

# architecture



## SCHOOL'S IN

Kennedy & Violich's Primary Objectives

IA's Learning Curve  
Hypermodernism in Holland



Adobe O'Keeffe Museum will incorporate skylit galleries.

## O'Keeffe Museum

This July, the Georgia O'Keeffe Museum opens in Santa Fe, New Mexico. Richard Gluckman—the New York City-based architect of the Dia Center for the Arts, the Andy Warhol Museum, and new galleries at the Whitney Museum of American Art—is renovating and expanding a former adobe church in the heart of Santa Fe's historic downtown to house the 13,000-square-foot museum. The project is Gluckman's second in the southwestern city; his renovation of the SITE Santa Fe contemporary art gallery opened in 1995.

The O'Keeffe museum will house a collection of more than 80 of the artist's paintings, watercolors, drawings, pastels, and sculptures in galleries designed to recall the interiors of O'Keeffe's home in the nearby town of Abiquiu. A modern system of louvers and scrims will be installed in the galleries to modulate daylight. *N.C.*



JEFF GOLDBERG/ESTO

## Sign of the Times

The newest billboard in Queens, New York,

turns out to be a printing plant for the New York Times.

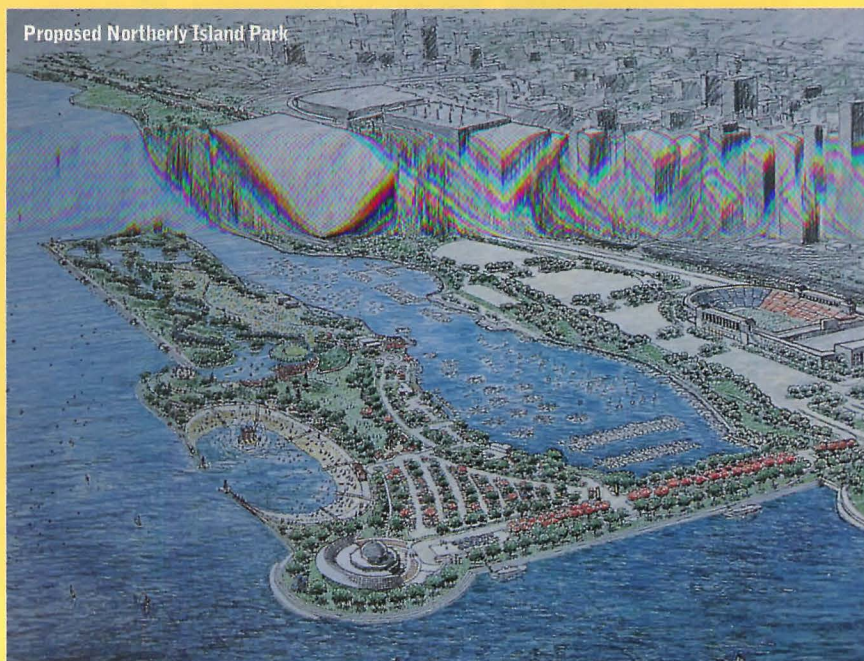
Located along the Whitestone Expressway, the plant begins color-printing special sections of the paper this spring. Polshek & Partners designed distinct volumes for the different phases of the printing process: paper storage, printing, sorting, and distribution. The facade's bright colors capture the attention of passing motorists; supergraphics showcase the paper's logo; expansive windows offer views of the printing presses in action. *N.C.*

## Chicago's Park Plans

An innovative new park plan in Chicago is stuck between bold planning and bureaucratic wrangling. Last year, Mayor Richard M. Daley announced plans to transform Meigs Field, a commuter airport next to downtown, into Northerly Island, a model park for the 21st century. Construction of the park, designed by Teng & Associates, was to have begun when Meigs Field closed last September at the lapse of its lease with the Chicago Park District. But Governor Jim Edgar, whose state capital in remote Springfield is the primary beneficiary of commuter flights from the airport, threatened a state takeover of the property, forcing a political compromise with Mayor Daley that reopens the airport for five more years.

With construction of the park delayed until 2002, Teng & Associates is working with local community groups, and students from design and architecture schools throughout the Midwest, to improve the master plan. They envision the lakefront park as a fully accessible "outdoor interactive urban ecological museum." Located adjacent to the Field Museum, Shedd Aquarium, and Adler Planetarium, the park will extend these museums' earth, water, and sky themes. Design elements include an enlarged beach, a "sky mound" offering stunning views of Chicago's skyline, a learning center, botanical gardens, an overnight camping facility, lagoons, and other recreational facilities.

If built, Northerly Island Park would complement Chicago's magnificent system of lakefront parks. The system is the result of early-20th-century urban planning efforts by Daniel Burnham and Montgomery Ward to maintain the lakefront "forever open, clear, and free." This egalitarian impulse fuels ongoing debate over how much development this valuable real estate can support. Over the decades, the waterfront has been colonized by numerous museums, a sports stadium, and a convention center. *E.K.*



## Preserving the Pompidou

The Georges Pompidou Center in Paris, the 1970s collaboration of Renzo Piano and Richard Rogers, will close in early 1998 for a two-year, \$120 million interior renovation.

