ceilings smooth and seamlessly joined proved to be one of the project's most difficult challenges. Part of the complexity resulted from the different surface compositions: The floors are poured epoxy, but the walls and ceilings are constructed of waterproof green board covered in plaster and finished with epoxy paint. To ensure accurate construction of curved connections, Sanders sent the contractor, Saif Sumaida, a series of section cuts taken from a computer model of the apartment. Sumaida used this detailed data to handcraft, in green board, curved joints between walls, floors, and ceilings, which he smoothed over with plaster and finished with epoxy paint to match the adjacent surfaces. In the master bath, the contractor also integrated a custom fiberglass tub into the fluid epoxy landscape.

Beyond the box, Sanders turned the once carved-up apartment into a continuous space that flows from open kitchen to dining room to living room. Up a short step, the sequence gives way to a mirrored area where the wife, a ballet enthusiast, can practice. (The added depth of a resilient, professional-grade wooden dance floor necessitated the level change.) Although Sanders didn't impede flexibility with functionally specific rooms, he did imply distinct uses through different materials in the otherwise neutral interior: Corian suggests wet (kitchen) functions, upholstered surfaces are for lounging, and so on. "Surfaces allow functions to take place," explains Sanders. "It's counter to the idea that anything can happen anywhere. Like clothing, surfaces create identity."

One of the apartment's most ingenious elements is the complex choreography of moving doors that can slyly turn Sanders's configuration for a one-bedroom flat into an impromptu three-bedroom unit. It's similar to Gerrit Rietveld's play of sliding panels and folding screens that delineate bedrooms within the open upstairs of his seminal Schroeder House of 1924. In the dance studio, a large door pivots open to reveal a Murphy bed and partially close off the space from the living area; a translucent glass closet door on the opposite wall completes the enclosure. A pocket door then slides shut to separate the newly created "guest room" from the master suite. If the owners have another overnight visitor, they can pivot the large closet door next to the master suite's built-in platform bed and open a second door, flush with the opposite wall, to complete the separation from the foreshortened master bedroom. This area also doubles as a private study. The only glitch is that guests must enter and exit the third bedroom through the guest bathroom.

These overlapping, mutable "rooms" are an ideal strategy for creating flexible and efficient interiors, especially in small spaces. Sanders's design is a thoughtful and subtle improvement on the unprogrammed loft. The mix of openness and flexibility is well-suited to its clients—and to the age of the multitask home. ■

#### Sources

**Epoxy:** Hoffman Floor Covering (poured floor; paint on core walls and ceilings)

**Lighting:** Wever & Ducre

**Plumbing:** Duravit (toilets); Corian (sinks); Dornbracht (faucets and showerheads)

**Wood:** Brushed powder-coated, quarter-sawn oak (cabinets and floor)

**Wall covering:** Gretchen Bellinger, Two Eyes Have Thorns Upholsterer, and K. Flam Associates (headboard collaborators)

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

Like the hull of a ship or a huge surging wave, a curved wooden structure rises two stories from the base of the reception area.



# In an old warehouse near the San Francisco Bay, **Marmol Radziner** inserts seaworthy curves, launching new offices for **TBWA\CHIAT\DAY**

By Lisa Findley

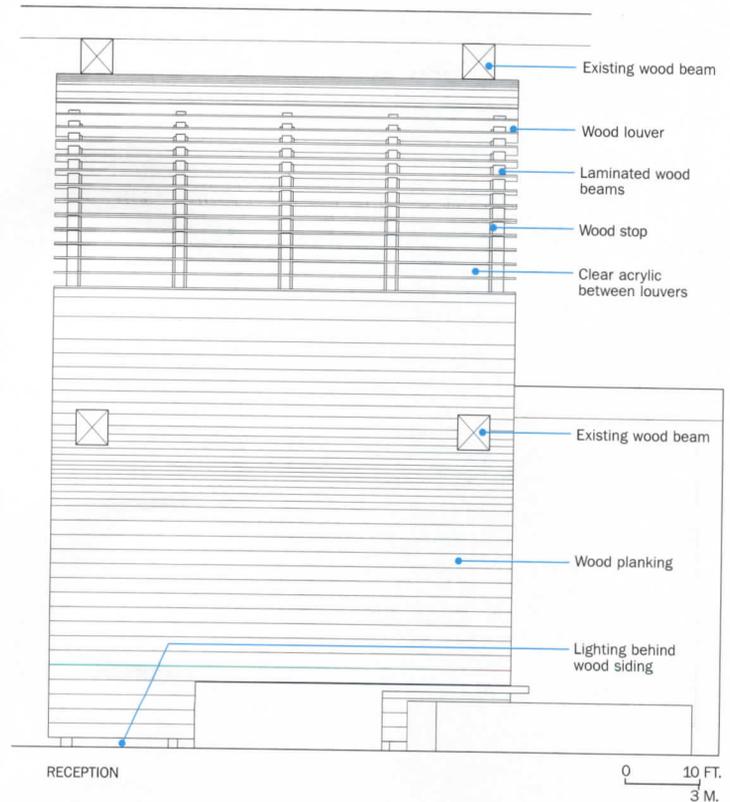
The skull-and-crossbones flag snapping in the wind above an 85-year-old, four-story warehouse on San Francisco's old Barbary Coast suggests the headquarters of bloodthirsty pirates. The only outlaws here, however, are the creative employees of the once-maverick ad firm of TBWA\Chiat\Day, occupying a space recently completed by Marmol Radziner + Associates of Santa Monica, California. Though much of the industry has moved to match the radical style of TBWA\Chiat\Day, the firm continues to outpace them all—in part by maintaining a tradition of hiring fresh-thinking architectural talent, such as Frank Gehry, to design its workplaces. The company's new San Francisco offices are no exception.

Here, the client charged Leo Marmol, AIA, and Ron Radziner, AIA, with giving the 25,000-square-foot space a unique sense of identity, while encouraging exploration and dialogue among the 40-odd employees, even between such disparate departments as accounting and "creatives." Since the lease extends only through 2006 and San Francisco's office market tends to be volatile and pricey, TBWA\Chiat\Day capped the budget at about \$100 per square foot for this ambitious project, including furniture.

As the architects sought inspiration for the design, colorful stories of the Barbary Coast's Gold Rush heyday captured their imaginations. They invented their own tale about the building, envisioning it filled with the detritus of washed-up shipwrecks, its floor torn by receding flood waters. This scenario led Marmol Radziner to create an oddly mysterious place with the peaceful repose of a ruin and the golden warmth of natural, fairly unrefined materials. A strange, dreamlike "memory" resonates in the final results and matches the architect's desire to encourage curiosity about the space, leading people to explore it. At the same time, the nautical references take on an abstract quality, avoiding pastiche.

The project's identity is clear from the entry. A huge, upwardly curving wall of rough horizontal boards, recalling a fragment of a wooden ship's outer hull, draws visitors through the lobby, past waiting-area seating, to the reception desk. Here, the upper floor has been cut away to reveal other curving laminated forms, which suggest the ribs of oddly configured ships. Only partially visible overhead, these elements form the structure of translucent polycarbonate-lined conference and project rooms on the second level. In special areas, such as a lounge, the floor is covered in cork, while elsewhere its finished surface is sealed, construction-grade plywood.

Contributing editor Lisa Findley practices architecture in Oakland, Calif., and teaches at the California College of Arts and Crafts.



Beyond a custom-crafted plywood reception desk lurks a creative world, hidden from the visitor's view. In this realm of advertising invention, forms straighten out a bit. Marmol Radziner wisely exercised reserve in its design of the work areas. The two floors of office space follow mostly an open plan, where custom-built plywood stations stand in neat orthogonal rows. Dividers are kept low, providing privacy and enclosure to those seated, and long views to the windows for anyone standing. Warm incandescent lighting emanates overhead from rice-paper lanterns, a distinctly noncorporate gesture and a nod to the Pacific Rim.

The lounge is complete with a pool table and small seating areas for casual and creative conversations. In the basement, electronic equip-

**Project:** TBWA\Chiat\Day, San Francisco

**Architects:** Marmol Radziner + Associates—Leo Marmol, AIA, managing partner; Ron Radziner, AIA, design partner; Anna Hill, project manager; John Kim, Su Kim, Brendan O'Grady, project architects; Paul Benigno, Juli Brode, Patrick McHugh, Chris

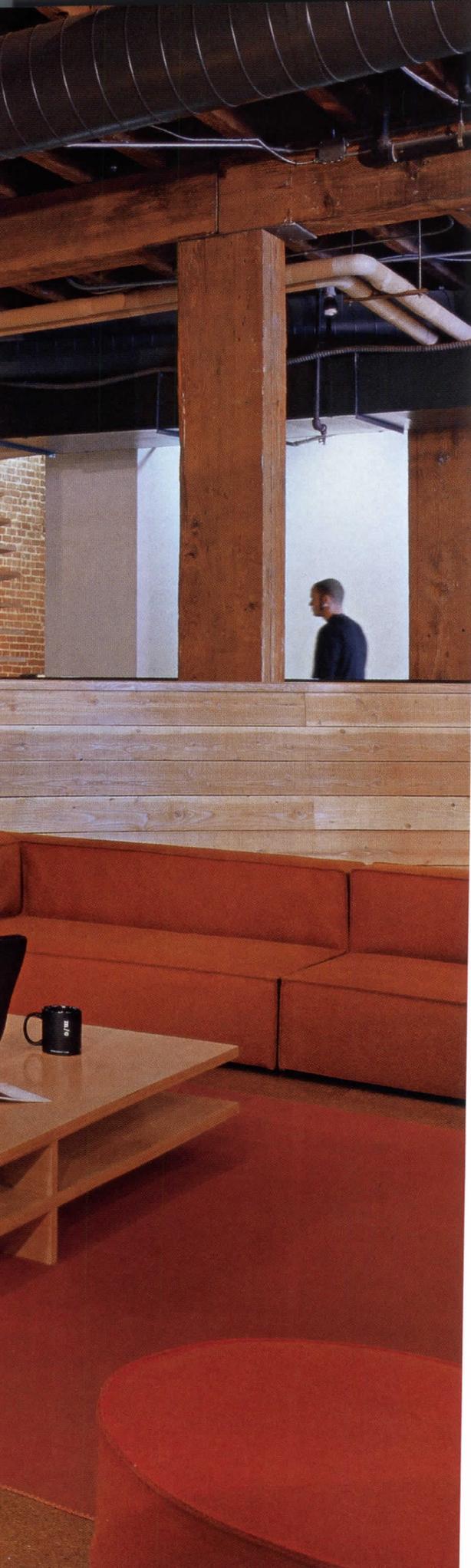
McCullough, Daniel Monti, Bobby Rees, Renee Wilson, Annette Wu, project team; Michael Holte, furniture coordinator

**Engineers:** Tipping Mar and Associates (structural); Thermal Mechanical (mechanical)

**Consultants:** John Brubaker (lighting); Mike Landolina (project manager)

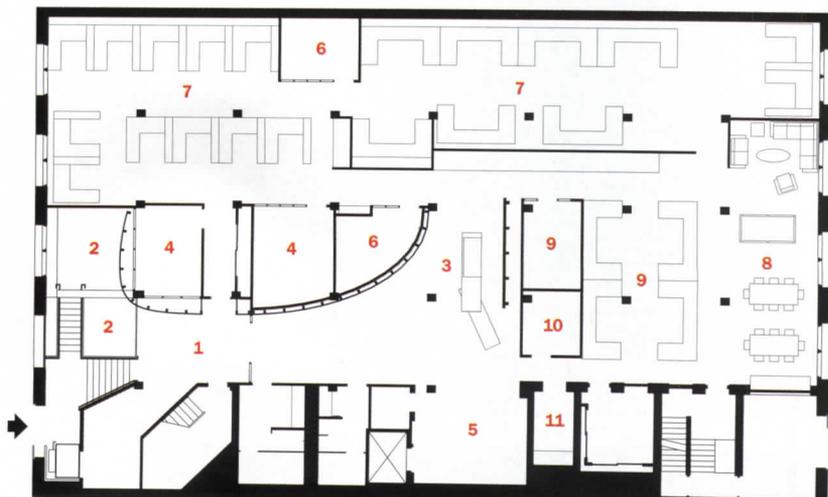
**General contractor:** CIC Associates





The lounge has an open quality, cork floors, and casual conversation spots. Evoking the ribs of an old ship, the wood structure of an enclosed polycarbonate-lined meeting room rises behind the lounge (left). Delicate rice-paper lanterns hover above the workstations (below).

1. Entry vestibule
2. Open to below
3. Reception
4. Meeting
5. Elevator lobby
6. Office
7. Workstations
8. Play area
9. Production
10. Viewing
11. Kitchen



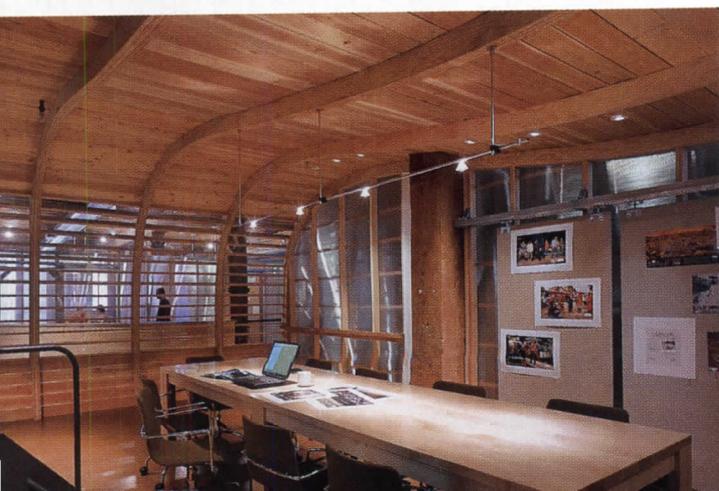
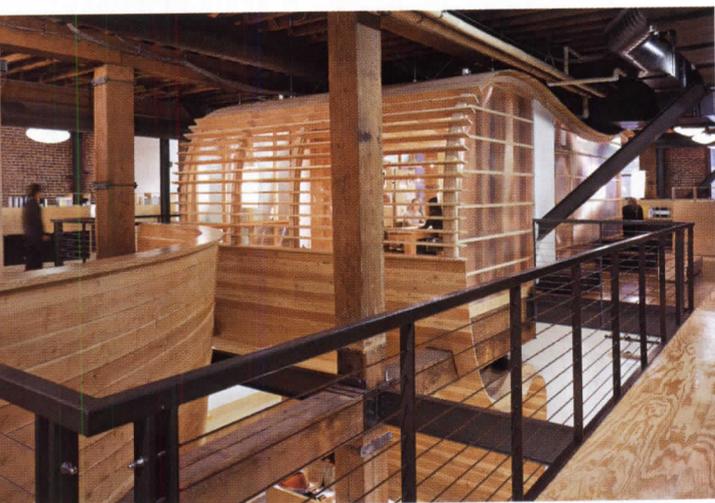
FIRST FLOOR

N ← 0 10 FT.  
3 M.





Warm yet relatively raw materials—plywood and steel cables, as well as jauntily tilted fluorescent bulbs behind polycarbonate sheets—have a visual lightness that plays against the existing warehouse's heavy timbers (this page and opposite).



ment and editing facilities fill dark yet comfortable rooms.

This casual and lively design has a few disappointments—or perhaps they are just the disjunctions of a dream. The natural temptation to move from floor to floor through the reception area's two-story space is denied. All vertical movement happens in the entirely-too-mundane existing elevator and enclosed fire stairs, along one side of the building. Introducing an open stair while complying with fire codes would have yielded a more expensive solution, but the experience of ascending or descending through the great vertical zone might have justified cost trade-offs elsewhere in the project. Perhaps more frustrating, however, is the allure of a potentially fantastic large space within the entry lobby's ship hull—whose belly yields instead a series of conventionally furnished private offices and a storage room. The promise of a vast nautical hold disappears and the illusion, so successfully, if provisionally, constructed, hits the bottom of San Francisco Bay with a thud.

That said, the project still offers a refreshing shift from the high-tech sensibility that has ruled so much contemporary office design. TBWA\Chiat\Day is a recent arrival to the Barbary Coast warehouses, which design firms inhabited as far back as the '60s. Marmol Radziner's use of natural materials and the improvisational character of the construction recall those early days, when tabletops on sawhorses and clip-on lamps were everywhere. In keeping with that experimental spirit, this project shows the advertising renegade continuing to spur architectural investigation. ■

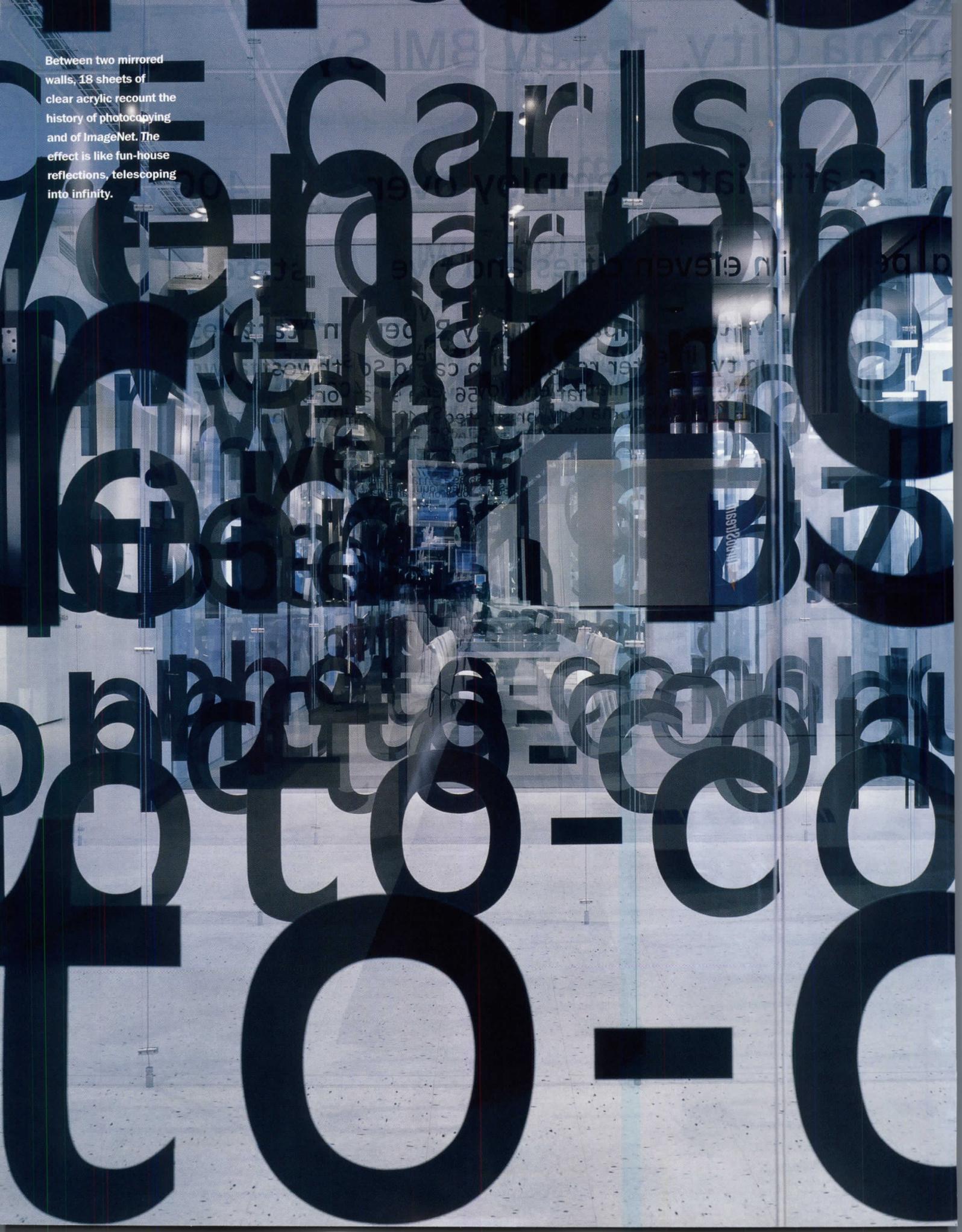
#### Sources

**Paneling:** Polygal (polycarbonate)  
**Doors:** Pacific Western; Reed Brothers Security; RMR Construction  
**Hardware:** Schlage; Hager

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

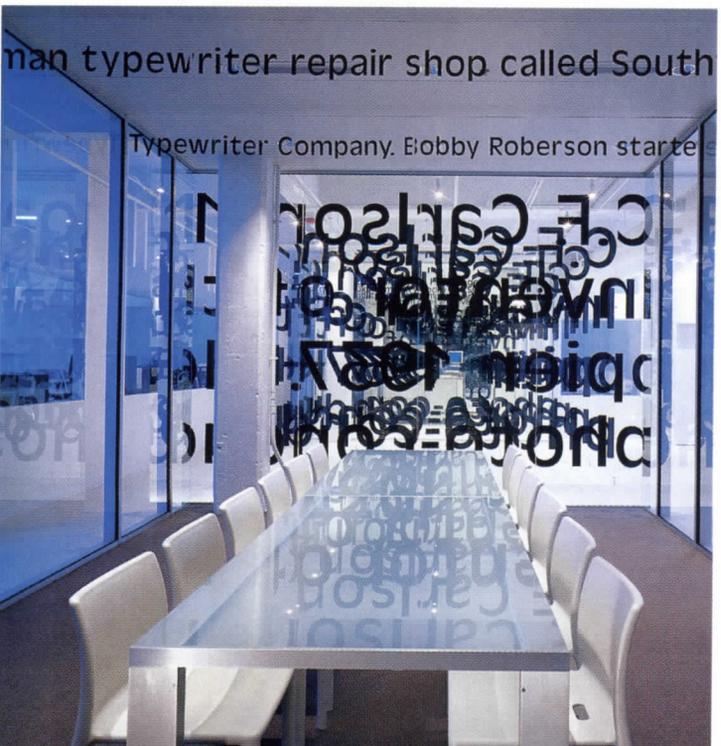


Between two mirrored walls, 18 sheets of clear acrylic recount the history of photocopying and of ImageNet. The effect is like fun-house reflections, telescoping into infinity.





# Elliott + Associates turns a former 1920s car dealership into **IMAGENET**, an innovative copy shop—and through inspired design, spins the company's tale



By David Dillon

**T**he ImageNet copy center in Oklahoma City is a setting, a story, and a metaphor. As in several earlier projects, architect Rand Elliott, FAIA, has enlisted ordinary materials and inexpensive construction to create an engaging portrait of an innovative company. His design reveals what ImageNet does, how it does it, where it's been, and where it's going. All this is conveyed through forms and materials derived from the business itself, instead of some a priori notion of style.

The copy center occupies the third floor of a renovated 1920s car dealership on Oklahoma City's Automobile Alley, a broad urban boulevard that is evolving into a technology district. The company has grown from a one-man typewriter-repair shop, founded in 1957 in the owner's kitchen, into a national organization with 350 employees and eight regional offices.

Entering the whimsical lobby, customers encounter three antique typewriters perched on pedestals of white copy paper. The display represents past chapters of the company story, also printed in blue vinyl letters on a nearby door. The room's walls are lined with the same copy paper—390,000 sheets, to be precise—glued to resemble bricks or blocks of stone. The archival-quality reams, which will not yellow, were cut in thirds to reduce weight. Originally intended to look like lightly troweled plaster, the design shifted course when the cutting machine went haywire and started spitting out odd shapes and sizes. Elliott liked the way these irregularities added texture and shadow, and decided to leave well enough alone.

"Sometimes the best things in a design are accidents," he says. "Instead of trying to fix them, you work with them." The result is a spirited dialogue between one and many, light and heavy, words and objects, raw material and finished product. Instead of a place with a desk and a few chairs, the lobby becomes an advertisement, an art exhibition, and a corporate history all in one.

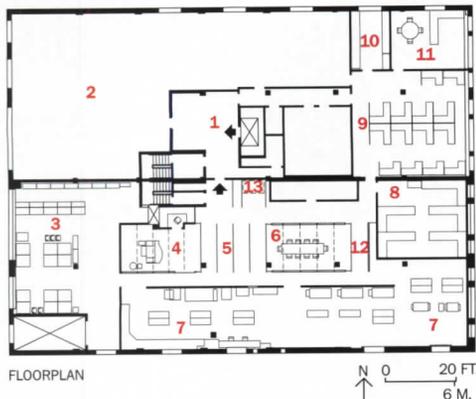
From the zone of the past, customers proceed through a narrow door into the present: a spare white workroom where all of ImageNet's

*David Dillon is a contributing editor to RECORD and the architecture critic of The Dallas Morning News.*

**Project:** ImageNet, Oklahoma City  
**Architect:** Elliott + Associates—Rand Elliott, FAIA, principal in charge; Brian Fitzsimmons, Associate AIA, project manager; Amberly Russell, intern

**Engineers:** Lingo Construction Services (structural); Jamars & Long (mechanical)

**General contractor:** Lingo Construction Services



1. "Paper Wall" lobby
2. Existing conditions
3. Receiving
4. Copying
5. "Infinity" panels
6. Conference
7. Production
8. Scanning/imaging
9. Data entry/sales
10. Storage
11. Manager
12. Mirror
13. "Future" display

scanning and printing are done. Clients can then make their way to offices and storage areas at the ends of this space; to a glass conference room in the middle; and to an assembly line of copiers and printers along the far wall, where they can watch their jobs being run. The interior is clean, orderly, and efficient, precisely what law firms and other corporate clients with big copying contracts want to see. (ImageNet landed the largest corporate contract in its history soon after the project was completed.)

Yet besides the familiar and the obvious, the workroom contains surprises. Suspended between two mirrored walls are 18 sheets of clear acrylic recounting the history of photocopying on one side and the story of ImageNet on the other. The effect on the viewer is like being lost in a fun house, watching your own image telescope into infinity. All the basic concepts of photocopying—reflection, repetition, reproduction, multiplication—come into play. For a brief moment, you are inside the copying process.

Sitting by itself at one end of the workroom is a four-color digital press—the future—that connects to the Internet and gets its orders from cyberspace. Customers send electronic files directly to the press, where the information is formatted and printed. Such technology enlarges the domain of copying exponentially while eliminating the costly setups that make small printing jobs uneconomical.

At night, the ImageNet offices are bathed in the same blue fluorescent light as the adjacent Vesper building, another automobile showroom that Elliott initially converted into a garage and is about to transform into the home of a sister company for recycling copier-ink cartridges. The blue light, an evocation of the roadhouse and the auto strip, gives the entire block a mysterious glow, as though it were about to levitate.

Elliott won't divulge the budget for this ImageNet project, but \$200,000 is a safe guess. He's used to such remarkably low numbers by now. His 1993 World Neighbors Headquarters in Oklahoma City came in at \$315,000, and the nearby K.J. McNitt Construction building [ARCHITECTURAL RECORD, October 1998, page 101] cost barely \$400,000. Both won National AIA Honor Awards.

All of which proves that a memorable design doesn't have to cost a fortune. Limits make for better architecture, the way nets make for better tennis. The best response to a stingy budget is a bright idea confidently expressed. ImageNet has both. ■

#### Sources

**Windows:** Kawneer (aluminum storefront)

**Doors:** ADS Wood Specialties

**Hardware:** Yale (locks); Hager (hinges)

**Paint:** Sherwin Williams (latex)

**Doors:** ADS Wood Specialties

**Title:** Armstrong (VCT)

**Lighting:** Canlet; Lithonia

**Carpet:** Atlas

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



The lobby walls are clad in bricklike volumes cut from reams of white copy paper. The same paper forms pedestals for three antique typewriters (this page and opposite, bottom). The blue light of the work zones (opposite, top and bottom) contrasts with this bright white display.



## Our History

BMI Systems was incorporated in 1977, and the business originated in 1956 as a small, one man typewriter repair shop called Southwest Typewriter Company. Bobby Roberson started this company from his garage in South Oklahoma City. Today BMI Systems and its affiliates, employ over 400 people in eleven cities and five states.

**Klein Dytham** weaves  
a playful ribbon of color  
and creative activity  
through Tokyo's  
**BEACON** ad agency

By Naomi Pollock

**A**rchitecture and advertising sometimes overlap. But in Klein Dytham's office for Beacon Communications, the two practically meld into one. As attention-grabbing as the flashiest Tokyo signage, the four-floor, 56,300-square-foot office interior, a joint venture among advertising giants Leo Burnett, D'Arcy, and Dentsu, features wild curves and Day-Glo colors. Underlying this visual extravaganza is an office plan that turned the company's inner workings on its head.

The transformation from the standard-issue Japanese layout, with a ring of executive offices around a core of employee desks, began in earnest when the client traded space in Tokyo's staid business district for four stories in a new 17-floor office tower, set amid billboards and neon signs galore. Though this relocation to a mixed-use area on the western side of the city was a move away from corporate clients, it brought Beacon employees closer in body and spirit to the thousands of consumers who flow through the building en route to the subway below or to train and bus stations.

The new location called for a fresh image. More Madison Avenue pitch than programmatic wish list, the client's initial brief likened its office to

*Naomi Pollock is ARCHITECTURAL RECORD's Tokyo-based correspondent.*



The serpentine “ribbon” transforms itself for diverse functions. In video display areas (opposite), it ripples to become raked seating.

a gin and tonic—an internationally enjoyed drink that is transparent, cool, fizzy, with a twist of lime, and, above all, a splash of alcohol to make it fun.

But the project took on more direction in powwows held at Deluxe, the workspace Klein Dytham architecture (KDa) shares with four other small companies: designers, DJs, and a microbrewery. Inspired by the creative cross-fertilization that occurs when diverse, energetic workers share space, the clients asked KDa to incorporate Deluxe’s “base-and-camp” concept of small, individual desks and open, communal meeting areas.

This move led KDa to divide each of the four 56-by-197-foot, column-free floors into open workspace traversed by an undulant 15-foot-wide “ribbon,” within which shared functions line up like train compartments. “[Subway] tracks beneath the building make the space long and thin,” explains Mark Dytham. “Rather than fight the length, we went with it.”

**Project:** Beacon Communications Office, Tokyo

**Architects:** Klein Dytham architecture—Astrid Klein, Mark Dytham, Shimpei Tokitsu, Hiroto Kubo, Yuko Iwamatsu; The Design Studio—Stuart Kay, Shoji Koshimizu,

Hiroshi Nagakura; DG Jones—John Critchley, Toshikazu Yamamoto

**Lighting:** Koizumi Lighting  
**General contractor:** Takashimaya Space Crates (interior); Tokyu Architects & Engineers (architectural)





The lowest floor houses reception, management, and support areas, while the other levels are devoted to ad development. For individual workstations, the designers arranged an office system in horseshoe clusters that can accommodate up to 85 workers per floor. Although company directors were willing to forego private offices, KDa did not even give them desks. Instead, each director got the chair of his or her choice, a file cabinet on wheels, and a spot at a collective directors' work area, where any employee can pull up a chair and chat. Clad in white plastic laminate, this station is more kitchen counter than corporate credenza. "Creative people often get ideas when not thinking about work," says KDa partner Astrid Klein. "It's nice if an office can be like a living or dining room, where one feels relaxed."

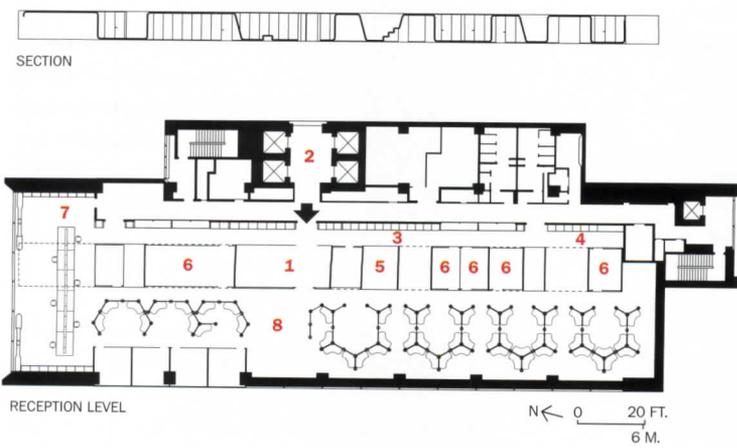
But when directors or their employees need to form a caucus, conduct a brainstorming session, or just have a private phone call, they can duck into any one of the ribbon's meeting rooms or office support areas. Accessible from either side, each of the four ribbons has a steel frame covered with plasterboard that soars and dips along its length, rising to become the ceiling over a conference room, stepping down to form screening-area seating, or swooping low to provide a platform for a test kitchen.

Styled like oversize furniture, the ribbons have distinct profiles adapted to varied functions and surface treatments specific to each floor. Divided into product groups targeting men, women, or families, every



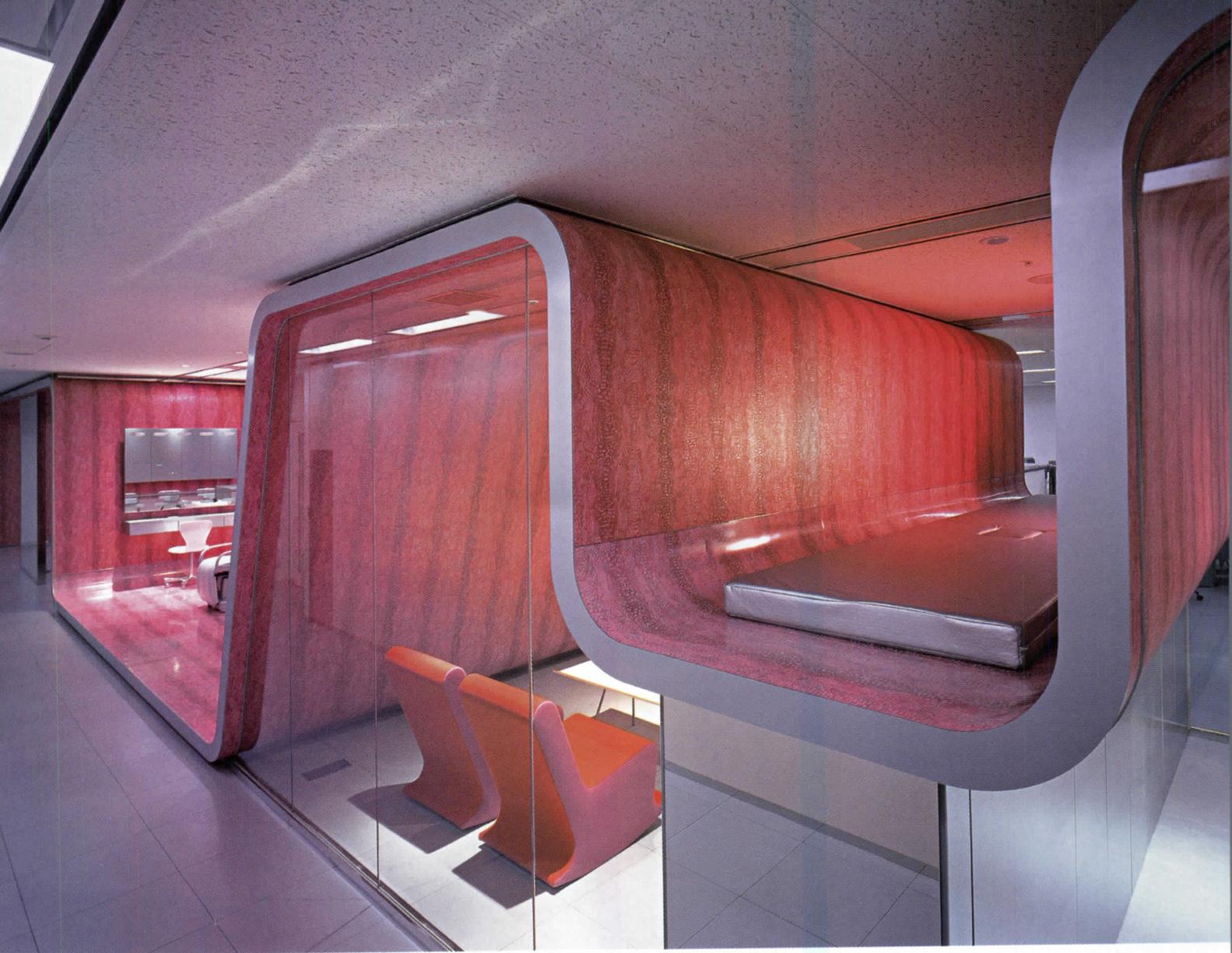
In the spirit of Beacon, the main reception area (top spread and opposite, bottom) has an inviting openness.

