


# ARCHITECTURAL RECORD

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**Architects Speak on the  
State of the Profession**

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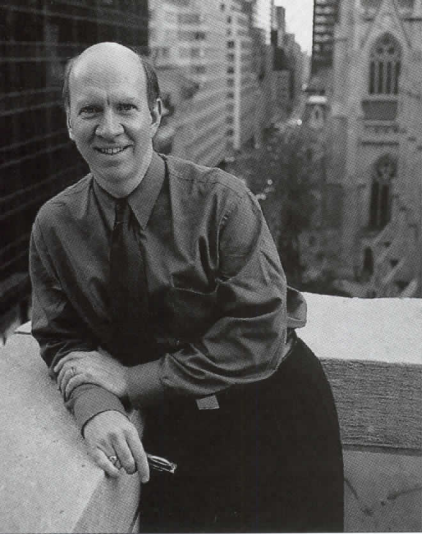
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## Dot.com mania

# Editorial

By Robert Ivy, FAIA

**N**othing outside the bland, glazed building in South San Francisco gave a hint about the power inside. There, huddled in a beige conference room, two young dot.com developers—one an architect, the other an engineer—seemed so eager to tell their collective story that they finished each other's sentences. Recent transfers from the building design professions, they had packed it in a year ago and headed for the Silicon Valley gold rush. Their excitement mounted as they described how a Web application developed in their garage could radically improve the way people practice architecture. I believed them.

What were they working on? And what is happening to San Jose, epicenter of the dot.com fault line, where land values are skyrocketing and hotels remain 100 percent occupied all year round? To find the answers to these questions, jump into "Editor's Journal: From the Field," a new offering on our Web site that takes you where we travel, visiting architects, clients, and dot.com moguls. Like the Web, it's loose, unfussy, and updated frequently.

Although this magazine has focused on the ways that the information revolution is changing architectural design, our Web site recognizes another transformation: the way we receive information. Unlike most print publications, the Web encourages random scanning (versus longer, serially organized reading), takes a more conversational tone, and reminds you that it's subject to change. This new attitude, derived from technology, has profound implications for other media, including ARCHITECTURAL RECORD.

The Editor's Journal is symptomatic of larger change in our overall publication. Although we're centered in New York's Silicon Alley, not Valley, we have been plotting our own digital leap forward toward a more seamlessly connected magazine and Web site. Architecturalrecord.com, our Web site, morphs into a new, friendlier format by July 1, with a new look and new offerings, such as updated architectural news online. The product of months of collaboration with consultant Roger Shepherd and others, the site loads more quickly, sports more dynamic graphics, and is poised for further change.

Already, RECORD's site takes you further and deeper, allowing you to probe for more information about the printed stories. Want to know the name of the acoustical consultant on Frank Gehry's latest project? Check out the Web site under Projects. Wonder if Ricardo Legorreta said more than we printed? Look for his unabridged interview on the site, which we could never have shown in its entirety. Interested in who manufactured the roof on a school depicted in this issue? It's probably available for the asking on the site. We retain and improve our popular features, including Green Architect, Continuing Education, Digital Architect, and Record Houses.

In the near future, you'll be able to flip from one to the other—from printed page to pixels, you are invited to seek out additional details and drawings in a seamless offering. The printed magazine will change as well. First, nothing will replace the rich graphic presentation of architecture that you count on from month to month. However, we will break out different types of information within each story, allowing you to scan the pages more easily, deciding what makes sense to spend time on. We'll allow thoughtful, important stories, such as this month's "State of the Profession," to take as much room as they require. But we've already shortened the text of some stories, formatting the material in a quicker, more easily accessible way.

We're changing because you're changing. An earthquake has already struck this new information age, as real as the San Andreas Fault and deeper than CAD. It affects the way we all receive information, and ARCHITECTURAL RECORD will be part of the revolution. Aftershocks are coming: Fire up the hard drive and plug in the modem to be ready.

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# Letters

## Can't see the forest

The March edition of ARCHITECTURAL RECORD [page 76] contained a description of Park Forest, Illinois: "Flat on its back and won't come back under today's circumstances," in the words of Minnesota State Representative Myron Orfield. But, to paraphrase Samuel Clemens, "The news concerning our death is greatly exaggerated."

The village now owns the dead local mall and is converting it into a traditional downtown. We have demolished over 300,000 square feet of useless and vacant retail space and punched roads through the site. A 90-unit apartment house and 60-unit assisted-living facility are under construction on a former parking lot. On another lot, a 65-unit, single-family neotraditional development is being built. Perhaps most impressive is the fact that private investment here totals more than \$38 million. A new Walgreens and an OSCO Foods have opened, while another building has become a cultural arts center that houses an equity theater company, a juried art gallery, an art school, offices, and boardrooms.

Village Hall has moved into the center of downtown, where the new Village Green hosts a tree-lighting, an art fair, and other events. We have won the Illinois Chapter of the American Planning Association's planning award as well as numerous other honors, including the Burnham Award for excellence in planning. Maybe Representative Orfield has a program to sell. But I don't expect his exaggerations to come at the expense of both fairness and honesty.  
—Janet R. Muchnik  
*Village manager, Park Forest, Ill.*

## The digital divide

I disagree with the premise put forward by B.J. Novitski in April's Digital Architect [page 173]. She suggests architects need not worry about the

"few constraints imposed by the equipment" involved in today's rapidly evolving electronic control possibilities. She thinks that designing a house full of automated devices is not much different than designing a house that isn't "wired."

I disagree completely. The next generation of houses will be different, just as creatures with complex nervous systems are different from plantlife. The revolution in architecture offered by embedded control and communication technologies will change architecture radically, as the same technologies have already changed industrial design—in terms of what is designed, how it functions socially, and how it meets the demands of the marketplace.

Rather than continuing to celebrate an approach to architecture that was stabilized 10 years ago, ARCHITECTURAL RECORD should be watching for designers who accept and meet this new challenge, which has a formal aspect, to be sure.  
—Anders Nereim  
*Via E-mail*

## Curb appeal

The April issue looked great. I found the Kalach house, in Mexico City [page 112], to be particularly impressive. Great job on an inspiring article.  
—Anne Fougeron  
*San Francisco*

Your selections for RECORD HOUSES 2000 make a most unfortunate statement about RECORD. I should not have to detail all of the problems created by urban sprawl. But when the magazine publishes only houses in idyllic and pastoral exurban settings [RECORD HOUSES, April 2000, page 93], it reinforces the dream of a "house in the country" and all the problems that go with it.

Impossible transportation systems, pollution created by commuters, the loss of community

identity, and the resegregation of the cities—both racial and economic—have all resulted from the abandonment of the city by those who could afford to leave.

Urban housing is desirable and can provide a much richer quality of life. I suggest two separate categories of RECORD HOUSE projects. One would be for architects who do not wish to solve the complex problems of living in an urban center, and the other would include those who prefer to demonstrate creative solutions to the problems of context, scale, density, and security that accompany urban housing.

—Robert N. Kennedy, FAIA  
*Indianapolis*

The houses are all brilliant! My only reservation is that they don't cover the entire design spectrum. Each does display crisp geometries with tightly controlled angles and curves. But none are Dionysian. There are no gables or shingles, no garden-variety window sashes, no apparent environmental strategies. As these houses show, architects have greatly refined New Modernism. But is the movement becoming so orthodox that invites yet another round of rebellion?

The City issue [March 2000] was also, I thought, particularly good. It covered the theme very well—with pertinent, juicy stuff—and it didn't get tedious trying to be comprehensive. The London Underground stations [page 129] were excellent, and I appreciated the treatment in RECORD. Okay, the SOM piece, on page 68, could have been a bit more skeptical. They've got a way to go to reach their previous position and may be celebrating victory prematurely. But it, too, was a good subject.

—John Dixon, FAIA  
*former editor,  
Progressive Architecture  
Greenwich, Conn.*

## War child

I was very pleased to read about Kosovo in the January 2000 issue of RECORD. Of course, the photo essay on page 74 presented a very moving portrayal of the devastation. And I'm sure the "Kosovo housing ideas competition" [page 169] has created usable architectural solutions to the problem of desperately needed housing. I'm interested in finding ways to implement some of these creative ideas as well as talking with others who may already be working at turning them into reality. Can you help me to connect with the people involved?  
—Bill Powell, AIA  
*Brookline, Mass.*

RECORD responds: *On the Web, the worldwide charity that benefited from the competition for emergency housing can be contacted at [www.warchild.com](http://www.warchild.com).*

## Pure Manila extract

The Editorial in your April 2000 issue [page 17] gives an excellent overview of the conditions in Manila, which my wife and I visited in late 1997. It was the first time either of us had seen the city in over 50 years. I made a brief visit in 1945, just weeks after the end of World War II. My wife, Katie, a native of Manila, left in 1941. She has lived in the United States since the age of 15.

Katie remembered a gracious, verdant and cosmopolitan city with clean air and broad, tree-lined boulevards. She was devastated by what we saw in 1997. Manila today is a city of banal high-rises, dreadful slums, paralyzing traffic, choking smog, and an almost total absence of greenery.

The city I saw in 1945 was nearly leveled by the war. Almost every possible mistake was made in the rebuilding of Manila. What a tragedy that the Marcos' millions were spent on monuments rather than on a coherent plan for recon-

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## Letters

struction and controlled growth. Now one wonders if reclamation is possible—given endemic corruption and the high ratio of poor to rich.

A massive program of remediation is needed to arrest Manila's downward spiral. The warm, industrious, and talented people of the Philippines deserve the chance.

—*Bryant Putnam Gould, AIA Emeritus Freehold, N.J.*

I appreciated and concurred with the thoughts expressed in your April 2000 editorial on Manila. The brief mention of both contrasts and promise there is timely. Currently under way are efforts to link in-country project needs with U.S. resources—including capital investors and AEC providers.

Last November, I attended a trade and investment mission in the

Philippines sponsored by the insurer CNA/Schinnerer, in cooperation with U.S. Commerce, the U.S.-Asia Environmental Partnership, McGraw-Hill, and the American Chamber of Commerce of the Philippines. The meetings involved a wide spectrum of professional disciplines brought together to explore potential business development relationships in the global marketplace. Needless to say, ideas were introduced that would have an impact on the future of our industry. Moreover, the associations resulting from such a rich mixture of businesses suggest that adaptations around and within our profession are in the offing too.

Surely many more firm collaborations will emerge in the near future. The exploration of strategic alliances—with special emphasis on small firms—has been a consistent concept promoted and carried through by the U.S. Commerce Department and CNA/Schinnerer. I would like to encourage the AIA to take an active and supportive role in these same efforts. For more infor-

mation on CNA/Schinnerer's AEC international business development activities, please contact Peter Gourlay, Vice President, International Business (301) 907-3038 or Peter.Gourlay@CNA.com.

—*John Tomassi, FAIA Via E-mail*

### Money money money

I read with interest April's "Practice Matters" [page 61], because it dealt with the collection of receivables—a problem that causes great stress in our company. Imagine, if you will, being one step further removed from the source of payments. We are food-service consultants, and it often becomes clear to us that the architects who commission us to work on their projects are not doing the things the authors have recommended in the article. Unfortunately, what goes unsaid is that if architects are not practicing fiscal discipline, the late payments they receive for work (including ours) go first to pay their own staff and payables. If there is money left, they pay sub-consultants.

I fervently pray all architects not only read this article but practice the common-sense advice outlined in it.

—*John C. Cini Rockville, Md.*

### Strategic alliance

The February 2000 issue of RECORD reminded me of another story connected with the Fisher Science Center at Simon's Rock College of Bard, in Great Barrington, Mass. [page 88].

There, the collaborative relationship between the associated architects, Bohlin Cywinski Jackson, and Architecture+ resulted in a magnificent project. In my opinion, it's a unique example of how and why a strategic alliance worked to its full potential.

My personal knowledge of this collaboration spans many years. Peter Bohlin and I were friends and classmates in the late 1950s, so it doesn't surprise me that he has produced such wonderful architecture. Subsequently, Frank Pitts (a founding principal of Architecture+) was one



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## Letters

of my star students. Architecture+ is now a client of my management consulting practice.

The success of Simon's Rock is due to many factors underlying the collaboration of the two firms. In fact, the firms have formed what is better described as a "strategic alliance" for pursuing other important design opportunities. It's not a marriage of convenience. Rather, like any effective strategic alliance, it is a carefully thought-out relationship that is complementary, creative, and rewarding.

—Richard G. Jacques  
Collinsville, Conn.

### Community connection

I was pleased to see May's Practice Matters [page 75] by Andy Pressman, AIA. Absolutely right on. Architects can make a difference in their communities with regard to

design, whatever the types and styles of designs that the community expects and embraces. Realize that planners, planning commissions and town councils create ordinances that define architecture or design as they envision it to be. Architects need to make sure they give input into the creation of the boundaries within which they are to design. Take the time to teach design within your community. It is appreciated.

—Tom Connolly  
President, TC3 Architects, P.C.  
Frisco Town Council Member  
Frisco, Colo.

### Late but still valid

I want to congratulate you on your evenhanded reporting and editorial presentation in the June 1999 issue of your magazine. If you were wondering why I'm writing almost a year later, would you believe information overload?

Kathie Snodgrass, in the first line of Pulse [June 1999, page 28], made the broad generalization I've

heard way too often: "The vast majority of American houses aren't designed by architects." I am sick and tired of hearing that remark from architects unwilling to dive into the subdivision fray and try to make a difference. The truth is, many great architects do design housing and they are not the cliché, "ticky-tacky subdivisions" Ms. Snodgrass refers to. Raul Pynchon focused on the three-car garage. Why not have three garages? We all have three or more cars. T.P. Jones pulled out the Brady Bunch shtick. I would challenge all of these "critics" to get involved and attempt to design communities that are better. They may learn a thing or two about people and market forces, and then again maybe they'll actually do something better we can all learn from.

—Michael Kephart, AIA  
Via E-mail

### Corrections

Eva Jiricina Architects should have received credit for the bus station and

its connecting canopy at the Canada Water on the Jubilee Extension [March, page 136]. Carrier Johnson and Gunnar Birkerts are collaborating on the design of the San Jose Joint Library [February, page 46]. The firms of Weintraub and di Domenico and di Domenico+Partners should have been credited with an early role as architects of record for Gantry Plaza State Park [March, page 106]. (As construction began, Sowinski Sullivan Architects became the architect. Thomas Balsley Associates was the firm associated with the architect of record through all phases of the project.) The same elevation for the Palace Annex in Santa Fe, N.M., envisioned by Conron & Woods Architects, was mistakenly shown three times on page 32 of the April issue.

Letters may be E-mailed by clicking **Letters** on our Web site at [www.architecturalrecord.com](http://www.architecturalrecord.com), or send letters directly to [rivy@mcgraw-hill.com](mailto:rivy@mcgraw-hill.com). RECORD may edit letters for grammar, style, and length.

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himself, Notre Dame's founder, in honor of his great hero, George Washington.

## PHILADELPHIA HOSTS THE LARGEST AIA CONVENTION EVER



Andrew Young spoke (top), and crowds flocked to the Expo (bottom).

A record-breaking 19,000 architects, spouses, Expo presenters, and walk-ins descended on Philadelphia for the AIA's annual convention, Wednesday, May 3, through Saturday, May 6.

Philadelphia offers comfortably scaled buildings with a distinctive urban character and history, with a slew of new influences pouring back in. Construction cranes downtown attest to the dozen new projects under way there.

Because the theme of the convention was "Livable Communities for America's Future," attendees reported being pleasantly surprised by the charms of walking unimpeded through an intact, still-walkable downtown. Visitors also praised the Convention Center itself—its materials and integration into the city. It's a good thing they liked the building, because many of them spent three days inside, attending lectures on such topics as designing "Livable Communities" and "What Good is a Green Building in a Sick Neighborhood?" The Expo

floor bustled with activity as convention-goers checked out the latest products and services offered by more than 650 exhibitors. Aiming to provide a launching site for cutting edge products in the industry, the Expo featured an array of technologically innovative products.

Topping the agenda was the Secretary of Education Richard Riley, who marked the 25th anniversary of the founding of the U.S. Department of Education with a discussion of school modernization issues. "Super panels" of mayors and noted urban thinkers, as well as keynote speakers Andrew Young (former Atlanta mayor and United Nations ambassador) and renowned architects Zaha Hadid, HON. AIA, and Michael Graves, FAIA, addressed the convention theme. AIA Gold Medal winner Ricardo Legorreta, HON. FAIA, expressed his views on architecture, speaking of the elements that make architecture resonate: scale, peace, sense of humor, light, texture, and, of course, color.

At Zaha Hadid's performance before the general convocation, an overflow crowd included architects seated on the floor, campfire-style. While her spoken word was baffling, the renderings and photos of her work showed plenty. Gold Medal winner Ricardo Legorreta, HON. FAIA, smiled as he said, "We Mexicans are irresponsible in the use of color," and flipped through a slide presentation of his work.

Participants in Saturday's super panel called "Architects and the Sprawl Debate" carried the discussion far beyond the usual hand-wringing over loss of open space. Michael Gallis, an architect in Charlotte, N. C., argued that

architects need to understand the implications of reorganizing so-called global trade, which uses cities as nodes for moving people, goods, and ideas. Tom Fisher, ASSOC. AIA, Dean of Architecture at the University of Minnesota, advocated the ecologically driven urbanism of William Morrish, who heads the Design Center for American Urban Landscape of

Minneapolis. Robert Bruegmann, professor at the University of Illinois, Chicago, and author of the forthcoming book on suburban development took a sanguine view of today's urban-growth patterns, arguing that they reflect deeply held values. Most of today's anti-sprawl solutions, he argued, would prove worse than the problems. *Jane F. Kolleeny*

## FIVE ELECTED AS AIA OFFICERS FOR 2000

After meeting the candidates for elected AIA office, first in speeches and later through question-and-answer periods during regional caucuses, delegates selected the following: Gordon H. Chong, FAIA, will be the AIA's first vice president/president-elect in 2001 and will serve in 2002 as Institute president. An Institute fellow since 1994, Chong

currently serves on the Advisory Board of the Center for Cooperative Construction Training and Exchange between China and the U.S. Three vice presidents were elected: Terrance Brown, FAIA; Barbara A. Nadel, FAIA; and Douglas L. Steidl, FAIA. Stephan Castellanos, FAIA, was elected secretary of AIA for 2001. *J.F.K.*

### LEGACY PROJECT INAUGURATED AT PHILADELPHIA AIA CONVENTION

Featured as a convention centerpiece, the **Architecture and Design Charter High School in Philadelphia** recently opened as the first architecture high school in the nation. This project is the outgrowth of a collaboration among the AIA, 17 local architectural firms, and a group of area educators. Located in the city center, the school provides a more intimate and accessible learning environment than is typically available to students in urban settings. Parental involvement in curriculum planning, a required student volunteer commitment, and a creative program of independent studies in the workplace augment the program.

Sol LeWitt donated the design of a commemorative wall drawing for the school's entrance foyer, which was dedicated during the convention. His original work is to be painted by students and faculty with open-ended instructions that inspired plenty of discussion. Barbara Chandler Allen, a school board member, says the drawing provided just the kind of energizer she had hoped it would be. "The students are looking for their next project," she said. "Now they want to do the cafeteria and they said maybe we'll design a mural." *J.F.K.*



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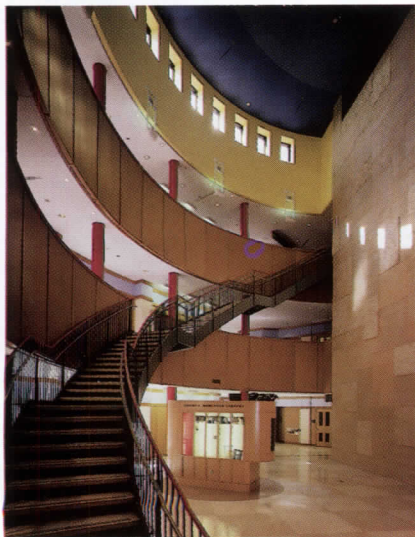
## Record News

### SUNNY PAVILION CROWNS TUNNELED VAULTS

Books are traditionally housed in rooms defined by daylight. Statutes to Oxford's Bodleian Library even forbid anyone from bringing in any other source of light, the threat of fire posing too many risks. For centuries before electricity, a library was a navelike space, bathing readers and books alike in sunlight.

The sheer profusion of printed matter, paper's sensitivity to UV damage, and subsequent storage needs produced the antithesis of this earlier ideal. Books are often warehoused underground, lit by electricity, and divorced from readers. The recently inaugurated archival library at the University of Minnesota is a successful example of this modern type.

Located along the Mississippi River bluffs, the Elmer L. Andersen Library essentially consists of two cavernous vaults—each two stories high, measuring 600 by 65 feet—with service areas, all carved from sandstone. A so-called periscope, a stair and elevator shaft, rises some 80 feet from the vaults to pierce the ground surface. This shaft terminates in the library's main areas: 60,000 square feet of offices, reading rooms, and display areas.



Compared with the expansive vaults below, these spaces are merely the tip of the iceberg.

The juxtaposition of a storage cave below and pavilion above makes the \$46.5 million library a fascinating marriage of architecture and engineering. The vaults were tunneled from sandstone, directly beneath a harder limestone layer, which, in turn, forms the foundation for the library. The vaults' capacity is 2.5 million volumes, which, along with other artifacts, are held at a constant 62 degrees and 50 percent relative humidity. In contrast, the library spaces above open themselves to Mississippi vistas and the vagaries of daylight.

The library has already won five engineering awards—for pre-cast concrete work in the underground vaults—but the architectural issues above ground were equally challenging. The library had to be shoehorned into a cramped site, while simultaneously relating to the West Bank campus' axes and Modernist architectural ensemble. The design also had to signal its entry point and important mission as a book repository. These requirements had to be met within a relatively compact building. Along the river bottom, siting and developing the vaults' four-story-high semi-trailer portal, fronting a scenic Mississippi stretch and the University's historic East Bank, was yet another tricky design issue.

The work of architects Stageberg Beyer Sachs, of Minneapolis, and engineers CNA Consulting, Ericksen Ellison and Associates, and Meyer Borgman Johnson made possible the Andersen Library, now being filled with holdings from various university sites, including the Northwest Architectural Archives. It is fitting that the distinctive work itself houses drawings and papers of some of the most distinguished architects and engineers who practiced in the upper Midwest.

*Todd Willmert*



### COLLABORATIVE PROCESS CREATES THE HIGHLY PRAISED BROOKLYN BRIDGE PARK

Since the early 1980s, when New York's Port Authority stopped using its piers for shipping, various stretches of Brooklyn's East River shoreline were subject to revitalization schemes: all false starts. Finally, a promising master plan is on the table—a scheme designed with considerable community input. The project, a 70-acre park, would begin just north of the Manhattan Bridge, pass under the Brooklyn Bridge, and terminate at Atlantic Avenue. Covering 1.3 miles of city- and state-owned waterfront, the park would cost over \$700 million and take about 10 years to complete.

The plan was developed by the Brooklyn Bridge Park Development Corporation (BBPDC) and its consultants, Hamilton, Rabinovitz & Alschuler, through an unusually interactive public planning process. Fifty public meetings and a much-used Web site allowed the designers constant contact with the diverse local community. Led by architect/urban designer Ken Greenberg of Toronto's Urban Strategies and the landscape architecture firm of Michael Van Valkenburgh Associates of Cambridge and New York, the team found this intense public process invigorating.

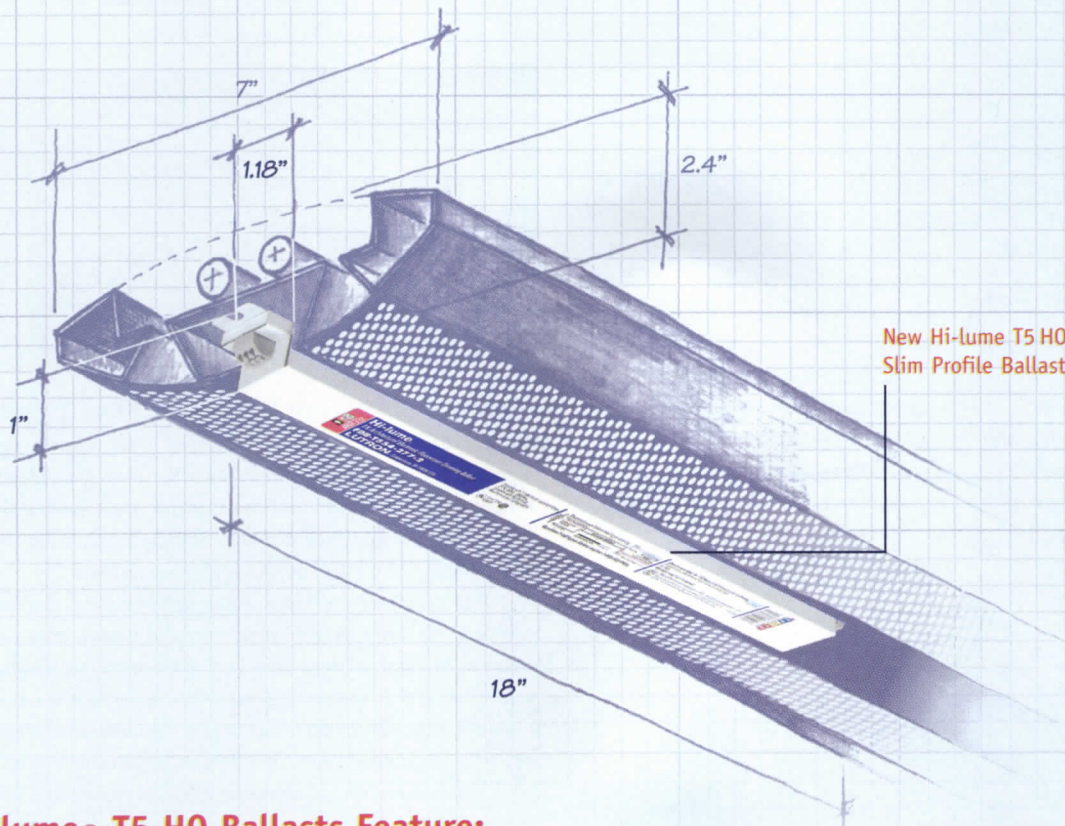
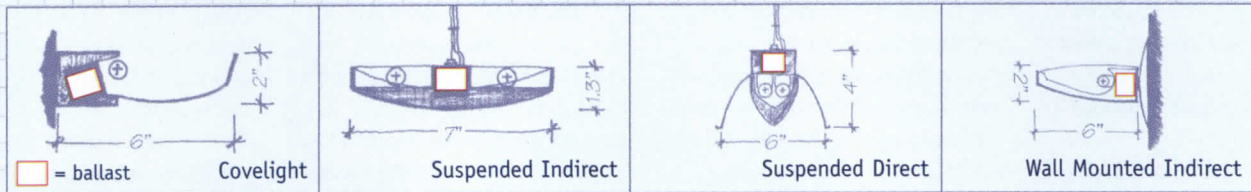
Reflecting the democratic methodology, the park has a permeable edge running the length of the site, allowing countless entry and exit points with spectacular Manhattan views. Commercial, cultural, and recreational activities actively engage the waterfront,

interwoven with segments of pure landscape. Built structure comprises 18 percent of the plan and includes the rehabilitation of several warehouses, new hotels, restaurants, an education center, marina, and indoor recreation complex, expected to make the park financially self-sufficient. Greenberg hopes the park's overall design will "set the stage for excellent architecture," and notes, "there will not be stringent guidelines."

The landscape architecture was conceived as a collage with "four distinct landscape conditions or typologies that have been layered and intertwined," according to Van Valkenburgh. The ecological condition—or "in vitro nature," as he calls it, is expressed as a large area of renaturalized salt marshes. His Olmsted-inspired notion of "boundless landscape" takes many forms, including a series of rolling hills directly beneath the Brooklyn-Queens Expressway. Practical as well as romantic, this contoured landscape and an adjacent "bio-wall" would not only be beautiful but would dampen the deafening roar of traffic. A formal great lawn, a sophisticated recreation zone complete with half-pipe slope for skateboarders, and a rather grand tree-rimmed fountain constitute civic and urban landscape typologies.

Still awaiting approvals, the park's planners and the BBPDC are well on their way to realizing a first-class waterfront park in New York Harbor. *Susanna Sirefman*

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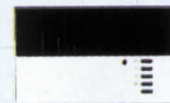
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## Record News

### FLOATING ARBORETUM CLEANS WASTE WATER

A Budapest firm has completed plans for what it believes could become a new wave in wastewater treatment plant design. The planners hope to float their concept on the Danube River early next year.

Architect Attila Bodnar, co-managing director of Organica Ecotechnologies; his partner Istvan Kenyeres, a chemical engineer and biotechnology specialist; and Daniel Hadhazi, a naval engineer have proposed a "Living Machine" treatment plant that would be built on a 176-foot-long, 500-ton capacity gravel barge, capable of treating 8,825 cubic feet of raw sewage daily.

A native-born Hungarian, Attila Bodnar was partner in an architectural firm, Denker & Bodnar, in Nyack, N.Y., from 1987 to 1998, and he designed a number of churches in New York: "I consider designing Living Machine facilities a natural progression from designing

churches," he says. "Both have a cleansing effect."

When built, a greenhouse will enclose U.S.-developed modular, multistaged organic Living Machine reactors installed on the vessel's cargo deck. At the stern will be a laboratory for monitoring water treatment research and development and an elevated conference room, which can be used for teaching. A glass wall separating the conference room from the greenhouse will give occupants an excellent view of the arboretum-like Living Machine.

"One of the important aspects of this project is utility," says Bodnar. "We're going to be using one of the many barges currently rusting at moorings along the Danube. We'll be recycling an existing asset. Barges can be moved and used as interim plants until permanent facilities are built, or they can become permanent plants where land is not available near river or lakeside wastewater sources."

Such a vessel, however, presents its own unique architectural challenges, he says. "While it's a greenhouse, it's also potentially a moving structure, due to waves and so on. The total height of the greenhouse will be about sixteen feet

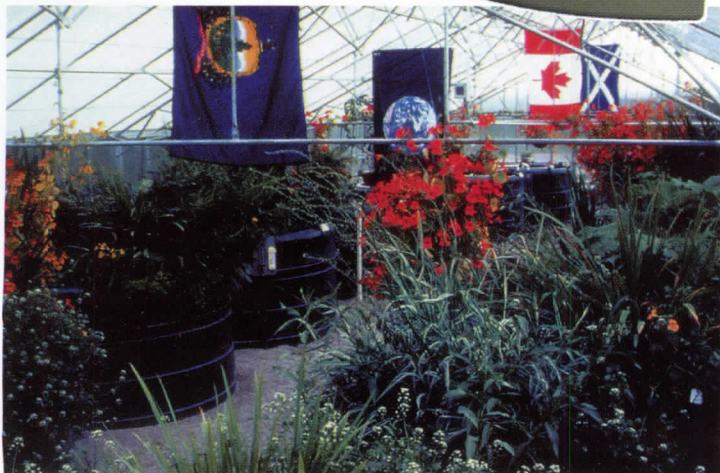
above the deck, and the load-bearing structure has to coincide with the placement of the hull frames, which are spaced about 1.6 feet apart."

The greenhouse will consist of polycarbonate panels set in galvanized steel trusses. "Polycarbonate provides better insulation than single glazing," Bodnar says.

Developed by Ocean Arks International of Burlington, Vt., the Living Machine system incorporates thousands of species of plants, bacteria, microorganisms, zooplankton, snails, clams, crabs, and fish in an enclosed, sunlit, managed environ-

ment in order to break down and digest organic pollutants in municipal and industrial wastewater. As Bodnar puts it, "It's an arboretum that cleans wastewater."

About two dozen land-based Living Machine systems have gone into operation in the U.S. and overseas during the past decade. Organica Ecotechnologies also designed and is overseeing the construction of the first Living Machines facility on the European continent, at a \$70 million, 856,000-square-foot office and warehouse complex in Budapest. *Carl Kovac*



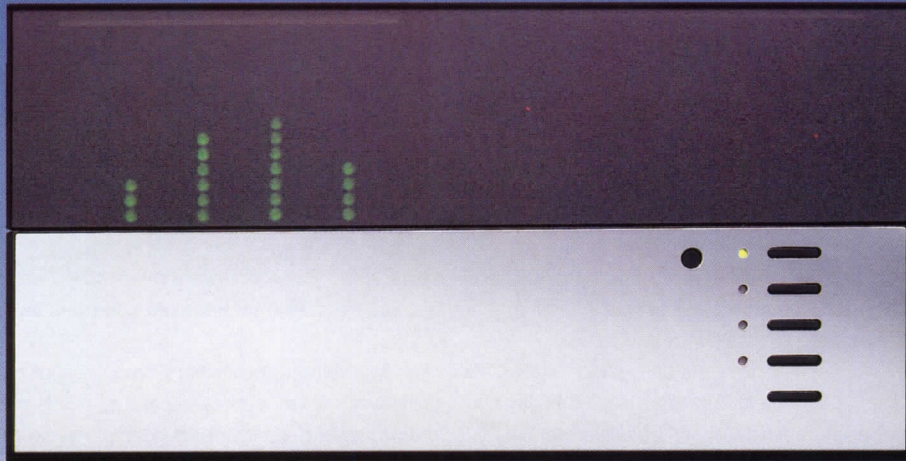
**PREDOCK'S TACOMA ART MUSEUM WILL CAPTURE THE ELUSIVE QUALITIES OF MT. RAINIER** A glimpse of Mt. Rainer's three-mile-high summit, cloaked in clouds two-thirds of the year, is cause for celebration in nearby Tacoma, Wash. Antoine Predock, FAIA, evokes the ephemeral nature of the snowcapped mountain with a design in stainless steel and glass for the \$25 million Tacoma Art Museum (TAM).

The 50,000-square-foot museum will present a streamlined, barlike volume along the edge of downtown with an outdoor plaza angled toward the peak. Visitors will pass under a "cloud" of translucent fabric and over suspended stainless-steel grating before entering the lobby. A ramp will gradually ascend through a series of galleries wrapping what the architect calls an outdoor "mist moss garden," enclosed by prismatic two-way glass. The procession culminates in a 5,000-square-foot main gallery for rotating exhibits and an art resource center with views down to the lobby and, on clear days, out to Mt. Rainer. To take advantage of the site's steep drop to the waterfront, this two-story volume sits on stilts over two-stories of storage, loading dock, and service space below street level. Olson/Sundberg, Seattle, is executive architect for the project, which is expected to open in 2003.

Tacoma's reputation as a smoke-belching mill town may be redeemed by a wave of new museum construction downtown. The TAM is just north of the 1996 Washington State History Museum by Charles Moore/Arthur Andersson, Houston, and will be joined by a new International Glass Museum by Arthur Erickson/Nick Milkovich Architects, Vancouver, BC, and the \$75 million LeMay Car Museum. A 600-foot-long pedestrian bridge, designed by glass artist Dale Chihuly and Andersson, will connect the city center to the new Thea Foss esplanade—an \$88 million plan by ZGF, Seattle, and Reed Reinvald Johnson Willows, Tacoma, to redevelop the waterfront with parks, retail, and residential projects. *Sheri Olson*

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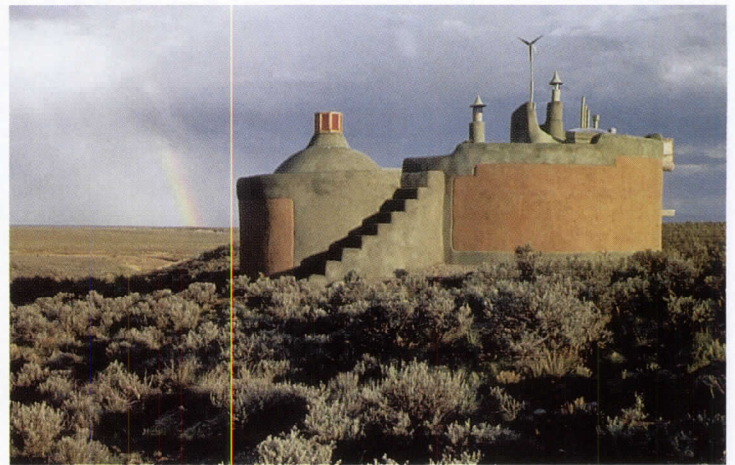
CIRCLE 49 ON INQUIRY CARD

## Record News

### CONTROVERSY OVER GREEN HERO

For three decades, Michael Reynolds has attracted international attention for his "Earthship" houses made of beer cans, bottles, and old tires molded into adobe, bermed into hillsides with passive solar heating, windmills, photovoltaic power, and self-contained wastewater systems. But earlier this year, about the time the University of Cincinnati named him alumnus of the year, Reynolds voluntarily gave up his New Mexico architecture and construction licenses after a year-long dispute with several clients.

Reynolds vows to clear his name by suing for defamation of character those who filed complaints against him to the state Board of Examiners for Architects. He intends to get back his licenses. "They're throwing around words like 'gross negligence,'" he says. "Any architect



Examples of Reynold's Earthship houses, constructed from beer cans, bottles, and tires molded into adobe.

who does not design with at least 75 percent sustainability in this day and age is guilty of gross negligence!"

The director of the state Board of Examiners says complaints against Reynolds involved inappropriate siting, subsurface water accumulation, waste disposal on slopes, and incompetent construction administration. The case will be passed on to NCARB.

Reynolds says the complaints stem from aiding more than 1,000 people build their homes. "That puts

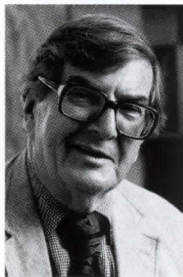
you in a vulnerable position," he explains. "When a licensed contractor is involved, the owner-builder's position becomes null and void, and the licensed contractor is responsible," he adds. "So, if the owner-builder makes a code violation, no matter how small, two years after I leave the project in terms of my guidance, I, as the contractor or architect, would be responsible."

Reynolds, 54, lives and works in the Greater World community near Taos. He is changing the name

of his company from Solar Survival Architecture to Biotecture so that he won't break the state's ban on calling himself an architect. "What I'm saying is, I'll go to any extreme to make a sustainable building, even if I have to help an owner-builder without a contract, without a fixed price, without normal AIA things that make any architecture, let alone sustainable architecture, out of the reach of the common, ordinary citizen." *Thomas Sharpe*

### NOTED FATHER OF PRESERVATION AND CONSERVATION DIES

James Marston Fitch, founder of Columbia University's Graduate Program for Historic Preservation and noted historic preservationist, died on April 16, 2000. "He was one of the most important architects of the twentieth century in that he foresaw the movements of historic preservation and green architecture, which have become so defining in this century," says Richard Blinder, FAIA, partner of Beyer Blinder Belle Architects in New York, where Fitch served as director of historic preservation for 21 years. These fields of study grew out of the ideas Fitch put together in a two-volume series of books called *American Building: The Historical*



James Marston Fitch 1909–2000

*and Environmental Forces that Shape It* (1948, 1970, and 1972).

He had a broad-based respect for the value of preserving existing structures, including all manner of buildings, be they monumental or modest.

After heading the preservation program at Columbia University from 1964 until 1977, he embarked on his second career in private practice.

Born in 1909, he attended the University of Alabama and School of Architecture at Tulane University. He received five honorary doctorates throughout his career.

Mr. Fitch was an editor at ARCHITECTURAL RECORD from 1936 to 1939. "He had a unique perspective that looked at architecture as inter-

acting parts of a whole: history, environment, human psychology, and aesthetics. He was a true renaissance man," Mr. Blinder said.

The last work Fitch did for ARCHITECTURAL RECORD was an article on architectural criticism in July 1982 that proposed that architecture is empirical and cannot be analyzed abstractly without firsthand experience: "Architecture today needs historians, theoreticians, and critics who approach it from conceptual positions inside the field. Persons who understand that architecture is our prime instrument of environmental control and that its current inadequacies can be corrected only by a factual analysis of its performance, not by metaphysical disquisitions on its appearance." His book on environmental forces was republished last year by Oxford University Press and will continue to be an important text at schools of architecture. *J.F.K.*

### LIBRARIAN, WRITER & SPOKESMAN DIES

Adolf K. Placzek, distinguished architectural librarian, historian, editor, and preservationist, died March 19, 2000. He had spent 32 years at Columbia University's Avery Architectural Library, which under him became one of the world's finest collections. He retired in 1980 but continued to work prolifically. He



Adolf K. Placzek, 1938–2000

was editor in chief of the invaluable four-volume *Macmillan Encyclopedia of Architects*, a collection of biographies of more than 2,000 architects. Born in Vienna and a 1938 graduate of the University of Vienna, Mr. Placzek came to the United States in 1940. *J.F.K.*



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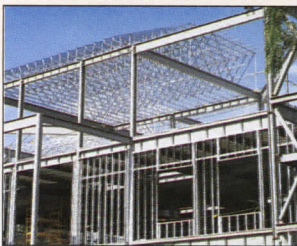
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## Record News

### A CONSTRUCTIVIST SCULPTURE FIT FOR A FAMILY?

One of the most significant pieces of residential architecture in New York City recently changed hands: the Beekman Place apartment of the late Paul Rudolph and the six floors beneath it.

Renovated by the Brutalist architect Rudolph starting in the late sixties (he tweaked it until his death three years ago), the nine-story building—and, in particular, the treehouse-like triplex apartment at its crown, where Rudolph himself lived—is a work more indicative of the architect's playful character than the rigid Modernist tenets to which he subscribed.

Rudolph treated the triplex as a laboratory for exploring ideas that compelled him throughout his life: formal notions of transparency and manipulation of depth, as well as a fascination with pure provocation. With more than 30 discrete levels in the apartment, see-through landings, dozens of mirrored surfaces, steep banisterless stairways, and gaping holes that plunge several stories, the dizzying environment is more of a fun-house built for an eccentric



Cubist-leaning designer than a family-friendly urban dwelling.

The building's new owners, however, are indeed a family: former Californians Michael Boyd, 40, Gabrielle Boyd, 35, and their two sons, Sam, 9, and Henry, 5. After purchasing the building in late April for \$5.5 million, the Boyds immediately began the process of converting it into a single-family residence to house themselves and their extensive collection of Modernist designs, some of which were displayed last year at a show at the San Francisco Museum of Modern Art.

"When we first bought the house and called the kids in California, the first question our older son, Sam, asked was, 'Is it good architecture, Dad?'" recounts Michael Boyd. While "good architecture" may be a salve for the spirit, what of the inherent dangers of a cantilevering bathtub and gaping wells the size of a small child? "We have no railings in our house or office at the moment, so that sort of thing won't be unusual for them," said Mr. Boyd. "They're smart kids. If we tell them, don't do that, it's dangerous, they won't

do it," he says confidently.

The Boyds, who are in the business of scoring music for television and radio commercials, plan to live in the apartment in a "minimalist, spartan way," declares Mr. Boyd, and to repair and restore the space but not renovate it. "We want to live as closely to Rudolph's intention as possible," said Mr. Boyd. But, due to complexities of the estate, most of the architect's furnishings and personal effects had to be removed prior to the Boyd's taking ownership. "This place is not an intact representation of Rudolph's vision. It is not the John Soane house," says Mr. Boyd. "And that was not our choice. At some point, however, we hope to buy back as much as possible of Rudolph's property and reinstall it."

While the Boyds wish to invite lovers of modern architecture into the house, they emphasize that, because it is a private home, there will be limits to their ability to do so. Still, watch for tours of the Rudolph triplex to be offered through some of New York's cultural institutions.

"The point we're trying to make by moving into this place is that it is not at all clear that Modernism failed," explained Mr. Boyd. "We want to be guinea pigs for this experiment. We feel like a family going into outer space."

"A lot of people see this as a vertigo-inducing place," adds Mrs. Boyd, "but we see it as a Constructivist sculpture." *Bonnie Schwartz*

### EMERGING TALENT RECEIVES PROGRAM OF RECOGNITION Programmatic elements of cabana, beach chair, umbrella, boogie board, and surf form the basis of organization for the SHoP/Sharples Holden Pasquarelli's design, which was selected as the first winning project in a new series of five competitions geared



toward students, recent grads, and firms experimenting with new styles or techniques. Twenty entrants were nominated for the competition by deans of architecture schools and editors of architecture publications. The winning entry, a landscape for summer relaxation in P.S. 1's outdoor courtyard, features areas for visitors to sit or lie down, socialize, sunbathe, wade in pools or walk through a spray of water mist to cool off. It is a flexible but not moveable form made from 2-by-2 cedar members with areas of vinyl. The structure is surrounded by a mist garden generated from adjustable pole atomizers. Recirculating water runs along the exterior surface of the form into a wading/reflecting pool at the structure's base.

P.S. 1, formerly an abandoned, underutilized building in Long Island City, Queens, was transformed in 1971 to performance and studio spaces for artists. MoMA and P.S. 1 Contemporary Art Center are collaborating to host the design competitions. Glenn Lowry, director of the Museum of Modern Art, remarked: "This inaugural project furthers our curatorial mission, identifying and providing an outlet for emerging young talent. It aims to give something back to the community that has been so supportive of us." *JFK*

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## Record News

### PLANS TO PRESERVE NEUTRA'S HUMBLE, CRUMBLING HOME

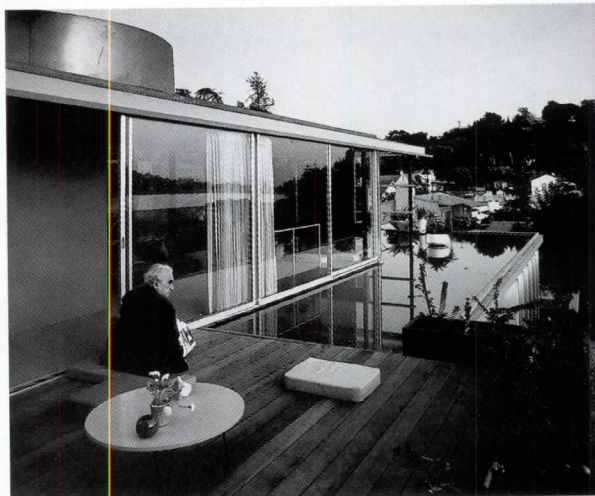
A campaign has been launched by the California State Polytechnic University in Pomona to restore Richard Neutra's Los Angeles residence. Known as the VDL Research House, it was the famous Modernist architect's home for nearly 40 years. After his wife, Dione, died in 1990, it was bequeathed to the Cal Poly Foundation. Sadly, the house has fallen into disrepair. Recently, the World Monuments Fund added the house to its list of 100 most endangered sites on the globe for the year 2000.

Built in 1932, Neutra's home earned its name from a chance meeting. The Dutch industrialist, C.H. Van der Leeuw, had flown to Los Angeles to see Neutra's Lovell House, the first steel-framed house in America. When the visitor asked to see Neutra's own home, the architect confessed he lived in a rented bungalow. Astonished, Van der Leeuw immediately wrote Neutra a check for \$3,000. The architect responded by designing a long, thin box with identical casement windows running the length of both stories. The lower level served as Neutra's office while, above, the living area afforded wonderful views over the Silver Lake reservoir.

Only 2,100 square feet, it became a model of how to expand the sense of livable space far

beyond the norms of traditional floor plans of this size. In 1963 the house burned to the ground. It was rebuilt on its existing foundations with the architect's son, Dion, supervising its design.

VDL II became the site for design experiments from the 1960s: six wide, 30-foot-high aluminum louvers were hung off its facade, providing respite from the afternoon sun; a stone wall—each stone placed vertically—formed part of the rear exterior; large speakers were placed in the ceilings.



Today, an album of Dione Neutra playing the cello remains on the turntable, the books on the shelves have never been shifted, and Richard Neutra's bed tucked into a tiny, corner bedroom looks untouched. Architecture lovers hope that when the house containing these poignant memories is restored, there will be a much more significant monument to this architect's life of experimentation. For information, call Sharon Avant, The College of Environmental Design, California State Polytechnic University, Pomona. (909) 869-2667. *David Hay*

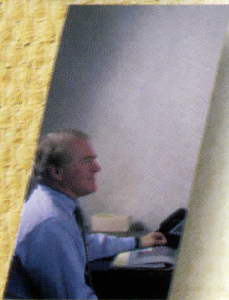
**NEW AIA N.Y. HEADQUARTERS MOVES FORWARD** "An elegant and economic solution to the problem with a clear phasing strategy," noted juror Eeva-Liisa Pelkonen on the selection of Andrew Berman for design of the new AIA/New York headquarters in Greenwich Village. "The relationship between the ground-floor gallery and the auditorium below is intelligent and spatially interesting," Pelkonen continued. There were five finalists chosen from over 50 entries—other finalists included Robert Federico of Gensler; Craig Konyk of Konyk Architecture; Jesse Reiser and Nanako Umemeto of Reiser + Umemeto Architecture PC; and Claire Weisz and Mark Yuoes of Claire Weisz Architects. The jury was composed of Alan Balfour, dean of the School of Architecture, Rensselaer Polytechnic Institute; Sheila Kennedy, AIA, associate professor at the Harvard Graduate School of Design, Eeva-Liisa Pelkonen of Yale University School of Architecture; Joseph Rosa, curator of the Heinz Architectural Center at the Carnegie Museum of



Art; and Margaret Helfand, FAIA, president elect of AIA/NY. The three-story, 10,800-square-foot building boasts street level exposure which will be initially developed; other areas of the building will be phased as fund-raising goals are met. *JFK*

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## Record News

### SEATTLE, SILOS & SALMON: WHAT TO DO ABOUT "WHOOPS"

On the Chehalis River, near Aberdeen, Wash., the Satsop Nuclear Power Station has struck passersby on the Olympic Loop Highway as both absurd and sublime. Under construction since the 1970s, the 400-acre facility is a case study in unplanned obsolescence—it was never fueled. The Washington Public Power Supply System (WPPSS, or Whoops, as it is known locally) defaulted on \$2.25 billion in municipal bonds in 1983, rendering the completion of the plant moot. The state legislature passed special legislation in the early 1990s transferring the site

(with its \$2 billion worth of infrastructure) to a local public-development authority.

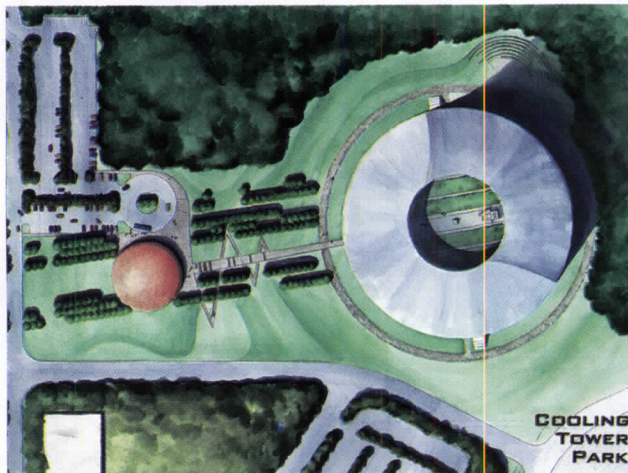
The twin cooling towers, nearly 500 feet high, are now slated to serve as markers on the landscape. The immense interior clear spaces are large enough to house a football field, and, in a fascinating twist of fate, one will now shelter an arboretum—an elegant reflection of the surrounding forest.

This master-planning effort includes a collaboration between CNA Architecture, of Bellevue, Wash., as architects and Anderson and Ray, Seattle, as landscape architects (they have been conjuring wry thematic forms of adaptive reuse for the site since 1995). The phantasmagoric forms include: "Asphalt Sea," "Salmon Hatchery/Cooling Tower," and the arboretum.

The vast site is under reconfiguration as a technology and business park with recreational amenities. With access to Grays Harbor, on the Pacific, the site may prove an irresistible destination for post-industrial tourism.

Having decided early on to retain the towers, the client and designers have launched a high-profile demonstration of adaptive reuse for industrial, albeit morally bankrupt, facilities. The insertion of botanic collections and the transformation of unfinished portions of the energy plant to real and fictive environmental systems is a decisive convergence of iconic technological forms and the shifting shapes of nature.

Gavin Keeney



**MEIER TAKES MANHATTAN** Joining the ranks of celebrity architects such as Robert Stern and Michael Graves, Richard Meier has designed his first residential tower for Manhattan. Although Pritzker Prize winner Meier has been based in Manhattan since 1963, this is his first ground-up building here, and according to him, "It's about time." (In 1969, Meier converted a former Bell Laboratories building on Manhattan's lower west side into West Beth artists' housing.)

The new project, not far from West Beth, on Perry Street in Greenwich Village, proposes two 16-story condominium towers, linked by adjacent entrance lobbies. Commanding views of Hudson River Park and the river beyond, the buildings will be sheathed in floor-to-ceiling glass, set in white (surprise, surprise) metal-clad framing, with rear fin walls and interior columns of concrete. Each of the 28 raw floor-through lofts, ranging in size from 2,000 to 4,000 square feet, will open onto small terraces, which Meier considers, "the second greatest luxury in Manhattan, the first being light and space."

Set for completion in late 2001, the building will also include an adjacent art gallery and a ground-level public cafe, accessed over a bridge spanning a reflecting pool. Savvy potential buyers, who want spaces worthy of their Alessi and Target home products, can also opt for interior design by Meier himself. *Susanna Sirefman*





## Record News

### TWO TORONTO FIRMS WIN PRIZED U.S. COMMISSIONS: HOW'D THEY DO THAT?

The Detroit Symphony Orchestra (DSO) recently selected A.J. Diamond, Donald Schmitt & Company, Toronto, to design a 130,000-square-foot, \$60 million renovation and expansion of its 81-year-old orchestra hall, in association with Detroit-based architects Gunn Levine Associates. The new wing will include a lobby and atrium, grand staircase, pre- and post-concert facilities, dressing rooms, and a 550-seat second hall.

Peter D. Cummings, DSO's chairman of the board, said the Toronto firm won the competi-



tion because of its success in designing performing arts facilities and its respect for landmark structures.

In a comment tinged with understatement, Donald Schmitt, design principal in charge, noted: "We thought we were the major underdogs, but we seemed to have the right balance of understanding heritage and urbanity." They were up against formidable competitors: Polshek Partnership Architects of New York; William Rawn Associates of Boston; Kuwabara Payne McKenna Blumberg of Toronto; and Tod Williams Billie Tsien and Associates of New York. *Albert Warson*

### Another Toronto firm wins prized U.S. commission—Did you hear an echo?

This fall, the Goodman Theatre, Chicago's leading playhouse, moves to a facility in the revived Randolph Street theater district, where the long-shuttered Oriental and Palace theaters have already been restored.

The new Goodman, designed by Kuwabara Payne McKenna Blumberg (KPMB) of Toronto and incorporating the facades of the 1922 Selwyn and Harris theaters, comprises a 400-seat per-

formance space with a flexibly configured stage and an 840-seat proscenium auditorium.

The Goodman presented what KPMB associate-in-charge Chris Couse good-naturedly calls "probably the worst acoustical environment in which to build a theater that you could possibly find, with the subway line underneath and the 'El' immediately adjacent. When the subway tunnels were built, the Harris and Selwyn theaters were refounded on a new system of a caissons and grade beams that come down between the tunnels. That meant we had to essentially construct a new building inside the existing building but on resilient bearing pads at the basement level. The new theater is, in fact, a new building with its own shell to separate it from the noisy existing building." *Thomas Connor*

### Beating the competition

KPMB Architects didn't really expect to beat American architectural giants Cesar Pelli and Kohn Pedersen Fox, former colleague Barton Myers and Toronto competitor Zeidler Roberts Partnership in a design competition for the new Goodman Theatre here, but they did.

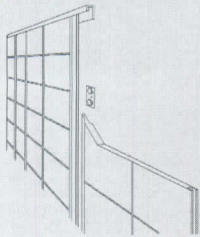
Thomas Payne, KPMB partner in charge, explains that he and another KPMB architect had worked on the Portland Center for the Performing Arts years earlier with Myers, which the Goodman Theatre people admired. They also "pitched hard," says Payne, and won with their local team.

When asked about the selection of KPMB, Cindy Bandle, the theater's press director, explains: "Our artistic and administrative staff, in collaboration with the Goodman boards, have worked as a team for the past 10 years to provide the Goodman artists, staff, and audiences with a state-of-the-art theater complex.

"After dozens of visits to theaters all over the world, they had a very clear vision of what they wanted. They met with some of the firms, and in collaboration with the Goodman board, selected KPMB. Not only did the firm have the prerequisite experience in theater design and renovation, but they had an energetic perspective on design that matched the culture of the Goodman artists and staff." *Albert Warson*



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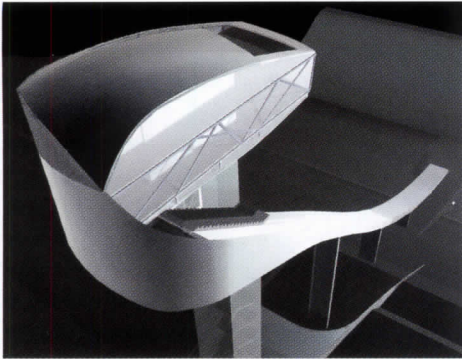
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## News Briefs



### **A building like no other: Zaha's Bergisel ski jump**

By housing a variety of programmatic elements within the graceful ski jump, Zaha Hadid fully joins form and function. Winner of an international design competition, the building, slated for completion by late 2000, will stand as a major landmark in the ski resort town of Innsbruck, Austria. It is a hybrid of a highly specialized sports facilities

with public spaces including a cafe, viewing terrace, and space for athletes to prepare before jumps. These functions are combined into a single new shape that extends the topography of the slope into the sky.

Some 295 feet long and almost 164 feet high, the building is a combination concrete tower and steel bridge, which integrates the ramp and cafe. Since skiers can jump further today than they used to, the ramp had to be moved higher on the hill. Two elevators bring visitors to the cafe, 131 feet over the peak of the Bergisel mountain. From here, they can enjoy the surrounding alpine landscape and watch from below as the athletes fly above the Innsbruck skyline.

### **Duke selects Viñoly for campus museum**

Rafael Viñoly has been selected to design the Nasher Museum of Art at

Duke University. Funded by a gift from Raymond D. Nasher, a Dallas art collector, philanthropist, real-estate developer, and alumnus, the new museum is expected to feature galleries for a permanent art collection, an outdoor sculpture garden, an atrium, and galleries for special exhibitions. It will also include classrooms, offices, and a cafe.