While Piano contends poor maintenance prompted the repairs to his 20-year-old museum, officials attribute the wear and tear to the center's success: the Pompidou takes in about 25,000 visitors per day, five times the number it was designed to accommodate. Piano and architects Jean-François Bodin and Gae Aulenti will contribute to the museum's makeover. Piano's new pavilion housing sculptor Constantin Brancusi's studio, will remain open next to the Pompidou. *E.K.*

## Architects on TV

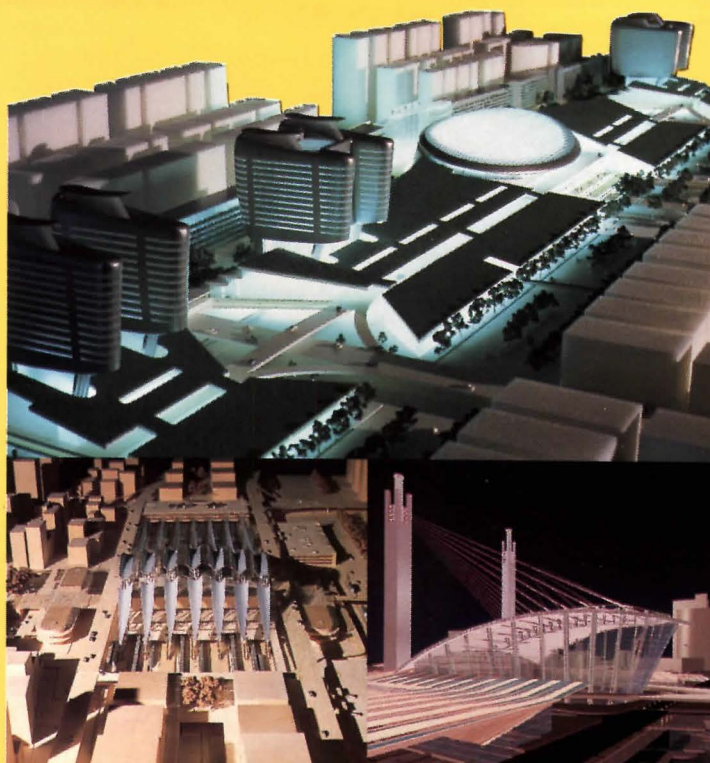
AIA members: Got an extra \$150? That's what the institute may ask members to contribute over the next three years to fund its \$2.5 million national television advertising campaign. Starting in March 1998, TV ads touting architects' abilities are slated to appear during such programs as ABC's "Good Morning America" and CNN's "Larry King Live." The broadcast spots will augment the AIA's \$1.2 million annual investment in print ads running in such magazines as *Forbes* and *Business Week*.

At the institute's national convention in May, delegates will vote on whether to charge each member an extra \$50 per year for three years to buy the airtime. If approved, the ads will be prepared by the Baltimore ad agency Richardson, Myers & Donofrio.

The AIA contends that it wants ads on TV because it is an "intrusive" medium "that can challenge the stereotypes of architects." *B.A.M.*



RICHARD ENZIG/ISTO/ARCAID



## Grimshaw Wins in Korea

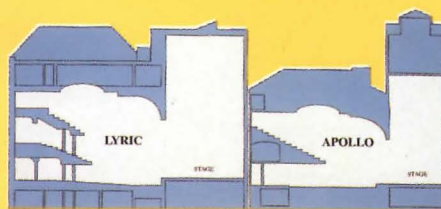
The Pacific seaport of Pusan, South Korea's second-largest city, honored a little-known American firm and two of Britain's best-known High-Tech architects for their designs for a centrally located high-speed rail station. Announced in January were first-prize winner Nicholas Grimshaw & Partners, for a scheme comprising three curved towers and a domed terminal (top); and second-placing Richard Rogers Partnership, with an undulated station roof (above left). The surprise third-prize winner was Eason, Earl International of Greenville, South Carolina, whose cable-stayed roof shelters a glass-enclosed terminal (above right). *N.C.*

## New Times Square Theaters

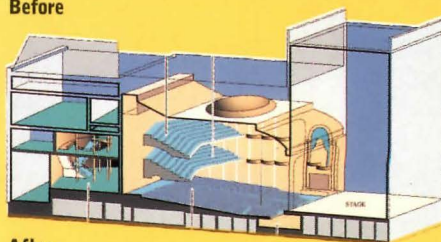


In January, the Ford Motor Company announced plans to team up with Livent of Canada to renovate the historic Apollo and Lyric theaters on 42nd Street. Ford and Livent, previous collaborators on Canadian performing arts centers, commissioned Beyer Blinder Belle and Kofman Engineering to merge the two theaters into the Ford Center for the Performing Arts (right). The complex, to open in January 1998, will comprise a 1,900-seat auditorium and two rehearsal halls.