For the corporate boardroom (below), clear glazing can be turned filmy when greater privacy is truly needed.



- 1. Reception
- 2. Elevator lobby
- 3. Chat space
- 4. Printer center
- 5. Video screening
- 6. Meeting/conference
- 7. Management
- 8. Workstations





On the women's floor, the "ribbon" bears a pink snakeskin pattern (this page). Here, a bunk—dimensioned like a capsule-hotel unit—provides a nook for relaxed thinking or revitalizing naps. In the salon, employees test products and can also have their hair styled. Warm wood distinguishes the family floor (opposite, top). Casual ball-like seats supplement video-area bleachers (opposite, bottom).





creative level has its own visual identity—flirty pinks and curvy forms for women’s zones; tough metals and hard edges with shades of lilac (a play on machismo) for the men’s realm; warm wood, wholesome wicker, and turquoise for the family market; and chartreuse for management. Though such connotations of color and form might ruffle feathers outside Japan, here the tolerance for stereotypes and sexism far exceeds that of the U.S.

Within these palettes, the architects really went to town. From tatami sitting rooms (for traditionalist clients) to slick corporate boardrooms, there is a place for every mood and occasion—even a beauty salon, which doubles as a product-testing arena and, once a week, as an employee hair salon. Another amenity is a built-in bunk for workers. As Klein observes, “Some people think better when they’re horizontal.” With no two rooms alike, the furnishings are a veritable catalogue of interior goods—with over 430 different furniture items from Japan, Europe, and the U.S.

Not ones to be contained by national borders, Klein and Dytham, both Europeans, graduated from London’s Royal College of Art and arrived in Tokyo in 1988, intending to stay three months. Instead, they ended up working with Toyo Ito until opening their own firm in 1990.

Though KDa now has interiors and new buildings under its belt—including Undercover Lab (2001), a fashion company headquarters in Tokyo, and Vroom (1999), a garage in Nagoya—its Web site, launched in

1995, first put the firm on the map. “We felt remote here, so we collected ads with Western stars promoting products they wouldn’t be caught dead selling in the States, and posted them to hook people in,” says Dytham. The ads at [www.klein-dytham.com](http://www.klein-dytham.com) weren’t about architecture, but their purpose there was to grab attention, as an appetizer for the display of KDa’s work.

That site and the media awareness it revealed probably helped the architects land the Beacon job. But it is their personal brand of contextualism that made it a success. “We’re a Tokyo office,” says Dytham, “and our work is inspired primarily by the energy of Tokyo today, not Japan’s tatami and shoji.” ■

#### Sources

**Cabinetwork:** *Takashimaya Space Creates (built-in wall unit); Knoll (printer/fax storage)*

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





The interior relates directly to views outside (opposite). Telescoping toward the windows is a series of nesting elements—a wooden table on tracks that can roll under a concrete counter and a bench that can slide beneath the table (this page).

# Placing its **SOHO SKYLINE LOFT** in direct dialogue with N.Y.C. views, **Dean/Wolf** crafts an interior landscape in concrete, steel, maple, and glass

By Fred Bernstein

Sometimes urban constraints become powerful generators of form. That was the case when Dean/Wolf Architects recently converted a 10th-floor residential loft in New York City's SoHo neighborhood. The 2,000-square-foot space was five times as long as it was wide, offered no opportunities for vertical manipulation, and had dramatic city views through its double-hung windows but nothing to mediate between this interior realm and the skyscrapers almost two miles away.

The clients, photographer Anthony Gordon and model Martina Gordon, had spent three years looking at lofts—446 of them, the couple claims—before settling on the 20-by-100-foot space. To the architects, that suggested this apartment's apparent limitations had actually been selling points (conscious or otherwise) and deserved to be explored as themes. Notably, the east-west orientation, with windows to the north and east, meant the place would get direct sunlight only in the mornings. Was there a way, the architects wondered, to capture that light, allowing it to penetrate the apartment, and then—even after it had climbed high in the sky—to linger?

The answer, partners Kathryn Dean and Charles Wolf discovered, was to use glass in a variety of forms, combined like puzzle pieces—some of it clear, but most of it back-painted, sandblasted, or textured. As Dean explains, light passes through transparent glass, but translucent glass “holds on to it.” Dean/Wolf deployed both kinds in partitions bordering the living/dining room, two bedrooms, two bathrooms, and an office. Transparent “notches” in the mostly translucent walls allow morning light to filter deep into the loft, as if to wake up the couple, their five-year-old son, and the apartment's interior recesses. The treatment of walls and ceiling eliminates any sense that the loft is, structurally, a series of bays, instead reducing the long rectangle to a continuously flowing space, a more neutral condition. The few interruptions are almost

*Fred Bernstein studied architecture at Princeton University and contributes regularly to Blueprint, World Architecture, and The New York Times.*

**Project:** SoHo Skyline Loft, N.Y.C.  
**Architects:** Dean/Wolf Architects—Kathryn Dean, partner in charge of design; Charles Wolf, partner in charge of construction; Meejin Yoon,

project architect; Clark Manning and Maya Weissman Ilan, renderers  
**General contractor:** Bando Construction—Jae Lim, Joseph Moon

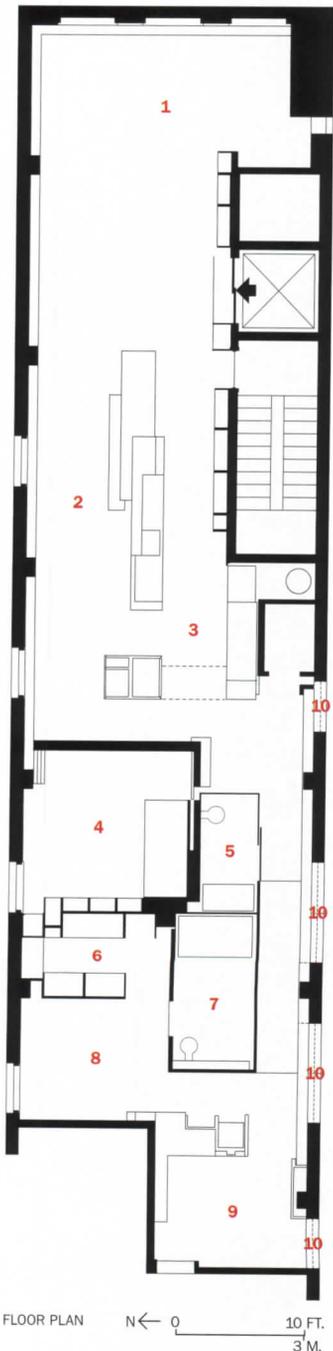


PROJECTS

Throughout the loft, many forms interlock, such as the gliding wood table and stationary concrete counter, or the cabinetry beyond them, discretely housing the refrigerator.



1. Living
2. Dining
3. Kitchen
4. Bedroom
5. Bath
6. Closet/dressing
7. Master bath
8. Master bedroom
9. Office
10. Future window



Drawing inspiration from the colors, textures, and light of the surrounding cityscape, the project juxtaposes greenish glass with hot-rolled steel, pale maple, and cast-in-place concrete (this page).

improvisational, with shadows and reflections assuming as much importance as built interventions.

The loft is entered by elevator on the south side of the living/dining room—with the front door opening onto dramatic views of Midtown Manhattan to the north. On the apartment's long south wall, back-painted green glass works functionally, forming cabinet doors and backsplashes, while also reflecting those views. The opposition between the windows and the parallel reflective wall turns a procession through the space into a passage between two skylines—one real and the other virtual—with the iconic Empire State Building on one side and its ephemeral mirror image on the other.

The color of light entering the apartment was key to the choice of materials. As Dean points out, most of the surrounding SoHo buildings are clad in limestone and granite, which reflect gray light into the loft's windows. (Nearby parks or redbrick facades—characteristic features of the adjacent Tribeca neighborhood—would have given the light a richer, more colorful quality, Dean adds.) So the architects chose materials—including hot-rolled steel, subtly yellow-pigmented concrete, and light maple—that would be animated, rather than overpowered, by the intense but pale morning rays. Colors inside echo or balance those outside. Ethereal as it may seem, the design is also highly





Above steel steps leading into the child's bedroom, a glass wall reflects the living/dining area and its rooftop views (opposite). Translucent glazing, which can slide open or closed, separates the master bath from the loft's corridor (this page).



tactile, with concrete poured in place to form an astonishing series of fixtures: Tubs in the two adjoining bathrooms are seemingly carved out of one volume. It's as if a fragment of Peter Zumthor's spa at Vals, Switzerland, had found its way to SoHo. But instead of a mountain lake in the foreground and the Alps in the background, the loft has a large placid tub and views of the jagged peaks of the New York City skyline. In that way, the architects made sure to honor the need for both the intimate and the transcendent—the human-scale, the tactile, is experienced up close, and the heroic at a distance.

The fact that most elements in the design are handmade emphasizes the distinction between real and ideal. Concrete floors are hand-troweled, and hand-finished bronze clips hold glass partitions in place. "That somebody actually made them creates intimacy," says Dean. "It's a luxury, in a mass-produced world, to have imperfections."

The cast-in-place-concrete dining table at the center of the main room is one of the handcrafted items. It is long and narrow; its surface cries out to be touched; and its configuration is ingenious—allowing it to nest under the kitchen counter, or to roll out on a track when needed for parties (or when Anthony works in the kitchen). Martina takes credit for the idea of the rolling, telescoping table, but it's obvious where she got her inspiration: In its linearity, its tactility, and its ingenuity, it pays homage to the architecture all around it. ■

**Sources**

**Lighting:** *Lightolier*

**Plumbing:** *Duravit (toilets); Get Real Concrete (sinks); Boffi (faucets and showerheads)*

**Hardware:** *Rixson (pivots); Hafele (sliding hardware)*

**Cabinets:** *Bando Construction (custom)*

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

Dean/Wolf used many forms of glass in the loft, including a back-painted variety on the kitchen floor (right and far right), sandblasted screens around the cast-in-place-concrete bathtub (above), and tiles of recycled vitreous material in the bathrooms.





Sandblasted glass screens the entry zone of the modestly scaled master bedroom (this page). From the doorway, these veil-like panes frame views of the Empire State Building. The architects designed spare cabinetry with a single shelf interlocking it.





Cabanalike enclosure  
rim the lobby lounge,  
blurring the line  
between public and  
private (above).  
Mirrored partitions  
and red-painted  
backdrops frame a  
lobby platform (below)  
and the check-in  
stations (opposite).

# At the **W HOTEL** in Times Square, designer **Yabu Pushelberg** creates spare, richly textured compartments, evoking a bento box's sensual delights

By William Weathersby, Jr.

It's a long way from Planet Hollywood to the stylish sphere of the W Hotel in Times Square. The 52-story tower was initially planned as a frenetic, family-oriented satellite of Planet Hollywood's theme restaurant chain. After a change in ownership during construction, however, the pop-culture setting was eclipsed by a more refined realm. With interiors reinvented by the interior design firm Yabu Pushelberg, the W Hotel's serene landscape almost floats above the streetside chaos at the so-called Crossroads of the World.

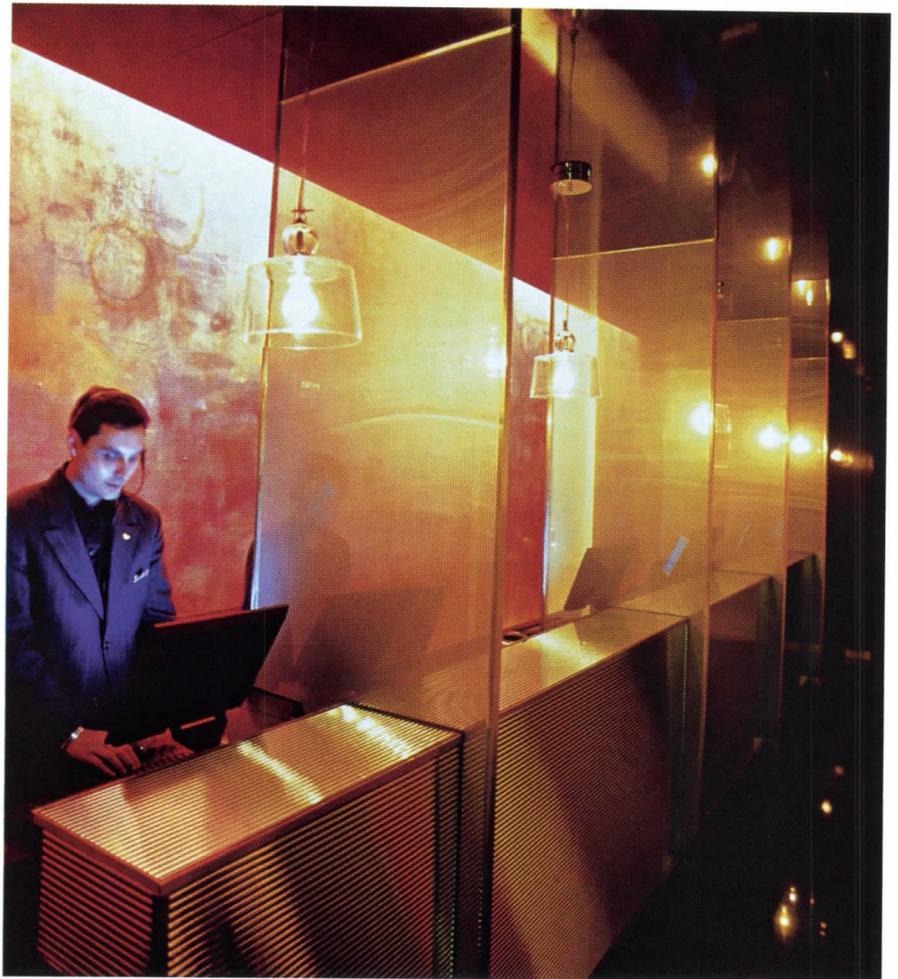
Replacing a mass-appeal menu, the hotel's interiors now suit subtler tastes. Like a lacquered bento box, the Zenlike hotel offers an array of delights imbued with natural color and texture, all contained in interlocking enclosures. It's a sampler of varied moods, functions, and materials—spare vignettes forming a harmonious whole.

When Planet Hollywood filed for Chapter 11 in 1999, Starwood Hotels & Resorts Worldwide stepped in to retrofit the building as a flagship for its W brand, a domestic chain of 16 urban hotels geared to design-savvy travelers. Starwood scrapped the existing interior specifications and commissioned the Toronto team of George Yabu and Glenn Pushelberg to rework public spaces and guest rooms, providing, as Pushelberg puts it, “an oasis from the sensory overload of the theater district.”

The designers tackled the building's constraints head-on. With tight floor plates, boxy public areas were stacked on the lower floors with few connective or transitional spaces. At street level, separate entrances to the lobby, restaurant, and below-grade nightclub further broke continuity. Complicating matters, the restaurant and nightclub were leased to outside operators, introducing yet another client tier to review the design.

“The hotel's public spaces fit together like pieces of a puzzle,” Pushelberg says. Patrons might visit only one area, perhaps the restaurant or one of four bars, while a registered guest might require a range of experiences to enrich a weeklong stay. Working with the preset infrastructure, Pushelberg explains, “we explored the idea of compartmentalization,

*Contributing editor William Weathersby, Jr., frequently writes about lighting and interior design for RECORD. He lives in Westport, Conn.*



guiding guests through a series of varied, unfolding spaces.”

Though the project's populist Hollywood iconography had been abandoned, “we were aware of Times Square's ‘everyman’ connotation at the heart of the city's busiest tourist district,” Pushelberg says. Employing

**Project:** W New York Times Square, New York City

**Owner/client:** Starwood Hotels & Resorts Worldwide

**Architect of record:** Brennan Beer Gorman Architects—Mario LaGuardia, AIA; Kevin Brown

**Interior designer:** Yabu Pushelberg—George Yabu, Glenn

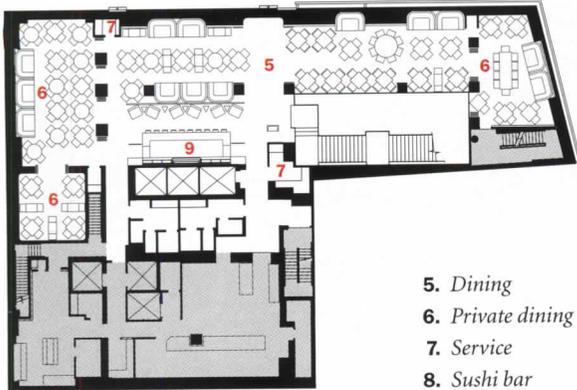
Pushelberg, principals; Mary Mark, Reg Andrade, Anson Lee, Marcia MacDonald, Cherie Stinson, Aldington Coombs, Alex Edward, Eduardo Figuerero, Marc Gaudet, Mika Nishikaze, Sunny Leung, Kevin Storey, project team

**Lighting designer:** L'Observatoire—Hervé Descotte, principal



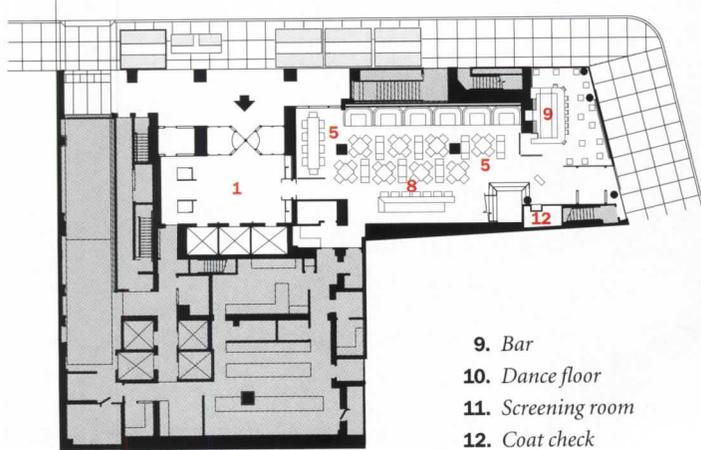
- 1. Lobby
- 2. Check-in
- 3. Lounge
- 4. Retail

LOBBY: SEVENTH FLOOR



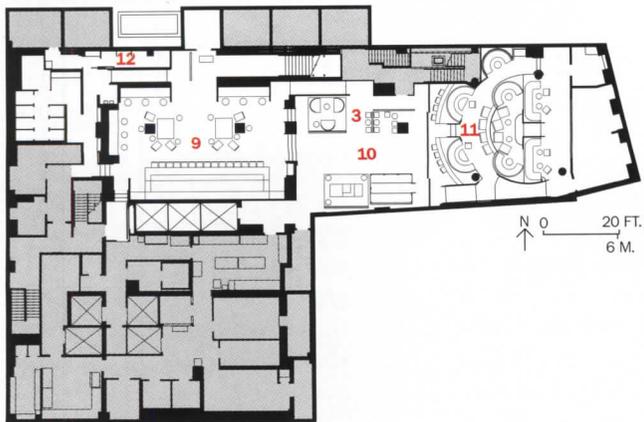
- 5. Dining
- 6. Private dining
- 7. Service
- 8. Sushi bar
- 9. Bar

BLUE FIN RESTAURANT: SECOND FLOOR



- 9. Bar
- 10. Dance floor
- 11. Screening room
- 12. Coat check

BLUE FIN RESTAURANT: GROUND FLOOR

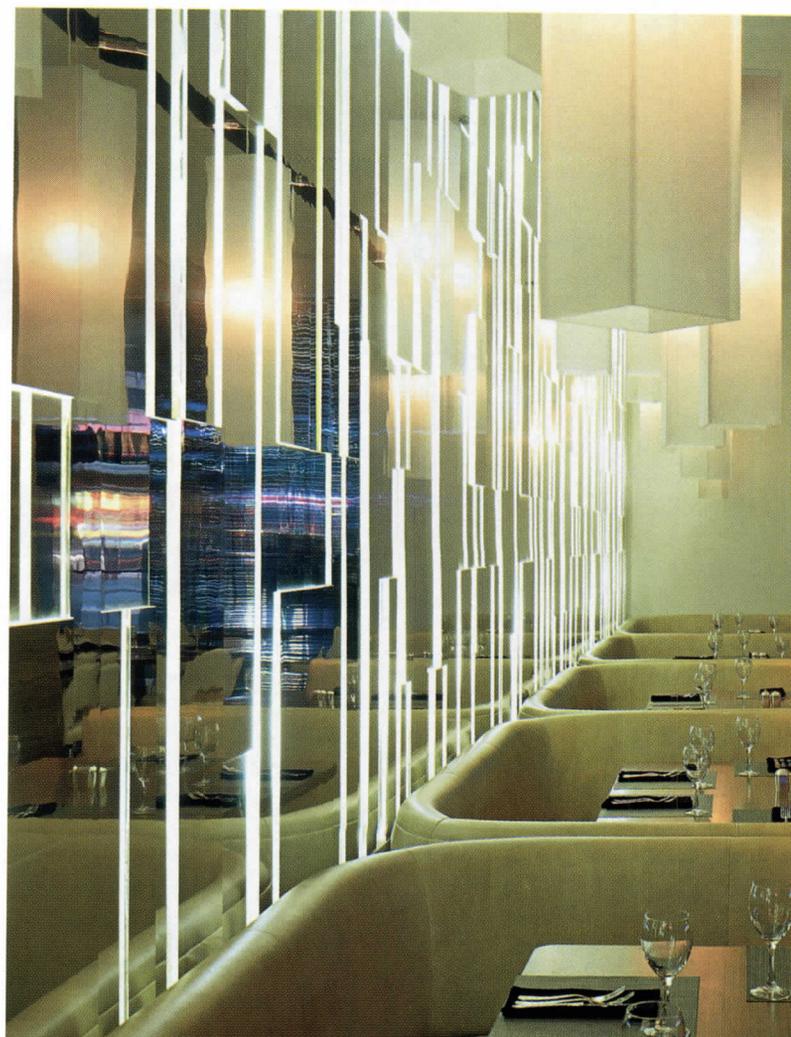


WHISKEY BAR: CELLAR LEVEL



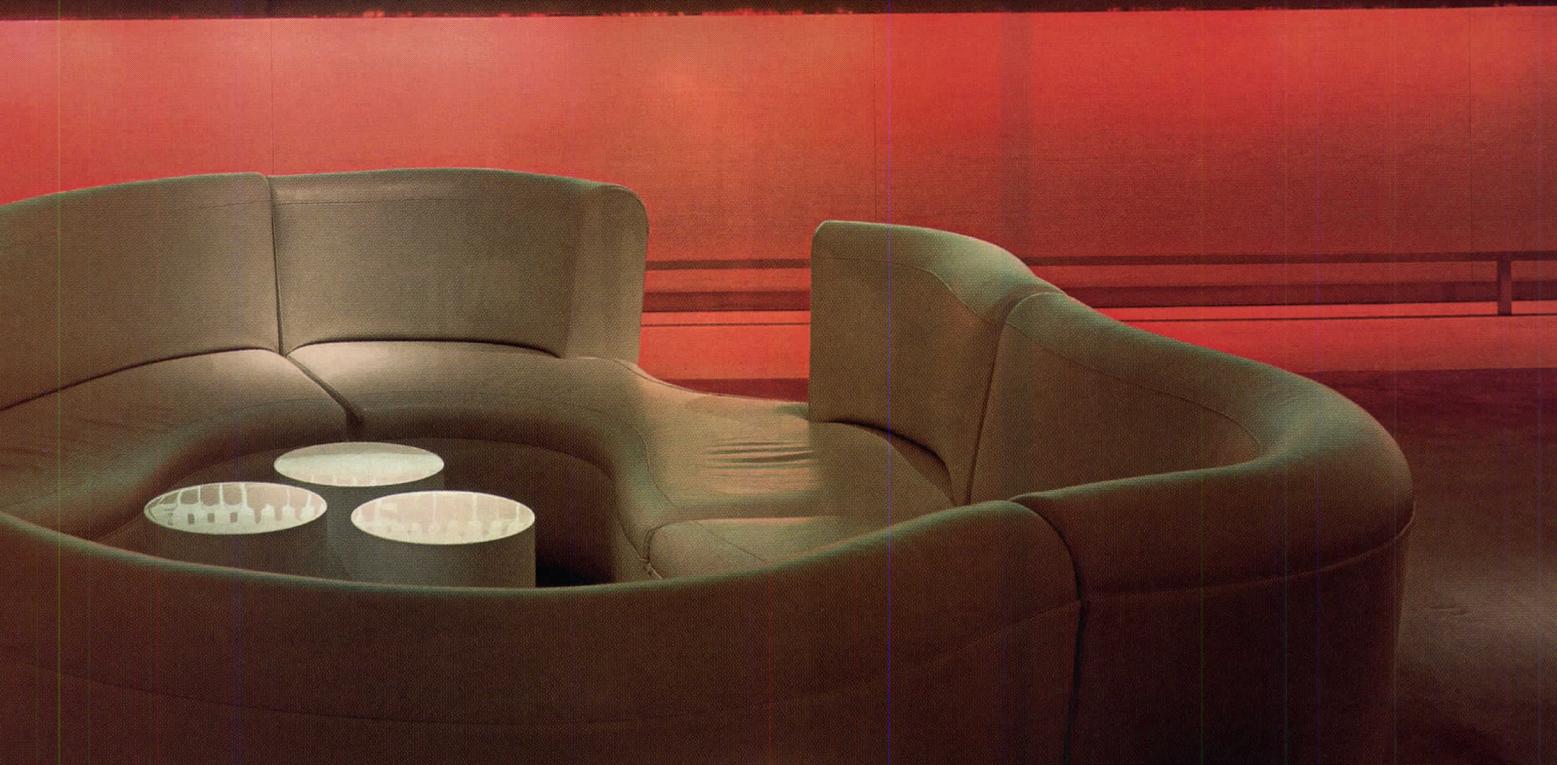
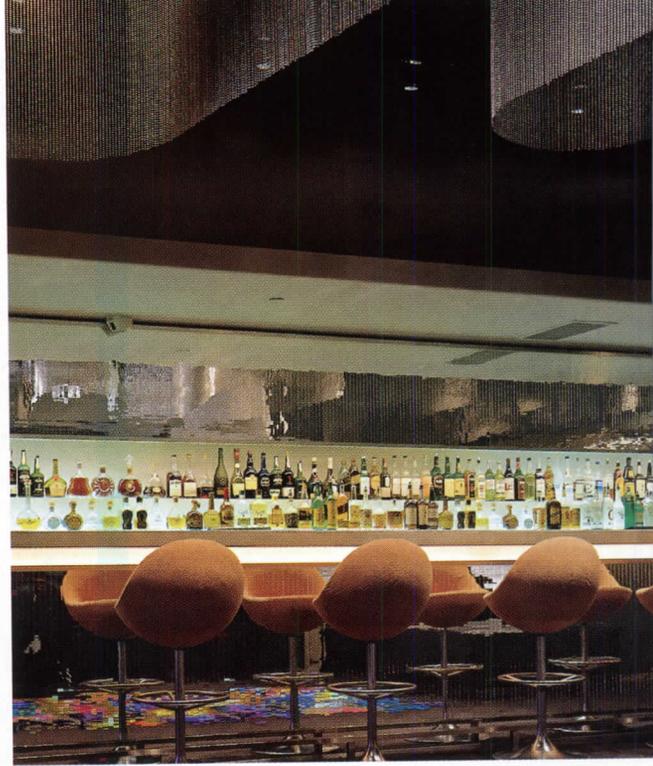


In the Blue Fin restaurant, pine-slat partitions create intimate settings (left and opposite, top). Enhancing the terrazzo staircase, a textured concrete “Wave Wall” and a mobile of abstract fish subtly support the aquatic theme (below left and opposite, bottom). Illuminated jigsaw sections of mirror above the banquettes echo the compartmentalized plan of the two-floor space (below right).



Chain-link curtains undulate through The Whiskey, a below-grade disco-styled nightclub (right and opposite, top). Dubbed the Living Room, the hotel lobby displays a range of upholstered

furniture illuminated by oversize lanterns and a back- and front-lit bar (below and opposite, bottom). White-stained wood flooring unifies diverse seating areas in the lobby's loftlike space.





spare, linear furnishings and enclosures without gimmicks, “it’s meant to be an accessible, nonconfrontational Modernism that welcomes everyone.”

As with Yabu Pushelberg’s recent redesigns of interiors at Tiffany and Bergdorf Goodman stores in New York, the W juxtaposes a range of striking visual “moments.” Entering the elevator lobby on 47th Street, guests cross a dramatic threshold. Framing the foyer, water flows behind glass panels along the ceiling and side walls, immersing the compact space in refracted light and the sound of trickling water. A black terrazzo floor and steel elevator doors sharpen the cool edges.

Reaching the seventh-floor reception lobby, elevators open directly onto a lounge called the Living Room. Oversize light boxes hover above white leather-upholstered ottomans marching through the loftlike space. The monochromatic palette—white-stained oak floors, terrazzo platforms, acrylic cubes, and plaster and resin walls—is accented by colored lighting cast across an expansive bar and by a rainbow-hued painting in a niche behind an acrylic jigsaw screen. Since the existing windows would have overlooked an adjacent office building, the designers obscured them for a calming, cocoonlike ambience. Seating options—from rough-hewn wood stools on the periphery to deep, plush sofas in an “inner sanctum” near the bar—invite different modes of interaction.

To the west of the living room, the registration area is set within a darker rectilinear “container” defined by black terrazzo flooring, dark paneling, and ribbed-mirror-glass insets. Behind the compartmentalized counter, a slash of red-painted canvas gives the walls a varnished look. Tucked around the corner, a gift shop appears as a brightly lit white cube.

Fronting Broadway and accommodating two cocktail bars plus a sushi bar, the two-floor Blue Fin restaurant belies its 400-seat size. Slats of pine baked to a blackened finish are strung to form sculptural partitions that screen more intimate vignettes. Mirrored walls acid-washed in amber, charcoal, and red tones softly reflect light on bare wood tables circled by Saarinen chairs. Along the terrazzo staircase, a textured concrete wall of undulating waves ascends to a mobile of an abstract school of fish floating overhead. The aquatic theme is sketched in subtle strokes.

In The Whiskey, the 6,000-square-foot basement-level nightclub, chain-link curtains cloak seating areas and a separate screening room, outfitted with mod leather-covered banquettes and stools. A vintage ’70s dance floor, whose liquid-filled panels change color as dancers step across them, is an homage to a disco that once occupied the site.

Upstairs, each of the 509 guest rooms is spare yet sensual. Furnishings in smoky charcoal and tobacco shades are set against muted wall covering with color gradations from slate to sand. A continuous neutral plane—a composite of resin and terrazzo—flows from the entry floor into the bathroom, and up along the walls to wrap the shower. Translucent polycarbonate screens, cutting across a corner of the bathroom, serve as room dividers, blurring public/private boundaries.

Like Yabu Pushelberg’s playful spaces throughout the W Times Square, these rooms have turned the standard decor of Midtown chain hotels inside out, packing a variety of surprises into a stripped-down, refitted container. ■

#### Sources

**Wall covering, wall finishes:** *Metro Wallcoverings; Moss & Lam; Excelsior*

**Cabinetry, millwork:** *Benchmark Furniture; Pancor Industries; Erik Cabinets*

**Paints, stains:** *Sherwin Williams*

**Flooring:** *Stone Tile International; Sullivan Source*

**Lighting:** *Abramczyk Studio; Baldinger; Color Kinetics; Eurolite; Sistemalux; TPL Marketing; Unit Five Manufacturing*

**Furniture:** *Knoll; Minima; Pancor*

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



Running the entire length of the bar, the light sculpture constantly changes colors (this page). It is visible from the exterior (opposite) and across the harbor.



# In Sydney, Australia, **Landini Associates** creates **CRUISE**, a wittily named bar and restaurant —a beacon in the harbor

By David Clark

**T**he Sydney Opera House on Bennelong Point marks the entrance to Circular Quay—the maritime gateway to Sydney's busy port, plied daily with ferries, water taxis, and harbor cruise ships. Directly across the cove from the Opera House is the Overseas Passenger Terminal, where ocean liners, too big to fit under the Sydney Harbor Bridge, berth for their stay in the city. Recently refurbished, the terminal's street/harbor level is now lined with bars and restaurants, including Cruise.

In his design for this bar and restaurant, Mark Landini, of Landini Associates, in Sydney, acknowledges the supremacy of the site's postcard Opera House view by keeping the interior simple, streamlined, and white. The most attention-drawing feature is an ever-changing light sculpture, 42 feet long, that runs behind the entire bar—with a mirror at one end of the piece effectively doubling its length.