### **Honorees toasted in Beard awards**

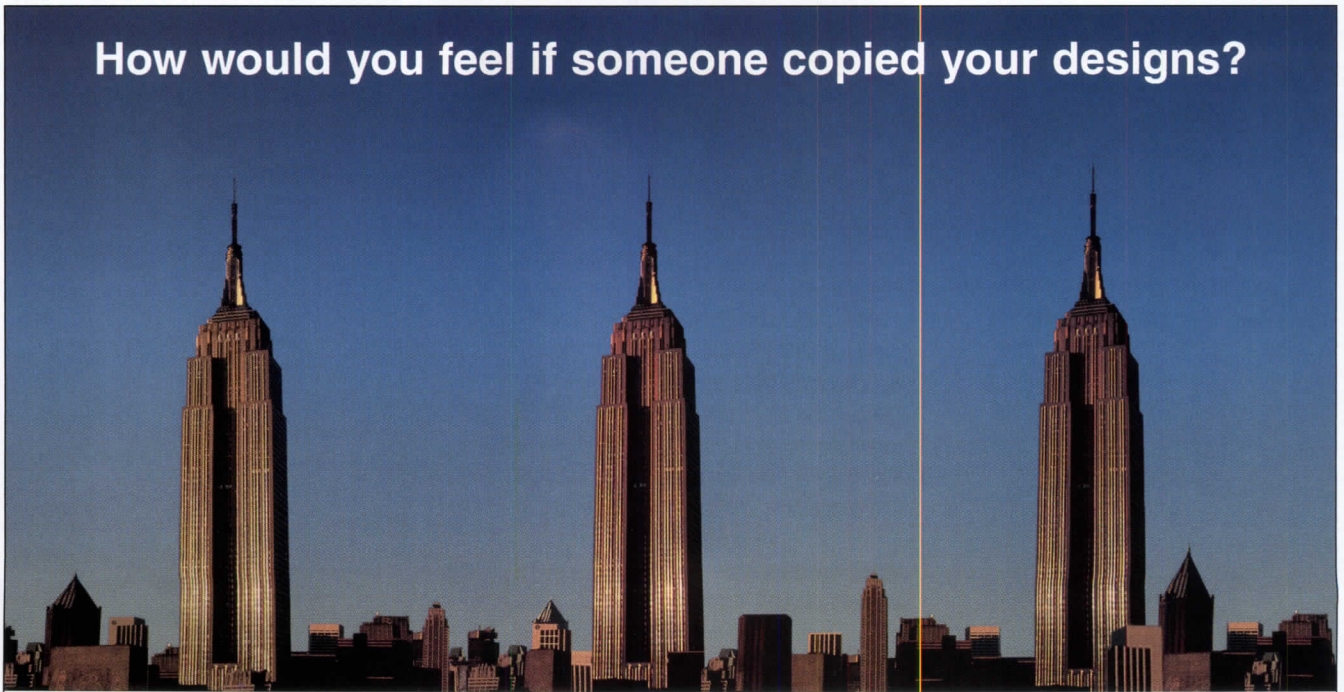
In May, winners were announced for the 10th annual James Beard Foundation Awards, honoring excellence and achievement in the culinary industry. For restaurant design, the Brasserie in Manhattan earned award medallions for the New York design firm of Diller & Scofidio. Runner-up Tsac & McKown was honored for its design of New York City's Métrazur Restaurant [May 2000, page 254], as was Parsons Fernandez-Casteleiro, for its design of Coup, also in New York City. The jury was composed of James S. Russell, of ARCHITECTURAL

RECORD; Merrill Elam, of Scogin Elam & Bray; Will Bruder, of William P. Bruder, Architect; Chip Kidd, a book designer; Tucker Viemeister, of the multimedia company Razorfish; and Sarah Herda, director of the Storefront for Art and Architecture. Belmont Freeman, of Belmont Freeman Architects, headed the design awards committee for the Beard Foundation.

### **Transparency gets credit**

Winners of the DuPont Benedictus Awards were announced at the AIA National Convention, highlighting a range of stunning applications of glass. Sponsored by DuPont, the AIA, and the Union Internationale des Architectes (UIA), the program is an annual international competition focused on laminated glass in architecture. The Audi Center in Ingolstadt, Germany, designed by Germany-based Fink + Jocher, and California House in Palo Alto, designed by Fougerson Architecture of San Francisco, took the highest awards. Eric Owen Moss, of Culver

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**CIRCLE 68 ON INQUIRY CARD**

## News Briefs



**The Audi Center, Ingolstadt, Germany**

City, Calif., was honored with a Special Recognition award for The Umbrella, an outdoor amphitheater in Culver City. Special recognition also went to Rafael Viñoly Architects for the Samsung Jong-Ro Building in Seoul; Arup Facade

Engineering for the Corporation Street Bridge in Manchester, England; Marks Barfield Architects for the Millennium Wheel in London; and four others.

### HUD/AIA awards

Housing Secretary Andrew Cuomo and the AIA announced the five winners of the Housing and Community Design Awards at the AIA National Convention. The winners in the category of Mixed-Use/Mixed-Income were First Ward Place in Charlotte, N.C., designed by Urban Design Associates in association with David Furman Architects and Fishero McGuire Krueger; and Vermont Village Plaza in Los Angeles, designed by Solomon E.T.C. Architecture and Urban Design. The winners in the category of Community Building by Design Award, which recognizes revitalized slum neighborhoods, were Orchard Gardens, Roxbury, Mass., designed by Domenech Hicks & Krockmalnic, Inc.; and Portland Public Market,

Portland, Maine, designed by Hugh A. Boyd Architects and Orcutt Associates, Associate Architects. Finally, Leland Apartments, San Francisco, designed by Kwan Henmi Architecture/Planning, won the Alan J. Rothman Housing Accessibility Award, named in honor of Alan J. Rothman, HUD's late senior policy analyst on housing who devoted his life to issues of disability.

### The American Academy of Arts and Letters Award

Winners of the architectural award from the American Academy of Arts and Letters were announced in May. They were selected by the 2000 Committee for Prizes in Architecture, consisting of Chairman Richard Meier, Henry N. Cobb, James Ingo Freed, Michael Graves, Steven Holl, Ada Louise Huxtable, and John M.



**Orchard Gardens, Roxbury, Mass.**

Johansen. Toyo Ito received top billing with the Arnold W. Brunner Memorial Prize; secondary awards went to Will Bruder of William P. Bruder, Architect [April 1999, page 98] and Jesse Reiser + Nanako Umemoto [December 1999, page 118]. In addition to the awards, architect Steven Holl was inducted as a new member of the academy's main body of 250, and architects Zaha Hadid and Rem Koolhaas joined the ranks of honorary foreign members.

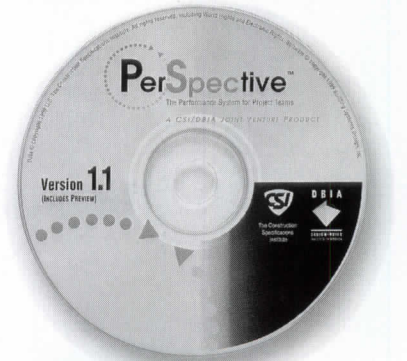
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# While the 2000 Olympics loom, Sydney gets reborn

## Correspondent's File

By Anne Susskind

For the past six years, Australia's Olympic city has been remaking itself for the eyes of the world. New parks, stadiums, and hotels, clustered around a grand boulevard, are the focus of rejuvenation efforts. Even Sydney's oldest cathedral, designed by William Wardell in 1866, is at last getting its spires. Come September, all the hoardings and hammering will be over, the city will finally be cohesive again, and the results will be held up for international scrutiny.

The spotlight during the Games will be on Homebush Bay, the shiny new state-of-the-art sports complex built 11 miles west of Sydney on polluted land (remediation cost \$150 million). The site has had several master plans, the most recent—by Harvard University professor and landscape architect George Hargreaves, an expert in working with degraded sites—regarded as a qualified success. Hargreaves was invited to Sydney in 1996 by the Olympic Coordination Authority to shed new light on what appeared to be a muddled arrangement of venues along a great central boulevard, or, as Hargreaves describes it, a “single void” 558 feet wide. The boulevard is meant to pull together the disparate structures and unite all the plazas into a space “as strong as the buildings,” with consistent paving, street furniture, and lighting. The Olympic Boulevard,

says Hargreaves, will allow for crowd movement and provide “an address” for significant buildings, such as the station, multiuse arena, superdome, stadium, and tennis center.

Hargreaves also planned five “green fingers”—rows of trees and vegetation running from the boulevard through to the surrounding parklands. These oases of nature are home to 160 bird species and two million new plants, including 65,000 new native trees.

Lawrence Nield, of Bligh Voller Nield, who designed the tennis center and, together with the British firm Lobb Partnership, the main Olympic stadium, says Hargreaves’ “great strong slash right across the site” creates legibility. But Philip Cox, designer of the aquatic center and the superdome, says the boulevard is “like a grand runway” without enough shade or sun protection.

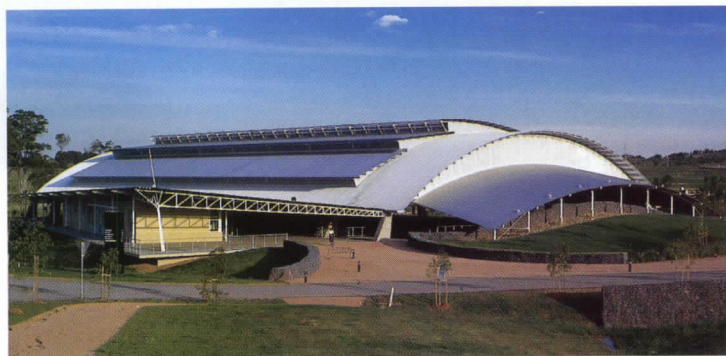
The bay's microclimate—incredibly hot and dry in summer, without the cooling breezes of the coast—will be somewhat offset by landscaping. Mature fig trees have been planted, as well as a profusion of fast-growing Australian trees and grasses. There are, however, some misgivings about the introduction of fast-growing nonnatives, such as the jacaranda and pear trees, outside the railway station. Says one critic, “They don't work with the light the way our trees do.”

Of the whole site, Peter Stutchbury, designer of the archery arena, comments: “It does have an Australian quality, almost a temporal quality, with its lightweight materials and a lot of steel. It's almost a

series of parasols around the place, like a cloud bank over the site, and we haven't seen that in any other Olympics.” A highlight of the site is the railway station, designed by Ken Maher of the Hassell firm, which won the Royal Australian Institute of Architects' Sir Zelman Cowan award in 1998. Passengers arrive under-

to the Olympic boulevard.

Some of the smaller buildings are gems: the archery arena by Stutchbury & Pape, amenities blocks or toilet blocks by Durbach Block Murcutt, the ferry wharf by Alec Tzannes, and the white-water stadium by James Grose of Bligh Voller Nield.



**The Equestrian Centre by SJPH Design Partnership (top) and the award-winning Olympic Park Railway Station by Hassell Architects (bottom) are part of Sydney's rejuvenation effort.**

ground and come up into a great light hall, naturally ventilated. Another successful component of the design is Nield's tennis center stadium: Its strong, concrete conic shape provides a fitting conclusion

Most arresting are the DBM amenities blocks: Bright red, yellow, and blue splashes of color, they have transparent roofs and look like nighttime lanterns, quite startling in an otherwise muted gray,

*Anne Susskind writes about architecture and urban design in Australia for The Bulletin/Newsweek and other magazines.*

## Correspondent's File

white, and steel Olympics. The pylons, the plaza's giant, birdlike solar-lighting poles, designed by Peter Tonkin of Tonkin Zulaikha, attract immediate attention.

Most of the other buildings are efficient and practical but too cautious to be inspiring. The main problem lies with the government's procurement method. For most major venues (excluding the railway station), the system was design and construct, with developer, architect, and builder coming as a team. Conspicuously missing from the list of participating architects are Glenn Murcutt, Harry Seidler, and Richard Lepastrier, widely recognized as among Australia's finest designers; their absence may be due to the fact that they refuse to cut corners or make compromises with developers.

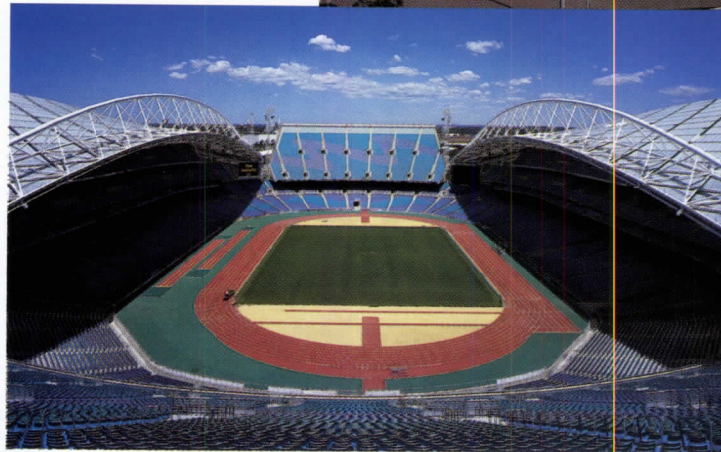
Professor Leon van Schaik, RMIT's Dean of the Faculty of the Constructed Environment, says Sydney's "ho-hum" Olympic architecture is "an inevitable result of a catastrophic way of commissioning

### **"STADIUM AUSTRALIA IS A YAWN. . . . IT'S NOT GOING TO MAKE IT INTO THE HISTORY BOOKS."**

public works. . . . There are so many good architects in Sydney who've not had a chance. . . . These were never picked on the basis of design, always finance." Van Schaik describes the main Olympic stadium, called Stadium Australia, as "a yawn . . . very competent and all that, but it's not going to make it into the history books." Cox says it looks like a Pringle potato chip, does not break new ground structurally, and is not iconic.

But New South Wales government architect Chris Johnson counters that Homebush Bay excels environmentally, with solar energy, water recycling, and natural ventilation used wherever possible. The Olympics was never meant to be

"overly design-driven," he says, adding that Montreal, one of the biggest design-driven Olympics, with very little private industry involvement, is reputedly still paying off its



**Stadium Australia (photos above), designed by Bligh Voller Nield and the UK's Lobb Partnership, seats more than 100,000 people, and is the Olympics centerpiece at the Homebush Bay site in Sydney.**

stadium with taxpayer money, 23 years later.

Back in the city proper, not everything is perfect either, as the

arbiters of taste sometimes go for the quick fix. But Sydney—always regarded as Melbourne's poor cousin in terms of design and style, reliant on its extraordinary natural setting to redeem its urban flaws—has definitely turned a corner.

In the last four years, the Sydney city council has spent \$320 million on the city's rejuvenation and also set other measures in preparation for the Olympics. For example, developers who complete their hotels by June 30 have been allowed to construct bigger buildings proportionate to their sites.

The New South Wales government has spent around \$2 billion, with a focus on Olympic facilities and transport. Recently completed

is the eastern distributor, a link road connecting the harbor to the airport, taking traffic out of the CBD. There is a new railway line to Homebush Bay, and an airport line will open soon. Sydney's main airport has a new international terminal, designed by Woodhead

International, and two new domestic terminals, one by Hassell and the other by Bligh Voller Nield.

In the CBD, one of the most welcome changes is underfoot: Granite has replaced the depressing asphalt of the pavement, and sidewalks have been widened, an invitation for dozens of trendy street cafes.

Also full of promise are the rows of elms, hoop pines, and crape myrtles, often planted already mature for immediate effect. There's a "family" of new street furniture designed by Philip Cox, in a dark bronze-colored stainless steel—bus shelters, phone booths, benches, flower and fruit stands, and information kiosks. While some mourn the former irregularity, particularly the

bright wooden fruit barrows, the replacements are crisp and sanitary.

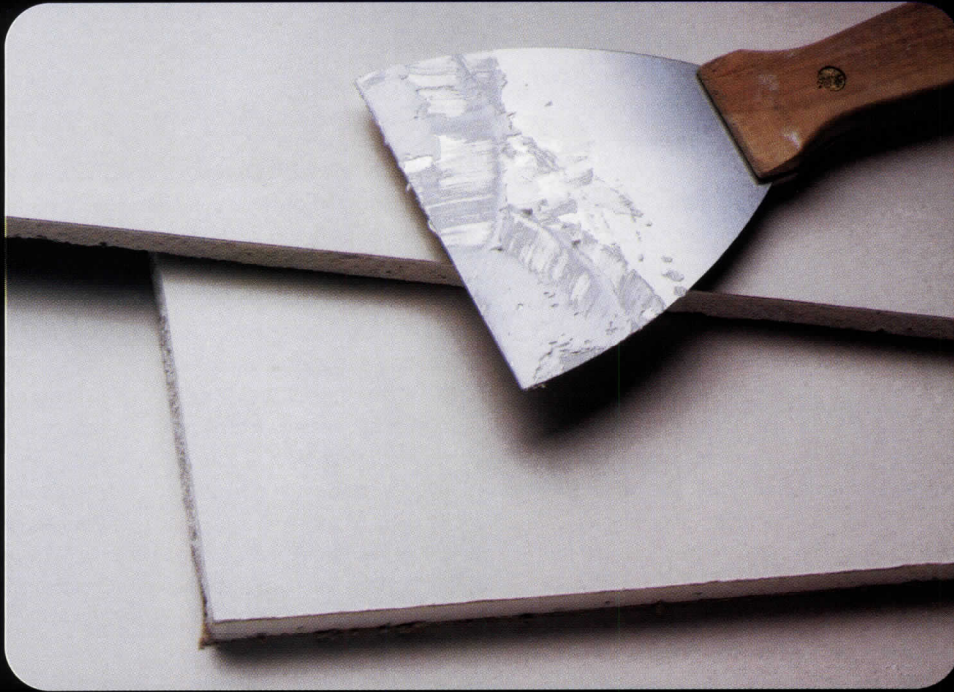
On the main thoroughfares, award-winning new street poles, called "Smartpoles," were designed by Alec Tzannes. They reduce clutter by combining street lights, traffic signals, street signs, parking signs, video cameras, electronic information, special-effects lighting, and decorative banners on one pole.

At the city's southern end, the transport hub of Railway Square has been rebuilt, its mess of bus stops transformed into a new "gateway," comprising skeletal-looking, metal-framed structures. Chris Johnson, whose office was responsible for the design, describes it as a bold addition to the city, but its reception by the Sydney media has been less kind, with one journalist likening it to "the contents of an unassembled Airfix kit dropped randomly on the ground."

The city's notorious "holes in the ground"—huge development sites standing vacant behind hoardings—have gone from 22 to 3. Several of the new towers have made serious attempts to be environmentally sound, with natural air-conditioning and aerial roof gardens.

The Sydney city council has introduced well-meaning legislation requiring all new high-rise buildings to be humanized at street level, with public space and platforms, landscaping, cafes, and shops. Some of the results are rather unfortunate, with podia-like dislocated add-ons and a skyscraper shooting out the center like some strange plant. Others are very handsome buildings, such as the tower at 363 George Street, designed by Denton

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CIRCLE 27 ON INQUIRY CARD

## Correspondent's File

Corker Marshall's Richard Johnson and Jeff Walker. It has a large, light courtyard and cafe at ground level containing *Waterswing*, a mesmerizing stainless-steel sculpture that swings slowly and gently above a reflecting pool.

Taking shape in Macquarie Street are two curved glass towers, designed by Renzo Piano, buildings he says will "talk to" or "wave to"

### TAKING SHAPE IN MACQUARIE ST. ARE TWO GLASS TOWERS, DESIGNED BY RENZO PIANO.

the Sydney Opera House, the "gentle lady" 2,600 feet down the road. Underneath, linking the two, will be another open space, a piazza covered by a column-free glass canopy held together by a "spiderweb" of stainless-steel cable stays.

Sydney's grand old sandstone GPO has been renovated by

restoration architects Clive Lucas Stapleton. Behind its immaculately restored facade, the historic public building now houses expensive boutiques and restaurants and has become a haven for wealthy shoppers. Soaring above, set back from Martin Place, is a new high-rise hotel designed by the Buchan Group.

The plaza outside, Martin Place, runs across five central city

blocks and is also undergoing a transformation. Repaved and cleared of much of its clutter (kiosks and stalls), it reveals the slope and topography of the city, creating unobstructed, sweeping views from the historic Houses of Parliament to the grand National Bank building.



**A gem among the Olympic buildings: one of Durbach Block Murcutt's three amenities blocks.**

Above all, the CBD is beginning to hum with residents (the population has gone from 7,000 to 20,000 in the last decade), housed in converted warehouses, converted office blocks, and many new residential towers. While most of the new apartment buildings are bland and ugly, Chris Johnson points out that they are generally a big step up on previous high-rise residential living—most have balconies.

People in search of an escape

from the concrete have several choices: A new waterside development on the eastern side of Darling Harbour's, Cockle Bay, designed by American architect Eric Kuhne for Lend Lease, is a marked improvement on the crass development on the water's western side. Its downstairs restaurants have lush landscaping, and the structures themselves (while snidely described by one architect as decorated sheds) are whimsical, conical shapes tilted at odd angles.

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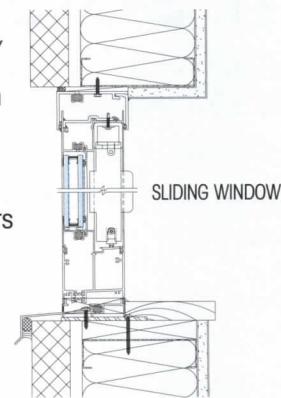
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**CIRCLE 37 ON INQUIRY CARD**

## Correspondent's File

Sydney's parks have also been upgraded in preparation for the Olympics, with new paving, lighting, plantings, and benches. The city council's biggest initiative, with Lawrence Nield as architect, is the

merger of an old bowling green and two small parks to form Cook and Phillip Park. These approximately six acres of carefully landscaped grounds contain a civic square of black granite and are intended to be



Sydney's new \$30 million Shooting Centre, by Gazzard Sheldon Architects, will incorporate shooting ranges as well as covered spectator facilities.

a forecourt for St. Mary's Cathedral. Under the square is a large, new indoor swimming pool. Architects are divided on its merits: Some say it has the makings of a great urban space; others find it is too busy and tries to do too many things—pretending to be a forecourt while actually serving as a roof with the protuberances of a restaurant and an entrance to the complex below.

At the city's "northern gateway" (Sydney's triumvirate of Circular Quay, the Harbour Bridge, and the Opera House), the ferry wharf's old sheds are being pared back to the original structures, with some decorative metal edging on the roof "to give a floating feeling," says Chris Johnson. The work is being done by Lindsay and Kerry Clare in his office.

In front of the newly refurbished Customs House (a historic building gutted and refurbished by Tonkin Zulaikha and Jackson Teece Chesterman Willis) is a fine new plaza with the requisite coffee shops and restaurants outside,

and exhibition spaces inside. The nearby East Circular Quay development, or overdevelopment, is now finished. Known as "the Toaster," it blocks the view of the Sydney Opera House. As Sydney tries to make the best of it, a grand new colonnade underneath, designed by Andrew Andersons of Peddle Thorp and Walker, goes a long way toward redeeming the complex.

With all the new development, the city has undergone "an urban renaissance," according to Chris Johnson. "Just as Barcelona was seen by the world as emerging into a new urbanity at the time of the 1992 Olympics, so too is Sydney emerging into a new phase in its history at the time of the 2000 Olympics.

"The city seems to have passed a threshold in moving from one of the most spread-out suburban cities to a more cosmopolitan, denser living style . . . [It is] a bustling people place." If there were prizes for trying, Sydney would be first in line. ■

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# Multiple personalities: how firms with multiple offices handle identity, culture, and ownership

## Practice Matters

By Kira L. Gould

Advances in technology have made it easy for people in different locations to share resources and work together. Nevertheless, there are still management hurdles for firms with more than one office.

Today, firms take a variety of approaches to coordinating the activities in their different offices. Many try to cultivate a “one-firm” image. The idea is that a client is hiring the same firm—people, expertise, and resources—no matter which office they work with. Architecture giant Gensler has honed this approach (sometimes called the Gensler model) and set the standard for brand building in the industry. But despite the advantages of having a recognizable name, some firms feel that the approach is too monolithic. They avoid a national or international profile that could make it difficult to win important local and regional work.

Some firms develop a network: Each office creates its own profile within the framework of a firm vision. An office in one city may grow faster, diversify, specialize more dramatically, or cultivate a stronger design orientation than those located elsewhere. Many firm managers see this kind of specialization as a way for the organization to capitalize on the strengths of different partners. They also note that the network approach allows offices to take advantage of local market conditions. There are

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risks, however, the most obvious being a disjointed identity. For example, when a firm has offices of dramatically different sizes, their client bases may be different. A larger office may have several national clients, causing the firm as a whole to project a national-market image. Local or regional clients of a smaller office in the same firm might be concerned that the firm’s focus on national clients could take precedence over their needs.

### Ownership structure

Actual ownership at the local level is not typically a priority for “one-firm firms”; instead, they tend to value psychological investment and leadership. Interior Architecture partners David Mourning and Roger Vorhees, who oversee 320 people in 14 offices, explain: At IA, owners have a stake in the overall company, not solely in the office in which they work. “We encourage firm ownership and offer office-performance-based incentives, but this is not a franchise,” Mourning says. “We would not be as effective with local ownership.”

For firms whose offices operate more independently, local ownership is more common. Though they may depend on firmwide resources, the various offices may specialize in different areas and even have different names. With this network approach, local ownership is often emphasized as a way of solidifying the firm’s commitment to people and institutions in its particular community.

The growth of a firm can be idiosyncratic. Over time, Bohlin Cywinski Jackson developed three offices in

Pennsylvania and one in Seattle (opened to work on the Bill Gates compound in a joint venture with local architect Jim Cutler), with a total of 100 people. Managing partner Frank Grauman says the firm never intended to stay in Wilkes-Barre, but that office has turned out to be the headquarters from which regional and national work is marketed. And the Seattle office could have closed after the Gates project, but timely new work sealed its strong future.

Wilson Pollock, president of ADD, oversees offices in Cambridge, Mass.; San Francisco; and Miami. Cambridge came first, and the other offices were started by other firm leaders who wanted to move. ADD maintains a firm apartment in each city and routinely shares training teams, human resources managers, and marketing people on a firmwide basis.

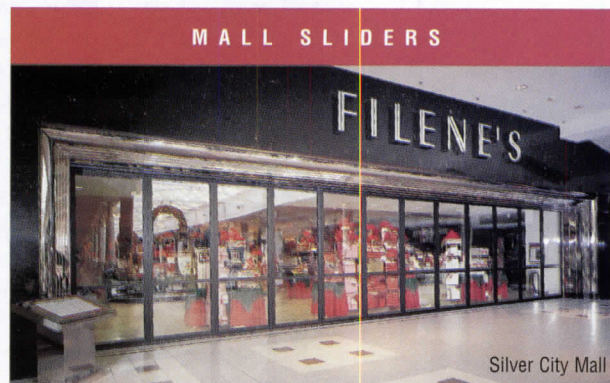
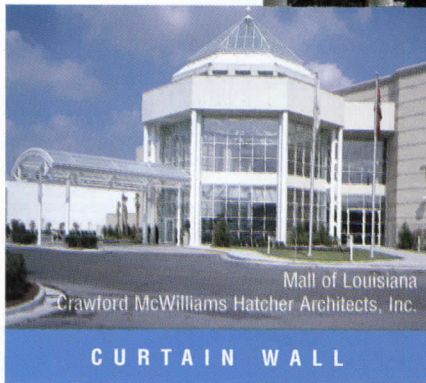
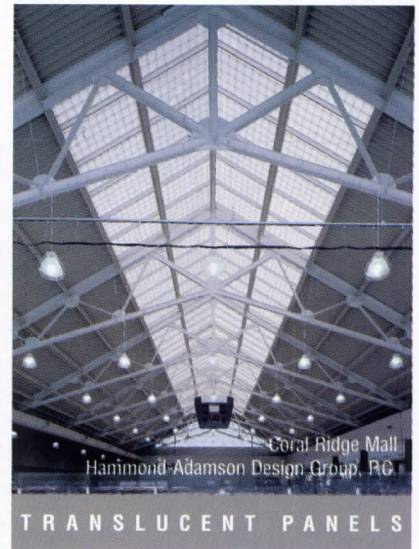
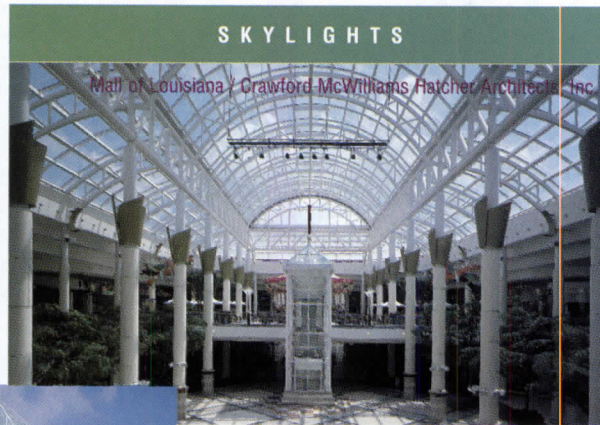
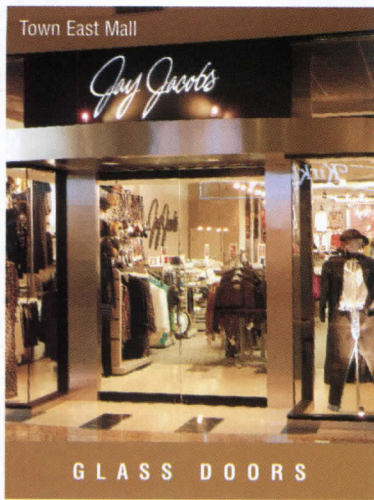
Another successful network-based collaboration can be found at Leo A. Daly, an 85-year-old A/E firm with 800 people in 15 offices. Most of these were started by individuals from other Daly offices who typically modeled new locations on the ones they had left. Charles Dalluge, managing principal of the Washington office, says both the leadership of the individual offices and the particularities of the markets maintain the firm’s diversity. Taylor Armstrong, managing principal of the Dallas office, agrees: “Our office got into hospitality because the market was there and we had someone who was good at it. It’s great to have the flexibility that comes from allowing each office to create its own profile.”

### A firm’s philosophy as the glue

Often, it is the ideas behind the architecture that keep a firm unified. Ed Rubin, a partner with Esherick Holmes Dodge Davis, which runs a 70-person office in San Francisco and a 14-person office in Chicago, says that his firm’s philosophy of architecture sets EHDD apart and keeps its West Coast and Midwestern offices in sync. “We have an intellectual approach that is the backbone of the firm,” he says, “and Marc L’Italien, who’s running the Chicago office, is no less committed to that approach than those of us in California.” The firm was founded on the belief that each project must be approached on an entirely individual basis and must draw significant cues from the region. “Thinking regionally has always been important to us,” says Rubin, “and we think it’s even more so in the context of increasing globalism. We see this as an honest, intellectual approach geared to the needs of the client, and a commitment to that approach is at the heart of our firm’s identity.”

For A/E firms, the philosophy of how architects and engineers work together can foster unity. Steven Einhorn, founding partner of Einhorn Yaffee Prescott, which has 550 people in seven offices, says, “We want to make traditional buildings more responsive to technology and technology buildings more human.” He believes that EYP is set apart not only by this vision but also by the fact that it is shared by the entire firm. ■

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# Architecture and ethics: Stanley Tigerman, FAIA speaks his mind

## Critique

Interview by Andrea O. Dean

Six years ago, during the fourth decade of his architectural career, Stanley Tigerman, FAIA, joined interior designer Eva Maddox to found Archeworks, an alternative



design school in Chicago where students learn by doing good: creating projects for the

homeless, the disabled, the poor, and the elderly.

Tigerman's approach to architecture these days is reminiscent of the wise old Buddhist who forsakes worldly concerns to concentrate on spiritual matters: for although Tigerman still runs a successful Chicago firm with his partner and wife, Margaret McCurry, FAIA, his focus at Archeworks and in practice is on the ethical and moral aspects of architecture. *RECORD* began a recent conversation with Tigerman asking the obvious: Why ethics?

**Tigerman:** How else do you spend 50-plus years in the field and feel a sense of accomplishment? Part of it is that I think of architecture as having four parts. In reverse order of their interest to me, they are: the business of architecture, the profession of architecture, the art of architecture, and the discipline of architecture.

The business of architecture has never resonated for me as a life's work. You have to make a

profit, pay employees, turn the lights on. I see that as just something you have to do. Marketing drives me crazy. The reason architecture is a profession at all is that it's not wholly for profit, because the contractor and developer, if left to their own devices, just want to sell the goddamned thing at a profit. If the architect is seduced and becomes a party to this and starts marketing and believing architecture is just a business, then you've got a serious problem.

**RECORD:** What's wrong with your second least favorite aspect of architecture—the profession of architecture?

**Tigerman:** It means the AIA, not my favorite organization on the planet. In the days when the AIA had an ethics clause, they opposed one architect supplanting another. Now everyone does it, and the AIA's main concern is the business of architecture. You only have to read the offerings of an AIA convention: Most of it is about marketing. Many years ago at Columbia, they had a questionnaire for incoming architecture students: (1) Would you design a weekend place for the Cuban dictator Battista? (2) Would you design urban housing at a higher density than you think correct? (3) Would you design a facility used for evil purposes? I think the AIA today would say yes to all three. It has done nothing to make me not believe this. Because it represents the breadth of its constituency and is dependent on dues, it is willing to diminish the

nobler sides of this field.

**RECORD:** What about the art of architecture? Why isn't it higher on your list?

**Tigerman:** I find the art of architecture a problem because it has always been couched in move-

both, because the publications are basically unreadable. Under the rubric of art, architecture becomes increasingly elitist, for the few.

**RECORD:** So we come to the discipline of architecture, which holds the place of honor in your archi-



Archeworks, Tigerman's alternative design school, was built on land donated by Urban Innovations, a private real-estate management firm. The building sits beneath the Ohio Feeder Ramp, one of the main arteries into downtown Chicago.

ments, whether it's the International Style, Postmodernism, Deconstructivism, whatever. These movements are for the few, not the many. They are represented by such publications as Cynthia Davidson's *ANY* and MIT Press' *Assemblage*. It can be said, sarcastically of course—but it's true—that the same 37 people read

tectural hierarchy. What makes it so noble in your view?

**Tigerman:** A discipline is like a monastic pursuit, something you're passionate about. When you spend your whole life as an architect, you don't like seeing that life diminished by professional concerns, concerns about returns. Do you remember John Entenza

## Critique

[1905–84]? As editor of *Arts and Architecture* magazine, he was the first to present the work of Charles Eames, Paul Rudolph, and others. John once introduced Mies van der Rohe to a Chicago audience as someone who had to will his buildings into existence. In 1949 in Chicago, they had a hell of a time financing 860 and 880 Lakeshore Drive. The buildings looked like skeletons. There was bravery on the developer's part. In order to will something into existence, I think you have to have a deep, resonant core as an architect. That core is rooted in philosophy and theology but also in morality and ethics. Mies didn't finish grammar school. He was the son of a brick mason. But by the time he left the Third Reich he had a library of 3,000 books. The government of

profession of architecture? Ultimately, Mies was persistent about the morality of the thing. For me at least, if architecture doesn't have that, what's the point?

**RECORD:** *You have equated ethics in architecture with craft, with building well, and you've expressed outrage at current building practices. Tell us about it.*

**Tigerman:** Morality and ethics go back to craft, to making things well. After all, firmness, commodity, and delight were Vitruvius' three cornerstones of architecture. The problem of today's cheap construction can be traced back to people like Charles Moore, who was a very dear man but destructive, because he kept saying things like, "You only need two-by-four and drywall." First of all, two-by-four is a problem because we've never reforested properly, so all wood—including Douglas fir structural timber—is green and shrinks. When gravity takes over, it shows



Spaces within Archeworks serve a variety of functions, such as this lecture area and cafe (below), complete with audiovisual equipment, and the "Archebar," (above) which serves as both a casual meeting area and workspace.

the Third Reich allowed him to take only 22 volumes to the United States. He chose serious books, St. Augustine on faith and St. Aquinas on interpretation. He had an inspired core; one felt it in his presence. Do you think he marketed or was interested in the

up on the facing, which is drywall and it cracks. If you build out of crappy materials, it won't last. Everything today is about thinner and thinner materials. Think of the problems: thermal penetration, water penetration. Here in Chicago at Watertower Place, the toilet-

room marble panels are flying off the building because they were attached with carbon steel clips that have rusted out.

There are two ways to build: You can build a box out of fabulous materials or deconstruct it and produce a zillion surfaces. To build the latter with the same dollars, you have to use lesser materials. But now the cunning developer says, "Ah, the way to do it is to build the box with cruddy materials."

**RECORD:** *Have you applied the principles you've been talking about to Archeworks?*

**Tigerman:** What Archeworks is about is producing very good design in the context of social needs. If you're poor or disabled, you actually need things to be built better than if you're privileged.

Our interns [students] produce a project during one academic year. We're trying to get something done. One of our teams made a head pointer, which is now on the market, for cerebral palsy victims to operate computer keyboards and get a job. These instruments are usually weighty and cumbersome; the head pointer our team designed is 20 times lighter than the prototype and beautiful. Another team devel-

oped a device for people with AIDS to keep their many medications straight. Still another designed a Web site for local 5th graders that gives parents, children, teachers, and community members access to one other.

Archeworks is a one-year post-professional program. About a third of interns are architects; another third are designers of some stripe; another third are "other." We've had teachers, historians, a lawyer, a physical scientist, the vice president of a Singapore bank.

One of the things we wanted to do with Archeworks was to break down barriers between the academy and practice and between design disciplines—interior design, lighting design, industrial design, planning, landscape design. You know that architects mock interior decorators and designers. And they're never taken to task for it. That sense of entitlement is a problem. Our interns work in multidisciplinary teams on a project. There's no team leader. In a way, Archeworks is like the Bauhaus; in a way, it's like Andy Warhol's Factory.

For me, Archeworks is also about giving back. It's clearly the most important thing I've ever done. ■

# Snapshot



By Ingrid Whitehead

*“Dear Mother: Even the trenches can be beautiful when they are trimmed with flowers, and the barbed wire forms a trellis for rambling vines, and shelter for innumerable thrushes and other songsters—one explanation, no doubt, of why the cats have a penchant for No-Man’s-Land.”*

—Quincy Sharpe Mills, June 18, 1918

## Remembering the soldiers, in their own words

Romance and the military may not be synonymous in most people’s minds, but according to architect James Cutler, it’s not out of the question in Norfolk, Va. The military town that awarded the design of the Armed Forces Memorial to the Seattle architect and his collaborator, ceramic artist Maggie Smith, saw fit to allow the designer and artist to create a sculpture “garden” dedicated to the personal feelings and emotions of those who died fighting.

Like Maya Linn’s Vietnam Veteran’s memorial in Washington, D.C., the Norfolk memorial isn’t the usual. “It’s not a heroic statue,” says Cutler, “it’s not a triumphant arch. It’s a way to commemorate the individuals who

## Snapshot



fought and died in wars, by using their words.”

Twenty bronze letters, written by servicemen and women who died during U.S.-participated wars, are “scattered” across the 160 sq. foot site. Each letter (including the excerpt on the preceding page) was sent from the battlefield to a loved one in the States shortly before the writer was killed. Like a detective, Smith did the research, discovering at least 100 letters, editing and narrowing them down to 30 with Cutler, and letting the client (the city of Norfolk) cull that group to the final 20.

“We wanted the site to have some sense of solemnity and permanence,” says Cutler, “but we also wanted to give it an ephemeral quality—the sense that these letters were blowing in the wind, on an island.”

Blowing in the wind, but readable. Cutler and Smith started by using materials such as weathered stone on the site, which is part of a pier front that runs the full length of Town Point Park (the original fort in this park was built by the British in the 1600s).


Cutler and Smith then went through the intricate process of creating the bronze letters, beginning with paper, moving to  $\frac{1}{8}$  scale wax models, creating 33- by 27-inch rubber molds, and using wax, plaster, rubber, and finally bronze to create the missives, which weigh anywhere from 60 to 70 lbs. each. “Figuring out how to do it was a challenge. Thanks to the technical expertise of the Walla Walla foundry in Washington, the sculpturing process was a success.”

Stainless steel angle irons driven a foot into the ground hold the bronze letters in place. “We went about it in a very precise way,” says Smith. “but I think the memorial captures something less precise—the personal emotions of the soldiers who wrote the letters.” Says Cutler, “We’ve sat and watched people’s reactions. They see there are words on the sculptures, they stop to read them, and they linger, with tears in their eyes, to read them all.” ■

Letters from the Revolutionary War, the War of 1812, the Civil War, World Wars I and II, Korea, and Vietnam were included in the Norfolk Armed Forces Memorial, including one from a woman who fought in the Civil War by pretending to be a man. The site, bordered by water on two sides, gives people a place to read and reflect on the words of the fallen soldiers.







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# The principals of smart

By Andrea Oppenheimer Dean

It's no coincidence that America's renewed appreciation for cities and city life finds a new type of mayor installed in city halls across the country. By and large, the new mayors are bipartisan and centrist; their focus is efficient management intended to cap taxes and improve services enough to slow the rush of moving vans to the suburbs. Concurrently, they're searching for ways to make their cities and regions globally competitive. Instead of begging, hat in hand, for federal funding, the new mayors find themselves setting national policy agendas. As sprawl and traffic congestion become nationwide headaches, the issues of smart growth and metropolitan solutions are bubbling upward from municipalities to state and federal governments. Vice President Gore's commitment to quality-of-life issues "sometimes sounds as if he's running to be mayor of America," says Fred Siegel, author of *The Future Once Happened Here: New York, D.C., L.A., and the Fate of America's Big Cities*. Architects, too, are engaging in these issues, recognizing the importance of sustainable development to their practices and its impact on the kinds of projects on which they work.

At the annual meeting of the U.S. Conference of Mayors, held in January in Washington, D.C., and in interviews conducted at the meeting, four planning and design issues came to the fore: sprawl, urban reinvestment, public transportation, and metropolitanism. Put them together and you have smart growth.

Sprawl, the mayors pointed out, damages not only farmland and forest. It also drains cities of resources, most grievously in no-growth or slow-growth areas where every new store or house or office that opens in the outer suburbs means a vacated store or house or office in the city. To contain sprawl, cities around the country are shaping comprehensive plans, identifying growth centers, encouraging compact development, and reinforcing it with appropriate zoning. In Charlotte, N.C., for example, Mayor Pat

# growth

A new generation of **Mayors** is taking American **CITIES** beyond the old partisan politics and is setting a pragmatic agenda of smart growth and attention to design. National players are paying attention.

McCrary is doing land-use planning through a transportation policy that focuses mixed-use development around bus and light-rail transit stops. And the Republican mayor has won tax approval for his plan.

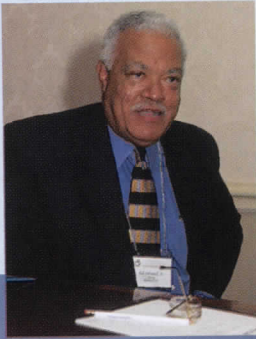
Many mayors are redefining their cities as cultural and entertainment centers for their regions, while ceding other types of activity—large-scale retail, for instance—to the suburbs. At the same time, most American mayors are making major investments in new housing and commercial development. There is Dayton, one of 14 cities chosen by the U.S. Conference and the National Association of Home Builders for a joint initiative to build a million new houses over the next 10 years. And there is Tulsa, where Mayor Susan Savage has selected seven neighborhoods for substantial infill development and a homeownership project that will be assisted by the Bank of America and other corporations.

Cities are forming partnerships with businesses, school districts, and not-for-profit organizations to build houses, stores, and offices. “Promoting urban reinvestment,” Bruce Katz, director of the Brookings Institution’s Center of Urban and Metropolitan Studies, told the U.S. Conference, “is not an urban issue anymore. It’s an issue about sound, sustainable, sensible metropolitan growth patterns.”

The mayors spoke of metropolitan cooperation as a pressing but vexing problem. Mayor Kenneth Barr’s Fort Worth, for instance, shares with Dallas a metro area that is the 30th largest economy in the world but suffers from Texas-size competition among its two major cities and a tangle of competing interests from 38 smaller municipalities. Another serious problem, stressed Katz, is that the federal government is shaping metropolitan growth patterns through major spending, taxation, and regulatory policies that “tend to tilt the playing field against older communities.” There wasn’t a mayor in our sample who didn’t favor targeted tax credits for homeowners and other federal initiatives aimed at tipping the field back until it’s level.

## ROCHESTER, N.Y., STRUGGLES WITH SHRINKING POPULATION AND GROWING BOUNDARIES

For an unusual spin on sprawl, consider Rochester, N.Y., and its surrounding county. "In Monroe County, we have the worst-case scenario of sprawl without population growth," says **Mayor William Johnson**. "We're at the point where each new home built in one part of the county means a home turned to rental property or abandoned in another area." Similarly, each square foot of new retail space built means that somewhere else in the county an equal amount of retail space is vacated.



the residuals [the empty buildings and infrastructure] of this economic and industrial development remain," says the mayor, a two-term Democrat. "We are still maintaining too much of the old infrastructure while trying to support new infrastructure—new schools, new shopping areas."

His comprehensive plan calls for smart growth development, "but we are lagging far behind. The chairman of the Republican party in Monroe County has called smart growth communistic." The new comprehensive plan, the first since 1964, redefines the city, says Johnson, as the "center city for the region. The plan acknowledges the

movement of retail to the suburbs and the difficulty of recapturing it. It focuses on the fact that the city of 220,000, built to accommodate 350,000, is still the region's business center and that with its museums, live theater, and performance halls, is still the region's cultural center. "These assets," says the mayor, "are marketable throughout the region." Rochester also recently upgraded its indoor sports

arena and built a new baseball stadium, which, Johnson says, attracted people downtown for the first time in years. The city launched a free shuttle-bus system that ferries people through downtown in the evenings, and three fledgling downtown entertainment districts now prosper. The city is also working with not-for-profits, such as Habitat for Humanity, to revitalize neighborhoods and increase homeownership.

Despite wanting to attract business to the city, Johnson is dismayed that even rich companies expect hefty subsidies to build in the city and insist on erecting new buildings instead of renovating old ones. "Soon everything will be a brownfield. Someone has to be willing to stand up and say, no, even at the risk of losing a major project."

The solution, in Johnson's eyes, is regional planning. "City bashing is old politics," he says, "and ignoring the realities that undermine regional cooperation is old economics. Only regions project the necessary scale and diversity of assets to compete in the global marketplace."

*Andrea Oppenheimer Dean*

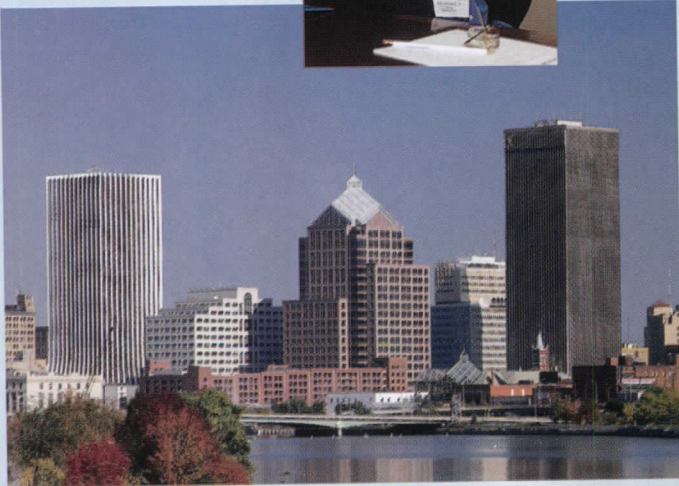
## DAYTON TACKLES BROWNFIELDS TO CREATE HOUSES AND OFFICES

Bringing people and businesses back downtown is a challenge facing most cities today. The task is particularly difficult for places like Dayton, Ohio, with long histories of industrial development. But Dayton has devised a series of strategies that seems to be working, says **Mayor Michael Turner**.

The city, which has a population of 185,000 in a metropolitan area of 1.2 million, is working with banks, businesses, and neighborhood groups to rejuvenate its downtown. "We've partnered with banks to provide low-interest housing loans, low down payments, and tax abatements," reports Turner. "By creating a more diverse housing stock and preserving older neighborhoods, we're encouraging people to move back into the city. And that combats sprawl," says the mayor.

Turner, who was first elected mayor in 1994, has also pushed for stronger crime-fighting efforts, additional police officers and, in some case, the closing off of streets to through traffic

in an attempt to deter drug dealers and gangs. Since many of these neighborhoods about the city's business district, improvements here make the downtown more





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attractive to companies looking for office space, says Turner.

Tackling industrial brownfield sites has helped residential redevelopment. "We pulled together a brownfield redevelopment authority that includes the banking and real-estate communities, the chamber of commerce, and our city and county governments. We're looking at the inventory of land that's available and setting priorities for attack and investment," says Turner.

One strategy is to acquire abandoned industrial sites and make them "business ready" even before a tenant has been found for the space. "Before, we used to wait until we had a business interested," says Turner. "But because we were dealing with redevelopment, not just development, we could never meet the timeliness that businesses needed. So now we make the land ready with acquisition, demolition of existing buildings, cleared-up land titles, and a financial incentive package all in place."

Turner contrasts this approach to the one the federal government has pursued. "The whole brownfields issue is a federally created problem," states Turner. "In wanting to make certain that the responsible party pays the expenses for cleanup, they have created a disincentive for people to clean up properties—which is an incentive to use greenfields instead."

Preserving some of Dayton's industrial past is part of the city's plan for the future. Turner hopes that by working with the city's remaining tool-and-die manufacturers, he can create an industrial park that will include both active industries and an educational component. Called Tool Town, the park would sit on 38 acres of underutilized industrial land. Also in the works are a new downtown baseball stadium and a riverfront park. When they're done, Dayton will be heading into the new century with a whole new outlook.  
*Clifford A. Pearson*

## CHARLOTTE KNITS TOGETHER THE PLANNING PROCESS

In the last two decades, Charlotte, N.C., has transformed itself from an aging mill town into a symbol of the "new South." Gleaming office buildings form a modern skyline, new sports arenas play host to major-league franchises, and banking has replaced textiles as a driving force behind the economy. Now it faces the challenge of controlling growth.

"Transportation and land-use planning have to go hand-in-hand,"



states **Patrick McCrory**, the third-term Republican mayor of Charlotte. "If you're implementing mass transit and you don't have land-use planning, you're wasting your highway and transit funds." A few years ago, municipal and county governments approved a 0.5 percent sales tax and now apply \$50 million of that each year to a regional transit system.

Although an outer beltway is being built around Charlotte, the city of 450,000 people is focusing development at the 35 highway exits, creating a hub-and-spokes network for the regional transit system. According to McCrory, urban highways aren't the problem, but the design of these highways is. "How you design interchanges, pedestrian access, landscape, and the buildings that rise along the highway—these are what need to be changed and reengineered."

Zoning and design guidelines now call for buildings that front directly on the street, have parking in the rear, and provide adequate landscaping, says McCrory. "We've found that you also need to look at connectivity. You cannot build a residential or commercial or industrial establishment as a cul-de-sac. Once you do that,

you're creating a transportation and environmental nightmare." Municipal leaders need to look at the big picture when considering construction

projects, warns McCrory. "You see cases where neighborhood groups and a developer reach a deal that may be win-win for them in the short run, but the long-term impact is lose-lose. For example, residents might want a shopping center that's segregated from the neighborhood.

Then they come back and demand a stop light. The next thing you know, you have 10 stop lights within 2000 yards. That's bad long-term planning."

While Charlotte is still expanding outward, McCrory has had success in encouraging developers to return to the center city. "Land prices in the inner city are actually escalating

at a greater rate than outside the city, so developers are seeing a way to make money. We put \$1.2 million into rebuilding sidewalks and replacing lighting in old brownfield sites. In the last five years, we've seen \$75 million in new private-sector investment. Now they're selling condominiums for \$250,000 to \$500,000 on old brownfield sites."

A discouraging trend, though, is the disposable nature of much new construction. "We're seeing the life span of a lot of buildings being only 10 to 20 years. Shopping centers built in the 1970s and '80s are being abandoned for newer ones. Now we have to figure out what the hell to do with vacant shopping centers with massive parking lots in front. We are left with crap. That's the future blight of cities, just 10 miles out. A major part of smart growth will be to demand buildings with lives of 100 years, not 10." C.A.P.



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## TULSA OFFERS INCENTIVES FOR SMART GROWTH

Tulsa was a world energy capital until the oil bust of the early 1980s, when 40,000 high-paying oil- and gas-related jobs vanished. But Tulsa has remained the region's cultural center, thanks to the philanthropic gifts of the oil barons who built the city—J. Paul Getty, William Skelly, Harry and Earl Sinclair, and the Phillips brothers. **Mayor Susan Savage** is building on the city's cultural and entrepreneurial legacies, which have helped reshape her city into a telecommunications and aerospace hub with an unemployment rate of 3 percent. Tulsa remains a low-cost, low-density city and construction cranes are visible on the skyline for the first time in decades.

Like other former manufacturing strongholds, Tulsa is pockmarked with abandoned plants and warehouses. "Brownfields are simply real-estate deals with environmental considerations," she says. "The question is, who's going to clean up that mess? How are we going to pay for it? These are big, big issues for our communities. That's why getting legislation, getting a federal role is very important." Also vital is the provision of financial incentives, because end users need sites that are cleared and ready to go. Usually the costs of acquisition, cleanup, and demolition far exceed the value of the land.

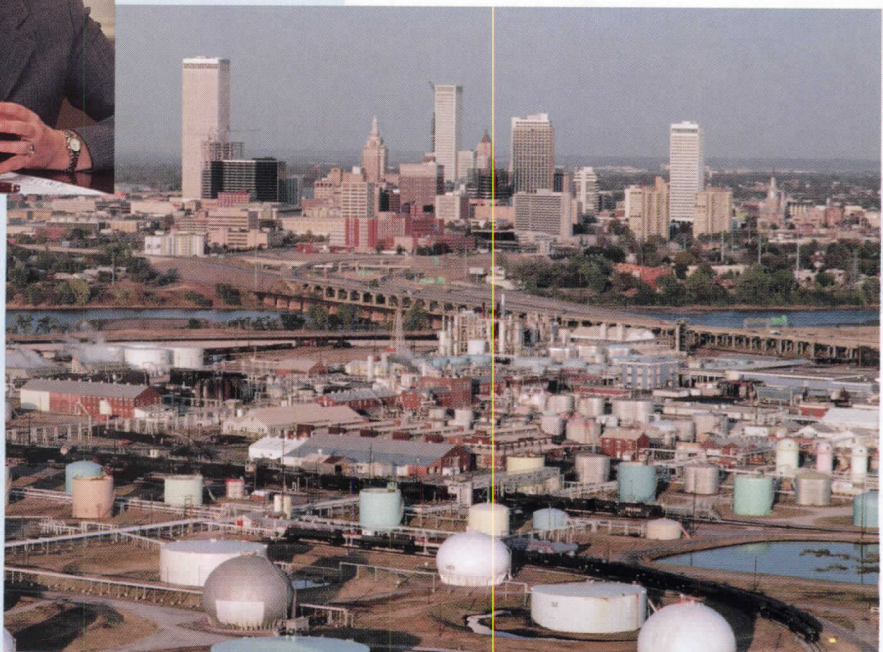
Savage has been working to clarify brownfield liability issues and streamline the city's zoning and development codes. Her administration inventoried all its sites and selected two or three for redevelopment. With funds from EPA, HUD, and the Army Corps of Engineers, the city recently acquired the first of the chosen sites and is preparing to clean and lease it for commercial redevelopment.

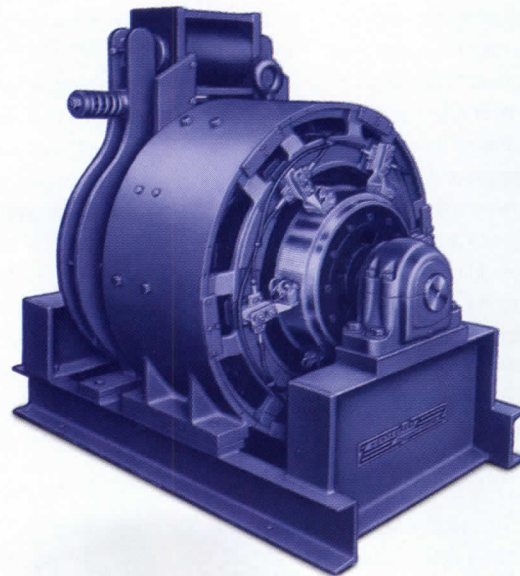
Savage has also partnered with the AIA to hold two planning workshops, City Design in 1996 and Smart Growth last year. Both concentrated on infill projects and resulted in targeting three neighborhoods for redevelopment and in identifying obstacles to their further renewal. "For example," she says, "in the warehouse district, building codes have made redevelopment difficult. We have a review underway to see if we can create some flexibility." She adds that tools must be found to provide incentives for all types of development. Downtown, for instance, where a Fortune 500 company is undertaking a major

expansion, the city has created a tax-increment district, is improving transit with the state's help, and is building parking garages.

Savage cites three principles that can guide the discussion of smart growth: economics, environmental considerations, and—often neglected—issues of equity. "How do you create a strategy that takes all citizens into account, that provides transportation for inner-city kids to newly preserved open space or transportation links from housing to jobs?" As part of this effort, Tulsa has targeted seven low- and moderate-income neighborhoods for new housing and created a homeownership program, for which the Bank of America "is putting up millions in new construction money, and we're doing training and credit counseling."

Her administration has also taken a stand on design. "It's no longer appropriate or good public policy to build ugly things that don't enhance the community," she says. "Since technology lets people telecommute and live nearly anywhere, if a locale doesn't have an appealing sense of place and easy access in and out of town, people are going to live elsewhere." A.O.D.