This summer, ground breaks on another Times Square theater restoration. Developer Forest City Ratner is moving the 1903 Empire Theater from its original location to a new site 70 feet away. The theater will become the lobby for a 25-screen movie complex (above), a collaboration of architects Benjamin Thompson & Associates, Gould Evans Goodman Associates, Beyer Blinder Belle, and the Rockwell Group. *N.C.*



Before

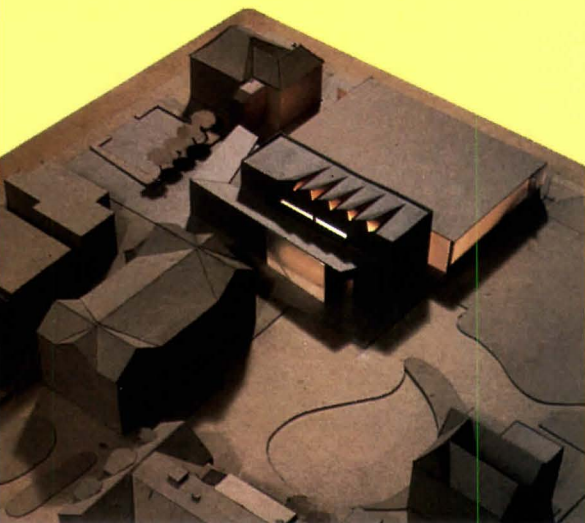


After

**IN BRIEF**

Four architects are vying to design the *Regional Performing Arts Center* on Philadelphia's Avenue of the Arts, a project awarded 10 years ago to **Venturi, Scott Brown Associates**. City officials fired VSBA in February because donors were reportedly unhappy with the firm's scheme. The center

**Kennedy & Violich's Wheeler School field house**



FRANCO VIOLICH

will comprise a new building housing a 2,500-seat concert hall and an adaptable, 500- to 1,200-seat theater, as well as the mid-19th-century Academy of Music building two blocks away. The shortlisted firms are **Barton Myers Associates, Pei Cobb Freed & Partners, Cesar Pelli & Associates**, and **Rafael Viñoly Architects** with the **Hillier Group**.

**Schwartz/Silver Architects** of Boston is designing the new *Wyeth Family Center* for the Farnsworth Art Museum in Rockland, Maine. When completed in 1998, the 12,000-square-foot, \$3 million addition will house a collection of 4,500 works of art, including sketches and paintings by Andrew Wyeth.

Employees of the Los Angeles International Airport will benefit from a new \$1.6 million day-care facility this fall, designed by Santa Monica-based **Marmol & Radziner**. In Providence, **Kennedy & Violich Architecture** is undertaking an extensive building campaign at the Wheeler School, renovating an 1889 student union complex and adding 9,000 square feet to an existing field house; the Boston-based firm is also designing a new, 40,000-square-foot gymnasium at the school's Seekonk, Massachusetts, farm.



**Marmol & Radziner's LAX child-care center**

The Washington Opera has selected **James Ingo Freed of Pei Cobb Freed & Partners** to design a \$105 million opera house in the shell of a former department store in downtown Washington, D.C. Freed was selected over **Hartman-Cox Architects, Cesar Pelli & Associates, Hardy Holzman Pfeiffer Associates**, and **Barton Myers Associates**. He is a capital-city regular, having designed the U.S. Holocaust Memorial Museum (1993), the gargantuan Ronald Reagan Federal Building (opening in late 1997), and the proposed U.S. Air Force Memorial (*Architecture*, April 1996, page 43). Freed's partner, **I.M. Pei**, has been asked to design a 100,000-square-foot German history annex to Berlin's Zeughaus Museum.

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In New York City, Lincoln Center has announced plans for a new, 1,000-seat multipurpose theater. Manhattan developer **Millennium Partners** plans to build the auditorium at the base of a proposed apartment tower across Broadway from the center's 1968 complex. Millennium wants the building to harmonize with Lincoln Center, but has not yet named an architect.

A new, 790,000-square-foot regional courthouse in Las Vegas, designed by local firm **Tate & Snyder Architects**, will be built near the federal courthouse designed by **Mehrdad Yazdani of Dworsky Associates** (*Architecture*, January 1996, pages 64-85).

Boston-based **Elkus Manfredi Architects**, with **BKA Associates, Vitetta Group**, and **Beacon Construction**, has been selected as the design/build team for the \$35 million state courthouse in Brockton, Massachusetts, over five other teams. Near Boston's Bunker Hill, **Leers, Weinzapfel Associates** is renovating a turn-of-the-century church into the Charlestown Boys & Girls Club. The firm's George Robert White Youth Development Center of the Boys and Girls Clubs was awarded the 1997 Parker Medal,

which recognizes the best Boston building of the year. **Leers, Weinzapfel** is the first women-owned firm to win the medal.

Architect **Wayne Berg** of New York City-based **Pasanella + Klein Stolzman + Berg Architects** was chosen last month to design a new dormitory for 300 students at Brooklyn's Pratt Institute over **Gwathmey Siegel & Associates, Hardy Holzman Pfeiffer Associates**, and **Polshak & Partners**.