This gridded light installation was the result of Landini's collaboration with London-based lighting designer and sculptor Jeremy Lord, whose work the designer first encountered three years ago, when he saw a scaled-down version of the concept in a shoe-shop window. Landini was transfixed by the changing colors and, after that, looked for a chance to work with the sculptor. Cruise presented an ideal opportunity, not only because it would be a primarily nighttime bar and restaurant in a major tourist area, but also because its waterfront

*David Clark, a former editor of Belle magazine, is a Sydney-based writer specializing in architecture and design.*

**Project:** Cruise Bar and Restaurant, Sydney, Australia

**Architects:** Landini Associates—Mark Landini, creative director; Ian MacDougal, project architect; Clayton Andrews, graphic design; Base Building

**Architects—**Bligh Voller Nield

**Light sculptor:** Jeremy Lord

**Engineer:** Tailor Thomson Whitting

**Consultants:** Complete Metro Lighting; The CKC Group (kitchen)

**General contractor:** St. Hilliers Interiors

PHOTOGRAPHY: © ROSS HONEYSET

PROJECTS



Except for the vividly illuminated wall (below), much of the interior and its furnishings are white, elegantly simple, and streamlined (left). The interior opens toward spectacular views of Sydney Opera House (below left).



location would allow the sculptural light mural to act as a beacon, visible after dark from across the quay.

Behind the sculpture's grid of curved, oblong polycarbonate sheets, shaped to diffuse light most effectively, are four different-colored fluorescent tubes (red, green, blue, and yellow), which a computer program dims or illuminates, mixing the light like paint to create an infinite palette of hues in constant flux.

The light sculpture plays against the larger spectacle of the Opera House across the water. Like a cruise ship lounge, the restaurant and bar have large windows, taking full advantage of the view. With waterside decks and other maritime features from the building's original '50s design, Cruise evokes the experience of being onboard an ocean liner at port.

Landini, who was born in the U.K., moved to Sydney in 1993, having been creative director of the Conran Group. The distinction of his practice, Landini Associates, is that it approaches each project—be it a restaurant, retail shop, or the identity of a large corporation—from a “branding” perspective. The eight-year-old firm, comprising a team of about 20 people—interior and graphic designers, and architects—designs every public interface in its work. At Cruise, not only is the interior by Landini, but so are the menus, the signage, the uniforms, the corporate identity, and everything down to the name with its playful double entendre. The proprietor, who also owns a pub in a nearby suburb, engaged Landini here on the Sydney Harbor to envision and realize an entire realm. Even the drink coasters, graphically mimicking the light sculpture, are part of the greater concept of Cruise. ■

#### Sources

**Terazzo:** TAM (walls, floor, and bar)

**Lighting:** The Colour Light Company (kinetic wall light)

**Cabinetwork:** Norford Industries

**Furniture:** Unifor (Vitra Eames plastic chairs); DeDeCe (Capellini stools);

Map (stacking tables designed by Landini Associates)

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

# New Building Systems Mimic Nature and Return to a Biocentric Approach to Design

GROWTH IS GOOD WHEN IN ACCORDANCE WITH NATURE'S OWN TIME-TESTED BLUEPRINT

By Nancy B. Solomon, AIA

**W**e've come a long way from the sealed-window, fluorescent-lit, energy-guzzling buildings of the mid-20th century. With the help of the U.S. Green Building Council's LEED rating system and other green guidelines, more and more architects are meeting stringent environmental criteria. "Architects are getting good at the 'technofix,'" says Bill Browning, Hon. AIA, a principal at Rocky Mountain Institute. They are becoming adept at applying technologies that deplete fewer precious resources, generate less toxicity, and threaten fewer habitats. In an industry that claims about 40 percent of the energy, 40 percent of the virgin minerals, and 25 percent of the virgin wood consumed worldwide per year, what else could we ask for?

Much more, it turns out. Up until now, sustainable design has been essentially an effort to minimize damage so that we can at least maintain what we still have. A worthy objective, considering the ever-mounting environmental degradation we are witnessing, but is this all we can aspire to? "It would be a pretty sorry state of affairs," says architect Bill McDonough, FAIA, principal of William McDonough + Partners in Charlottesville, Virginia, "if, when asked how are things between you and your spouse, you answer 'sustainable.'" Like a good marriage, good design should be uplifting and fertile.

Nature—whose designs are inherently efficient, effective, and beautiful—offers us models of abundant, healthy production. In their new book, *Cradle to Cradle: Remaking the Way We Make Things* (North Point Press, 2002), McDonough and his coauthor, chemist Michael Braungart, illustrate this with a cherry tree: Its fruit becomes food for animals and insects; its bounty of lovely leaves degrades naturally into the earth. Nothing is wasted; nothing is toxic. In terms of nature, growth is in fact

*Contributing editor Nancy B. Solomon, AIA, writes about computers, building technology, and practice topics of interest to the architectural community.*

## CONTINUING EDUCATION



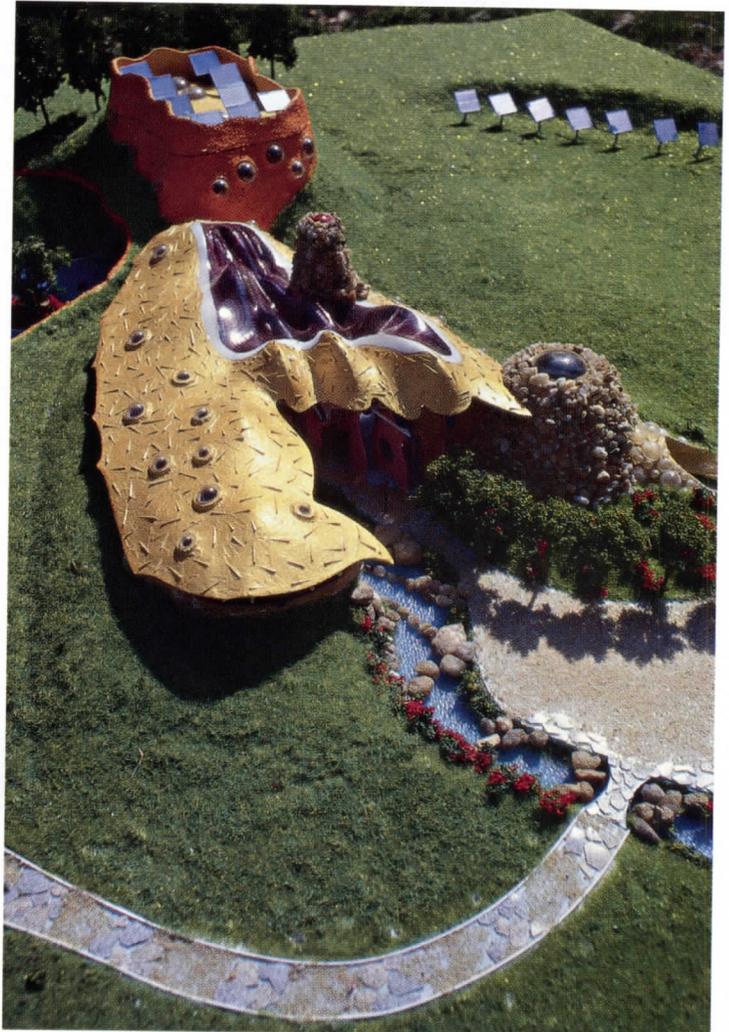
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 180 and follow the instructions.

## LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Define regenerative design
2. Explain why sustainable design is not enough
3. Discuss biophilic architecture
4. Discuss biomimicry's effect on building design

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



To be built in Wisconsin's "tornado alley," the underground Kaufmann House by Eugene Tsui will have parabolic openings to maximize light penetration.

good. So why can't the same be said about the growth of human settlement?

It can, say those on the green frontier, if we can learn from nature. According to Gil Friend, president and C.E.O. of Natural Logic, "Nature's ecosystems have spent 3.85 billion years building efficient, complex, adaptive, resilient systems. Why should we reinvent the wheel, when the R&D has already been done?" Increasingly, architects are collaborating with chemists, biologists, ecologists, and psychologists to learn Mother Nature's secrets and apply them to our own mortal designs.

## Finding our place

"Why does a 400-year-old structure still work and feel right?" muses Boston-based architect Bill Reed, AIA, vice president of Natural Logic. "Not because of its style—timeless buildings exist in any style—but because it grew out of its place." The master builder, who was local, had all

## Proposed Power Plant Brooklyn, N.Y.

Artist Michael Singer of Wilmington, Vermont, and a team of designers, including Marcus Springer of Cannon Design in Boston, conceived of a community-friendly power plant for an industrial site along the East River in New York City (right). Waste heat from the utility plant will help to grow garden plants in greenhouses built along the exterior structure of the building (below). The public will be able to walk through a riverfront garden next to the power plant's facade.



the local data he needed—including climate, available materials, and labor, culture, and economy—to influence his architectural solution. “Local conditions allow a building to be part of its place,” sums up Reed.

Consider another scenario: “Until 1860, Paris fed its entire population with food that came from no farther than 40 miles away,” says Reed. It was a closed-loop system: Vegetables were eaten, and the resulting human waste became fertilizer. Once the city sewage system was constructed, however, the nutrients flowed out and the loop was broken.

In our rational Cartesian framework—in which everything can be logically mapped out in quadrants or dissected into discrete units—we have, for the most part, lost sight of such underlying flows, cycles, and connections. Even worse, we have become indifferent to them, believing our technological wizardry can outdo Mother Nature’s organic schemes. But our technological hubris has come home to roost.

“We are a society that seeks to create manageable uniformity,” said landscape architect John Tillman Lyle, author of *Regenerative Design for Sustainable Development* (John Wiley & Sons, 1996) and a professor at California State Polytechnic University at Pomona until his death in 1998. In creating such regularity, however, we destabilize life-giving processes. America’s ubiquitous turf grass, for example, yearns to evolve into a meadow and then a forest. Yet we beat it into submission by mowing and dumping chemicals on it. In the process, we inhibit groundwater

recharge; poison air, land, and water; and waste not only precious fossil fuels but also our own precious time.

To heal the Earth, and ourselves, says Reed, “we have to fundamentally change our relationship with natural systems, from energy and water flows to nutrient cycles.” Instead of fighting against Mother Nature, we need to work with her to help stabilize nature’s life-giving processes. It is just not up to the Earth to heal herself, because we, too, are part of the Earth.

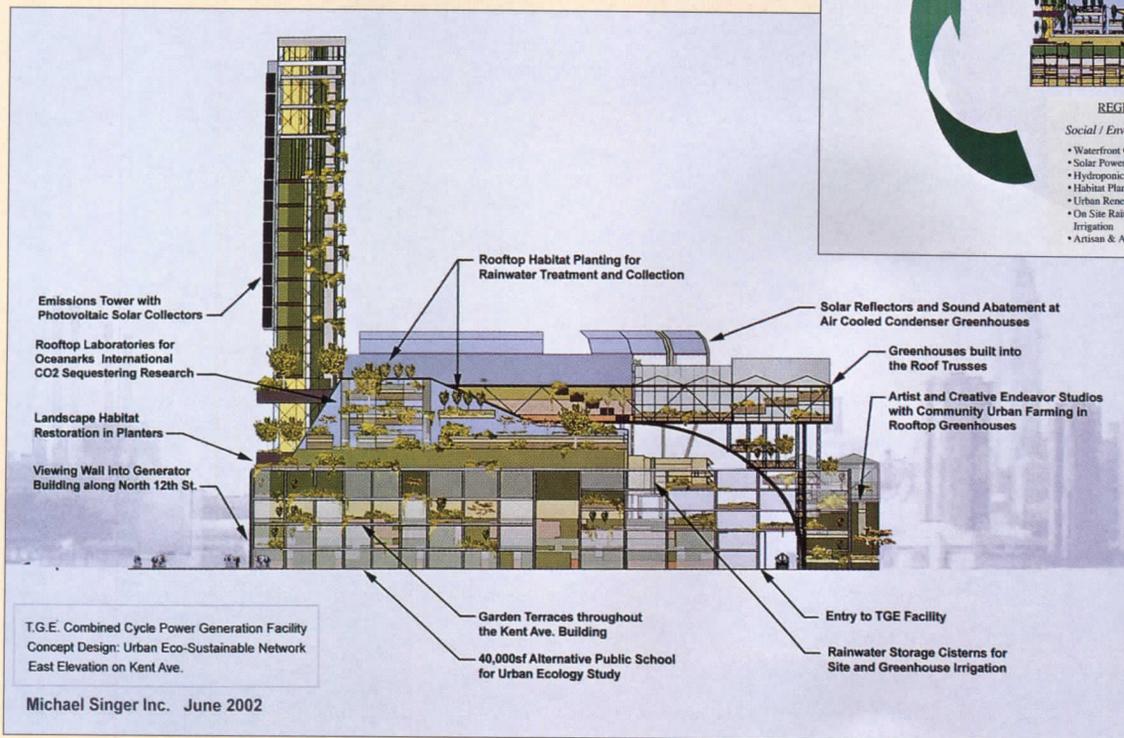
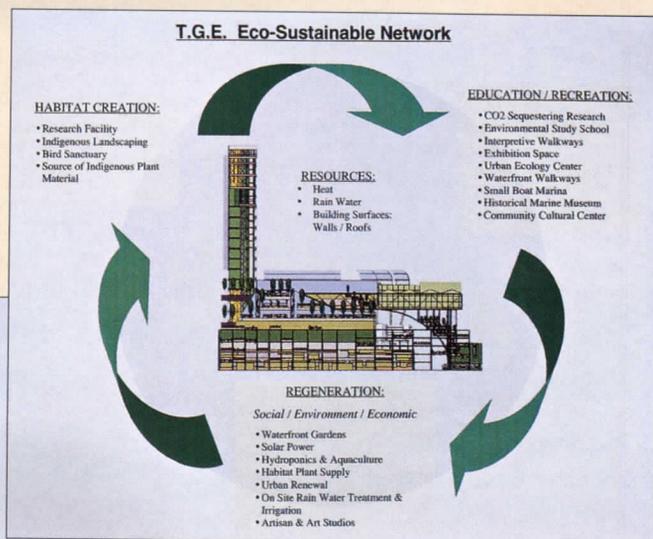
This kind of design goes beyond sustainable; it is regenerative. It revitalizes the underlying systems—both cultural and natural—so that all

## WE INHIBIT GROUNDWATER RECHARGE AND WASTE NOT ONLY PRECIOUS FOSSIL FUELS BUT OUR OWN PRECIOUS TIME.

can work efficiently and in concert to achieve and maintain a healthy environment. Regenerative design grows out of various ecological movements, including permaculture. The word, originally intended as a hybrid of permanent and agriculture, was coined in 1978 by Australian ecologist Bill Mollison and one of his students. Reed boils the discipline down to its essence: “Permaculture basically says that gravity happens. Water flows down and takes nutrients with it.” By acknowledging such forces and working with them, permaculture designers strive for systems that reap the

The design team considered the various systems, both broadly (right) and in technical detail (below). The vertical-emissions tower will be clad with photovoltaic solar collectors to generate additional energy. Flowers and farm

vegetables grown in the greenhouse will be sold to restaurants and other commercial venues, while indigenous and endangered plants will be cultivated in the natural habitats located on-site and elsewhere in the city.



greatest benefits with the least amount of effort and resources.

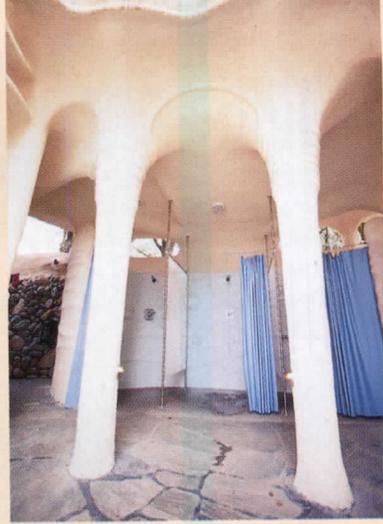
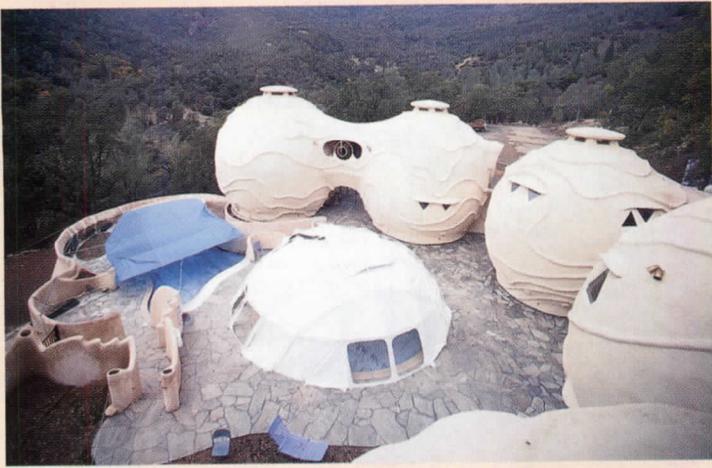
The magic of tapping into natural systems is illustrated in a simple but powerful land-restoration project undertaken by architecture-trained permaculture designer Vint Lawrence. In 1991, Lawrence bought a 400-acre ranch called Apache Creek in the Sangre de Cristo mountains of Santa Fe, New Mexico. These mountains have suffered from erosion over the years, causing a dramatic decrease in vegetation.

To reestablish the natural flora in the region, Lawrence needed to minimize soil erosion and maximize water absorption. To do so, he had to slow the flow of water over the terrain. So, he installed gabions and check dams—man-made barriers—and ponds at strategic points on his site. The work paid off: Today, even after two years of drought, the raised water table at Apache Creek Ranch supports a lush, green riparian zone.

During the course of his research, Lawrence learned that beavers lived in the Sangre de Cristo mountains until about 1820, at which point they had all been trapped for their furs. He subsequently uncovered numerous black loam deposits—physical evidence that a series of beaver ponds had indeed traversed the land at one time. “They were the water engineers,” says Lawrence. Once the beavers were decimated, their dams eventually collapsed and erosion increased. In this region, there is not yet enough vegetation to support authentic dam-building critters, so Lawrence has intervened as a self-described “analog beaver.”

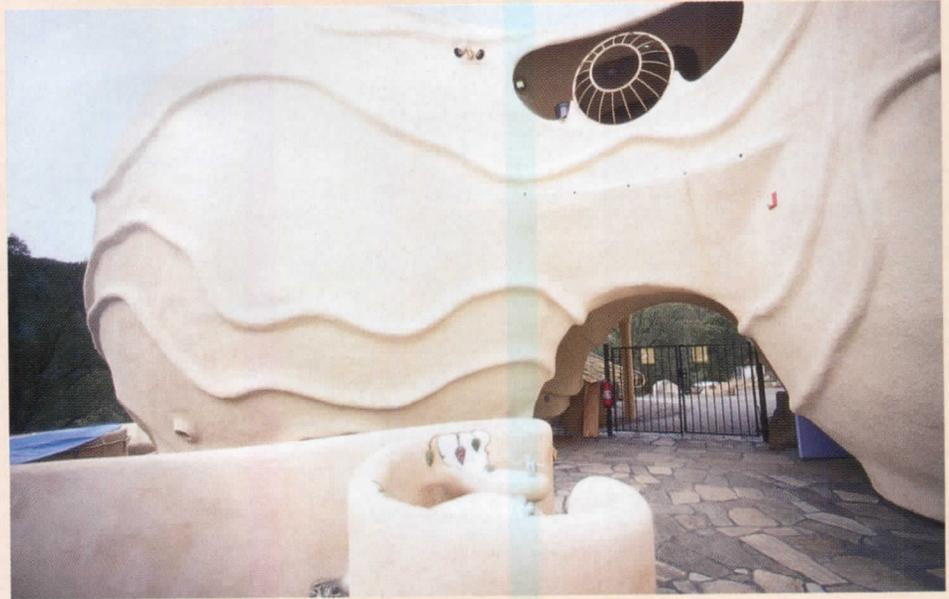
Regenerative design is not limited to rural settings. A multidisciplinary team led by artist Michael Singer of Wilmington, Vermont, took this integrative approach when developing the conceptual design for a natural-gas power plant in the Brooklyn, New York, neighborhood of Greenpoint. An oil storage depot currently occupies the eight-acre industrial riverfront site. The team, which included architect Marcus Springer, of Cannon Design in Boston, and engineer Calen Colby, of Oest Associates, in South Portland, Maine, began by investigating the existing local systems, from environmental to educational, and by considering how these could be enhanced by the power plant’s available resources—namely waste heat, storm water, and expansive roof and wall surfaces.

Roof and walls became a logical framework for planting. A greenhouse system integrated into the building’s vertical surfaces takes advantage of the waste heat emitted from the power plant. With this recaptured heat, the plants can grow more quickly and all year around. Planting on the roof reestablished a natural habitat in this neighborhood. It also slows down and treats storm-water runoff. Phosphorous removed from this water becomes nutrient for the plants instead of pollution in the adjacent river. The collected storm water is stored in a cistern on-site for future irrigation, eliminating any need to siphon water from New York City’s already overtaxed system. Meanwhile, the large vertical-emissions stack doubles as a support for 65,000 square feet of photovoltaic panels, which



**The New Watsu Center School and Residence Middletown, Calif.**

The world headquarters for the teaching and practice of Watsu, a therapeutic massage done in water, is located in an earthquake-prone area. Architect Eugene Tsui employed five geodesic domes (above) as the structural system. A series of parabolic arches angling in various directions (far right) creates a forestlike space for three outdoor showers.



will produce enough electricity to operate the school and the greenhouse lights and irrigation pumps, in addition to adding power to the utility grid.

**Biophilia**

While these intrepid designers are working to integrate architecture with natural systems, scientists are increasingly mounting evidence of the critical role nature has played in our evolutionary development and, if properly embraced, the potential nature offers for our future health and

**SCIENTISTS ARE MOUNTING EVIDENCE OF THE CRITICAL ROLE NATURE HAS PLAYED IN OUR EVOLUTIONARY DEVELOPMENT.**

productivity. This area of study has come to be known as biophilia.

Edward O. Wilson, professor of comparative zoology at Harvard University, first used the term in 1984 to describe humans' innate attraction to other forms of life. According to Wilson, our affinity for nature is intrinsically linked to our own human nature because—logically enough—our species developed over the course of hundreds of thousands of years within nature. “In short, the brain evolved in a biocentric world, not a machine-regulated world,” writes Wilson in *The Biophilia Hypothesis* (Island Press, 1993). From this premise, it follows that we humans may not

be able to achieve our full potential—physically, intellectually, or spiritually—if we become too isolated from the natural world.

Various research projects seem to support the biophilia premise. In one study by environmental psychologist Roger S. Ulrich, professor at Texas A&M University in College Station, patients recovering from surgery were assigned to rooms with windows overlooking either deciduous trees or brick walls. Those with the natural views recuperated more quickly while receiving less powerful painkillers. And, according to Seattle-based environmental psychologist Judith H. Heerwagen, productivity increased slightly when Herman Miller workers first moved into the McDonough-designed SQA building in Holland, Michigan, which boasts many green features. This is atypical, explains Heerwagen: Productivity typically decreases significantly during the first few months after a company relocates.

Stephen R. Kellert, professor at the School of Forestry and Environmental Studies at Yale University, has explored the implications of biophilia on the built environment. In *Reshaping the Built Environment* (Island Press, 1999), Kellert spells out nine values of biophilia—defined briefly below—which he proposes as “broad design objectives” for future development:

- aesthetic (physical attraction and appeal of nature)
- dominionistic (mastery and control of nature)
- humanistic (emotional bonding with nature)

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### Herman Miller Front Door Holland, Mich.

In the spring of 2000, Herman Miller's corporate leaders and their support team moved into the Front Door (left). The interior offers generous amounts of daylight in keeping with the principles of biophilia. This new office addition and the original Design Yard (top left), built in 1988, were designed by the Minneapolis-based architecture firm Meyer, Scherer & Rockcastle. The lobby (above) features a playful wall fountain opposite entry doors.

- naturalistic (exploration and discovery of nature)
- moralistic (moral and spiritual relation to nature)
- negativistic (fear of and aversion to nature)
- scientific (knowledge and understanding of nature)
- symbolic (nature as a source of language and imagination)
- utilitarian (nature as a source of material and physical reward).

Specific building elements that figure prominently in a discussion of biophilic architecture include organic forms; views to nature; indoor greenery; natural lighting, ventilation, and materials; and spatial and visual diversity.

According to Heerwagen, good examples of biophilia in the built environment are still few and far between. In fact, she believes modern zoo design takes these issues much more seriously than design for human habitation: "Zoo designers now consider the animals' natural environments and what they need—physically, psychologically, and socially—to be healthy." Long gone are the small, boxy cages of yesteryear; animals are allowed to roam more freely and, in some instances, even search for food. In contrast, how many Americans still work in sterile, windowless cubicles?

In an attempt to remedy our current human predicament, Rocky Mountain Institute is collaborating with Heerwagen and Kellert to develop a multiyear research program that would seek to determine the kinds of rela-

tionships that are truly needed between our built and natural environments.

### Biomimicry

Biomimicry represents yet another take on nature's role. The word, made popular by life science writer Janine Benyus of Helena, Montana, in her 1997 book of that name, describes the process of imitating nature to solve human quandaries. Benyus and biologist Dayna Baumeister run an organization called Biomimicry, which offers workshops on the subject.

The study of natural systems, say biomimicry proponents, will trigger innovations in building design and building-product development that are resource efficient, environmentally benign, and aesthetically satisfying. The now classic building example is Eastgate [ARCHITECTURAL RECORD, July 2001, pages 142–44], a mixed-use, mid-rise complex in Harare, Zimbabwe, designed by Zimbabwean architect Mick Pearce of Pearce Partnership. Built in the mid-1990s, the building *parti* was inspired by the well-ventilated African termite mounds, which maintain a constant internal temperature of 87 degrees Fahrenheit despite extreme temperature fluctuations outside.

There are product examples, as well. Two were introduced by German companies in 1999: Lotusan, exterior silicone paint by Ispo, and Lotus Effect roof tiles by Erlus. They both exhibit self-cleaning properties based on the so-called "lotus effect." This phenomenon, discovered by





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biologist Wilhelm Barthlott of Bonn University, in Germany, refers to the process by which the lotus leaf maintains its purity despite its muddy environs. Simply put, the surface microstructure of the lotus leaf is so bumpy that there is not enough contact area for dirt particles or water droplets to adhere. Instead, the water beads up and rolls off the leaf, taking the miniscule particles along with it. The manufacturers duplicated this bumpy surface on their products to avoid the common problem of surface streaking. The lotus effect is counterintuitive to our traditional notions of cleaning—typically, manufacturers have tried to keep surfaces as smooth as possible to avoid crevices that trap dirt.

### **Cradle to Cradle**

The title of McDonough and Braungart's new book can be seen as an important corollary to biomimicry. Following nature's thrifty model—where nothing is ever wasted—they propose developing products that can be fully recycled as either biological or technical nutrients. The former biodegrade fully, safely, and naturally into the environment. The latter return to industry as raw materials for future products.

Most products today are what McDonough and Braungart call "monstrous hybrids," in that they combine biological and technical elements in such a way that these materials cannot be recycled into either loop. These now useless resources pile up at the landfill. In addition, most products that claim to be "recyclable" are actually "downcyclable" to a lower-quality product. Eventually, the quality becomes so poor that this

material cannot be reused for anything.

The architect and the chemist teamed up in 1995 to form McDonough Braungart Design Chemistry. They have worked with various companies worldwide to create products according to their closed-loop model. For example, in 1995 McDonough and Braungart collaborated with Swiss mill Rohner Textil and textile distributor DesignTex to create Climatex Lifecycle, a compostable fabric for furniture. Climatex Lifeguard, a biological nutrient fabric that meets the most stringent flame-retardant tests worldwide, was introduced in 2001.

### **Making the connections**

The sustainable movement has always stressed the importance of holistic, integrated design. "We are ecologically interdependent with the whole natural environment," wrote Susan Maxman, FAIA, president of the American Institute of Architects, and Olufemi Majekodunmi, president of the International Union of Architects, in the "Declaration of Interdependence for a Sustainable Future"—the culminating statement from the 1993 UIA/AIA World Congress of Architects in Chicago.

Certainly the environmental challenges we face are still great. Yet, thanks to a handful of professionals who have steadfastly thought beyond the proverbial architectural box, we not only have a better grasp of the problems, but also a glimmer of potential solutions. If architecture is indeed part of the great web of life, it may be high time that all architects snare a biologist to help unravel nature's complex building codes. ■



## **AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION**

### **INSTRUCTIONS**

- ◆ Read the article "New Building Systems Mimic Nature and Return to a Biocentric Approach to Design" using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers (page 244).
- ◆ Fill out and submit the AIA/CES education reporting form (page 244) or download the form at [www.architecturalrecord.com](http://www.architecturalrecord.com) to receive one AIA learning unit.

### **QUESTIONS**

1. To be good at the "technofix," architects are applying technologies that do all except which?
  - a. deplete fewer precious resources
  - b. deplete more precious resources
  - c. generate less toxicity
  - d. threaten fewer habitats
2. Nature's ecosystems have spent how long building efficient, complex, adaptive, resilient systems?
  - a. 1 billion years
  - b. 2.5 billion years
  - c. 3.8 billion years
  - d. 4.3 billion years
3. The local data a master builder needed for a building to be part of its place included all except which?
  - a. sewage treatment systems
  - b. climate conditions
  - c. available materials and labor
  - d. economic conditions
4. Design that goes beyond sustainable is called which?
  - a. ecological
  - b. regenerative
  - c. biological
  - d. natural
5. Permaculture designers strive for systems that reap the greatest benefits with the least amount of which?
  - a. expense and time
  - b. time and materials
  - c. time and effort
  - d. effort and resources
6. Biophilia is a study of which?
  - a. human obsession with living things
  - b. human fear of plants
  - c. human attraction to living things
  - d. human avoidance of plants
7. Specific building elements that figure prominently in biophilic architecture include which?
  - a. organic forms
  - b. views of nature and indoor greenery
  - c. spatial and visual diversity
  - d. artificial lighting and ventilation
8. The process of imitating nature to solve human quandaries is known as which?
  - a. biophilia
  - b. biomimicry
  - c. permaculture
  - d. regenerative design
9. The study of natural systems will trigger all of these benefits in building and product design except which?
  - a. resource efficiency
  - b. spatial diversity
  - c. benign environment
  - d. aesthetic satisfaction
10. Most products that claim to be recyclable are actually which?
  - a. cycled to a lower-quality product
  - b. cycled to a higher-quality product
  - c. cycled to an extended-life product
  - d. cycled to a reusable product

# Tech Briefs

## Numerous paint-removal products make large renovations easier and economical

Boston's Park Plaza Hotel, built in 1927 by E.M. Statler, the great 20th-century hotelier, had the requisite ballrooms and a library, but it was also the first hotel in the U.S. to have a radio and cold running water in every room. Seventy years later, the Saunstar Operating Company purchased the building and began a series of projects to restore and upgrade this venerable, 950-room landmark, Boston's only representative in the Historic Hotels of America. The grand spaces were restored to their former glamour, but countless small projects, such as 1,200 paint-layered, cast-iron radiators in the bathrooms, created a sizable restoration challenge, as well.

The task of removing the old paint and preparing the surface for repainting fell to the Fortune Metal/Klein-Farris Company, a family-owned, metal-finishing business based in Needham Heights, Massachusetts. For the radiators, the finishers used a closed-loop system in which each radiator is placed in a cabinet and then blasted with aluminum oxide, an abrasive. In this case, blasting removes the paint layers and leaves the surface ready for repainting. "In the old days, the media [the abrasive material] was sand, hence the generically used term 'sandblasting,'" explained Fortune Metal's president, Stephen Liff. "But health and safety concerns about silicosis [a disease caused by inhaling the silica sand residue] has regulated its use nearly out of existence."

Not only health concerns, but new demands for paint removal from less durable materials than cast iron and steel has led to a tremendous range of products that are used in blasting processes. Similarly, environmental concerns have eroded the use of chemical

removers, as well. "In some applications, chemicals can be the very best method," continued Liff, "but, compared to blasting, it can be laborious. With cast-iron radiators, as with structural steel, you can blast them with just about anything and they clean up and look almost brand-new, but more delicate surfaces may call for lighter abrasives, such as dry ice pellets or baking soda, which have the added advantage of being harmless to the environment. In any case, you want to use the least amount of abrasive under the least amount of pressure to do the least amount of damage to the substrate."

Environmental impact, surface durability, future finishing, as well as volume and cost all have a hand in determining the methods and materials of abrasive cleaning. For example, the aluminum oxide that is being used to clean the Park Plaza radiators is relatively expensive, but it is used in relatively small quantities in a closed environment where it is recovered and reused. Other reusable media include glass beads, steel shot and grit, and crushed garnet. Each has other properties that determine suitability for a particular job. Inexpensive media such as coal slag, which is sold under trade names such as Black Blast, Black Beauty, and Black Diamond, is used for large outside work and is not reusable for blasting. Although it produces a moderate amount of dust and leaves behind a black residue, it is a very popular media that has been around a long time, and it is possible to recover and recycle the grit to other industries.

The amount of dust produced, which depends on how much the material breaks down after impact, affects reusability. The media is manipulated to get the right effect



Before-and-after shots show the effectiveness of blasting the radiators clean with aluminum oxide.

by selecting a "mesh size," the measure of the individual grains, and the "nozzle pressure," the size of the opening and the force with which the compressed air directs the material at the object to be cleaned. The finish specifier determines the coating they want to use on the structural steel. That coating—paint or another material—requires a certain degree of roughness, called the "profile" or the "anchor pattern," in order to adhere to the surface.

"The specified profile is what we use to select the grade of abrasive for that application," explained Chris Karr, marketing manager for Green Lightning, another type of media produced from Olivine, a naturally occurring mineral. Olivine produces a hard, dense, and angular media that can clean the same

area using less abrasive and softer materials. It creates very little dust and has a neutral color, both beneficial characteristics when used, as it often is, for single-use, exterior cleaning.