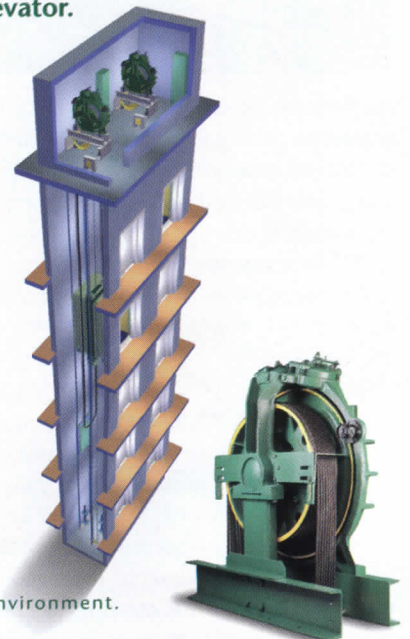




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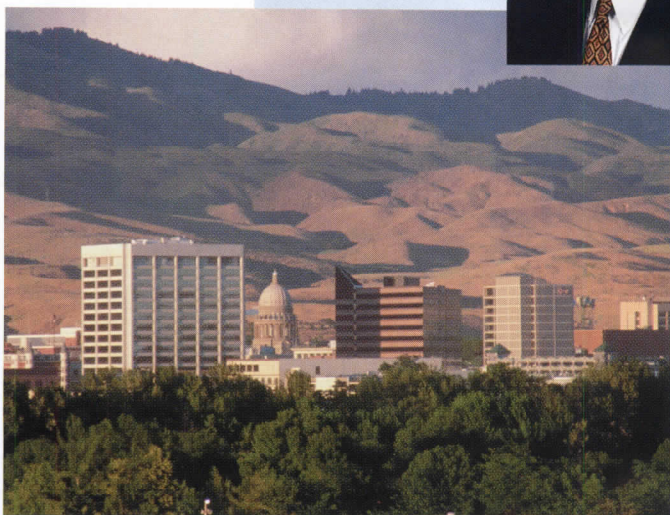
**CIRCLE 47 ON INQUIRY CARD**

## BOISE SHOWS HOW REGIONAL COOPERATION CAN WORK

Mayors around the country complain about the fragmented landscape of local government and how it is ill-fitted to address the region-size problems of sprawl, overburdened infrastructure, and municipal competition. In June 1997 a group of leaders in southwest Idaho decided to take the bull by the horns and wrestle it to the ground together.

The result was a "partnership agreement," signed by the area's seven mayors and two county commissioners, that commits the officials to work together on a regional agenda. It binds the leaders to "create coherent regional growth and development patterns," to "link land use and transportation," to "reinforce . . . community identities and sense of place," and to "protect and enhance open space and recreational opportunities."

At the center of the effort was **H. Brent Coles**, mayor of Boise. Mayor since 1994, Coles



leads his city at a time of rapid growth and sometimes jarring transformation. Ada and Canyon counties, which comprise the Treasure Valley where Boise is located, grew at the fourth-fastest rate in the nation during the 1990s. Where towns once enjoyed open spaces and majestic views, "a new West" of colliding jurisdictions is now emerging. Referring to the Treasure Valley Partnership agreement, Coles says, "We broke down barriers and put away past animosities. We focused on the needs of our region in an honest, straightforward way."

The mayors and county commissioners now meet once a month to focus on a particular issue and listen to experts in the field. "We've had the parks and recreation directors from the region come in and talk about open space. One of us will ask, 'What are you doing with your

parks? How come your city hasn't built more parks and we seem to be building them all?' It's a very open discussion."

During the last two years, each of the municipalities has completed a new comprehensive plan. "Then we took all those plans and projected them on one map," relates Coles. "And we asked each other, 'How much industrial space, how much commercial space, how much open space are we going to have if we build out all of our plans? What kind of infrastructure are we going to



need?" This seems like something that everybody should have done 100 years ago. But it had never been done in our region."

Because land-use decisions affect where people live, work, and shop, they affect how people get from one place to another. "Transportation and land use" are two of the critical issues facing the region, says Coles. "There's still lots of land and opportunity to either build more freeways or to do something on the European model—to rely more on trains, whether light-rail or commuter."

Coles explains, "We need to set aside and develop our land with the densities and use needed for neighborhood commercial centers and commercial space around transit centers. If we begin planning that today and if we bond for and invest in a transit system, it will truly be a new west." That will require a kind of long-term cooperation and planning that few parts of the U.S. have exhibited in recent years. *C.A.P.*

## RICHMOND, CALIF., MAKES THE CONVERSION FROM INDUSTRIAL TO HIGH-TECH

Richmond, Calif., which has a population of 93,000, spreads over more than 56 square miles and edges 32 miles of Pacific shoreline on a peninsula 16 miles northeast of San Francisco. Established in 1902 at the Santa Fe Railroad's western terminus, the city remains an important transportation hub, benefiting from a deepwater port, several local bus lines, and BART and Amtrak rail stations.

Richmond's **Mayor Rosemary Corbin** says that during the last decade her city has successfully transformed its economic base from heavy industry to services and high-tech. "But we're an old industrial city and have crime problems, pollution problems, and we've worked very hard to get our population trained and into good jobs. As such, our main concerns are economic develop-



ment, public safety—the same challenges as any urban center." Reviving the city has necessitated extensive cleanup and conversion of former industrial and shipyard buildings. There is, for example, the former

Marina Bay Shipyard, the world's largest during World War II: Over a 25-year period it has been converted into mixed-use developments and parkland. Because of contamination, the city was able to recover 85 percent of its cleanup cost from the federal government, the Santa Fe Railroad, and Kaiser Steel, says Corbin.

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Another brownfield project, set to break ground next year, will turn the 500,000-square-foot former Ford Assembly Building into a \$100 million mixed-use complex. Plans are also being finalized for an “urban transit village” in Richmond’s historic district. The development, designed by Peter Calthorpe, FAIA, will focus on the intermodal transit station and combine retail, 218 residential units, and an arts facility.

In evaluating and reviewing these projects, the city has had the benefit of an architect city councilman, who, says Corbin, has “raised our consciousness.”

While city officials in Richmond appreciate the benefits of “smart growth,” says Corbin, “the biggest challenge is talking the public into these notions. We’ve had workshops to show what you can do with higher densities—the Victorians in San Francisco, the brownstones in New York—but when the rubber hits the road and we try to rezone even to allow duplexes in residential neighborhoods, there’s a great deal of opposition.”

Another battle, she says, is overcoming opposition to building low- and moderate-income housing in middle-class neighborhoods. “I say to them, don’t you want teachers in your schools to live here, and they go, ‘Oh yeah.’ The definitions of low- and moderate-income housing need to be better known.”

Still another challenge for Corbin and other California mayors has to do with the peculiar difficulty of raising funds in California. “It takes a two-thirds vote here,” says Corbin. And Proposition 13, enacted more than 20 years ago, “is still hurting us, because it allows the state to redirect property taxes from cities and counties to its own coffers. That has driven all cities to compete for retail, because we don’t get enough property taxes to support new residential development anymore. And now the sales tax is being threatened. What’s left?” A.O.D.

## FORT WORTH FOCUSES ON BRINGING HOUSING BACK TO ITS URBAN CORE

“Our biggest push,” says Fort Worth’s **Mayor Kenneth Barr**, “is to rebuild the core area, the central city.” Having revitalized the central business district over the last 15 to 18 years, Barr’s emphasis now is on renewing the residential areas surrounding downtown.

Over the years, he says, Fort Worth’s prewar neighborhoods have been allowed to deteriorate. A lot of the refurbishing effort is just plain cleanup, he says; during the last three years city workers have pulled 7,000 junk automobiles off yards. “The bad news,” he says, “is that’s only about one-third of what needs to be pulled.”

The city has combined cleanup with rebuilding the streets, to which people respond, says Barr, by starting to clean up their yards. In addition, the city has embarked on a tree-planting program and has doubled its code-compliance staff while arming them with increased authority and new ordinances requiring apartment complexes to be maintained to a high standard or risk being demolished.

The city is also rehabbing housing and building new houses. Under its Model Blocks program, Fort Worth funnels HUD funds into defined areas, using the funds for construction and low-interest and first-time homeownership loans. A separate infill housing program fills gaps left by the demolition of dilapidated and neglected structures. “We’ve discovered you have to rebuild neighborhoods; you can’t just put in a house here and another there. You have to create a sense of community to get people interested,” says Barr.

To fight what Barr considers the two main reasons Texans elect not to live in city neighborhoods—the perception that they are unsafe and have inadequate schools—his administration has beefed up crime-prevention efforts and reports that the crime rate has fallen by 55 percent since 1991. The city has also put extra resources in the city’s largest school district,

which, he says, is stronger and more innovative than its reputation, to create good after-school programs for children who would otherwise be going home to empty houses.

Planning has never been a long suit for Texas cities, where individualism and property rights are highly prized. Nonetheless, for the first time since the early 1980s, Fort Worth is completing a comprehensive plan. “It’s a grand plan for what the city is going to be and do,” says Barr. “I think cities across the country are trying to do this.”

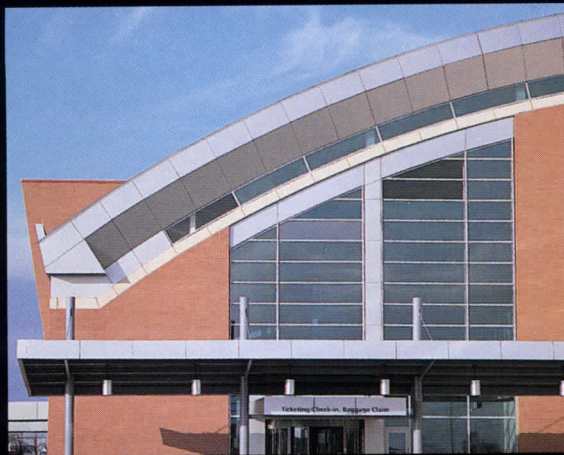


Based on workshops with community members, Fort Worth’s plan projects a vision of what residents want for their city’s future—“and that means not being like Dallas,” says Barr. Fort Worth has a population of 110,000, and covers 300 square miles; the city controls another 350 square miles in its “extraterritorial jurisdiction,” land that can be used for

expansion. “But we’re working on strategies to utilize the existing areas of the city rather than continually growing outward,” says Barr. His comprehensive plan identifies 29 growth centers within the city limits where it wants to concentrate mixed-use development at various scales.

The city’s dearth of public transportation leaves it without ready-made focus points for development, explains Barr, a situation he is slowly beginning to remedy. A first step will be a new public square where the city bus lines converge downtown.

Barr says that one of the most interesting new phenomena in Fort Worth and Dallas is fledgling public transportation, which now has 3,000 riders a day. “I think what we’re proving,” he says, “is that, contrary to what everybody said, people in our part of the country will use public transportation. If the schedules and routes and equipment are right, they will.” A.O.D. ■



# A Panel Discussion



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**CIRCLE 19 ON INQUIRY CARD**

# The State of

By Andrea Oppenheimer Dean

We asked 50 architects, clients, and educators to share their ideas about the effects of seven years of prosperity, a CAD revolution, and increased awareness of issues like green design on architectural practice. Here are some of their thoughts, plus new practice data from the AIA's Firm Survey 2000–2002.

## Seven fat years: Changing the firm culture

Last year half of all firms expanded, and over one-third grew by 20 percent, according to the AIA's Firm Survey 2000–2002. Ironically, it is in good times that architects are forced to confront the most dramatic changes in practice management.

For one thing, seven years' growth has created unprecedented competition for qualified personnel. That has put pressure on firms to establish competitive salary, stock option, benefits, and retirement packages. Richard Rittelmann, FAIA, of Burt Hill Kosar Rittelmann, says that young practitioners don't have to hustle for employment, and

"principals are more attentive. I see much more emphasis among large firms on educational programs and other perks." He adds

that this is "driving up salaries but not fees."

But educational programs may not make up for the personal attention that has always been at the core of an architect's training. "Command and control doesn't work anymore," says Louis Marines, FAIA, president of the Advanced Management Institute for Architecture and Engineering in San Francisco. Principals, he says, used to walk around the studio looking at boards. They spent time with young architects discussing their work. With the advent of

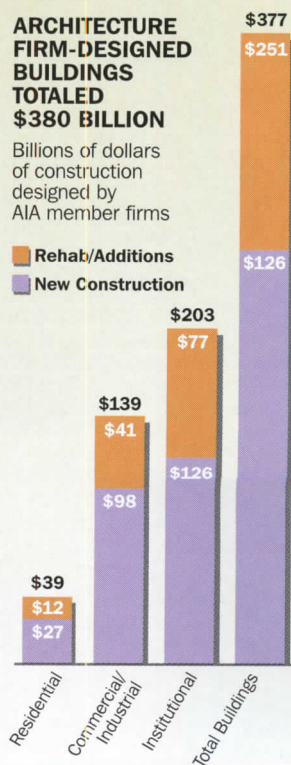
**"WE'RE SO BUSY MEETING THE NEEDS OF THE STRONG ECONOMY THAT WE DON'T HAVE TIME TO REFLECT AND CHANGE OUR WAYS."**

—Arnold Mikon, FAIA

## ARCHITECTURE FIRM-DESIGNED BUILDINGS TOTALED \$380 BILLION

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- Total billings by AIA member firms climbed to \$24 billion, from \$14.4 billion in 1996.
- Typically only 5 percent of firm gross billings came from joint ventures, and another 5 percent from working as a subcontractor.
- Sole practitioners and 50-or-more-person firms reported higher portions of billings from subcontracted work.
- Net billings per full-time employee increased by an average of 33 percent between 1996 and 1999.



# the Profession

electronic document production, the pace has become too fast for leisurely conversations, so young architects may not get the feedback they need. And, because CAD changes every two or so years, retaining dexterity requires practice, and many supervisory personnel don't have time for it. "You hear a lot of well-known architects saying they walk through their offices and don't understand what's going on," says Rittelmann.

Because many architects who would now be project managers in their 30s and 40s dropped out of the profession in the early 1990s, many 20-something designers are doing the jobs of senior associates, running complex projects. "They're learning by trial and error rather than by years of training," Marines adds, "We run the risk of burning out this great moment, burning out people, jeopardizing client relationships, and finding ourselves in liability messes, because we haven't created the quality we should."

Architects, spooked by fears of recession, are overextending their practices. There is already some evidence that architects' liability insurance claims are on the rise as a result of the pressure to get jobs out quickly. Martin Zweig, president of management consultants Zweig White & Associates, warns that a softening of the economy will expose the Achilles' heel of many architects: poor business practices.

**"THIS YEAR IS EXPECTED TO LOOK MUCH LIKE 1999, BUT THE U.S. ECONOMY IS BEGINNING TO SLOW, AND THE INTERNATIONAL ECONOMY TO ACCELERATE."**

—Kermit Baker, Chief Economist, AIA

## The economic climate

F.W. Dodge, a division of the McGraw-Hill Companies, reported that the value of construction starts achieved an all-time high in 1999, rising 10 percent to \$443 billion. According to Robert A. Murray, vice president of economic affairs for Dodge, further growth is projected for 2000, as contracting advances 1 to 2 percent in reaching \$450 billion. The AIA's Consensus Construction Forecast Panel projects comparable gains of one to two percent.

The dollar volume of single-family housing will set back 2 percent because of higher interest rates, according to Murray, and he says that in the income property group sector, store construction will retreat 4 percent from its record 1999 pace, as hotels slip one percent. At the same time, continued improvement is expected for offices and multifamily housing, which should enable the income property group as a whole to climb another 3 percent.

With the federal and state governments in sound fiscal shape, funding will continue to be available for highway, bridge, mass transit, and airport projects, allowing the public works sector this year to advance an additional 6 percent.

After an 18 percent surge in 1999, institutional construction should rise an additional 2 percent this year due to continued demand for school construction, according to Murray.

The AIA's chief economist Kermit Baker sees the international construction market picking up this year, with Central and South America and the Pacific Rim becoming hotspots. Europe will remain somewhat weaker than the U.S. in terms of growth of construction activity through the year.

# The State of the Profession

## Architects redefine their businesses

It is a story as old as the profession itself: Architects worry about losing control in the building process. "Our lawyers, insurance agents, and accountants advise us not to take risks," says Randy Brown, AIA. "But the rewards go to the risk takers."

Even though design should remain the architect's forte, says Dana Cuff, author of *Architecture: The Practice*, many make the mistake of letting design be their only defining value. Often what clients want is not just design but help in creating business plans, putting together financing packages, doing life-cycle cost analyses. What architects must do, says Arnold Mikon, FAIA, of SHG Incorporated in Detroit, is forge

**"TRENDS IN TECHNOLOGY DICTATE THAT ARCHITECTS MUST PROVIDE EXPANDED SERVICES SUCH AS STRATEGIC FACILITIES PLANNING AND FACILITIES MANAGEMENT."**

—John P. Gering, FAIA, Ceo and Managing partner of HLW International

relationships that make them "strategic partners with clients." Martin E. Powell, AIA, cautions that architects often pay a high price for emphasizing individual talent at the expense of the team. David Newman, FAIA, Stanford University's campus architect, believes that most successful projects result from collaboration. And increased pressure of time and money necessitates "a time and money specialist orchestrating the job," he says. "In most instances, that's not an architect."

One recent development, however, may nudge the architect closer to the control center of the building process: the information technology revolution. Knowledge is power, and the architect, as gatekeeper of the information everyone needs to build a project, will own the knowledge.

## The use of information technology explodes

Ninety-four percent of large firms and two-thirds of firms with 10 or more employees have Web sites, and the number of Web sites maintained by smaller firms has increased four-fold since 1996, according to the Firm Survey. Attracting the most attention are Web sites created for specific projects. "They provide a single, current, accurate version of every document on a project, permit all authorized users to have instantaneous access to information, and track communication. Someone can't say, 'I never got that change,'" says Kristine K. Fallon, FAIA, a specialist in information technology in architecture. One effect of project Web sites is to transcend time and space, allowing a firm to move work among its offices around the clock and around the world.

Almost universal is the use of the Internet for communication. Among large firms, the use of the Net for exchanging E-mail and transmitting correspondence and drawings is virtually 100 percent, says Jerry Laiserin, FAIA, an information technology consultant and a RECORD contributing editor. A significant minority of architects also conduct product and background research on the Net, which offers updated catalogs, code information, and cost estimating. Rob Majteles, president and CEO of Cephron, Inc., an online procurement, bidding, and catalog service, believes that all services sold offline to the construction industry—approximately \$275 billion of materials and services a year—will move online.

Information technology also compresses the design process and "narrows the gap between design and production," says William MacDonald, AIA, because it allows an architect to work at a detailed level from early design phases. "You're always producing as you're designing." At the same time, because it

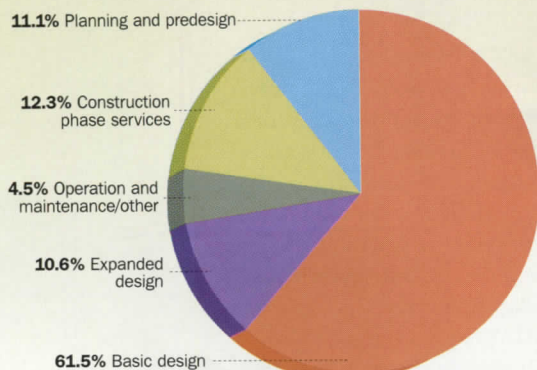
compresses the production process, information technology is making architecture a "more consultative profession," says Rittelmann.

**"INFORMATION TECHNOLOGY LETS A SMALL FIRM LIKE OURS IN THE MIDDLE OF THE COUNTRY COMPETE WITH A 100-PERSON PRACTICE. WE CAN ADVERTISE WITH OUR WEB PAGE TO THE WHOLE WORLD."** —Randy Brown, AIA


CAD itself is undergoing a major change. Early versions, which translated drawings into digital form, are being replaced by 3-D, object-oriented CAD. "We are on the threshold of software that makes objects self-aware, able to know they have a relationship to another object and have to change with it," says Fallon. She predicts that the number of firms using 3-D CAD is going to increase, leading to changes in the way people design and the way offices and teams are organized.

## BASIC DESIGN SERVICES ACCOUNT FOR OVER 60% OF FIRM BILLINGS

Percent of gross billings at architecture firms



Even though in recent years much discussion has been devoted to expanding professional services as a way of maintaining firm income levels as well as control over the building processes, most firms still make money the good old fashioned way: through basic design services.



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CIRCLE 73 ON INQUIRY CARD

# The State of the Profession

## Gender and generation gaps

Among younger architects, the gender gap is collapsing, Cuff observes. "But that doesn't explain why there are so few women running big firms." According to the Firm Survey, women comprise 20 percent of architecture staffs and 12 percent of principals, while racial and ethnic minorities make up 8 percent of staffs and 6 percent of principals.

WHEN I STARTED OUT I WAS INTERESTED IN CONTINUITY. NOW THE PEOPLE WE'RE RECRUITING ARE LOOKING FOR SHORT-TERM EXPERIENCE. THEY MOVE ON ALMOST LIKE FREE AGENTS IN SPORTS."—*Martin Powell, AIA, of the Design Alliance Architects in Pittsburgh*

If a gap separates generations in architecture offices today, the distance was spawned by prosperity on the one hand and the information technology revolution on the other. Fifty-

year-old Christopher Janney, of PhenomArts, Inc., recalls that when he began working in 1973, his goal was to build a career; young architects today, he says, look no further than three to five years' experience. Who blames them? Most principals, says Lou Marines, are unprepared when young designers ask, "What challenges will the firm have for me 10 years from now?" The reluctance of a principal to make promises for the future may be due to the fact that most have been through at least one, if not several, cycles of economic downturn. But young architects may bet the future will be equally bright and may sacrifice the seniority they've established at one firm to move to another that pays better, if only in the short term.

One of the effects of learning of CAD programs is that many of the skills learned are readily applicable to other multimedia and graphic design programs. As a result, employers are actually having to compete with other industries for graduates. Those who felt lucky to get \$25,000 per year as a starting salary can now accept lucrative offers designing software and working in specialties such as entertainment design.

## Sustainable architecture

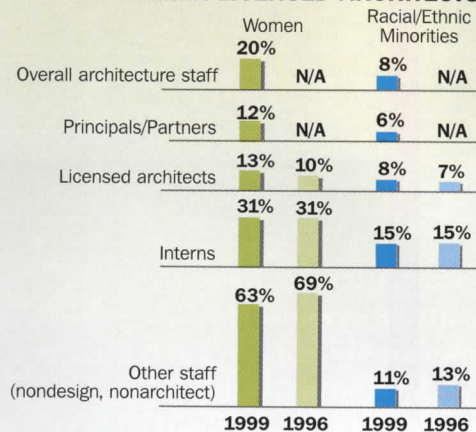
When architects begin discussing the design and construction of buildings that are ecologically responsible, a key issue seems to emerge: There is no general agreement on what exactly makes a building "green." To some, it may mean that a building is made of a high percentage of recycled or recyclable materials. To others, it may mean that a building is made of extremely durable materials, giving it longer life and more energy efficiency than comparable structures. However, such a building will be more expensive to construct. Life-cycle analyses show that initial higher costs may be paid for by a decrease in energy and maintenance bills over time, but most analysts concede that a payback time of more than four years is usually too long for most building owners.

"When push comes to shove, people are fairly selfish," says Paul Fisette, director of building materials and wood technology at the University of Massachusetts at Amherst. "If they had a choice between a better grade cabinet, and one made from wood harvested from a forest that has been certified as being managed in a sustainable manner, according to the principles of the Forestry Stewardship Council, they'd choose the former." But 15 percent are willing to pay extra for sustainability, according to Fisette. "The challenge for producers is to deliver materials that are of equal quality at a competitive cost. He adds that perception and reality about environmentally friendly materials often diverge. Recycling, for example, can require more energy than making a product anew.

"If clients understands sustainability as a way to reduce costs and be more effective with their buildings, they're very interested," says Powell, principal of a midsize Pittsburgh firm with big clients. "If they smell that it might be a waste of money or a hobby on the part of the architect, that's the kiss of death."

"I DO SEE AN INCREASING AWARENESS, BUT IT'S SPOTTY AMONG CLIENTS. WHAT IT WOULD TAKE IS A MAJOR INCREASE IN THE COST OF ENERGY. BUT AS LONG AS ENERGY IS INEXPENSIVE AND AVAILABLE, THE INCENTIVES TO INNOVATE AND MAKE CHANGES REMAIN RELATIVELY LOW."—*Richard Rittelmann, FAIA*

### INCREASE IN PERCENTAGE OF WOMEN LICENSED ARCHITECTS



Gaps in the gender and racial and ethnic minority makeup of the profession are still wide, and progress in narrowing them has been almost insignificant in recent years. While firms are anxious to employ these groups of people the problem originates at the academic level, where a shortage of graduates exists.

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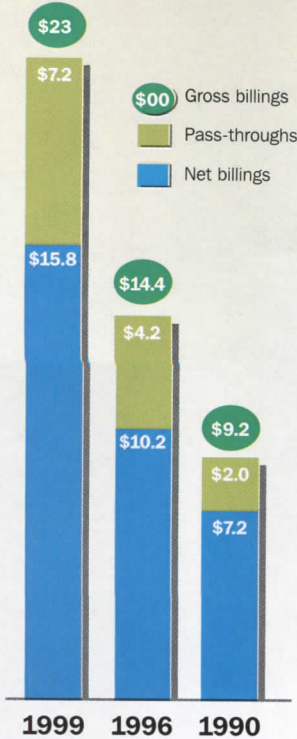


# The State of the Profession

**THE AMERICAN INSTITUTE OF ARCHITECTS' ECONOMICS AND MARKET RESEARCH DIVISION** prepared this survey. Data was collected from a 14-page questionnaire sent to 4,500 AIA member-owned firms in January 2000. Thirty-eight percent of firms submitted complete, usable responses. The survey data was weighted to reflect the true population proportions of AIA member firms in terms of the number of firms in each of six size categories, as well as their geographic distribution in terms of the nine census regions. The following tables, charts, and notes can tell architects quite a bit about the state of the profession.

## SHARP INCREASE IN FIRM BILLINGS

Billions of dollars in billings at architecture firms

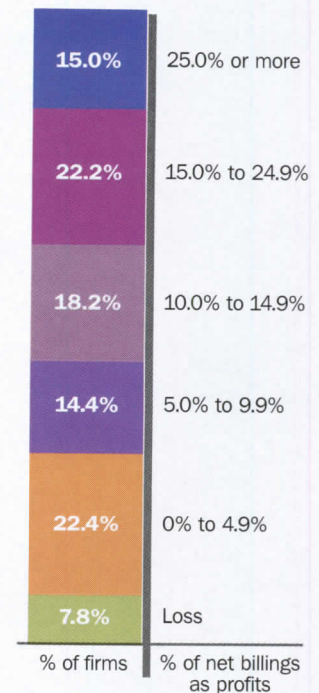


An unprecedented boom in the amount of work to be done in the last few years, coupled with the high number of professional who left the business when times were poor in the early 1990s, has resulted in a personnel pinch and major cultural changes in architectural firms.

- Billings in the commercial/industrial sector accounted for nearly a third of firm billings; institutional billings accounted for almost half.
- Primary, secondary, and higher-education buildings were the most common facility type for architecture firms, accounting for almost 20 percent of billings.
- Over 60 percent of firms concentrated their practice in a single construction sector.
- The most common sector for specialization—particularly for smaller firms—was single-family residential.
- Rehabilitation of existing facilities and building additions accounted for about a third of firm billings.

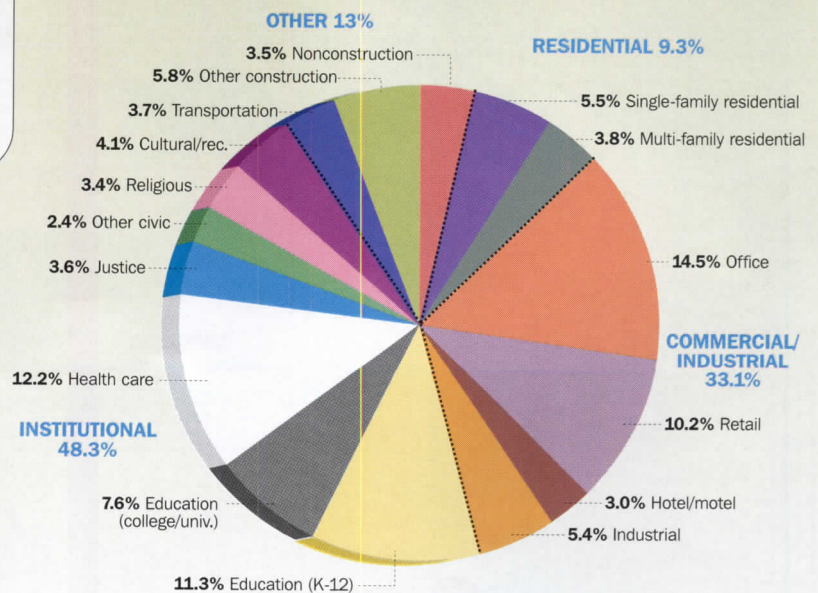
- Over half of all firms reported double-digit profits.
- Most firms reinvested at least a portion of their profits back into the firm.
- Larger firms were more likely to distribute profits to equity holders and employees; smaller firms tended to bank their profits or pay down debts.
- Planning and predesign services—as well as expanded design services—are becoming a substantial share of firm billings and are considered to be quite profitable.
- Construction-phase services are also becoming a substantial share of firm billings but are considered less profitable.

## FIRM PROFITS AVERAGED OVER 13%



## INSTITUTIONAL BUILDINGS GENERATE ALMOST HALF OF FIRM RECEIPTS

Percent of architecture firms billings





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# The State of the Profession

## New building technologies: Why are other countries more progressive?

As Rittelmann points out, the incentives for architects to innovate are sparse: Specifying an experimental new cladding material won't bring higher fees or bonuses, but it raises costs by requiring extra research. And if the product is not a success, the result might be a lawsuit. Nor are most clients particularly eager. "People don't want timeless materials," says Grimes of Ackerman Development. Paradoxically, he associates innovative materials with a dated look.

In the U.S., the testing and use of innovative materials has been largely restricted to the computer and aerospace industries, says Neil Denari, director of Sci-Arc. For a revolution in architectural technology to occur, it is incumbent on manufacturers to introduce and inform the profession about innovative materials and on architects to specify them.

"Think of the work of Jean Nouvel. Think of projects like the Reichstag. Then think of what we're building in New York," says Henry Smith-Miller, AIA. His point is that Europe is ahead of the U.S. in using innovative technologies. Randall Stout, AIA, believes Europeans are more willing to pay for

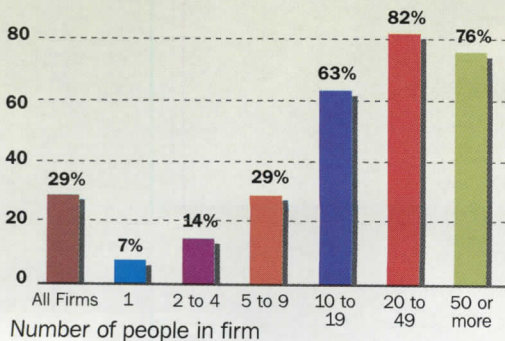
innovation and quality construction because they hold architects and their products in higher esteem. Europe is also ahead of the U.S. in incorpo-

rating sustainability and quality-of-life amenities into buildings, according to Richard Swett, FAIA, ambassador to Denmark. He says there is more willingness among European clients to pay for a variety of forward-looking architectural features and that, unlike the situation in the U.S., taxation systems provide incentives to build well.

**"THE CONSTRUCTION INDUSTRY IS BACKWARD. WE'RE STILL PILING BRICKS UP ONE AT A TIME."**—Arthur Gensler, FAIA

### MOST LARGE FIRMS OFFER CONTINUING EDUCATION ON-SITE

Percent of firms providing continuing education on-site



One new aspect of professional practice is required continuing education. The AIA now requires it for membership, and some states have begun to mandate it for licensed architects as well. On-site continuing ed is offered merely as a convenience in some firms, while others take it very seriously, offering advanced training as a perk.

## How we teach: Trends in education

Recognizing that practice is changing at an ever-increasing pace, most educators still believe the best way to prepare students is to teach them to think creatively, says Marvin Malecha, FAIA, dean of North Carolina State University's school of architecture. Education, he says, is about three things: developing a critical eye, learning to have high standards, and learning to work with others. "If we can convey those three things, we're doing a good job." He says project managers who want 100 percent billable drones within a few months won't be happy with new graduates. But principals looking for future managers who can think will be satisfied.

What most people believe, says Kristine Fallon, is that the schools are doing as well as they ever did. "The real cutting-edge work is not being done in the schools or the research departments but in the field." One of the difficulties for architecture departments, says Roger Schluntz, FAIA, dean of the school of architecture at the University of New Mexico, is acquiring the technology and faculty to teach new skills.

## Some conclusions

Architectural practice during this millennial year is characterized by a buoyant economy on the one hand and burgeoning information technology on the other. The strong economy has bred confidence, if not hubris, especially among the young. But the frenetic pace has largely deprived them of the attention that has always been crucial for professional maturation.

Besides expediting communications and enhancing

THERE ARE ENORMOUS GAPS IN WHAT'S BEING TAUGHT, "ESPECIALLY IN WHAT I CALL INTEGRATIVE THINKING—RELATING EVERYTHING TO EVERYTHING ELSE—WHICH IS WHAT THE ENVIRONMENTAL AND INFORMATION TECHNOLOGY REVOLUTIONS ARE ALL ABOUT." — James Wines, Hon. AIA, head of the architecture department at Penn State University

research, code information, and cost estimates, the new technology gives architects an opportunity to regain control of the building process, which has been lost in some cases to contractors and developers. James Wines

points out that the profession's challenge in this age of information and ecology is to search "for more relevant sources of content, improved solutions for sustainable construction, and alternatives to the conventions associated with the past Age of Industrial Technology." ■





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
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
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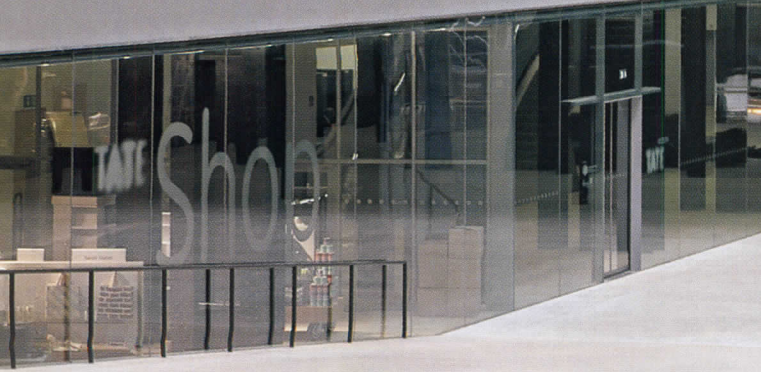
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# Herzog & de Meuron's architecture of luminosity and transparency transforms an old power station on the Thames into the new **TATE GALLERY OF MODERN ART**

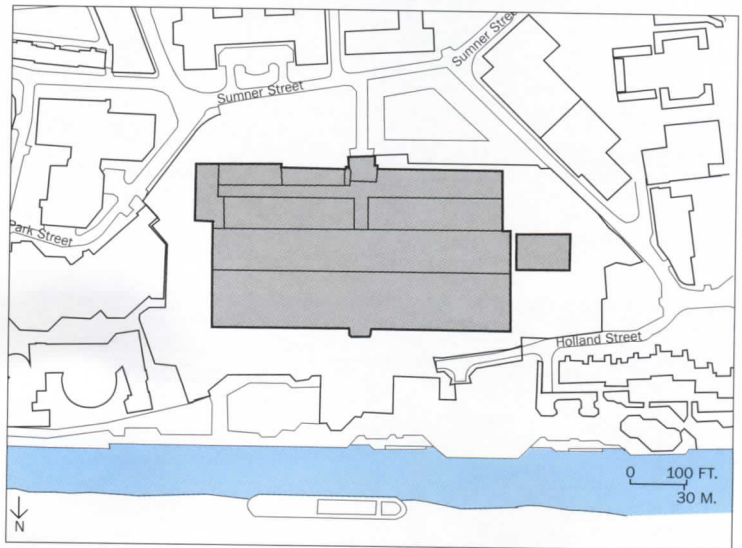
By William J.R. Curtis

For anyone who has known London over the past three or four decades, it is impossible to separate the new Tate Gallery of Modern Art from the long-standing ambition of making the South Bank of the Thames accessible to the general public. Skillfully inserted into the body of the Bankside Power Station (designed by Giles Gilbert Scott in 1947), the new institution faces St. Paul's Cathedral, to which it will soon be linked via the Millennium Footbridge by Norman Foster in collaboration with Anthony Caro, and Ove Arup + Partners. With its vast interior turbine hall now a stripped-down public space and its top rising to a new oblong glass volume that glows at night, the Tate Modern addresses the life of the river and entices the passerby. It represents one of the few real attempts since the completion of Denys Lasdun's National Theatre, nearly a quarter century ago, to provide London's South Bank with a gathering place.

The new Tate concentrates on international modern art and supplements the original Tate Gallery at Millbank, which will now focus on British art from 1500 to the present. (The museum also has satellite facilities in Liverpool and at St. Ives in Cornwall.) The Tate Modern, based on Herzog & de Meuron's 1995 winning competition scheme, is a remodel of a 370,000-square-foot industrial structure. Part of the solution's ingenuity lies in the way the four Herzog & de Meuron partners—Jacques Herzog, Pierre de Meuron, Harry Gugger, and Christine Binswanger—have preserved the feel of the old fabric while linking it to its surroundings through such transitional areas as a lower-level cafe and shop.

Penetrated at several places, the building's lower floors open up transparent zones that connect visually with a newly created riverside walk. The cafe and a shop are contained here, but there are also places where people can simply enjoy seeing and being seen. In effect, Herzog & de Meuron's intervention creates a framing device that intensifies the social theater of day-to-day life in a major metropolis. Truly a public institution, the Tate Modern will open most of its galleries to visitors free of charge. The institution and the museum imply through architecture and free offerings that art should be integral to people's existence, whatever their background or income.

*William J.R. Curtis is a historian and the author of Modern Architecture since 1900 (Phaidon Press, 3rd ed., 1996). He is currently preparing an exhibition of his own drawings for the Museum of Finnish Architecture in Helsinki.*



**Project:** Tate Modern, Bankside, London

**Architect:** Herzog & de Meuron—Jacques Herzog, Harry Gugger, partners in charge; Pierre de Meuron, Christine Binswanger, design team; Michael Casey, project architect

**Associate architects:** Sheppard Robson + Partners

**Interior designers:** Herzog & de Meuron with Office for Design; Lumsden Design Partnership (retail)

**Engineers:** Ove Arup + Partners—John Hirst, Tony Marriott

**Consultants:** Kienast Vogt + Partner (landscape)

**Construction manager:** Schal International Management Ltd.



**Herzog & de Meuron inserted an architecture of abstraction into the old power station's existing fabric (left). The main entrance is from the west ramp (below). A new pedestrian bridge by Norman Foster and others will connect the museum to the north bank of the Thames (bottom).**



The old Bankside Power Station functioned as a three-part operation with a centrally located turbine hall sandwiched between a boiler house on the north (or river) side and a switch house to the south. Herzog & de Meuron kept this organization, turning the turbine hall into an eight-story atrium, converting the boiler house into galleries, and leaving the electrical switch station for future expansion. Visitors can enter the Tate through central doorways on the second level of the north (Thames) side, or take a broad ramp at the west end down to the first level, where a museum shop and educational area are located.

Exploiting the preexisting structure's capacity for wide spans, the architects supplied a range of exhibition and circulation spaces, contrasting in kind and size. In some cases, light enters from the sides and in others, from above. Herzog & de Meuron liberated the entire volume of the old turbine hall and turned it into a species of covered public street, which may function at one end for the display of giant sculpture. The architects even retained an original gantry crane, which can move the length of the hall to install large-scale artwork.

The building's first two floors accommodate a shop, cafe, auditorium, and educational spaces. Level 3 contains a suite of galleries for exhibiting works from the Tate collection. The next level offers a break in the sequence, an area that converts into flexible loft space for temporary exhibitions. Benefitting from generous access to daylight, Levels 5 and 6 provide a rich mix of rooms of varying dimensions—the most impressive being double-height spaces with clerestory windows. Finally, at Level 7, a long, glass box contains a restaurant and meeting rooms.

The "factory of culture," is a recurrent 20th-century theme that has relied on populist rhetoric and high-tech architectural exaggerations

## **THE MUSEUM'S CONNECTION TO THE CITY IS CONTINUALLY REINFORCED BY FRAMED VIEWS AND HORIZONTAL OPENINGS.**

(often with splayed structures or ventilating tubes in the manner of Paris' Pompidou Center) to convey its cultural message. Such buildings sometimes require a secondary (interior) architecture to function properly for exhibitions. Beginning with a truly industrial building, Herzog & de Meuron honored the power station's original character by preserving and leaving naked the existing fabric and inserting into it a new framed structure that modulates different qualities of illumination from both daylight and fixtures. As in several of their earlier buildings (such as the Goetz Gallery in Munich), the architects reduced gallery-lighting contraptions to a minimum, preferring to rely on the translucence of sandblasted glass or the subtle, restrained effects of gauzes and screens, combined with visually weightless white walls, ceilings, and partitions. This architecture heightens perception without impeding the experience of looking at the art.

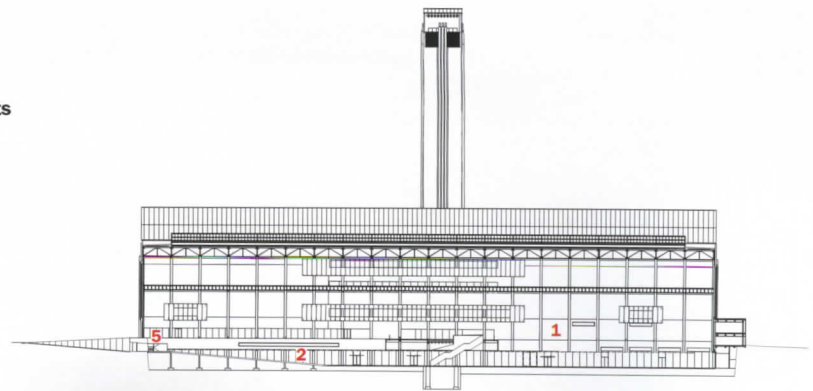
The Tate is one of the rare Herzog & de Meuron projects to develop an interior promenade, in this case using perspectival vistas to link foreground and background. Occasionally, the visitor may step out of the gallery sequence to discover glazed walkways projecting over the great turbine hall or above the city itself. The museum's connection to London is continually reinforced by framed views of St. Paul's Cathedral through horizontal openings on the north facade. These broad vistas (contrasting with views through the original vertical strip windows, retained elsewhere in the building) prepare the visitor for the stunning all-around views from the restaurant and public areas in the crowning glass box. Here, the theme of social transparency achieves full expression.

The Tate Modern is organized to avoid the usual narrative routes that run chronologically from one period to the next. Instead, the

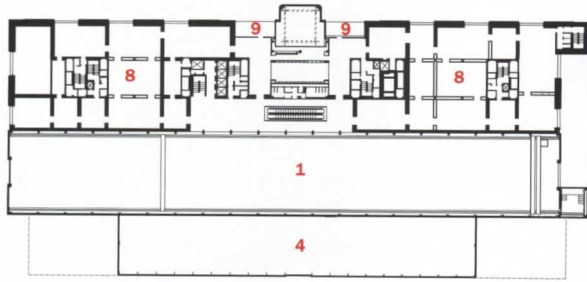


1. Turbine Hall
2. Shop
3. Education
4. Switch House
5. Cafe
6. Auditorium
7. Seminar
8. Gallery
9. Terrace
10. Restaurant

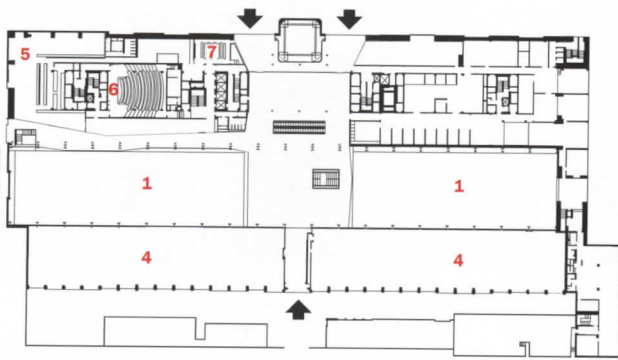
The architects worked within the power station's tripartite organization, turning its turbine hall into an atrium and converting the boiler room into modern gallery space. The old switch house remains for future expansion.



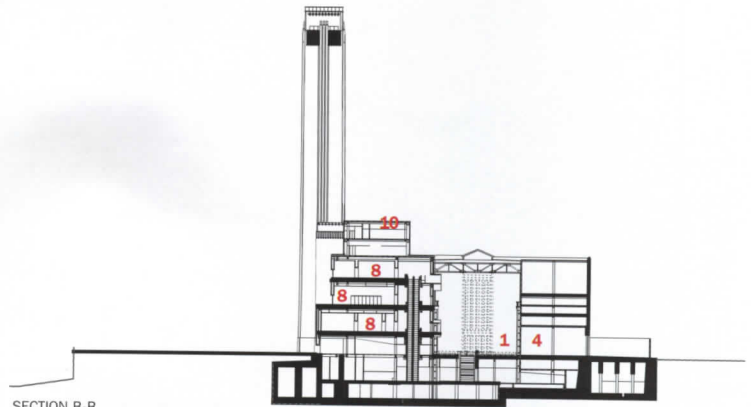
SECTION A-A



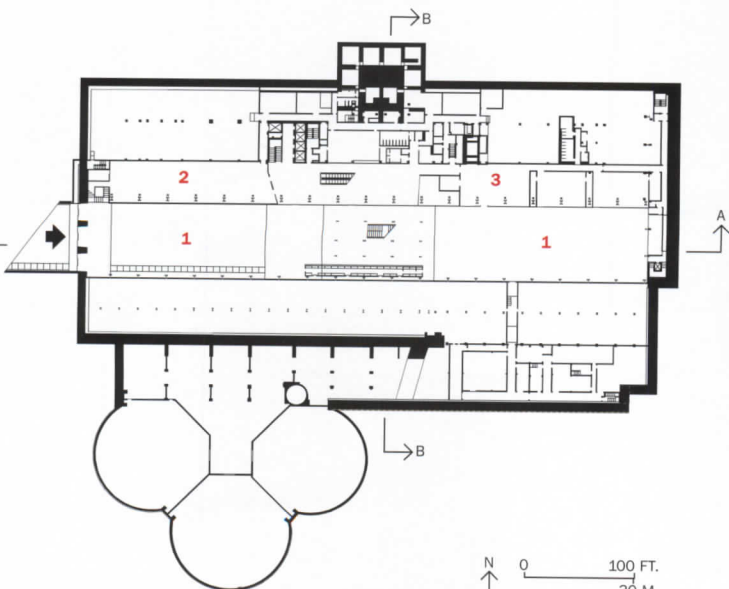
LEVEL 4



LEVEL 2



SECTION B-B

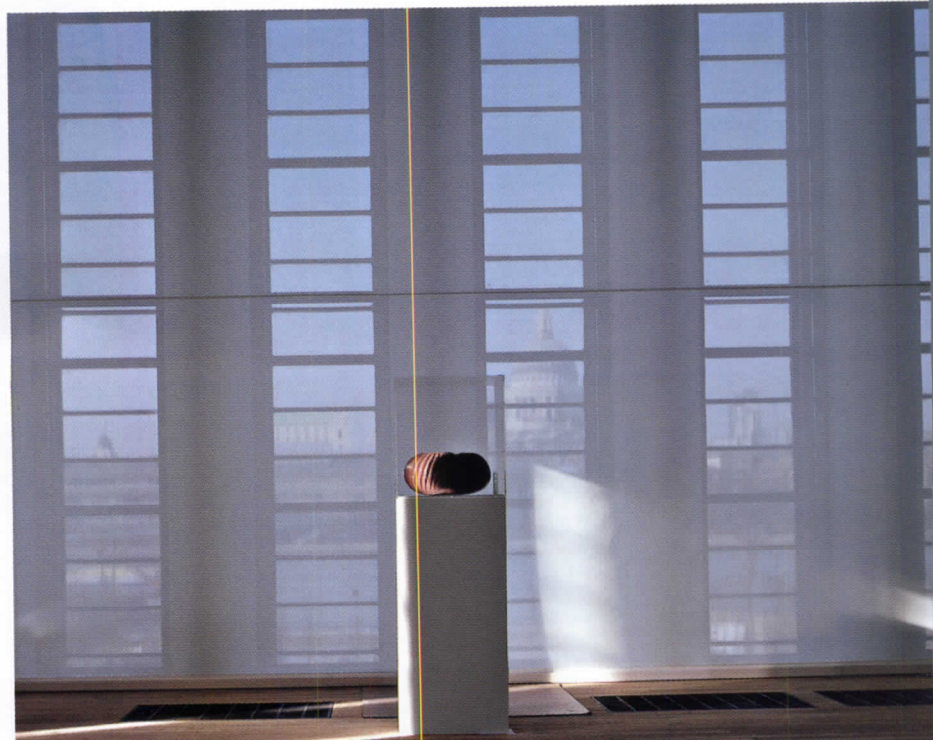


LEVEL 1

N  
0 100 FT.  
30 M.



The \$214 million project includes a new glass addition on the seventh floor for a restaurant and meeting rooms (top). Escalators (above) lead to the galleries in the former boiler house (right). The sculpture is by Barbara Hepworth.



groupings correspond loosely to such genres as the human figure, still life, and landscape. Comparison and analogy are central to this method, and the rooms are well placed and proportioned to admit lateral visual links and interesting juxtapositions. The walls have no moldings, and interior skylight surfaces are set flush with the ceilings. Planarity is a constant characteristic, which paradoxically becomes almost too insistent, despite the intended restraint. Among the works now on the walls, large paintings, drawings, and hangings seem to gain most from this treatment, while smaller ones risk being swallowed up by the vast areas of white above them.

Until now, London has been without public exhibition galleries truly suited to the display of large 20th- and 21st-century works of art. The intention at the Tate Modern has been to create viewing conditions ideal for several scales of art, while also supplying many more neutral places for performance art and other avant-garde installations. The aesthetic of Herzog & de Meuron's architecture resists an atmosphere of "official" art and cuts art-museum rhetoric to a minimum (even the entrances are so downplayed as to be almost invisible), but, in some strange way, the building still ends up evoking standard conventions for the display of recent art. The cool, white surfaces of the walls, the deliberately unfinished and scuffed oak plank floors, and the glimpses of bare girders above the old turbine hall suggest a middle ground between the sanctioned world of artists' lofts (often occupying old industrial structures) and the up-to-the-minute marketing spaces of minimalist commercial galleries. In spite of the puritanical stance, the atmosphere still suggests that the consumption of art is an obligatory feature of modern mass society.

Luminosity, transparency, and materiality are the guiding concepts of Herzog & de Meuron's design, but these qualities are fused by means of a pervasive abstraction. The Tate Modern makes much of contrasting effects of glass. In this building, glass is usually detailed to read as uninterrupted plane. In places, it is sandblasted to take on a glowing translucence.

Elsewhere, it appears transparent, dissolving barriers between spaces. In others locations, the glass becomes a semireflective surface: a substance that is both there and not there. As the eye moves around the interiors, it grows used to seeing other parts of the building through actual or implied layers. At times, these layers and lenses heighten the sense of things, as when one glimpses people moving up the main escalators through a surface that also reflects oneself. Inevitably, the varying degrees of luminosity affect the sense of visual weight. Carefully adjusted details give the impression that the new structure is hovering and illuminated: an ensemble of suspended volumes of light.

Herzog & de Meuron does not articulate materials for purely visual effect but rather to reveal something of their mystery and ambiguity. While optical and tactile qualities, fused with geometry, often enhance the presence of their surfaces, these qualities can also invoke the immate-

## **SMALLER WORKS OF ART RISK BEING SWALLOWED BY THE GREAT EXPANSES OF WHITE ABOVE THEM.**

rial. "Almost nothing" was Mies van der Rohe's phrase, and Herzog and de Meuron, too, seems drawn to an aesthetic of extreme reductivism. But theirs is a simplicity that relies on distillation. Clearly their architecture has been nourished by a range of influences from late-20th-century visual culture, including conceptual and minimalist art. This makes them particularly well suited to providing a framework for recent artistic production. Nonetheless, they have taken some pragmatic risks in the material translation of their ideas. The intentionally unfinished, rough oak floors will take on every splash and stain and, over time, may wear unevenly, in a distracting way revealing the paths traced by the majority of people as they wander from gallery to gallery. For the moment, the plain

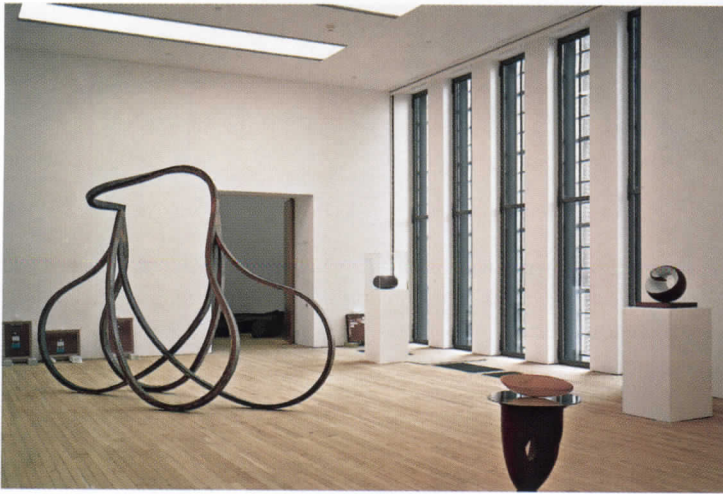


**A vivid contrast to the dark metallic surfaces and fluorescent lighting of the circulation areas is the auditorium on the second level. Totally drenched in red, the conference space seats 260.**



Some 65,000 square feet of gallery space is for the collection, 32,000 square feet for special exhibitions. Tall windows of the power station and stringent

detailing dramatize works by Joseph Beuys (above); Richard Deacon (opposite, top), Richard Long (opposite, bottom), and Jean Tinguely (opposite, right).



white walls and occasional smooth concrete floors are impressive in their “silence,” but one hopes they will not reveal fissures as the building settles and ages. The neatly detailed skylights on the exterior—especially those that are laid into flat roofs and continue the theme of planarity—will need to withstand years of insistent London rain.

Herzog & de Meuron’s solution is valuable, in part, for its capacity to respect the old power station while ingeniously transforming it into

## HERZOG AND DE MEURON USE LIGHT AS ONE OF THEIR PRIMARY MATERIALS IN THE GALLERIES AT THE TATE.

a vast hangar for cultural and social functions. The idea of treating the new structure as a relatively neutral secondary framework distinguished this scheme from the majority of competition entries in 1995, which took a more aggressive approach. But even Herzog & de Meuron’s quiet transformation of the old building left the firm with the problem of unifying its insertion in a coherent manner. Here, it must be said, the results are mixed. The galleries work well on the inside, but their glazed boxes projecting into the void of the old turbine hall seem forced, even precious, without sufficient presence to stand up to the hall itself. They seem relatively feeble in expressing the project’s crucial idea of floating volumes of light. By contrast, the glazed oblong volume atop the building is more successful. Even an architecture devoted to planar surfaces and the per-

ceptual character of materials may need to deal more cogently with questions of overall order, and even hierarchy, of spaces and forms.

In recent years, Herzog & de Meuron has succeeded in creating alluring building skins and surfaces, sometimes touching on hermetic connections between geometric order, materials, and features of the natural world. The firm has explored a stark aesthetic, which owes something to the industrial vernacular and something to the “new objectivity” of the 1920s. But it has not always shown itself to be so interested in the larger physical sense of architectural form or in the power of circulation as a generating force in a design. The Tate Modern seems to reveal these hesitations. It is sensitive to the very act of looking, but less so to the act of moving about from place to place within a larger form. While the galleries afford interesting perspectives and even *(continued on page 242)*

### Sources

**Curtain wall:** Bug AluTechnic AG and Felix UK Ltd.

**Glazing:** Eckelt Glas, Saint Gobain Glass

**Sliding doors:** Geze Doors

**Acoustical ceilings:** Astec Projects

**Interior ambient lights:** T. Clarke

**Elevators, escalators:** Otis

**Resilient flooring:** MPG

**Demountable partitions:** R & S

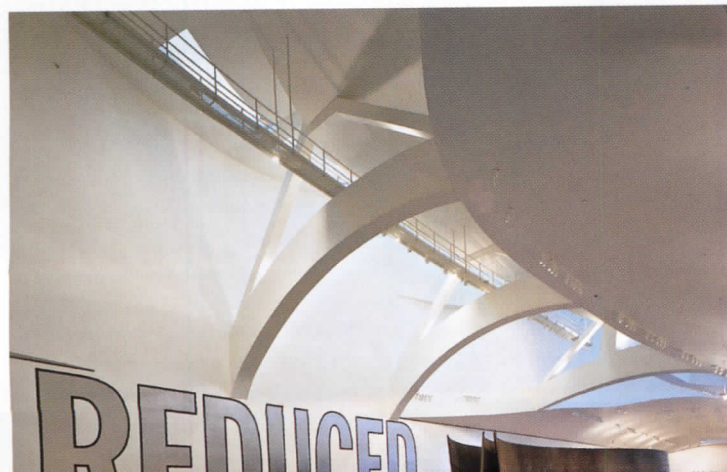
**Metal doors:** Martin Roberts (Ingersoll Rand)

**Wood doors:** Timbet

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# ANALYSIS A museum critic examines Herzog & de Meuron's **TATE MODERN** in the context of other spaces devoted to the display of art

*The Tate Modern in London is discussed as part of a trend toward exhibiting art in large, raw spaces renovated for this purpose, including Herzog & de Meuron's own previous efforts. Questions arise regarding the size and character of the ideal museum setting.*



By Victoria Newhouse

**H**erzog & de Meuron's Tate Modern is unlike any previous adaptation of an industrial building to the service of art. The combination under one roof of pared-down new galleries and a rough industrial setting marks an important step in the ongoing dialogue between sacred (spare, self-effacing) and profane (real world) museum spaces. In the tripartite Bankside power station, designed by Giles Gilbert Scott (1947-63), entirely new architecture has been inserted in the former Boiler House to create a sacred precinct, while the Turbine Hall has remained intact as a more contextual environment. The third part, an electricity switch station, will be turned into galleries at a later date.

The London museum's 130,000 square feet of flexible exhibition space is, at present, divided into 80 galleries on three levels. They are differentiated from one another by sophisticated plays on proportion, walls in varying shades of gray among predominantly white ones, and skillful ways of introducing daylight. One source of daylight is the factory's narrow, floor-to-ceiling window strips that also allow spectacular views of St. Paul's across the Thames. Floors of untreated oak or concrete, and heavy metal air vents are the only acknowledgement of the container's lowly origins.