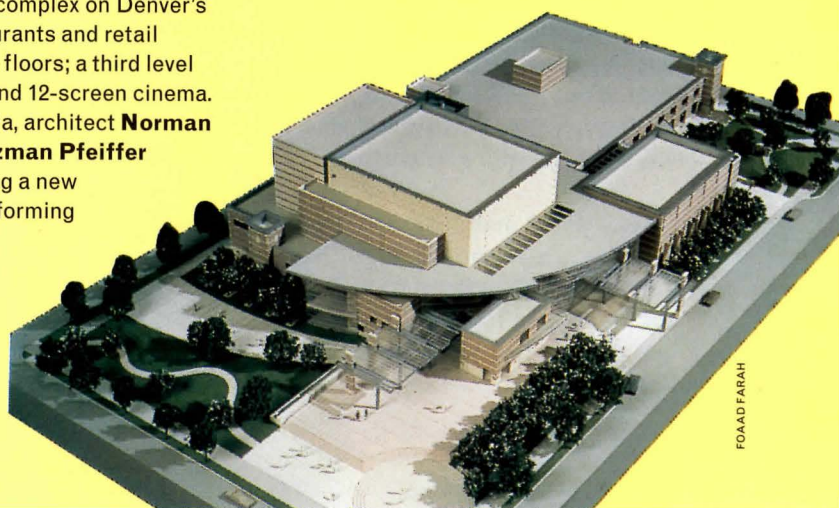
Berkeley, California-based **ELS/Elbasani & Logan Architects** is designing a 354,000-square-foot mixed-use complex on Denver's 16th Street Mall. Restaurants and retail will occupy the first two floors; a third level will house a nightclub and 12-screen cinema.

In Columbus, Georgia, architect **Norman Pfeiffer of Hardy Holzman Pfeiffer Associates** is designing a new 200,000-square-foot performing arts complex to house the city's symphony, chorale group, youth

**Hardy Holzman Pfeiffer Associates' Columbus performing arts complex**

orchestra, boys choir, and the performing arts programs of Columbus State University. The \$42 million project includes a master plan integrating the new building with an adjacent opera house, historic district, and riverfront.

**Gunnar Birkerts and Associates** has merged with **DiClemente-Siegel Engineering** to form **DiClemente-Siegel Design**. Birkerts will act as design counsel for the new firm.



FOAAD FARAH

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Applications will be reviewed beginning April 1, 1997 for duties beginning in August 1997. Applications will continue to be reviewed until the position is filled.

Applicants should submit a curriculum vitae, the names of three references with addresses and phone numbers, a brief personal statement or letter of interest (one page). Applicants may also submit, at their own discretion, a non-returnable and abbreviated sample of work as appropriate to their candidacy. Send materials to Professor Thomas Schumacher, Search Committee Chair, School of Architecture, University of Maryland, College Park, Maryland 20742-1411, or via e-mail to ts10@umail.umd.edu.

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M A B

Seattle typically shies away from big-idea urban renewal. Last May, the city's voters resoundingly defeated, for a second and final time, a much-heralded proposal for "Seattle Commons," a 50-acre park surrounded by a new mixed-use neighborhood on downtown's northern edge. The proposal's failure echoed the defeat of plans in the 1970s to tear down much of busy Pike Place Market and Pioneer Square, now the city's principal areas for art galleries, restaurants, and shops. And a recent push by Seattle's business boosters to host the 2008 Summer Olympics is meeting why-on-earth-do-we-need-it? opposition by local newspapers.

The cities of King County, which include Seattle proper and the outlying areas of Bellevue, Redmond, and Kirkland, have experienced a 12 percent population increase over the past six years. Despite this influx, metropolitan Seattle's citizens are approach-

# Seattle's Small Plans

**The capital of software and sportswear expands cautiously through renovation and regionalism.**

Hewitt Isley's Bell Street Pier, completed last June, holds a marina, maritime museum, conference center, and retail.

ing expansion cautiously. They are using their votes (and their tax dollars) to support important public projects. The Seattle School District is building eight new schools over the next five years, thanks to a \$330 million tax levy passed in 1995. And in November, voters passed a \$4 billion bond measure to build a regional transit system over the next decade. The system will combine light rail, commuter rail, and expanded bus service to help support urban growth sustainably.

Seattle's economic growth is robust. Last year, the Boeing Company, the area's key employer, added 250 orders to its already staggering list of back orders before buying rival McDonnell Douglas. The region's homegrown producers of profitable software and sportswear are supporting new economic expansion by building conspicuous symbols for themselves throughout the region. Microsoft completed a new campus in nearby Redmond in 1995, designed by the Zimmer Gunsul Frasca Partnership (ZGF). Its deftly proportioned brick-and-glass complex occupies a steeply sloping pastoral site. Local landscape architect Robert Murase created a courtyard of water and stone where employees informally schmooze—an oasis quite unlike the insular compounds of most software makers.