Other abrasive materials used in blasting include crushed glass, glass pellets, plastic bead, and even walnut shells. Metal cleaning is a common application and includes far more than structural steel. Fortune Metal/Klein-Farris cleaned 3,000 escalator steps for the U.S. Postal Service and listed doors, hardware, light fixtures, furniture, and decorative iron as some other good candidates. Furthermore, masonry, wood, and even fiberglass can be cleaned with some of these products at the right pressure and grade of abrasive. *Barbara Knecht*

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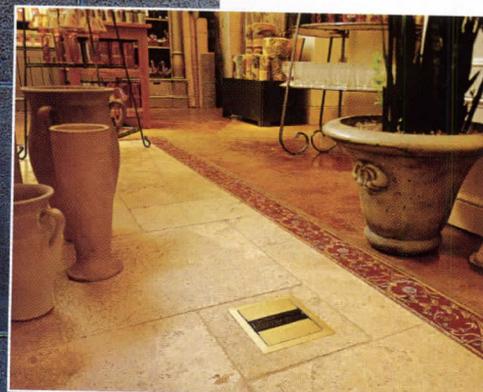
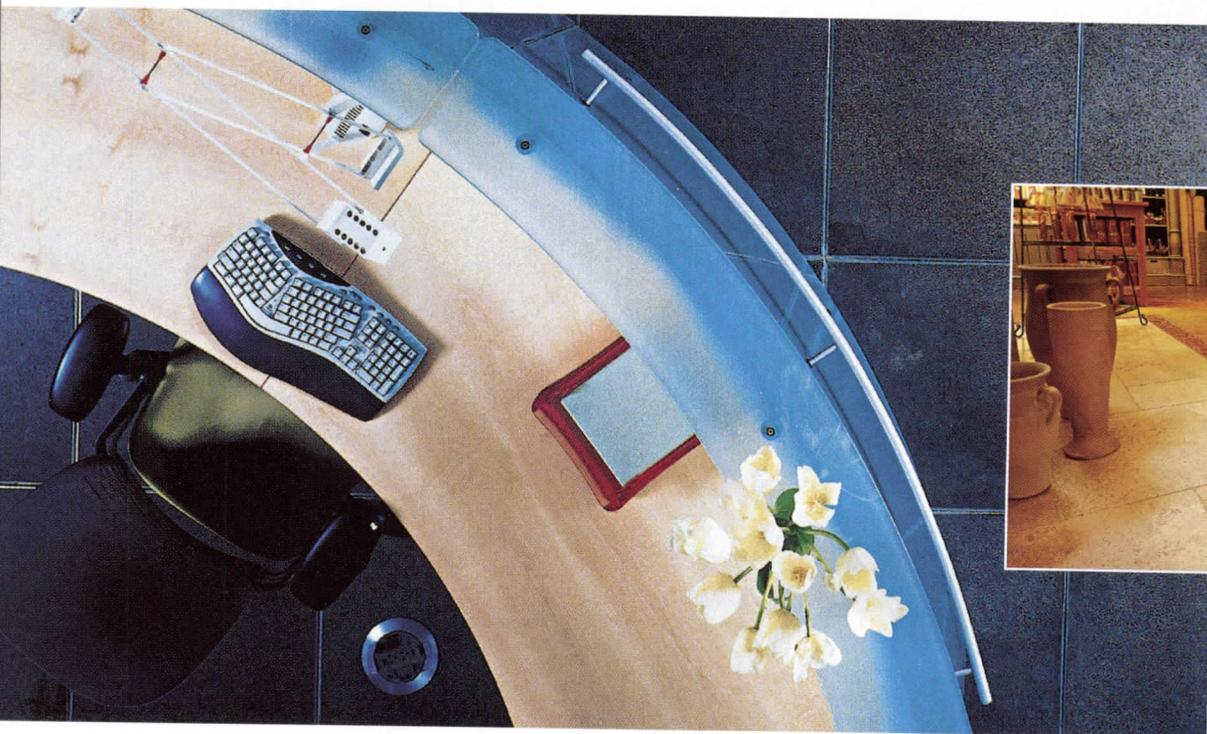
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**Wiremold Presents:**

## Wire and Cable Management with Poke-Thru Devices and Floor Boxes

Poke-thru devices and floor boxes set in concrete are among the most useful and flexible wire and cable management systems for large, open-plan spaces. Both can be used to provide direct feeds of power and communications, or

they can be used in conjunction with modular office furniture.

The design community should be aware of new standards that will affect the use of poke-thru devices and floor boxes. Beginning in June, 2003, new standards under UL514A will require that the power compartments of floor boxes and poke-thru devices meet a test for scrub water exclusion on carpet surfaces. These standards are designed to ensure that water does not enter power outlets during routine maintenance, such as wet mopping and carpet shampooing.

Before discussing these new standards and their impacts, an overview of poke-thru devices and floor boxes is in order.

### Poke-Thru Devices

Poke-thru devices provide capacity and flexibility to meet the demands of open plan spaces without compromising workplace aesthetics. They bring power, voice, and data precisely where it is needed without impacting the fire rating of the slab. As a result, poke-thru devices are an excellent choice for new construction and retrofit applications.

### Design considerations

Poke-thru devices are installed in holes that have been core-drilled through concrete floors. The only limitations are the presence of major structural components such as beams, and the rare instances where there is no available space for access from the floor below. The UL fire resistance directory details the standard for poke-thru penetrations as a "minimum of 2 ft. on-center and not more than 1 insert per 65 sq. ft. of floor area in each span."

Poke-thru devices offer maximum design flexibility for open office space. Moreover, they can also be used for partitioned and modular offices, as well as specialized spaces, such as reception areas, conference rooms, and training centers. The placement of activations is not constrained by partitions or by the grid pattern of an infloor wire and cable management system. Among commonly installed wire and cable management systems, poke-thru devices typically have low initial installation cost.

The desire for improved aesthetics has resulted in systems that offer flush and recessed activations that are very nearly invisible, yet accommodate more receptacles and communications ports than older, low-capacity fittings.

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CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Wire and Cable Management with Poke-Thru Devices and Floor Boxes**. To earn the AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 189, then follow the reporting instructions on page 250 or use the Continuing Education self report form located at [architecturalrecord.com](http://architecturalrecord.com).

### Learning Objectives

At the end of this article you will be able to:  
• Interpret how poke-thru devices and floor boxes—and their use on various surfaces—will be impacted by the new standards for scrub water exclusion testing  
• Plan wire/cable management systems that contribute to a building's sustainability  
• Incorporate wire/cable management systems in open-plan spaces to allow for flexibility, aesthetic preferences, and future technology.



*This poke-thru device meets scrub water standards and can be installed on a tile floor. Until recently, these devices were restricted to carpeted surfaces.*

### Fire Safety

Prior to the development of the newest generation of fire-rated poke-thru devices, core drilling of concrete floors required the installation of fire stopping material to maintain the floor's fire retardant capabilities. Unfortunately, these operations could not always be adequately policed, and code enforcement agencies moved to limit the practice. The solution was to incorporate fire stopping material into the fitting itself, guaranteeing that each penetration maintains the slab's fire rating.

The key to a poke-thru serving as a fire stop is intumescent material around the conduit stem at the slab level. When exposed to high temperatures, the material expands to fill any space between the fitting and the floor slab. In the event of a fire, the slab penetration is quickly filled by the expanding intumescent material, effectively blocking flames and heat and maintaining the slab's fire rating.

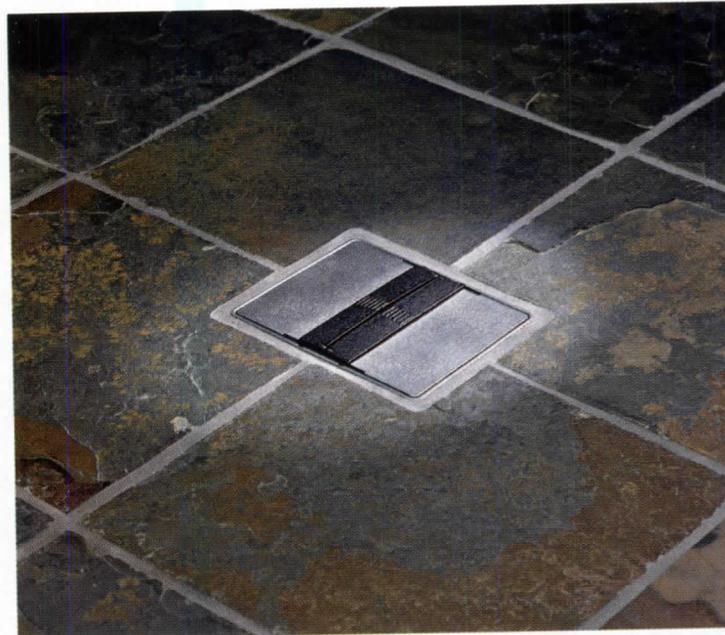
The fire classification also identifies the number and size of conductors allowed in each poke-thru. Unlike standard conduit and raceway, the number and size of the conductors allowed in poke-thru devices is determined through fire testing procedures determined by Underwriters Laboratories Inc., and not by calculating cable fill percentages. Therefore, when choosing a poke-thru device, refer to the manufacturer's allowable copper cross sectional area for each poke-thru device.

### Communications Cabling

Manufacturers of poke-thru devices have responded to the growth and increased complexity of structured cabling systems by developing devices that easily accommodate high-performance copper and fiber optic cable. These devices feature separate channels for electrical wiring and low-voltage cabling. In poke-thru devices that support both electric service and low-voltage cabling, the electric wires are run through the conduit stem of the fitting while low voltage cabling runs outside the conduit stem through holes in the intumescent rings. In the event of a fire, these holes, like the slab penetration itself, are filled by the intumescent material.

### Poke-Thru Advantages

Since poke-thru devices can be put in place at almost any time in the construction cycle after the concrete has been poured, there is a larger window of opportunity to accommodate late design changes and fluctuations in the construction schedule. Because wiring and cabling is not located in the slab, more precise measurements are possible — when walls and other interior components are in place — to locate workstation activations.



*Floor boxes that meet the water exclusion standard are available for use on tile, terrazzo, and wood surfaces.*

### Floor Boxes

Floor boxes provide cost-effective wire and cable management in low- to moderate-density open space areas. They are designed to fit almost any project — and any décor. There are several factors to consider before selecting a floor box.

### Job Specific Conditions

When choosing a floor box, it is important to consider the specific job requirements. If the application is on-grade, a cast iron floor box or an approved on-grade stamped steel floor box must be used. If the application is above-grade, a stamped steel box may be appropriate. Nonmetallic floor boxes can be used as a cost-effective alternative to stamped steel. Floor boxes are available in both shallow and deep versions to correspond to the depth of the concrete pour. When selecting a box, be certain that it has the required space and/or depth to accommodate power and communication requirements and can support covers that match the project's aesthetics.

### Workstation requirements

Start by determining which services are required at the workstation. If the workstation requires power but not communications, then a single-gang box is needed. If multiple services are required, multi-gang boxes must be used in order to maintain complete separation of power and communications services. It is also necessary to determine how many communications jacks are needed, and whether they will be mounted flush or recessed.

### Aesthetics

After determining workstation requirements, choose floor box covers — the only visible component of the assembly. Floor boxes are available with a wide array of covers that provide a uniform appearance throughout the job. Round and rectangular covers provide design options, as do cover materials such as brass, aluminum, zinc, and polycarbonate. Depending on the material selected, manufacturers may offer a range of colors.

### Scrub Water Exclusion Standards

Beginning June 20, 2003, new standards under UL514A will require that all concrete floor box covers and poke-thru devices meet a carpet water exclusion test similar to one currently required for tile applications. Water exclusion test are designed to simulate typical maintenance procedures such as mopping tile floors and shampooing carpets.



A poke-thru device allows network access in an informal meeting space.

UL recognizes that many carpets are shampooed frequently, resulting in a greater likelihood of scrub water penetrating floor box covers and poke-thru devices. The new standard is designed to ensure that these products prevent water from entering their electrical compartments. [Standards for the water exclusion tests are included in the additional reading material at the end of this section.]

These standards have significant implications for the specification community, as well as for building owners and facility managers. At present, only approved floor box covers may be used in tile applications; non-approved covers and all poke-thru devices are restricted to carpet applications. A significant result of the new standards – and the redesign of poke-thru devices – is that for the first time poke-thru devices can be installed on tile surfaces.

### Meeting the Requirements

There were two primary approaches to meeting the requirements of water exclusion tests: designing new parts to fit together more closely and incorporating gaskets in lids, covers, and other openings.

#### Poke-thru devices

Poke-thru devices have multiple openings where water can enter. The primary design objective was to make these openings watertight within the parameters of the water exclusion tests. Further, the newest poke-thru devices are distinguished by individual slide covers – a design improvement over older-generation flip lids – that snap in place over power receptacles to prevent dirt and debris from entering the system. Reverting to flip lids and installing gaskets on them would have been a relatively simple solution, but end-users appreciate the advantages of slide covers, including long-term durability and ease of use. Instead, engineers designed a specialized gasket that remains in contact with the slide cover at all times and in all positions. The gasket material provides the proper balance between water resistance and the ability to spring back into the closed position.

#### Floor boxes

Infloor activation covers were reviewed and redesigned with new parts that fit together more closely. While the covers of some floor boxes, such as smaller flip lids, were already approved for tile applications, others were not. These lids were fitted with gaskets that surround the lid when it closes. Of particular concern were large floor box lids that have cut-outs for wire and cable egress. Here, specialized silicone gaskets were designed to fill these gaps, enabling the lid to meet water exclusion requirements.

### Exceeding the Requirements

The standards require water exclusion only on the electrical side of a poke-thru device or floor box. (Under the revised standards, water will still be allowed to enter communications areas so long as it does not leak into the electrical side). Exceeding this requirement to exclude water from communications portions of the devices offers important benefits. Although water entry into communications compartments is not considered a high risk for fire and/or shock, the presence of moisture can damage electronic components. A more practical advantage, however, is that gaskets that are designed to deter water also keep out dust and debris that can degrade the performance of sensitive electronic systems.

In the case of poke-thru devices, the slides that cover electrical receptacles are similar to those on communications ports, so it is possible to exceed the requirements and provide water resistance for all device compartments. Similarly, floor box covers also incorporate gaskets on cut-outs for communications cables.

### Implications of Poke-Thru and Floor Box Redesign

#### Greater specification flexibility

Redesigning poke-thru devices to meet the new carpet water exclusion standard presented an opportunity to extend the use of these wire and cable management systems beyond carpet applications. The modifications mean that these devices can be used in either carpet or tile settings. Poke-thru devices that are currently installed can be modified to meet the new standard by replacing the device head. This may be especially attractive where replacing carpet with tile has been impractical due to the presence of existing poke-thru devices.

Designers who opt for floor boxes will have a greater degree of choice in the type of box and cover that is installed. Each floor box cover will be suitable for either carpet or tile. Additionally, the new covers will fit all existing installed flanges.

#### Aesthetics

Although the changes being brought on by the water exclusion standard may appear to be only functional, there are aesthetic considerations as well. Designers will be assured of uniformity since the same poke-thru device or floor box cover can be installed with carpet or tile.



Available in a variety of sizes and configurations, floor boxes provide access to receptacles and data ports.

## Pathway Options

Poke-thru devices and floor boxes are but two types of wire and cable management pathways. TIA/EIA-569 Commercial Building Standards for Telecommunications Pathways and Spaces defines horizontal pathways as including underfloor, access floor, conduit, tray and wireway, ceiling, and perimeter systems. The conventional – if somewhat outdated – view of premises wiring is cable in the wall and jacks in permanent outlets. Wire and cable management pathways provide greater workstation flexibility and can help to improve a building’s sustainability. [More information on contributing to sustainability is included in the Additional Reading material at the end of this article.] In addition, these systems have been designed to be as physically and visually unobtrusive as possible. Wire and cable management systems can be grouped into four categories.

**Open space systems**, such as floor boxes and poke-thru devices, serve areas that are not adjacent to partitions. These systems provide direct access to cabling or they can feed into modular office furniture. Architectural columns are another option for open space applications.

**Infloor systems** include underfloor duct and raised floors. Underfloor duct systems provide support and security for cabling in reinforced concrete and steel constructions. Raised floor boxes offer convenient access to data/communications cabling.

**Perimeter systems** route wiring and cabling securely along walls. These systems are often specified for conference rooms, offices, classrooms, and training centers. Unlike with conventional conduit, cabling that is laid into a perimeter system remains easily accessible at all times. These systems are also easy to expand or reconfigure.

**Overhead systems** offer a high degree of flexibility, both in terms of locating the components and accessing the cabling contained within them. Cable trays are available in a variety of styles, including center spine, solid bottom, and ladder. Although cable tray was historically installed above drop ceilings, it is increasingly showing up in open-ceiling applications.

*[A review of the options for open-space wire and cable management systems is included in the Additional Reading material at the end of this article.]*



Open space wire and cable management enable this office to be readily reconfigured.

## Water Exclusion Tests

Water exclusion testing for carpet and tile applications is performed with the device in the closed position (nothing is plugged in, and no wires or cables exit the device). In both tests, a mixture of soap and water is used. According to the standard, “Scrub water shall not enter a floor box at the floor level through the box cover, cover flange, or other openings.” [Note: the term “floor box” includes poke-thru devices.]

The test set-up is described in 32A.2.2:

“A floor box assembly is to be installed in a section of floor constructed to represent an installation as intended by the manufacturer. The cover plate is to be fully secured. Sealing compound is to be used around the perimeter of the floor box or cover flange to retain the soap solution on the floor assembly. A minimum 1/4-inch (6.3 mm) high dam is to be constructed around the floor assembly.”

The test for tile applications is described in 32A.2.3:

“A scrub water solution is to be prepared by mixing 4 tablespoons of floor cleaning soap with 1.0 gallon (3.79L) of water. The solution is to be poured over the cover plate of the floor box so that it collects to a depth of 1/8 inch (3.2 mm) above the floor assembly within 10 seconds or less. The solution is to remain on the floor assembly for one minute. The solution is then removed and the interior and under the cover of the floor box is to be examined for entrance of scrub water.”

The test for carpet applications is described in 32A.2.4:

“A scrub water solution is to be prepared by mixing one tablespoon of floor cleaning soap with 1.0 quart (0.94 L) of water. The solution is to be poured over the cover plate of the floor box within 10 seconds or less. The solution is to run off the top and sides of the cover. The cover is then to be dried. The interior and under the cover of the floor box is to be examined for entrance of scrub water.”



Performing a scrub water exclusion test on a floor box cover.

### Click for Additional Required Reading

As part of this CES learning activity, you are required to read additional material on water exclusion tests as well as about wire and cable management systems and examples. To access the material online, go to [www.wiremold.com/AIACES](http://www.wiremold.com/AIACES).



### Learning Objectives

At the end of this article you will be able to:

- interpret how poke-thru devices and floor boxes—and their use on various surfaces—will be impacted by the new standards for scrub water exclusion testing
- plan wire/cable management systems that contribute to a building's sustainability
- incorporate wire/cable management systems in open-plan spaces to allow for flexibility, aesthetic preferences, and future technology.

### Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 250. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—[architecturalrecord.com](http://architecturalrecord.com)—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

### Questions

- Q: 1. New standards under UL514A (beginning June 2003) are to ensure poke-thru devices:
- A: a. Meet minimum fire-rating requirements  
b. Separate the electric wiring from low-voltage cabling  
c. Prevent water from entering electrical compartments when used on carpet applications
- Q: 2. The UL fire resistance directory details the standard for poke-thru penetrations as a minimum of 2 ft. on-center and not more than 1 insert per how many square feet of floor area in each span:
- A: a. 1 insert per 10 sq. ft.  
b. 1 insert per 25 sq. ft.  
c. 1 insert per 65 sq. ft.  
d. 1 insert per 100 sq. ft.
- Q: 3. The fire classification of poke-thru devices is determined by calculating cable fill percentages.
- A: a. True  
b. False
- Q: 4. A significant result of the new standards for water exclusion tests and redesign of poke-thru devices is that now they can be used on:
- A: a. Carpet surfaces  
b. Tile surfaces  
c. Wood surfaces
- Q: 5. The new standards require water exclusion:
- A: a. Electrical side only  
b. Communication side only  
c. Both electrical and communication areas
- Q: 6. When comparing wire and cable management system options in an open-plan space, which has the highest installation cost?
- A: a. Access floor  
b. Poke-thru  
c. Underfloor duct  
d. Floor boxes
- Q: 7. When comparing wire and cable management system options in an open-plan space, which has the highest rating for aesthetics?
- A: a. Floor boxes  
b. Architectural columns  
c. Access floor  
d. Poke-thru
- Q: 8. When comparing wire and cable management system options in an open-plan space, which has the lowest life cycle cost?
- A: a. Cellular Deck  
b. Cable Tray  
c. Underfloor duct  
d. Poke-thru
- Q: 9. Cable tray is always installed above dropped ceilings to hide cabling.
- A: a. True  
b. False
- Q: 10. Compared to in-the-wall wiring, cables in wire and cable management systems can easily be removed when technology is upgraded.
- A: a. True  
b. False
- Q: 11. Risks to waiting until late in the design process to consider the wire and cable management include:
- A: a. Increasing the costs and difficulty of installing and changing cabling systems  
b. Reducing building flexibility  
c. Limiting options for future technology growth  
d. All of the above
- Q: 12. Specifying a high-capacity distribution system in place of planning a wire and cable management system is not the most cost-effective long-range solution.
- A: a. True  
b. False



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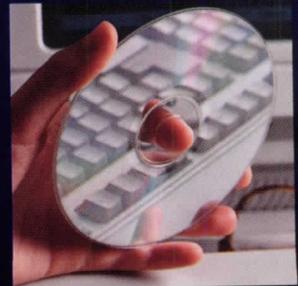
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Competition of architectural precast pieces on Bannockburn Centre, Bannockburn, IL, afforded the opportunity to increase intricacy and develop elegant yet economical skin. Architect: Wright Associates, Chicago

## Designing with Architectural Precast: Enhance Your Next Project. Achieve Design Goals. Control Costs.

Understanding architectural precast costs is essential to designing elaborate facades that enhance the overall building design while meeting the owner's budget.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION Series

Review the learning objectives below to focus your study as you read **Designing with Architectural Precast: Enhance Your Next Project. Achieve Design Goals. Control Costs.** To earn one AIA/CES Learning Unit including one hour health safety welfare credit, answer the questions on page 195, then follow the reporting instructions on page 250 or use the Continuing Education self report form located at [architecturalrecord.com](http://architecturalrecord.com).

### Learning Objectives

At the end of this article you will be able to:

- Explain how the master mold can make production more economical
- Learn what effect repetition has on the panel square foot cost
- Know how piece/panel size impacts cost
- Control costs through timing of mix design and material

Understanding the architectural precast manufacturing process can help achieve design goals and control costs. Many variables need to be considered to determine what a custom architectural precast project will cost. All engineering, production, delivery and installation costs must be compiled for each specific project to derive an applicable budget.

During a project's conceptual stage, the designer has many items to consider. These include material selection, textures, surface geometry, cross section, unit repetition and erection methods. The custom,

sculptured designs that are possible with precast concrete may be achieved within budget by selecting economical aggregates and textures combined with repetitive units and effective production and erection details. A local precast manufacturer can assist with preliminary design and budget estimating early in the project's design phase.

Working with a precaster on the specifics will help determine a final budget that is more accurate than a ballpark price per square foot. A cost per square foot is rarely accurate because square foot quantities are calculated differently from precaster to precaster, general contractors, and architects depending on the take-off procedures. Also, total work scope requirements such as site restrictions, work scope inclusions, and detail manufacturing requirements are initially unknown.

A lump-sum budget price from local precast manufacturers, submitted in writing including assumptions, will minimize surprises on bid day. As a project evolves from preliminary sketches through working drawings, the precasters should be informed of all changes to ensure the budget prices remain valid. The key factors in designing economically with architectural precast are the repetitiveness of pieces, average piece size and erection efficiency and understanding material costs.

### Repetition and Mold Concept

A key element to cost-effective production is to minimize the number of molds and mold changes and to maximize the number of castings from each mold, particularly if the molds have shape. Efficiency is achieved by making it possible for similar, if not identical, shapes to be produced from the same basic (master) mold and by minimizing the time required to disassemble a mold and reassemble it for the manufacture of the next piece.



Shape is the major focus of the Jefferson County Justice Center, Golden, Co. More than 400 complex molds with 30 different radii were constructed to produce over 4,000 precast components that form the shell for the structure. Architects: C. W. Fentress and J. H. Bradburn & Associates, Denver

Since molds are an expensive item, tooling costs should be spread over as many units as possible. The more elements that can be cast with any one given mold, the more economical the project becomes.

Although every project will have some atypical conditions, the most successful and cost-effective projects maximize the repetition of elements. This means that careful planning is necessary to achieve good repetition without sacrificing design freedom.

Prior to designing wall panels, the architect should visit an architectural precast concrete manufacturing plant, as well as projects underway. This enables the designer to become more familiar with manufacturing processes, installation procedures and most importantly, establishing realistic expectations for the finished product. Such elements as the fabrication of molds, challenges to casting and finishing specific shapes, handling methods at the plant and jobsite, approaches for connecting panels to a structure and establishing acceptable color ranges are important to fully understand precast and maximize its potential.

Adding more intricate features introduces cost premiums to a project. Projecting cornices, bullnoses, form liners, bottom and/or top returns and curves are the most typical features to be added. The exact size, shape and locations are the designer's options. However, repetition must be considered when applying these design features. Considerable cost will be added if the location of these features within a mold will be changed frequently.

On the other hand, these intricate features can be added at a minimal cost if they are used repetitively in the overall design. The point behind designing repetitive pieces is to amortize engineering and mold costs effectively. As many pieces as possible should be designed to be cast in the same mold and produced from a single shop drawing. Wood and fiberglass molds will last for about 20 to 30 castings before they must be completely refurbished or replaced.

### Mold Costs

Mold cost can range from hundreds of dollars to thousands of dollars per mold. The cost difference depends on mold size, complexity and materials used.

The architect can make a significant contribution to economic production by designing precast concrete panels with knowledge of the "master" mold concept. This involves fabricating one master mold (with its appropriate additional tooling) that allows a maximum number of reuses per project. Units cast in this mold need not be identical, provided the changes in the units can be accomplished through pre-engineered mold modifications.

A master mold can include numerous design elements such as bullnoses, cornice details, reveal patterns or window openings. Once in place, the design elements should be consistent (repetitive) from piece to piece, however,

individual castings do not have to be the same size, color or texture.

It is relatively easy to alter a mold if the variations can be contained within the total mold envelope by use of bulkheads or blockouts rather than by cutting into the mold surface. When a large number of precast concrete units can be produced from a single mold, the cost per square foot will be more economical.

### Other Forming Considerations

In addition to considering maximum form reuse, the final design should take into account ease of removing the piece from the forms. This allows the precaster to efficiently meet schedules and budgets without impacting the design aesthetics.

The optimum economy in production is attained if the panel can be separated from the mold without disassembling the mold. This is done by providing slope (draft) on the sides of all openings and edges and by eliminating or minimizing forming the panel's back face (upside in the form). Drafts are a function both of shape and production techniques.

Generally, the minimum positive draft that will allow the unit to be stripped from the mold easily is one inch in one foot (1:12), but 1:8 is preferred. This draft should be increased for narrow or delicate units where the suction between the unit and the mold becomes a major factor in both strength requirements and reinforcement of the unit. In general, the greater the draft, the more economical and uniform the finish.

All architectural precast panels are normally cast indoors and faced down to give the maximum aggregate consolidation at the panel surface and to achieve the smoothest finish. Two-sided precast pieces (front and back) requiring identical appearances should be avoided as facing aggregate will need to be seeded on the top surface resulting in possible texture variations.

### Effect of Repetition On Panel Square Foot Cost (Example panel is 200 s.f. Mold Cost = \$3,000)

|                           |             |
|---------------------------|-------------|
| Use mold 1 time . . . . . | \$15/s.f.   |
| Reuse 10 times . . . . .  | \$1.50/s.f. |
| Reuse 20 times . . . . .  | \$0.75/s.f. |
| Reuse 30 times . . . . .  | \$0.50/s.f. |

A common production method is to make returns that give the appearance of thick, massive panels which create significant shadow features to the facade. This

Advertising supplement provided by Precast/Prestressed Concrete Institute

procedure is a two-part pour. The return piece is produced on Production Day One. On Day Two, the return piece is removed from its form and is connected to a master mold. The return is cast monolithically to the master piece.

A quirk should be provided in the corner so the return is not poured to a point.

**Panel Size**

Precast pricing is determined by the size of the pieces and repetition. Pricing is more dependent upon large pieces than upon a large project. For example, a 100-piece project of large panels can be less expensive per square foot than a 1,000-piece project of much smaller panels.

The more pieces the project has, the more labor hours it will take to engineer, cast, strip, finish, load, deliver and install the panels. It is best to make precast units as large as possible within normal manufacturing and shipping limitations. A project's average piece size should be at least 100 to 125 square feet.

Usually the optimum panel size is dictated by size and weight limitations imposed by transport and site crange capacity. Close collaboration between the architect and a precaster is required during the early stages of a building's design to determine the optimum size.

Larger panels also shorten a project's schedule, reduce the amount of caulking needed, offer better dimensional controls and require fewer connections. Large units are preferable unless they lack adequate repetition or incur cost premiums for transporting and erecting.

The standard flatbed trailer payload in many areas is 20 to 22 tons with a product size restriction of 8 foot in width, 8 foot in height and 45 foot in length. The height can be increased to about 10- to 12-foot without incurring special permit load costs. Permits may be required at 12 foot depending on angles of frames or length of well between the wheels for an A-frame load. Panels up to 15 foot 8 inches can be transported only on specially built tilt-frame trailers with certain restrictions.

Designing larger panels, even though they may carry a hauling premium, may be the most cost-efficient. For example, an office building with 30- by 30-foot column spacing requires fewer columns, fewer precast panels and yields a more wide open interior than the same building with 20- or 25-foot column spacing. The cost premium (if any) to haul two 30-foot long panels versus three 20-foot long panels usually can be overcome by cost savings in other manufacturing areas like, engineering production and installation.



Unique colors were used in the architectural mix designs for the Hearst Tower, Charlotte, NC to create dramatic color variations while intricate detailing was used to demonstrate significant relief. Architects: Smallwood, Reynolds, Stewart, Stewart & Associates, Inc., Atlanta

**Material Costs**

Cement content, aggregates, pigment dosage, form surface, surface finish and mix/finish complexity are added to labor costs to formulate finished precast unit costs.

Panel manufacturing costs (materials plus labor) are other major factors in finished precast unit costs. Material factors and labor processes that cost more, but at the same time increase visual uniformity, are shown in Figure 1. This data is based on the cost structure of a typical Midwest plant. Good product color and textural uniformity at moderate costs can be obtained by

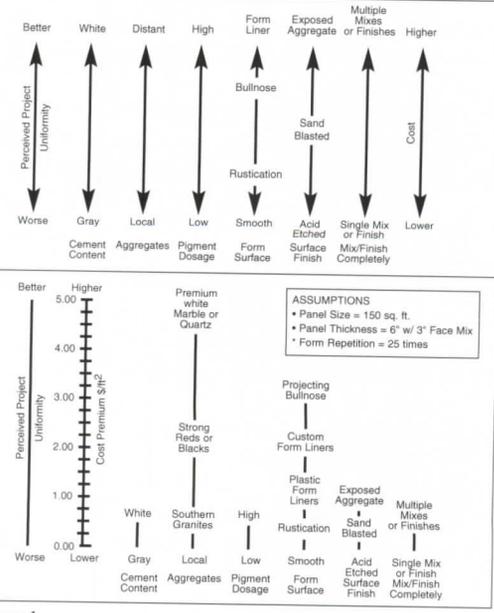
the designer by selecting an optimum combination of items shown in Figure 1.

For reasons of appearance and cost, aggregate choice is an important factor. Aggregate cost is determined primarily by the distance of the quarry to the manufacturing plant. Most aggregates cost the same to remove from the earth and to crush to the appropriate size. The trucking cost from the quarry to the plant is the principal cost variable. In order to minimize mix cost, a designer should discuss aesthetic requirements such as aggregate color options and their associated costs with a local precaster.

A particular aggregate's cost should be calculated only for the amount of face mix used. Most precast panels are produced with 1/2 face mix thickness (usually 2 to 3 inches) and 1/2 grey back-up mix. Panels with large projections and returns will increase the face mix quantity required. Window setbacks may dictate the thickness of the face mix. If the panel configuration is such that little or no back-up concrete can be used then the cost of the facing aggregate can have a significant affect on the cost of the panel.

Precasters can modify mix ingredients depending on the selected finish in order to lower material costs. For example, some acid-etched finishes will expose only the coarse aggregate tips. Thus, expensive coarse aggregates can be minimized or eliminated since they will not be seen. Sandblasting dulls the coarse aggregates, therefore, less expensive aggregates may be selected. A bush-hammered finish will give a similar appearance to sandblasting without dulling the aggregates. Exposed aggregate or retarded finishes tend to be more expensive because they require colorful coarse aggregates. This procedure exposes the aggregates and reveals their natural beauty.

By incorporating demarcation features, multiple mixes can be incorporated in a single panel. A designer can also achieve different colors and textures from a single precast mix simply by varying the finish treatment. This multiple- finish





The 20-story Jefferson Pilot headquarters in Greensboro, NC was designed to emulate the terra-cotta facade of the adjacent Romanesque style building constructed in 1924. Architect: Smallwood, Reynolds, Stewart, Stewart & Associates, Inc., Atlanta

designer can refer the precaster to an existing example and give them a piece of natural stone (or other material) to match.

Asking a precaster to create several different samples is common and encouraged. Once a project's 12- by 12-inch sample for each color and texture has been finalized, the designer should make the sample available to all interested precasters to view and photograph. In some cases, multiple samples are made so that each precast bidder can have a sample. Listing the exact mix ingredients in the specification is not necessary.

The cost of reinforcement is typically not significant in architectural precast concrete. An exception is the choice of finish of the connection hardware and reinforcement. The cost of galvanized or epoxy-coated reinforcement is substantial, and is not normally required. Additionally, it is not a substitute for adequate concrete cover or concrete quality. Connection hardware cost is governed mainly by structural load requirements (including special structural functions and possible earthquake considerations) and the building's structural system. Hardware costs may be minimized by making the precast concrete units as large as is consistent with the size limitations discussed earlier in this article.

Also where structural steel is supporting precast, connection hardware attached to the structure and bracing to resist torsion of structural frame should be provided and installed by the structural steel fabricator (using precaster's drawings and design) to avoid the high costs of field welding.

Four lateral and two gravity connections are the minimum required for most precast concrete units regardless of size. The labor cost of producing and handling small individual pieces of hardware normally exceeds the material costs, thus increasing the relative cost of hardware for small units.

The precaster will develop the precast connection details. However, the exact connection methods do not need to be shown on the bid documents.

The bid documents should only show connection locations, conceptual methods and structural loading requirements. The precaster is ultimately responsible for precast connection details and performance.

### Precast Economies Versus Other Materials

Architectural precast offers many cost advantages over other cladding materials. Precast is produced all year-round in a controlled, cost-efficient production environment. In addition, precast can be installed year around even in harsh winter conditions. This eliminates the need for costly winter weather protection and contributes significantly to compressing the overall building schedule.