The reverential, even puritanical, new galleries for the Tate Modern's vast holdings are offset by the gritty Turbine Hall. Measuring 500 by 75 feet, and 115 feet high, the huge hall offers a realistic contrast to the galleries' abstracted quality. The Hall's east end, facing the main entrance at the west, and overlooked by a broad platform-bridge, is dedicated to large contemporary installations, such as the towering sculptures created by Louise Bourgeois for the museum's inauguration. Bourgeois says she was inspired by the Turbine Hall: "It gave me a chance to express myself more fully."

**At Mass MoCA, by Bruner/Cott, some halls (left, top) display art against white dry-wall, lighted by clerestories. In the Guggenheim Bilbao, Frank Gehry's "fish hall" was inspired by industrial architecture.**

Large industrial buildings became popular in the 1970s with artists who preferred to exhibit in mundane working spaces, such as Manhattan's Soho lofts, rather than in the rarefied white cube

*Victoria Newhouse is the author of *Towards a New Museum* (Monicelli, 1998), and wrote about Daniel Libeskind's *Felix-Nussbaum-Haus* in *RECORD* [January 1999, page 90].*

At the east end of the Turbine Hall, four sculptures by Louise Bourgeois were specially commissioned for the Tate Modern's opening.



settings typical of museums and galleries. As often happens, the establishment soon absorbed what had started out as a radical alternative to it. Some museums took over existing structures—of which Frank Gehry's Temporary Contemporary, now the Geffen Contemporary, in Los Angeles (1983) is an early example. Others, like the Centre Culturel Georges Pompidou in Paris (1977),



**Herzog & de Meuron's Goetz Collection, Munich, 1992.**

designed by Renzo Piano and Richard Rogers, incorporated aspects of these structures into new buildings. The Bankside power station's industrial quality was a key attraction for Sir Nicholas Serota, the Tate Gallery's director, who says that over the last 20 years "some of the best installations of contemporary work have been in converted warehouse buildings." Nonetheless both the enormous scale of the Turbine Hall, and the elimination of almost all traces of the station's origins in the new galleries, distinguish it from similar adaptations.

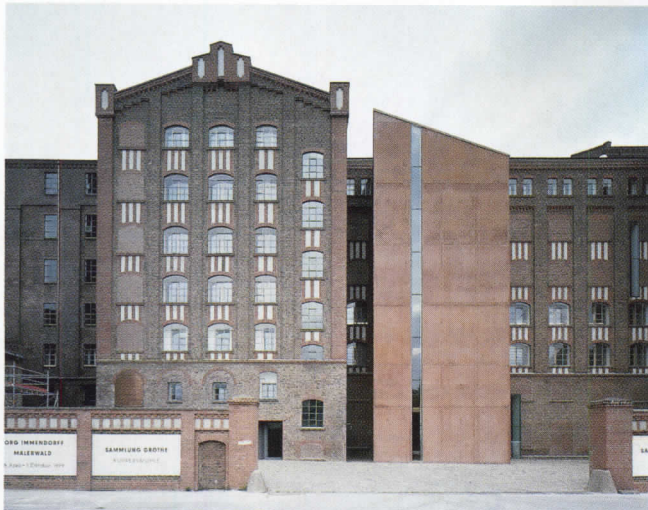
The London museum is the most recent art exhibition space by the firm of Herzog & de Meuron, which includes Jacques Herzog, Pierre



**Herzog & de Meuron's Remy Zaugg studio, Mulhouse-Pfastatt, France, 1997.**

de Meuron, Harry Guggler, and Christine Binswanger. The Tate is part of the architects' ongoing development of neutral art environments, in which elements from one project inform others. Created with several artists, the spaces are, in the architects' words, "as simple and obvious as possible," consisting of sparse, rectilinear rooms in which art can be seen straight on with no distractions.

Among the first of these Herzog & de Meuron environments is the small, 7,530-square-foot, rectangular, concrete-and-glass container for the Goetz Collection in Munich (1992). The building's milky glass crown anticipates the Tate Modern's, as do its second-level clerestories. At the Munich gallery and at the Rémy Zaugg studio in Mulhouse-Pfastatt, France (1997), electrical and daylight, respectively, pass through translucent slabs of glass, inserted flush into rectangular openings in the ceiling; these elements also reappear, with more complex light, at the Tate Modern. This system is also planned for Herzog & de Meuron's new building at the de Young Museum in San Francisco.



**The Küppersmühle Museum, Duisburg, Germany, renovated by Herzog & de Meuron in 1999, was formerly a 1916 mill. Old windows are visible in one gallery (opposite); this is the exception, however, for elsewhere, they are bricked over. In some galleries (right), peripheral walls are incised with thin floor-to-ceiling slots to provide daylight and exterior views of the suburban inland waterways, on which the museum faces (above, right).**











Mass MoCA, (this page) in North Adams, Mass., was renovated in 1999 by Bruner/Cott & Associates of Cambridge, Mass. Much of the original structure of the 19th-century mill buildings remains. Inside, the post-and-beam frame is exposed, and mottled paint on the brick left in place, as shown in the installation of Joseph Beuys' "Lightning with Stag in its Glare" (above). It is striking to see the same work of art from an edition of six, in two different settings, Mass MoCA and the Tate Modern (right).

Herzog & de Meuron's reinvention of the London power station as an art museum approximates most closely its refurbishing of a 1916 mill in Duisburg, Germany. The 52,000-square-foot Küppersmühle Museum, housing the developer Han Grothe's collection, was unveiled last year. While the incorporation of much of the historic mill's load-bearing structure into the renovation differs from Tate Modern (where the space has no interior divisions), the two projects are alike in that both largely replace the original with new architecture.

In compliance with Grothe's wishes, Küppersmühle's ceilings are uniformly 20 feet high throughout the museum's three levels. Black Turkish slate floors, white rectilinear walls, bare fluorescent ceiling tubes (supplemented by other light), are consistently used throughout,

## WHETHER MEASURED IN TERMS OF A SINGLE GALLERY OR OVERALL SPACE, BIGGER IS WIDELY CONSIDERED BETTER.

along with the architects' preferred placement of doorways at the corners. Enfilades of the tall, narrow portals on the middle level give an element of drama to the no-nonsense environment, which suits the austerity of a permanent collection of German art from the post-war to the present. Contrasting effectively with the sober interiors is a terracotta-colored concrete tower with a sensuous, curvilinear stair, added to the mill's exterior.

Quite different from this complete reconfiguration of an alternative space is the more usual approach of the new Mass MoCA's 270,000-square-foot renovation of 19th-century mill buildings in North Adams, Mass. (1999)—also intended to spark economic recovery. There the architects, Bruner/Cott & Associates of Cambridge, Mass., (whose tight budget of \$60 per square foot included only minimal floor loading, climate and light control) retained as much as they could of the original structure. Old maple floors, a post-and-beam frame, and layers of mottled paint on brick walls were left in place, while many of the ceiling timbers were recycled. Some floors were removed to create double-, and triple-height galleries.

Mass MoCA's largest space measures 320 feet by 60 feet with existing trusses painted white to create the impression of a 26-foot-high ceiling below the higher pitched roof. Like several other tall exhibition spaces, it can be viewed from a mezzanine (others have balconies as well), and drywall painted white has replaced brick walls. Two levels of closely

positioned windows were retained, but can now be covered partially to make clerestories.

The variety of spaces and of natural light are among Mass MoCA's most attractive features. When original elements had to be replaced—for example, old ceiling beams substituted by steel trusses and rods—details are occasionally fussy, and preservation (especially of paint traces) is sometimes too folksy. Overall, however, the mill buildings' architecture—like that of its many precursors, such as Frederick Fisher's P.S. 1 in Long Island City, the Temporary Contemporary in the U.S., and Urs Raussmüller's Hallen für neue Kunst in Schaffhausen,

*(continued on page 244)*





**Titanium-surfaced alcoves frame windows along 43rd Street (this page), and continue around the perimeter of the room, echoing the lines of the curved glass panels (opposite)**

# Frank Gehry conjures up a sinuous titanium and glass interior world for the **CONDÉ NAST CAFETERIA** at Four Times Square in New York City

By Suzanne Stephens

Everyone is calling the Condé Nast cafeteria “sculpture.” But that does architecture a disservice. After all, it is a functioning space you experience perceptually and kinesthetically. As you meander past curvilinear banquettes wrapped in transparent cocoons of undulating glass, or sit in alcoves embraced by waves of blue titanium, your senses—visual, haptic, and motor—are all put into play.

Similarly, calling Frank Gehry a “sculptor” ignores his role as an architect. Not only has Gehry addressed the cafeteria program imaginatively, but he has once again pushed the boundaries of technology in his continuing exploration of materials. This time he has done it with glass. Titanium, the shiny and evanescent star attraction of Gehry’s Bilbao Guggenheim, is still the major stage presence. But glass, rendered as clear spun sugar, has stolen the show. It is as if the early-20th-century expressionist architect Bruno Taut (who fantasized in glass as well as steel and concrete) got together with Hermann Finsterlin (who concocted boldly organic forms) and begged Gehry to carry out their visions.

With the Vontz Center at the University of Cincinnati [February, page 80], Gehry showed he could stretch even the most everyday material—brick—beyond its normal, identifiable characteristics, and make it look (un)naturally organic. Granted, glass is more plastic. But these 12-foot-high, approximately four-foot-wide complexly curved panels bring a new dimension to the word. “I was thinking of a landscape,” says Gehry. “The lines of the glass edges look like reeds swaying in the breeze.”

When Condé Nast, publisher of *Vogue*, *Vanity Fair*, and *The New Yorker*, among others, moved last fall to Four Times Square [March, page 90], it was the first time in years of expansion that so many titles were under the same roof. Needed was a place with the potential for bringing together the covens and coteries of magazine staffers, a place that could “represent the corporate culture,” says editorial director James Truman. Chairman Si

Newhouse and his wife, Victoria, an architectural critic and historian, along with Truman, decided this was an opportunity to enlist Gehry to design the cafeteria, plus four private dining rooms for business executives. (Mancini Duffy did the offices.) A lunchroom may sound mundane, but the program had its tricky side. Gehry was to come up with a democratic atmosphere appealing to a smart set that doesn’t mind hamburgers, as long as they are served on tablecloths at the Royalton.

In fact, the booths at the Royalton, the Philippe Starck–designed venue once dubbed the “Condé Nast Commissary,” were invoked by Truman in describing to Gehry ambient factors that might attach some of the editors to their new home in the touristic thicket of Times Square.

**Project:** Condé Nast Cafeteria, Four Times Square, New York City

**Architect:** Frank O. Gehry & Assoc.—Frank O. Gehry, design principal; Randy Jefferson, project principal; Edwin Chan, project designer; Christopher Mercier and Michelle Kaufmann, project architects; Leigh Jerrard, Kamran Ardanan,

David Nam, team

**Associate architect:** Mancini Duffy; Roger Black, project director; Rose Gavrilovich, project architect

**General contractor:** Tishman Interiors

**Titanium contractor:** Permasteelisa

**Consultants:** Tripyramid (connectors); Cosentini (lighting)

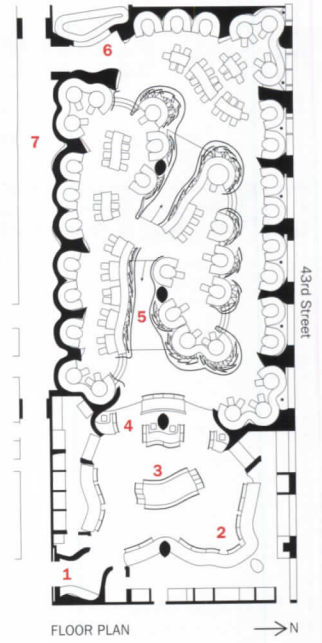




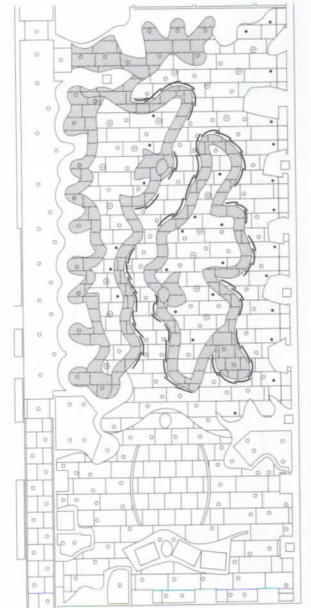
The clear veils of contoured, laminated glass maintain visibility across the levels of the 253-seat cafeteria. Banquette seating was

configured by Gehry to form alcoves (above), booth-like areas (opposite), or serpentine edges (below). Gehry also placed his "FOG"

side chairs opposite the linear banquettes, and designed wavy chrome-plated pendant lamps for the 13-foot-two-inch-high room.

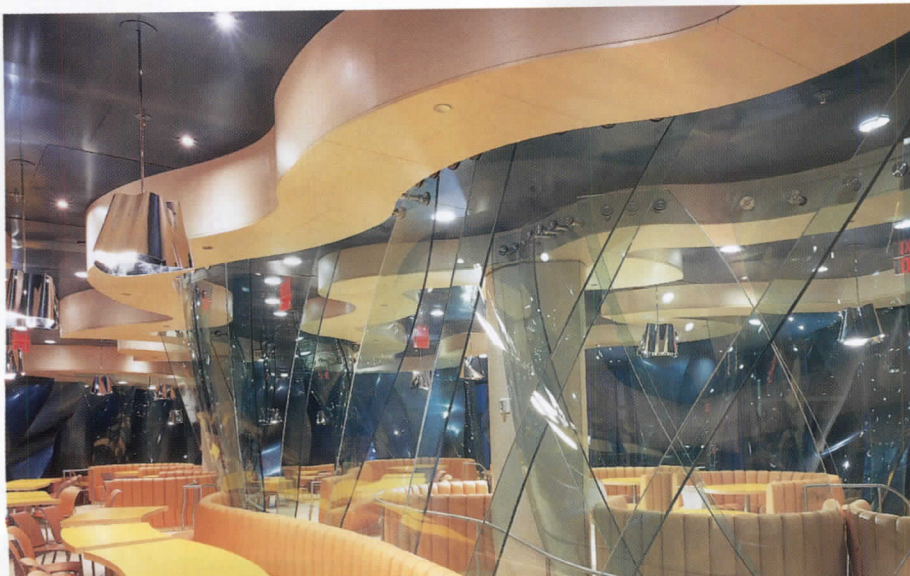


FLOOR PLAN



REFLECTED CEILING PLAN

1. Entrance
2. Hot buffet
3. Salad bar
4. Registers
5. Lunchroom
6. Tray deposit
7. Exit corridor









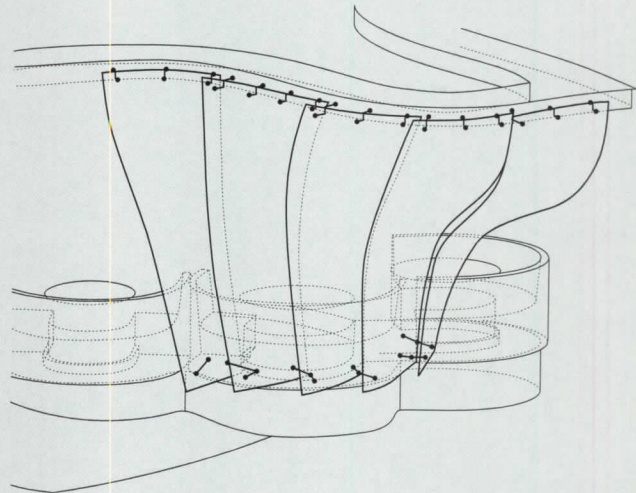


The main path swerves around the serpentine banquettes, gradually ascending and descending in response to the change in levels of the seating areas.



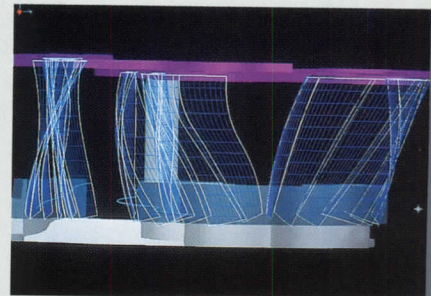
## SHEAVES OF GLASS, RODS OF STEEL

The 76 sinuous glass panels seem to sway in the wind, but fortunately they don't. The 12-foot-high,  $\frac{3}{8}$ -inch-thick laminated glass elements, about 4 feet wide, weigh a hulking 700 to 800 pounds each, and no two are alike. Manufactured by CTEK, a California company known for its automotive glass engineering, they are held at the top and bottom by stainless-steel connectors about 12 inches long with cast-in-place resin grommets. The safety glass was laminated with a cold-cure process, then molded at a 1000 degrees into complex curves.



GLASS PANEL DETAIL AXONOMETRIC

CATIA software enabled the contours of the glass to be precisely modeled (right). To keep the glass from cracking, Randy Jefferson, Gehry's partner, designed a ball joint in the grommet (bottom right). After the holes were drilled in the glass, but before it was installed, a spider frame of tubular steel was erected, duplicating the locations of the connectors. Then it was removed and the glass put in place. (Voilà!)



Gehry began to play with the booth idea. Serpentine banquettes proliferated, and not just along the walls: Many are elevated on wood-clad concrete platforms that provide bases to support the contoured glass. A circumambulatory path rises and falls as it swerves around them, reflecting the changes in elevation. The glass allows visibility across the room; the titanium bays along the three side walls promote a sense of seclusion. "This is a place for exhibitionism—walking down the paths—and for voyeurism—sitting in the banquettes," says Truman.

Because glass is reverberant, Gehry perforated the titanium to provide acoustical absorption for at least 50 percent of the room's surfaces. To offset the blue cast, light ash covers the floors. It also forms the soffits that snake around the titanium ceiling, hiding the ducts and the steel frame to which the glass is attached. This low-maintenance wood is not as warm as Douglas fir, Gehry notes. "But that would have looked too fancy."

The ash, along with the strong yellow, plastic-laminated table-tops and the very bright pendant and downlighting, was "geared to keep the place from looking like a nightclub," Gehry adds. However, using these 1950s diner elements, instead of, say, fiber-optic lighting and fiberglass-reinforced polymer tops, creates a slightly disconcerting retro note for those who crave total adherence to the 21st century.

New technical procedures were needed to build the 9,170-square-foot space. Full-size test models of perforated metal were built at the titanium contractor's in Italy. There, too, the actual-size cafeteria—with wood platforms, wood spine, and rib frame for the titanium walls and columns, wood, and Naugahyde banquettes, plus sheet steel—was "preconstructed," without the titanium or the glass. Next, it was dismantled, crated to New York, and lifted into the fourth floor by crane. Then

## ASH PLYWOOD, YELLOW LAMINATE TABLE-TOPS, AND BRIGHT LIGHTING ARE MEANT TO KEEP IT FROM LOOKING TOO FANCY.

the ensemble was put together again. The titanium was attached with high-strength adhesive to the heavy-gauge sheet steel and mounted onto a wood frame with acoustic paper in between. Finally, the glass, made in California, was carefully "manhandled" into place. [Details, opposite]

To date, the much-acclaimed cafeteria has been mobbed. But it's not noisy. And with the different seating levels and glass enclosures, neighbors are visible without being overly present. So far, the various hierarchies mix and mingle. Because of the high turnover, you can watch late-lunching, stylish editors wiping their tables clean before putting down translucent Gehry-designed trays. Amazing what architecture can do . . .

True, the cafeteria is not your everyday design opportunity. It helps to have a hefty (not disclosed) budget. Nevertheless, the unusual commission enabled Gehry to pursue yet another investigation of a material—glass—that should have significant implications for his own work, as well as that of others. It also is a testament (however small) that it is possible to generate Architecture, with a capital A, in a world swallowed up by so much banality. You must have committed clients (or patrons) and participants. But clearly the tsuris was worth it. ■

### Sources

**Glass panels:** CTEK

**Titanium:** Nippon, KPK

**Titanium wall paneling and ceilings, ash veneer millwork, cabinetwork, wood paneling, doors, and fixed seating:** Permasteelisa Group

**Plastic laminate:** Formica Colorcore

**Pendant lighting:** Rambusch

**Chairs:** Knoll (FOG); Cassina (Bellini)

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In the private dining rooms (above), the laminated glass panels are sandblasted and placed to overlap one another, giving the effect of billowing curtains. They are fastened from the top (slightly above the

hung ceiling) and bottom with stainless-steel connectors to a steel frame. Mario Bellini chairs are now in use, but the free-form tables, designed by Gehry, have not yet arrived.



Highly textured, large-scale letters against a smooth limestone facade (this page and opposite) mark the entrance to the Beck Building at Houston's Museum of Fine Arts.

# CRITICISM Is Rafael Moneo's new Beck Building at the MUSEUM OF FINE ARTS in Houston equally extraordinary inside and out?

By David Dillon

Cool," "sober," and "controlled" are terms more often associated with banks than art museums, yet this language seems particularly appropriate for the new Audrey Jones Beck Building at the Museum of Fine Arts, Houston. Unlike many museums of the Bilbao moment, it does not strut or pirouette or deconstruct itself. It tries neither to be sculptural nor to wrestle with the art. Instead, it is an old-fashioned box—the contents are more important than the container.

"I want people to be curious about what is going on inside," explains Madrid-based architect Rafael Moneo, invoking the Spanish tradition of massive exterior walls and cloistered delights. Yet the Beck is more blocky than monumental. It sits stiffly, even confrontationally, on the street, with one animated and three blank facades—as if Moneo had given up on formal expressiveness and turned the design over to the masons. From a distance, it looks more like a department store than a museum.

The \$85 million Beck Building, which opened on March 25, caps nearly 40 years of purposeful expansion by the Museum of Fine

**"I FELT THAT MY BUILDING COULD NOT BE A SUCCESS," SAYS MONEO, "UNLESS IT LIBERATED THE MIES BUILDING."**

Arts. Starting with a 1924 limestone structure by William Ward Watkin, the museum added Mies van der Rohe's Cullinan Hall and Brown Pavilion in 1958 and 1974, respectively, followed by Isamu Noguchi's sculpture garden in 1986, and new conservation and education facilities in the 1990s.

Nearly half of the Beck's 192,000-square-foot space is devoted to exhibitions—an enviable percentage made possible by moving most of the museum's storage, gift shop, and mechanical activities to a new visi-

*David Dillon is the architecture critic of the Dallas Morning News and the author of The Architecture of O'Neil Ford: Celebrating Place, published by the University of Texas Press in 1999.*



tors' center/parking garage across the street. This 221,000-square-foot building, also by Moneo, allowed curators to reorganize the permanent collection and turn Mies' Brown Pavilion into a showcase for the museum's impressive collection of modern and contemporary art.

"I felt that my building could not be a success unless it liberated the Mies building," says Moneo, always a sensitive contextualist. "It was jammed and cut up with partitions." Moneo pays respect to Mies by turning the Beck's front door toward the Brown Pavilion and covering his building in the same Indiana limestone as the original Watkin structure and two Mies additions. Yet Moneo's intentions are entirely different from

**Project:** Audrey Jones Beck Building, Museum of Fine Arts, Houston

**Client:** The Museum of Fine Arts, Houston—Peter Marzio, director

**Architect:** José Rafael Moneo Architect—José Rafael Moneo, principal-in-charge; Emilio Tuñon, preliminary design; Eduardo Miralles, project architect; Hayden Salter, José

Luis Gahona, project team

**Associate architect:** Kendall/Heaton Associates—Larry Burns, project architect; John Goodman, Steve Bell

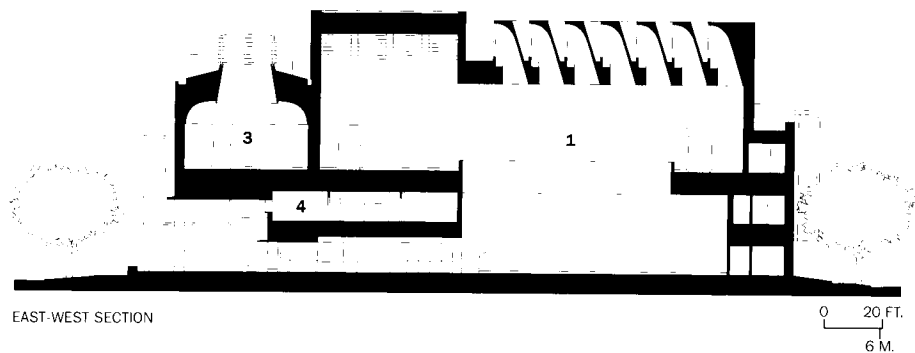
**Engineers:** CBM Engineers (structural); Altieri Siebor Wieber (mechanical/electrical)

**Consultant:** Fisher Marantz Renfro Stone (lighting design)

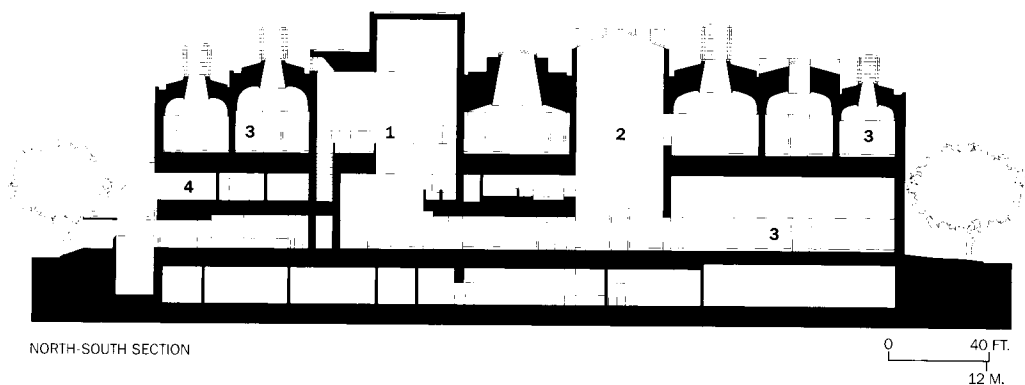


Louvered-glass lanterns crowning the Beck Building's sober facades (this page) glow at night. Within the galleries, soft, even light entering through these lanterns becomes atmospheric.





1. Entrance hall
2. Sculpture court
3. Gallery
4. Office mezzanine



Mies'. Whereas the Brown Pavilion gestures toward the city with sweeping transparent galleries, the Beck Building remains dense and introspective.

"I put all of my interest into the interior," the architect explains. "I wanted it to be dramatic and scenographic, with each sequence of spaces and images being different."

Though the word "scenographic" is rarely associated with Moneo's work, it, too, seems to fit. The Beck Building is a collection of collections, each distinct and self-contained, woven into an extended narrative that begins in the ancient world and ends just after World War I.

Visitors enter the building from Main Street or through an underground tunnel connected to the Brown Pavilion at one end and the visitors' center at the other. The central atrium, a grand space that overwhelms the museum's still-meager selection of ancient art, is flanked by a gift shop and galleries for American art and temporary exhibitions. The upper floors house the Blaffer Collection of Old Masters and the Beck Collection of Impressionist and Post-impressionist art, as well as several smaller collections.

Moneo's decision to locate the principal galleries on the top floor was a shrewd one. These spaces take advantage of the natural light and form the heart and narrative climax of the building. Daylight enters through rectangular, louvered-glass roof lanterns, which are more refined than the ones the architect installed, with mixed results, in his Stockholm Modern Art Museum. A narrow throat, connecting each skylight with the gallery ceiling, allows filtered rays to bounce from side to side before falling softly and evenly on the art. The light

creates an atmosphere, almost a spell, that draws visitors from gallery to gallery. At night, the lanterns become a miniature skyline glowing above the live oak trees.

Blending old and new, the Beck galleries appear as varied as the art they contain. Vaulted and cove ceilings, reminiscent of 19th-century salons, are interspersed with conventionally flat ones. The rooms—some

## THE FARTHER ONE GETS FROM THE GALLERIES, THE LESS COMPELLING THE BECK BUILDING BECOMES.

cubic and some rectangular—are painted in subtle shades of green, gray, and peach. Ceiling heights vary from 12 feet in several galleries on the first level to 80 feet in the atrium and American sculpture court. Some of the best spaces are the smallest, such as the intimate rooms of Dutch still lifes and floral paintings. Limestone, terrazzo, granite, and wood, often in combination, clad the floors, demonstrating Moneo's skill with materials. Several galleries contain large windows that frame views of the city and, in one case, of the Mies building across the street. All have entrances with polished bronze jambs, alluding simultaneously to the world of Old Master paintings, with their gold frames, and the sleek finishes identified with modern technology.

Nonetheless, the farther one gets from the galleries, the less compelling the Beck Building becomes. Except for the Main Street facade, with its reflecting pool and canopy of mature live oak trees, the exterior is stiff and lifeless in somewhat the same way as Moneo's Davis Museum



The central atrium (this page and opposite, top and bottom) borders a museum shop and galleries for American art and temporary exhibits.





For the interior (this page and opposite), Moneo creates a variety of spaces, skillfully incorporating a refined palette of limestone, terrazzo, granite, wood, and bronze.

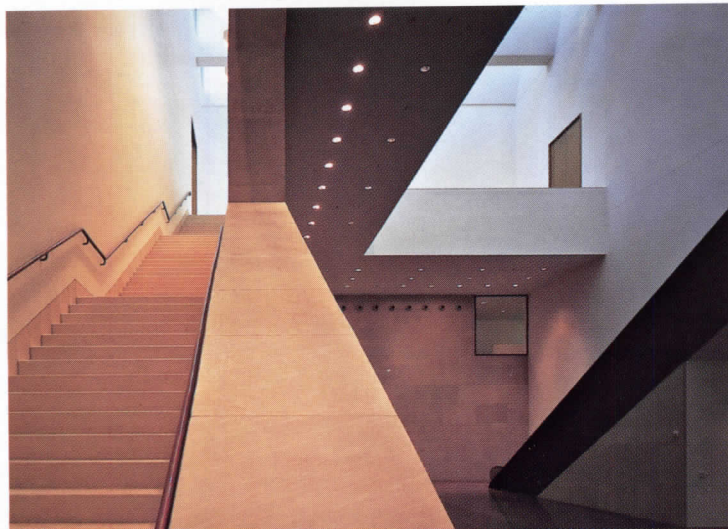
and Cultural Center at Wellesley College—several floors of bright, airy galleries wrapped in a mundane skin of red brick. Even the Beck’s deeply colored bronze doors and decorative facade panels, like dark slabs of rich chocolate, are not enough to make the exterior memorable.

Moneo defends his design’s introversion by describing Houston as a car city and semitropical environment, where nobody walks and nature can be enjoyed only indoors. “Air-conditioning is what allows you to recover nature here,” he insists. “The city is not an Islamic garden. You need to be protected from the wet atmosphere.” But this is a simplistic reading of Houston. The climate is unbearable only part of the year, and the Beck Building adjoins a large, residential neighborhood where, believe it or not, people walk.

The architect has accommodated the automobile with a long

Corbusian porte cochere along Main Street and the combined visitors’ center/parking garage on Fannin. Visitors parking at the center buy their tickets in its lobby, then follow an underground tunnel into the museum. Though pleasant enough for a parking structure, this lobby is inadequate as a main entrance to a major cultural institution. And the tunnel is strictly utilitarian except for a tour-de-force light installation by artist James Turrell. Positioned midway between the Beck Building and the Brown Pavilion, this piece marks the transition from Old Masters to contemporary art, from light as compositional element to light as experience.

The Beck is Houston’s most important building in years, a civic milestone and a preview, everyone hopes, of greater things to come. Yet it will take some getting used to. Architecturally, it breaks no new ground; nor does it try to redefine the museum experience. It is sober and tasteful, but on the exterior disappointingly matter-of-fact. In a city that takes prides in living on the edge—verging on out of control—the presence of so much restraint may be the biggest surprise of all. ■



#### Sources

**Stone:** Indiana limestone, Dakota mahogany granite

**Skylights:** Linel Signature (custom)

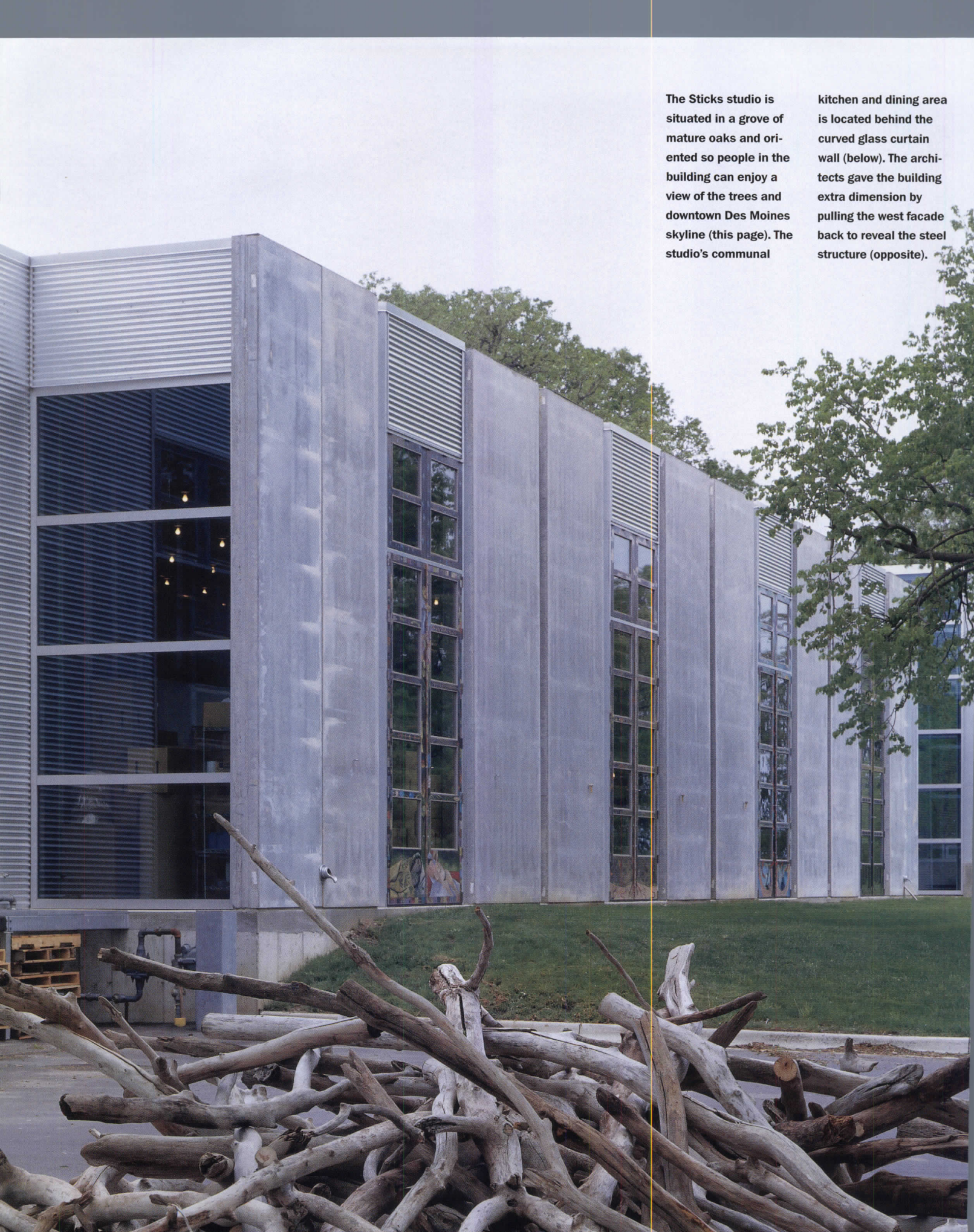
**Doors:** C.J. Rush (bronze formed); Tex Steel (hollow metal); Krieger (acoustical); Won-Door (accordion)

**Ceilings:** Armstrong (acoustical and suspension grid)

**Paint:** Benjamin Moore

**Lighting:** Edison Price, Metalux, Elliptipar, Kramer (interior), Norbert Belfer, Nuart, Cornelius; Hydrel, Cooper, C.W. Cole (exterior); Lutron (controls)

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The Sticks studio is situated in a grove of mature oaks and oriented so people in the building can enjoy a view of the trees and downtown Des Moines skyline (this page). The studio's communal

kitchen and dining area is located behind the curved glass curtain wall (below). The architects gave the building extra dimension by pulling the west facade back to reveal the steel structure (opposite).

# Herbert Lewis Kruse Blunck Architecture's new headquarters and studio building for **STICKS** serves as a foil for artists' work

By **Linda Hallam**

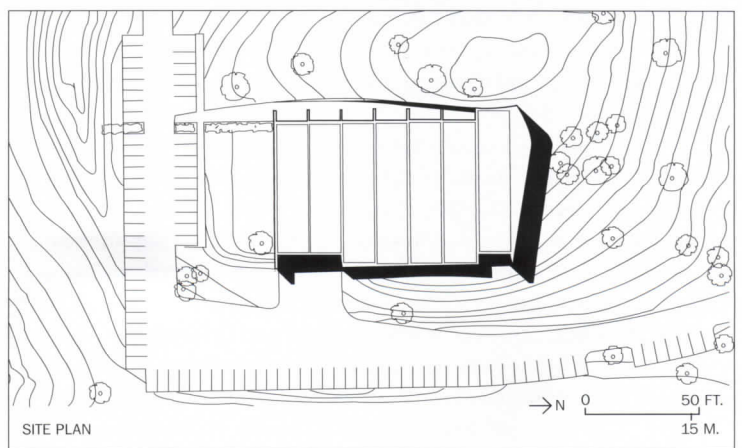
**A**rt and architecture meld smoothly into the striking new headquarters and studio building for Sticks, a company that creates and markets decorative furniture, accessories, and art. From the subtle curve of the glass north wall and the pairs of intricately painted, monumental, mahogany double doors, the 28,000-square-foot building epitomizes commercial success based on the talents of fine artists and craftspeople. The collaboration of this fast-growing young company, which synergizes art and business, and the design team of Herbert Lewis Kruse Blunck Architecture, a Des Moines firm known for its innovative use of materials, is a natural one.

For all the building's handsome, understated facade details, the structure, which owners Sarah Grant-Hutchison and Jim Leuders prefer to call an artists' studio rather than a manufacturing plant, really is an organized production operation. Its success as architecture rests squarely on how well the linear building design, with a subtle, central vertical core, responds to the business needs of the company and to the practical needs of the artists. The architects' design team, headed by organizing principal Kirk Blunck, FAIA, collaborated with Grant-Hutchison and Leuders. "We purposefully toned down the material use on the interior," notes Blunck, "so the space would function more as a blank palette for the artists' studio. The idea was for the building to serve as a foil to their work."

Because Sticks wanted to incorporate design and artist studios as well as production and shipping facilities into the building, Blunck and team associates, Peter Goché, AIA, Erin Olson-Douglas, Stephen Knowles, AIA, Dan Verduyze, and Richard Seely, AIA, worked with the owners on selection of a site that would be conducive to views and daylight. Their search yielded a site with slightly rolling terrain and 50 mature oak trees, atypical for an office park but visually appropriate for a company whose initial artwork and name were based on driftwood.

The site is crucial to both the economics and design of the steel-glass-and-concrete building. Working with the goal of saving as many trees as possible over the entire site, the architects designed the structure with an economical grade-beam foundation, graded on the west, where the front entrance is located, into a naturally occurring slope. The slab construction allowed the building's footprint to be tailored to the site—

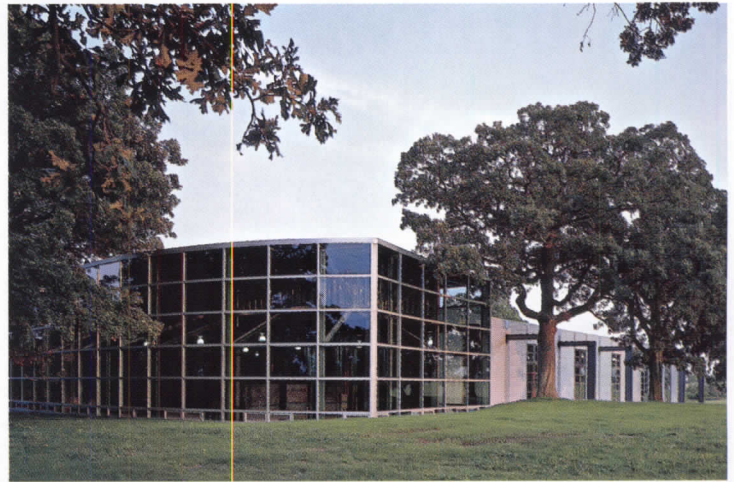
*Linda Hallam is an author and book editor for Meredith Publishing in Des Moines. Her new books, Garden Style Projects, and Paint: Ideas and Decorative Projects, debuted this spring.*



**Project:** Sticks, Inc.  
**Location:** Des Moines  
**Owner/client:** Jim Leuders and Sarah Grant-Hutchison  
**Architect:** Herbert Lewis Kruse Blunck Architecture—Kirk V. Blunck, FAIA, Peter Goché, AIA, Erin Olson-

Douglas, Stephen Knowles, AIA, Dan Verduyze, Richard Seely, AIA  
**Interior designer:** Herbert Lewis Kruse Blunck Architecture  
**Structural:** Charles Saul Engineering  
**General contractor:** Neumann Brothers

**Standard curtain wall, precast concrete, and corrugated-metal panels were used to clad the preengineered steel structure.**



and the curve on the northern exposure to be used for studio light. The northwest corner has a three-sided, glassed-in space used as a communal dining and gathering area, and is an extension of the entry. The adjacent west facade is pulled back from the columns and roof beams, revealing a row of inverted L shapes, which act figuratively as an arcade.

A pair of massive, mahogany double doors, each inscribed with the wood-burned and painted designs seen on Sticks-designed furniture, has been installed between each pair of structural bents, extending the studio into the site when open. The pair of doors at the north end of the colonnade is the building's public entrance. Inside, the staff's dining area and its bistro-style kitchen are open to the adjacent design studio. Floors throughout are exposed concrete, scored on a 9-by-10-foot organizing grid and left unfinished. Steel roof beams, columns, and studs, along with the blanket ceiling insulation, were likewise left exposed. This reliance on the natural integrity of materials is a hallmark of the architectural firm—and at the same time reflects the simple, honest folk-art roots of Sticks' furnishings and art.

With the gathering and design areas as flanking arms, the product-viewing gallery is the culmination of the entry axis—and the finishing point of the design, crafting, and embellishment processes that take place throughout the building. What casual shoppers in the gallery don't necessarily see is that the building was thoughtfully designed to enable the workflow of the goods being produced there. "We studied how the company works and designed from there," explains design team member Erin Olson-Douglas.

The loading dock on the southeast corner of the building, with the same decorated doors as the public facade, opens directly into the wood-working area. From this key production station where furniture is constructed, pieces are moved to various workstations set up in the open plan. The progression through the work areas leads to the building's *pièce de résistance*: the open artists' studio along the curved north wall of the building. It is there that furniture is hand-painted and detailed. In this shared space with views of the old oaks and the downtown skyline, artists work at individual tables but with common views, light, and interactive energy.

"The goal was to make sure everyone had dramatic views," Blunck says. "It was deliberately democratic." The low-e-glass north wall, with fixed windows and lower, operable awning-style windows for ventilation, continues unbroken to the northwest corner, where the north and west glass walls of the kitchen and gathering space meet.

From the north side of the building, detailed artwork is moved back to the central core for painting, sealing, drying, and sometimes upholstery. Upon completion of the interior work cycle, pieces not displayed in the gallery are returned to the loading dock for shipment to



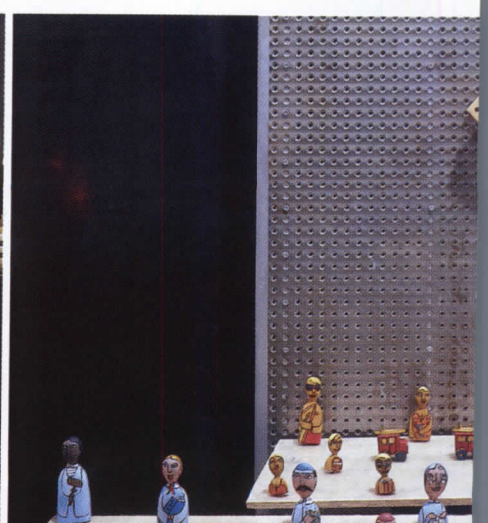


Custom-made mahogany doors and operable transoms, 13.5 feet high by 4.5 feet wide, are hand-decorated in the Sticks "style."



The above four views show how the architects chose durable materials that were deliberately neutral in color and finish, so

that the artists could focus on the color they were applying to the products they were producing there (photos below).





galleries across the United States and Europe.

With so much floor activity, visitors are hardly cognizant of the discreetly sited stairwell at the rear of the gallery that leads to the business offices on the mezzanine above. Management functions are grouped toward the east side of the mezzanine, and a glass-walled meeting room is cantilevered over the production floor to the west. Although views from here appear to be a riot of color and pattern, the interior is actually finished in subdued neutral shades of black and gray—both the owners and architects started and ended the collaborative design with the mutual understanding that the building would be a quiet and nurturing backdrop for innovative artists and their always-colorful art. ■

#### Sources

**Preengineered structural frame:**

*Butler Manufacturing*

**Curtain Wall:** *Wausau Metals*

**Exterior corrugated metal panels:**

*Berridge*

**Precast concrete panels:** *Fabcon*

**Metal roof:** *Butler*

**Plastic glazing:** *Polygal*

**Custom wood doors:** *Lisac Millwork*

**Hardware:** *Richards-Wilcox; Hager*

*Stanley; Adams Rite; Sargent;*

*McKinney*

**Custom door finish:** *Sticks*

**Blackboard panels:** *Claridge*

**Translucent panels:** *Polygal*

**Perforated metal and wire cloth:**

*McNichols*

**Gypsum board:** *USG*

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1. Millwork shop
2. Drawing
3. Etching
4. Drying
5. Finishing
6. Painting
7. Lounge/kitchen
8. Hardware
9. Fabrics
10. Installation design
11. Shipping
12. Galleries
13. Offices

# NO, ROME WASN'T BUILT IN A DAY.

[WITH THIS MACHINE IT COULD TAKE TWO.]





## OFFICE BUILDINGS

# The New New Loft

**WHILE PUNDITS POSTULATE A NEW ECONOMY, AMERICAN OFFICE DESIGN IS STUCK IN THE OLD. INNOVATION TIPTOES IN, THANKS TO ENTERPRISING ARCHITECTS.**



1.

**Armonk, N.Y.**

*At Swiss Re, a collaborative environment takes on a serene form with the aid of ample daylight and the stunning views afforded by its rocky hilltop site.*



2.

**Madison, Wis.**

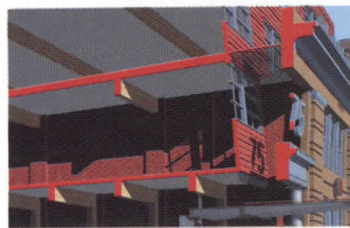
*In the shadow of the state capitol, a mixed-use structure infills a tattered downtown block while respecting its varied scale.*



3.

**Berlin**

*The GSW building's stylish exterior only partly reveals its impressive array of energy-saving innovation and staff amenity.*



4.

**San Francisco**

*A fast-tracked hybrid of new and existing construction, 475 Brannan Street caters to the hipness factor of dot-com tenants.*

**By James S. Russell, AIA**

**W**e all need a little poetry in our lives," says Dolph Schnebli, commenting on the handsome and commodious headquarters he designed for Swiss Re, a financial services company in Armonk, N.Y. "The luxury of space is something only architecture can give." In an era of unprecedented prosperity, however, architecture is a luxury American business too often does without. While constructed to a high standard by today's measures, Swiss Re is undeniably a product of our uneasy, short-term-focused, first-cost-driven era. One of Switzerland's most respected architects (acting as mentor and teacher to many of the figures who are today earning international reputations), Schnebli has, for Swiss Re and other clients, designed some of the most technically sophisticated, energy-efficient corporate facilities in Europe.

But not in America. "We are used to being involved on a conceptual basis, to thinking about the building technics and economic use of energy," Schnebli explains. Instead, his firm was selected only to design the core and shell. The client hired a project manager, who engaged the structural and mechanical engineers and additional architects to do working drawings and interiors. "We like to coordinate the structural and mechanical engineering and take pleasure when the whole thing is an elegant solution," says Schnebli. Though Swiss Re stands out as a carefully crafted project, sensitive to the collaborative business culture its company fosters, it is also an example of how spec-building norms drive the office-building design process in America. Value engineering removed from the project the energy-conserving strategies Schnebli uses in Europe. Though it meets current standards in America, Swiss Re's energy consumption would not be permitted in Switzerland, he says.

**Where's the innovation?**

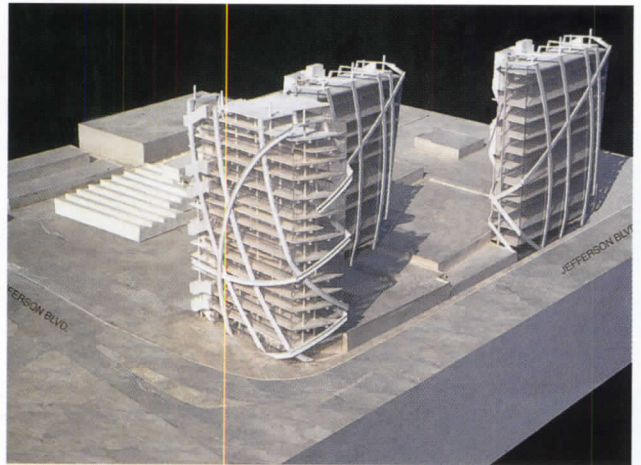
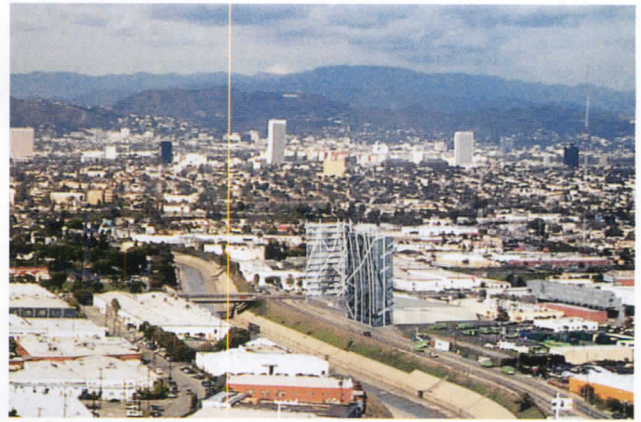
Energy conservation is not the only area in which America is slipping. Turn to page 156 to see the kinds of staff-amenable yet energy-stingy strategies architects Sauerbruch + Hutton have packed into the GSW headquarters. Almost radical when the building was designed, these techniques have rapidly migrated into the building-construction mainstream in Europe. But only a few American buildings incorporate such an array of strategies.

The aversion to architectural innovation is not a new phenomenon in America, but it has become more glaring—an irony, given the generally ebullient economy. The reasons for this rut appear to be diverse, from liability concerns to a mania for corporate benchmarking (which

**Dot-coms change the rules: ample light, exposed concrete framing, and large floor plates in mid-rise structures characterize First and Harrison, designed by STUDIOS Architecture with Jim Jennings (below).**



**Ribbonlike lateral-bracing elements wrap a mid-rise tower for multimedia businesses in Culver City, Calif., designed by Eric Owen Moss (top and bottom right).**



makes companies more comfortable choosing a middle ground) to the myth of the “edifice complex,” which goes like this: Company finishes flashy new quarters and promptly spins into decline (an unfounded myth, according to Robert Bruegmann, an architectural historian who has long studied corporate design).

The project-delivery method, which dates from the 1980s and is preferred by corporate clients, can bar innovation. As at Swiss Re, clients choose separate designers for core-and-shell and interiors. The team may be wholly or partly selected by a construction manager or contractor, who also is charged with “value engineering”—a process that is supposed to balance a range of concerns but can instead degenerate into cost cutting. Such a fragmented team, with such a narrow mandate, can only innovate under extraordinary circumstances.

Joe Valerio, of Valerio Dewalt Train, was lucky to have Brad Binkowski as a client. For 33 East Main Street (page 152), Valerio priced out the kinds of energy-saving double-curtain-wall systems that are becoming common in Europe, and found they cost three times the price of a standard American curtain wall. Valerio could only make this kind of facade work by reinventing it with lower-cost, off-the-shelf components. “It was really hard to find a manufacturer willing to work with us,” he says. While American business justifiably touts the more agile and collaborative management structures it has developed in recent years, it has not demanded similar advances in the delivery of its facilities.

Not all is hidebound. ADC, a company that uses increasingly multidisciplinary and collaborative means to make telecommunications components, is building a new campus outside Minneapolis that sets a high standard for staff amenity (opposite bottom). The envelope is pulled here and there to form atriums, which provide unusually appealing settings for meetings and teamwork. Building wings are relatively narrow so

nearly every staff member can have a window or look into an atrium. Additional atriums between wings act as thermal buffers, minimizing the total perimeter exposed to punishing upper-Midwestern winters. “The client has asked us to consider humanizing the work environment in every move we make, from master planning to interiors,” says Manos Ginis, AIA, the principal in charge of the project at HGA, of Minneapolis. “We’re exploring and redefining every system in the building.”

#### **When skateboard kids rule**

Perhaps an even more important vision of the white-collar office has come clattering to life on the construction-fevered streets of San Francisco. In the once-decrepit South-of-Market neighborhood, rechristened Multimedia Gulch, a new Gold Rush is under way, driven by the billion-dollar dreams of “new economy” Internet entrepreneurs and the open wallets of venture capitalists. Developers and architects cannot convert the former garages, factories, and lofts quickly enough to accommodate companies that months earlier may not have existed. For businesses in the throes of fevered growth, the time it takes to design and build out physical space is highly inconvenient. Companies compress schedules to a few months but outgrow space between lease signing and the last hastily screwed-in piece of drywall.

Such a superheated climate would seem to offer little opportunity for good architecture. Indeed, even fast-tracked projects seem luxurious by comparison. But many architects are finding opportunity by riding this wave. In 1997 Louise Harpman and Scott Specht, of Specht Harpman, assembled the first tiny offices for Funny Garbage, a multimedia pioneer in New York City, using friends and the clients themselves as contractors. Today, the architects are working on their fifth project for the company: 50,000 square feet of new space. “Design is important to

these clients," says Harpman. "But they also need to show that they are pouring all their venture-capital dollars into the company. It's got to be cool enough to attract top talent, but not so cool that it seems expensive."

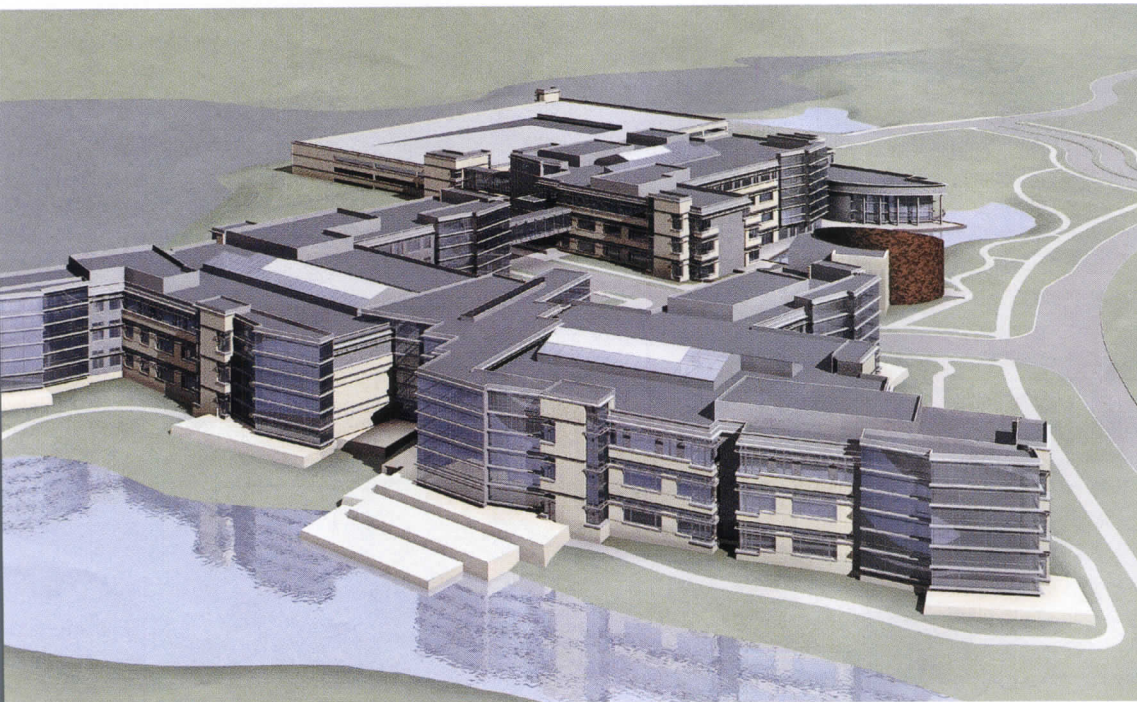
San Francisco architect Peter Pfau agrees. "The hipness factor brings with it a strong value on architecture." His firm, Pfau Architecture, is pioneering speculative new construction for Internet businesses. "People come to work on skateboards with blue hair and rings in their noses," he explains. "They don't want conventional Class A space. Dot-com space is rougher, edgier, with exposed ceilings and cable trays running data around."

Pfau works with SKS, a developer, on such projects as the 475 Brannan Street [page 162]. "They got in ahead of the curve working with us, so we have invented the type. They are not formula-oriented, however. They want each building to have its own character," says Pfau. "So far, it has been quite varied, where some are ground-up and others adapt existing buildings."

In several cities, architects are devising new prototypes that offer the flexibility, amenity, and character of loft space. Among the first large-scale speculative projects oriented to such companies is First and Howard, a 1.1-million-square-foot San Francisco development designed by Studios Architecture (with Jim Jennings as consultant) for one of the few substantial open sites South of Market. The square footage was divided into four mid-rise buildings that ring a courtyard, a space around which



**Specht Harpman built in high-craft, low-tech components for Hurd Studios, a computer-animation studio in New York City (above). HGA pulled out the exterior wall to form atriums at ADC Technologies (below). Additional atria form interior courtyards between wings.**



several tenants can develop distinct identities. The design also departs from standard development models in its concrete framing (which tenants will probably leave exposed), large floor plates, ample provision of light, and raised access floors with underfloor air supply.