Microsoft mogul Bill Gates and his former colleagues are emerging as Seattle's own modern-day Medici, commissioning varied works by



MICHAEL SHOPENN

skilled designers. Gates's Xanadu-like compound in Medina, on Lake Washington's eastern shore, designed by James Cutler and Bohlin Cywinski Jackson, remains shrouded in a veil of secrecy.

Meanwhile, Gates's Microsoft cofounder, Paul Allen, is bankrolling major projects such as the Frank Gehry-designed Experience Music Project (formerly the Jimi Hendrix Museum), to be completed in 1999, and a new football stadium for the Seahawks, who are searching for a site. Ida Cole, a former Microsoft executive, funded the renovation of the grand Paramount Theater downtown, restored by NBBJ to its original 1928 appearance.

Besides computer equipment and coffee, Seattleites are obsessed with outdoor recreation and its requisite apparel. Upscale camping clothiers Eddie Bauer and Recreational Equipment Incorporated (REI) have become astute architectural patrons, opening flagship stores designed by ZGF and Mithun Partners Architects, respectively. The Eddie Bauer store, designed with

in-house architects, forms an elegant centerpiece to Seattle's University Village, which, with its café tables and fountain, resembles a European street. REI's store (left), which sits closer to downtown near a major commercial hub, presents a dramatic face to the adjacent freeway. Sporting a glass-and-steel skin, the building glows like a lantern at night, and encloses a pinnacle intended for mountain climbers. But the building's real drama is a stair pavilion surrounded by a crashing waterfall. The architects, influenced by Asian and Native American cultures, worked with artists to devise fittings and embellishments reflecting the image of the company, a cooperative offering discounts to its members.

Downtown Seattle is also brimming with new cultural, entertainment, and commercial activity. Loschky Marquardt & Nesholm designed a new downtown symphony hall to be completed next year and is working with Gwathmey Siegel & Associates on the expansion of the Henry Art Gallery at the University of Washington. Callison Architecture, the city's largest firm with a staff of 300, has transformed the run-down 1925 Fraternal Order of Eagles building in the city center into a magnificent, \$30 million performing arts complex. The terra-cotta-faced structure is now home to A Contemporary Theater (ACT), a well-established playhouse. The building's interior was gutted, leaving only the original, classically detailed walls and ceiling of the old auditorium intact, along with peripheral vestibules and anterooms. Two new, 390-seat theaters were inserted, one stacked atop the other, and a cabaret has been tucked off to one side. The upper, bowl-shaped theater with a central stage is a high-tech affair that appears to hover like a spacecraft within its richly ornamented Beaux-Arts shell.

Callison is also rehabbing an historic downtown department store to create a new retail flagship for Nordstrom. Across the street, NBBJ is designing a mixed-use retail complex called Pacific Place. Both are scheduled to open next year, as is NBBJ's new retractable-roof baseball stadium for the Seattle Mariners, several blocks south of Pioneer Square.

Seattle's urban neighborhoods are also thriving. Belltown, on downtown's northern edge, has become a lively, funky community filled with apartments and condominiums in densely packed mid-rise buildings. The streets are now lined with a mix of cutting-edge

ROBERT PISANO



TIMOTHY HURSLEY

Glazed tower of REI flagship store by Mithun Partners (top) encloses climbing wall. Callison's new headquarters for Eddie Bauer in Redmond (above) is one of several new corporate complexes that announce Seattle's growing economic clout.

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clothing stores, high-style restaurants, and nightclubs. Up on Capitol Hill, Steven Holl's stunning chapel for Seattle University opens this month. Architect Stickney and Murphy has designed a new apartment building, called Malden Court, intended to reflect the tradition of large, wood-frame houses built here in the early 20th century. From across the street, Malden Court looks like two houses, but actually contains 10 two-story units arranged around a central courtyard. The same firm, in conjunction with Michael Pyatok Architects of Oakland, California, completed 41 units of low-income housing for the Salvation Army in Puyallup, a small town 20 miles south of Seattle.

The boldest architectural moves in Seattle have been made on the waterfront. The firm of Hewitt Isley has followed its fine work for the Port of Seattle's headquarters with Bell Street Pier, a stunning new commercial complex at Pier 66 a few blocks south. A short-stay marina, high-tech conference center, maritime museum, fishing trawler terminal, shops, and restaurants are all

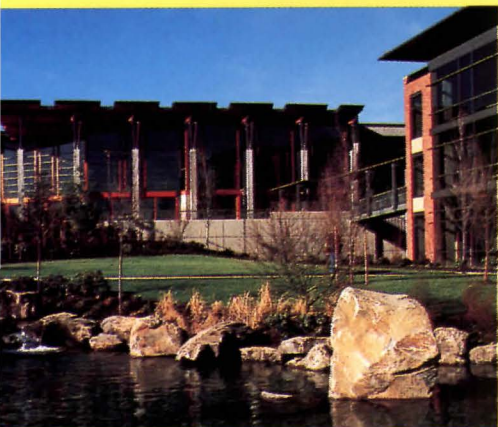
housed within a collection of brightly colored metal sheds arranged along six waterfront blocks. Seemingly haphazard in arrangement, the sheds evoke the industrial character of the city's working waterfront. Two intentionally overscaled pedestrian bridges connect the Bell Street Pier to Pike Place Market. A rooftop esplanade offers breathtaking views of the bay, the Olympic Mountains, and downtown's towers. The Bell Street Pier gives the city a spectacular "front porch" to Puget Sound.