Architectural precast can enclose the project quicker than any other cladding material. Typically over 1,000 square feet can be installed each day (10 pieces per day at 100 square foot each). Precast's installation speed can shave months from a construction schedule, thus reducing construction financing cost.

Precast spandrel panels commonly are used as a vehicle impact restraint in

technique offers an economical yet effective way to heighten aesthetic interest.

It is desirable to develop the mix design before the project goes out for final pricing. Most precast manufacturers are eager to assist the architect in developing a control sample as early as possible. The best method in selecting a sample is to visit the precast plant to view a multitude of samples and finished panels stored in the yard. Alternatively, a

parking structures in addition to providing a perimeter design feature. Doing so eliminates the need for an upturned cast-in-place concrete beam or a cable system.

Precast panels can span great distances (20 to 60 feet) and be connected directly or adjacent to structural columns. This advantage allows the designer the opportunity to control the gravity loads to reduce the structural framing costs.

Precast can be stacked onto a foundation. This way, all precast gravity loads of a multi-story building can be transferred vertically through each panel and ultimately onto the foundation. Where this design is employed, the structural steel frame resists precasts' wind loads only, permitting the frame steel to be lighter and less expensive. This design must allow for building drift.

In high-rise construction, vertical precast panels can span multiple floors. Multiple vertical floor spans of precast panels require gravity loads to be supported at only one floor per panel (every two or three floors). That way, the majority of the floors can be designed without the need to support the gravity loads of the exterior skin, reducing the overall structure's cost. This approach may not be practical in high seismic zones due to drift requirements.

Routinely, precast panels provide support for gravity and wind loads of other material, such as windows, curtain walls, storefronts, and sometimes even brick. This capability reduces the framing cost of these adjacent cladding materials, and reduces structure costs.

More expensive traditional materials can be replaced with cost-efficient architectural precast. Precast can be colored and textured to mimic natural stone (granite, marble, limestone, sandstone, or slate).

Or, these materials can be cast integrally into the exterior face of precast panels. This latter fabrication method reduces the contractor's financial risk by assigning the stone responsibility to the precast manufacturer. In addition, time-consuming and costly on-site stone installation costs are completely eliminated.

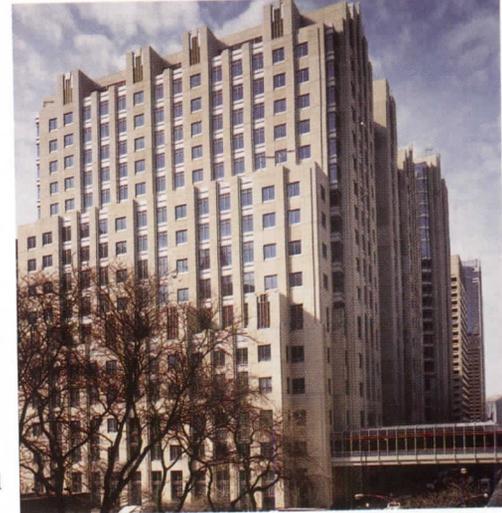
More and more, brick-faced precast panels are being substituted for field-laid masonry for many reasons: cost savings, brick material shortages, qualified mason shortages, owner's schedule requirements and winter construction.

### Summary

Early in the design phase, the designer should evaluate all the factors influencing the economics of a particular architectural precast concrete project.

To arrive at an optimized solution, the designer will need to seek early consultation with a local precaster. The precaster should be challenged to suggest options for creating a good economical design that also satisfies the designer's aesthetic requirements.

If possible, the designer should visit manufacturing plants, as well as projects under construction. This way the designer can become familiar with the manufacturing and installation process. In order to optimize the cost of precast concrete, such tasks as mold fabrication, challenges to casting and finishing specific designs or shapes, relative material costs, handling methods at the plant and jobsite, and approaches for connecting panels to a structure are important to fully understand.



More than 3,000 warm buff colored architectural precast panels articulated in an ashlar pattern were used to clad Northwestern Hospital in downtown Chicago. Architects: Ellerbe Becket Inc., Minneapolis; Hellmuth, Obata & Kassabaum, St. Louis; VOA Associates Inc., Chicago.

### Click for Additional Required Reading

As part of this CES learning activity, you are required to read additional online material on designing with precast concrete. To access this free material, go online to [www.pci.org](http://www.pci.org), click on the **Designer's Knowledge Bank** logo and register. Click **Advanced Search**, check all market category boxes and enter the words **Designer's Notebook** in the Keywords Search block. You'll be offered 12 Designer's Notebooks and several articles. You can download the entire series and the articles free of charge.

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Our professional members guide the Institute's efforts in product innovation, new technology adaptation, design methods development, training and quality assurance. Since its inception in 1954, PCI has been a dynamic force in the steady growth, and the current position of this expanding industry.

### Learning Objectives

At the end of this article you will be able to:

- Explain how the master mold can make production more economical
- Learn what effect repetition has on the panel square foot cost
- Know how piece/panel size impacts cost
- To control costs through timing of mix design and material

### Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 250. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—[architecturalrecord.com](http://architecturalrecord.com)—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

### Questions

**Q:** 1. The use of a master mold can make production more economical by:

- A:**
- a. Allowing precast manufacturer a greater variety of material selection
  - b. Allowing a maximum number of reuses per project
  - c. Allowing for larger sized precast units
  - d. Controlling the development of the mix design.

**Q:** 2. When reusing a master mold, the individual castings must have the same size, color, and texture.

- A:**
- a. True
  - b. False

**Q:** 3. Suppose a panel is 100 s.f. and each mold costs \$2,000. If the panel is used once, the cost is \$20/s.f. Reusing the mold 30 times can reduce the panel square foot cost to:

- A:**
- a. \$2.00/s.f.
  - b. \$1.00/s.f.
  - c. \$0.67/s.f.
  - d. Has no effect on square foot cost.

**Q:** 4. A project's average piece/panel size should be:

- A:**
- a. Less than 100 square feet
  - b. 100 to 125 square feet
  - c. 125 to 150 square feet

**Q:** 5. The benefits of using larger panels in a project include all except:

- A:**
- a. shorten a project's schedule
  - b. reduce amount of caulking needed
  - c. reduces hardware costs
  - d. cost premiums for transporting and erecting

**Q:** 6. The best time to develop the mix design is after the project goes out for final pricing.

- A:**
- a. True
  - b. False

**Q:** 7. Aggregate cost is determined primarily by:

- A:**
- a. Distance between quarry and manufacturing plant
  - b. Cost of removal from quarry
  - c. Cost of manufacturing process to crush to the appropriate size

**Q:** 8. Expensive coarse aggregates can be minimized or eliminated to save costs on except which:

- A:**
- a. Acid etched finishes that expose only the tips
  - b. Bush hammered finishes
  - c. Exposed aggregate or retarded finishes

**Q:** 9. The cost of reinforcement is typically not significant in architectural precast concrete.

- A:**
- a. True
  - b. False

**Q:** 10. The exact precast panel connection methods should be shown on the bid documents.

- A:**
- a. True
  - b. False



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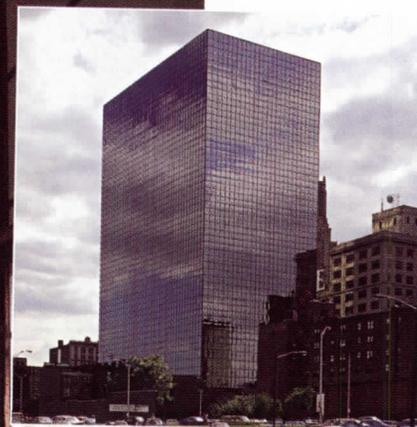
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## USG Presents: Gypsum Cavity Shaft Wall Systems: The Standard for Life Safety in Low-, Mid- and High-Rise Construction

By: Robert Grupe

Director, Architectural and Technical Solutions, United States Gypsum Company

Phil Shaeffer

Manager, Codes and Technical Support, United States Gypsum Company

Dean Updegrove

Product Marketing Manager, United States Gypsum Company

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Earn one AIA/CES Learning Unit including one hour of health safety welfare credit. Answer the questions on page 201, then follow the reporting instructions on page 252 or use the Continuing Education self report form located at [architecturalrecord.com](http://architecturalrecord.com).

#### Learning Objectives:

At the end of this article you will be able to:  
Understand the essential performance and design criteria used to select and specify gypsum cavity shaft walls;  
Know how gypsum drywall shaft walls perform and install;  
Create gypsum drywall shaft wall design specifications optimized for abuse resistance and moisture control.

systems have become a critical element underlying successful building design. These walls, which house elevators, stairwells and mechanical utilities, enable safe occupant egress and ensure the reliable flow of air, water, heating, cooling and other essential utilities throughout a building.

From a life safety standpoint, shaft walls are the most important walls in any building. In the event of a fire, shaft walls ensure that occupants have a means to exit the building (via stairwells) and that firefighters can access the building (via elevators and stairwells). In addition, the type of shaft wall constructed and its location impacts the

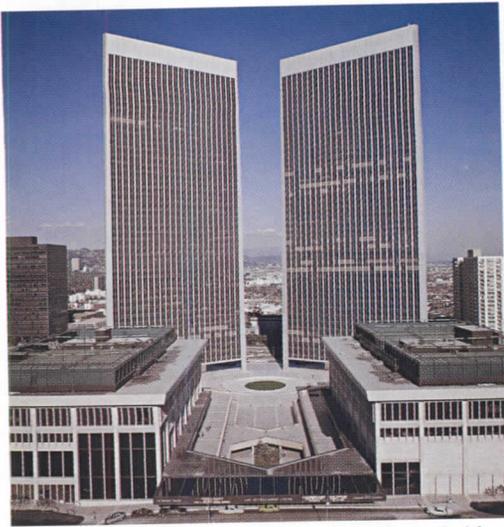
amount of usable space in a building. Lastly, by including abuse-resistant design into shaft wall specifications, these walls can positively affect building life cycle costs.

To properly specify shaft walls for low-, mid- and high-rise construction, architects must know the types of systems available, as well as the performance and installation attributes of each. Based on this knowledge, architects can then select – and specify – the system that best meets specific project life safety and structural performance requirements.

#### A Brief History

Prior to the advent of high-rise construction, the traditional materials of choice for shaft walls included masonry, structural clay tile and gypsum tile. In 1931, for example, the architectural firm of Shreve, Lamb and Harmon specified masonry shaft walls for the Empire State Building, which is considered by many to be the first modern high rise. In that same year, Graham, Anderson, Probst and White selected gypsum tiles for the construction of the 4-million-square-foot Merchandise Mart in Chicago.

However, as buildings reached farther into the skies, the search for lighter, more elastic shaft wall systems became a priority. Traditional hard and brittle materials, such as structural clay and gypsum tiles, limited the design capabilities of shafts in modern high-rises and placed constraints on the finished spaces within those buildings. In response to these needs, gypsum panel shaft wall systems were introduced in the 1960s. The first project to use these gypsum panel systems was a small office building in Los Angeles. This application was followed by a gypsum panel installation on the Central National Bank Building (designed by Charles Luckman and Associates) in Cleveland, and then at the U.S. Steel



Gypsum drywall shaft systems are now considered the standard for low-, mid- and high-rise construction.

Building (designed by Harrison Abramovitz and Abbe) in Pittsburgh.

Based upon these early efforts, designers today have much more flexibility in both cavity shaft wall material selection and system design. Material choices now include poured-in-place concrete, masonry, gypsum plaster, metal stud drywall or specially designed gypsum drywall shaft wall systems. Given certain design parameters for the shafts and the end

use of the structure, any of these may be appropriate for a given building. (See *Shaft Wall Performance Comparisons* table included in the additional online reading materials.) But determining which system is best for a specific structure requires careful research.

### Selecting the Right System

The shaft wall selection process begins with a review of the key performance and design criteria that the walls will be expected to meet. While life safety is the overriding concern for all applications, specifiers should identify and prioritize the additional system attributes that best meet the remaining performance criteria and the other needs of the client. Following are some of the more important factors to consider.

**Life Safety** – *This is the most important consideration for all projects.* The life safety attributes of a shaft wall system protect building occupants, support the interests of the client and help manage the designer's risk. As such, the fire endurance of the system (one to four hours) should be verified by an independent testing agency such as Underwriters Laboratories (UL), and the primary system components (such as gypsum panels) should be classified by the same agency. Only thoroughly tested systems can ensure long-term performance of the shaft wall itself and key interfaces such as elevator doors, fire dampers and stairwells.

**Wall Thickness** – The thickness of the shaft wall impacts the square footage of usable/leaseable floor space. Gypsum shaft walls are usually the thinnest systems available and thus deliver the maximum usable floor space.

**Weight** – The lighter the shaft wall, the less dead load on the structure. Gypsum drywall shaft systems offer benefits here as well. They are the lightest-weight systems available.

**Elasticity** – Elasticity accommodates structural dynamics such as building sway, drift and floor movement, as well as the cyclical nature of loading from elevators and seismic events. Elastic and ductile shaft walls are normally preferable to stiff and brittle walls.

**Abuse Resistance** – Abuse-resistant shaft walls stand up to everyday damage and thereby reduce life cycle costs. The abuse-resistance of gypsum drywall shaft walls can be enhanced through the use of special abuse-resistant panels, surface coatings and/or veneer plaster finishes.

**Speed of Installation** – Faster-installing systems help streamline scheduling and support good design and project management practices. Again, gypsum drywall shaft systems offer significant benefits in this area. They install quickly and allow construction from one side only (the floor side). This eliminates the need for scaffolding within the shaft and helps create a safer working environment.

By evaluating and ranking the relative importance of each of these factors, specifiers are able to zero in on the particular type of shaft wall system that best

meets the life safety and performance needs of the building, as well as other design and aesthetic priorities established by the client.

### Gypsum Shaft Walls

Since their introduction nearly 40 years ago, gypsum drywall shaft systems have offered architects a highly attractive combination of performance and installation benefits. As such, they are considered the preferred choice for most applications. The systems are lightweight.

A two-hour fire-rated gypsum wall weighs only 9 pounds per square foot. They are thin. A two-hour fire-rated wall is only 3 1/2 inches thick. They also install more quickly and economically than "wet" shaft walls, such as masonry. Gypsum panel shaft walls are completed early in the construction process and finished later, along with other interior partitions. Most importantly, the systems have undergone extensive independent testing for fire, sound and structural performance.

The most widely used gypsum shaft wall system consists of only five components. They are:

- Gypsum Liner Panels – 1-inch-thick and 24 inches wide, with double-beveled edges
- Gypsum Panels – 5/8-inch-thick Type X or 1/2-inch-thick Type C core
- Steel C-H Stud – 2 1/2, 4 and 6 inches deep, 25, 22 or 20 gauge
- Steel J-runners – 2 1/2, 4, and 6 inches deep, 24 or 20 gauge (J-runners may also be used as starter studs.)
- Steel E-stud – 2 1/2, 4 and 6 inches deep, 25, 22 or 20 gauge

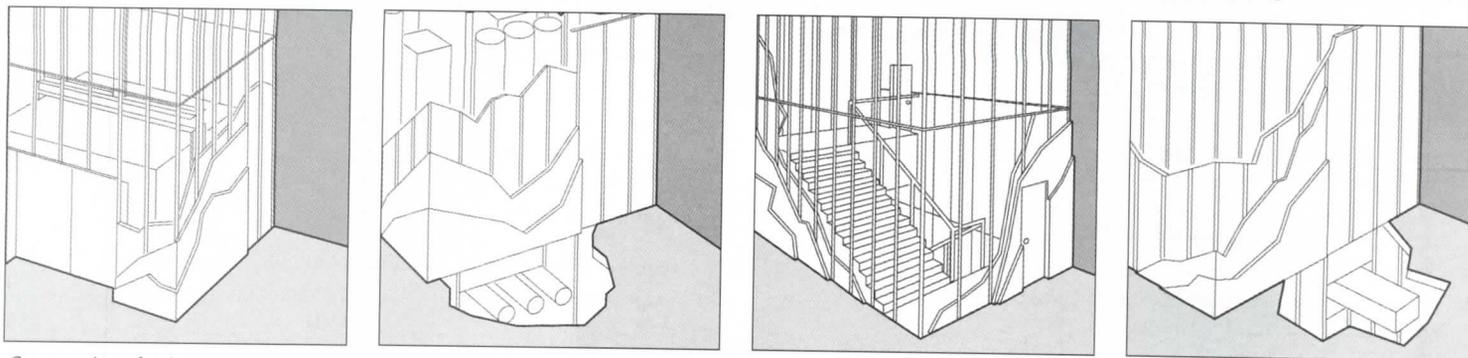
Substitutions for any of these components are not advisable without a thorough evaluation by the architect. Substitution is typically outside the scope of independent system evaluation and therefore is not endorsed by system manufacturers.

*Installation of the gypsum shaft system is handled as follows:*

1. J-runners are attached to the concrete floor and to the structure above. Attachment is accomplished using a power-driven fastener of a known pull-out and shear capacity.
2. An E-stud is vertically attached along one side of the terminating wall or structural element. In cross-section, the E-stud, in fact, looks like an "E," and is designed to receive a 1-inch-thick, 2-foot-wide gypsum liner panel. (J-runners can be used as an alternative to E-studs.)
3. A gypsum liner panel is placed into the top and bottom of the J-runners and fitted into the E-stud. Because no fasteners or adhesives are required, the application moves quickly. (When using J-runners instead of E-studs, attachment screws are required.)
4. A C-H-stud is then placed over the free edge of the liner panel and the next panel is positioned within the J-runners and inserted into the "H" portion of the stud. The C-H-stud provides a tight friction fit along the entire length of the panel to eliminate rattles when in service. Again, no fasteners or adhesives are needed. Like the E-stud, the C-H-stud derives its name from its cross-section profile. The "C" section of the stud forms a cavity that can hold insulation, as well as plumbing and electrical lines. It has 1-inch-diameter holes located 16 inches from each end to accommodate horizontal conduit runs. The "H" portion of the stud features vertical slots to minimize heat transfer through the stud.



Gypsum shaft walls (seen here from inside the cavity) are the thinnest and lightest-weight shaft walls available.



Cut-away views of various gypsum shaft wall systems: an elevator shaft, a mechanical shaft, a stairwell and an air return shaft.

5. The installation continues progressively. Each succeeding liner panel is fitted with a C-H-stud and the next liner panel is inserted until the full length of the wall is reached. The wall is completed by fitting the final gypsum liner panel into another E-stud or J-runner attached to the intersecting construction.
6. After the gypsum liner panels are installed, one or more layers of 5/8- or 1/2-inch-thick Type X or Type C core gypsum wallboard panels are screw-attached to the front of the "C" section of the studs. The face panels are finished using standard wallboard joint compound and tape, then primed and painted. For enhanced abuse resistance and a more monolithic look, Type X or Type C veneer plaster base panels finished with veneer plaster can be used in place of the gypsum wallboard.

### Design Parameters

The first definitive design parameters for shaft wall systems were developed more than 30 years ago by the structural engineering firm of Skilling, Helle, Christiansen and Robertson, working in association with Minoru Yamasaki and Associates and Emory Roth & Sons. Their study was prompted by a reported shaft wall failure in a prominent New York City office building. (A similar shaft wall failure had also been reported in a Cleveland building.)

The study revealed that the walls in the New York office building had failed due to elevator cyclic loading. As elevators move through a building, they create a piston-type action that induces alternating positive and negative loads in the shaft walls.

Based on these findings, Skilling, Helle, Christiansen and Robertson established the following criteria:

1. The shaft wall system should be capable of being built from one side only.
2. The assembly must obtain a two-hour fire endurance rating.
3. The assembly should have a minimum STC (Sound Transmission Classification) of 40.
4. The maximum dead load of the partition should be 15 pounds per square foot.
5. The shaft wall must withstand a 7.5 psf loading while limiting deflection to L/240.
6. The shaft wall must withstand an instantaneous load of 25 psf without structural failure.
7. The assembly must be cycled through its maximum deflection without failure for 1 million cycles.
8. The assembly must be airtight.

Gypsum cavity shaft wall assemblies meet all of these design requirements. They have been designed and tested using accepted engineering practices with deflection criteria of L/120, L/240 and L/360 clear partition heights. Limiting height tables account for flexural and shear forces, and a wide range of product and installation combinations is available to meet performance requirements.

The walls have been tested (per ASTM E119) to achieve fire ratings of one to four hours. The UL design numbers for the most commonly specified fire-rated gypsum shaft wall systems are:

- One-hour system: UL Design Numbers U415 and U469
- Two-hour system: UL Design Numbers U 415, U438 and U467
- Two-hour system (alternate): UL Design Number U492

- Three-hour system: UL Design Number U415
- Four-hour system: UL Design Number U415

In terms of sound transmission performance, gypsum assemblies using 2 1/2-inch studs have been tested to achieve an STC of 39. The rating can be increased to 47 by adding a 1-inch-thick layer of sound attenuation fire blankets (SAFB) within the partition cavity, while an STC of 52 can be achieved by using 4-inch studs with 3 inches of SAFB.

When it comes to pressure loading, it is important to differentiate between intermittent and constant load tables when reviewing manufacturers' limiting heights tables. These tables evaluate the various combinations of gypsum panel thicknesses and layers with stud gauge and depth. Because the gypsum panels and steel studs behave compositely, the relative stiffness of the system is greater than the stud properties of the C-H-stud alone.

The intermittent load table is appropriate when designing an elevator shaft. If the shaft is to be used for HVAC and there is no sheet metal ductwork (e.g. the gypsum will serve as the duct liner) the constant load table should be used. This differentiation is important because AISI (the American Iron and Steel Institute) allows engineers to reduce the stress by one-third if the loading is considered intermittent. This reduction is not allowed for mechanical heating and cooling shaft walls where the pressure is constant.

It should also be noted that while codes require specifiers to assume a 5-pound per square foot uniform load for interior partitions, this may not be sufficient for elevator shaft walls, where loading is a function of the speed of the elevator and the number of elevators per shaft. (See *Recommended Elevator Shaft Pressure Load* table included in the additional online reading materials.)

These criteria are among the factors that define essential gypsum shaft wall performance. However, additional criteria such as life cycle costs and security considerations continue to shape how well the shaft walls function within the building as a whole. (See page 200 for more information about abuse resistance.)

### Specification Guidelines

Following are a number of key issues that need to be considered when creating gypsum shaft wall specifications:

1. Design the system to meet anticipated elevator shaft pressures. Pressures will vary depending on the speed of the elevators and the number of elevators per shaft.
2. Maximum partition heights are determined by intermittent air pressure loads and allowable deflections. The applied pressure load is selected based on the elevator cab speed and the number of elevators per shaft. Specifiers should consider three factors to determine maximum partition heights:
  - **Bending Stress** – the unit force exerted that will break or distort the stud;
  - **End Reaction Shear** – determined by the amount of force applied to the stud that will bend or shear the J-runner or cripple the stud;
  - **Deflection** – determined by the amount of bending under a load that a wall can experience without exceeding a prescribed ratio related to partition height.
3. An important, but often neglected, design consideration is the interface of the elevator shaft wall and the B-labeled elevator doorframes. Be sure that



the cavity shaft wall system has been tested by UL with the elevator door and frames that will be installed in the building. Not all systems have been evaluated for this critical juncture, and there are some specific details that should be followed.

4. Bear in mind that not all shaft wall steel studs are the same. Airtight, rattle-free performance requires a C-H-stud, which provides continuous edge support along the full length of the 1-inch-thick liner panels. Some studs have tabs that provide only intermittent support and may bend or break during installation.
5. To provide the safest possible cavity shaft wall construction, carefully review the manufacturer's limiting height data.
6. Oscillating height testing is another key consideration. Manufacturer oscillation testing has demonstrated that J-runners at the top and bottom of the shaft wall should be at least 24 gauge to withstand the positive and negative pressures created by the elevators. Lesser-strength J-runners can fatigue and may be subject to fastener failure and fracturing. Look for specific test data up to at least 1 million cycles to ensure overall system longevity.
7. When designing mechanical shaft walls, give careful consideration to ductwork penetrations. If not designed properly, these penetrations may negate the wall's fire endurance rating. Typically, a fire damper in the ductwork itself is sufficient; however, make sure the damper is compatible with the type of wall specified and that both the wall and the damper have been evaluated under actual fire testing.
8. Typically, shaft wall installation closely follows the erection of the superstructure. This is done to provide a safety barrier around the shaft openings and speed the installation. Unfortunately this is sometimes done prior to completion of the exterior envelope. This exposes all building materials to moisture, which can lead to a variety of adverse conditions. To ensure proper performance, it is vitally important to control moisture on a project. (More information on moisture control is included in the required additional reading materials.)
9. Shaft walls with elevator door frames in them should be a minimum of 5 inches thick to accommodate the boxes for call buttons, position indicators and fireman's access keys.
10. Where shaft walls enclose elevator and unlined return air vents, and intermittent pressures are expected, sealant is recommended at intersections with floors, ceilings, columns, ducts, etc. to seal peripheries and penetrations to minimize whistling and dirt accumulation due to air movement.
11. If the gypsum shaft wall is intended to enclose a mechanical shaft and there will be no sheet metal ductwork, the system should be designed with the following performance provisions:
  - The gypsum board surface temperature should not exceed 125 degrees F.
  - Air stream dew point temperatures should be maintained below gypsum board surface temperatures.
  - The assembly should be designed to withstand sustained design uniform air pressure loads not exceeding 10 psf. Start-up surges should be no greater than 1 1/2 times the design static load.
  - Separate approved liners should be installed in areas subject to continuous moisture overspray, condensation or air stream temperature exceeding 125 degrees F.
  - Appropriate sealants should be used to ensure airtight construction.

### Conclusion

Because gypsum shaft walls enable designers to meet all key performance, design and installation criteria more effectively than competing systems, they are now considered the standard for low-, mid- and high-rise construction. Gypsum systems not only enabled the construction of ultra-high-rise buildings such as the Sears Tower in Chicago and the Petronis Towers in Kuala Lumpur, Malaysia, but they also provide a superior combination of benefits for low- and mid-rise construction.

No matter what the application, gypsum shaft walls are required to meet a complex range of performance and design functions. As such, architects must account for multiple variables in the specification process. With this in mind, designers are well advised to work with manufacturers that offer the most extensive testing data and technical support services. Doing so will minimize the risk for all parties involved and ensure long-term performance. ■

### Designing for Gypsum Board Abuse Resistance

Within the last decade, gypsum board manufacturers have focused a great deal of research on understanding the nature of abuse that gypsum partitions may face during day-to-day service life.

This analysis has led to an understanding that there are three distinct components of abuse resistance. They are:

- **Surface Damage** – This encompasses abrasion or incidental indentation of the partition face from high traffic under normal use.
- **Penetration** – This is defined as penetration through the facing material into the stud cavity resulting from the impact of a blunt object (such as a kick or a hammer blow) or from a sharp object (such as a screwdriver or a knife). It also includes a blow from a softer object that covers a large surface area of the wall. When penetrated, systems without a stud cavity tend to undergo failure of the entire partition.
- **Security** – This is a breach of the entire assembly from either forced entry or ballistics.

To aid architects in determining which gypsum panel designs best meet these various abuse-resistance conditions, the following abuse categories have been developed:

- **Category One (Light Duty)** – A basic upgrade of standard drywall that provides improved resistance to incidental surface and impact damage.
- **Category Two (Moderate Duty)** – Ideal for areas such as multifamily stairwells and retail corridors that require an upgraded resistance to incidental surface and impact damage.
- **Category Three (Heavy Duty)** – Ideal for freight elevator walls and other areas that require resistance to heavy surface and impact damage.
- **Category Four (Extreme Duty)** – For even stronger protection against heavy surface and impact damage.
- **Category Five (Security)** – For protection against forced entry and ballistics.

For a typical office building, the shaft wall design may require a category one or two level of abuse resistance. Hospitals and other institutional facilities may require heavy to extreme abuse resistance (categories three or four). And where security is a consideration, category five abuse resistance may be required. One such building, the Broward County Judicial Center, in Broward County, Fla., was designed by Michael Schiff & Associates in the early 1990s with shaft walls made from high-strength solid plaster. As security in building design continues to grow in importance, wall security testing recently promulgated by the U.S. Department of State (ST-STD-01.01 and ST-STD-01.02) may be of particular interest.

### One Cautionary Note:

When designing shaft walls for abuse resistance or for any other secondary consideration, life safety considerations should never be compromised. Independently verified system performance always comes first.

### Click for Additional Required Reading

As part of this CES learning activity, you are required to read some additional material. Some of the test questions below will relate to the additional reading material. Go to [www.architecturalrecord.com/CONTEDUC/ConteducC.asp](http://www.architecturalrecord.com/CONTEDUC/ConteducC.asp) to access the material online. To obtain a faxed copy, contact Marty Duffy at 312-606-5781 or [mduffy@usg.com](mailto:mduffy@usg.com).



### Learning Objectives

At the end of this article you will be able to:

- Understand the essential performance and design criteria used to select and specify cavity shaft walls;
- Know how gypsum drywall shaft walls perform and install;
- Create gypsum drywall shaft wall design specifications optimized for abuse resistance and moisture control.

### Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 252. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—[architecturalrecord.com](http://architecturalrecord.com)—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

### Questions

- Q: 1. The type of shaft wall selected and its location impacts the amount of usable space in a building.  
A: a. True  
b. False
- Q: 2. In comparing shaft wall performances, which has the lowest cost index?  
A: a. Masonry  
b. Poured-in-place concrete  
c. Solid plaster  
d. Gypsum panel
- Q: 3. In comparing shaft wall performances, which has the fastest speed of erection?  
A: a. Masonry  
b. Poured-in-place concrete  
c. Solid plaster  
d. Gypsum panel
- Q: 4. Which of the following components are NOT part of a gypsum shaft wall system?  
A: a. Steel C-H-stud  
b. Steel L-angles  
c. Steel J-runners  
d. Steel E-stud
- Q: 5. Other commonly available materials may be substituted for the components of a tested gypsum shaft wall system.  
A: a. True  
b. False
- Q: 6. During the installation of a gypsum shaft wall, what is the next step after a gypsum liner panel is inserted?  
A: a. J-runners attached to the concrete floor and to the structure above  
b. An E-stud is vertically attached along one side of the terminating wall  
c. A C-H-stud is slid over the free edge of the liner panel
- Q: 7. Insulation, plumbing and electrical lines can fit inside:  
A: a. J-runners  
b. C-H-studs  
c. E-studs  
d. The cavity between the gypsum liner panels and face layers
- Q: 8. According to the design parameters set by Skilling, Helle, Christiansen, and Robertson, shaft walls should be capable of being built from one side only, obtain a two-hour fire rating and:  
A: a. The shaft must be waterproof  
b. Be oscillation-tested for one million cycles  
c. Maximum height of an individual panel is 4 feet
- Q: 9. When it comes to pressure loading, it is important to differentiate between intermittent and constant load tables when reviewing manufacturers' limiting heights tables.  
A: a. True  
b. False
- Q: 10. For pressure loading, if the shaft is to be used for HVAC and there is no sheet metal ductwork, which table should be used?  
A: a. Intermittent  
b. Constant
- Q: 11. The recommended elevator shaft pressure load for a single shaft enclosing two elevators moving at 1,000 – 1,800 ft./min. is:  
A: a. 5.0 psf  
b. 7.5 psf  
c. 10.0 psf  
d. 15.0 psf
- Q: 12. In order to withstand the positive and negative pressures created by elevators, J-runners at the top and bottom of the shaft wall should be at least:  
A: a. 12 gauge  
b. 30 gauge  
c. 24 gauge  
d. 48 gauge
- Q: 13. Which abuse category would best meet the abuse-resistance conditions in a shaft wall design for a freight elevator?  
A: a. Category One (Light Duty)  
b. Category Two (Moderate Duty)  
c. Category Three (Heavy Duty)  
d. Category Five (Security)

## About USG

USG Corporation is a *Fortune 500* company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling tile and grid; and building products distribution. The company received the 2001 AIA/CES Award for Excellence for its commitment to providing quality continuing education programs.

United States Gypsum Company, a subsidiary of USG Corporation, manufactures the SHEETROCK® Brand Cavity Shaft Wall System, the

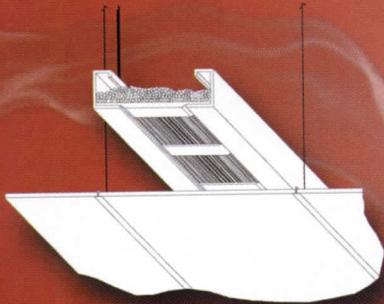
most extensively tested and widely used gypsum shaft wall in the industry. The shaft walls provide fire resistance up to four hours and sound ratings up to 52 STC. They resist intermittent lateral loads up to 15 psf, and resist fatigue failure under cyclic lateral loading.

For technical advice relating to cavity shaft wall detailing and specifications, contact USG Corporation at P.O. Box 806278, Chicago, IL 60680-4124, call USG's Customer Service Department at 800-USG-4YOU or visit the company's Web site at [www.usg.com](http://www.usg.com).



800-USG-4YOU  
[www.usg.com](http://www.usg.com)  
Email: [usg4you@usg.com](mailto:usg4you@usg.com)

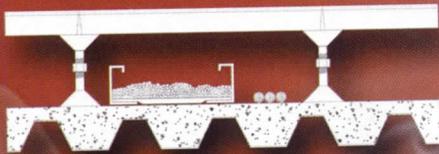
# IN CASE OF FIRE..



## IN THE CEILING PLENUM

Plenum rated Cable (CMP) can ignite in minutes and create large amounts of toxic smoke. The National Electrical Code now requires removal of abandoned communication cable in plenums.

Any fire can develop quickly into a cable tray fire.



## UNDER AN ACCESS FLOOR

Fire beneath Access Floors can be extremely hazardous. Toxic smoke from burning plastics can accumulate, then pour through multiple panel joints.

One Breath of toxic smoke could be too much.



## BELOW "POKE-THRU" OUTLETS

Fire rated poke-thrus are not tested for smoke penetration. Smoke in a ceiling plenum can penetrate most poke-thrus in seconds to endanger the upper floor occupants.

"Code Approved" does not mean safe!

# Digital Practice

**IN THIS SECTION:** Intel leads an effort to standardize 3D on the Web; a new tool for specifying glass [page 205] • Audiovisual research at the University of Michigan takes place in a theater of light and sound [page 206] • Digital Architect examines the rising quality and falling prices of digital photography [page 213] • New tools for the architect [page 219]. *Deborah Snoonian, P.E.*

## BYTES

NBBJ and AIA Seattle are hosting a conference on using digital models as collaborative design and construction tools. "Virtual Models/Actual Buildings" will take place October 10–11. Call 206/448-4938 for more information.