Richard Keating, of Keating/Khang, an architect who has made a career of designing Class A buildings for prominent developers, has his own recipe for the dot-com tenant. Though he's designed a prototype, none of his clients has yet committed. "But it's coming. Look at how John Portman blew out the hotel type or how Jon Jerde transformed shopping malls. We're right on the cusp of something really new." Craig Hartman, partner at Skidmore, Owings & Merrill's San Francisco office, thinks some of his firm's emblematic 1950s work offers

Netsch "loft" high-rise, he says, "I was slapped into shape by a developer because he said the amount of perimeter wall was way overboard."

The design-driven nature of so many dot-com startups may yet break the grip of just such formulaic thinking. Designers find many clients refreshingly open-minded and hungry to collaborate. Architects who can wrap their skills around highly compressed schedules and work creatively in a volatile environment are invited to help clients shape a distinctive culture and image. But can innovation—technical, ecological, urbanistic, sociological—be driven deeper into the office-building production process? Only when the biggest and most respected players—Microsoft, Cisco Systems—decide to make their facilities as innovative as their products. ■

# Swiss Re Armonk, New York

# 1

**SCHNEBLI AMMANN MENZ DESIGNED A COLLABORATIVE ENVIRONMENT THAT TAKES SERENE FORM WITH THE AID OF AMPLE DAYLIGHT AND VIEWS.**

By Akiko Busch

**Architect:** *Schnebli Ammann Menz Architects and Partners—Dolf Schnebli, Sacha Menz, Yonas Mulugeta, Karin Reifler*

**Associated architects:** *Steven Fong Architect—Steven Fong (associated architect); Adamson Associates—Jim Bagby, Ann Daniel (production architect)*

**Consultants:** *Iu & Associates—Carolyn Iu, Farid Iskander; Perkins & Will—John Lijewski, Don Williams, Jena Hwang (interiors); Susan Brady Lighting Design (lighting)*

**Engineers:** *Yolles Partnership (structural); Cosentini Associates (mechanical)*

**Project manager:** *RWG Associates*

**Contractor:** *Turner Construction*

**Size:** *297,000 square feet on 127 acres*

**Completion date:** *March 1999*

#### Sources

**Copper Cladding:** *Revere*

**Curtainwall:** *Flour City Architectural Metals*

**Storefront glazing:** *Wausau Metals*

**Stone paving:** *Vermont Structural Slate*

**Hardware:** *Von Duprin, Schlage*

**Metal Ceilings:** *Ceilings Plus*

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

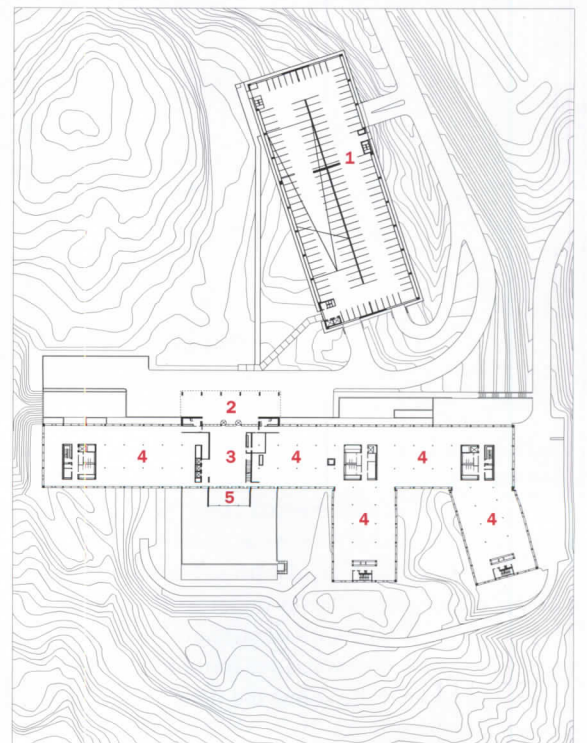
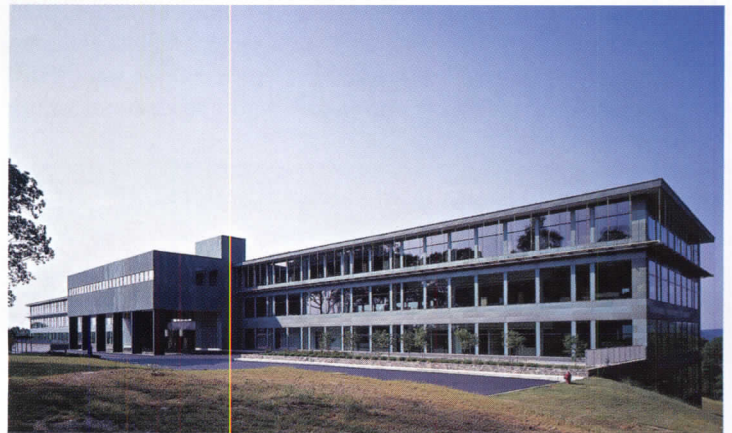
#### Program

If a corporate office is designed to promote teamwork, it must first acknowledge the myriad likely and unlikely ways people will find to gather and converse. Such was the case at Swiss Re America, a division of the international insurance concern based in Zurich.

The company operates on the conviction that architecture can be a significant factor in the search for talent and sponsored a competition inviting such firms as Richard Meier, HOK, STUDIOS Architecture, and Swanke Hayden Connell to submit ideas.

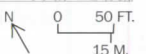
The Schnebli Ammann Menz plan that was ultimately selected emphasized a sense of openness and community for some 700 employees. With interior architects Iu & Associates and Perkins & Will, Schnebli designed an open office landscape that acknowledges the unpredictable nature of human interaction; it has been highly engineered for the vagaries of sitting around talking.

While offering amenities such as a fitness center and spacious 200-seat cafeteria (equipped with a live-broadcast hookup), the building accommodates encounters ranging from the improvisational to major corporate ceremonies through the provision of casual meeting areas, small private meeting rooms, formal conference rooms, and five video teleconferencing rooms. Such a bal-



1. Parking structure
2. Entry plaza
3. Lobby
4. Office
5. Terrace

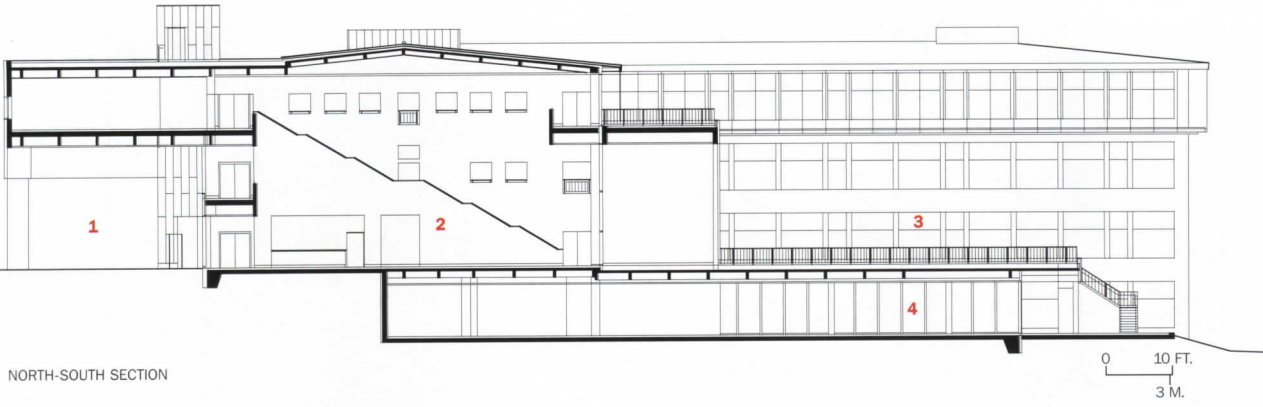
SECOND FLOOR PLAN





A stone base creates a podium for the carefully proportioned view-side elevations formed from glass and folded-seam copper.





- 1. Entrance
- 2. Lobby
- 3. Terrace
- 4. Cafeteria

NORTH-SOUTH SECTION

The entrance elevation (opposite top) hints at the view to be found after passing through the cubic lobby (sec-

tion) to an expansive terrace (below). Sunshades screen the south-facing view side (opposite bottom).



The cafeteria (right) takes advantage of site views. The lobby ceiling's a rich persimmon color dramatizes its 45 ft height. Low-voltage halogen lights read as an abstract pattern in the ceiling



ance of private and communal space establishes a lively rhythm, both social and architectural.

### Solution

The building is set on a topographically challenging 127-acre site. A grassy alley, once the entrance to a private residence on the property, leads from the parking garage tucked into an adjacent hillside to the entrance. This approach carries the eye through the glass-walled lobby to a vast stone-paved terrace that opens to vistas of wooded ridges and the picturesque Kensico Reservoir.

The building's three-story, 700-foot-long volume undulates across the bumps of the sloping site, extending two fingerlike wings southward towards the lake. The plan opens a maximum of floor area to light and views, while allowing for the addition of further wings in the future.

The spacious lobby was planned as a corporate village square, the locus for important meeting places—dining areas, conference center. In establishing a sense of both commerce and community, Schnebli likens its rush-hour bustle to "that of the old railway-station arrival halls."

A similar sense of expansiveness is evident elsewhere in the interior. Neither the main volume of the building nor its two wings are more than 80 feet wide, ensuring that no workstation is more than forty feet from a window. Eleven-foot ceilings also assure that abundant light







Perforated metal ceiling were shaped to bounce daylight deep into the floor. Interior designers Perkins & Will and Carolyn Iu supplied ample meeting places (below) but designed few enclosed offices (left).

enters the deepest reaches of the floors. Even employee stairways, positioned at the southernmost end of the two wings, offer views of the lake and were designed to serve as impromptu meeting areas.

### Material

Dubbed a “landscaper” by Schnebli, the building has been positioned precisely atop a stone base that varies in height to accommodate the rolling terrain of the site. Prepatinated copper paneling sheathes the exterior in horizontal bands—except for the volume of the entrance canopy and conference center overhead, where the panels have been placed vertically. The panels were joined on the site using a folded-seam process traditional to copper roofing.

A system of anodized-aluminum catwalks with stainless-steel rods bands the entire third floor of the building. While adding an elegant visual layering to the elevation, it also reduces solar-heat gain on the glass and gives access to window washers.

Schnebli is emphatic that materials reflect their place, and both the Vermont slate used for terrace and lobby flooring and the Yonkers Gneiss used for the building base are classic New England building materials. Throughout the building, a custom fabricated ceiling of perforated metal panels organizes lighting, sprinkler systems, and air diffusers without undue clutter. The precise proportions and engineered austerity are happily

undercut by voluptuous surface treatments. Aside from the lobby ceiling, polished black granite (nero assoluto) clads baseboards and portals, while richly patterned bands of limestone on the floor work as a foil to the more subtly patterned gray-green of the Vermont slate. Anagray, a wood with a rippling grain, veneers walls and built-in cabinetry in the executive suites. It offers a tactile, even indulgent sensibility.

### Commentary

Set apart on its lushly planted site, Swiss Re could be seen as an old-school corporate redoubt. And yet the sense of serious, directed purpose expressed by this structure makes it unique. “All of the measurements in relationship to all of the other measurements create pleasant and attractive spaces,” Schnebli has written. Just such a sense of proportion is evident here. While the expansive scale of the lobby, for example, could be viewed as an expression of corporate pageantry (in the name of a village square), it perceptibly shares humanistic proportions and scale from portals and staircases down to the window mullions.

The vistas of rolling woodlands and lake, together with the palpable commitment to staff amenities, create an environment that is calm and contemplative—perhaps the most conducive workplace for our jangled era. ■



# Block 89

## Madison, Wisconsin

# 2

### VALERIO DEWALT TRAIN KNOTS TOGETHER A DOWNTOWN COMMERCIAL BLOCK BY WEAVING NEW CONSTRUCTION INTO OLD.

By Cheryl Kent

**Architect:** Valerio Dewalt Train—Joseph Valerio, FAIA, David Jennerjahn, AIA, Jim Bogatto, Elana Saltzman, Ted Duncan, Heather Wasilowski, Jim Wild, Steve Wilmot, Jason Hall, Christine McGrath, Andrea Kiesling, Stephan Katz, Gisela Schmidt, Nancy Willert

**Engineers:** Robert Darvis Associates (structural); Carl Walker (parking structure); Woodward-Clyde (geotechnical); WMA Consulting Engineers (mechanical)

**Consultants:** Smith Group (landscape); Charter-Sills & Associates (lighting); Vinci-Hamp Architects (historic restoration)

**Contractor:** J. H. Findorff & Son

**Size:** 370,000 gross square feet with 770 underground parking stalls.

**Cost:** \$19 million; \$13.6 million (garage)

#### Sources

**Brick:** Marseilles Brick, Glen-Gery  
**Stone:** Giallo California, Eagle Red, Dakota Mahogany, Mason; Giallo Veneziano (granite); Glacier Buff (Vetter Stone Company), Kansas limestone

**Curtain wall, glass:** Kawneer, Viracon, Wasco, Efcó

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

#### Program

Block 89 was likely to be upstaged from the get-go, standing, as it does, just across the street from Cass Gilbert's handsome 1904 Wisconsin State Capitol in Madison.

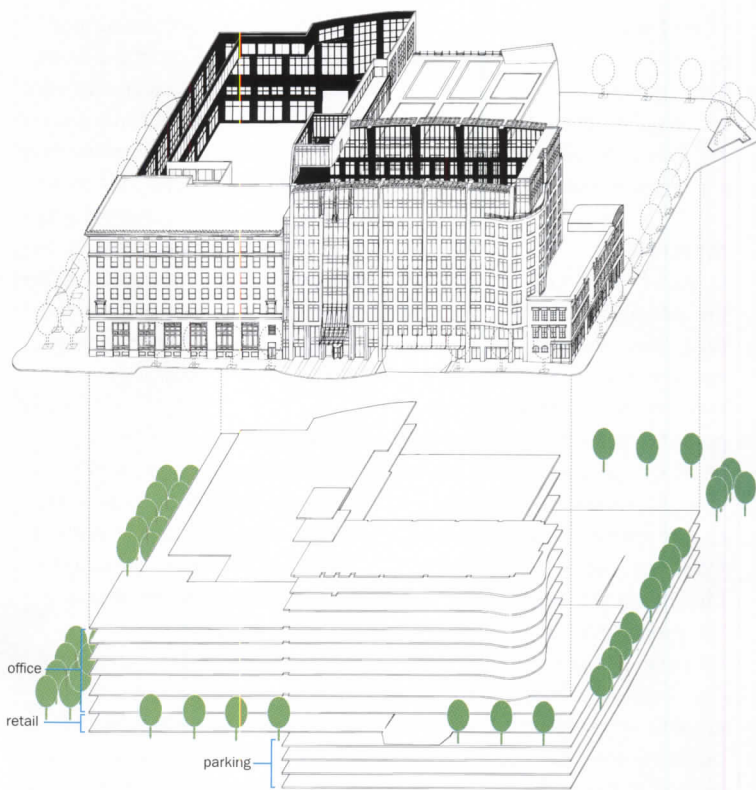
To protect the sovereign dignity of the capitol, the zone around it—known as Capitol Square—is covered by design and zoning limitations on height and parking. The architect's charge was to redevelop this highly restricted block with speculative office space while maintaining some existing buildings. To conform to city policies encouraging storefronts on the square, retail was also included in the program. New construction on the block had to be staged to permit tenants—law firms for the most part—to remain in place during construction, eventually expanding as the new space was completed.

Complicated enough? There's more. During the five years of design and construction, the job changed almost continuously as the developers acquired more property on the block.

#### Solution

Rather than taking a monolithic approach, enfolding the existing structures in a single, suffocating architectural embrace, architect

Cheryl Kent, a Chicago-based architectural writer, is a regular contributor to the New York Times.



AXONOMETRIC AT EAST DOTY STREET

Valerio Dewalt Train treated each parcel on the block as a separate but related design. appropriately scaled to the preexisting footprints and the mandated height limits. And, the strategy proved resilient as the job evolved, permitting, for example, the final nine-story structure now in design development to be added in a way that is at once harmonious and distinctive.

The project is a combination of new construction, infill, renovation,

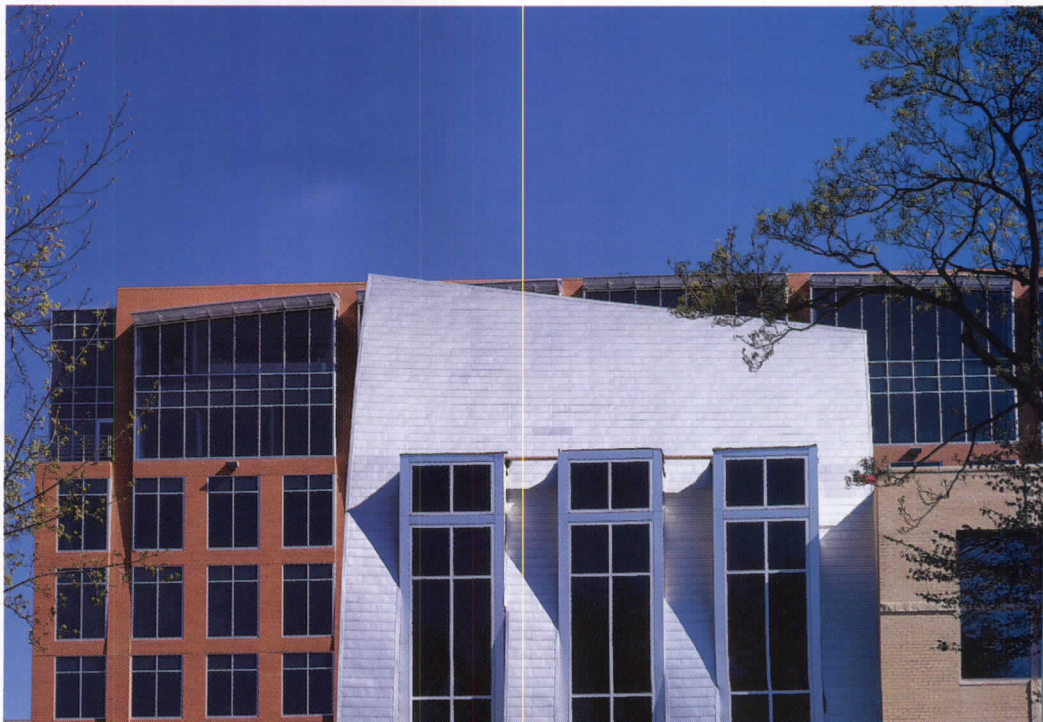
reconstruction, and hardcore engineering. Staging was one of the greatest challenges. First, a store and a popular restaurant were moved into a fashionably renovated and extended loading dock on an unused alley on the west side of the block. The restaurant's former quarters, a small historically important building known as the Burrows Block, was then dismantled and put in storage. Excavation for the five-story below-grade parking garage

The design of 10 East Doty, one of several parcels on Block 89, is distinct, yet subtly consistent with new and existing structures.





A former insurance building (left in photo above) and the reconstructed Burrow's Block (right in photo above) bookend 10 East Doty, which is all-new construction. The Main Street elevation (right) was configured as a fresher extension of 1980s existing construction.





1. Retail
2. Lobby
3. Service
4. Auditorium
5. Restaurant

- A. One East Main (reclad)
- B. 33 East Main (future)
- C. Burrows Block (facade reused)
- D. East Doty (new)
- E. Insurance Building (existing)

Parking extends under 10 East Doty (new construction), an existing retail structure, and the Burrow's Block (foreground right), which underwent considerable reconstruction.



## PUSHING THE (GLASS) ENVELOPE

"The client gained more confidence in us as the project proceeded," says Valerio Dewalt Train principal Joe Valerio. "They have allowed us to push 33 East Main Street much farther." Valerio explored the thermally buffering and naturally ventilating double-wall curtain walls now common in Europe, but their high level of customization proved too expensive. Instead, the architects are reworking a conventional system with curtain-wall maker Efcó. Though still in design development, 33 East Main's facade will probably be formed with a two-layer system tied at masonry piers to a post-tensioned concrete frame. The windows will not be operable, however. Where the masonry panels penetrate the outer glass shell, they will read as horizontal and vertical planes, giving the envelope a structural legibility it would otherwise not possess.





Within a contextualist mandate the architect brought fresh insight to a canopy (below) and lobby (above).



department-store structure, which plays nicely off the complex curve of the new retail facade.

The last piece of the project fell into place when the clients acquired the property at the northeast corner of the block at 33 East Main. Here, the architects are designing a nine-story glass office structure that will contrast with the stone and masonry elsewhere on the block.

### Structure

The greatest challenge was providing sufficient parking below ground when much of the block was taken up with existing buildings. Leaving in place all the structural columns for the renovated five-story department store would have meant eliminating 10 percent of the hoped-for parking spaces. Engineers solved the problem, replacing three of the columns with a large transfer beam.

Irregularities and weaknesses in the original stone that formed the facade of the Burrows Block made it impossible to reuse, so new stone of a comparable color and texture was used in its reconstruction. Rather than replacing the brick on the Burrows side elevation, the preservation architects decided to prettify the south side by wrapping it with a more formal stone facing, the better to complement the new construction. From photographs, the architects recreated the building's cornice and third floor, which had both been demolished long ago.

### Commentary

The Burrows Block is more a fanciful recreation than the preserved building it is touted to be. Taken as a whole, however, Block 89 has achieved a fine-grained urban texture and detail for which Madison's design regulations were plainly intended. Surely it would have been simpler to build out the block with a single structure, as other developers have done. More than those, Block 89 has brought life to the neglected streets that lead to the capitol. Before this development, there were no major office structures on East Doty Street. Now it has become a destination. ■

began on the Burrows site and an adjacent lot. It was later extended under most of the block. A new 10-story office building rose on the south side of the block, at 10 East Doty Street, sandwiched between the reconstructed (although greatly altered) landmark Burrows and another partially renovated historic structure called the Insurance Building. Valerio Dewalt Train knitted together the floor plates of the three structures, offering tenants contiguous floor space into which they could expand.

On the north side of the block, opposite the capitol, the architects designed a low-rise retail building and an addition to a former department store that had been remodeled in a Postmodern moment nine years ago. Accepting the renovation for what it was, the architects adopted a compatible fenestration for the addition but created a more dynamic composition by bending the addition back into the existing

Attorneys, generally aesthetically conservative, have embraced 10 East Doty Street's strikingly detailed lobby.



# GSW Headquarters Berlin

# 3

**SAUERBRUCH HUTTON ARCHITECTS WRAPS AN ARRAY OF ENERGY-SAVING STRATEGIES AND STAFF AMENITIES IN A COLORFUL, STYLISH PACKAGE.**

**By James S. Russell, AIA**

**Architect:** Sauerbruch Hutton Architects—Matthias Sauerbruch, Louisa Hutton, Juan Lucas Young, Jens Ludloff, Brian Lilley, Philip Engelbrecht, Anna Bader-Hardt, Govert Gerritsen, Moritz Theden, Giovanna Albretti, Michail Blösser, Anne-Françoise Chollet, Denise Dih, Christian Galvão, Iman Ghazali, Christopher Hagemann, Felix Held, Susanne Hofmann, Karl-Friedrich Hörnlein, Heinz Jirout, Fredrik Källström, Jeff Kirby, Harvey Langston-Jones, Matthias Matschewski, Roger Mullin, Wolfgang Thiessen, Andreas Weber, Stefan Wirth

**Client:** *Geminnützige Wohnungs- und Siedlungsbaugesellschaft*

**Engineers:** *Ove Arup + Partners, Arup GmbH, ARGE IGH (environmental); Dewhurst MacFarlane and Partners, Arup GmbH, IGH (structural); Emmer, Pfenninger + Partner (facade)*

**Project manager:** *Harms & Partner*

**Size:** *300,000 square feet total*

**Completion date:** *1999*

#### Sources

**Facades:** *Götz, Gefatec, Eternit*

**"Wind" roof:** *Koch Membranen*

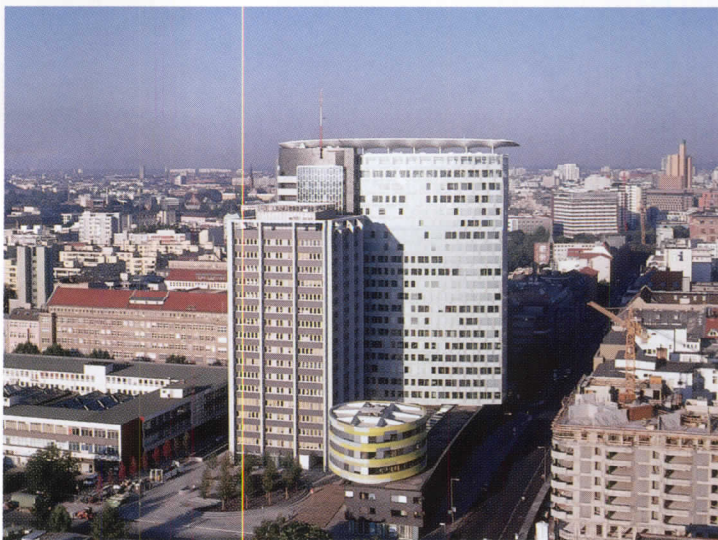
**WWW** For more information on the people and products involved in this project, go to **Projects** at: [www.architecturalrecord.com](http://www.architecturalrecord.com)

#### Program

Out of the dour, soot gray streetscape of Berlin, only steps from where soldiers faced off behind barbed wire and sandbags at Checkpoint Charlie, rises a most improbable sight. Like a 20-story-high pastel drawing by Paul Klee, the gently curving west-facing facade of the GSW headquarters presents a patchwork of white, beige, pumpkin, tangerine, and fuchsia.

That architects Matthias Sauerbruch and Louisa Hutton offer this cheery note on a skyline so well acquainted with tragedy is almost enough in itself. Within this suave package, however, the architects have also deployed technology and design to minimize reliance on mechanical systems for lighting, cooling, heating, and ventilating, making this one of the most sophisticated recent additions to the new wave of "ecological" office buildings that is gathering momentum in Europe [October 1995, page 80, and May 2000, page 198].

The client, which builds and manages subsidized public housing, held a competition in 1995 for an addition or replacement building that would signify the company's social commitment. The London- and Berlin-based Sauerbruch Hutton Architects won by proposing to maintain and update the company's existing building, while adding a new one designed to lower energy use radically.





The GSW tower was added to the company's 1961 headquarters (photos opposite) in an area once isolated by the Berlin Wall.

Reunification put the site back at the center of things, and the colorful new sunshades on the west elevation energize the neighborhood.





The architects brought the older tower into a clearer relationship to the street by adding a low-rise east-west oriented building, clad in a running bond of dark ceramic tile, which slips under the glassy bulk of the north-south oriented tower. This building animates the street with its curving form, crowning Day-Glo “hatbox,” and ground-floor retail. It offers rentable space on upper levels and encloses entrance plazas.

By American standards, the small-floor plate and single-loaded corridors of the new tower are highly inefficient. But the narrow floors allow daylight to pour in, obviating the need for electric light most of the time. The natural ventilation scheme reduced the need for costly mechanical systems and space-consuming ductwork. Not only did it offset some of the additional first costs for the high proportion of perimeter wall, it also permitted alignment of new floors to the low floor-to-floor heights of the existing tower.

#### Low energy/high performance

The tower’s energy consumption is predicted to be 40 percent below already strict German standards. It achieves this while giving occupants more control over light, ventilation, and temperature, by synthesizing a number of strategies that are becoming increasingly common in Germany and elsewhere in Europe.

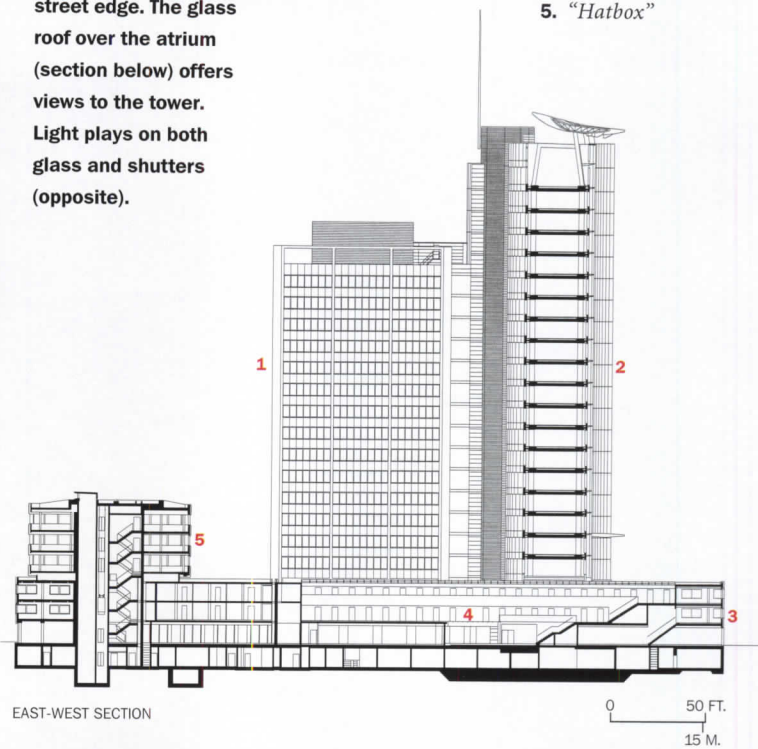
Because of financial constraints, the techniques could not be applied to the existing building, but its cladding and windows were repaired and upgraded.

- **Natural ventilation.** Louvered wall panels on the east elevation open either manually or automatically to allow fresh air to enter. Air passes through an acoustically baffled opening in the office partitions and is drawn out through operable windows in the west facade to a three-foot-wide air space between the inner insulated-glass facade and a single-pane outer facade. This space runs continuously up the building as a thermal chimney: Heat generated by the sun or by internal loads rises, drawing in cooler fresh air. (The inner windows shut automatically in case of fire.) Cracking open the window and ventilating panels is normally enough to generate a pleasant airflow.
- **Sun shading.** Sliding and pivoting sunshades protect the west elevation from solar-heat gain. The perforated metal panels offer a scrimlike view even when fully closed. Colored, these shades lend the building its unique and ever-varying appearance. They move into place automatically, but occupants can change their position.

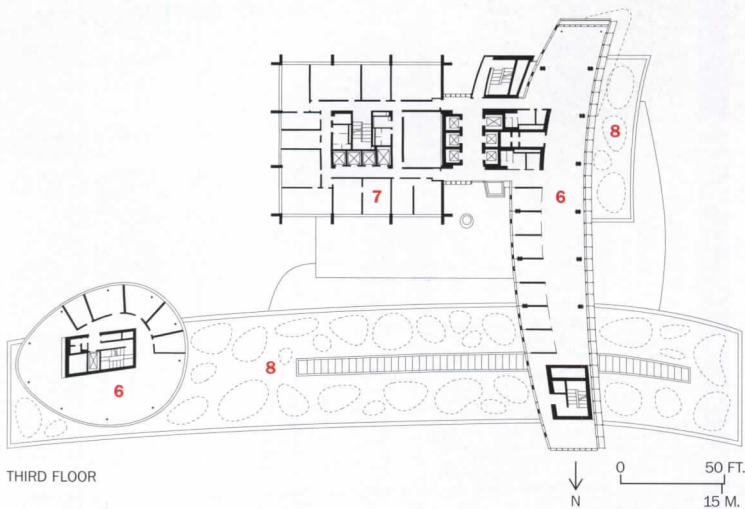
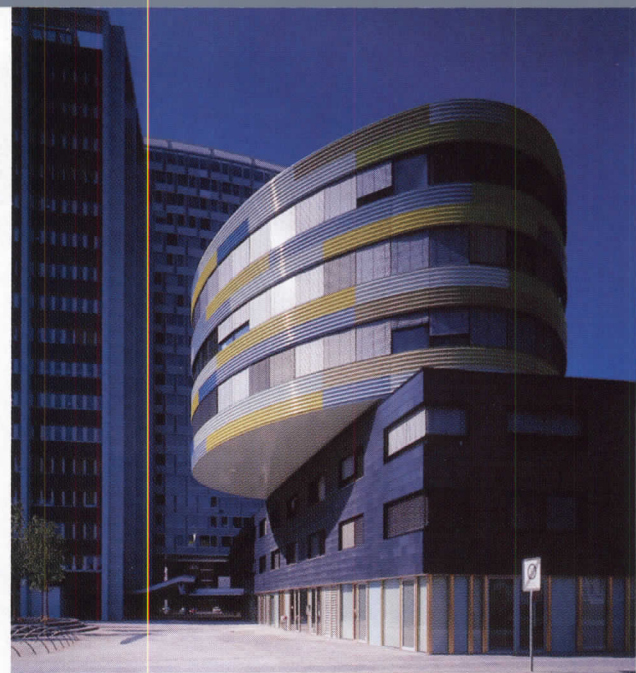
The existing building shades the eastern elevation much of the day, which in any event has a less critical shading need, because corridors or open offices are behind most of it.

A curving low-rise structure (left and bottom) brings the older tower in touch with the street edge. The glass roof over the atrium (section below) offers views to the tower. Light plays on both glass and shutters (opposite).

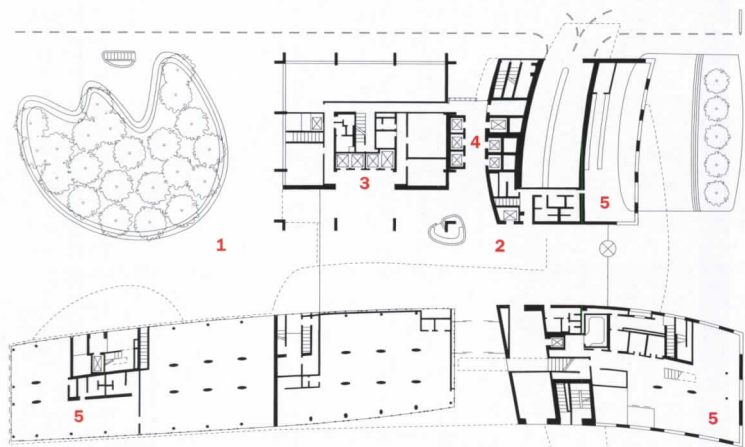
1. 1961 tower
2. New tower
3. Low-rise structure
4. Atrium
5. “Hatbox”







THIRD FLOOR



GROUND FLOOR

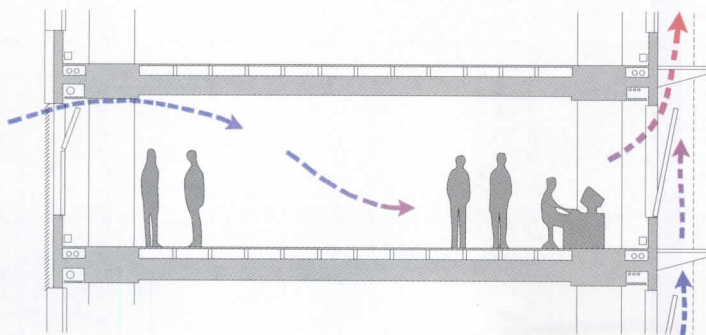
1. Plaza
2. Lobby
3. Elevators, existing building
4. Elevators, new building
5. Retail
6. New offices
7. Existing offices
8. Patterned roof below

- Radiant heating and cooling. The underside of the floor slab is exposed as a finished ceiling, which absorbs excess heat generated during the day. The heat is flushed by pumping air through hollows in the slab at night. Or it can be “saved” and act as a morning preheat. Conventional radiators offer supplemental heat if needed.

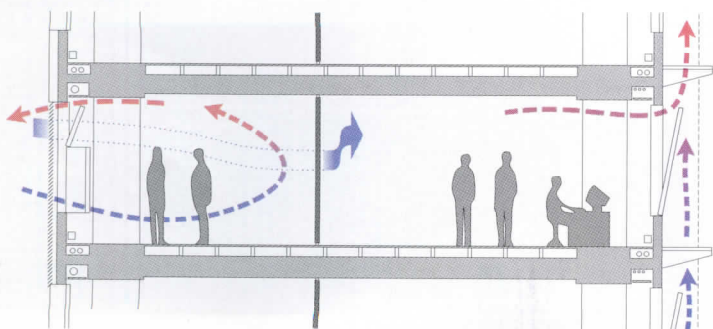
**Commentary**

Although GSW could not be considered an inexpensive building, the architects added many amenities while spending carefully. Yes, there's a great deal of perimeter wall, and the shading and ventilation scheme comes at a high first cost. But the architects saved the company money by not demolishing the existing building (savings in temporary-quarters rent as well as in building replacement). You can also measure “payback” in lowered absenteeism and retention of valued staff from the deep pleasure people take in the daylight, views, and ability to control their own environment, but the true value may be incalculable.

Technically innovative buildings rarely come in such stylish packages. The painterly use of color and the ever-changing play of light off the layered-glass wall makes this structure come alive in a way that people once only dreamed of. ■



CROSS VENTILATION - OPEN PLAN



CROSS VENTILATION - PARTITIONED OFFICE

The diagrams show only one of many natural-ventilation modes. The double-wall facade acts as a chimney, drawing warm air upward, which in turn spurs entry of cooler air from the opposite side. Sound-baffled vents permit airflow through office partitions.



Louvers on the eastern, single-layer facade (left) admit breezes, usually to a corridor (bottom left). Alternatively, floors can be left entirely open (below, prior to move-in), giving users light and views from two sides.



# 475 Brannan Street

## San Francisco, California

# 4

**PFAU ARCHITECTS CATERS TO THE “HIPNESS FACTOR” AT DOT-COM COMPANIES THROUGH A HYBRID OF NEW AND EXISTING CONSTRUCTION.**

**By James S. Russell, AIA**

**Architect:** Pfau Architects—Peter Pfau, Dwight Long, Chris Tymoff, Brooks Dunn, Kit Gibbs, Casper Mork-Ulnes, Chris Schabacker, Mallory Shure, Keri Spiller, Michael Young, Sherin Yuan

**Engineer:** Steven Tipping & Associates (structural); Mazetti & Associates (mechanical, plumbing); F. W. Associates (electrical)

**Consultants:** Marta Fry Landscape Architects; Ferrari/Moe (waterproofing)

**General Contractor:** Swinerton & Walberg

**Size:** 320,000 square feet

**Cost:** \$24 million

**Completion date:** 2000

#### Sources

**Built-up roofing:** Malarkey Roofing Co.

**Aluminum Windows:** All Weather

**Fire-control doors, security grilles:**

Cornell Iron Works

**Locksets:** Schlage

**Resilient flooring:** Forbo

**Interior ambient lighting:** Eliptipar, Capri

**Downlights:** Lithonia

**Exterior lights:** Eliptipar, Columbia, B-K Lighting

**Elevators:** Mitsubishi

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

#### Program

It is not glib to say that 475 Brannan Street has no program. Dot-com and multimedia tenants often sign on for a space based on its possibilities. Only rarely can such tenants accurately predict how much space they'll need by the time they move in. On a recent walk-through, architect Peter Pfau pointed to the still-empty space of an early tenant. The company had been sold twice since lease signing and was in the process of subletting part of its space.

Even though potential tenants may not know what they will do with a space, some aspects are a given: a regularly laid-out floor plate that offers a great deal of flexibility in configuration, ample power and telecommunication capacity, good light or views. The 1906 Baker and Hamilton warehouse building appealed for its well-detailed, substantial masonry construction and its relatively high-ceilinged, post-and-beam internal structure.

#### Solution

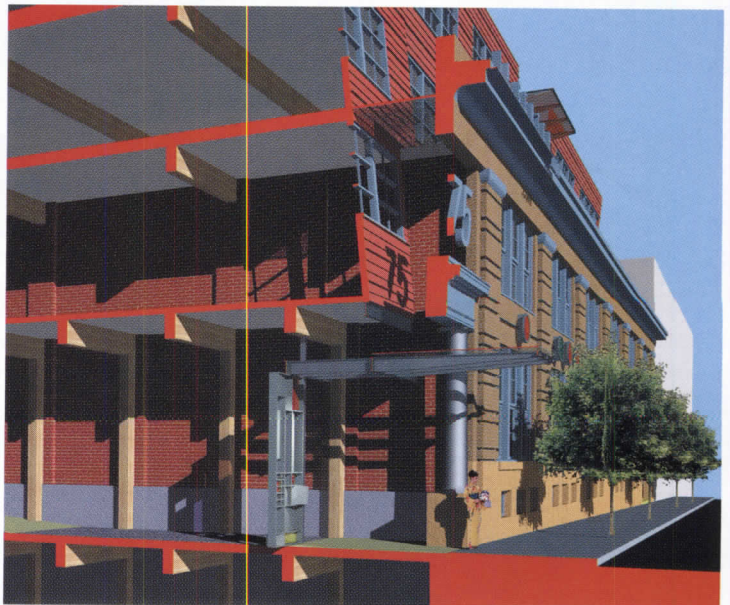
The building at 475 Brannan Street is the largest and most complex of several projects Pfau Architects has done with SKS Development—itself a youthful firm targeting start-up tenants. Because the building had been built as a warehouse, it had adequate structural capacity for a lightweight addition. But first the building was seismically reinforced with what is called a propped shear

wall. Six of these recently developed devices were used. They consist of reinforced concrete piers bridged by a diagonal brace of full building height that is rigidly attached to each floor. (Substantial as these devices are, they are less costly and use less space than the conventional myriad braces and shear walls.)

What appears to be a line of freight cars clattering along the roof is actually a two-story addition. The stories were framed in heavy timber and light-gauge metal; the lightness of the construction made it possible to retain the framing of the existing building—enormous, irreplaceable wood columns and beams. The red-painted metal cladding tilts in and out to break down the block-long

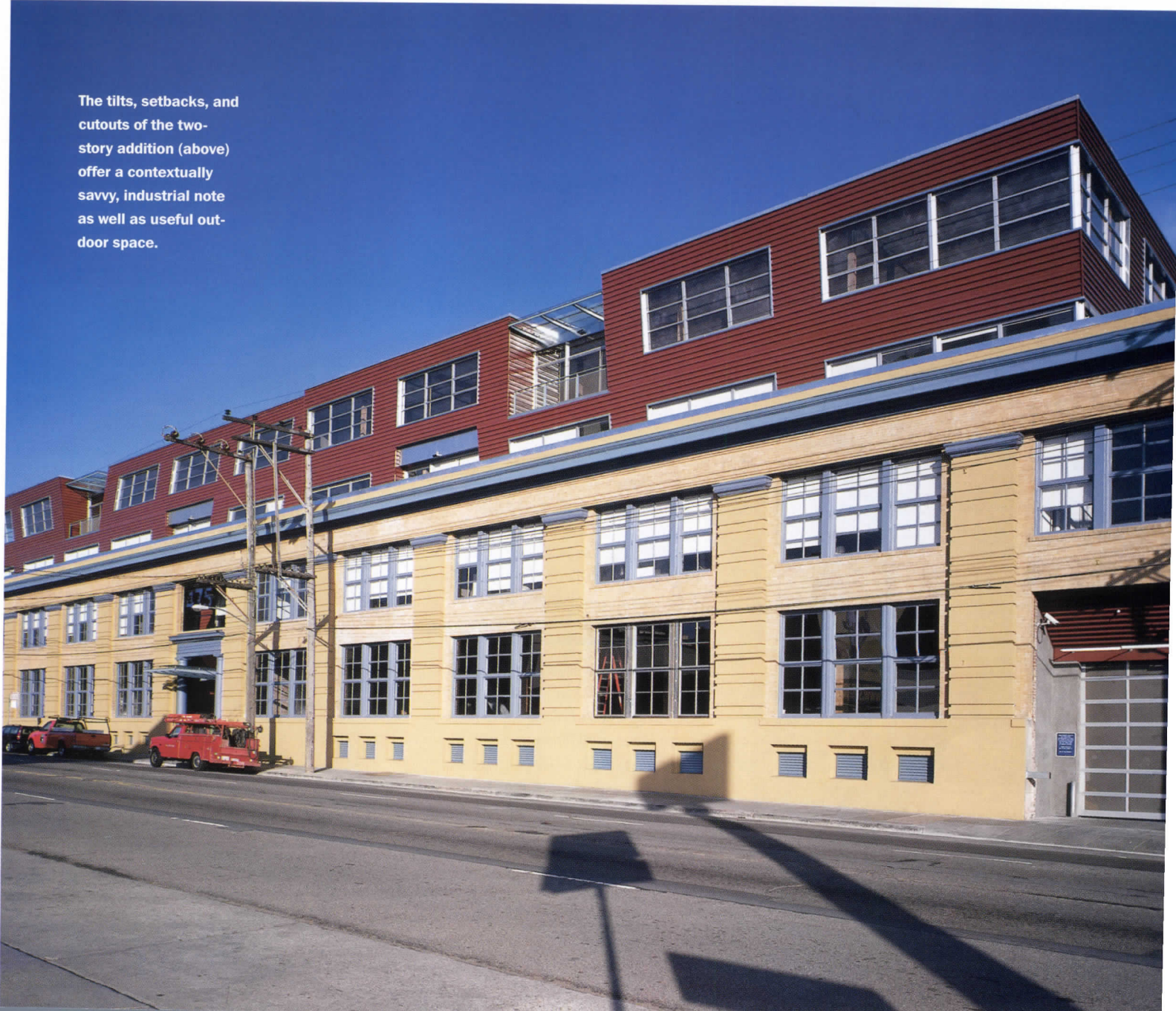
length of the facade. The architects also added new utilities and exit stairs, including a stair that lands unenclosed in the lobby, thanks to an inventive reconfiguration of standard fire separations (requiring intensive building-official consultation).

The architects cut a new courtyard into the building, bringing daylight to almost the entire deep floor; the courtyard opens off the elevator lobbies, thus allowing everyone to share this precious oasis in the city's concrete desert. The long lobby from the street is lined with a “multimedia” wall that offers live-broadcast capability as it directs visitors to tenants. Underground, parked cars tuck in between old columns.





The tilts, setbacks, and cutouts of the two-story addition (above) offer a contextually savvy, industrial note as well as useful outdoor space.

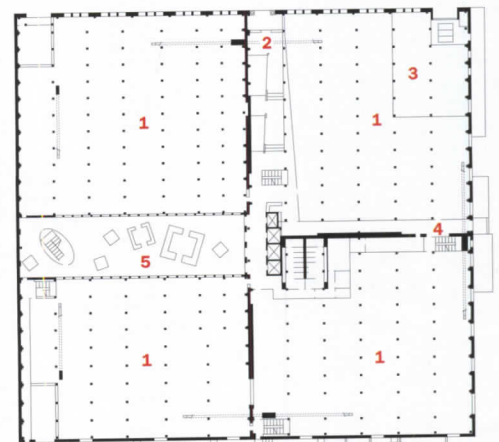




A media-ready wall in the lobby lets tenants electronically broadcast their products. A courtyard (awaiting landscaping) opens onto lobbies (with balconies, below) and offices.

### Commentary

In only a couple of years, the Internet start-up client has gone from being a blip on the office-construction radar screen to a major force in office buildings and interiors. With their art- and design-savvy workforces, they are changing the rules of spec development. Pfau Architects' 475 Brannan deserves kudos for doing a lot with a little—and getting built at high speed. Yet it already portends troubling trends. The “loft look” threatens to become an Internet start-up cliché. Also, developers and tenants in this market will only rarely commission new construction of distinction, while lavishing enormous attention upon ordinary older buildings. Architects must respect the difficult real-estate constraints under which such companies operate, but talented architects are not often enough asked to do more than the *loft du jour*. ■



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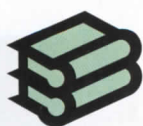
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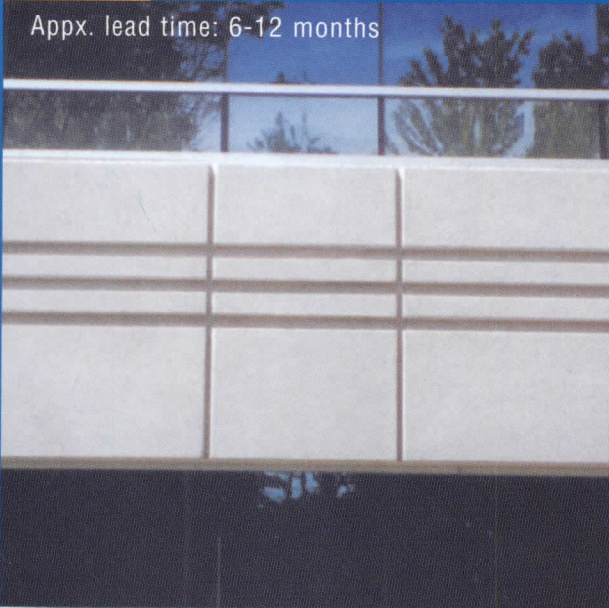
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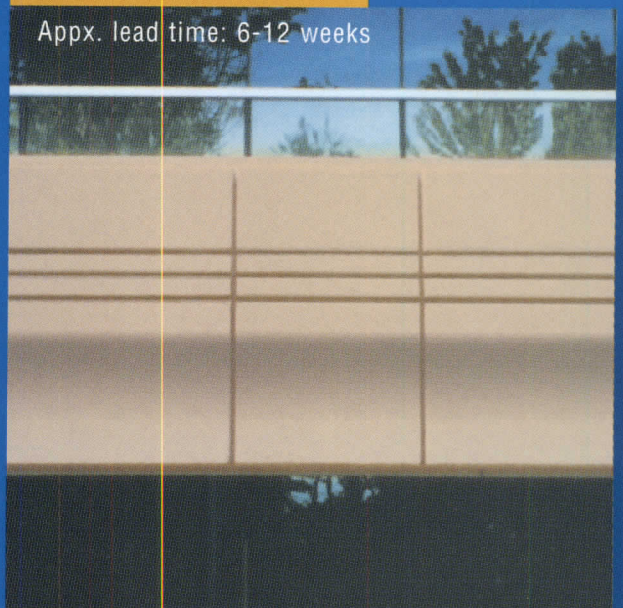
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# Creating Safe and Appealing Public Stairs

**ARCHITECTS AGREE THAT STAIRS ARE AMONG THE MOST CHALLENGING BUILDING COMPONENTS TO DESIGN, AND EXTERIOR PUBLIC STAIRS ARE MOST COMPLEX OF ALL.**

By Wendy Talarico and Barbara A. Nadel, FAIA

**B**y 1993, the once monumental stairs that lead from downtown Troy, N.Y., to Rensselaer Polytechnic Institute (RPI) looked like some kind of ancient ruin. The bricks that once supported the treads showed the effects of countless freeze/thaw cycles, and the bluestone treads had slipped from their beds, a few of them cracked and spalled. Built in 1907, the flight of 163 steps had problems from the start, thanks to the soft brick used for the leveling beds. Regular maintenance kept problems in check until after World War II, when labor became scarce. Finally the stairs were abandoned, a cascade of rubble in the midst of the city.

Ongoing maintenance for stairs like those in Troy is just one of many issues to consider when designing public exterior stairs. Other dilemmas: Will the stairs hold up under weather extremes? Are they safe? Do they complement the building or surroundings to which they lead? Where should the handrails go? "In no other part of the building, except perhaps the facade, is it more important to weigh the upkeep and long-term benefits of what you're designing against construction costs and budget limitations," says Jonathan Woodman, AIA, of Woodman Associates Architects in Newburyport, Mass. Stairs take a beating from weather, traffic, and even skateboarders and rollerbladers. Yet designing them to last and ensuring good maintenance can protect the architect and building owner from being sued.

A federal grant came to the rescue of the stairs in Troy. Architecture Plus, also in Troy, was retained by city and RPI officials to rebuild the stairs. The firm started by shoring up the masonry foundation and replacing the original brick setting bed with concrete. Underdrains

*Barbara A. Nadel, FAIA, is a freelance writer specializing in technology-related subjects. She is the 2001 AIA national vice president.*



In Troy, N.Y., a 93-year-old stairway leading from the town center to RPI was restored (top) by Architecture Plus after years of neglect (bottom).

## 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 176 and follow the instructions.

## LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe what factors are involved in selecting materials for exterior stairs.
2. List the code requirements for exterior stair design.
3. Discuss stair design in historic surroundings
4. List the common cause of lawsuits related to stair design.

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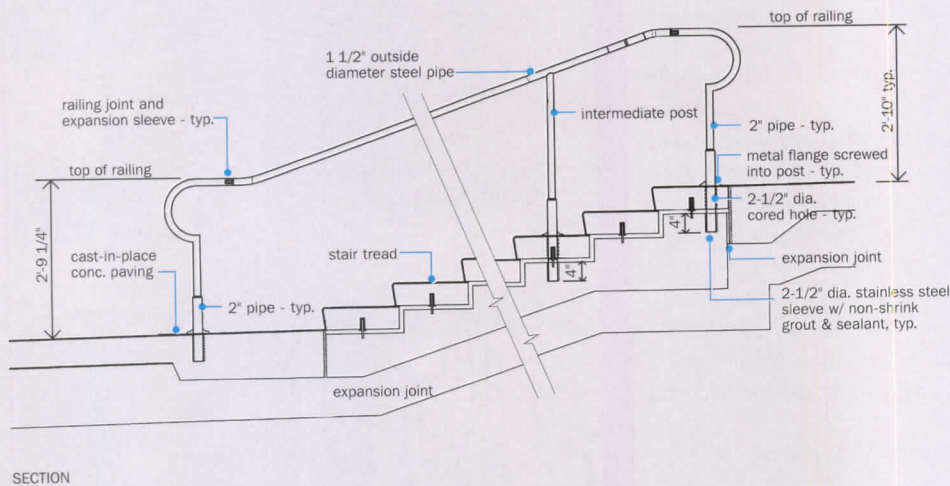
## CASE STUDY

**Project:** Capital City Landing in White River State Park  
**Architect:** Wallace Roberts & Todd, Philadelphia; Sasaki Associates, Watertown, Mass. (preliminary design)

Part of an ongoing upgrade of the downtown Indianapolis park and waterway system, the 25-acre Capital City Landing project includes a number of stair locations that link the walkways, bridges, and plazas lining the Central Canal and the White River. The project connects various sites within the downtown, including the zoo, a university, and government office buildings. It is also a favorite jogging route and a good place for workers and students to retreat at noon for an outdoor lunch.

Each stairway consists of granite pieces set on a concrete substrate. The locally quarried granite has a thermal or flame finish to minimize slipperiness. The roughened finish is accomplished by flaming the material with a torch after it is sawed in the quarry.

The steps have 14-inch treads and 6-inch risers, "comfortable proportions that match the natural range of human movement," says



conduct water away from the substrate to help prevent water damage. Many of the old tread stones were reused, though getting them perfectly square was impossible. "We had to do some false work to conceal the imperfections," says Francis Murdock Pitts, AIA, principal in charge at Architecture Plus. "But using the old stones retained the historic character of the stairs and saved money."

The project was completed in the autumn of 1999 and has become a gathering place for local residents and RPI students, who study, sunbathe, and socialize on the steps. As a case study, the stairs in Troy prove the importance of durable materials and proper maintenance.

### What the codes say

The three model codes and their amalgamation, the International Building Code, have slightly different design requirements for public stairs. Codes also vary according to occupancy and building type; health-care facilities have different requirements than apartment buildings or stairs located as part of a public plaza.

Some rules relating to public stairs and commercial structures are consistent throughout all codes, however. Exterior stairs must be stable, slip resistant, and noncombustible. Open risers are forbidden and solid treads are required. Stairs should be protected from weather, specif-

ically snow and ice, though there are many ways to do this that don't require a roof or canopy, says Kim Paarlberg, staff architect for Building Officials Code Administrators International (BOCA). For example, simply placing them out of the path of winter winds may be enough. Proof of a reliable snow-removal method, such as heated treads or a dedicated maintenance staff, is also acceptable. "The code official must be convinced that it is possible to egress in an emergency situation, regardless of the weather," she adds.

The width of the stairs, usually recommended to be a minimum of 44 inches, may also be dictated by code. This depends on the use of the building and the number of occupants.

The Americans with Disabilities Act (ADA) guidelines say continuous handrails, necessary anytime there are more than two treads, must flank the



project manager Hank Bishop of Wallace Roberts & Todd. (The firm also worked on Baltimore's Inner Harbor, a series of parks and plazas that capitalizes on the waterfront.)

A set of amphitheater steps (with intermediate stairs for access) surrounds the turning basin, where tour boats will turn around. These use complementary proportions: risers are 18 inches and treads 42 inches. "People can sit on the steps with ample room for others to sit or pass behind them," Bishop adds.

The handrails are steel that's powder-coated in dark brown. The electrostatic powder-coating paint treatment is the most durable solution when stainless steel is not an option, he says. "The coating costs more than steel, but it's worth it."

The granite is similarly durable, though Bishop notes that the crisp edges of the nosing are becoming shiny after repeated scraping by rollerblades. "You can't do outdoor stairs these days without considering rollerbladers," he says.

**The now-defunct Central Canal serves as the focus of the Capital City Landing project (left). Public stairs, scattered throughout the 25-acre park system (right), consist of granite risers and treads. The stone was chosen for its durability.**



shortest route to a building's main entry. In this sense, the rails provide some direction to those who have mobility impairments or who lack the stamina to get to the door in a more roundabout way. They also act as a guide for the visually impaired. Twelve-inch-minimum railing extensions at the top and bottom (plus the width of the bottom tread) of the run signal the beginning and end of the steps.

There are also specific criteria that describe shape and height limitations for the gripping surface. The outside diameter of the rail must have a radius of 1½ inches. A four- or six-inch spacing is required on the

guardrail, "so that children cannot stick their heads through and possibly fall to their death if the stair is high enough above ground," Paarlberg says. An additional rail at a lower height is recommended by the ADA for buildings widely used by children.

Historic buildings pose special code concerns, especially when it comes to handrails. "Most are out of compliance due to their size and gripping surface—if there are railings at all," says John G. Waite, FAIA, of Albany, N.Y. Following codes while renovating old stairs may alter the character of the building, however. In New York, for example, codes say handrails must be located at four-foot intervals across broad flights of stairs. All those handrails may alter the character of the stairs significantly. "It's essential that architects work with code officials to make some compromises for old buildings," Waite says. "That doesn't mean making them unsafe or inaccessible; just more appropriate."