The commercial component of this project is being followed by a 234-unit courtyard condominium complex by GGLO Architecture called Waterfront

Landings, a hot piece of real estate with expansive views of the harbor. Brisk sales for the first phase, now being completed, have prompted an early start on subsequent installments. Other future components include a hotel and trade center by ZGF. Further north along the bay, biotechnology company Immunex is seeking permits to build a \$400 million campus, master-planned by Koetter, Kim & Associates of Boston with local architect Stephen Johnson. The first phase of the project, which is sited on axis with Mount Rainier, is scheduled to be completed in 2000.

The city's brisk development and upbeat outlook contrast sharply with the mass exodus from Seattle 25 years ago, when Boeing laid off tens of thousands of workers. In those days, someone erected a sign on the outskirts of town that read, "Will the last person to leave Seattle please turn off the lights?" Today, the city is regularly judged by such arbiters as *Fortune* magazine to be one of the most livable in the country. Seattle's coming of age is reflected in the quality and sophistication of its buildings and public spaces. Instead of big, sweeping urban schemes, this city combines environmental consciousness, historic preservation, and sensitive urban design, a mix energized by the attitude that smaller can be better. *Mark Hinshaw*

*Mark Hinshaw is a columnist for the Seattle Times.*



Microsoft's low-key campus in Redmond is designed by ZGF and Robert Murase to emphasize the outdoors.

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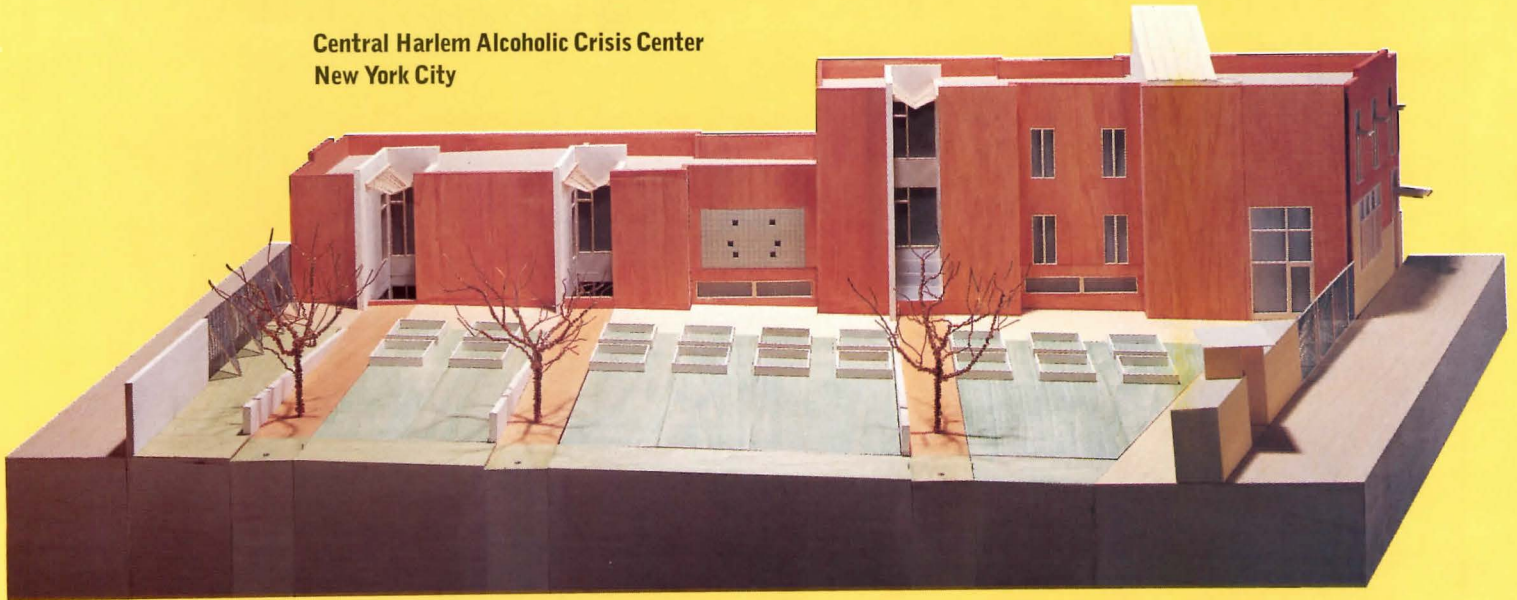
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**Central Harlem Alcoholic Crisis Center**  
New York City



## Harlem Housing Caples Jefferson Architects

**House for Three Generations**  
New York City



Sara Caples and Everardo Jefferson of New York City-based Caples Jefferson Architects devote half their professional practice to socially conscious projects. Currently, the husband-and-wife team is designing two projects in Harlem that offer alternatives to traditional housing. A two-and-a-half-story night club is being converted into an 8,000-square-foot long-term rehabilitation facility for 19 recovering alcoholics. Common spaces are located at the south-facing front of the linear, brick-and-limestone-clad building. Bedrooms and shared bathrooms are housed in the rear wing. Zoned as a hotel, the facility offers each resident a private room with oblique views of a community garden through a light well. The garden provides a meeting place for inhabitants and neighbors.