Harvard GSD's Center for Design Informatics is forming a consortium that will focus on integrating information technology concerns in the planning, construction, and operation of buildings.

The Hudson River Park Trust is using Constructware's collaboration tool to manage a \$380 million redevelopment program, which will transform 5 miles of New York City waterfront property extending from Battery Park in Lower Manhattan to West 59th Street. About 50 companies are participating in the project.

Software makers Bentley Systems and Arc Second have signed an agreement to jointly develop mobile applications for AEC professionals.

BlueBolt Networks has moved the functions of BlueBolt Studio, its interior-design specifying software, to the company's Web site at [www.bluebolt.com](http://www.bluebolt.com).

Las Vegas-based TRIRIGA, a provider of enterprise software for designing, building, and managing large capital assets, has added facilities-management capabilities by acquiring FacilityCenter from Peregrine Systems.

Nemetschek and office furniture maker Wikhahn teamed up to produce InteracTable and InterWall, surfaces on which digital data are projected.

## New coalition to hammer out standards for 3D Web graphics

At the Siggraph conference in July, leading chip maker Intel announced it was forming the CAD 3D Working Group to establish a standard format for accessing 3D content on the Web, to make such content more widely available and useful. "Removing the barriers to proliferation of 3D data is a critical next step in offering a richer experience for people on the Internet," said Patrick Gelsinger, Intel's vice president and chief technology officer, in making the announcement.

Long a hope of architects, engineers, and manufacturers, the adoption of open formats for 3D data has been stymied by companies intent on defending their proprietary file formats for 3D data.

The new group expects to release a draft standard within 18

months. Members include a range of software makers and customers, including Adobe Systems, Microsoft, Boeing, Dassault Systems, Alias/Wavefront, and CADKEY. They are operating under the auspices of the Web 3D Consortium, a member organization promoting open standards that in 1997 released VRML, a 3D analog to the Web language HTML, used in gaming and engineering software. "The working group will decide whether VRML [or its XML-compliant next-generation version, X3D] or another format will be the standard. We don't require that of them," says Anders Jepsen, executive director.

Acronyms aside, the hope for many designers is that this effort will improve the portability of 3D models for building design and con-

struction, no matter what software was used to create them. The top CAD vendors for architects are not members of the consortium (although Autodesk is said to be considering it), but they could choose to let users create or publish 3D content in the new format.

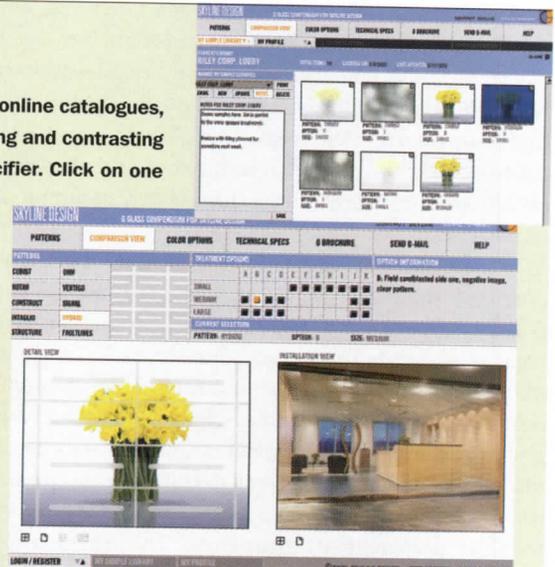
Rick Benoit of Intel, who is leading the CAD 3D Working Group, says it's yet to be determined how they will coordinate with organizations with similar or overlapping goals for making 3D data more accessible and interoperable, like the IA's Industry Foundation Classes (IFCs) for building information. "We would be very interested in working with those from the architectural and design community on this effort," he says. *Deborah Snoonian, P.E.*

### CLICK ON THIS: [g.skydesign.com](http://g.skydesign.com)

Most product manufacturers have Web sites, many have online catalogues, and a few have truly useful Web-based tools for comparing and contrasting product options, like the new G Glass Compendium Specifier. Click on one of the glass patterns shown on the main page, and your choice is then displayed in detail and installation.

A table summarizes the various treatment, color, and scale options for the patterns you select. You can either roll your mouse over the table entries to get a pop-up text summary of your choices, or click on them to see more photographs and details. Digital sample libraries can be saved and e-mailed to colleagues or clients for review. Two drawbacks: The site doesn't have a "remember me" option when you register, so you have to log on manually whenever you visit, and there's no way to order samples online. But Skyline's phone number appears in the upper right corner of every page for sample ordering, a key piece of information that's usually buried too deep within a Web site.

With its clean, intuitive interface and simple-to-follow instructions, the G Glass Compendium Specifier makes picking out glass as easy as a click of the mouse. From Skyline Design. 888/278-4660; [g.skydesign.com](http://g.skydesign.com). D.S.



# Man As a Meter

AT THE UNIVERSITY OF MICHIGAN, AN ELECTRONIC CLASSROOM IS HOME TO CUTTING-EDGE AUDIOVISUAL RESEARCH

By Deborah Snoonian, P.E.

Playing video games, listening to music, going to concerts ... sounds like college life, right? For the past few years, architecture students at the University of Michigan can get course credit for these pastimes. In 1998, the university's physical plant department spent nearly half a million dollars to outfit the main lecture hall at the Taubman College of Architecture and Urban Planning with state-of-the-art computing, sound, lighting, and projection systems, transforming it from a mere classroom into a working audiovisual (AV) laboratory. The technological overhaul was designed by architecture professor Mojtaba Navvab (known as Moji), who has spent his career immersed in the science of light and sound. As his students learn the basics of environmental technology and AV design, they also serve as subjects in a variety of experiments that attempt to link measurement to perception.

Collecting qualitative and quantitative data at the same time is crucial for improved sound and lighting design, Moji believes. AV studies typically entail a jumble of measurements and analyses, and codes and regulations dictate appropriate sound levels for different settings as well as minimum lighting levels for various tasks. But the numbers that measure acoustics and lighting—decibels, foot-candles, lamberts—are difficult to understand when they're devoid of context. "Sixty decibels may be a 'normal' sound volume, but what does that really mean? What does that sound like?" he says. "What people perceive in a given space matters more than the measurements themselves." The interdisciplinary nature of his research in the AV sciences has teamed him with colleagues from the computer sciences, physics, optometry, and psychology departments.

For a full listing of credits for the design of the e-classroom, visit Digital Architect at [architecturalrecord.com](http://architecturalrecord.com).

So, armed with digital-age tools and a captive subject pool of up to 150 students at a time, he simulates real-world lighting and sound conditions and forges connections between what instruments can measure and what the senses take in—connections that have aided design on the university campus and beyond.

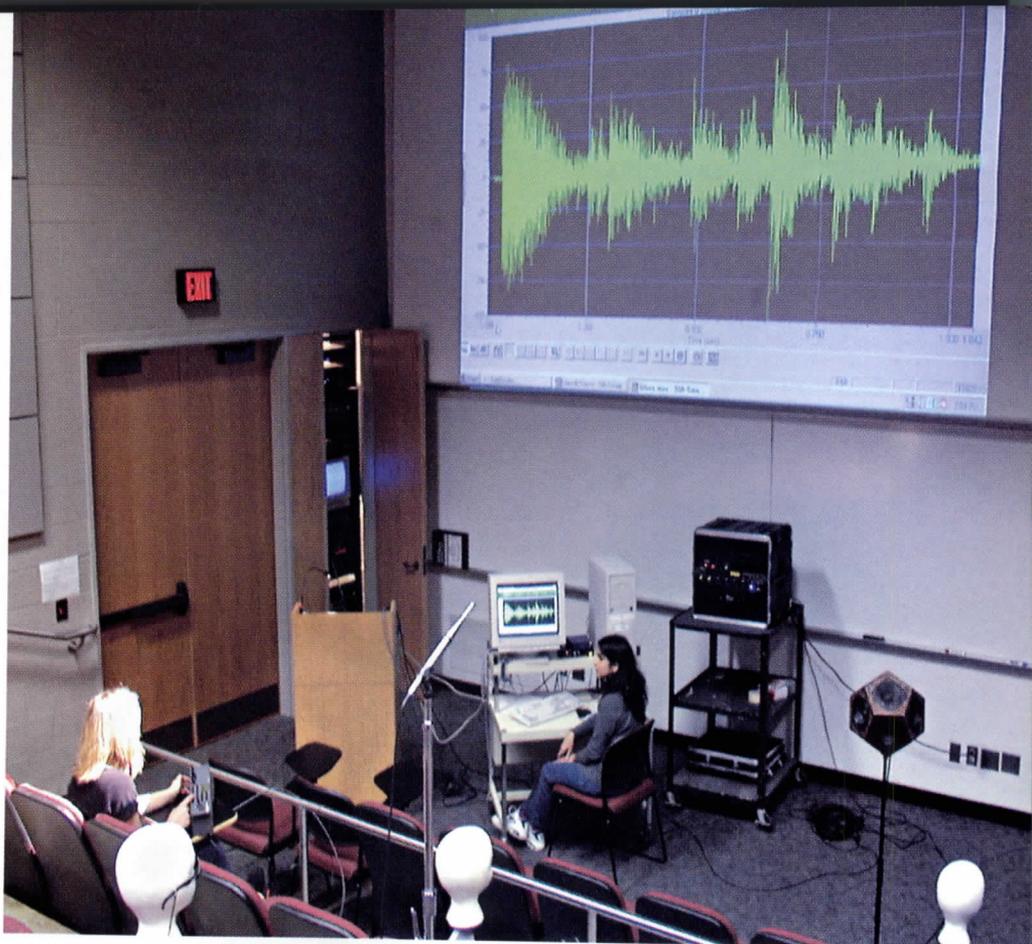
## A theater for simulating interiors

At first blush, the amped-up classroom-laboratory looks no more sophisticated than an ordinary lecture hall, until Moji starts to point out its accoutrements. Lighting controls allow him to darken the windowless room to a blackness so complete that a hand held inches from the face is invisible, or brightened to the equivalent of a cloudless summer day.

## IN THE CLASSROOM, LIGHT AND SOUND MEASUREMENTS CAN BE LINKED TO WHAT PEOPLE SEE AND HEAR.

Recessed wall washers at various intensities in the ceiling bathe the side walls in light, defining the perimeter of the auditorium and providing a method for demonstrating lighting designs. A large screen at the front of the classroom shows displays from a computer or an overhead spotlight mounted on the ceiling, which is programmable, can be aimed in any direction, and can provide any combination of light color and intensity needed for instruction and research. The audio system is composed of multiple speakers that can be adjusted for direction and tonal qualities. Sounds are recorded with in-class microphones, accelerometers, and geophones, and signals can be recorded, manipulated, and played back. The entire sound and light system is controlled from a podium by means of a custom touch screen, designed by Moji and a local AV consultant.





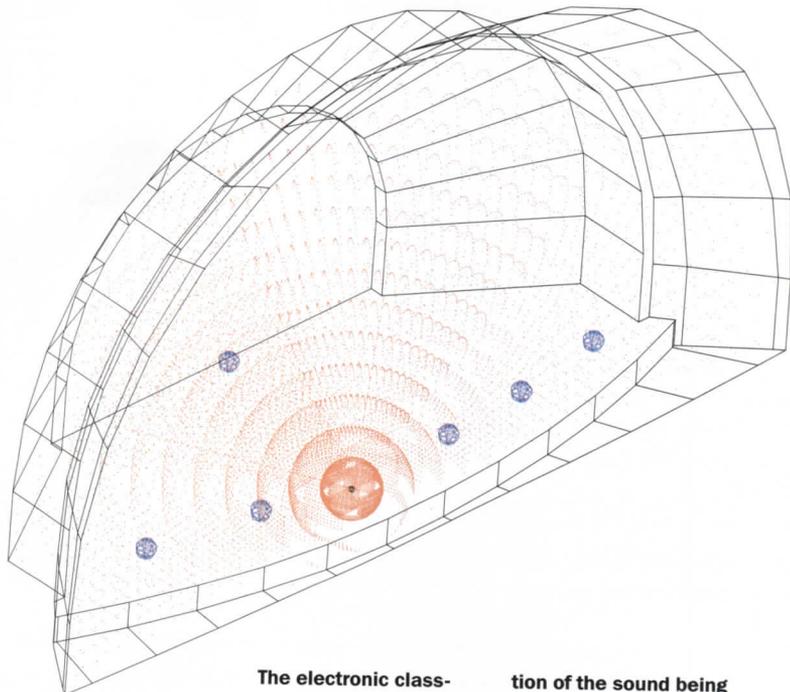
Besides being a convenient place to compile data from multiple subjects simultaneously, working in the classroom-laboratory has another advantage. "I have to teach color temperatures and other fundamentals, and it becomes deadly boring," Moji says. Using digital-age tools enlivens the subject matter for students and professor alike. He spends the first two weeks of his environmental technology class, a senior-level course, teaching the basics of how light and sound are measured. Thereafter, he weaves his experiments into the regular course work about once a week.

Knowing he'd need to collect information from the students during his experiments, Moji arranged to have Ethernet access available in the first row of 15 seats in the lecture hall. When students connect their laptops and type in responses to Moji's research questions, the data are entered automatically into a Web site maintained for the class. Starting this fall, the classroom will be fully wireless-ready, and Moji will encourage all his students to outfit their laptops for wireless Internet access. "That way they won't need to fill out paper questionnaires, and I won't have to reenter their data," he says.

To "calibrate" the room before running his experiments, Moji places mannequin heads fitted with programmable sensors at strategic locations around the lecture hall. The sensors collect quantitative data on light, sound, temperature, and humidity, which are then verified by computer models. The information later helps him compare what students report hearing and seeing with what was measured as they were being questioned; it's also used to validate lighting and acoustic algorithms that are built into software.

#### Sound matters

For acoustics, training the untrained ear is Moji's first order of business.



The electronic classroom at the University of Michigan (top right) is "calibrated" using mannequin heads fitted with sensors that measure light and sound levels in the room. On the screen, the spectral distribu-

tion of the sound being played is displayed. An acoustical model of the university's Hill Auditorium (above), where Moji conducts research with his students. The auditorium will soon receive a new audio system.

As students are seated in the lecture hall, he exposes them to noise, or more correctly, lots of noises: the clicks and whirs of mechanical systems, sound pollution like traffic and barking dogs, whistles, bursting balloons, gunshots. Some sounds (such as, thankfully, the gunshots) are played on a computer; others, like the balloons, are demonstrated live.

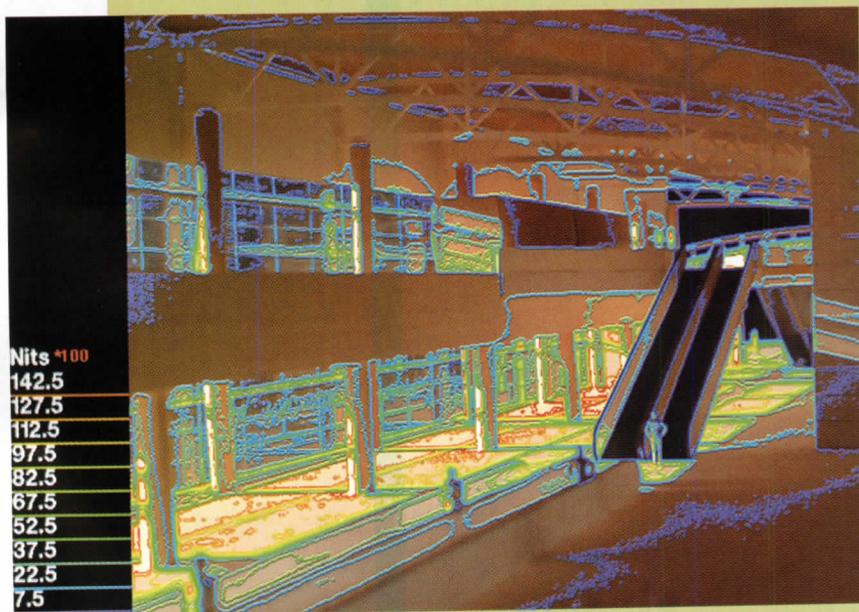
During the demonstrations, the spectral distribution of each different sound is plotted in real time by software called Acoustic2D and 3D (an industry standard for sound analysis), and the results displayed on the screen. "By explaining the graphs to the students, they can see the peak frequencies of each sound and get an idea of what a high-pitched or low-pitched or reverberant sound looks like, graphically," says Moji. He also uses reflective and nonreflective surfaces (like metal and wood) to demonstrate the principles of damping, isolation, and reverberation. When he plays music through the room's speakers, he tells his students to listen for changes in its source and direction, as he modifies the sound volume from front to back, right to left.

Once he's taught the class how to listen for these distinctions, the research projects begin. He asks the students to take a different seat than usual, and plays sounds and music clips, varying the pitch, frequency, direction, and amount of reverberance through the lecture hall's sound system. Without telling the students what aspects of the sounds he's varying, he asks them to provide qualitative information about what they hear (e.g., "Is this uncomfortably loud?" "Does this music sound warm or intimate?" "What direction is this sound coming from?"). Correlating their answers with the quantitative information previously collected by the sensors, and by microphones in the room that pick up the sounds as students answer the questions, allows Moji to do statistical analyses to evaluate the acoustic performance of the classroom in terms of its geometry. For this purpose, he has developed a special software model, in which the designs of more than 80 different auditoriums are programmed for analysis.

Digital technology also lets Moji break free of the electronic-classroom setting for a different acoustics research project. Once a semester, he invites his students on an extra-credit trip to the university's Hill Auditorium, the Albert Kahn-designed concert hall where Leonard Bernstein, George Gershwin, and other renowned musi-

## STUDENTS USE LAPTOPS TO TYPE ANSWERS TO RESEARCH QUESTIONS DIRECTLY INTO A CLASS WEB SITE.

cians have graced the stage. Each student carries one of the same programmable sensors used in the e-classroom. Again, he places the students in strategic locations around the 4,200-seat auditorium ("I tell them they can pick an area where they like to sit to listen to music," he says) and plays sound clips of music by Bach, Pavarotti, Elvis Presley, and others, including CDs the students bring in themselves ("They listen to a lot of electronic music nowadays," he notes). As the sounds are played, students record their subjective impressions of its loudness, echo, reverberance, and other characteristics. Moji collects their responses and pairs them with the data measured by each sensor. "We use this information to learn which types of sounds are most pleasing to people in a concert-hall



For SmithGroup's new Northwest Terminal at Detroit's International Airport (top), Moji simulated possible glare conditions for occupants. The computer image (bottom) shows luminance coming through the glass.

setting," he says. Hill Auditorium is now undergoing a \$38.6 million restoration, and Moji's research has helped shape a planned overhaul of its AV system, with Kierkegaard Acousticians consulting on the project.

### Shedding light on how clear the world appears

Teaching his students how to see and understand light involves a separate series of live demonstrations in the e-classroom. As a first step, Moji douses the auditorium lights and flashes an image of the Canadian flag onto the front screen, using the overhead spotlight fitted with a globo (template cutout). One catch, though: The flag is green and white instead of red and white. He tells the students to stare at the image for 10 seconds and then close their eyes. "They see the right flag color behind their eyelids," Moji says. "It's my way of teaching them how the retina works when exposed to certain bright colors, that we have cameras in our heads."

Much of the research Moji has conducted sheds light on the relationship between visual acuity (how sharply and clearly objects can be seen) and color temperature (how warm or cool the light is), and the e-classroom provides an ideal setting for such analysis, as he can test many subjects at one time and has a high degree of control over task and surrounding lighting conditions. The tests themselves are simple: He flashes



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reddish). This result has significant implications for energy savings. "To achieve the same acuity using low-color-temperature surround lighting, you have to increase task lighting by almost 400 percent," Moji explains. "Instead, you only have to change the color of the surrounding lighting to get the same level of clarity, and you decrease the total amount of light needed in the process."

#### From the research lab to the real world

Far too often, research on university campuses languishes within the ivy-covered walls of the academy, but Moji has worked as an adviser on projects in Ann Arbor and beyond. His lighting research, for instance, has brought him together with Ford GM Chrysler in nearby Detroit, to study inspection lighting systems in automobile manufacturing. "Modern industrial auto plants with new machinery and assembly configurations will require specialized integrated lighting systems to ensure adequate illumination without reflected glare," he said in a paper describing his recommendations. He aims to help them identify the right task geometry and lighting combinations on factory floors so that workers are adequately protected from eyestrain and other occupational hazards.

Closer to home, Moji is also working with Polshek Partnership on the firm's 472,000-square-foot Biomedical Sciences Research Building, slated to open on Michigan's campus in 2003. The structure has an energy-efficient double-skin facade, the first of its kind Polshek has designed in the U.S. Moji is working with the project's senior designer to analyze the building's energy performance as well as its thermal and lighting comfort, making sure that occupants and vehicles passing by the transparent building are not exposed to too much glare. "Glare can be very disabling for drivers," he notes, something anyone who commutes home by car during a lighting sunset can affirm.

In the coming years, Moji would like to use the e-classroom to study different pairings of sound and light together, to ascertain how perceptions are affected by varying both parameters. "For instance, we could expose students to dim lights and loud music, then brighter light and loud music, then quieter music, and so forth," he says. Such studies could lead to improved AV design for interior spaces found in health-care facilities, sport and correctional facilities, factories, even submarines and space stations—places where the dynamics of

## THE RESEARCH HAS FOUND APPLICATIONS IN MANY SETTINGS, INCLUDING LABORATORIES AND AUTOMOBILE PLANTS.

the audiovisual environment have a significant impact on performance or the quality of the occupants' experience.

Moji's research has application in simulation as well. "One day architects and their clients will view simulated spaces inside caves," he says, meaning rooms equipped with virtual-reality displays that let people "occupy" a proposed design for a building and analyze its features, even make revisions on the spot with parametric 3D CAD software.

While it's clear that Michigan's e-classroom has bolstered Moji's research activities and made his classes more lively, there's a drawback to all this technological prowess. "My research has destroyed my enjoyment of music," he laments. "When I listen to a symphony, I don't really hear it anymore—all I can see are the frequencies dancing in my head." ■



**Polshek Partnership's Biomedical Sciences Research Building will save energy due to ambitious daylighting strategies. Moji works with senior designers to ensure that glare from the transparent facade will not adversely affect passing drivers or occupants. The building is slated to open on the University of Michigan's campus in 2003.**

word charts and Snellen eye charts (the type found in optometrist's offices) on the front screen and asks students to write down their seat location and what words or letters they can read. They continue to record this information as he changes the color of the spotlight shone on it, and also varies the intensity of the surrounding light. "Since they're sitting in rows, I know how far each student is from the screen," he adds, a crucial piece of information for interpreting the answers they provide.

What Moji calls his "big event" for lighting research is one of the more popular class days among his students. On the front screen he projects the 1980s video game Frogger, in which the goal is to guide an electronic frog across a busy highway without letting it get squashed by a passing car. The player must be able to see the frog very clearly at all times to succeed. "I show the game and let them watch the frog for a while," he says, "then I introduce a spotlight on the frog and tell the students to keep watching it." Similar to the eye and word chart tests, students record how clearly they see the frog as the spotlight and surrounding light's colors and intensities are changed.

By and large, Moji's studies have shown that for close work like reading, which involves a combination of task and surrounding lighting, visual acuity improves when surrounding lighting is of a high color temperature (which, counterintuitively, means light that's bluish rather than

## Focusing on digital cameras

By Michael Bordenaro

Digital cameras, like many technology tools, come in such a dizzying array of options, with so many features and capabilities, that it's hard for architects to know which device is the best choice. Architects experienced with traditional single-lens reflex (SLR) film cameras who seek similar functionality and print quality in digital cameras have been hesitant to enter the digital realm because of the high cost of top-end equipment. Those seeking low-cost convenience have had better luck but have still lost ground on photo resolution, memory capacity, and battery life.

Fortunately, 2002 has been a good year for both camps. Due to improvements in charged-couple devices that act as the "film" for digital cameras, small, inexpensive cameras have improved in quality, and professional-grade SLR-style digital models have dropped in price. The cost of storage media for pictures has also fallen, making digital cameras an affordable investment for firms large and small.

### Framing the decision

The main consideration when choosing a digital camera is knowing how the photos will be used. Will they be posted to Web sites? Shown as presentation photographs?

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**www** For more resources about digital cameras, and links to helpful Web sites, visit Digital Architect at [architecturalrecord.com](http://architecturalrecord.com).



Patrick Mays of NBBJ (above) reviews poster-size prints taken with one of his firm's Nikon D100 digital cameras (top left). For lower-resolution photos, Mays has opted for Sony's Mavica digital cameras (bottom left).

Published in printed material, like magazines or marketing brochures? E-mailed for review purposes? Saved for construction documentation? Working backward from the answers to these questions will help architects evaluate the plethora of models available.

The primary yardstick of a camera's quality (and price) is its optical resolution, measured in megapixels. The higher the megapixel rating, the better the resolution of the resulting photos and the larger the prints that can be made. Photos used in electronic media like Web sites, e-mails, and PowerPoint presentations can be handled easily by cameras in the 1- to 2-megapixel range, which cost about \$300 to \$500 currently. Cameras with a 2-megapixel resolution are capable of taking pictures that print clearly at a size up to 5 inches by 7 inches. Large-scale images for presentation or print

publication, however, require a higher-resolution camera so they will reproduce clearly and accurately. Cameras with a 3-megapixel rating or higher should be used for this purpose, like the 6-megapixel models introduced this year by Canon and Nikon, which cost about \$2,000.

Lens type is another important feature that drives camera prices. To preserve image quality when shooting close-ups, a camera should have an optical zoom lens, not just digital zoom. Lenses for film cameras are sometimes compatible with digital cameras, but more often than not special lenses will be needed.

Virtually all cameras save pictures on removable memory cards or disks that are available in various capacities (e.g., CompactFlash, SmartMedia, even old-fashioned 3½-inch floppy disks). Most experts say a 64-megabyte card is sufficient for the casual photographer

shooting a mix of low- and high-resolution photos. Pictures taken at the highest resolution setting on a camera use more memory than low-res photos, so on extended shoots for print-quality photographs, high-capacity and/or multiple storage cards may be needed.

Many digital cameras are also capable of recording short video clips, with or without sound. Though the videos are not of the same quality as those taken with a video camera, this feature can be handy for documenting things like site conditions or construction processes.

### An abundance of options

Architects are now using digital photography for everything from construction documentation to presentation-quality images. Brian Gassel, in-house photographer for Thompson, Ventulett, Stainback & Associates, in Atlanta—the 2002 AIA Firm of the Year—plans to buy a

## Digital Architect

digital camera to shoot projects. "While I still use a 4x5 format camera for 95 percent of my shoots, my next step is to buy the new Nikon," Gassel said. He is opting for their 6.1-megapixel D100 digital SLR model, which allows the use of more than 40 existing AF Nikkor lenses and compatible flashes. "Except for high-end digital cameras that go for \$5,000 to \$6,000, most digital cameras don't allow you to interchange lenses," says Gassel, who plans to use his current perspective-correction lens and his stable of other lenses with the new Nikon, which is available for under \$2,000. Another high-resolution camera introduced this year, the 6.3-megapixel Canon EOS D60 digital camera, also accommodates existing lenses—in this case, all EF-series Canon or compatible lenses. It can be found for less than \$2,200.

Patrick Mays, chief information officer for Seattle-based NBBJ Architects, purchased three Nikon D100s for high-end image making. For general firm use for lower-resolution photographic needs, Mays has standardized on Sony's Mavica MVC-CD400 digital still camera, which has a 3X optical zoom lens

They keep their CDs at their desks, and when they finish using the camera, they hand it in but keep their CD." He discourages using cameras with a proprietary storage medium, such as Sony's Memory Stick, because future technological innovations or business decisions by the owning company may render them extinct faster than non-proprietary memory media like CompactFlash and CD-Rs, which are a better choice, he believes.

As Mays researched cameras for the firm's use, he also sent a memo to his staff advising them on purchasing cameras of their own. He noted that Kodak's EasyShare 3-megapixel camera with CompactFlash storage, priced under \$300, was easy to use but has no optical zoom or other extras. His other top recommendations, all of which cost less than \$600, include Nikon's Coolpix 885 (3 megapixels, CompactFlash storage), Fujifilm's Finepix 6900 (3 megapixels, SmartMedia storage), and the

Olympus C-4040 (4 megapixels, SmartMedia storage).

### Size matters

Smaller firms have also taken advantage of falling prices for digital cameras. Jennifer Siegal, principal of Santa Monica-based firm Office of Mobile Design (which currently has three employees), bought a pocket-size 2.1-megapixel Canon Powershot S300 Digital Elph for about \$500 to document design and construction in still images and short video clips up to 20 seconds long. Siegal, who is an associate professor at Woodbury



This construction photo of the Niagara Gorge Observation Tower and Public Access Point, by Hardy Holzman Pfeiffer Associates, was taken with a Pentax Optio (left).

## THE PRICES FOR EVER-SHRINKING DIGITAL CAMERAS ARE FALLING AS THEIR PICTURE QUALITY IMPROVES.

and records images on specially sized CD-R and CD-RW media that are compatible with most PCs. For Mays, the type of memory the camera uses is critical. "For our shared cameras, we wanted to have storage media that were inexpensive, easy to use, and something people could own," he said. This year, when Sony upgraded from a camera that stored pictures on 3½-inch floppy disks to the model that uses CDs, Mays found what he wanted. "Employees have their own storage CDs," he says. "They don't fill the network [servers] with large images.

University in Burbank, California, has shown images and videos in presentations to her students, clients, and the general public. The response to the video component of her presentations has been especially positive, she says.

Siegal's senior design associate, Kelly Bair, has been largely responsible for using the camera and notes many of its positive features. "We're building a residence in downtown Los Angeles, and [the Elph] is a wonderful camera to document the construction process," Bair says. Using a 128-megabyte CompactFlash memory card, which costs approximately \$80, Bair was able to shoot several stills and brief videos at the construction site without running out of memory. "I'm able to take a series of pictures and stitch them together to make a panoramic image, using the software that came with the camera. The video images are pretty good and read very clearly on our com-

puter monitors," she says, adding that image download is faster with the Elph compared to other digital cameras she's used, and its camera interface is highly intuitive. On the downside, she's disappointed by the Elph's battery life, but she has purchased additional batteries for under \$50.

The Elph is one of a growing breed of smaller, compact digital cameras that, like many technologies, have been shrinking since they came on the market. A compact size was a key decision element when the principals of Hardy Holzman Pfeiffer Associates decided to purchase their own digital cameras. While the firm has gone fully digital with all in-house photography and has equipped its New York office with three Kodak 3.1-megapixel DX3900 zoom digital cameras, the principals wanted cameras for their own personal use. Hugh Hardy, FAIA, and Norman Pfeiffer, FAIA, each chose the com-

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# Digital Architect

pact Pentax Optio 4-megapixel 430 camera with 3X optical zoom, while Malcolm Holzman, FAIA, opted for Canon's Powershot Digital Elph. "Taking pictures on film got to be a burden and a bore. Digital imagery revived my interest in making images, because they can be used in so many ways," says Hardy, adding that his Pentax is so small and easy to carry it has become a constant companion. "The raw material of design is seeing what's around you. Being able to record what you see in an easy manner greatly assists the [creative] process."

## One machine to another

Transferring photos from a camera to a computer is an often overlooked feature when making purchasing decisions. Digital cameras, like other peripherals, come with cables for this purpose. Buyers should make sure the cable is compatible with the port on their computers (virtually all computers made within the past two years have USB ports for peripheral connections, which provide faster data transfer than the older serial-port connections). Alternatively, card readers can be purchased that allow download of images directly from storage media.

One widely lauded advantage of digital cameras is the ability to preview photographs instantly and delete those that turn out poorly. "By reusing a memory chip over and over, additional pictures are not as expensive. Throwing away images is

less painful," says George Papageorge, FAIA, principal of the Chicago-based firm Papageorge Haymes, who also notes, "There are no film costs or film-developing costs, and the time to get [photo] processing completed is reduced."

For digital images, electronic manipulation takes the place of film development. Adobe's Photoshop is an industry standard for this purpose, but many cameras are packaged with software with similar (though pared-down) functions for adjusting light levels, perspective, color, and other features. Papageorge encourages newcomers to learn how to use Photoshop or other image-editing software, since they replace the development techniques that allow photographers to control how the finished product looks. "The software requires training, but the beauty is, it's not a chemical process. There are no toxicity problems and no light exposure problems," he adds.

Finally, what to do with those hundreds of photos that were so easy to snap? Digital images are memory-hungry, and it's critical to keep them from becoming a confusing mess of meaningless file names that clog a firm's server or hard drives. Many companies offer free or fee-based Web hosting of digital photos, but for firms with large stocks of digital images that will be used again and again in various media, image-management software is designed to help users



An intern at the Office of Mobile Design builds a model for the Portable House project. This picture was taken with a Canon Powershot S300. Canon's Powershots (left) fit inside a shirt pocket.

name, retrieve, and organize all types of digital media [RECORD, March 2001, pages 164-70]. Investing a few hundred dollars in image-management software can save a great deal of effort down the road when organizing a digital-image library.

## Will pixels trump film?

The ease, immediacy, and convenience of digital photography is seductive for neophytes of the medium, but experienced architects know that the mere ability to take photos rapidly does not make a good photographer, nor will it automatically produce the best-quality photographs. Papageorge, who's taken presentation photographs of more than 50 of his firm's projects since 1979, uses a film camera as well as a 3.34-megapixel Olympus C-3030 zoom digital camera, which

he bought in 1999. "Digital photography does not replace the photography intellect, or eliminate the need for understanding the nature of photography in general," he cautions. "It's important to learn what fine photography is about. Take time to understand exposure compensations [for film], because there are still film-oriented settings in the image-capture portion of the digital process."

While digital photography has a clear and growing role in architectural practice, it will never completely replace the film camera, especially for photographing completed projects. As Papageorge says, "The 4x5 camera is an architect's best friend. It takes a lot of talent to get the best possible image out of it. It takes a pro. But with a digital camera, I can get close to 4x5 quality ... just not all the time." ■

## ADDITIONAL RESOURCES

### [www.steves-digicams.com](http://www.steves-digicams.com)

Independently-maintained consumer-oriented site for digital camera information, news, and reviews of cameras and accessories.

### [www.imaging-resource.com](http://www.imaging-resource.com)

Another site for digital camera information, with a detailed homepage that shows daily news headlines and links to discussion boards.

### [www.calumetphoto.com](http://www.calumetphoto.com)

A site maintained by Calumet Photographic, a supplier of high-quality imaging products. The company offers digital products, supplies, and services, including training and consulting.

### [www.ritzcamera.com](http://www.ritzcamera.com)

Online store for purchasing digital cameras and other imaging products, including video cameras, printers, lenses, and accessories.