#### **Materials matter**

What the stairs are made of should be consistent with the construction of the building or surrounding structures. "Monumental buildings should have monumental stairs," says Steven Winkel, FAIA, of Field Paoli Architects in San Francisco. "Stone buildings should have matching stone stairs when possible."



**Problems with stone steps include cracking and spalling, caused by water that infiltrates the mortar joints and freezes, lifting the stone. Where possible, eliminating mortar joints by using a single stone in the tread helps.**

## CASE STUDY

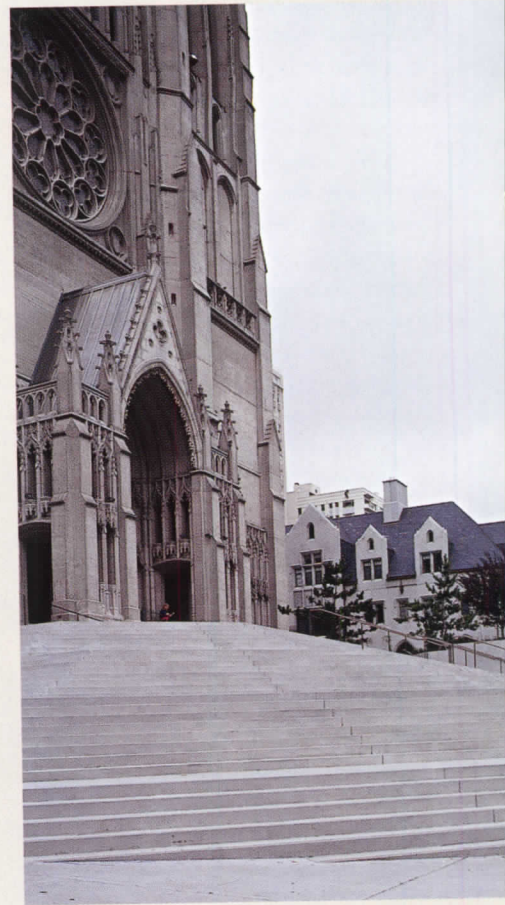
**Project:** Grace Episcopal Cathedral, San Francisco

**Architect:** Turnbull, Griffin & Haesloop Architects

As aesthetic elements, stairs can serve many purposes. At this cathedral, which sits atop Nob Hill overlooking San Francisco, the renovated stairs became a way of connecting the structure, both physically and metaphorically, to the rest of the city.

According to Mary Griffin, AIA, the cathedral was formerly accessed through a set of stairs tucked behind the chapter house. "That left little space to gather after services or to hold events. And it effectively blocked out the city, isolating the cathedral." The solution was to tear down the chapter house and create a stair that is, Griffin says, "a grand gesture and a generous statement."

Both the cathedral, built in the early 1900s, and the new stair are reinforced concrete. This was used on the stairs to help resist seismic forces. "There are expansion and contraction seams all over that will take up some of the stress also," says Eric Haesloop, AIA. "If the cathedral were on base isolators, the seismic movement would be

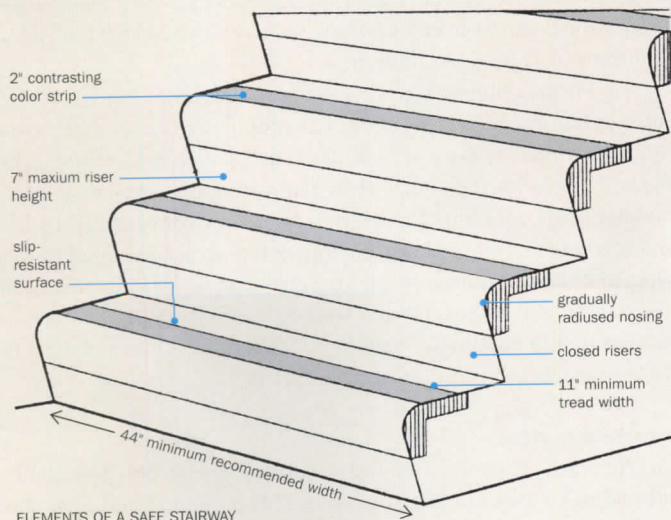


taken up with a moat at the base of the stair."

The architects used 6-inch risers and 12-inch treads—a little steep for an exterior stair, Haesloop says. But these dimensions allowed room for multiple landings. Other complica-

tions included finding a way to tie the stairs into the sidewalks and courtyards at various elevations on the sides of the building. "Coping with topography is always a problem when designing exterior stairs in San Francisco," Haesloop says.

**The renovated stairs of the almost 100-year-old Grace Episcopal Cathedral serve as a place for processions (left). Both the stairs and the church are concrete (right).**



### When it comes to stairs, safety is first priority


Making exterior stairs safe not only benefits the building owners and occupants, it helps avoid liability issues if someone is injured. Some of the most common hazards:

- The concrete atop metal-framed stairs wears away or is damaged by severe weather, exposing metal edges that catch on the front of the shoe.
- Risers are not uniform in height, particularly at the top or bottom of the run. This breaks the natural, biomechanical rhythm of people going up and down the steps and they are more likely to trip.
- Stairs are poorly lit. Good lighting makes safer and better-looking

stairs, though it is often spotty and uneven. Placing lights at each tread is a good, thorough approach.

- Stairs do not comply with ADA requirements, such as handrail size or position. Says Field Paoli Architects' Winkel: "Handrails and stairs are a slam dunk for disability advocates to find fault."
- Single steps "are killers," Winkel adds. "It usually has no handrail, the most important cue that the stair is there. Consequently, people don't see the step and fall."
- Stair edges are difficult to see. Some states require that public stairs in all facilities have a two-inch contrasting color strip set back one inch from nosing to make it easier to see the stair edge.





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No skateboarders will attempt these stairs, which suffered the effects of weathering and an inadequate substrate. The treads were also not properly angled to prevent ponding.

**Riser and tread wars: What are the best proportions?**

In the beginning, there were ladders. Then there were stairs—albeit uncomfortable ones, as anyone who’s climbed the pyramid at Chichen Itza will report. Then came the front and the back stairs; the ones in front were grand and gradual while the back steps were steep and minimal.

Now there are building codes that dictate riser and tread minimums based on accessibility as well as stride and comfort studies. These studies say, in essence, that the tread should be wide enough for the entire foot, and the riser low enough that lifting the foot doesn’t require excessive effort and discomfort.

Stair dimensions reflect the various purposes of the stairs. The facades of the U.S. Capitol, surrounded by steps, are a good example. Designed for the most part by architect Benjamin Latrobe, the various staircases have risers and treads of differing proportion. The stairs off the Senate and House wings are intended to be fast and functional—6¾ by 14¼ inches. But the ceremonial stairs on the Pennsylvania Avenue side are 5 by 17½ inches.

Riser and tread proportions are also a matter of expediency. Inside and out, stairs are customarily designed to the steepest limits in order to use less space and material, says John Waite.

But personal preferences also come into the equation. “Two times the riser-height plus the depth of one tread equals 26 inches. It’s what I like to use for a comfortable stride,” says Hank Bishop of Wallace Roberts & Todd in Philadelphia.

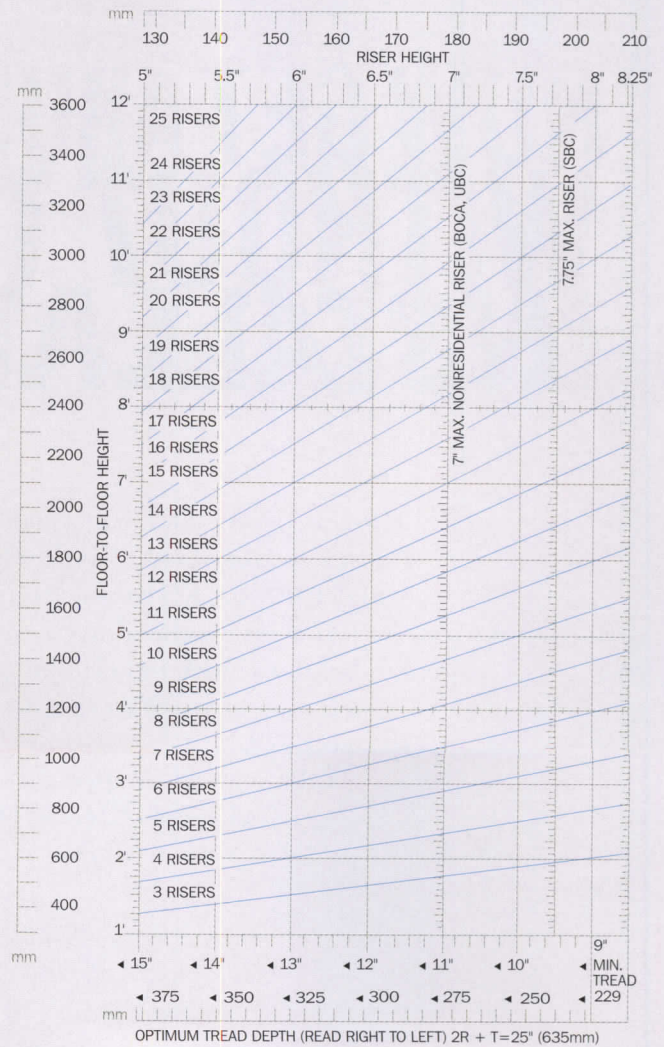
Others prefer the sum of the tread and riser to be between 17 and 18 inches, with the riser as little over 7 as possible.

The British, French, and Germans have their own set of historic precedents for stair proportions, though the measurements are ultimately about the same as the 7-11 rule dictated by code. In Great Britain, a step is considered proper if the riser is 5½ inches and the tread 12 inches. In Germany and France, smaller proportions are allowed, perhaps due to the fact that buildings in Central Europe are often tightly designed. For instance, a riser of 7½ inches might be paired with a tread of just 9 inches. Small by American standards, but adequate in Germany.

Material choices depend on aesthetics, cost, maintenance needs, and climate. In northern climates, just about every surface material is problematic. Masonry, concrete, and stone can fall victim to freeze/thaw cycles, like the stairs in Troy. The material used for the substrate contributes to the stairs’ overall durability. Concrete is the most common and cost-effective substrate. Steel may be used but is susceptible to corrosion, particularly in climates where chemicals are used for de-icing.

Cast-in-place concrete stairs, perhaps with precast elements, such as treads, are an adequate solution for many buildings (although concrete is also somewhat susceptible to damage from de-icing chemicals). Integrally colored concrete further enhances the aesthetics. Adequate drainage, specifically weep holes, proper slope, drainage channels in some cases, and a gravel bed beneath the concrete, helps avert moisture and subsequent cracking problems. To prevent slips, a coarse finish is used on the tread surface. And with concrete, as well as other tread materials, a slope of about 2 percent or ¼ inch of rise per foot of run is necessary to prevent ponding on the treads.

Different tread and riser materials may be used over





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concrete or steel substrates, though this adds to the cost. Stone is used frequently, or granite, limestone, and high-quality bluestone. Marble is also used, though it is slippery and usually softer than other stones, making it more vulnerable to freeze/thaw cycles. Brownstone is used on historic buildings, though it is more likely to spall than other types of stone.

Stone pieces can be set in mortar, though this requires careful installation to avoid an uneven tread surface and to keep mortar joints small, limiting moisture penetration. Using large stones minimizes the number of joints and means fewer opportunities for water penetration.

In designing new stairs for the Temple Emanu-el in Haverhill, Mass., Woodman used one piece of granite with no joints for each tread. It was expensive, says Woodman, “but these are ‘100-year steps’ that will require minimal maintenance.” Also, winter shoveling won’t dig into any joints, chipping out the mortar. And the large pieces of stone were easier and faster to install.

Among handrail materials, bronze, brass, and cast iron are ideal for high-quality buildings, such as courthouses. All three are likely to last indefinitely—and are priced accordingly. Steel is common but is more susceptible to corrosion. To prevent rust it should be both galvanized and painted, though the paint is likely to chip and wear with daily use. Epoxy paint is durable but susceptible to ultraviolet degradation. Topping it with a urethane finish coat solves this problem.

Metal railings can react to the salts used to melt ice, which mix with snow and water to form a corrosive solution. Problems are compounded with stone surfaces as the corrosive solution makes stains and can cause the stone to delaminate.

**But it’s not my fault!**

Exterior stairs used to play an important role in the aesthetics of the

building. Think of the Capitol, the New York Stock Exchange, the great cathedrals of Europe, and all those Beaux-Arts libraries and museums. “In the old days, buildings were placed high for grandeur of scale,” Winkel says. “Now, buildings are pushed close to the ground to minimize grading and ramps. There are just too many legal issues so it’s better to avoid them altogether.”

While the number of falls that occur on outside stairs is not tracked specifically by insurance companies, about 25 percent of all claims deal with bodily injury, including slip-and-fall cases. According to Architectural Graphic Standards, stairs (indoors and out) result in 4,000 deaths and one million injuries annually.

It is certainly not uncommon for architects to be sued, in turn, by building owners for negligent design, says Michael J. Maloney of Maloney & Company, an insurance brokerage and risk-management firm in Madison, Conn.

Meeting the local building code doesn’t absolve the architect of liability. Code provides only a minimum requirement. Architects must look at unique site conditions, as well. For the new stairs at the Temple Emanu-el, Woodman knew he’d have to provide broad landings where people could congregate after services. Otherwise, members of the temple would try to meet on the steps and would be more likely to fall. While landings are normally required after a rise of 12 feet, Woodman recommends them every 5 to 6 feet, depending on floor-to-floor heights.

A good stair maintenance program is the best way to avoid liability problems, says Architecture Plus’ Pitts. The owner and maintenance staff should be aware of potential slip and traction problems with maintenance coatings, such as overpolishing or oversalting the stairs. Good maintenance also means the stairs will last longer, look better, and minimize liability issues. ■



**AIA/ARCHITECTURAL RECORD  
CONTINUING EDUCATION**

**INSTRUCTIONS**

- ◆ Read the article “Creating Safe and Appealing Public Stairs” using the learning objectives provided.
- ◆ Complete the questions below, then check your answers [page 246].
- ◆ Fill out and submit the AIA/CES education reporting form [page 246] or file the form on ARCHITECTURAL RECORD’s Web site at [www.architecturalrecord.com](http://www.architecturalrecord.com) to receive one AIA learning unit.

**QUESTIONS**

**1.** What do building codes require for exterior stair design?

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**2.** What are the factors in selecting materials for exterior stairs?

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**3.** What are the considerations for handrail materials?

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**4.** What can architects do to avoid lawsuits regarding stairs?

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**5.** What are the considerations for stairs with historic buildings?

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# Tech Briefs

Rating green buildings involves several different software systems • Builders at a conference on sustainability learn to market green houses • ICQ facilitates project collaboration

## UNDERSTANDING THE INTERNATIONAL SYSTEMS FOR RATING SUSTAINABLE BUILDINGS

Buildings cause significant environmental damage, deforestation, loss of biodiversity, ozone depletion, flooding, and pollution of waterways, land, and air. According to the Worldwatch Institute, almost 40 percent of the 7.5 billion tons of raw materials annually extracted from the earth are transformed into concrete, steel, drywall, glass, and rubber—and one-quarter of the annual wood harvest is used for construction. Buildings consume about 40 percent of the world's energy production, and they create 40 percent of the sulfur dioxide and nitrogen oxides that cause acid rain and smog.

Many design teams possess the knowledge to build more efficiently, though the success of their efforts is hard to quantify. Environmental rating systems give building owners and architects benchmarks that allow them to compare their green building to others. Rating systems are meant to raise the bar, to transform conventional building practice by beginning to define what constitutes a sustainable building, given the state of the art in manufacturing, construction, and design. Each system has components that describe and promote sustainable design techniques.

Among these systems, the best known internationally is the Building Research Establishment Environmental Assessment Method (BREEAM), which was launched in the U.K. in 1990 (<http://products.bre.co.uk/breeam/breeam1.html>). It was upgraded in 1998.

Designers in the U.K. say that BREEAM has become standard in a design firm's repertoire. Versions of BREEAM are used to rate structures in many European countries, as well as in Canada and Hong Kong. In 1997 the Canadian government

adapted BREEAM to assess federal buildings, but the system has yet to be released for use in the U.S.

BREEAM's strength lies in its application to buildings over their useful life. This is important: Well-managed buildings that are less energy-efficient may actually perform better than well-designed, poorly managed new buildings.

### Back in the U.S.

More familiar to architects in the States is the rating system of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED), which just released its second version this spring ([www.usgbc.org](http://www.usgbc.org)).

To be effective, rating systems must have a wide range of applications: building owners, tenants, architects, engineers, general contractors, specialty contractors, and all others who are asked, in essence, to collaborate for environmental goals.

One of LEED's greatest strengths lies in the commitment of its "parent" organization, the U.S. Green Building Council (USGBC). Major federal, state, regional, and local government agencies, professional organizations (such as the AIA's Committee on the Environment), trade associations, manufacturers, research laboratories, and academic institutions comprise the group. Together they promote the understanding, development, and implementation of green building policies, programs, technologies, standards, and design practices across the country.

Under LEED, a building receives a rating ranging from "certified" through "platinum," depending upon the measures adopted and credits accrued. The City of Seattle recently announced that all its pub-

RECYCLED CONTENT MATERIAL				
MATERIAL	EST. DOLLAR VALUE	% POST-CONSUMER RECYCLED CONTENT	% POST-INDUSTRIAL RECYCLED CONTENT	TOTAL EQUIVALENT VALUE
Concrete with flyash	\$920,000	0	5	\$23,000
Structural steel	\$10,125,000	25	0	\$2,531,250
Light gauge steel studs	\$280,500	25	0	\$70,150
Fiberglass insulation w/ recycled glass cullet	\$130,400	18	7	\$28,036
Mineral-fiber ceiling tiles w/ recycled mineral wool and cellulose	\$835,900	5	63	\$305,104
Recycled steel suspension system	\$557,000	25	0	\$139,250
Carpet tiles w/ recycled-content backing	\$1,272,000	0	52	\$330,720
Steel doors and frames w/ recycled content	\$164,400	25	0	\$41,100
Ceramic/recycled glass floor tiles	\$58,500	0	55	\$16,088
Recycled content plastic toilet partitions	\$60,600	25	25	\$22,725
Access floors with recycled steel and concrete fill	\$3,200,000	13	10	\$576,000
<b>TOTALS</b>	<b>\$17,604,300</b>			<b>\$4,083,397</b>

The Total Equivalent Value is calculated by adding the following numbers:  
The product of the Material Value multiplied by the % Post-consumer recycled content.  
The product of the Material Value multiplied by the % Post-industrial recycled content, divided by 2  
(Note: Under this LEED credit, Post-Industrial recycled content is "valued" at 50% of the value of L Post-Consumer recycled content.)

lic buildings over 5,000 square feet must meet or exceed LEED's silver rating. The current version of LEED applies to the design phase of commercial and high-rise residential buildings. Future versions will apply to operations and maintenance.

### International consensus

Another international rating system was first presented at the Green Building Challenge Conference in Vancouver in 1998. GBTool ([www.greenbuilding.ca/gbc98conf/brief/brief.htm](http://www.greenbuilding.ca/gbc98conf/brief/brief.htm)) was applied to the 34 "best practice" green buildings from all over the world that were presented at the conference.

This software is intended to create international consensus on an environmental performance-assessment system—not an easy goal, considering the different problems and needs of each country. The advantage of this system is that it could be tailored to, say, energy conservation or environmental preservation, depending on the priorities of each country. The next phase will be presented at Sustainable Building 2000, which

will be held in Maastricht, The Netherlands, in October.

### How rating systems work

Rating systems set specific targets, requiring careful documentation by the design team, general contractor, and owner. For example, in order to encourage use of building products containing recycled content, LEED's "Materials Credit 4: Recycled Content" requires designers to specify that either 25 or 50 percent of the total building materials contain at least 20 percent post-consumer recycled material, or 40 percent post-industrial recycled material.

To see if this is feasible, the architect compiles cost estimates, i.e., the overall materials cost for the project (excluding the costs for mechanical, electrical, plumbing, and equipment), and the cost for each of the recycled-content materials used in the building.

The percentages of recycled content (both post-consumer and post-industrial) for each of the recycled material types must also be researched. This information is then

## Tech Briefs

entered into a spreadsheet. The total cost for all of the recycled-content materials is calculated and compared against the minimum criteria of 25 or 50 percent of the total materials cost for the building. In the example shown in the chart (previous page), the total recycled material cost is more than \$17.6 million, or approximately 52 percent of the total materials cost of \$33.2 million.

The second value that's verified is the aggregate percentage of recycled content, which takes into account the fact that post-consumer recycled content has twice the value of post-industrial recycled content. Recycled content information is entered for each material type by origin, and a weighted percentage of recycled content is obtained. This number must be over 20 percent to qualify for points. The example provided in the chart meets this minimum; the average is 23.2 percent.

### What do architects think?

In the U.S., the LEED rating system is proving to be a catalyst for green

design. There is a groundswell of interest among architects eager to acquire new green skills.

Bill Reed, AIA, with Natural Logic Inc. in Chevy Chase, Md., and co-chair of LEED's technical committee, has worked with many owners and architects, helping them apply LEED during schematics and design development. "Architects who are not proficient in green buildings begin to understand whole-systems thinking after working with LEED," Reed says.

"The rating system gives architects and owners a framework in which to work. Their reaction to the systems is, 'Oh, this is what green buildings are all about. This is not as mysterious as we thought,'" he says. LEED encapsulates all of the basic concepts of sustainable design in short order, he adds. "One of our recent clients told us that for the first time, he felt he was able to hold green in his hands."

Compared to other complex codes and standards, LEED is easy to access and understand. "The LEED score sheet brings out the competitive instincts in both building owners and architects," Reed says. "In that way more is accomplished." *John Amatruda and Catherine Coombs, Steven Winter Associates*

## ICQ, OR I SEEK YOU, COMES TO THE RESCUE ON WORLDWIDE PROJECT COLLABORATIONS

It would be hard to find two places further apart on the globe than Hobart, Tasmania, and Avon, Conn. Yet from these two disparate locations, an Australian architect and an American computer programmer closely collaborated on a recent project almost as if they were sitting in cubicles next to one another. Using the Internet and a popular, free program called ICQ—or "I seek you"—the two men conversed via E-mail in "real time" and exchanged valuable CAD data.

Unlike "chat rooms," which bring people together by happenstance and subject matter, ICQ lets E-mailers from any Internet domain

know when the people they want to correspond with are online. Mirabilis' ICQ ([www.icq.com](http://www.icq.com)) software was acquired in 1998 by America Online, which has its own variation of this interface called Instant Messenger. Together, the two claim more than 65 million users.

The Connecticut half of the collaboration, David Geisselman, chief programmer for DataCAD, was putting together an update feature for his company's software products that would allow variations for the display of metric numbers, depending on which metric standard is adopted.

For example, Australia, New

## CONFERENCE PROVES THAT HOMEBUILDERS WANT TO LEARN ABOUT SUSTAINABLE DESIGN TOO

At the opening session of the Green Builder Conference, keynote speaker Steve Thomas, host of *This Old House*, was applauded when he questioned the logic of calling a 6,000-square-foot house for three people "green"—no matter what natural materials are used.

This and other activities during the conference, which took place in Denver from April 5 to 8, invited homebuilders to think creatively about green. Although the number of builder attendees represented a small percentage of the National Association of Home Builders, who sponsored the conference, attendees clearly were aware of the impact that their homes have on the environment.

Educational sessions provided guidance on environmentally preferable materials and on starting a green building program. Nadav Malin, an editor with *Environmental Building News*, provided basic guidelines, advising them to avoid products containing PVCs, HCFCs, and CCA-treated wood. But even if builders are willing, the market may not be ready, he said.

Builders expressed frustration

at not being able to get environmentally preferable materials from their suppliers.

During some sessions, builders related their experiences in the field while trying to build with new techniques for energy and resource efficiency. McStain Enterprises, a production homebuilder in Boulder, covered green marketing. His approach is to send a consistent message about his company's commitment to environmental responsibility, from the use of green materials to unconventional planning, which mixes housing types and price points within communities. There was also a session on land development.

Conference exhibitors displayed a range of green materials, such as structural insulated panels and insulated concrete forms. There was also a handful of photovoltaic products dealers. The Department of Energy displayed educational materials on their programs to promote energy-efficient construction and primers on proper window and equipment selection for different climates in the U.S.

*Christine Bruncati*

Zealand, and South Africa, among others, use the AS1100 standard, which differs subtly in its display of metric numbers from, say, the German DIN standard. As architects are universally picky about how dimensions are displayed, it was crucial to Geisselman to get it right.

His Australian partner was Ian Johnson, principal of a small Australian architectural firm whose ICQ number Geisselman noticed on an E-mail correspondence with the company.

Using the real-time exchange, Geisselman sent Johnson incremental program updates while conversing with him about such minutiae as, "If the distance dimensioned is one meter, should the

numerical string be displayed as '1 000' or '1'?" Johnson's immediate reply: "Here we only use millimeters, so it would be '1 000.'"

Says Johnson, "With David [Geisselman] at his desk pondering the challenge and myself trying to get a project or two out at all hours of the night anyway, ICQ was a natural."

Geisselman says he loved the process: "The ability to converse in near real time with Ian made my job a reality even though I had no prior knowledge of Australian standards." This example bodes well for similar close collaborations between architects and their consultants or even their clients, whatever the distance that separates them.

*Evan H. Shu, AIA*

*What can you do with certified wood?*

1001 Emerson  
Palo Alto, CA

Esherrick Homsey Dodge and Davis  
Palo Alto, CA  
Architects

Drew Maran Construction & Design  
Palo Alto, CA  
General Contractor

FSC-Certified Cherry Wood  
Base, Oven & Pantry Cabinets

Plyboo Flooring



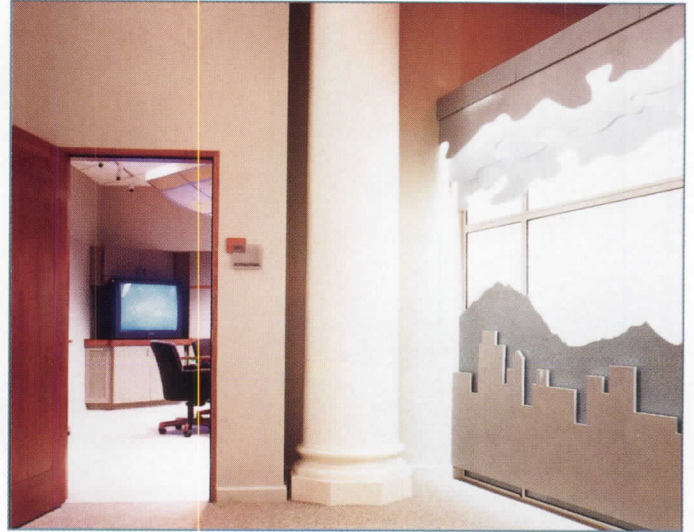
Certified Forest Products Council  
CERTIFIED WELL-MANAGED FORESTS

[info@certifiedwood.org](mailto:info@certifiedwood.org) ❖ [www.certifiedwood.org](http://www.certifiedwood.org)

CIRCLE 29 ON INQUIRY CARD

message made possible through a grant  
from The Pew Charitable Trusts.

# Wire & Cable Management for OPEN-PLAN SPACES



The data/communications demands on buildings are increasing rapidly as high-speed data networks, video, and other technologies become commonplace. At the same time, work space itself is continually evolving to meet new work styles, such as task-oriented teams. One result is the popularity of open-plan space, which is more flexible than hard-wall architecture and can more readily be reconfigured to meet changing requirements.

also be smaller, more specialized spaces such as conference rooms and training facilities. Whether it's a simple telephone jack or multiple LAN connections and video conferencing, all open spaces need flexible access to power and data/communications services.

The predominant method of providing open-space access to power and data/communications services is through or by connection to modular furniture. These units may contain integral cables and connections or they may have plain walls with external services attached or accessed in the work area. In either case, electrical wiring and data/communications cabling must be brought to the vicinity of the workstation. There are several types of wire and cable management systems that are well suited to this task: infloor/underfloor (duct, floor box), throughfloor (poke-thru) raised floor, and overhead. The selection of a particular system depends on a number of factors:

## AIA/ ARCHITECTURAL RECORD CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **WIRE AND CABLE MANAGEMENT FOR OPEN-PLAN SPACES**. To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 186 and follow the reporting instructions on page 246. Or use the Continuing Education self-report form on *Record's* Web site—[www.architecturalrecord.com](http://www.architecturalrecord.com).

### LEARNING OBJECTIVES:

- \* List types of wire management systems for open spaces.
- \* Describe the factors to consider in selecting a wire management system.
- \* Explain how the selection of wire management systems affect the location of power and data outlets at the workstation.

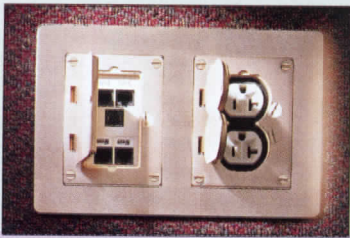
But true flexibility is achieved only when electrical wiring and data/communications cabling can be repositioned quickly and efficiently. This is especially true in open-plan spaces, where partitions are not available to serve as ready-made cable carriers. Often, wiring and cabling must provide workstation functionality while remaining essentially invisible.

From a wiring perspective, open space may be defined as any space where power and data/communications can not be conveniently accessed from the wall. These are often large areas, but they may

- \* The amount of flexibility required in the space.
- \* The churn rate of the space.
- \* The likelihood of adding or changing data/communications services, including system upgrades like fiber-to-the-desk.
- \* Aesthetics, including the type and style of service activation points.
- \* Ease of access to service activations.
- \* Cost, including life cycle cost.



## INFLOOR WIRE & CABLE MANAGEMENT SOLUTIONS

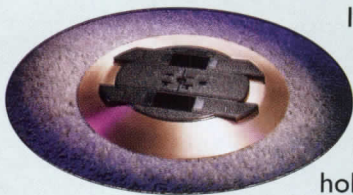


Infloor distribution systems are ideal for open-plan areas such as offices with modular furniture, schools, and retail stores. They are invisible except at access points and provide capacity and a high degree

of protection to sensitive cables. The type of construction is the first key to determining whether an infloor system is appropriate and, if so, which system to choose. Thus, this decision must be made early in the design process. If the building is of steel frame construction, a cellular deck system is often the most cost-effective solution. These systems perform both structural and wire and cable management functions. They are part of the concrete forming system and the steel reinforcement for the slab, as well as wire and cable distribution systems.

If the construction method is reinforced concrete, there are numerous options available, including under-floor duct systems. Ducts may be installed in single, double, or triple parallel runs or as modular (cellular) units. These systems can accommodate even the most complex wiring and cabling, offering flexibility in capacity and layout.

## POKE-THRU DEVICES



In new construction and retrofits, fire-rated poke-thru devices can be precisely located within open spaces.

Installed in core-drilled holes, they enable wires and cables to penetrate from the plenum

space through the concrete slab to the floor above. Poke-thru devices can be installed 2-ft. on center and not more than one per 65 sq. ft. of floor area. Poke-thru devices are typically U.L. classified for 2-4 hour fire rating.

Poke-thru devices can be installed at almost any time in the construction cycle after the concrete has been poured. This provides a large window of opportunity to accommodate late design changes. Because wiring and cabling is not located in the floor, designers also have the advantage of more precise measurements and can wait until late in the construction timetable to locate workstation services.

## FLOOR BOXES

Floor boxes provide power and data/communications services to open space areas and workstations.

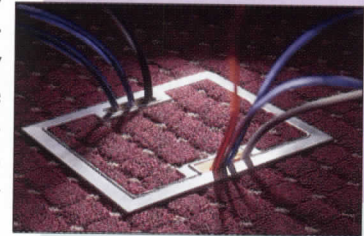
They are available in a wide range of sizes, styles, and materials. If the application is



on-grade, a cast iron floor box or an approved on-grade stamped steel floor box with vapor barrier is required. If the application is above-grade, a stamped steel box may be more appropriate. Nonmetallic floor boxes can be used as a cost-effective alternative to stamped steel and cast iron. Unlike steel and cast iron boxes, PVC boxes can be trimmed to floor level after the concrete pour. Floor boxes are available in both shallow and deep versions.

## RAISED FLOOR SYSTEMS

Raised floors are no longer confined to computer rooms, where they first gained prominence by managing large quantities of data/communications cabling and power wiring. In addition to



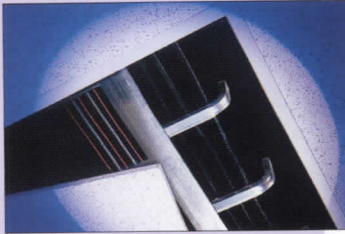
providing physical space for cables, raised floors offer the advantage of convenient access to power and data/communications outlets housed in raised floor boxes. As a rule, these boxes provide dual service capability, allowing for the installation of both power and data/communications devices. Typically, a hole is cut into the raised floor panel, the floor box is set in the opening and secured to the floor; and power and data/communications service is brought to the box.

In order to maximize the flexibility and cost benefits of raised floors, many designers are now also specifying manufactured wiring systems. A manufactured wiring system consists of factory-assembled connectors and cable assemblies that provide a "plug-and-play" interface for power wiring. An estimated 45 - 55 percent of raised floor systems now employ a manufactured wiring system.

## OVERHEAD SOLUTIONS

The alternative to placing wires and cables in or under the floor is to locate them above the open space. The wire and cable management system is typically concealed





by a drop ceiling, but in loft-style spaces they are often left exposed to view. Although hangers and hooks are sometimes employed for low-density applications, cable trays provide a solution for higher capacity applications. They offer a high degree of flexibility in terms of locating the components and accessing the cabling contained within them. Several styles of cable tray are used in commercial buildings:

- \* **Center spine cable trays** consist of a central support member with a series of rungs that support the cable.
- \* **Solid bottom cable trays and wireway** offer an effective way to manage wiring while keeping it accessible, organized, and secure.
- \* **Wire basket trays** are lightweight and can be easily configured to avoid obstructions.
- \* **Ladder cable trays** offer strength and high capacity for heavy-duty applications.

Designers who choose overhead wire and cable management solutions must resolve the issue of providing electrical wiring and data/communications cabling to individual workstations or open space work areas below. There are several popular options for this:

- \* **Existing columns** may be modified to create space that conceals wires and cables. This option is most effective where workstations are clustered around columns.
- \* **Architectural columns** are non-load-bearing design elements that mimic structural columns and provide space to conceal wires and cables.
- \* **Service poles** carry wires and cables directly from overhead space to workstations. Although they tend to interfere with sight lines and the openness of large spaces, service poles are cost-effective and can be easily relocated.
- \* **Perimeter raceway** can be run vertically on walls to bring wires and cables down to work level, and then horizontally to feed workstations that are located along the perimeter of open spaces.

## POINT OF USE CONSIDERATIONS



The selection of a wire and cable management system often dictates the location of power and data outlets at the workstation. For example, floor boxes include integral connection

## Wire & Cable Management for OPEN-PLAN SPACES

points. Infloor systems and poke-thru devices, on the other hand, offer many activation options that allow access to wires and cables, and provide connection points for workstations. These "activations" are generally located at prescribed intervals along each infloor "run." This provides a uniform grid pattern throughout the open space. Activations may also be located at irregular intervals to meet specific space requirements. There are three main styles of activation:

- \* **Flush activations** provide low-profile access to power, voice, data and video.
- \* **Raised activations** are less aesthetically pleasing, but provide enhanced capacity and ease of use.
- \* **Furniture fittings** minimize clutter and trip hazards by connecting directly to modular furniture. Furniture panels may contain integral wire and cable management systems and built-in connection points. Alternatively, standard furniture can be modified with the addition of connectivity devices.

## LIFE CYCLE COST ISSUES

Perhaps the most important variable that will influence the selection of a wire management system is the total cost of the system over the life of the building. No longer is it enough to simply calculate the material required and the labor needed to install it. This initial cost is less meaningful -- and even misleading -- in a changing environment where employees are frequently relocated, business functions are redefined, and new computer and telecommunications systems are added. What is far more reliable is the life cycle cost, which takes into account the expenses associated with changing and modifying a wiring system over the course of its useful life.

As soon as the type of construction and the general layout of the building are determined, life cycle analysis should be conducted to aid in selecting the most cost-effective wire management system.

## CONCLUSIONS

In the early days of the data/communications revolution, aesthetics were often sacrificed because the benefits of local area networks and other communications systems were so great. More recently, however, an aesthetically pleasing work environment has become a high priority. Today's integrated wire and cable management systems are designed to be aesthetically pleasing as well as functional. The selection of a particular system depends on a number of factors, but the objectives should be to maximize flexibility, minimize aesthetic interference, and maintain options for future technology. ■

**A COMPARISON OF OPEN-PLAN WIRE AND CABLE MANAGEMENT SYSTEMS**

System	Capacity	Flexibility	Aesthetics	Initial Cost	Life cycle cost
Service Poles	2	5	1	2	1
Cable tray	5	3	5*	3	3
Poke-thrus	3	3	4	3	2
Cellular deck	4	3	5	5	4
Underfloor duct	4	3	5	4	3
Floor boxes	3	2	4	3	3
Access floor	5	5	3	5	2

I = lowest      5 = highest      \*When hidden by drop ceiling.

**C A S E S T U D I E S**



**1 CABLE TRAY PROVIDES FLEXIBILITY IN NEW ARCHITECTURAL OFFICES**

The new Washington offices of STUDIOS Architecture occupy all four floors of a 1983 building that was extensively renovated. "The challenge was strip out everything and create a loft-style space with a lot of focus on natural light," says Bill Deegan, the designer/project manager. This meant very little hard-wall architecture and plenty of exposed services, including power and data/communications cabling.

"We looked at several options for wire and cable management. We wanted to have incredible flexibility to make the space fully functional," Deegan recalls. The solution was to run cable tray across exposed ceilings to the walls and then down to workstations. According to Deegan, "Open tray running against the exposed deck works well with other building materials and the natural light."

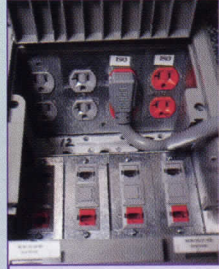


**2 OPEN SPACE SOLUTION FOR NEW LAW SCHOOL BUILDING**

Suffolk University Law School's new David J. Sargent Hall is arguably the most technologically advanced building of its kind. To accomplish this objective, the seven-story, 293,000-square-foot

building located near the Massachusetts State House in Boston was designed with a robust but nearly invisible wire and cable management infrastructure.

The law library occupies most of the building's top three floors. Seating capacity of 880 includes lounge chairs, tables, and 344 individual study carrels. Every seat offers laptop access to the Internet, a CD-ROM network, and specialized legal research tools such as Lexis and Westlaw. Because many of the carrels are located away from walls, an open space wire and cable management system was required. Poke-thru devices provide power and data cabling to carrels and tables, as well as partitions.



**3 OFFICE TOWER IS DESIGNED FOR THE LONG TERM**

A primary consideration in the design of EMC Insurance Companies' 20-story tower in Des Moines, Iowa, was flexibility. According to Roger Baldwin, Contract Administrator with Brooks Borg Skiles

Architecture Engineering, "The owner also wanted an aesthetically pleasing system that would work well with moveable partitions and modular carpet." The solution was a high-capacity cellular in-floor wire and cable management system. Access to power and data services in open space areas is provided by high-capacity multi-service recessed or raised activations.

The in-floor wire and cable management system meets EMC's requirement that building systems continue to meet every need as long as the building is in use. "They can set up workstations anywhere on the floor, there is plenty of capacity for adding cabling in the future, and the in-floor system works very well from an aesthetic perspective," says Baldwin.



**4 INFLOOR SYSTEM BRIDGES GAP BETWEEN 19TH AND 21ST CENTURIES**

When 20 West 9th, a 19th century Kansas City landmark, was renovated, one challenge was installing data/communications systems in the tight confines of a 100-year-old building that was not originally designed for supplying power and data to workstations.

Architects turned to an underfloor duct wire management solution that allows multiple duct configurations. "The technique is simple, really," says project architect Kevin Harden, principal with Gastinger Walker Harden. Contractors removed the prior floor finishes and sawed through wood flooring. Duct components were then slipped into the void of the tongue and groove floor. A low-density concrete topping was poured over the elements. "The duct allows us the flexibility to furnish data and power to all the open office space," says Harden.

**LEARNING OBJECTIVES:**

After reading **Wire & Cable Management for Open-Plan Spaces** you will be able to:

- \* List types of wire management systems for open spaces.
- \* Describe the factors to consider in selecting a wire management system.
- \* Explain how the selection of wire management systems affect the location of power and data outlets at the workstation.

**INSTRUCTIONS**

Refer to the Learning Objectives above. Complete the questions below. Then turn the page upside down and check your answers. Fill out the reporting form on page 246 and submit it or use the Continuing Education reporting form on Record's web site [www.architecturalrecord.com](http://www.architecturalrecord.com) to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

**QUESTIONS:**

1. Why are wire and cable management systems essential to open-plan work spaces?

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2. How is wiring and cabling brought to the workstation in open-plan spaces?

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3. What is the main advantage of poke-thru devices over infloor ducts?

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4. What are the advantages and disadvantages of overhead wiring systems?

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5. What factors need to be considered in selection of a wire/cable management system?

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1. Open-plan work spaces are popular because of their flexibility. The work space can be reconfigured to meet changing needs within a company. To make this concept work, electrical wiring and data cabling must be repositioned quickly and easily. Wire and cable management systems provide the electrical and data repositioning for workstation functionality while remaining unobtrusive.

2. In open-plan spaces, where there are no walls to run wiring through, the challenge is to bring the wiring and cabling to the vicinity of the workstation. Three types of wire and cable management systems suited to this task are infloor, raised floor, and overhead. Each system has advantages and disadvantages. Once the wiring is brought to the workstation it can be accessed through the modular furniture, or outlets in the floor or on columns or poles.

3. Poke-thru devices can be used in new construction and retrofits and can be precisely located within open spaces. They can be spaced as closely as every two feet and maintain the fire rating of the slab. The fact that they can be installed at almost any time in construction allows for late design changes.

4. Overhead systems offer a high degree of flexibility for locating the components and accessing the cabling they contain. These can be used with a drop ceiling or the cable trays can be exposed in loft-style spaces. The disadvantage of overhead systems is in visually dropping the wires and cables down to the workstation. This involves extra design work through concealing wire and cables in columns, service poles, or perimeter raceways.

5. The factors to consider in selecting a wire management system are location requirements for outlets and cost. The different systems offer different types of activation outlets, flush or raised, and uniform spacing or irregular configurations. Cost over the life of the building can be a major influence on selection of a wire/cable management system. This involves calculating the material and labor required to install as well as the life cycle cost which takes into account the expenses of changing and modifying a wiring system over the course of its useful life.

**ANSWERS:**

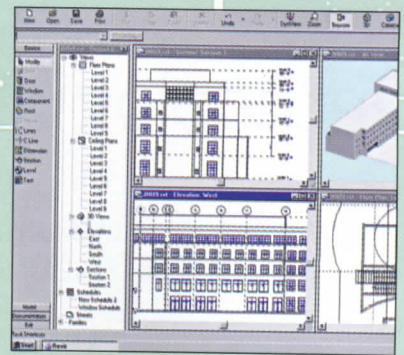


# COMPUTERS

New software tools  
enhance the  
architect's business  
and design skills.

The computer is changing every aspect of the way architects work; everyone knows that by now. But tracing the origins of CAD and predicting how architects will draw in the future—that's the business of the Program of Computer Graphics at Cornell University. This cadre of imaging experts, many of them students, has been shaping drawing and modeling programs since 1974. Catch a glimpse of their work and the surprising future of drawing on page 198. You can also see the future of marketing for architects, which marries the Internet, databases, and the old reliable print brochure, in a firm case study, page 190. *Wendy Talarico*

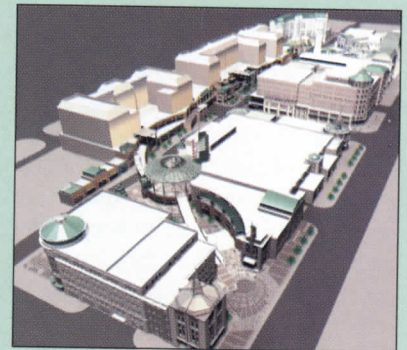
**190 Strategic Marketing**      **205 Digital Architect**  
**198 Cornell Graphic's Lab**    **209 Software Reviews**



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# Technology tools for marketing

**COMPUTERS AND COMMUNICATIONS ARE TRANSFORMING THE WAYS IN WHICH ARCHITECTS SEEK AND WIN NEW BUSINESS**

By Jerry Laiserin, FAIA

**S**avvy utilization of computer technologies for gathering, managing, and presenting information can turn a good marketing effort into a great one. Even a firm that already has a successful marketing program in place could win an additional 15 percent of its proposals while being more selective about the work it is pursuing.

Many architecture firms are applying marketing software and hardware to their practices in innovative ways. Davis Brody Bond (DBB) in New York City, a 50-year-old firm with 85 employees, was selected as a case study for this article because of their aggressiveness in applying technology to marketing. DBB's marketing capabilities were significant to its operations long before the advent of computers. Since 1998, however, marketing manager Christina Gilson has upgraded, expanded, and integrated the firm's use of technology tools for marketing. As a result, DBB's current collection of marketing technology tools is a veritable catalogue of the software, hardware, and systems that architects apply to the task of finding and winning new business.

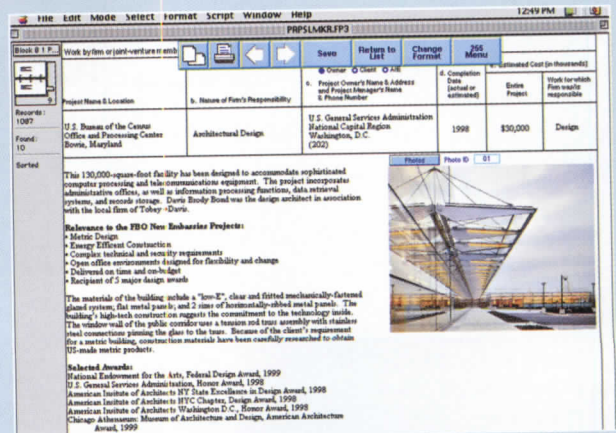
## The marketer's toolbox

The marketing process revolves around communicating and managing information, tasks for which computers are ideally suited. Eric P. Mott, president of the Society for Marketing Professional Services (SMPS), points out that design firm marketing is increasingly reliant on computers to identify market audiences, develop targeted messages for those audiences, and deliver those messages. "Every marketer's dream is the paperless office, where requests for proposals come in electronically and responses go out automatically," Mott says. "We're getting close, but are not quite there yet."

For design firms, as for other professional services, E-mail, Web sites, and video projectors are rapidly replacing faxes, brochures, and slide shows. The entire marketing or business development life cycle, which consists of nursing along prospective clients from leads to awards, can be enhanced, supported, and managed with the right technology tools.

These tools fall into two broad categories: front-end tools, or the materials that the client or prospect sees; and back-end tools that manage the information the firm uses to create what the client sees and the marketing process. Examples of front-end tools include Web sites, brochures, mailers, press releases, qualifications, proposals, and presentations, all of which (except the Web sites) likely appear in both print and electronic form. In addition to the software for creating and distributing marketing materials, there are specialized hardware devices and computer

Contributing Editor Jerry Laiserin, FAIA, develops collaborative strategies for architects and their technology providers.



Professional images of the U.S. Bureau of the Census in Bowie, Md. (this page top and opposite bottom), and a residence hall at New

York University (opposite top) appear in DBB's corporate literature, in corporate slide shows, and on the company's Web site (above).



**DBB's brochures include a generic one and others dealing with cultural, healthcare, and other specialties.**

services that support the front-end software, such as color printers, laptop computers, computer projectors, Internet access, and Web services.

Back-end tools revolve around database management systems (see "Digital Architect," January, page 149). The marketing-related information stored and manipulated in these databases includes project histories, personnel biographies, image libraries, and contact and proposal tracking. The specialized hardware devices and services that make this back-end software usable by and accessible to the principals responsible for business development include handheld or "palm" devices.

#### **Databases for Marketing**

Melding these disparate technologies into a coordinated marketing system means understanding the firm's goals and setting priorities. "If you don't have a good database management system, there's no point in doing marketing," Gilson says. Linking the marketing database management system to the human resources (HR) and accounting databases makes it easy to incorporate project histories (from accounting data) and personnel resumes (from HR data) into proposals. In her previous work at a large environmental consulting firm, Gilson spent three years developing custom database applications that accomplished "only one-third of what the best commercially available marketing management system can do."

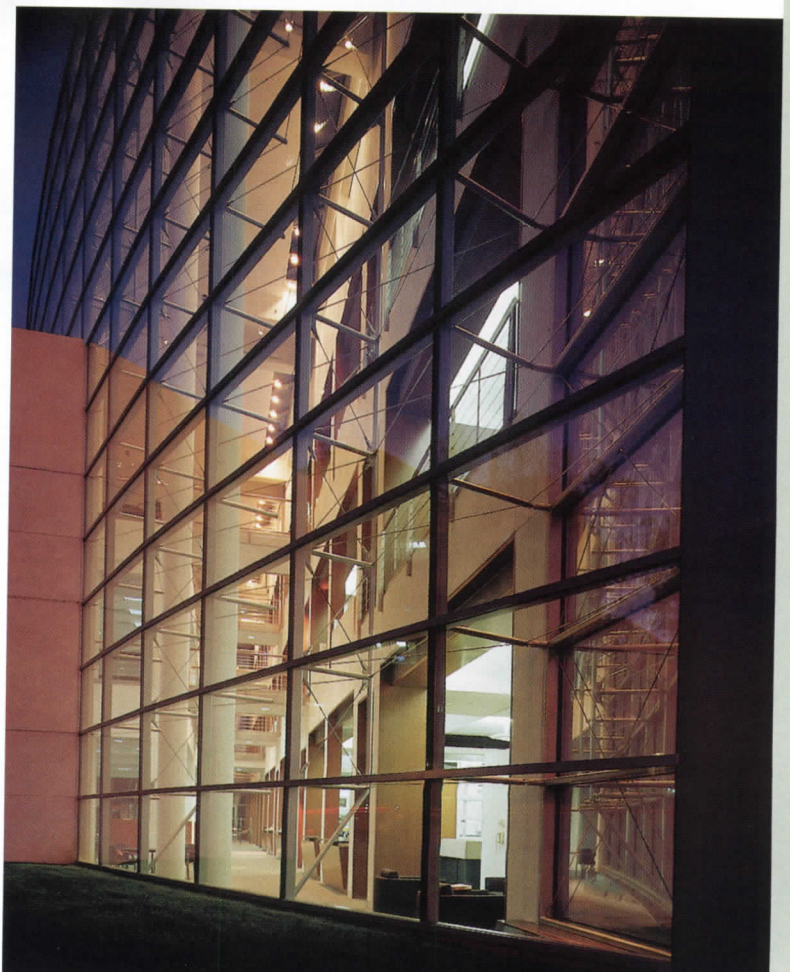
The challenge, however, is finding software specifically geared to the marketing needs of architects. The choices are relatively limited compared to the numerous products available for CAD or other architectural applications. Several packages, such as Government Forms from Enlightened Software Inc., InWork from Parallel Resource, and SF254/255 Reporter from CTM, focus primarily on preparing the standard forms 254 and 255 for qualifications and proposals on federal government projects. Although pursuing this type of work is part of DBB's marketing effort, the firm needed a broader solution.

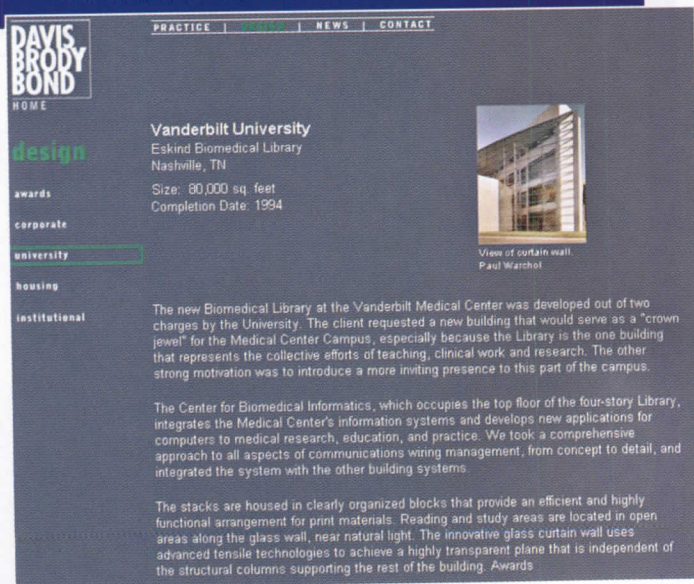
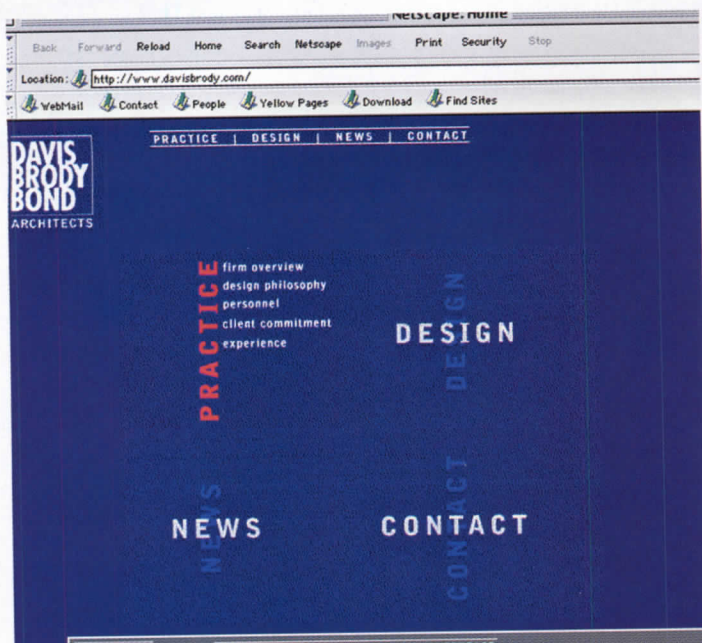
Of the more comprehensive marketing management programs for architects, Gilson found each had its own merits and tradeoffs. A/E Award, from Infomax Corp., offers simplicity and affordability. RFP, from A/E Management Services, provides very comprehensive proposal generation and proposal management functions for both public and private work, with especially strong links to many of the leading accounting packages for architects. Ultimately, however, Gilson selected MarketEdge, from the software company of the same name, based on its balance of features, strong database management functionality, and cross-platform compatibility. (MarketEdge runs on both Windows PCs and on the Macintosh computers preferred at DBB; A/E Award and RFP run only on the Windows platform.)

MarketEdge, which is written in FileMaker Pro, one of the easiest database management systems for end users to modify, proved to be



COMPUTER FEATURE





**The blue of DBB's Web site home page (top left) matches its generic brochure. Specific Web pages show samples of the firm's work (left), such as the Vanderbilt University Eskind Biomedical Research Library (above).**

an ideal back-end tool for DBB's marketing efforts. The package includes four components or modules: MarketPlace, a core listing of companies and contacts at clients and prospects, which feeds data to the other three modules; ContactManager for scheduling and reporting all communications and follow-ups with prospects; ProposalMaker for writing and assembling proposals, including the SF254/255 forms; and ProjectQualifier, a proposal process monitoring and tracking component that helps marketers evaluate the odds of making a winning proposal. While A/E Award and RFP offer many of the same functions, Gilson preferred the integration among the modules in MarketEdge, which helps to streamline and simplify data entry and data management chores.

At DBB, all firm-wide information, standards, and templates are published internally on the firm's Intranet. This also includes a shared calendar/scheduling program (presently Microsoft Schedule+, but soon to be upgraded to Microsoft Outlook) to manage principals' appointments in synch with the MarketEdge contact manager. The standard desktop calendar and address book software programs also are synchronized to and from each principal's handheld Palm Pilot device via the Palm Desktop software application. Future plans include exporting a copy of the project information list and MarketEdge's main database to the Palm

Pilots, so principals always will have that data in hand. Gilson has also looked into wireless data communication services for the Palm Pilots, but found the early generation services too slow and too expensive, a situation likely to change soon as faster and more affordable wireless connectivity comes to market.

#### Custom tools

With MarketEdge as the main weapon in DBB's marketing arsenal, Gilson could map out a strategy that effectively tied marketing into every aspect of DBB's practice. Gilson believes in "setting up 'corporate' systems with formal structures, even when the firm is small, so you can prepare for being big." For example, while MarketEdge maintains a catalog of resume sheets in its ProposalMaker module, Gilson felt that a full-blown, searchable database of personnel experience and capabilities would be essential to matching the right staff skills to each of the firm's proposals. Working in FileMaker Pro, she built a firm-specific personnel database as a custom extension to MarketEdge.

Gilson identifies the gathering of project history data as one of the most difficult, yet most essential elements of back-end marketing technology. Simply expecting project managers to fill out a form at pro-



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CIRCLE 108 ON INQUIRY CARD

## Designing and maintaining a Web site that gets results

Many first-generation Web sites by architects were little more than digital versions of the firms' paper brochures. A major problem with such static design is the difficulty of updating it to reflect ongoing news and events.

Few firms can afford the staff time and specialized skills needed to generate Web updates internally, and constantly using the services of an outside Web developer can become prohibitively expensive.

DesignArchitecture (DA), based in Wilton, Conn., is among the first Web development companies to offer standardized, forms-based updates via a browser interface, to otherwise custom-made Web sites. Founded by Dan Cornish, an architectural photographer, DA began as an information service and online forum for critical issues in design and practice. DA's own Web site remains active and continues to expand its scope and audience, while Cornish adds new staff and new services.

The Marketing Department Module powered by DesignArchitecture is a service that allows the company's customers to each have unique Web sites hosted by DA, yet all use the same simple tool for updates to their respective sites whenever they wish. Users like

Christina Gilson at DBB have pushed this easy update capability a step further, by linking DBB's update contents to the firm's news releases and additions to its client and project databases.

DA also can provide external hosting of a firm's image database, a library of scanned images of project photos that's used to develop proposals and computer-based slide shows. The images can be sorted in an online "lightbox," and a client-specific URL or Web address can be set up for any individual lightbox collection. This lets users like Gilson to tailor a selection of firm images targeted at the interests of an individual prospect or group of prospects, and E-mail them notice of the selection's location on the Web.