A few blocks away, a private developer has commissioned Caples Jefferson to design a 4,000-square-foot rowhouse for a family spanning three generations. The grandparents will occupy a fully accessible apartment on the ground floor, with a kitchen and dining room that will be shared by the entire family. Parents and children occupy two separate apartments, vertically stacked on the building's three upper stories, and separated by a light well. Each apartment has its own courtyard or garden. The rowhouse will be completed by the end of this year, the recovery center by 1998. *N.C.*

The rehabilitation center overlooks a community garden (top). A load-bearing brick wall bisects the rowhouse for a generational family (above, left and right).

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Unlike Britain's Prince of Wales, His Highness Prince Karim Aga Khan IV, spiritual leader of the Ismaili Muslims, is more than an architecture buff and royal critic. Along with the Aga Khan Award for Architecture, he administers the Aga Khan Development Network (AKDN), a nonprofit institution that promotes economic, social, and cultural programs in poor Islamic regions around the world.

The AKDN's economic programs, many of which employ architects and planners, create financial cooperatives, design and build schools and clinics, and develop infrastructure. AKDN's Trust for Culture includes educational programs, such as the Program for Islamic Architecture at Harvard and MIT, and the Historical Cities Support Programme, a new venture that preserves cultural monuments and ties them to local economies. Last October, the Aga Khan received the 1996 Hadrian Award from the World Monuments Fund in New York City for his preservation efforts in the Islamic world.

# The Prince and the Paupers

**The Aga Khan explains how his architectural initiatives preserve cultural heritage in the developing world.**

**ARCHITECTURE: What draws you to architecture?**

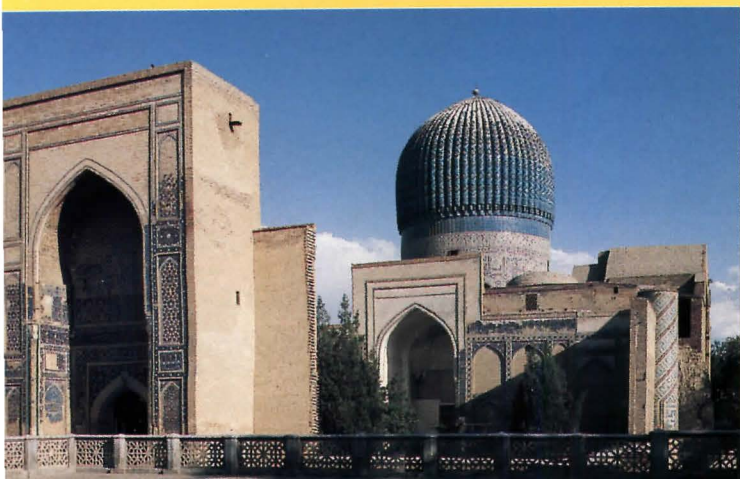
**AGA KHAN:** I came to architecture through my development work. When my grandfather died in 1957, I took over his work in the third world at a time when a growing consumer society in the West was having a huge impact on the availability of resources for poorer societies. We were trying to build schools, medical facilities, places of worship, and commercial buildings. It was—and still is—my belief that we would be wrong to construct buildings that would disappear in 20 years time. Most of the developing world of Asia and Africa cannot afford, rationally or morally, to engage resources as though it were part of a consumer-driven society. I started the Aga Khan Award for Architecture largely because I believe that if we are to commit resources to buildings, they should be culturally appropriate and survive for future generations.

**Are the types of projects honored in the last few cycles of the award different from those awarded in 1980?**

Yes, they are different because the developing world is different. It's difficult for Westerners to realize because the West is so urbanized, but the rural people of Asia and Africa, once so dependent on agriculture, are slowly creating sufficient wealth to save. That transition has an immediate impact on the built environment of rural areas: institutional buildings have become increasingly important contenders.