### [www.kodak.com](http://www.kodak.com)

Search for "Digital Learning Center" on this manufacturer's Web site for a collection of information, tips, and techniques on digital imaging and photography.

### [www.pcmag.com](http://www.pcmag.com)

The Web site for *PC Magazine* regularly features reviews of new digital cameras and image-editing software.



## New tools for the tech-wise architect

By Deborah Snoonian, P.E.

You, the readers, have spoken. You told us you wanted to see new digital products here, not just software reviews. These pages have a sampling of noteworthy items that have crossed our desks and computers in the past few months. Look for more of the same in the future.

### ArchiCAD 8

Graphisoft US  
Newton, Mass.  
617/485-4203  
[www.graphisoft.com](http://www.graphisoft.com)

The latest version of Graphisoft's CAD software emphasizes streamlined navigation and document management, faster application speed, and new 2D drafting tools. The Project Navigator simplifies document access and lets users manage documents with fewer mouse clicks. It can be used to create and arrange submission plans, tenders, or construction documents; to integrate layer combinations and scale and display options; and to distribute documents to a local network, printer, or FTP server. The Layout Book feature organizes a project's documents into one file and offers automatic page numbering, multiple master pages, and intelligent title block elements. In the 2D realm, ArchiCAD 8 has a new intuitive data-entry feature and detail tools; for 3D design, solid geometry operations let architects create complex elements in fewer steps. A customizable menu structure rounds out the package. Supports Windows 2000 or Mac OS 9.1 or higher; Intel Pentium, Celeron, or com-

patibles/PowerPC or PowerMac G3 or G4; 128MB RAM; 500MB hard-drive space.

### TrueSpace6

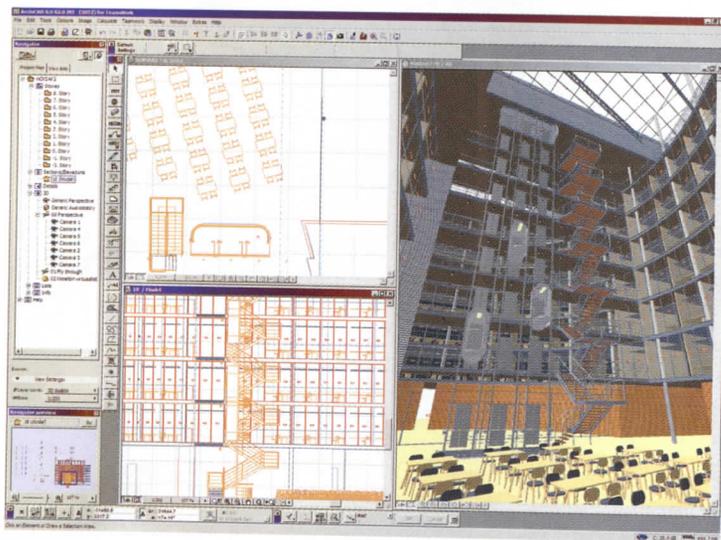
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[www.calligari.com](http://www.calligari.com)

TrueSpace 6 is a 3D modeling, rendering, and animation program that combines design and engineering features in a single package. Direct manipulation of 3D objects is possible with a selector cage that lets you click on various points to stretch, scale, and size objects to your heart's content. Color-coded layers help organize complex models. Array tools allow simplified creation of repeating architectural elements like columns or arches. A scene editor with soundtracks enlivens animations. Requires: Windows 95 or higher; AMD Athlon/Pentium 120 or higher; 64MB RAM; 50MB hard-drive space.

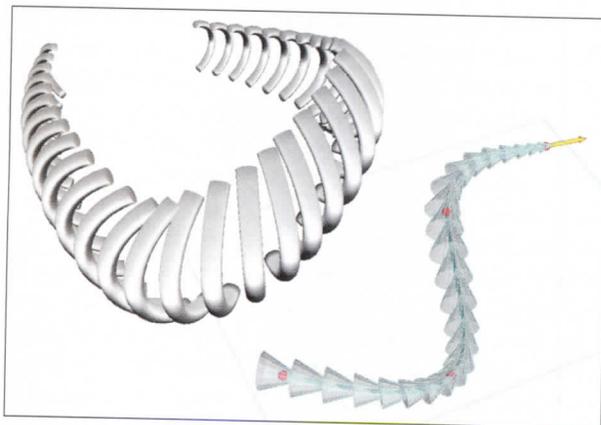
### InkLink Handwriting System

Seiko Instruments USA  
Torrance, Calif.  
310/517-8131  
[www.seiko.com](http://www.seiko.com)

Hand drawing makes its way instantaneously into a handheld organizer or computer. InkLink comes with a special electronic pen, a data clip, and a USB cable. Write on ordinary paper up to legal size, and the pen's movements are tracked and transferred to your machine. The InkNote Manager software lets you edit, high-



Graphisoft's ArchiCAD 8.



Calligari's Truespace 6.



Seiko's InkLink.

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

## Digital Products

light, and zoom in on your work. Requires: Windows-based PC or handheld organizers with an infrared port running the Palm, Windows CE, or Pocket PC OS.

### TekCAD

TekStar Corporation  
Longwood, Fla.  
407/865-6996  
tekstaronline.com

TekCAD, a program for creating and manipulating geometric forms (not solids), was designed with a simpler user interface in mind than 3D software tools intended for automotive, aerospace, or other mechanical design. Objects are created in TekCAD through generation of primitive forms like spheres, cubes, or cones, or from a composition of forms made previously. They're modified directly using freehand editing tools, or by plugging in numbers or formulas to change shapes, sizes, and positions with accuracy and precision. TekCAD supports simple mathematical operations as well as conversion, algebraic, trigonometric, and hyperbolic functions for precise exploration of alternatives. Objects can be seen and selected in any view, including perspective, plan, elevation, and isometric and oblique views. Once finished, 3D forms are exportable to DXF, VRML, and other formats for further development in CAD or rendering programs. The company claims that anybody with CAD experience can learn to use TekCAD within two to three days. Requires: Windows 95/Mac OS-X or higher; 128MB RAM; 50MB hard-drive space.

### CAD2PDF

Layton Graphics  
Marietta, Ga.  
770/973-4312  
www.layton-graphics.com

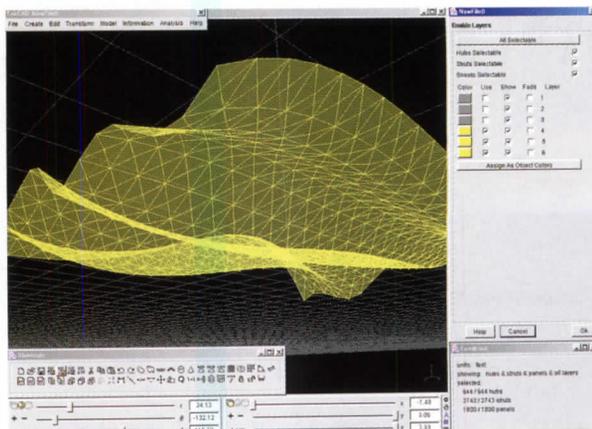
Firms with large stocks of native AutoCAD or MicroStation drawings

can use this new server-based software to batch-convert files into text-searchable PDF format for viewing with Adobe's popular, pervasive Acrobat software. Pages can be submitted at any plot size and scale; line weights and vector resolution are preserved; and automated hyperlinking and bookmarking is possible for large drawing sets. The software can access custom font libraries and other CAD libraries to maintain conformance with in-house formats. Can be installed at a single-site or enterprise level. Contact Layton Graphics for system requirements.

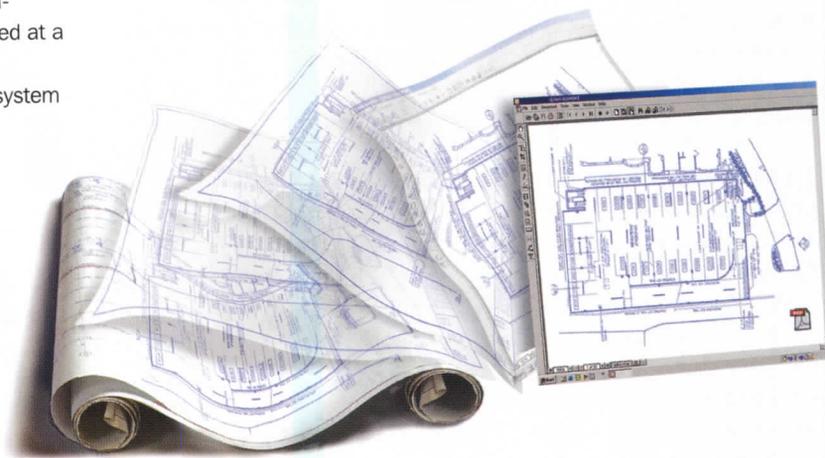
### VirtualDesign Network

VirtualDesign.net  
Portland, Ore.  
800/552-4221  
www.virtualdesign.net

New online collaboration companies haven't sprouted as quickly as they did in the late 1990s, but this newcomer from the Northwest aims to help the AEC community get in touch with their far-flung clients and partners. Its Virtual-WorkSpaces collaboration tool set includes a calendar, list of contacts, a filing system for documents, a conference section for prescheduled and on-the-fly meetings, discussion areas, viewers for 2D and 3D documents, and an area called "Community" that will be used for RFPs, software updates, and other services that don't fall into the other categories. At a demonstration at AEC Systems in June 2002, the software allowed a good-quality video conference between California and Oregon. Requires: Windows 2000 or XP or higher; Pentium III or higher; 256MB RAM; USB-based camera; Internet Explorer 5.0/Netscape 4.5 or higher. ■



Tekstar Online's TekCAD.



Layton Graphics' CAD2PDF.



VirtualDesign.net's online collaboration site.

# New Products

Out of all the product categories, **interior finish** manufacturers introduce the largest number of new products each year, from acoustical ceilings to tile to every type of wall covering.

This year the trend toward **metallic effects** in the category continues and can be found in a diverse selection of products, including hard surface textiles, panel fabrics, cork flooring tiles, and commercial wall coverings. *Rita F. Catinella*

## Two new systems help create dramatic ceiling landscapes

Geometrix lightweight aluminum panels, a new introduction from USG, are offered in a variety of profiles and depths to create 3D ceiling treatments featuring articulated planes, juxtaposed angles, and other geometric perspectives. The 2' x 2' panels install into  $\frac{5}{16}$ " narrow profile and  $\frac{15}{16}$ " standard suspension systems. The panels are available in four profiles: flat, wedge-shaped, and wedge-shaped with either inside or outside corners. The panel profiles can be combined to create 3D patterns or installed randomly to add dimensional variety to existing ceilings.

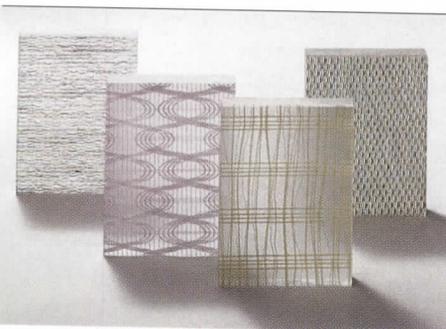
USG has also introduced the TOPO 3-Dimensional System, which consists of preformed translucent and opaque LEXAN infill panels

installed into a curved suspension system. The infill panels are designed in four-panel modules to create the appearance of gently rolling curves. The system can be enhanced through independently supported lighting, which can be used to highlight the panel's soft, translucent colors. Lighting and utilities are integrated into the system through optional 4"-diameter utility circles, which are positioned either at the high or low points of the suspension system intersections or centered on individual panels. The newly upgraded USG Design Wizard, an interactive software tool, now features Geometrix and TOPO system ceiling design capabilities. 800/USG-4YOU. USG, Chicago, Ill.

CIRCLE 200



Geometrix metal ceiling panels (left) and the TOPO 3D system (above).



of thicknesses and decorative patterns; embedded elements may include fabric, metal, paper, and organic materials. Lumicor can be used to fabricate and form a variety of vertical, horizontal, and 3D surfaces and products, including furniture, partition walls, countertops,

cabinet doors, store fixtures, light-diffusion panels, and shelving. The panels are available in thicknesses of  $\frac{1}{8}$ " to 1" and are up to 98 percent efficient at blocking UV rays. They are available in 4' x 8' sheets but can be custom ordered in sheets as large as 5' x 10'. Schober is developing a method to reuse retired Lumicor materials. 212/886-8140. Designtex, New York City. CIRCLE 201

## Newest addition to the resin/textile category

Lumicor, a new surface material developed and manufactured by Schober and the Designtex Group, is the newest addition to the recently created resin/textile category. The material's clarity and translucency is the result of a patent-pending production process pioneered by Schober, a company with a 20-year history in aerospace composite materials. Lumicor is a high-performance resin available in a range

## From rubber stamps to antique textiles

Peter Fasano finds inspiration for his printed fabrics and wall coverings from sources as varied as a rubber stamp borrowed from his son to a fabric at London's Victoria and Albert Museum. The latter inspired Fasano's Egerton Gardens Collection, which includes four designs offered in a palette of nine colors, printed on raw silk or a cot-

ton/linen ground cloth, as well as four complementary designs printed on paper. The centerpiece of the line was based on a photo of the border of a damask weave in the museum. Shown below is another offering from Fasano, the Gridlock collection of hand-printed wall coverings. 413/528-6872. Peter Fasano, Great Barrington, Mass. CIRCLE 202



## New Products



### ▲ Wide-board flooring

Junckers Hardwood has added Ash Wide Board to their product line. The Ash board features a strong grain pattern in a 5" width. The wide-board flooring is supplied in lengths of 6' to 10', with a thickness of  $\frac{3}{4}$ ". The boards are cut for a tongue-and-groove fit. The company's complete line of hardwood flooring can be installed with a "floating" clip system or by using the traditional nail-down method. 800/878-9663. Junckers Hardwood, Anaheim, Calif. **CIRCLE 203**

### ► Elemental panels

Elements ceiling panels are a new way to fill 2' x 2' openings in suspended grid ceilings and are ideal for food service, health care, schools, laboratories, clean rooms, transportation, and retail. The thermoset-composite rigid construction contains polyester aluminum trihydroxide, copolymers, and fiberglass. The mold- and mildew-resistant panels lay into a  $\frac{1}{8}$ " or  $\frac{3}{16}$ " grid. 800/822-3411. Ceilings Plus, Los Angeles. **CIRCLE 205**



### ► Fabric magnetism

Drawing on technology used for military applications, designer Michael Laessle spent a year and a half developing the Alloy panel fabric line. Through a procedure using heat and high pressure, a 100 percent polyester crepe is permanently bonded with aluminum. Passing all crocking, fading, and flammability tests, Alloy may be applied to panels, demountable walls, or selective seating. The fabric is 66" wide and



available in five colors. A portion of each sale is donated to the Michael D. Laessle Foundation for AIDS Care. 800/4PALLAS. Pallas Panels, Green Bay, Wis. **CIRCLE 204**



terns. Available in eight colors, Oslo is composed of 54"-width Type I vinyl with a nonwoven fabric backing. Other products from Muraspec include Gallerie, a blended interpretation of textural wood and an iridescent metal; Arabella Diamond, a modern interpretation of an Art Nouveau-inspired diamond motif; and

### ▲ Commercially viable

Muraspec introduces Oslo commercial wall covering for corporate, hospitality, or retail interiors. Oslo features earthy metallic colors and subtle wave pat-

Distressed, a pearled lustrous wall covering that creates the look of a hand-applied finish. 800/679-5120. Muraspec North America, Randolph, Mass. **CIRCLE 206**



### ▲ New cork on the market

Kroma and Basix are two new cork flooring collections from To Market. Kroma is a series of 12 engineered colorations that create a subtle metallic and pearled visual effect. Kroma cork tiles are approximately 24" x 18". Basix features a natural flat texture washed in a muted color-stain technique that will give the floor a solid natural finished look. Basix is available in four shades and in tiles measuring approximately 24" x 12". 877/843-8184. To Market, Washington, D.C. **CIRCLE 207**



### ◀ Limitless laminates

Nevamar's custom print laminates (sunflower sample shown) use digital print technology to reproduce a photographic image, logo, or geometric design on a single sheet. In addition to company logos, applications include door skins, wall panels, signage, exhibits and displays, tabletops, and seating. Nevamar's 2002/03 collection of high-pressure laminates include 19 new patterns and wood grains. Xanadu Blue, Electric, Red Dragon, and Extreme Green Bamboo (left) are among the many new patterns. 800/638-4380. Nevamar Decorative Surfaces, Odenton, Md.



**CIRCLE 208**

## Product Briefs



### ▲ They love Lucy

The Lucy chair, created for Vecta by Douglas Ball, combines ergonomics with an adjustable "living" back made of a new translucent, perforated material called pellethane. A "lateral flexer" pushes the pellethane forward to cradle each side of the lumbar area, and Lucy's hip pivot controls the tilt of the backrest to maintain its relationship with the body. The chair recently won a Silver Award in the IDSA's annual IDEA competition. 972/641-2860. Vecta, Grand Prairie, Texas. **CIRCLE 209**

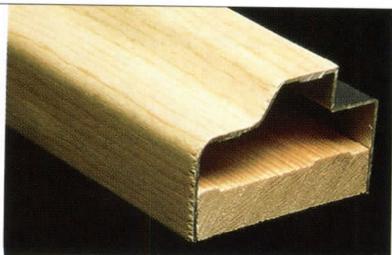


### ▲ Mobile bathroom/showering facilities

A new division of Kohler, Kohler Mobile Plumbing Systems, plans to manufacture four different types of mobile units in response to demand from government agencies, the military, private businesses, and consumers for transportable showering and bathroom facilities. The company's initial offering includes luxurious bathroom trailers; commercial bathroom/showering trailers; industrial bathroom/showering trailers; and decontamination units. 800/4-KOHLER. Kohler Co., Kohler, Wis. **CIRCLE 211**

### ▶ Wood wrap

Contact Lumber Company offers both interior and exterior wood-wrap products. The company can veneer-wrap virtually all species of wood to any soft wood, metal, or plastic substrate to give the appearance of solid, clear lumber.

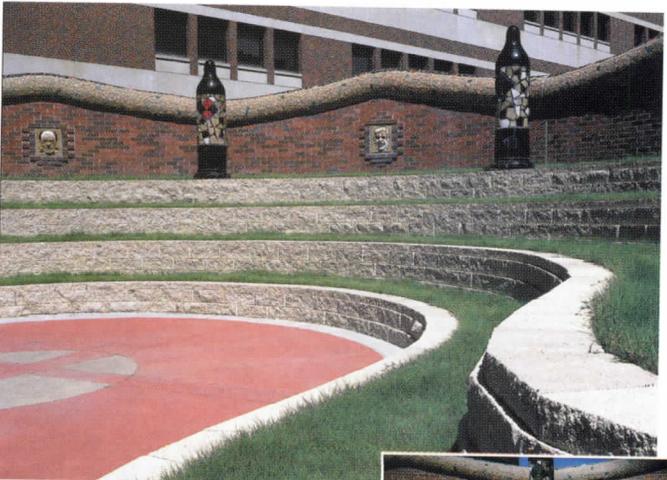


The molding shown here features Oak-Over clear grain veneer laminated to an aluminum core. 800/547-1038. Contact Lumber Company, Portland. **CIRCLE 212**



## Product of the Month **Andante**

Skidmore, Owings & Merrill has collaborated with Helikon, a division of the ICF Group, to create Andante, a new office system concept. The collection consists of three elements—desk, storage unit, and technology plane—that accommodate personal electronic devices, flat plasma screen monitors, Internet access, and more. The three elements can exist as stand-alone units or be connected to form an open office system. The desk opens like a briefcase to reveal a "personal technology well" with outlets. The horizontal surface splits into individual sections so that laptops and other devices may be used to enhance a meeting without obstruction. The slender technology plane contains group-oriented equipment such as flat screen monitors, teleconferencing systems, and whiteboards. The panels display or hide the technology, as needed. 800/824-6729. Helikon, Taftville, Conn. **CIRCLE 210**



### ▲ Walls of learning

At the University of Nebraska's Omaha campus, when weather permits, students sit in the "snake pit," an amphitheater space that serves as a spot to study, socialize, or hold small classes. After enduring four Nebraska winters, the original tiered limestone walls began to deteriorate. As a replacement, Dakota Construction installed four tiered walls using Anchor Diamond straight-face blocks. Each of the walls is 1½' high and winds 50' parallel to the exterior amphitheater wall. 800/473-4452. Anchor Retaining Wall Systems, Minnetonka, Minn. **CIRCLE 213**



## Product Briefs

A bellwether of product design is the **International Contemporary Furniture Fair**, held each May in New York. Here were a few of the attention-grabbing designs, including a **suspended hearth** and felt wall hangings. *Rita F. Catinella*

### ► Tactile treats

Float is a new furniture company that is the result of an artist/architect collaboration. In developing the new line, the team experimented with materials such as rubber, cast resin, and fiberglass. Characteristics such as air bubbles and variations in translucency and color give Float's line of chairs, lamps, and tables its hand-produced look. 215/413-3122. Float, Philadelphia.

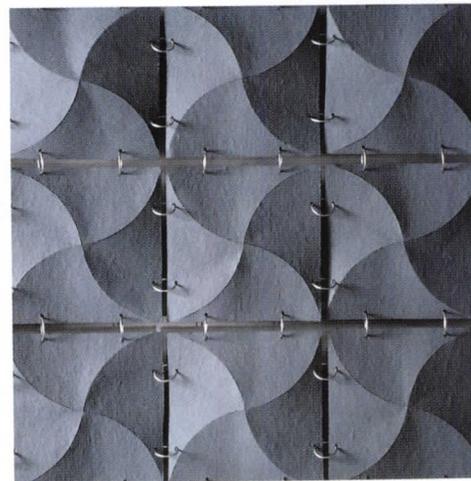
CIRCLE 214



### ► Haute hangings

In addition to two new furniture lines, the newly formed company FOLD introduced the Construct series of painted felt and stainless-steel interior wall hangings and the Area line of wall plaques, which use repeating elements of metal-leafed paper to create fields of modulated tones.

Construct (shown) features a standard panel made of a 54"-square assemblage of 100 felt sections interconnected with stainless-steel rings. Available in five patterns and five colors, the pieces are appropriate for both residential and commercial applications. 206/322-3074. FOLD, Seattle. CIRCLE 216

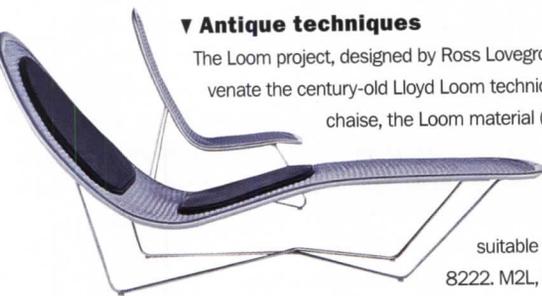


### ▼ Antique techniques

The Loom project, designed by Ross Lovegrove, was an endeavor to rejuvenate the century-old Lloyd Loom technique. For a lounge chair and chaise, the Loom material (dense kraft paper) is woven onto aluminum frames with stainless-steel legs.

A special finish makes Loom

suitable for outdoor use. 212/832-8222. M2L, New York City. CIRCLE 215



### ► Floating fire

The Fireorb fireplace, designed by Chicago architect Doug Garofalo, AIA, is made of steel spun into a CAD-governed form and is engineered to be hung easily from any ceiling. The 16" x 10" opening rotates a full 360 degrees on a ball-bearing system, and the piece can hang from any ceiling with a flue up to 40' in length. Fireorb is tested and approved to UL standards for the U.S. and Canada. 847/454-9198. Fireorb, Prospect Heights, Ill. CIRCLE 217



### ◀ Polished perches

The latest in a line of updated classics from Emeco is an aluminum stool designed by Philippe Starck. The prototype version of this stool was first used in 2001 for the Mies van der Rohe retrospective at the Museum of Modern Art in New York City, for a recreation of a café that Mies and Lily Reich originally designed. Stools are available in 18", 24", and 30" seat heights and come in either a brushed or polished finish. 310/886-9936. Emeco, Long Beach, Calif. CIRCLE 218



### ► Change your seat

Walter Craven, who founded Blank and Cables in 1996 at the age of 23, has formed Walter Craven Design. The furnishings in the new line all transform in some way; they expand, contract, flip, slide, and stack into other forms. A teak-veneered table flips open to reconfigure as a cushioned chair, while another pulls apart in the center to reveal a footrest. The flip lounger (shown) opens up from a flat bench into a backed seat with a side table. 415/648-3872. Walter Craven Design, San Francisco. CIRCLE 219



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During a rainy week in April, the Milan Furniture Fair and its two sideshows, Eurocucina and Eimu, showcased the newest furniture, kitchen, and office trends. A review of the best exhibitions and products follows. *Rita F. Catinella*

## Micro-architecture exhibitions display the creativity of world-renowned architects during the Milan Fair

With a record 200,000 visitors this year, the Milan International Furniture Fair has gained increasing recognition not only as a showcase for the world's top furniture and product designers, but also for some of the world's best-known architects. Two exhibitions held in conjunction with the fair, Grand Hotel Salone and Interni d'Autore in Piazza, featured contributions by the likes of Jean Nouvel, Arata Isozaki, Richard Meier, FAIA, Zaha Hadid, and Bernard Tschumi.

The public space of the Grand Hotel Salone exhibition functioned as a virtual hotel during the course of the fair, with a fully operational reception area and five-star restaurant featuring the world's greatest chefs. Conceived and curated by Adam Tihany, the exhibition called on internationally renowned architects to design a bedroom for 10 different cities, giving their own personal interpretation of one of the world's great metropolises through the "hotel room of the future."

According to Paul Goldberger, who moderated a conference on the exhibition featuring the participating architects, "The idea behind Grand Hotel was to strive for a way to satisfy people's desire for a 'sense of place.'"

Toyo Ito, whose room for New York City was among the more remarkable in the show, was heavily influenced by the events of September 11, which occurred immediately prior to the start of the project. "New York has always been a city brimming with speed," remarked Ito, "but one can hardly see New York now without the image of the scarcely remaining walls of the towers. That image recalled for me a scene from Andrei Tarkovsky's film *Nostalgia*, where among the ruins of a cathedral stands the main character, quietly



gazing at the water. Water calms us. I wanted to create a peaceful space for memory and prayer where visitors could look to the Manhattan skyline stretched outside their window and reflect about why such an event occurred and what we should do now."

Interni d'Autore in Piazza, organized by the Italian magazine *Interni*, featured seven micro-architectures scattered and built in various public spaces throughout Milan. The works offer an opportunity for reflection on the relationship between new design expressions and the urban scale. The event also stressed the pluralist coexistence of different architectural concepts by including the work of such varied architects as Oscar Tusquets, Peter Eisenman, and Leon Krier.

In *The Soft Bath*, Astrid Klein and Mark Dytham have taken the bathroom as the ideal space that sums up one of the ways of living in the new millennium. Their background as industrial designers shifts the scale of the project from that of micro-architecture to that of macro-object. They have also transformed the notion of the bathroom as a "hard" room, normally finished with ceramic tiles, glass, and stone, to a "soft" chamber, thanks to the use of unusual Technogel segments for the floor and walls. *Josephine Minutillo*

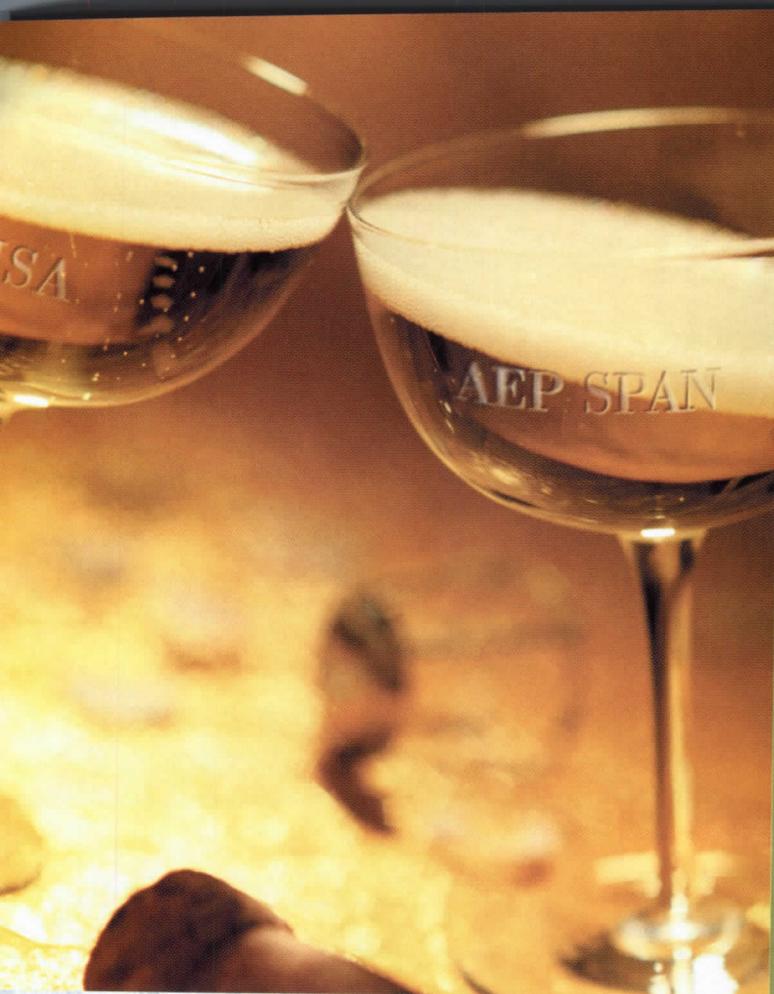


Gaetano Pesce's Moscow room (top left) and Toyo Ito's New York City room (top right) were the

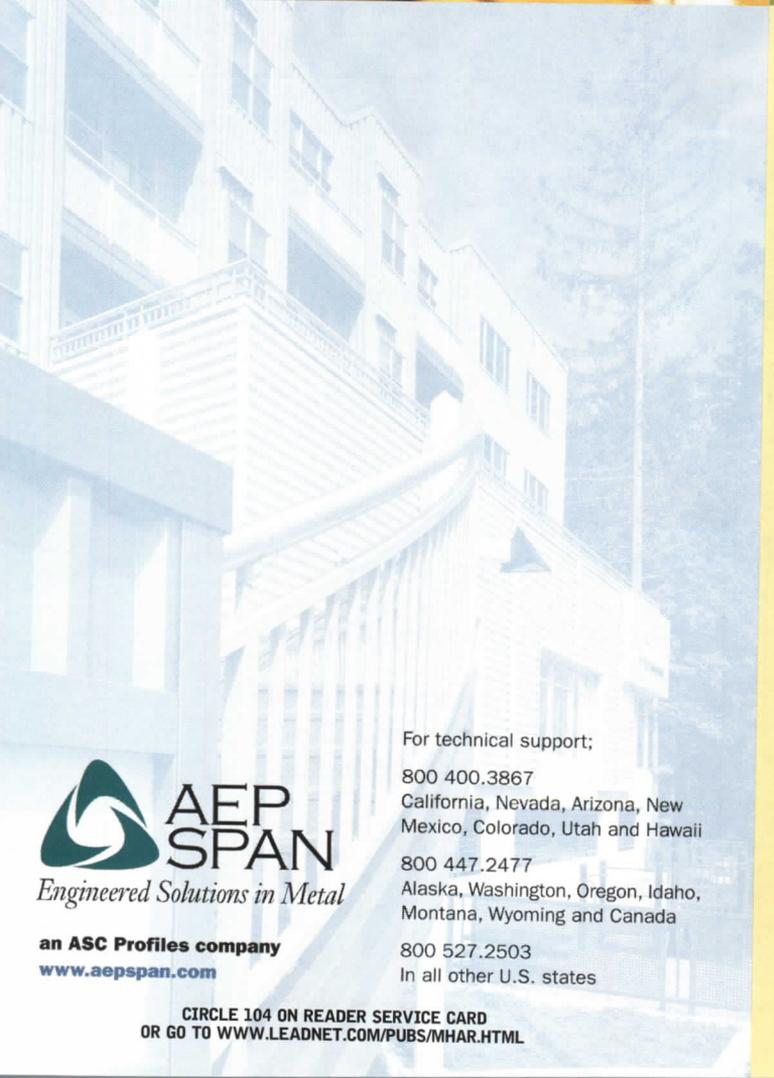
highlights of the Grand Hotel Salone exhibition. *The Soft Bath*, by Astrid Klein and Mark Dytham (center),

and *The Habitation Capsule*, by M. Fuksas (above), were part of the *Interni* exhibition on the streets of Milan.