The DesignArchitecture system notifies the architect via E-mail when a prospect has viewed the online images, providing a more economical, timely, and productive process than mailing paper-based brochures.

Similar online image management can be achieved with off-the-shelf image database programs like Cumulus from Canto Software, but they require that architects host the images themselves, something few firms have the in-house storage resources or Internet connection bandwidth to accomplish. *J.L.*

The screenshot shows the DesignArchitecture website interface. At the top, it says "DESIGN Architecture" and "DesignArchitecture.com an Electronic Journal of Architecture and Design on the Internet updated daily". There is a search bar with a "GO" button. Below the search bar are dropdown menus for "MAGAZINE" and "CAREER". A section titled "ePostcards FREE!" features an image of a postcard. A prominent red box says "Get Your News FREE!" with a form to "Enter your e-mail address to subscribe" and a "Join Free!" button. Below this is a "Select Your Preferred Format" section with radio buttons for "HTML" and "Text". The main content area displays several news items, each with a small image and a title: "Letter from Europe", "A Grand Link Between Two Countries", "The Reuters Building: Newest Campus Point at the Crossroads of the World", "Sun Microsystems Grows Macro", "Architecture @ the Speed of Business", and "New Blood 101 Exhibition Highlights LA's Creativity Just in Time for WestWeek". Each item includes a photo credit and a date.

DesignArchitecture is a Conn.-based Web development firm that supports the sites of many architectural firms, including DBB. They also supply an e-zine.

ject close out rarely succeeds. Instead, she says, "the marketer needs to adapt to people's existing habits. Some will fill out a form, others prefer responding to an E-mail, still others would rather recite the information verbally." The important thing is to collect as much information, such as building type, square footage, construction cost, and so forth, about as many projects as possible, and then use that data to help generate successful proposals for new projects. E-mail reminders and simple on-screen forms help in this information gathering process. "Once the project managers see the payoff in new work that comes, they are more willing to invest time in providing that data about other projects later on," she adds.

With the back-end databases of prospects, projects, and personnel in hand, plus the MarketEdge tools for contact management, proposal generation, and proposal tracking, Gilson turned her attention to the front-end marketing materials—communications seen by clients and prospective clients. DBB standardizes paperwork by using one suite of desktop software applications throughout the firm for word-processing, spreadsheets, database access, and so on.

In most instances, Microsoft Office fulfills this requirement, but

it is important, adds Gilson, "that everyone be able to view project and market data the same way and that all documents be set up consistently." This includes establishing standards and templates that are easy to learn and easy to use for everything from letterheads to title blocks. While programs like MarketEdge organize the content and assembly of proposals, creating the "raw" materials, such as narrative project descriptions or spreadsheets of project history data is best accomplished in Office. Careful organization of all marketing materials, such as proposal boilerplates, also is important and can easily be implemented using the "styles" feature of Microsoft Word.

## Marketing via the Web

The principals at DBB have Internet access, whether from their desktops, laptop PCs, or Palm devices, making it convenient to retrieve the firm's own information from anywhere. The Web also offers invaluable resources for market research and background on entire industries or specific company prospects. This background helps the firm ensure that its proposals and other marketing communications are targeting the desired audience and delivering a message the targeted audience will

# Architect's to do list:

- BE CREATIVE ✓
- MOVE NORTH WALL OUT 6 INCHES BASED ON THE SURVEY ✓
- RECHECK THE CHECKSET ✓
- COORDINATE ELEVATIONS WITH NEW DESIGN ✓
- REMOVE EXEC'S DESKS FROM TOILET LAYER ✓
- MAKE TEXT LARGER ON ALL SHEETS ✓
- ADD POCHÉ TO ALL MASONRY WALLS ✓
- CHECK FURNITURE TAGS AGAINST SCHEDULE ✓
- COLOR ALL ROOMS BY DEPARTMENT ✓
- CLEAR 5 HOURS FOR UPGRADE TRAINING ✓
- DO AREA TAKE-OFFS ✓
- SET DESIGN CUT-OFF DATE ✓
- SET UP PLOT ROUTINES ✓
- EXPORT DATA TO PREVIOUS VERSION ✓
- FIND USER WHO EXPLODED THE DIMENSIONS ✓

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respond to. The Web might be used, for example, to research a specific industry, such as insurance, or a city or specific location, so that proposals would include the appropriate terminology. While such information can be critically important in writing a successful proposal, Gilson finds that the skills for productive Web surfing and searching are best left to marketing personnel like herself, rather than being imposed as an additional burden on busy principals.

Of course, the Web is a two way street, enabling a firm like DBB to publish information as well as search for it. For Web publishing services, the firm turns to DesignArchitecture, a Web site provider specifically geared to the needs of architects and offering powerful and dynamic features beyond the usual static Web site (see sidebar).

### Images

Computer-based slideshows are prepared in Microsoft PowerPoint, relying on Adobe Photoshop for image editing. The firm owns a portable LCD (liquid crystal display) projector, from InFocus, for showing laptop-based PowerPoint presentations to clients. These computerized presentation tools have completely replaced slides and slide carousels.

For all digital images, whether online or off, Gilson prefers professionally produced scans of conventional photography. Digital camera technology changes too rapidly and is not yet able to achieve acceptable resolution for print at an affordable price. Similarly, high-resolution scanners are too expensive and too prone to technological obsolescence for most design firms to justify the cost of scanning in-house. Many of DBB's images that had been scanned five years ago have had to be rescanned to avoid the use of older scans with lower resolution.

### Leave-behinds

Gilson prepares paper-based presentations, proposals, and "leave-behinds" in Quark Express desktop publishing software, although she also uses Adobe PageMaker. DBB prints its color output onto paper by digitally preparing the images in an Electronics for Imaging (EFI) Fiery image-processor that feeds a color copier harnessed as a high-resolution printer. Gilson prefers this system, despite its comparatively high cost, because it easily handles the heavyweight paper stock used for proposal covers—more economical color ink-jet printers are capable of competitive image quality, but do not deal well with heavyweight or textured stocks.

### The payoff

Although any firm's actual marketing budget is a closely guarded secret, industry averages show that five to eight percent of annual fee revenue typically is plowed back into seeking new work. The majority of that expense goes to the salaries of marketing staff and the non-billable time of principals involved in business development. Technology accounts for a relatively small, but highly visible proportion of the total, yet it provides the leverage that maximizes the use of staff and principals' time.

Specialized software for architectural marketing ranges from a few hundred dollars for the simplest 254/255 programs to more than \$10,000 for a multi-user license of the complete MarketEdge package. DBB's Gilson estimates that custom database programming for equivalent functionality would cost at least double that amount. Most firms already have adequate Office, calendar, and scheduling software, requiring



Three projects on the DBB Web site, hosted by DesignArchitecture, give potential clients an opportunity to see what the firm can do.

only desktop publishing (Quark or PageMaker) and image editing (Photoshop) tools at another \$1,000 or less, combined.

Palm Pilots cost only a few hundred dollars per principal, but color output devices can be costly. Portable LCD projectors range from \$2,000 to \$8,000, depending on brightness, resolution, and weight. Adequate color printing can be accomplished with a consumer-grade inkjet printer for under \$500 or commercial-quality Fiery setups for as much as \$30,000. Again, the differences depend on the firm's needs for resolution and speed.

Carl Krebs, AIA, a DBB partner who works extensively with all of these tools, is convinced they are well worth the investment. "Our marketing database lets us shift our time away from the logistics of gathering information and cranking out proposals and instead devote more time to approaching projects strategically and tailoring specific approaches to clients. The whole marketing effort runs smoother and faster, and our 'hit rate' has improved."

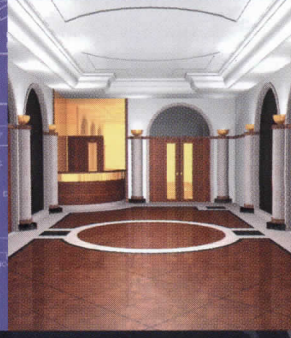
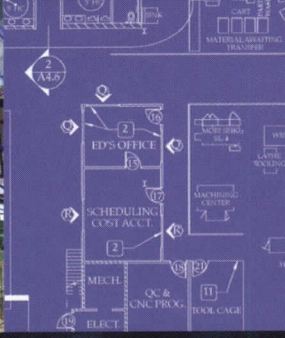
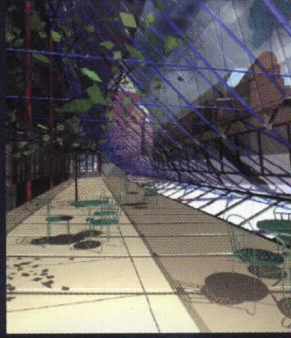
Tasks, such as submitting a formal qualifications statement, that used to take several hours, can now be accomplished in minutes. If anything, Krebs notes, "you have to resist the temptation to go after too many RFQs, because they have become so easy to do." Having a marketing person who is an internal champion for the technology also is important, because "you can't impose these things from the top down. On the other hand, architects need a well-documented set of procedures for their databases and other tools, so they don't become overly dependent on any one individual."

The contact management software, calendar, and Palm Pilot that DBB provides for each partner "help us leverage the relationship building, which remains the key element of our marketing effort," according to Krebs. Mott of the SMPS concurs that "professional services ultimately rely on establishing and maintaining personal relationships." Technology, it seems, will never replace the handshake and the smile. ■

WWW For a list of vendors who provide digital marketing tools, go to **Digital Architect** at: [www.architecturalrecord.com](http://www.architecturalrecord.com)

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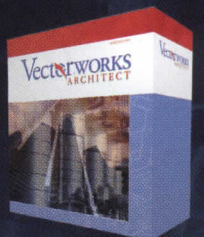
### PRODUCTIVITY

- An easy system for archiving, placing, & managing notes
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CIRCLE 34 ON INQUIRY CARD

# Cornell graphics lab sets high standards for new design technologies

By B.J. Novitski

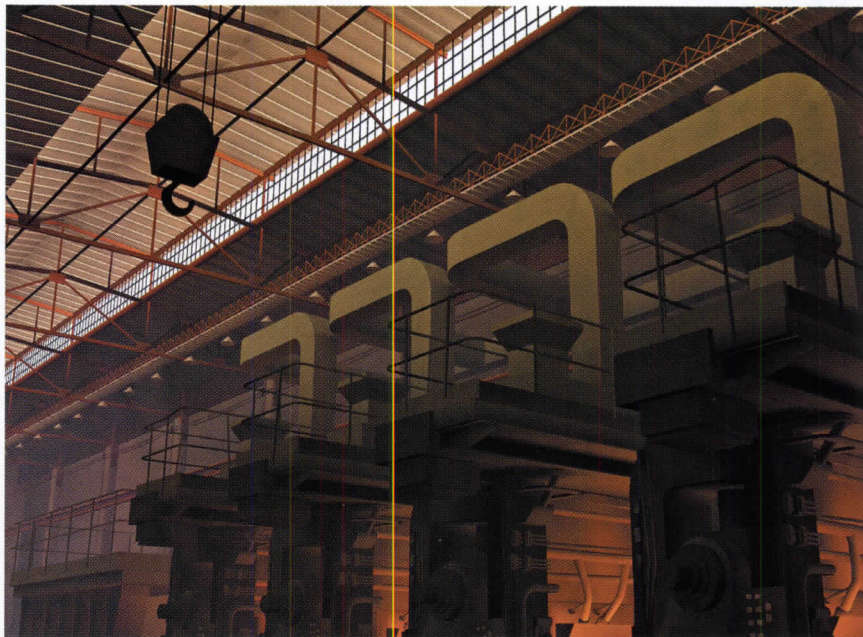
**I**n the glitzy world of computer-generated visualizations that dominate movies and magazines today, it's easy to take for granted the photographic quality that architects can give renderings of proposed buildings. But behind the scenes, four decades of grueling, dedicated, and inspired research have made possible synthetic images that are almost indistinguishable from photographs. One of the world's leading laboratories in this field is the Program of Computer Graphics (PCG) at Cornell University in Ithaca, N.Y. ([www.graphics.cornell.edu](http://www.graphics.cornell.edu)). Director Donald P. Greenberg has led the program since its founding in 1974. Greenberg, his staff, and students have developed the theoretical basis for many practical applications that architects now use routinely. For example, research performed at Cornell's PCG led to the development of Lightscape, a rendering program capable of creating very realistic lighting effects by calculating the precise amount of light reflected from surfaces and materials within a scene.

## A unique research program

Before leading PCG, Greenberg, who trained in architecture and engineering at Cornell and Columbia universities, was a consulting engineer with Severud Associates, an architecture and engineering firm. There, he worked on the design of the St. Louis Arch, Madison Square Garden, and other projects. During the 1960s, he became intrigued with the design potential of computers, but was impatient with the numeric output provided by engineering applications. His efforts to write software to display results graphically led to the establishment of the multidisciplinary Program of Computer Graphics, with significant funding from the National Science Foundation.

Today, the research center is still funded by the foundation and also by Intel, Hewlett-Packard, and Autodesk. Because PCG is independent from any single academic department, its students and faculty enjoy an unusual opportunity for multidisciplinary research. Most individuals at PCG are from the departments of architecture and computer science. Others come from the fields of engineering, art, perception psychology, and theater arts. This mix results in a rich research environment that values human perception and the aesthetics of light as much as physics and precision computation.

Current PCG research focuses on three major areas: improving user interfaces to make architectural applications more suitable for designers; simulating the behavior of light in space and understanding human visual perception system to refine the rendering algorithms (computational procedures); and developing methods for improving image capture and the quality of image-based rendering. For the architecture



profession specifically, PCG is concentrating on developing conceptual design tools that enable architects to design in context and to collaborate over the Internet.

## Rethinking the medium

The typical user interface for architectural software, with the familiar mouse and monitor, is badly suited to the "hand-eye collaboration" that characterizes architectural design, Greenberg says. He and visiting professor Moreno Piccolotto are developing a system that works with a drawing-board-size device from Input Technologies in Toronto. The equipment functions as both sketch pad and display device. It consists of a transparent digitizing surface, a cordless pen, and a high-resolution, rear-projection display, driven by a powerful microprocessor (or several working in parallel). Using this device, designers can sketch comfortably with the pen on the large, gently tilted surface. But unlike conventional 2-D paint software, the plane on which the sketch first appears can be rotated and navigated in three dimensions and placed into an underlying 3-D scene. The system also enables two or more designers to work on the same sketch collaboratively on the Internet. This equipment is expensive, about \$55,000 per setup, but experiments are under way with \$3,000 Wacom tablets and handheld devices such as the PalmPilot.





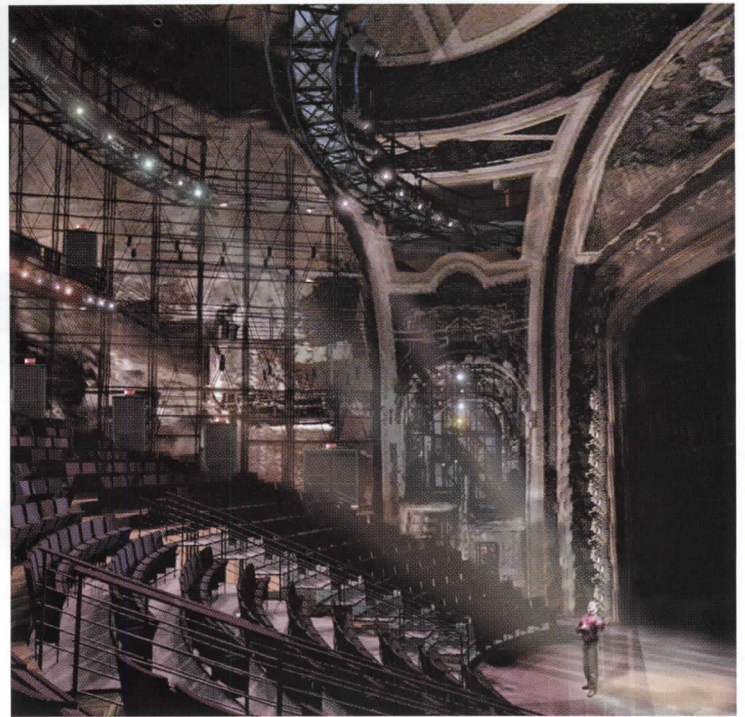
"It is fascinating to ponder the implications of exponential digital growth. In a world of infinite bandwidth, where processing, storage, and memory are essentially free, what does an architect do? With display devices limited only by our own visual acuity, we can create virtual worlds that are physically accurate and perceptually indistinguishable from real-world scenes. Data for these predictive models, including all geometry, materials, and lighting characteristics, will be easily obtainable over the Internet, provided by manufacturers selling their wares.

"But we still need our design tools—ones that are not restrictive, that are easy to use, very comfortable, and allow me to create. In a sense, I want to go back to where I started, with pen and ink and yellow trace. Where I am free to compose in silence or to classical music or alone with nature in the outdoors. Where I am free and yet connected and able to digitally doodle and sketch. The electronic future may rapidly be approaching the potential of the environments of the past." *Donald P. Greenberg*

The software used in this system is under development, and is based on work done by Piccolotto with Michael Malone (now a software developer at Autodesk) while they were graduate students at Cornell. The software is unique in its ability to move smoothly between the realms of rough sketch, precision rendering, and real-time walkthroughs. The ability to sketch naturally and create accurate architectural drawings as well as 3-D models connects the art of design directly with the science of architectural evaluation and development. PCG is collaborating on a prototype with a commercial software developer, and plans call for a program to be available for public use in a few years. "We make tools for a profession where the designers already know how to draw, think spatially, conceive of designs in three-space, and have great appreciation for light," Greenberg notes. "If we are successful, the word 'computer' will disappear from our jargon, and we will only be providing, in an electronic way, the opportunity for architects to express their design ideas."

### Physics meets art

Greenberg and his colleagues are also studying the behavior of light to improve the algorithms used to generate 3-D renderings. The PCG light-measurement laboratory is one of the best equipped in academia. Just as acoustical engineers may study sound in a theater at a variety of frequencies, researchers here study the physics of light at a variety of wavelengths. No other architectural research lab in the world is studying light at this level of precision. Cornell's lab, under the direction of mechanical engi-



"Steel Factory" (opposite, top) is an early complex radiosity image. "The Green Room" (opposite, bottom), from 1993. "Theater in New York City" (above), 1994, combines photos and a ray-traced model. This view of an Indian Culture Museum (left) lets curators see exhibit settings with or without daylight.

neering professor Kenneth Torrance, has elaborate instrumentation to measure light within physical models as it reflects from surfaces and moves through various media, such as air and glass. These measurements are then compared with the simulated light calculated by existing algorithms. The data is further refined according to the real-world models. As a result, the software's ability to imitate visible reality increases in precision.

Complementing a physicist's approach to this study, the PCG lab also employs perceptual psychologists to determine how and where mathematical improvements in rendering calculations affect the communication of meaningful visual information to the eye and brain. When the improvement in precision is not perceptible, researchers can modify the software to

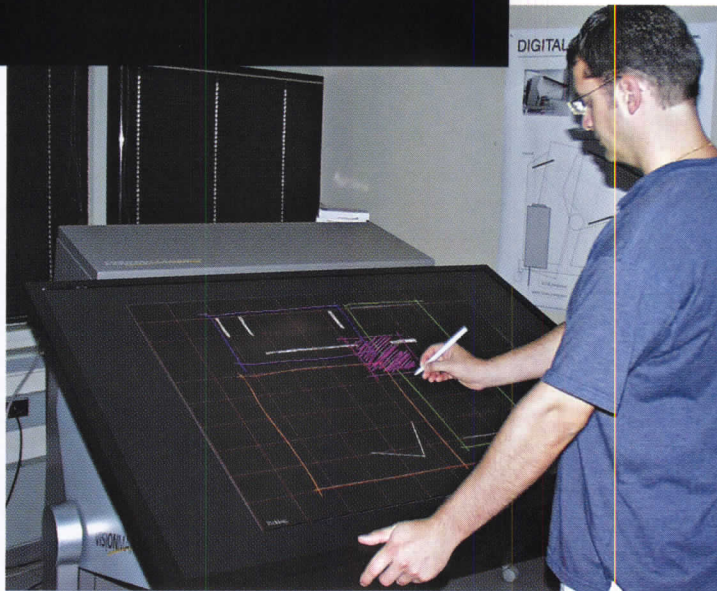




maximize speed without detracting from the realism of the computer models.

Precision in light simulation, as in the Lightscape software program, is important because it gives credibility to the resulting renderings. For example, if an architect models an interior space that is supposed to be illuminated by a clerestory, a precise rendering will show whether the space does indeed receive enough light with that window configuration and orientation. If the interior looks too dark, the architect using conventional renderers could simply modify the software settings to make the model look brighter. With a physically precise simulation, the architect must adjust the window size, shape, or the position of the glazing or the color or reflectivity of the interior surfaces to improve the quality of light in the space. In other words, the problem won't be solved until the architectural elements are correctly designed.

In conventional rendering packages, light is often simulated by the "ray tracing" method. This works best with direct lighting and highly reflective materials. Another method, "radiosity," works best with indirect lighting and diffuse surfaces. The simulation methods currently under development at Cornell combine the advantages of both ray-tracing and radiosity to produce the most realistic possible rendition of a lighted scene. Even with today's best hardware, these computation-intensive renderings are time-consuming. Given the pace of technology advances in hardware and software, Greenberg and his fellow researchers believe that in just a few years they will be able to generate high-resolution, precisely predictive images at a rate sufficient for real-time animation, that is, 30 frames per second.



**A digital drafting table allows students to mark up a projected image of a project. The outcome (top) is a projected radiosity solution atop a virtual space.**

### From real photograph to synthetic image

A third area of research is in image-based techniques. These techniques are already familiar through currently available technologies. For example, a digital photograph of an object or material can be "texture-mapped" onto the surface of a geometric model, giving the rendering the appearance of realism without requiring much geometric complexity. Another common application is in the animation technology pioneered by Apple Computer with the QuickTime VR format. Using QuickTime VR, several still photos taken at regular intervals for 360 degrees around a stationary viewpoint can be stitched together to create a panorama. Viewers can virtually look around a 360-degree space by moving the mouse. The application is becoming popular for displaying architectural spaces on the Web.

These technologies have their drawbacks. Because QuickTime VR, for instance, samples only a few images, the resulting animation may suffer from geometric distortions or blank spots, or it may fail to capture specular highlights. To surmount these shortcomings, PCG researchers are comparing image-based renderings of scenes with physically accurate images. They are identifying the most important sources of error in image-based rendering and refining algorithms to alleviate problems.

### Design studio technology

For the past three years, undergraduate design students in Cornell's architecture department have benefited from the program's technologically rich environment. In the autumn of 1999, for example, students in a third-year design studio used computers to develop projects for an Indian Culture Museum in Chaco Canyon, N.M. To celebrate the many facets of Anasazi, Hopi, and Pueblo cultures, the museum focuses inward on the spaces that exhibit cultural artifacts and outward to the surrounding desert. As in other undergraduate studios, the students studied issues of light, scale, and environment, but the similarity ended there. Although these students had minimal experience with CAD before the semester began, they could exploit it fully to design and present their projects. They created their models of the museum using the Autodesk packages, 3D Studio Viz, and Lightscape. The physically accurate rendering software informed students about such issues as whether their skylights were illuminating the exhibits at the times and in the amounts that the students intended. With software available at PCG, the students placed their models within a photographic, 360-degree panorama of the real site. Thus, any view from inside the model out through a window automatically displayed the correct portion of the surrounding landscape. Also, the ability to apply material textures to the surfaces in their renderings gave an aura of reality that increased students' empathy with the inhabitants in the space. Indeed, the overall effect of the imagery gave much clearer feedback



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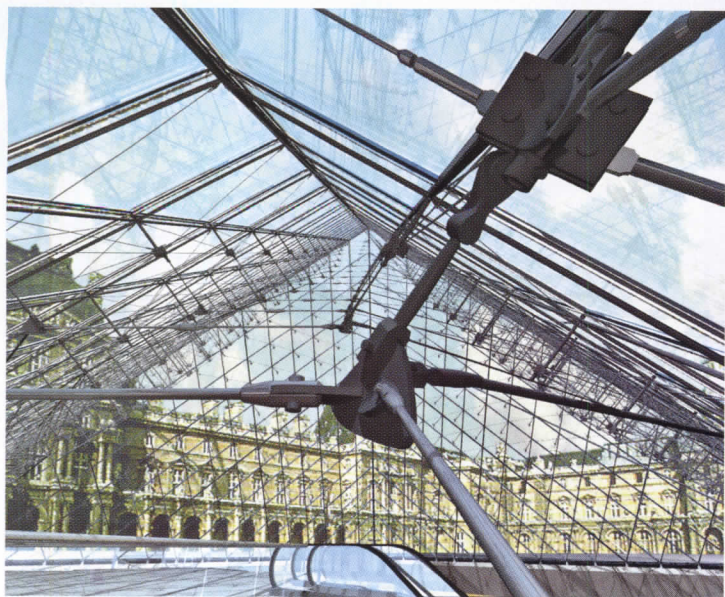
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**"The Pyramid at the Louvre by I.M. Pei," done in 1995, contains 32 million triangles and required 18 hours to compute on eight computer workstations.**

than architecture students normally experience. This allowed them to advance more quickly in their design development than is common among third-year students.

According to Piccolotto, who with Greenberg was their studio instructor, the students' success is also attributed to the fact that computer applications are not taught as separate courses, but within the context of design thinking. This provides the motivation to learn the applications quickly and thoroughly, and it teaches them subliminally the importance of taking a designer's approach to using the machines. Piccolotto notes that students are also encouraged to blend traditional,

manual media with their computer work whenever it is appropriate or more comfortable, such as with initial idea sketches. He says that the sophisticated technology not only allows the students to present their work interactively, but also enables average students to achieve a much higher level of expression.

During reviews throughout the semester, the students displayed their rendered projects on PCG's nearly room-size display screen. For those sitting at an optimal distance, this screen gives a 120-degree panorama, making the viewer feel virtually immersed in the scene. The triple-wide display from three projectors was particularly effective in portraying the vastness of the Chaco Canyon. Looking at nearly life-size renderings makes it easy for students and teachers to evaluate the designs. Because they work with the most advanced possible technologies, Cornell students are getting an education on systems they can expect to work with in a few years. Many of today's technologies will be obsolete by then. "We have always emphasized the teaching of concepts so that the students can ride the technological wave and never be outdated," Greenberg says.

### Looking ahead

Indeed, PCG's work is characterized by a forward-looking philosophy. "We are creating the user interfaces for tomorrow's technologies," Greenberg explains, "knowing with great confidence what will be available three years from now. We can demonstrate to the profession how their design tools might change over the next decade. Perhaps this is the most appropriate role that a research university can play, and we have been fortunate in being able to combine both the computer science and architecture professions in one interdisciplinary laboratory." Their combination of interface design, research into the physics of light, and pedagogical work demonstrates the balance with which Cornell is approaching architectural applications. PCG is improving the fit between traditional processes and new technologies. ■

### Cornell's Long Arm of Influence

Many students who trained at Cornell early in the history of CAD have gone on to create software that has greatly influenced the architecture profession. In addition to research that led to the widely used Lightscape rendering software, the program's graduates are leaders in developing 3-D modelers.

Four Cornell alumni created Wavefront, now available from Alias Wavefront, a Silicon Graphics subsidiary. John Pittman led development work at Hellmuth, Obata & Kassabaum to create a pioneering, in-house system of design and drafting software, some of which is still in use. Many of the key innovators at Autodesk, including Kevin Weiler and Carl Bass, came out of Cornell's program.

One of the leaders in CAD development at Skidmore, Owings & Merrill was Nicholas Weingarten, also from Cornell. He now works at J.D. Edwards in Chicago on "CustomWorks," a system for configuring made- and engineered-to-order products. They have modeled everything from custom windows to entire houses for a modular home builder.

Weingarten studied under Greenberg in the 1970s, during the early days of computer graphics research. Long before most architects had heard of computers, Greenberg's team was borrowing technology from the aerospace industry. Although primitive by today's standards and difficult to use, these early computers were put to work generating architectural images and, more important, the underlying algorithms. The

Cornell group created an animation of their campus; its 1974 publication in *Scientific American* helped popularize computer graphics for architectural applications.

Weingarten credits Greenberg with fueling a keen curiosity about the science behind computer graphics. Greenberg also created an environment for fostering an architectural problem-solving approach and a designer's eye for the quality and usefulness of the resulting imagery. "Greenberg pursues things from the aesthetic side. That's why his passion for rendering the beauty of the real world is so keen. He has combined that passion with a deep understanding of both math and physics," Weingarten says.

During his time at Cornell, Weingarten witnessed the evolution of animation, the use of 3-D topo-

logical maps for resource analysis, the development of innovative structural analysis of inflatables and large-scale domes, and the graphing of energy flows through buildings.

After graduation, Weingarten took his experience in structural analysis and visual simulations to SOM, where he joined Doug Stoker's computer group that created the 3-D design system that later became IBM AES. This software, used extensively for production at SOM, was developed to design high-rise buildings, and it integrates the disciplines of architecture and engineering. Although AES was never widely used in this country, it was influential in establishing a high standard for the potential of architectural software. Its creators have gone on to become leaders in software development today. *BJN.*

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# Digital Architect

## AEC Systems 2000 takes architects for a ride

By B.J. Novitski

What a difference a year makes in the fast-paced world of the Internet! The AEC Systems show, the annual progress gauge for computer technology in the construction industry, demonstrates this month that the Web is entrenched in professional practice like never before. As the commercial exhibits and educational sessions at this 20-year-old trade show attest, Web tools have evolved from the somewhat detached information resources of a few years ago to key components of the everyday software that architects depend on. And, as always, the show is center stage for new developments in CAD software.

### Project extranets boom

One of the most dramatic developments for the AEC industry within the past year is the growth and success of project collaboration systems, or extranets, that use Internet-related technologies. These allow project teams to share documents and messages without the inefficiencies of using paper or traveling to job sites. Two years ago, extranets were virtually unheard of. Last summer there were about 30 companies providing them; now there are more than 100.

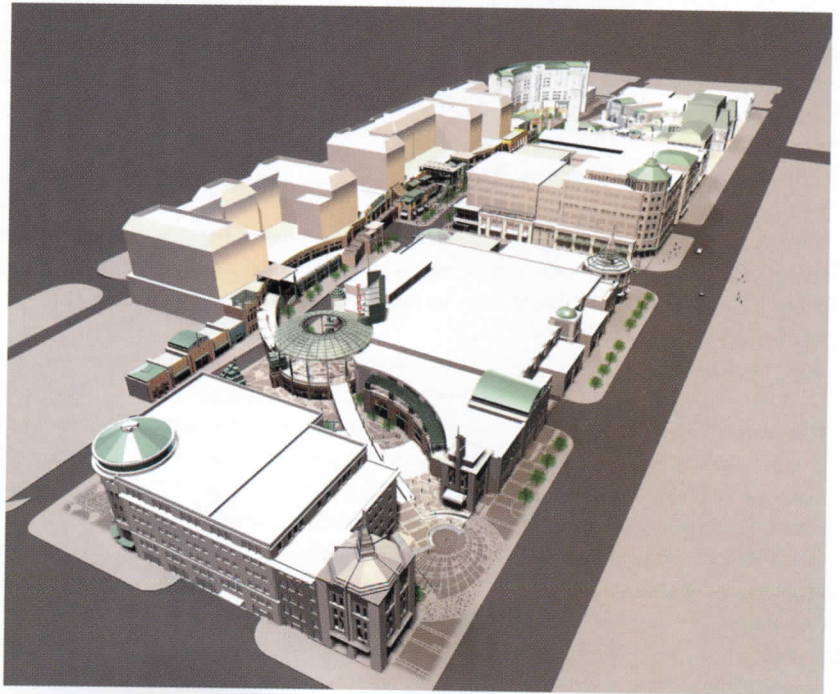
Close to 90 percent of the exhibitors are demonstrating Internet-related products. Most of the show's educational sessions are also geared toward Web technologies. These include hands-on workshops where participants learn how to design Web sites and use project collaboration systems.

"A Day in the Life of a Project," which premiered last year, is greatly

expanded this year. These 45-minute demonstrations reenact the activities of real architects, engineers, owners, and builders as they solve the day-to-day problems normally encountered during design and construction. Among others, the Jerde Partnership, architects in Venice, Calif., and the Boyer Company, real-estate developers in Salt Lake City, will highlight their work on the mixed-use 2002 Gateway Olympic project using project collaboration software from Cubus Corporation.

As project extranets mature, producers are developing ways to differentiate their systems and increase their value. Bricsnet, for example, is launching international versions of its ProjectCenter in five languages. MP Interactive, maker of e-Builder, one of the oldest collaboration networks, recently introduced "Constructor Cam," a construction-industry Web camera that captures on video problems found in the field. Footage is transmitted to the office for study via the Internet.

Other project extranet providers, including MP Interactive and Framework Technologies, are streamlining the process of managing multiple projects. They are also making their systems more useful in the request-for-information (RFI) process. Framework's ActiveProject, for instance, now has enhanced E-mail functions that automatically alert team members



The mixed-use 2002 Gateway Olympic project, by the Jerde Partnership and the Boyer Company, uses project collaboration software from Cubus Corporation.

to problems and link them to the Web page.

Project extranet providers recognize that "full service" means providing in-depth information to architects. So in addition to offering a private, electronic meeting place for teams to work together, they are also building portals to the larger world of building product manufacturer data, construction market information, and magazine-type feature articles. Bidcom's new e-Marketplace offers news services as well as data and support for project leads, cost estimating, product specifying, and facilities management.

New project extranet companies are appearing seemingly overnight. Logic, a Voa Company, is premiering its Falcon Central Depository system, with an empha-

sis on easy access to administrative data. Sigma Design has introduced EZ, simplifying collaborative redlining. And Buzzsaw.com, an Autodesk spin-off, is shaking the industry with its free-subscription pricing model. Furthermore, project management systems intended for internal use, such as Deltek Systems' new Project Workplace, are taking on many of the features of project extranets. By structuring E-mail into discussion threads, Project Workplace supports a network-based team approach to the use of client, business, and "knowledge-management" data.

One reason the AEC industry is adopting this new medium may be that, unlike manufacturing, the focus of architecture and engineering is communication. Messages, drawings, and other documents can

# Digital Architect

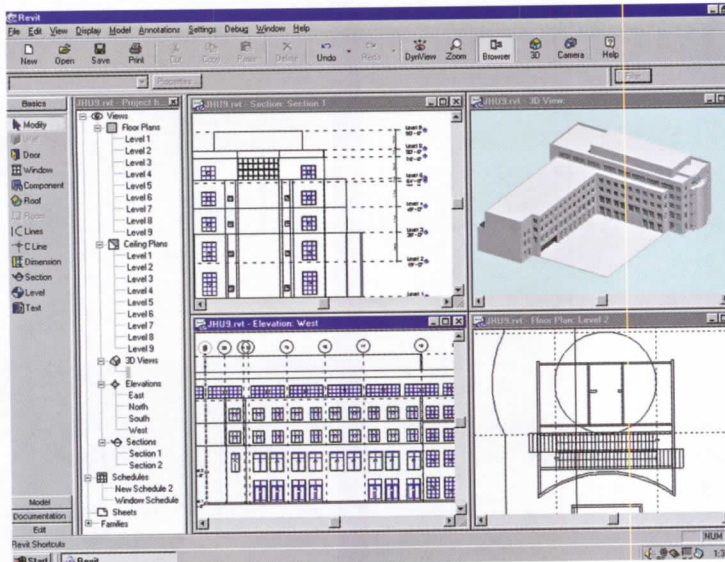
be readily converted to bits and shared electronically. Now, however, even the construction team is finding ways to use the Internet to improve their business-to-business dealings. Building SupplyNet and digitalEPC.com are the setting for the auction or exchange of surplus construction equipment and supplies for builders and facilities managers. In the past, the difficulty of matching sellers to buyers meant a huge, unnecessary cost during construction and building operations. This creative approach brings a global solution to what has traditionally been considered a local problem.

## The ubiquitous Internet

Creativity is also evident in the way that Internet technologies have been adapted to long-standing applications developed for a variety of architectural business purposes. For example, ARCOM, maker of the AIA-endorsed MASTERSPEC specification system, now improves its ability to assist architects' decision-making processes through online access to supporting documents in the Internet's HTML format and through links to building product manufacturer's data on the Web.

Another example is Sema4, a veteran financial/project management application from Semaphore. This software tracks budgets for architectural project managers. The new Sema4 Online Signals module extends this capability by proactively sending E-mail alerts to key personnel at specified milestones. For instance, it can monitor a project's expenditures, compare them with the time remaining to completion, and notify the principal in charge when a phase falls behind budget.

Similarly, Welcom, maker of the financial project management software Open Plan, introduces an Internet component to enhance its collaborative capabilities. The new WelcomHome can be customized to



**Revit's new parametric 3-D building modeler allows architects to work in any view—all 2-D drawings are simply different views of the same model, guaranteeing internal consistency automatically.**

structure management data according to a firm's "best practices," thereby improving the consistency in how projects are managed throughout the firm. It uses E-mail and Web models to organize discussions and centralize data for improved collaboration within distributed teams.

Another administrative software system that taps the power of the Internet is the marketing application RFP GenTrak. This software maintains a database of client information, tracks pending business opportunities, and facilitates the preparation of proposals, including SF255/254 government submittals. The new RFP Web interface extends the power and flexibility of the system, giving access to the centralized RFP database via an Internet or intranet connection. This makes a corporate marketing database accessible to anyone in the organization, including those working at home or traveling, from wherever there is Internet access.

## CAD marches on

Despite the unprecedented attention to Internet-inspired technology improvements, there has also been considerable activity on the CAD front. This spring a number of European companies are making aggressive inroads into the North American markets via acquisitions.

Bricsnet launched the AutoCAD-compatible IntelliCAD 2000, which it has taken over from the Visio division of Microsoft. Nemetschek, maker of the German best seller AllPlan, has purchased Diehl Graphsoft, maker of the popular VectorWorks (formerly MiniCAD). And Graphisoft, creator of ArchiCAD, has purchased Drawbase, a computer-aided facilities management application. These European companies are all known for their object-based CAD systems, in which graphic elements on the computer screen are associated with a database of characteristics such as size, materials, fire rating, and so on. Perhaps, out of frustration with the slow adoption of object-based technologies in the U.S., these companies are seeking alternative strategies for promoting their acceptance through association with these well-established American systems.

One notable exception to the acquisitions trend is the newest CAD contender, Revit Technologies. This new company's product, Revit, is a parametric 3-D building modeler. It is the architectural profession's equivalent to the "intelligent" modelers used by automotive manufacturers, according to its makers. By specifying design intent architects have greater control over

the model as it changes and develops. For example, if the windows in a facade are set to be of equal width, they will automatically expand or contract to remain equal whenever the wall in which they are embedded is lengthened or shortened. Furthermore, the model "understands" the relationships between building components: For instance, a roof is automatically reshaped when the wall below it is moved.

The model under development is always three-dimensional, even when the architect is working on a 2-D view, so rendered perspectives are always just a click away. And because all 2-D drawings are simply different views of the same model, internal consistency is automatically guaranteed.

Unlike other modelers that perform similar functions, Revit purports to work with a simplicity that makes it as usable for senior designers as for their more CAD-savvy juniors. To make the new software still more accessible, the company offers it on a monthly subscription that includes all upgrades, support, and training. A hands-on demonstration area available at the AEC Systems show provided more information for anyone curious about Revit's operation.

## The show evolves

Ironically, the emphasis on virtual communications has changed the nature of the show. Technology companies are learning they can get their message to potential customers less expensively through their Web sites than at a three-day meeting. Some historically major supporters, such as Intergraph and Autodesk, have reduced their participation, sparking speculation about a domino effect on future events. But, as this year's show makes clear, future change doesn't mean the message has become less important. Rather, technology firms are inventing more innovative ways of reaching their audience. ■

**WWW** For a list of notable AEC Systems exhibitors, go to **Digital Architect** at: [www.architecturalrecord.com](http://www.architecturalrecord.com)



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# Software Reviews

## New products and some old favorites

By Jerry Laiserin, FAIA

### Sticks and stones

Digital Entourage, Tom Retnauer, AIA

One of those truly original, "Why didn't I think of that?" kinds of products, Digital Entourage provides invaluable libraries of CAD blocks and textures that represent licensed images of real, commercial products and materials in the architect's palette. The realism of any rendered image depends on the accuracy of these textures, surfaces, and objects. Even one false note can spoil the illusion of an otherwise plausible rendering. Many vendors offer libraries, usually on CD-ROM, of scanned or rendered textures and materials, as well as 3-D blocks or meshes, representing automobiles, furniture, or people. Most of these rely on generic textures and colors, however.

Retnauer's collection of blocks and textures is available on CD-ROM and the Web. It includes representations of materials from Wilsonart, Armstrong, Owens Corning, Cultured Stone, and others. Future versions will incorporate greater selections that will be periodically updated. For design studies and client presentations, Digital Entourage is an indispensable addition to any architect's palette of rendering tools.

*System requirements:* Windows PC with CD-ROM drive.

*Contact:* Tom Retnauer, AIA, 503 Landmark Court, Chesapeake, Va. 23322; 757/436-2629; [www.digitalentourage.com](http://www.digitalentourage.com).

*Contributing Editor Jerry Laiserin, FAIA, develops collaborative strategies for architects and their technology providers.*

### A new favorite

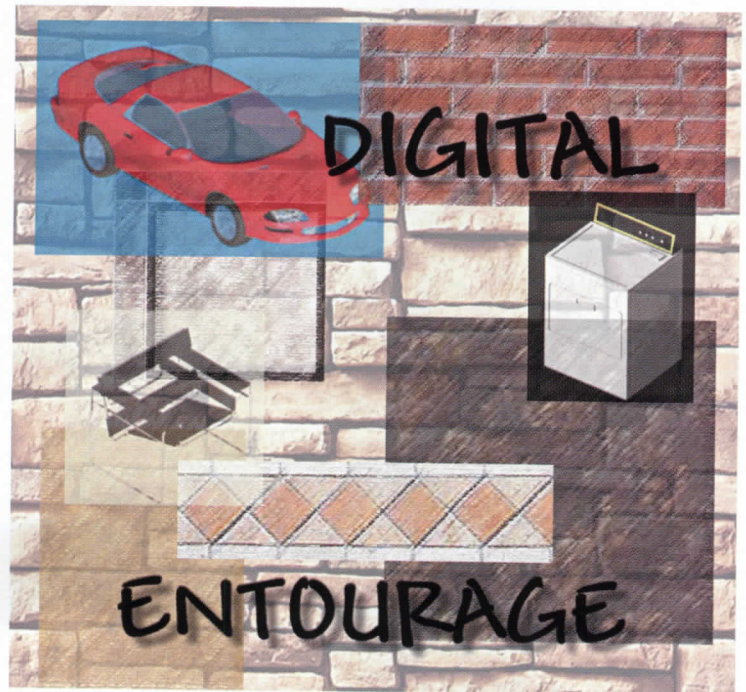
AccuRender3, Robert McNeel & Associates

The latest version of longtime rendering favorite AccuRender, version 3, runs on any CAD-capable PC. High-quality, photorealistic rendering software used to require expensive hardware and was expensive, difficult to learn, and laborious to use. Increased demand and the dominance of Microsoft's Windows operating system have slashed the cost of PC hardware and made software easier to use. AccuRender3 is a prime example of this evolution.

Like its closest competitor, Lightscape ["Software Reviews," December 1999, page 43], AccuRender3 is capable of accurate rendition of lighting effects in a space or around an object, using complex light-analysis techniques called ray tracing and radiosity. Version 3 was developed as a plug-in to AutoCAD, making it more interactive; however, it is limited just to rendering AutoCAD models. AccuRender3 also is available as an embedded rendering tool in Revit, a new CAD program.

When installed with AutoCAD (or within Revit), AccuRender3 appears on the CAD program menu as just another integrated tool, making it easier to learn and handy to use. It works with included or third-party libraries of material textures and light sources. Any AutoCAD-using architect interested in quality rendering will find AccuRender3 to be a valuable add-on.

*System requirements:* Pentium, 64MB RAM, Windows95/98/NT4.0, XGA graphics (OpenGL graphics



Developed by architect Tom Retnauer, this library of CAD blocks and textures features accurate textures, colors, and surfaces.

accelerator preferred).  
*Contact:* Robert McNeel & Associates, 3670 Woodland Park Ave. N, Seattle, Wash. 98103; 206/545-7000; [www.accurender.com](http://www.accurender.com)

### Monitors progress

ViewSonic VP181 LCD Display, ViewSonic Corp.

A big, bright, sensuously sharp computer monitor, the ViewSonic VP181 features a liquid crystal display (LCD) and includes connections for the latest multimedia technologies. Cathode ray tube (CRT) technology has made enormous strides in screen size, shape, and color rendition since those small, circular, green screen days of early CAD. But it still falls short of the ideal.

Most CRT monitors still have slightly spherical or cylindrical faces, which produce geometric distortion in the corners. CRTs are also subject to glare, give off heat and potentially harmful electromagnetic radiation, and are prone to drifting out of spec. LCD monitors, on the other hand, have perfectly flat screens and avoid most of the other drawbacks of CRTs. ViewSonic, a leading manufacturer of both CRT and LCD monitors, has upped the ante by endowing its new LCD line with multiple inputs for almost any video or computer source.

The VP181 has an 18.1-inch viewable display (comparable to most 19-inch CRTs) with up to 1600 by 1200 screen resolution. It sports a wide viewing angle (160 degrees) and a high contrast ratio (300:1),

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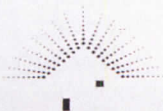
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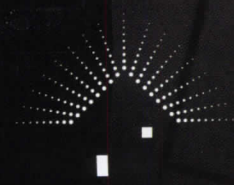
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## Software Reviews

outstanding in areas of traditional weakness for LCDs. In addition to audio inputs and built-in speakers, the VP181 handles virtually any analog, digital, or composite video signal. The detachable base and monitor head can each serve as a hub for other peripheral devices conforming to the new universal serial bus (USB) connector stan-

dard. With automatic color balancing and screen-to-print color matching, the VP181's image performance is spectacular. From direct video inputs, it displays an almost grainless texture, comparable to slow-emulsion 35mm film, and a stunning resolution of fine detail.

All this perfection is not cheap. The VP181 is about three times the price of a comparably sized CRT. Architects doing extensive multimedia work or photorealistic visualizations, however, owe it to themselves (and to their eyes) to give this monitor a serious look. **System requirements:** Any Windows or Macintosh computer. **Contact:** ViewSonic Corp., 381 Brea Canyon Road, Walnut, Calif. 91789; 800/888-8583; [www.viewsonic.com](http://www.viewsonic.com)

### No more stuffy PCs

*NetVista X40 Computer, IBM*

The new NetVista product line from IBM offers a stylish replacement for the stuffy PC. Since the first per-

sonal computers appeared on office desktops 20 years ago, the machines and their enclosures have grown more complex. The central processing unit, in its putty-colored box, occupies as much as three square feet of desk space, while the keyboard and mousing area eat up two more square feet. The melange is topped off by a hulking display that attracts dust and glare. And don't forget the knots of wires and cables!

PCs don't have to look this way. Miniaturization and standardization of internal components now allow for streamlined, all-in-one enclosures. Apple led the way with its fruit-colored iMac, followed by Compaq, Dell, and others. Now IBM's NetVista all-in-one X40, in sleek, architectural black, consumes 75 percent less desk space than a traditional PC.

NetVista's beauty includes such built-in features as local area network connections; the latest universal serial bus ports for add-ons, such as scanners, cameras, or



**NetVista's compact all-black form takes up little desk space.**

DVDs; capacious hard-disk drives and random access memory; and a choice of Windows98, NT4.0, or 2000. The 15-inch flat panel display provides as much screen space as a conventional 16- or 17-inch monitor and offers a bright, sharp image.

While not suitable for intensive, all-day CAD work, IBM's NetVista X40 deserves a place on the desk of any design principal, architectural manager, or marketer.

**Contact:** IBM, 1133 Westchester Ave., White Plains, N.Y. 10604; 800/426-7255; [www.ibm.com](http://www.ibm.com)



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## Software Reviews

### Model behavior

NavisWorks, LightWork Design Ltd.

By providing a unique means of assembling, sharing, and comparing 3-D model files, NavisWorks offers architects, planners, and clients a cost-effective new channel for design communication.

Large files, such as 3-D cityscapes, slow most systems to an infuriating crawl. NavisWorks pieces together models and site backgrounds from AutoCAD, 3Dstudio, Microstation, and any DXF-compatible CAD program, and integrates them into a single model. This model is optimized to display only the detail and extent necessary for a specific view or need. This ability makes the NavisWorks model files manageable.

NavisWorks is available in three levels of functionality: a Roamer, a viewer for prepublished

NavisWorks models; a Publisher, which assembles and optimizes NavisWorks models from other CAD files; and a Clash Detective, the U.K. equivalent of what American architects and engineers would call an interference checker.

This last capability is especially valuable on large models with complex geometry, such as sports stadiums, airport ticketing halls, or manufacturing plants. NavisWorks models work like 3-D E-mail, allowing reviewers to send one other specific views for discussion or analysis.

On an urban scale, for example, model scenes show how proposed buildings might interfere with valuable view corridors or sunlight exposures. Any analysis that can benefit from sharing a look at a large 3-D model will benefit from NavisWorks.

**System requirements:** Any Windows PC. NavisWorks will, however, display more detail and smoother movement of models on PCs with faster CPUs, more RAM, and graphics accelerators such as OpenGL.

**Contact:** LightWork Design Ltd, Rutledge House, 78 Clarkehouse Road, Sheffield S10 2LJ, U.K.; 44/114-266-8404; www.lightwork.co.uk

### Rainbow printer

Phaser 750, Xerox Corporation

The newest addition to a long and distinguished line of color output devices, the Phaser 750 color laser printer delivers some of the fastest, sharpest, and most affordable color printing on the market. The Phaser brand is well established as a market leader and technical innovator in color printing, in both solid ink and laser formats.

Of special interest to architects is the use of RGB color tables to match the screen default of PC displays. Most color printers use the CMYK color tables (also available on the new 750) that are best suited to pre-press applications in graphic arts. Unlike graphic artists, however, architects typically want to print just one or a few copies. As a result,

they are easily frustrated if the printed output doesn't match the colors displayed on their computer screen. The Phaser 750 can also handle the kind of heavy paper stock, up to 40 pounds, preferred by many architects for printed presentations. This heavier stock is beyond the reach of low-cost ink-jet competitors. As a result, the image quality on glossy coated paper approaches that of direct photographic prints. With 1200 by 1200 resolution, built-in local area network (LAN) and Internet connectivity, affordable cost per image, and an extended duty cycle, the Xerox Phaser 750 is a worthwhile addition to any architectural studio. **System requirements:** 10/100BaseT network connection; or USB or parallel PC connection.

**Contact:** Xerox Corp., 2660 SW Parkway, Wilsonville, Ore. 97070; 800/835-6100; www.xerox.com

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# New Products

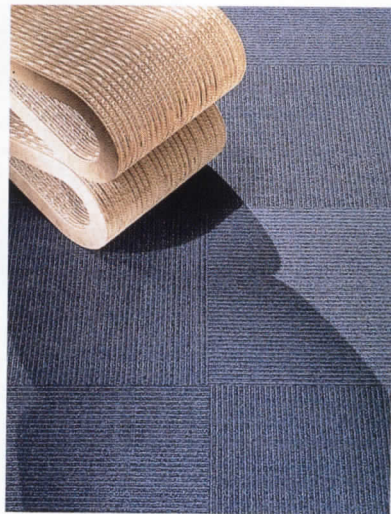
A good time to check out the innovative styles of one of the most durable members of the office, the commercial carpet underfoot, is during NeoCon, held June 12-14, in Chicago.

NeoCon is also the place to find what's hot right now in office furniture solutions; several office products are featured in this month's Product Briefs. Rita F. Catinella

## NEW PRODUCTS, CENTER, AND ENVIRONMENTAL AWARD FOR CARPET COMPANY

The Council on Economic Priorities, a research organization focused on corporate social responsibility, will recognize the winners of the 14th Annual Corporate Conscience Awards at a ceremony at the New York Marriot Marquis on June 15, 2000. Collins & Aikman Floorcoverings Inc. (C&A) was one of the three U.S. companies selected for their commitment to environmental protection. C&A was cited by the council because the company developed "the first fully recyclable carpet" and encourages customers to bring in their old carpeting (regardless of manufacturer) to create new carpet from old. "This practice has kept one million pounds of used floor covering out of landfills, and eliminated the company's need for raw production material," according to the council. The company was also noted for its "peel-and-stick" backing, which eliminates a noxious "off-gassing" that was a by-product caused by the application of wet adhesives.

New to C&A's product line is Habitat (top), a solution-dyed, 6,6 nylon fiber system with reclaimed content ranging from 82 to 98 percent and C&A's 100 percent recycled content ER3 backing. In addition, claims C&A, Habitat is the only high-performance commercial carpet that is fully recyclable as well as the only one with such a high percentage of recycled content. Visually reminiscent of the lines raked in the sand of a Japanese temple garden, Habitat is designed



to be quarter-turned and features thick and thin fine stripes.

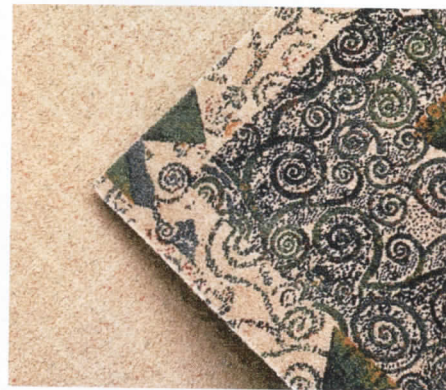
Repeat, Habitat's fiber system, is composed of reclaimed content manufactured from waste generated from various fiber production processes such as process deviations, product changes, and color transitions as well as other industry sources. Special equipment and processing technology is employed to produce fiber from the reclaimed nylon waste.

Collins and Aikman's new 100,000-square-foot Center for Environmental Innovation (above, bottom) will serve as a support processing facility for the company's carpet recycling business, and research and design initiatives. C&A's technical staff will relocate to the new building. 706/259-9711. Collins & Aikman, Dalton, Ga.

CIRCLE 200

## EARTH SQUARE PROGRAM CLEANS AND REDESIGNS MODULAR CARPET, SAVING IT FROM THE LANDFILL

Milliken Carpet developed the Earth Square renewable carpet program to give designers working on large renovation projects an alternative to disposing old carpet in landfills. Milliken claims this offers a savings of approximately 50 percent compared to the cost of new modular carpet. The three-step closed loop recovery process super-cleans, retextures, and updates designs on used modular carpet for commercial customers, extending product life cycles while saving resources associated with replacing or recycling carpet. An old carpet tile, (bottom carpet above) can be turned into an entirely different-looking product after the Earth Square renewal (top carpet above). The program offers three ways to participate:



renew carpet taken from another facility in the organization; purchase carpet stored and waiting for renewal; or incorporate the removal, renewal, and re-installation of the same carpet into the carpet schedule. The program has been awarded the first Evergreen Award from the U.S. General Services Administration. 800/241-4826. Milliken Carpet, LaGrange, Ga. CIRCLE 201

## SILICON VALLEY OFFICE AMONG INTERIORS RECOGNIZED FOR COMMERCIAL CARPET APPLICATION

The DuPont Antron Design Award, an annual competition for architects and interior designers in the U.S. and Canada, honors the innovative use of carpet in commercial interiors. This



year's grand prize was awarded to Minneapolis-based interior design and architecture firm Partners & Sirny Architects and brand identity firm Duffy Design for their use of Lees carpet in the renovation and design of the Italian eatery, Zelo. The Large Office category merit winner, Reel Grobman and Associates was recognized for its design of a two-building campus for the Philips Silicon Valley Center (shown). The design team used carpet from Atlas Carpet Mills and Monterey Carpets to create colorful backdrops while assisting employees with floor identification. 800/458-4329. DuPont Antron, Atlanta. CIRCLE 202

## New Products

### ▼ Points of light

Alpha, Celestial, Equinox, and Pulsar are four new textured loop patterned carpets from Lotus/Peerless featuring color yarn accents on a multicolored field. Crafted of DuPont Antron Lumena solution-dyed nylon in a durable  $\frac{3}{16}$  gauge construction, each carpet comes in up to 28 colorways, depending on style. Available in 12-foot widths, each features a 10-year limited wear warranty. 800/451-1250. Lotus/Peerless, Adairsville, Ga. **CIRCLE 203**



### ► Spiral design broadloom

At NeoCon 2000 Mannington Commercial will introduce Gyro broadloom carpet, a versatile spiral design constructed of 100 percent DuPont Antron Legacy nylon. Gyro comes in 16 colorways. 800/241-2262. Mannington Commercial, Calhoun, Ga. **CIRCLE 204**



### ► Corporate direction

Prince Street's Modern Office (top) has a complex finish combining varying sizes of loops with a subtle shearing. Each of the nine colorways is a mingling of warm and cool neutrals with a distinctive accent or two. Joining Modern Office is Bentley Mill's new carpet, Streatley Road (below), which features six rich colorways. Multiwidth bands of color extend through this plush, 34-ounce,  $\frac{3}{16}$  gauge, tufted cut pile. This yarn dye product is manufactured using DuPont Antron legacy. Streatley Road is born of the synergy from Bentley's Product Development Department and Suzanne Tick and Terry Mowers of Tuva Looms. 800/336-0225. Interface Americas Inc., Atlanta, Ga. **CIRCLE 205**



Lees' TriAx tufting technology enables the faithful translation of Clodagh's inspiration in color, design, and texture to be precisely "drawn" on carpet. These  $\frac{3}{16}$ -inch gauge, 28-ounce face weight loop products are constructed of DuPont Legacy nylon and are available in 16 running line colors. The patterns are inspired by geometric and organic themes: Kinsale features finely etched lines of color, defining the random squares of ancient

### ▲ Emerald styles

The Celtic Collection of patterned broadloom products by Lees is influenced by designer Clodagh's Irish background.

mosaic tiles; Kerry is inspired by the rippling surface of a lake. 336/379-2000. Lees, a division of Burlington Industries Inc., Greensboro, N.C. **CIRCLE 206**

### ► Reclaimed yarns

Building upon its book ends corporate collection, Shaw Contract is featuring 27 new hospitality styles. Book ends hospitality products (Pavo style shown) feature a tight, precision-tufted fabric of continuous filament Eco Solution Q yarn, a reclaimed fiber containing post-industrial and consumer waste. Solution-dyed, the fiber is engineered to be colorfast, easily maintained and resistant to bleach. 800/342-7429. Shaw Contract, Dalton, Ga. **CIRCLE 207**



### ▼ Greek influence

BOLYU Contract introduces the Panhellenic Collection, featuring Thessaly, an inter-loop pattern with soft muted colors and rich texture. The collection is inspired by the ancient tapestries and fabrics of classical Greece, and is crafted of 28-ounce piece-dyed DuPont Legacy nylon in up to 16 coordinating colorways. BOLYU is part of Beaulieu Commercial, which includes the Lotus/Peerless, Consort, and Cambridge carpet lines. 800/451-1240. BOLYU Contract, Adairsville, Ga. **CIRCLE 208**





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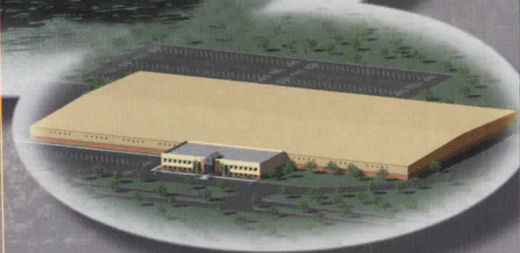
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## Products Briefs

### ► If you are looking for a new office system

Haworth introduces "if," a new furniture system that features a utility chain integrating power from the floor, wall, or ceiling in freestanding environments. The flexible chain allows for floor-plan adjustments without disrupted power flow. "if" features four storage options: a desktop storage box, and a small, medium, and large mobile cart. The small storage box also serves as a convenient, padded, occasional seat. All storage compartments in the "if" line are available with traditional wood tops or surfaces, or neutral laminate surfaces that can be accented with a splash of Jupiter (apple green), Mars (red), or Neptune (blue/gray). Completing the line are egg- or fin-shaped and round tables with or without casters, mesh privacy screens, and a mobile easel with marker board surface and mountable display board.