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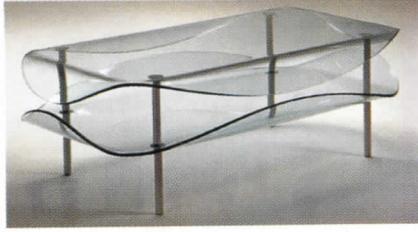


## Product Briefs

### Milan Furniture Fair Review

#### ► Fragile curves

At the fair, Fiam Italia presented Marilor, a curved float-glass occasional table (shown), designed by Ron Arad. The table's two elliptical curved elements can be used either on top of, or next to, each other. The company also introduced tables by Marc Sadler, Rodolfo Dordoni, and Christophe Pillet, and a lounge bench and occasional table by the Fiam R&D Centre. 800/345-0476. Forma and Design, Norwalk, Conn. **CIRCLE 220**

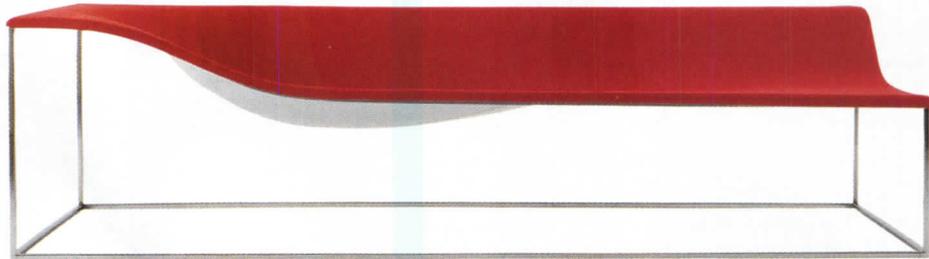


#### ▲ Worldly sofa

Designed by Jeffrey Bennett, the Metropolitan sofa's simplicity is the result of a balanced relationship between the shape of the seat and the form of the frame, in nicked or graphite varnished metal. A small rotating armchair mounted on a central base in bright brushed aluminum follows the same continuous sign of the seat and armrests. Bennett has also designed the Metropolitan bed, a piece with similar lines that features a slatted base in wood, a metal frame, and a side glass table with an extractable wooden tray. 800/872-1697. B&B Italia, New York City. **CIRCLE 222**

#### ► Smooth outline

Cappellini's current roster of designers reads like a Who's Who of the industry: Tom Dixon, Carlo Colombo, Jasper Morrison, Ron Arad, Ross Lovegrove, Piero Lissoni, and Marcel Wanders, just to name a few. The Outline sofa and armchair, designed by Jean Marie Massaud, features a padded lacquer fiberglass shell covered with fabric or leather. The base is available in metal anthracite or brushed stainless steel. 212/966-0669. Cappellini Modernage, New York City. **CIRCLE 221**



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**▲ Perfectly different**

Architect Gaetano Pesce's new collection for Zero is based on a technique where poured resin is formed into flat shapes that are folded and rolled into chairs, tables, and shelving units. The name of the collection, Nobody's Perfect, refers to the random color and texture that is inherent to the poured resin. At the fair, Zero also introduced new seating collections by Karim Rashid and Denis Santachiara. 401/724-4470. Zero U.S., Lincoln, R.I. **CIRCLE 223**

**► Little black booth**

The shiny black walls of the Kartell booth at the fair served as a dramatic backdrop for the uplift pieces on display. This year, Kartell included the final product of the Ploof series, presented last year as a prototype. Ploof, designed by Philippe Starck, is a collection of sofas and armchairs made with the rotation molding process in colored polyethylene. The soft seat is designed to rest on four polished aluminum feet and is available in a range of colors, including orange, mustard yellow, lilac, and pistachio green. 212/966-6665. Kartell, New York City. **CIRCLE 224**



**▲ Skinny folding chairs/chubby sofas**

Bonaldo had the most exciting booth at the fair, with an array of creative furnishings, including the Giubbe Rosse sofa (right), designed by Denis Santachiara. The sofa is hollow inside for storage and is offered with an elasticized fabric cover that can create privacy in an instant. Other highlights included the space saving Ori folding chair (above left) and the retro-style Bonaldo Miami table (above right). 415/925-2701. Leif Petersen, Inc. International Furniture, Larkspur, Calif. **CIRCLE 225**



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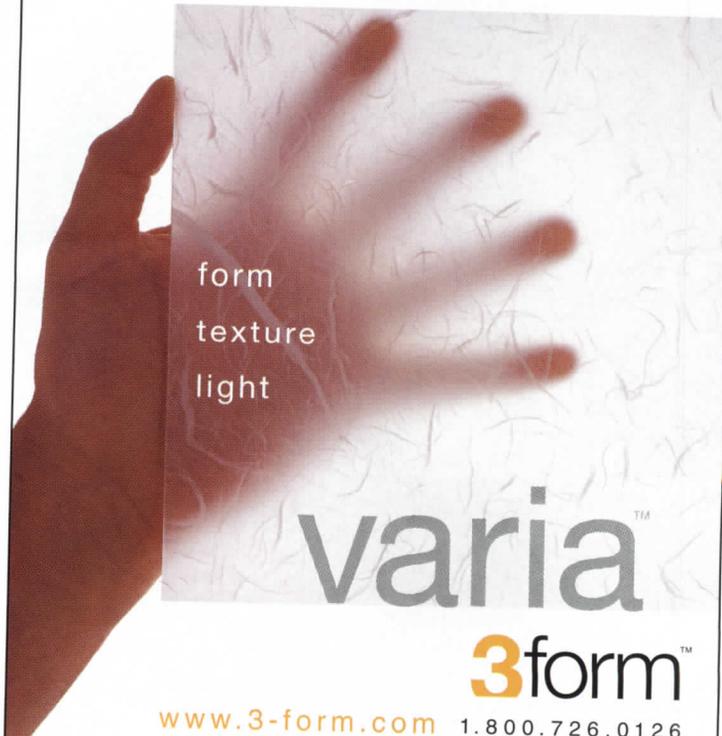
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# Product Briefs

## Milan Furniture Fair Review



### ◀ For collectors only

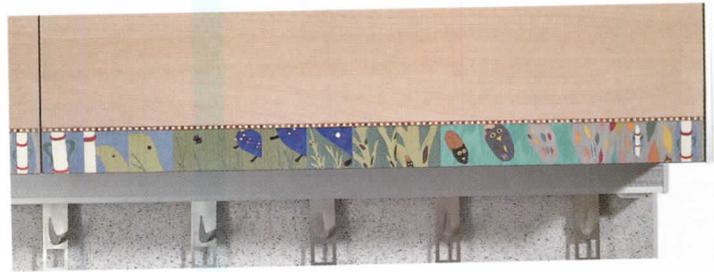
Vismara Design offers well-designed, large-capacity CD storage for collectors of music, movies, and software.

Rotary Station, the first motorized CD rack from the company, will also satisfy the requirements of companies such as production studios, banks, public and private offices, libraries, museums, and radio stations. Rotary Station can store 1,008 CD cases in 14 rows. The flap door is tempered glass and features a safety switch. At the fair, Vismara also displayed a CD rack that doubled as a screen; a revolving CD tower; the Hook System of suspended CDs; and an array of modern CD storage options. 39 0362503726. Vismara Design, Milan, Italy. **CIRCLE 226**

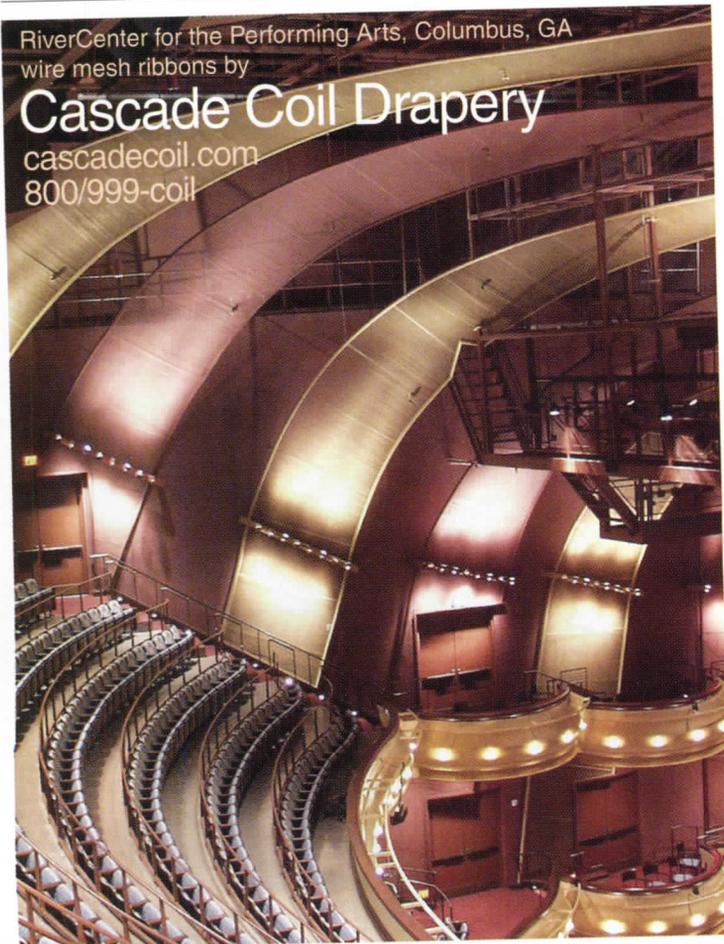


### ◀ Getting creative in the kitchen

Valcucine's new balanced lift-up door (above) is fitted with a counterweight for easy opening and features a light aluminum structure to which various materials, such as sail and balloon fabrics, glass or titanium fiber fabrics, carbon or aerogel fabrics, and magnesium and honeycomb aluminum, can be applied. At the Valcucine booth at Eurocucina, a craftsman demonstrated the wooden inlay technique that can be applied on cabinet doors (below). 212 253-5969. Valcucine, New York City. **CIRCLE 227**



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# Product Briefs

## Milan Furniture Fair Review

### ▼ Futuristic feedings

Snaidero unveiled a range of kitchen concepts at Eurocucina, including Acropolis, Ferrari-stylist Paolo Pininfarina's futuristic design in aluminum and stainless steel. Featuring a concentric shape and suspended elements, Acropolis comes complete with a computerized system that brings the management of appliances, radio, television, and the Internet all within arm's reach. All new designs will be available in the U.S. market in 2003. 310/516-8499. Snaidero USA, Los Angeles. **CIRCLE 228**



### ◀ Peaceful dreams

The Ando bed, designed by Italian architect Paolo Piva for Poliform, delivers Zen-like simplicity through a simple frame headboard that creates a backdrop for the "virtual" floating bed and attached end tables. The Ando bed, as well as complementary bedroom furniture and accessories, is available in bleached oak (shown), wenge, as well as the complete Poliform lacquer palette. 888/POLIFORM. Poliform USA West Hollywood, Calif.

**CIRCLE 229**

### ▶ High style, lower cost

The Nimrod chair, designed by Marc Newson for Magis, features a blow-molded polyethylene body and cushions that are co-molded in expanded polyurethane. While Newson has designed many chairs for the company, the Nimrod armchair was conceived in a way expressly to obtain a lower price point. 415/925-2701. Leif Petersen, Inc. International Furniture, Larkspur, Calif.

**CIRCLE 230**



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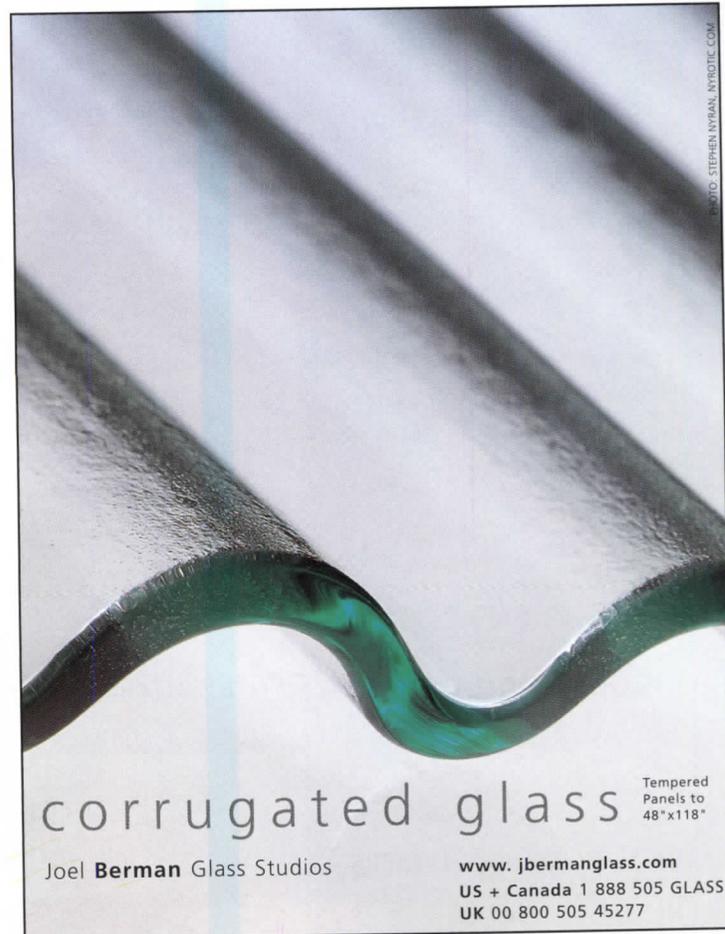
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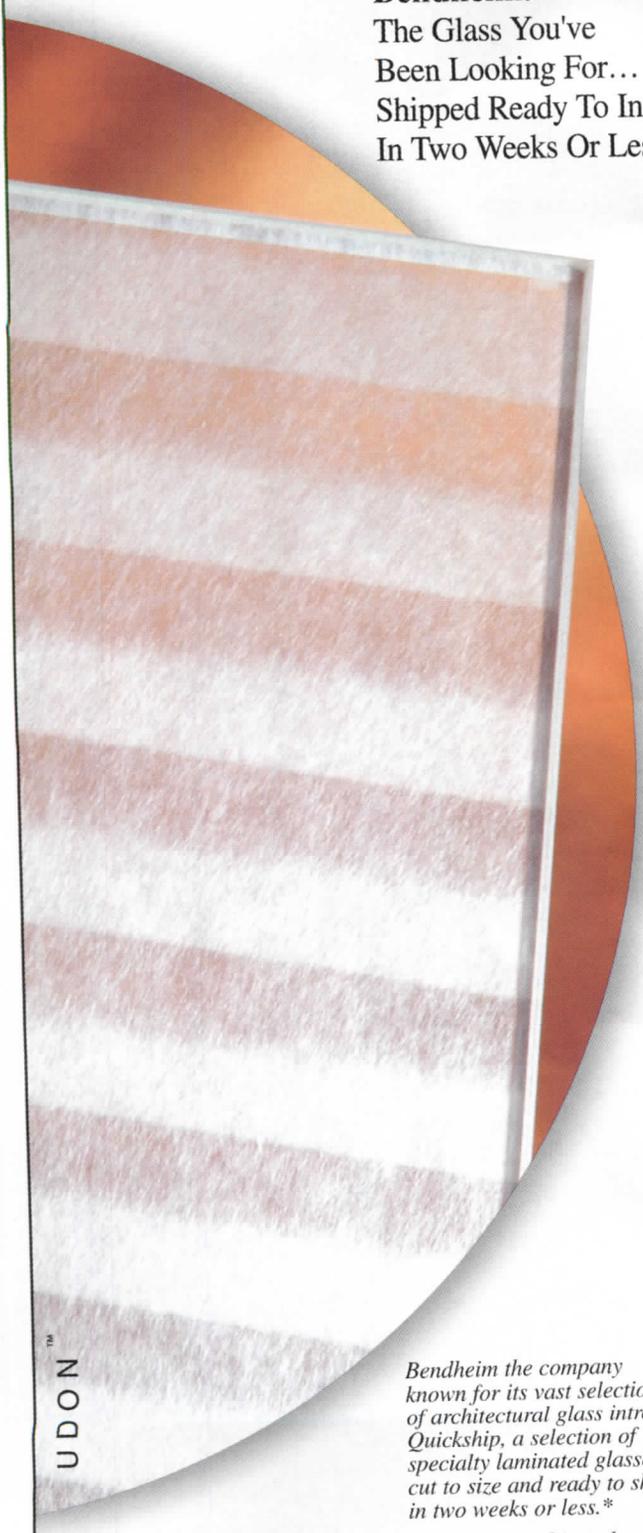
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## Product Literature

### Window/door sealing system

Zero International's new 50-page catalogue of door and window sealing systems provides specification assistance and full-size schematics for hundreds of components and integrated systems for blocking flames, smoke, air, light, and sound. 800/635-5335. Zero International, Bronx, N.Y. **CIRCLE 231**

### Custom-colored panel fabrics

Pallas Panels has introduced the Color Unlimited program by designer Michael Laessle. This program allows designers to specify their own colors in any or all of the three recycled polysustainable textures available: crepe-weave, box-weave, and bouclé. When a formula for a submitted color is created, a color sample is provided for approval within a matter of days. 800/4-PALLAS. Pallas Textiles, Green Bay, Wis. **CIRCLE 232**

### Business furnishings binder

CCN International offers a comprehensive new *Wood Solutions for Business Environments* product-line binder. Each brochure in the binder details the range of coordinating products available for each CCN collection, including modular wood desks, reception and administra-

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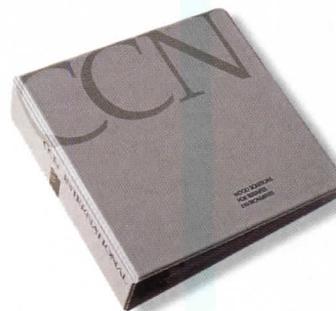
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tive workstations, conference and work tables, and storage cabinetry. 315/789-4400. CCN International, Geneva, N.Y. **CIRCLE 233**

### Extrusion color chart

Lasting Colors, a new Duranar Color Chart from PPG's Coil and Extrusion Coatings division, now includes the PPG Sunstorm Mica Coatings. The color chart features 66 color chips, just a sampling of PPG's range of colors. 800/258-6398. PPG Industries, Springdale, Pa. **CIRCLE 234**



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## Product Literature

### Copper alloys guide

The *Copper Alloys 40 Alloy Design Guide* gives the ornamental metal designer information on how to specify, locate, and purchase the commonly available coppers, brasses, bronzes, copper-nickels, and nickel-silvers available in the United States. There are four more guides planned to cover stainless steels, hot-rolled steels, cold-finished steels, and aluminum, each with a full compliment of samples of the various shapes in which that metal is produced, and a nationwide inventory of the dimension in which each shape is available. 800/843-3951. MetalReference.com, Wyalusing, Pa.

CIRCLE 235

### Fabric fans

Taking a cue from the color systems offered by the paint industry, DesignTex has created a fan-deck system to sample and specify 315 Colorbox fabrics. The collection is organized into eight color volumes that are each dedicated to a color family. Color swatches on each blade extend to the edge, allowing designers to place color shades against other materials. Colorbox fabrics are woven of pure New Zealand wool and are designed with a global color palette using

dyes free of heavy metals. 212/886-8140. DesignTex, New York City.

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### Commercial flooring package

Azrock Integrated Flooring 2002, a six-piece resource kit, features applications of Azrock flooring from Domco Tarkett Commercial. The kit is packaged in a book-size box that can be stored on a bookshelf for easy reference. It includes the 2002 Azrock full-line catalog; the Azrock design book *Design Inspiration*; the 2002 Azrock color palette poster; and environmental, retail, health-care, and educational brochures. 800/558-2240. Domco Tarkett Commercial, Houston. CIRCLE 237

### Manageable hardwood

Weyerhaeuser Building Materials' Lyptus high-grade hardwood brochure offers color photos of raw materials and end-use applications, plantation growth and processing information, and details about sustainable forest management. The brochure is free. 877/235-6873. Weyerhaeuser Building Materials, Federal Way, Wash. CIRCLE 238



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**RICHARD MEIER** (continued from page 106) since everything around the World Trade Center site is 55 stories.

**AR:** The ghastly changes proposed to convert your Bronx Developmental Center of 1978 into an office building [ARCHITECTURAL RECORD, March, page 23] must have been another sort of shock.

**RM:** Shock, horror, sadness, and disbelief all apply. I believe in progress and change, but when you see your own work being destroyed for something that is not going to be half of what it was, you wonder. It just needed a good cleaning.

We talk about architecture being like your child—when it's built, there's a point it has a life of its own, and you hope it's a good one. You've given it all the learning and experience you have. For the most part, I feel very gratified when I go back and see buildings I did 10, 15, and 20 years ago.

**AR:** How have you been affected by changes in technology? Such as virtual architecture?

**RM:** With virtual architecture and anything ephemeral, the idea behind it has to be relevant and meaningful. Otherwise it's without ideas and who cares? I also have a real peeve, which everyone in this office knows very much firsthand, and I've expressed it to students whenever I can. Everything is drawn on the computer so we can do certain things faster, and hopefully more accurately.



Richard Meier, shown with a model of the Peek & Cloppenburg Department Store in Mannheim, Germany.

But many people, especially those coming out of school today, show a lack of understanding of scale. And I don't only mean the scale of the spaces they are drawing on the computer, but the scale of a line, which determines the scale of that opening. How big is that door? This has to do with scale at every level, from the overall concept to the last detail. Often someone will say, "I'll measure it." But, you shouldn't have to measure it—you should know what you're drawing.

**AR:** Do you use this computer technology in the office? Do you build your models virtually?

**RM:** No, no, we still build actual models. We use the computer for presentations.

**AR:** American architecture has taken a drubbing for playing it safe—for a lack of risk-taking. What do you think about the status of American architecture today?

**RM:** Architecture's in a great place at the moment. There's an extraordinary amount of innovation and creativity, as well as a return to a search for clarity. We see this not only in America; we see it all over the world. Communication is faster than ever—it's

really creating an awareness and thoughtfulness on the part of architects everywhere. There's a search for what's meaningful and appropriate to the place, and for the most straightforward, simplest way to express architectural ideas. ■

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# WHERE WE STAND

## AIA Mid-Year 2002 Financial Results

To members of the AIA,  
 At mid-year, AIA's financial performance continues to be strong. As of the end of June we remain ahead of plan for the year.

**Total Net Income Better Than Forecast**  
 Total revenues for the first six months of 2002 are higher than planned as a result of increases in membership dues revenues, higher than expected sales of AIA Contract Documents, and better than expected convention receipts. At the same time, expenses are slightly below budget resulting in total net income for the first half of \$9.99 million. This is an improvement of 4.4 percent over budget.

**Staying The Course**  
 We intend to continue working toward the third year in a row of fiscal stability and asset growth. It is management's goal to meet or exceed the financial targets set forth in the Board's three-year financial plan adopted last year so that we can better serve you.

I welcome your comments.  
 Sincerely,

  
 Norman L. Koonce, FAIA  
 Executive Vice President/Chief Executive Officer

*AIA Financial Results June 2002 (\$000's)*

|                             | YTD<br>June<br>Budget | YTD<br>June<br>Actual |
|-----------------------------|-----------------------|-----------------------|
| Revenue                     | \$27,143              | \$27,366              |
| Operating Expense           | (17,685)              | (17,489)              |
| <b>Operating Net Income</b> | <b>\$9,458</b>        | <b>\$9,877</b>        |
| Non-Operating Income        | 102                   | 99                    |
| Unrestricted Net Income     | <b>9,560</b>          | <b>9,976</b>          |
| Restricted Income           | 10                    | 14                    |
| <b>Total Net Income</b>     | <b>\$9,570</b>        | <b>\$9,990</b>        |





| Page Number | Reader Service Number | Sweets Listing | Company Name                       | Website           |
|-------------|-----------------------|----------------|------------------------------------|-------------------|
| 4, 5        |                       |                | Steelcase                          | steelcase.com     |
| 237         | 110                   | Ⓢ              | Sto Corp                           | stocorp.com       |
| 45          | 28                    |                | Tango Lighting                     |                   |
| 240A-D      |                       | Ⓢ              | Technical Glass Products           | treglass.com      |
| 41          | 24                    |                | Tile of Spain                      | tilesofspain.com  |
| 89          | 58                    | Ⓢ              | Timely                             | timelyframes.com  |
| 32          | 17                    |                | TRE-Più                            | tre-piu.com       |
| 170         | 81                    | Ⓢ              | Truebro                            | truebro.com       |
| 30-31       | 16                    | Ⓢ              | Trus Joist                         | trusjoist.com     |
| 197-201     |                       | Ⓢ              | USG Corporation                    | usg.com           |
| 196         |                       | Ⓢ              | USG Corporation                    | usg.com           |
| 4cov        |                       | Ⓢ              | USG Corporation                    | usg.com           |
| 222         |                       |                | Visa Business                      | visabusiness.com  |
| 49          | 32                    |                | Visa Lighting Corp                 | visalighting.com  |
| 85          | 55                    | Ⓢ              | Vistawall Architectural Products   | vistawall.com     |
| 37          | 20                    | Ⓢ              | VT Industries                      | vtindustries.com  |
| 118-119     | 72                    | Ⓢ              | Vulcraft, A Division of Nucor Corp | nucor.com         |
| 10-11       | 5                     |                | Weather Shield Windows & Doors     | weathershield.com |
| 185-189     | 88                    | Ⓢ              | Wiremold                           | wiremold.com      |
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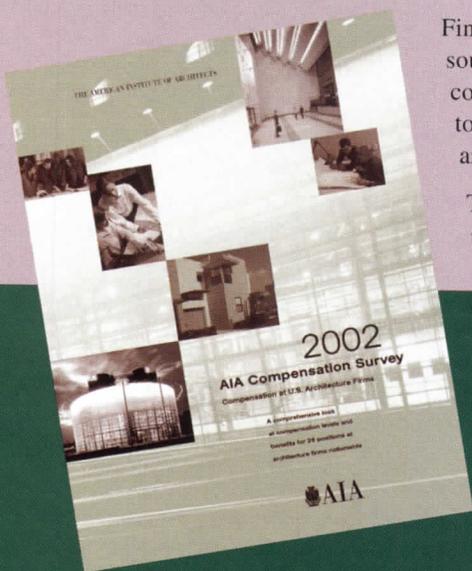
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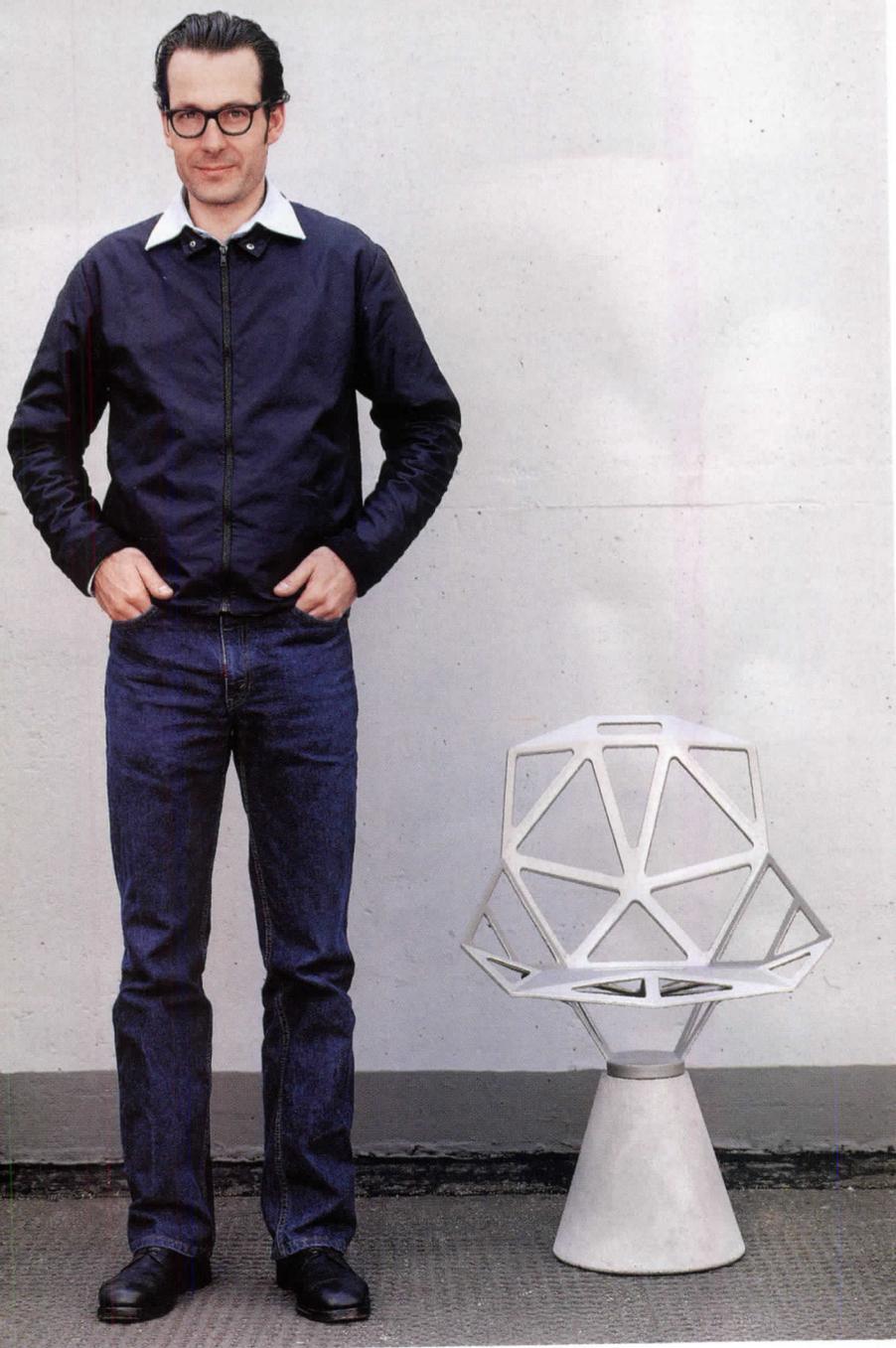
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## Konstantin Grcic: Transforming design with everyday objects

**Interviewed by Josephine Minutillo**

From tables and chairs to buckets and shoe racks, the young German designer Konstantin Grcic (pronounced gir-chic) has an ability to inject both beauty and wit into the objects he creates. The designer whom the legendary Achille Castiglioni calls his “spiritual heir,” Grcic was recently honored with the prestigious Compasso D’Oro prize for his May Day lamp (designed for Flos in 1998). Earlier this year, he curated an exhibition at the Busch-Reisinger Museum at Harvard University called Goethe/Grcic: Quotidian Objects. In the show, organized by the Casa di Goethe in Rome, Grcic displayed everyday objects, like buttons and paperweights, that once belonged to Germany’s foremost poet, Johann Wolfgang von Goethe.

**Q:** Goethe was one of the first men in history to enjoy celebrity status during his own lifetime. Why then did you choose to include such seemingly trivial items in an exhibition on such an important figure? The museum in Rome was very interested in including the usual sort of objects for this type of show—his clothing and writing instruments, for example. But I wasn’t interested in those kinds of fetishistic objects; I’d rather have a cork on a string or a broken piece of wood. The appeal of an object for me has nothing to do with its age or material value, and even less to do with the fame of its former owner. Goethe was a great writer but also a great traveler and a manic collector.

*On a more personal note, you and Philippe Starck were the first non-Italians to win the Compasso D’Oro. Was it a surprise?* Last year, for the first time, they opened the doors for a foreigner like me who doesn’t live in Italy. It’s very flattering. But it’s just as nice for me to see people who don’t really think about design so much, who buy products without knowing the designer or how important a designer’s name attached to a product is. Sometimes I will come into somebody’s flat and under their desk, without knowing it, they have a wastepaper bin that I designed. [To see that] I think is a really great kind of award.

*How many projects do you usually work on at a time?* Let’s say 10, but some projects are so slow we don’t have to do anything with them for half a year. That’s also why I love working in this industry. There’s always a period when we work on a project, then give it to the manufacturer, and for the next three months or so they’ll work on it. Then they give it back to us, but in the meantime we can do other things.

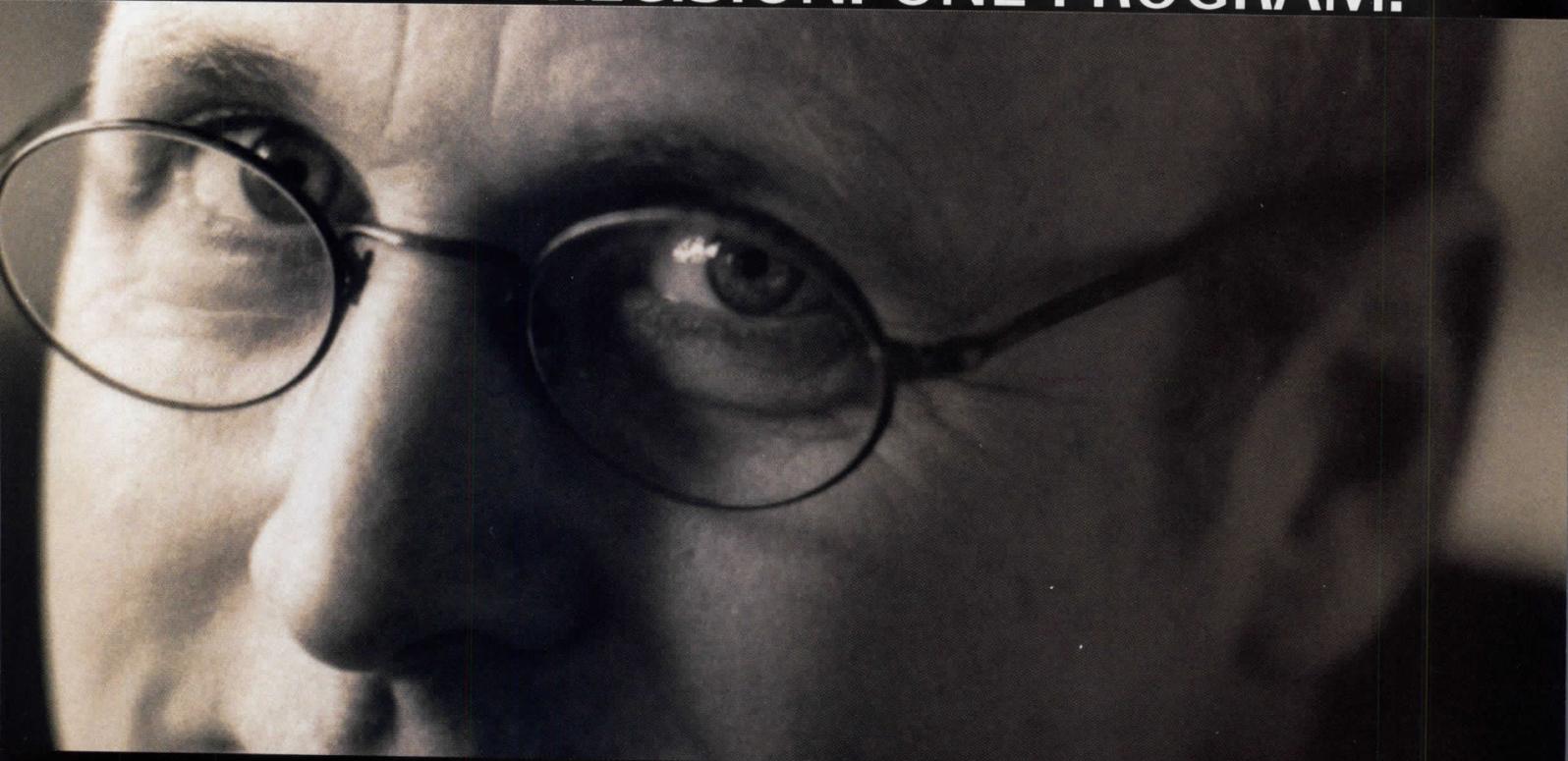
*Have you ever been disappointed with the way something has turned out?* All the time.

*Is this due to problems of production?* [It is due to] many things, including problems of production. But I always think that those kinds of problems can be turned into something positive if there is an opportunity to really discuss why it is a problem and how we can solve it.

*Manufacturers always approach you with a specific object they would like you to design for them. If given the opportunity, is there anything you would like to design?* [After hesitating for a moment, he responds with a smile ...] Yes, a really fast car.

**Photograph by Daniel Mayer of Grcic with CHAIR\_ONE, his new design presented at the 2002 Milan Furniture Fair by Magis**

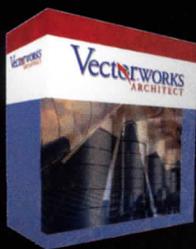
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