616/393-3000. Haworth Inc., Holland, Mich. **CIRCLE 209**



### ► Well-done system

Contrada Raw features standard corrugated plexi-dividers to create visual privacy. Organic-shaped Raw worksurfaces with overhead frames are employed to house task lighting. A Contrada free-standing desk is used for additional worksurface and to promote teamwork. Also available are window, fabric, and tackable tiles to lend individual style and function to the workspace. The Power Arch adds flexibility in channeling power and data throughout a growing space.

800/968-0234. Trendway, Holland, Mich. **CIRCLE 210**



### ► Basic training

Train tables, designed by Vecta Design and I.D.E.O., flip, nest, roll, store, link, and manage wires and cables. To nest, release the swing arms that support the table top and flip

the top down. Offset legs allow tables to nest compactly for movement and storage. The 28 1/2-inch-high tables are available in laminate or veneer, and come standard with black, three-inch locking casters. Train's patented Coupler Station allows tables to link easily. Train can also carry a "Backpack"—a combination modesty panel, wire manager, and power/data distribution channel. 972/641-2860. Vecta, Grand Prairie, Texas. **CIRCLE 212**



### ▲ Take a stand at work

Ergostand stand-up auxiliary work surfaces can be retrofitted to most office workstations or desks to create an elevated work surface, which encourages the change between sitting and standing

positions. Ergostand is ideal

for corporate offices, libraries, classrooms, and conference rooms, and may be used as a writing surface, laptop platform, telephone stand, or lectern.

Ergostand is constructed of durable powder-coated enameled steel in matte black, with gray melamine worksurfaces standard. 888/289-4724. Grahl Industries Inc., Coldwater, Mich. **CIRCLE 211**

### ► Suits a variety of palettes

With the Palette Lounge Series, designers can create a variety of solutions using one, two, or three seat units separately or joined together by connecting pallet tables. Palette offers a modular unit (to be placed under a pallet unit) that slides out for access and contains two electrical and two data plugs. Power and data cords are stored in the seat and may extend up to 10 feet when necessary. 336/889-2009. Davis Furniture Industries Inc., High Point, N.C. **CIRCLE 213**



## Product Briefs

### ▼ Celestial special

The Bluemoon collection of jacquard upholsteries and casements includes the 12 colorways of Milky Way (below). Milky Way features a raised pebble effect, and is made of 42 percent rayon, 41 percent polyester, and 17 percent cotton. It meets or exceeds ACT standards for heavy duty contract upholstery fabric. 800/4-PALLAS. Pallas Textures, Green Bay, Wis. **CIRCLE 214**



### ◀ Higher learning

Light enough for a child to move and stack, yet tough enough to withstand rigorous use, Einstein furniture is ergonomically designed to increase academic performance by increasing student comfort and support. The ability to stack, gang, and cluster the product gives teachers flexibility in reconfiguring their classrooms, reducing maintenance costs. Chairs and desks are manufactured in four sizes. 800/424-2432. KI, Green Bay, Wis. **CIRCLE 215**

### ► Evolving furniture line

Kimball has enhanced its Skate office furniture line with wood tables, dry marker and translucent freestanding screens, and accessories. Skate wood tables are available in six shapes and 17 standard finishes. Table shapes include crescent, hexagon, trapezoid, tear drop, round, and rectangular (available in three sizes). Accessories include a hanging file folder, dry marker tile, and disk holder. 800/482-1616. Kimball Office Group, Jasper, Ind. **CIRCLE 216**



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## Product Briefs

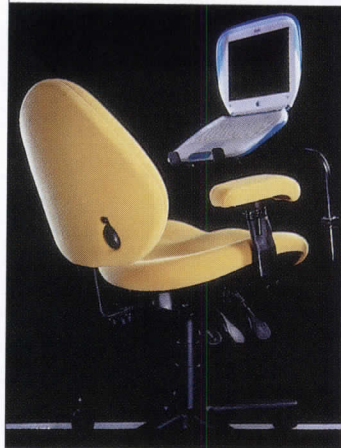


### ▲ Steel workers

Durable steel desks, once the mainstay of the American workplace, are back in style. Designed to handle vast mounds of paper, they now can accommodate computers and other office machines needed. The double pedestal desk (shown above), part of the MC Series, comes with or without a center drawer. Desk cases, table legs, and panels are finished in black or "vintage steel" enamel colors. 800/668-1020. Sonrisa Furniture, Los Angeles. **CIRCLE 217**

### ▼ Handy third arm

The X-Tension Arm connects to all BodyBilt models in addition to the standard armrests. In addition to the laptop attachment (shown), the X-Tension is available with an optional writing surface, mouse platform, or keyboard tray. There is even a special platform designed to hold a court stenographer's machine. X-Tension adjusts for height, width, and angle on multiple planes. 800/364-5673. Body-Bilt Inc., Navasota, Texas. **CIRCLE 218**



### ▲ Step into my constellation

Previewed last NeoCon, the "point-based" Resolve system, designed by Ayse Birsel for Herman Miller, will be the

company's focus at this year's show. The line is based around workstation "constellations" that branch out 120 degrees, placing the worker in the center of activity. Canopies, movable screens, and other accessories define the system. The company also has announced an alliance with

textile design firms Jhane Barnes Textiles, Luna Textiles, and Maharam. 616/654-3000. Herman Miller Inc., Zeeland, Mich. **CIRCLE 219**

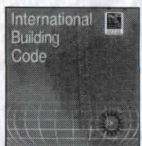
### ► Space-age grommet

Hafele America offers a new cable grommet called the Tango. The cover is made from zinc and is available in three finishes; black anthracite, mat chrome, and unfinished zinc. The grommet, an alternative to standard round shapes, has a breakaway tab so larger plugs can be passed through it. The Tango fits in a standard 80mm hole. 336/210-2400. Hafele America Co., Archdale, N.C. **CIRCLE 220**

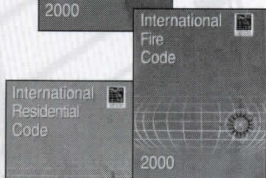


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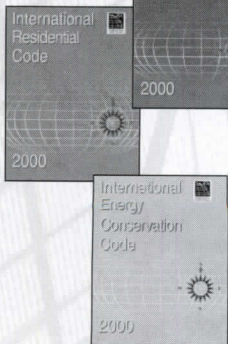


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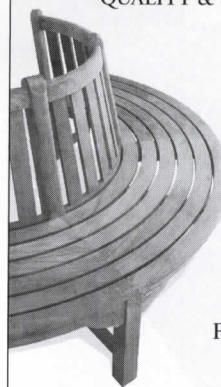
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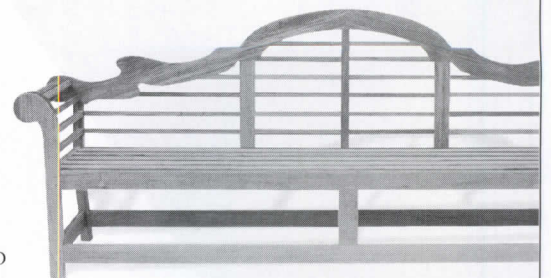


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CIRCLE 54 ON INQUIRY CARD

## Product Briefs

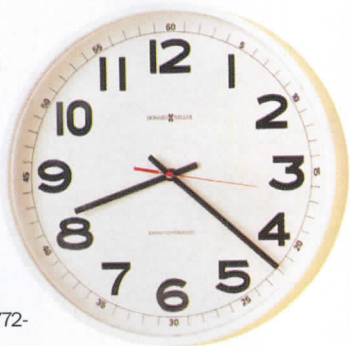
### ▼ Shady impressions

Visually transparent ImageShades are a medium for advertising or information graphics as well as a sun screen. The durable ink jet images printed on see-through or opaque shades communicate messages on shade cloths up to 96 inches wide by 40 feet high, as shown here by the new Levi Strauss & Co. flagship store in San Francisco. 800/899-8081. MechoShade Systems Inc., Long Island City, N.Y. **CIRCLE 221**



### ► On time, all of the time

The radio-controlled Accuwave DS collection includes wall, mantel, and table clocks equipped with an integrated circuit that picks up a boosted signal from transmitters which belong to the National Institute of Standards and Technology, and are linked to their cesium atomic clock. The clocks even correct themselves for daylight saving time automatically. 616/772-9131. Howard Miller, Zeeland, Mich. **CIRCLE 222**



### ◀ Barely there

Formations linear air diffusers can be custom fabricated into straight lines, angles, and simple or complex curves to meet the most demanding visual and spatial air distribution requirements. Constructed of extruded aluminum, the air diffusers can be configured for a variety of vertical, diagonal, or horizontal air flow patterns. 727/441-2651. Metalaire, Clearwater, Fla. **CIRCLE 223**

### ► Tile look without the grout

FormicaTile delivers the look and texture of traditional tile to vertical or horizontal surfaces such as countertops, backsplashes, and shower surrounds. The Tumbled Tile line (shown) is available in laminate sheets featuring a four-by-four inch grout pattern divided by a realistic 3/8-inch grout line. FormicaTile can be post-formed to create unique edges. 800/FORMICA. Formica Corp., Odenton, Md. **CIRCLE 224**



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**CIRCLE 40 ON INQUIRY CARD**

## Product Briefs

### ▼ Strand board that bites back

Louisiana-Pacific in alliance with Osmose, a leader in wood preservation technologies, has created the

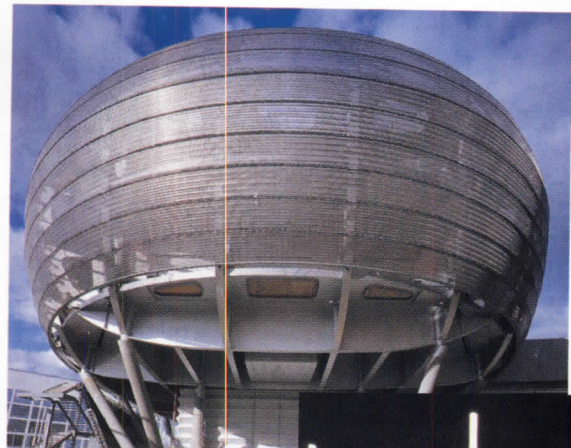
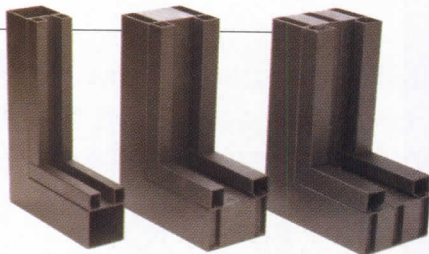
SmartGuard line to combat the \$3 billion nationwide termite epidemic. BarrierFloor treated engineered wood flooring incorporates a borate-based additive that penetrates and helps protect the flooring from termites and fungal decay. 800/580-4296. Louisiana-Pacific Corporation, Portland, Ore. **CIRCLE 225**



### ► European frames

Technical Glass Products offers a line of fire-rated doors and frames manufactured by Hermann Forster AG in Switzerland. The doors and framing have recently passed

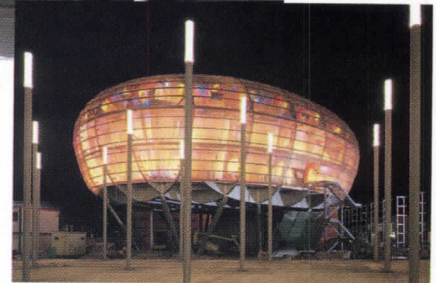
the necessary testing to be made available in North America. They allow for extremely large expanses of glass, and are listed with U.L. for fire areas requiring ratings from 20 minutes to two hours. 800/426-0279. Technical Glass Products, Kirkland, Wash. **CIRCLE 226**



### ▲ Galactic fabric

Planet M was built for Bertelsmann AG by Triad Architekten to be the focal point for the World Expo in Hanover. The exterior is specially designed stainless steel

woven "Escale" architectural mesh, manufactured by GKD. At night, some 850 halogen project lights provide special effects. The versatile metallic fabric reduces glare, provides thermal protection, and protects windows without restricting air flow. 410/221-0542. GKD-USA Inc., Cambridge, Md. **CIRCLE 227**



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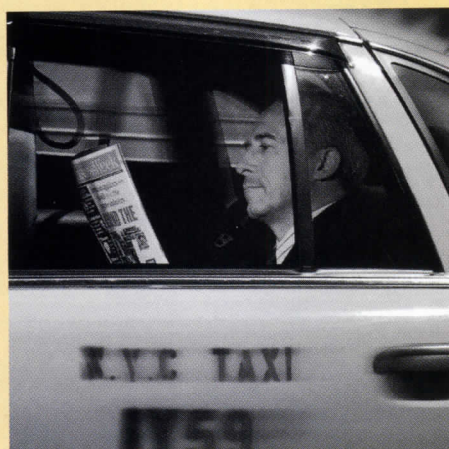
*Insert shows texture of anti-slip surface.*

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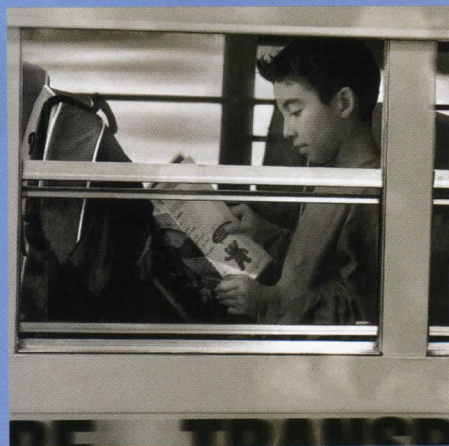


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## Product Literature

### Roof-edge systems brochure

A new brochure from Metal-Era provides information on the company's line of Anchor-Tite patented roof-edge systems. The material focuses on the testing, warranty, and installation benefits of Anchor-Tite fascia and coping. 800/558-2162. Metal-Era Inc., Waukesha, Wis.

**CIRCLE 228**

### Medical lighting brochures

Derungs Medical Lighting, a newly acquired division of medical task-lighting products owned by Waldmann Lighting Company, highlights their newest series of color brochures featuring a complete line of medical task-lighting solutions. 800/634-0007. Waldmann Lighting, Wheeling, Ill. **CIRCLE 229**

### Ceiling and wall solutions

*Controlled Environments*, an eight-page brochure from USG, features a Ceiling and Wall Systems Selector to help users specify the proper products for their particular applications, including clean rooms, food-processing facilities, and computer and security control rooms. 800/950-3839. USG Corporation, Chicago. **CIRCLE 230**

### NEW SITES FOR CYBERSURFING

Virtual gallery offering contract furniture to everyone [www.realfurniture.com](http://www.realfurniture.com)



A Sun Management Calculator allows designers to make their own Pilkington LOF glass combinations [www.pilkington.com/sunmanagement](http://www.pilkington.com/sunmanagement)

Virtual kitchen and bath product showroom [www.Bathclick.com](http://www.Bathclick.com)

Online resource for information about window, door, and skylight energy performance [www.nfrc.org](http://www.nfrc.org)

### Flooring sample folder

PermaGrain has an updated architectural sample folder for its GenuWood II line of vinyl-bonded hardwood flooring. The sampler contains specifying information and samples of the species and color palette. 610/353-8801. PermaGrain Products Inc., Newtown Square, Pa. **CIRCLE 231**

### Architectural glass data

New literature from PPG Industries provides technical data and performance options for the company's Optigray 23 architectural glass. A chart provides technical data about light and thermal transmittance. 800/377-5267. PPG Industries, Pittsburgh. **CIRCLE 232**



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## Product Literature

### Insulation brochure

A new Sweet's brochure has been designed to help specifiers identify the Styrofoam brand insulation products that best suit their needs. The brochure offers a complete description of the insulation products, features, benefits, and systems. 800/441-4369. The Dow Chemical Company, Midland, Mich. **CIRCLE 233**

### Locker selection guide

All scholastic and athletic lockers featured in the new *Lyon Locker Selection Guide* now include quiet-door operation. Also in the guide are ADA lockers for schools and universities, along with new athletic and club lockers, including all-welded, set-up models. 800/323-0096. Lyon Metal Products, Aurora, Ill. **CIRCLE 234**

### Easier grout selection

The Chip Clip, from Laticrete, is designed to keep all of the company's group chips together. The "slide chip" design allows a customer to slide out a particular color chip, place the chip between two tiles, and select the grout color of their choice. 800/359-3297. Laticrete International Inc., Bethany, Conn. **CIRCLE 235**

### Hardwood flooring catalog

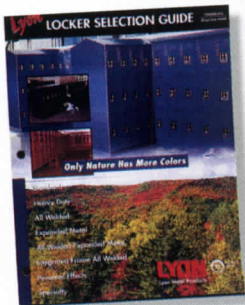
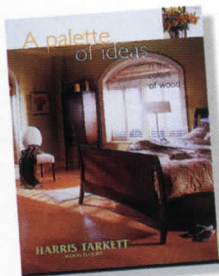
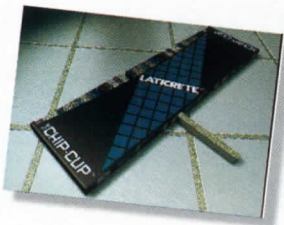
Harris-Tarkett has published *A Palette of Ideas*, a 32-page, lifestyle-oriented catalog that showcases the design versatility of the company's products and highlights the Alumide finish. In addition to "beauty shots," each product line is described in detail with features and benefits, complete product specifications, and photographic swatches of each species in the line. 800/842-7816. Harris-Tarkett Inc., Johnson City, Tenn. **CIRCLE 236**

### Hilton CD-ROM

The Hilton Hotels Corporation has approved Parex exterior finish systems for use on its hotels and residential suites projects, and the Parex line of exterior finishing products, including IC-Gold and IC-Silver, is featured on the recently released Hilton Residential Suites CD-ROM. Parex Inc., Redan, Ga. 770/482-7872. **CIRCLE 237**

### Erosion control brochure

A full line of erosion-control fiber blankets of biodegradable or permanent synthetic composition is described in a new brochure from Contech Construction Products. These blankets help establish healthy vegetation, reduce runoff velocities, absorb rainfall impact, and entrap soil sediments. 800/338-1122. Contech Construction Products Inc., Middletown, Ohio. **CIRCLE 238**



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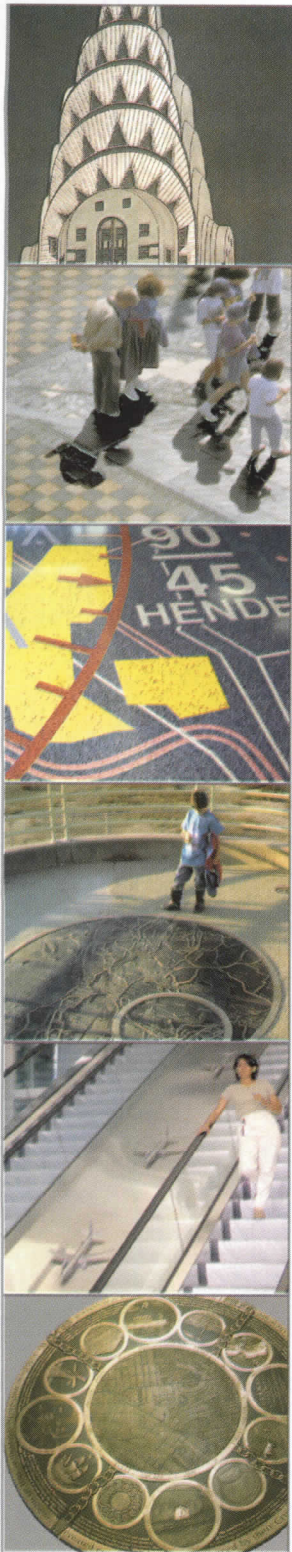
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CIRCLE 88 ON INQUIRY CARD

## Dates & Events

### Calendar

#### Anything Conference

##### New York City

June 1-3

This last annual conference of the 10-year A.N.Y. series features speakers Elizabeth Diller, Frank Gehry, Hani Rashid, Arata Isozaki, Saskia Sassen, Bruce Mau, Zaha Hadid, Jean Nouvel, Ben van Berkel, and Rem Koolhaas among others. Solomon R. Guggenheim Museum. 212/423-3587.

#### Chicago Architects

##### Chicago

June 3-March 2001

Selected architectural drawings on display from the permanent collection are linked with the Institute's oral histories of 50 Chicago designers, including Mies van der Rohe, Harry Weese, Paul Schweikher, and Myron Goldsmith. The Art Institute of Chicago. 312/443-3600.

#### Harnessing Technology and Utilizing Intranet/Internet Based Communications Solutions to Manage Construction Projects and Claims

##### Atlantic City, N.J.

June 5-6

This day-and-a-half seminar is presented by Construction Education Management Corporation. Hilton Casino Resort. 800/257-8677.

#### Retail Lighting Conference

##### Fort Worth

June 7-9

This gathering, titled "Illuminate 2000," promises the latest techniques and hands-on learning for lighting designers, specifiers, and project managers. Texas Christian University. 800/828-7134.

#### Congress of the Future of the Architect

##### Barcelona

June 7-11

An international conference explores the impact of the computer in relation to the brain and space and land policy and the city of tomorrow. Universitat Politècnica de Catalunya. 93-401-63-88.

#### Reinventing Space: Beyond the Boundaries of the Twentieth Century Jerusalem, Israel

June 11-22

The fifth (since 1992) Jerusalem Seminar in Architecture brings together international architectural experts Wolf Prix, Robert A.M. Stern, Kenneth Yeang, Cecil Balmond, Thom Mayne, Enrique Norten, Carmi Pinos, and Bernard Tschumi—with a response by theorist Charles Jencks. Jerusalem International Convention Center. 972-3-512-0000.

#### NeoCon World's Trade Fair 2000

##### Chicago

June 12-14

Some 800,000 square feet of space is dedicated to commercial furnishings, services, forums, and networking opportunities in this annual must-see stop for design and construction professionals. Merchandise Mart. 800/677-6278.

#### 50th International Design Conference: The Spirit of Design

##### Aspen

June 14-17

To investigate meanings in architecture, this three-day event explores broad themes: the inner spirit; beauty, aesthetics, and perception; and meaning (or the "chi" factor). Speakers will address a range of topics within these themes. 970/925-2257.

#### Structure and Surface: Contemporary Japanese Textiles

##### San Francisco

Through June 20

Japanese masters combine traditional techniques with modern industrial methods, in woven metals and other materials suitable for interior design and clothing. San Francisco Museum of Modern Art. 415/357-4000.

#### Buildings/NY Show

##### New York City

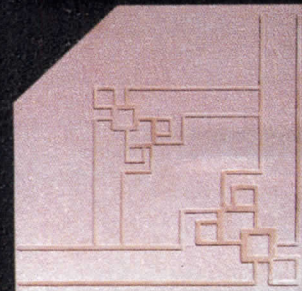
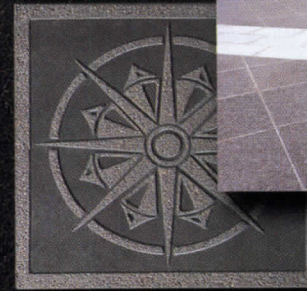
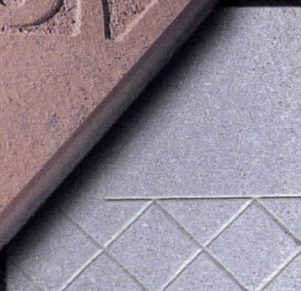
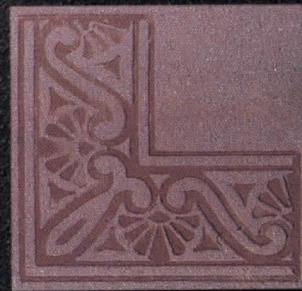
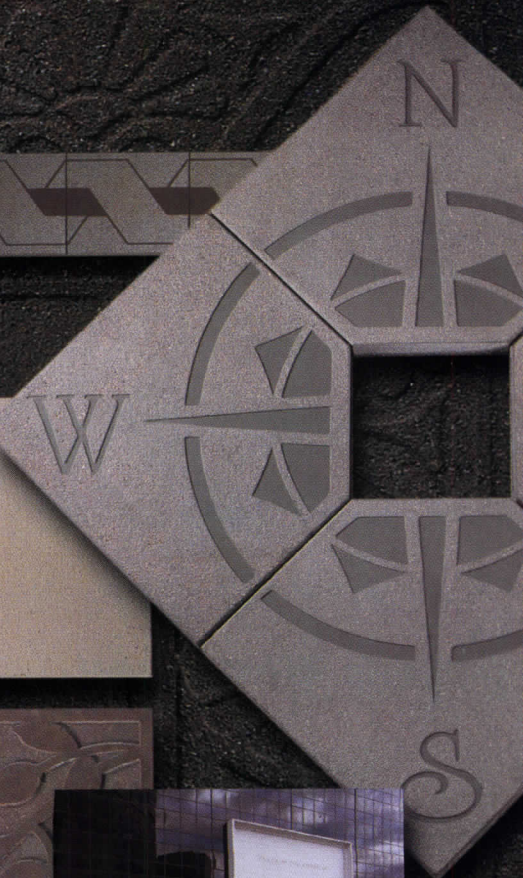
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## Dates & Events

### **A Way of Life: Apprenticeship with Frank Lloyd Wright, 1948-49**

Washington, D.C.

Through June 23

Fifty-five color slides taken by former Wright apprentice Lois Davidson Gottlieb are teamed with firsthand observations for this display. The Octagon. 202/638-3105.

### **Construction Specifiers Institute 2000**

Atlanta, Ga.

June 22-25

Educational seminars and demonstrations introduce nonresidential construction products, materials, and services offered by some 600 exhibitors. Georgia World Congress Center-East. 800/689-2900.

### **Bilbao: The Transformation of a City**

Chicago

Through July 16

Models, plans, photographs, and drawings illuminate a dozen architectural projects—Frank Gehry's Guggenheim, Norman Foster's subway, Santiago Calatrava's observation tower/airport—that have recently energized the ancient city in Northern Spain. The Art Institute of Chicago. 312/443-3600.

### **Oswald Haerdtl: Architect and Designer**

1899-1959

Vienna

Through July 14

This exhibition of Haerdtl's long career in Austria spans from early modernism through the World War II period and into the fifties. Architecture Centre Vienna (Architektur Zentrum Wien). 43-1/522-3115.

### **Future Focus 2000**

Houston

July 22-26

A large annual gathering where futurists explore new business strategies and the challenge of succeeding in the networked modern global marketplace. Westin Galleria. 800/989-8274.

### **Shigeru Ban: A Paper Arch**

New York City

Through August 1

Hot Japanese architect Ban will span the museum's sculpture garden with a high, 5,525-square-foot parasol fabricated from the thin waterproof paper tubes he terms "evolved wood." The Museum of Modern Art Sculpture Garden. 212/708-9750.

### **James Welling: Photographs 1974-1999**

Columbus, Ohio

Through August 13

Prominent in this expo of 129 images by Welling are prints from the artist's small-scale *L.A. Architecture* series (structures in Santa Monica and Venice) and detail photographs of massive buildings by H. H. Richardson. Wexner Center for the Arts, The Ohio State University. 614/292-0330.

### **Gwathmey Siegel & Associates Exhibition**

New York City

Through August 14

A display of 14 institutional projects is augmented by a 50-foot wall that surveys the entire practice of the firm. The Graduate Center, The City University of New York. 212/947-1240 x117.

### **Skyscrapers: The New Millennium**

Chicago

August 19-January 15

Architectural models and drawings show some 50 high-rises currently under construction or recently completed. The Art Institute of Chicago. 312/443-3600.

### **Frank Lloyd Wright: Windows of the Darwin D. Martin House**

Washington, D.C.

Through August 20

An exhibition of some 70 art-glass windows,

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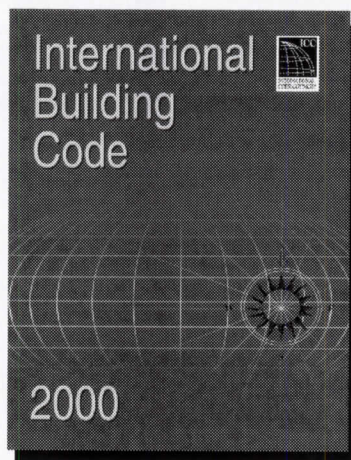
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## Dates & Events

doors, and skylights (both originals and reproductions) that Wright created for the house in Buffalo. National Building Museum. 202/272-2448.

### **Giorgio Morandi Etchings** New York City

*Through August 22*

Seen in this selection of 16 works from the period 1912-1945 is the Italian artist's subdued and architectonic formal style. The Museum of Modern Art. 212/708-9400.

### **Kahn's Modern Monuments** New York City

*Through August 22*

Drawings and models explore a pair of the mid-century architect Louis I. Kahn's favored themes: abstracted ancient monumentalism and massive layered enclosure. The Museum of Modern Art. 212/708-9400.

### **Modern Living 1** New York City

*Through August 22*

A hundred design objects, architectural drawings, and models explore the clarity, efficiency, and hygiene advocated by designers Gerrit Reitveld, Eileen Gray, and others who inspired

the course for modernism. The Museum of Modern Art. 212/708-9400.

### **Smart Growth and Choices for Change** New York City

*Through September 6*

A new exhibition, *Smart Growth and Choices for Change*, presents 12 case-studies organized around the themes of "reinvigorating urban cities" and "repairing urban fabric." National Building Museum. 202/272-2448.

### **Design Diplomacy: Public Policy and the Practice of Architecture** Copenhagen

*September 6-9*

At this conference, a panel of architects offers an in-depth look at how architects can shape sound public policy as community leaders. Cosponsored by the McGraw-Hill Construction Information Group; a division of the McGraw-Hill Companies, New York. 888/273-8017.

### **At the End of the Century: 100 Years of Architecture** Los Angeles

*Through September 24*

In 21 parts, this massive international exhibition organized by MOCA surveys countless architectural photographs, scale models, drawings, furnishings, clips, and artifacts. The Museum of Contemporary Art at the Geffen Contemporary. 213/621-2766.

### **Modern Living 2** New York City

*Through September 26*

Beginning after World War II, figures such as Eames, Nelson, Saarinen, and Aalto adapted industrial technology for the manufacture of rational, functional, and affordable domestic objects on display. The Museum of Modern Art. 212/708-9400.

### **Rail-Volution 2000: The Livable Metropolis, Prospects, and Profits** Denver

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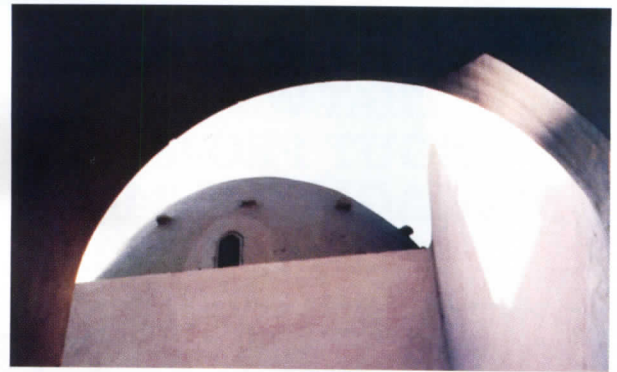
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### **Piet Mondrian: The Transatlantic Paintings** Cambridge, Mass.

*Through July 22, 2001*

Some 15 late paintings by the master abstractionist will accompany a display of two years' technical research into the artist's methods. Harvard University Busch-Reisinger Museum. 617/495-9400.

## Competitions

### **Monument to the Third Millennium**

*First-stage entry deadline: June 16*

At a new park in San Juan, the Puerto Rican government will spend \$50-75 million on a monument to the third millennium. Five winners will receive a \$10,000 stipend to develop their designs; the second-stage winner receives \$50,000 and the commission. At least one member of each design team must be a registered architect in either the U.S. or Puerto Rico. Go to [www.monumentcompetition.com](http://www.monumentcompetition.com) for entry information.

### **The Gifu World Design Competition: Jan Ken Pon (Rock Paper Scissors)**

*Entry deadline: June 30*

The \$10,000 first prize (also, prizes of \$5,000, \$2,500, and \$500) will be awarded to the designer of a manufacturable object "usable by the hands or made to fit in the hands." Paper, wood, ceramic, and/or metal must be used. Call 212/966-3722.

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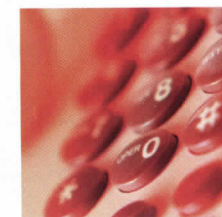
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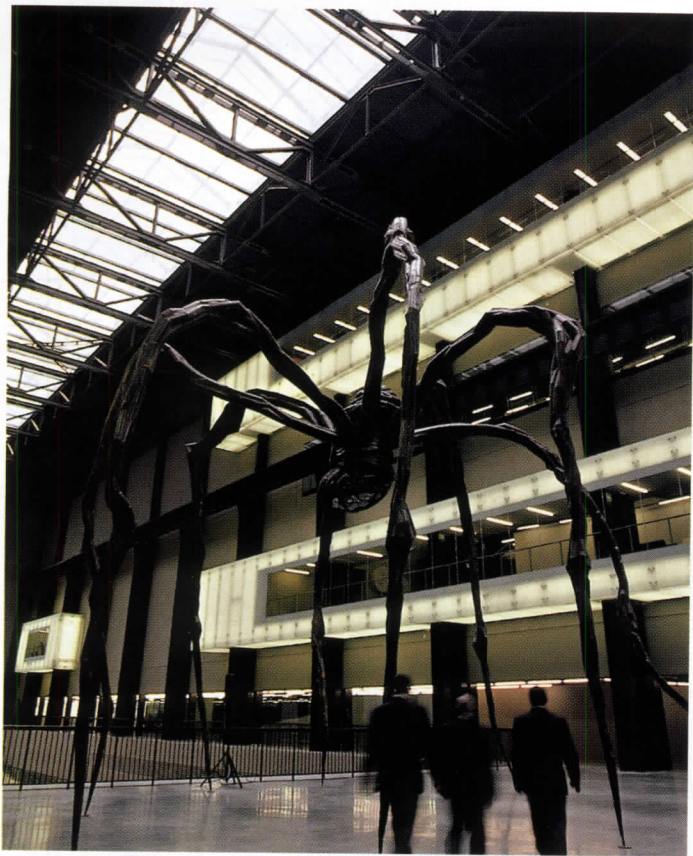
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On the bridge cutting across the center of the Tate Modern's turbine hall is the installation of Louise Bourgeois' spidery sculpture, *Mama*.

**WILLIAM CURTIS: TATE MODERN** (continued from page 109)

suggest a promenade, the landings are somewhat characterless, and the museum's escalators seem a lame way of expressing vertical movement in architectural terms. These escalators may also prove insufficient for the crowds that will flood into the Tate Modern. But the real point is the lack of a strong gestalt governing the interaction of part and whole.

Herzog & de Meuron may have deliberately understated the role of circulation to avoid preexisting associations with ceremonial stairways in monumental art museums. If so, the exploration of a more open, "democratic" ethos seems poised on a knife-edge between social and architectural transparency on the one hand, and modern merchandising or transportation space on the other. This is the conundrum that has engaged such architects as Rem Koolhaas, who has not hesitated to pursue it through commentary, irony, and vulgarization. To their credit, Herzog and de Meuron have not chosen the easy way of populist imagery, preferring to work with quiet abstraction shorn of rhetorical gestures. The architects have used light as a primary material and attempted to create galleries combining a sense of assembly with an atmosphere of contemplation. Their means of articulation are so restrained as to be almost invisible.

The new Tate's architecture is a refreshing antidote to the British mania for "privatizing" all aspects of culture. Herzog and de Meuron have cut through the mystique of the museum, favoring a more open and transparent interpretation. In the process, they have introduced a fresh perspective on the art of architecture, sorely needed in the stuffy, even protectionist climate reigning in Britain. At a moment when British high-tech design seems in danger of resorting to cheap effects and one-liner visual images, here is a work by foreign architects that rejoices in subtlety and understatement. ■



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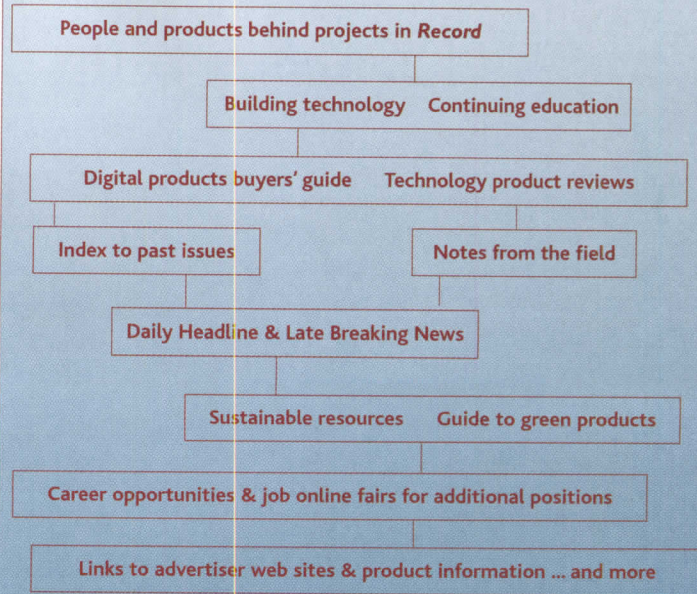
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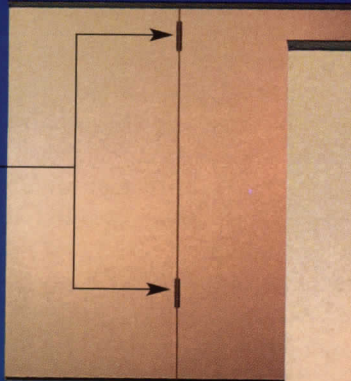
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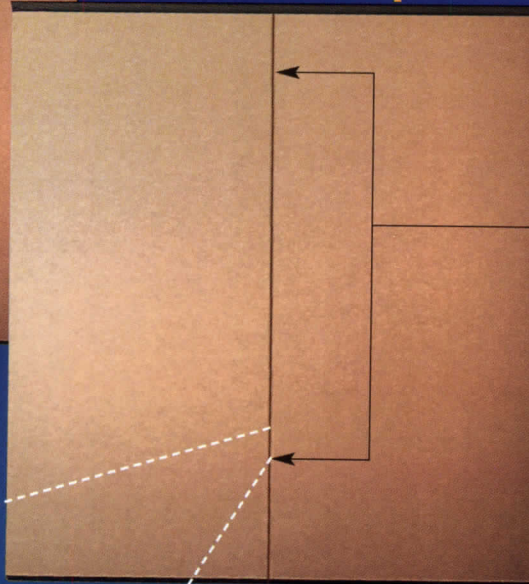
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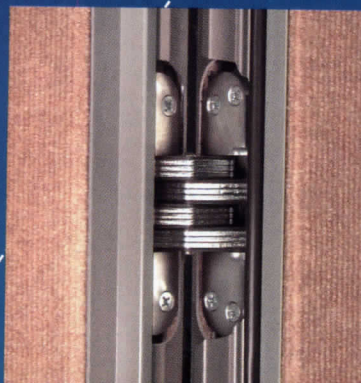
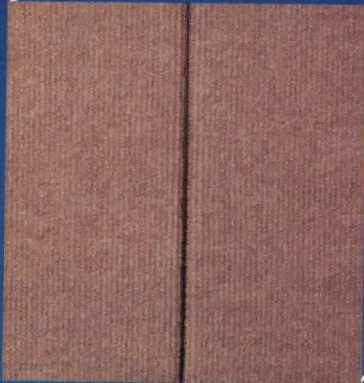


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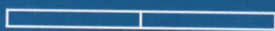
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**NEWHOUSE: TATE IN CONTEXT** *continued from page 115*

Switzerland—provides a rich framework for the art shown in it.

The scale of industrial spaces has been a prime reason for their desirability as a showplace for art and a major influence on museum design. New overscaled art and the need for more galleries to house growing collections has contributed to the expanded size of museums today. Whether measured in terms of a single gallery or overall space, bigger is widely considered better. Not all artists, however, will necessarily share the intrepid, 99-year-old, Bourgeois' enthusiasm for London's enormous hall. While the Bilbao Guggenheim's variety of galleries serves art remarkably well, its architect, Gehry, says, "Even for



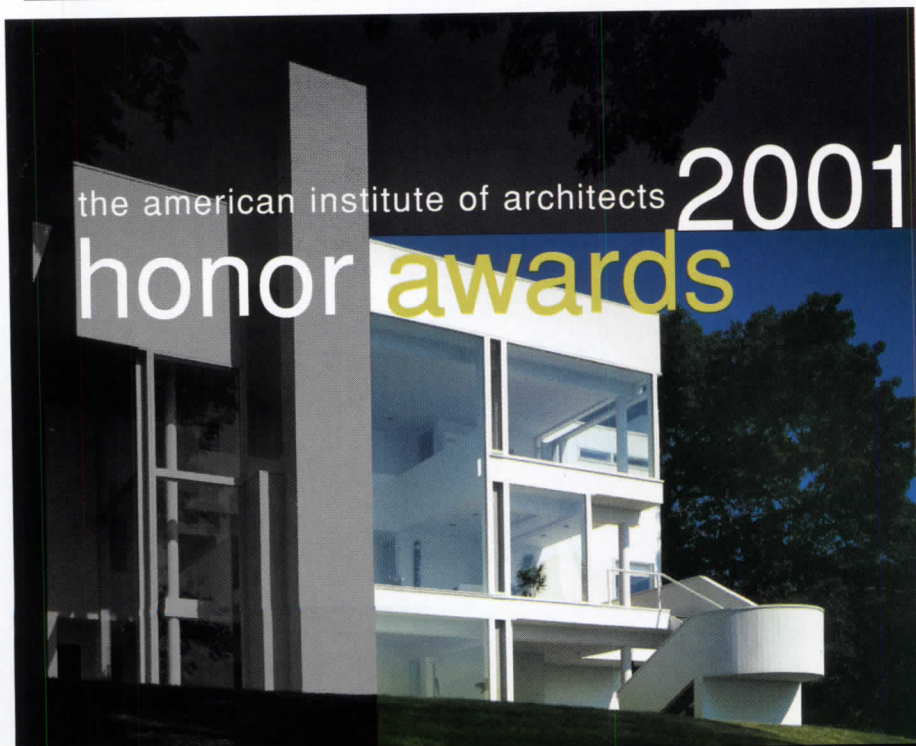
On the fifth level of the Tate Modern is a sculpture by Mario Merz.

sculpture the fish gallery is overwhelming." Its size (450 by 80 by 40 feet) has posed problems for some art shown in it, as may well be the case with the the Turbine Hall.

Nevertheless, large-scale museums continue to proliferate. Herzog & de Meuron's museum in San Francisco will equal the Tate Modern's 320,000 square feet; Gehry's projected Guggenheim Museum on New York's lower East River totals 450,000 square feet; and Yoshio Tanaguchi's MoMA in New York will include 630,000 square feet—more than 20 times the size of the Whitney Museum of American Art. Topping them all, Mass MoCA will measure 700,000 square feet, when the entire complex is renovated.

A partial answer to the question of scale is offered by Herzog & de Meuron's proposed semiprivate Viewing Warehouse for the Emanuel Hoffman Foundation in Basel, Switzerland. Called "a new way to make art available," by Harry Guggler, partner in charge of the Tate Modern, the five-level, 190,000-square-foot building is divided into box-like spaces in which paintings are densely packed onto the whole wall, regardless of content or historical context (as in 19th-century museums). The same applies to installation art, which is displayed on floors instead of walls. Thus art can be stored and seen in a much smaller area than required for a museum.

Larger museums run the risk of feeling more like impersonal corporate headquarters than a distinctive cultural institution, and the sheer number of their galleries can be overwhelming. Spatial diversity is one antidote to these problems. At the Tate Modern this diversity will be even more effective when the raw area of the electrical switch station joins the museum to make a more equitable division of sacred and profane space. ■



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**2.** The material for the stairs should be consistent with the construction of the building or surrounding structures. Material choices depend on aesthetics, cost, maintenance needs, and climate. Concrete is the most common and cost-effective for both the substrate and the surface material. The top of this should be roughened to make it slip-proof. Metal substrates are also common, though they are subject to corrosion. Stone veneers, such as granite, limestone, and bluestone are often used, but require careful installation to keep mortar joints tight. Marble is problematic because it is soft and slippery.

**3.** Handrail materials are usually metal. Bronze, brass, and cast iron are durable choices. Powder-coated steel and stainless steel are also durable and often less expensive. Steel is the most common choice, though, for longevity, it should be galvanized and painted. Metal railing can react to the salts used in de-icing to form a corrosive solution. With stone surfaces, the corrosive solution makes stains and can cause the stone to delaminate.

**4.** About 25 percent of all insurance claims deal with bodily injury, including slip-and-fall cases. The most common problems with exterior stairs cited in insurance cases include: exposed metal edges on poured concrete stairs that catch on the front of the shoe, risers that are not uniform in height, improper lighting, short flights of stairs—one or two steps—where no handrail is required, and stairs that do not comply with ADA requirements for such things as handrail size or position.

**5.** Historic buildings pose special concerns since it is difficult not to alter the character of the staircase and, in the process, change the look of the building. Handrails should look like they have always been there and fit in with the design and scale of the building. However, meeting current code requirements may prevent accomplishing this goal. While choosing to reuse existing materials can help stairs and handrails blend in with historic surroundings, ADA requirements may be in conflict with historic design. It is worth working with code officials to see if a variance can meet the safety goals and continue the historic design aesthetics. ■



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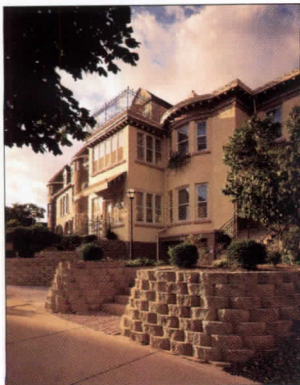


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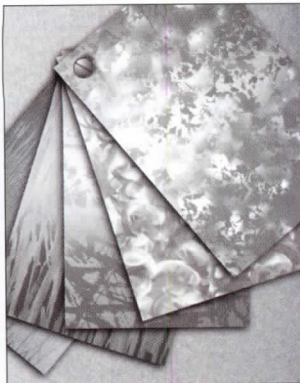


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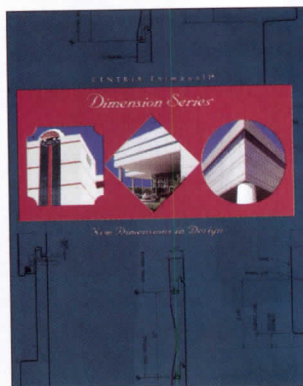


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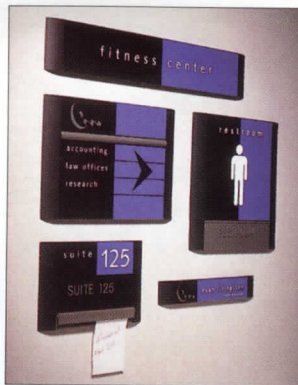


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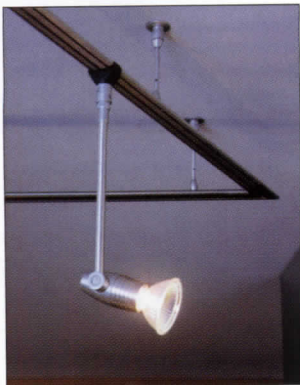
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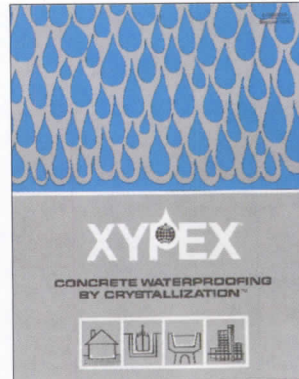


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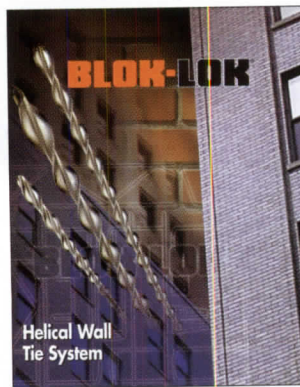


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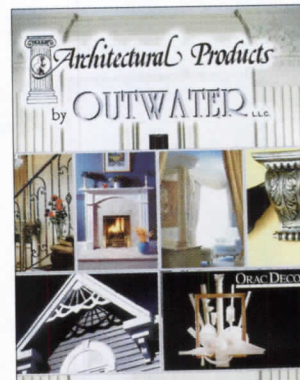


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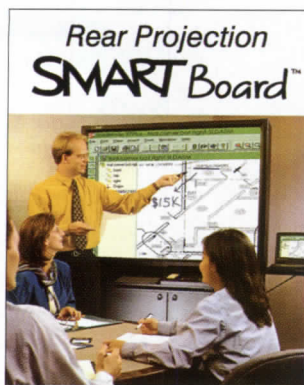


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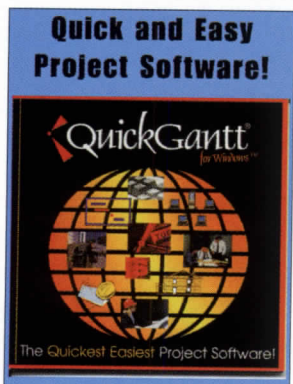


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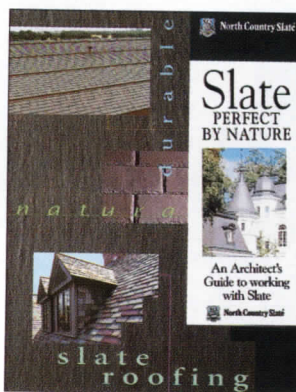


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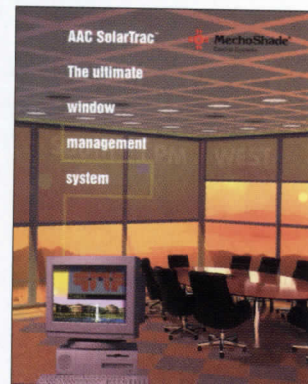


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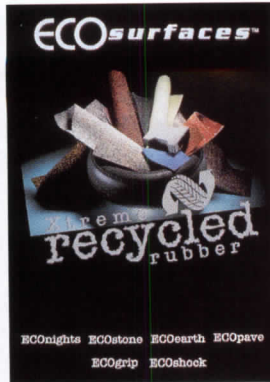


The Gage Corporation, Int., designs and manufactures the world's foremost collection of decorative metal ceilings. Design #447 (photo) is a good example of selective two-directional brushing with custom perforations from Gage's "Honest Aluminum" collection. Concealed suspension provides a clean monolithic appearance. Call the factory at 800-786-4243 for introductory literature and samples. E-mail: [gage@centurytel.net](mailto:gage@centurytel.net) Web: [www.gageceilings.com](http://www.gageceilings.com)

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# Profile



## Iara Lee is plugging architecture into the music scene.

**Interviewed by Clifford A. Pearson**

*Iara Lee, a 34-year-old Brazilian filmmaker now based in New York, is the impresario behind the Architettura series of music CDs. Launched last year by Lee's Caipirinha Music label, the series features electronic music interpretations of works by architects such as Ito, Hasegawa, Grimshaw, and Niemeyer. Lee's credits include running the São Paulo International Film Festival for five years; directing Synthetic Pleasures, a film about "all things artificial"; and Modulations, a documentary on electronic music. Like the Brazilian cocktail for which she named her company, Lee mixes some potent ingredients. RECORD kicked back with her in New York.*

**Q:** *How did you move from film to music and then architecture?* I saw that with the Internet and new technologies, different media were coming together. In the past, you were a musician or a filmmaker or whatever. Now categories and industries are bumping into each other.

*What has been the reaction from architects to your work?* The fact that I come from a different field has opened doors for me. If I came from architecture and just called up Norman Foster or Tadao Ando, I don't think they would be so receptive. But being a filmmaker, I contact them and they immediately get excited about cross-fertilization with another industry.

*What's the connection between architecture and music?* Every physical environment emanates particular sound experiences and emotions—whether they're claustrophobia, awe, or romance. In the Philips Pavilion at the 1958 World's Fair in Brussels, Le Corbusier and the Greek musician Xenakis explored these connections, collaborating with composer Edgar Varèse on a piece they called a "poème électronique." I wanted to do a contemporary version of this collaboration between environment and music. Moving from one field to another can be risky, though. You can be an accomplished architect, for example, but have very cheesy taste in music. Some artists are daring in their own field but conservative in others. So I'm never sure how architects will react to music. We're working on a CD now with Tadao Ando for his Water Temple and I was really nervous when we sent him the music we wanted to use. It's very experimental. But he was really comfortable with it.

*Do you start with the architecture or with the music?*

It works both ways. For the first two CDs—Ito's Tower of Winds and Grimshaw's Waterloo Terminal—we asked musicians to look at particular buildings and write compositions for them. Then on the third volume, David Toop, an English musician, saw Hasegawa's Museum of Fruit on a trip to Japan and got excited about the project and its controlled environment—trees growing indoors at the foot of Mt. Fuji. He brought it to our attention.

*What are your plans for the Architettura series?* I hope to do 10 CDs. Then it will mutate into something else. So far we've worked with established architects, who've lent the series their prestige. But I'd like to work with younger architects and be more adventurous. We've done that with musicians, giving unknown artists their first break. I think I have a knack for recognizing emerging talent. *You're doing films, CDs, videos, and books. Is this the future?* I like integrating categories, not separating them. But I don't want to be the art version of McDonald's—asking people, 'Would you like fries and a CD with that?'

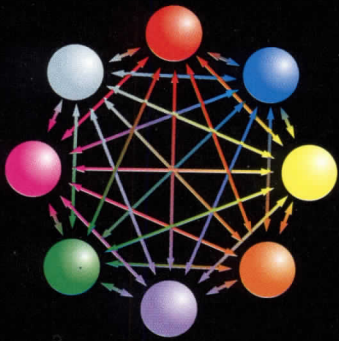
**Photography: André Souroujon**

# eZ

direct internet technology

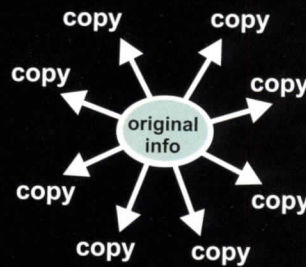
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eZ allows everyone to collaborate directly on the computer where the information is hosted, with no need to distribute multiple copies of the original.

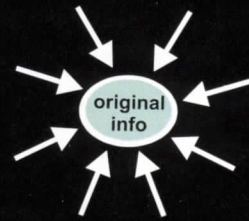


eZ is a revolutionary new technology that makes direct PC-to-PC connections from multiple sites anywhere across the internet, wide area network, or local area network. This direct connection allows quick and easy "Real Time" collaboration on files that never leave your control.

## Old Process



## eZ Process



## Direct Connection

eZ allows users to make direct PC-to-PC connections to each other through the internet or network. The connection is simple, easy and fast.

## Multi-Site Hosting with Multiple File Types

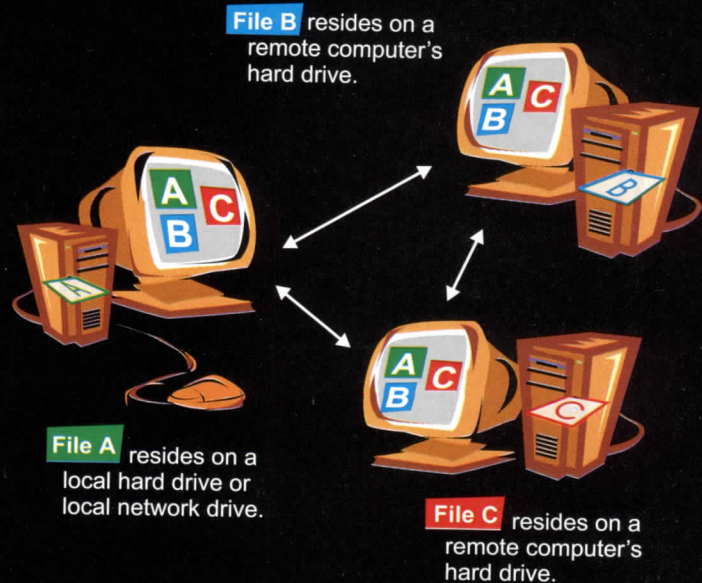
Different types of files can be shared simultaneously from multiple locations with each conference member able to be a host and client at the same time.

## Total Enterprise Solution

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