The developing world is also changing from centralized

Timur's Mausoleum, Samarkand, Uzbekistan, recently restored



GUNAY REHA

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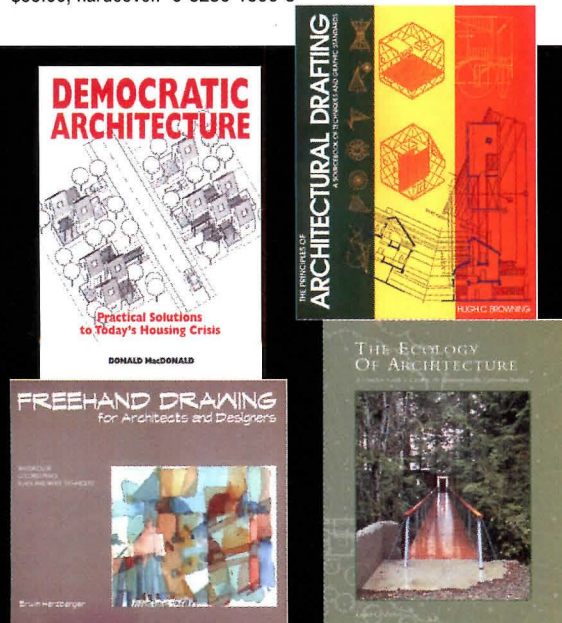
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economies to decentralized, local economies. That means clients will be the institutional and private sectors rather than the public sector. We are also beginning to see young architects who are more aware of nonarchitectural issues that must be reflected in architecture. These young men and women are more concerned about preserving cultural heritage than were the architects of several generations ago, who were educated in the West or in a Western architectural vocabulary.

### Tell us about the Aga Khan Development Network's architectural education programs.

After beginning the awards program, we realized that education was a key player in the quality of architecture we hoped to achieve. In 1992, we started the Aga Khan Program for Islamic Architecture at Harvard and the Massachusetts Institute of Technology, which sponsors several professorships and about 40 students at both institutions. But clearly, we realized that architectural teaching about the Islamic world and the developing world has to take place locally. We've begun what we call parallel centers, linking universities in the Islamic world to our resource base—funding for professorships and grad students and a lecture series. We've begun case studies at Dawood College in Karachi and the University of Amman, Jordan, and hope to expand to other universities in the developing world.

The other component is the Historic Cities Support Programme, which is restoring historic buildings in Uzbekistan, Tanzania, and Pakistan (pages 88-93, this issue). We're also working on a master plan for a large park in Cairo. The Historic Cities Programme makes a direct investment in education by reviving historic architectural practices, like earthquake-resistant structures in Pakistan. In that sense, it's hands on.

### Your organization embraces both development and the preservation of culture, but development and cultural heritage are often at odds. How can they coexist?

Our preservation work is not driven exclusively by a society's cultural needs, but by its developmental needs. In a historic city, the AKDN has many different arms, giving us the ability to build education or healthcare facilities, create a small-loans program, village organization, or cooperative.

Some of the buildings we restore will have a direct commercial impact. Others will be cultural symbols that we hope will be self-sustaining, but may not be profit-generating. After all, many of these buildings are more important as symbols of historical social structure. It would be foolish to try to change that or to pretend it didn't exist.

In the developing world, you can't just take any historic building and do anything you want with it. How you choose to reuse those buildings has to be acceptable to the society in which they are located. That notion of social responsibility for reuse of historic buildings is very important for us.

**To reuse the stone and mud houses at Baltit Fort, your program rebuilt animal pens as bathrooms with modern plumbing. This strategy produced a dramatic change in the lifestyle of the occupants. In the West, we call it gentrification.**

I think the word "gentrification" means giving a capital asset a

new value. It's related to market value more than anything else. That's not the goal in Baltit. The goal is to bring in basic improvements so that poor people get an improved quality of life. Mixing animal and human life in rural environments has a tremendously damaging impact on social structure, on water, on disease levels. What we are trying to do is to separate agricultural and social activity. Unless rural society can separate agricultural activity from daily living, very high disease levels will continue. To me, that's an example of design contributing to health, not cultural, improvements.



Stone Town Cultural Centre, Zanzibar, Tanzania

**In the West, architects sense that their role is changing, and fear they are losing work to engineers and developers. Is this frustration prevalent in the Islamic world?**

I think the processes of change in the Islamic world are different from what you encounter in the West, and the attitude toward architects is also different. In the past, the developing world has needed roads, bridges, and infrastructure. Engineering is specifically associated with those things in the third world. Architecture tended to be viewed as elitist, and not a priority profession; doctors, teachers, and economists were more important than architects. Moreover, architects worked essentially for public-sector decision makers and not for the private sector—except for the very wealthy. Architecture, therefore, has always been disconnected from the majority of the population, which is rural.

But now that has changed. With the decentralization of these economies, resources will move into new hands. These new clients are going to be seeking architects today more than they ever have in the past. Moreover, there is another world force at play: environmental capacity will not only impact engineering, but architecture.

**Are you saying that, because of limited resources, clients in the third world will turn to architects?**

Yes. The changing environment will cause clients in the developing world to call on architects more in the future, because architects are regarded as *being more sensitive* to sustainability, local issues, and cultural heritage. I think the developing world is much more favorable to architects than the West is right now.

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protest

Yet another war memorial is being added to the grassy sweep of the National Mall. This one will commemorate World War II, and its sponsor, the American Battle Monuments Commission (ABMC), is hurrying to build it by 2000, no matter what the environmental consequences. After a controversial design competition (*Architecture*, July 1996, page 15), the winning scheme for the memorial was finally unveiled in January. Its grandiose design will interrupt the expanse between the Lincoln and Washington memorials and ruin one of our nation's most cherished vistas.

The winning design team, chosen over five other finalists, is headed by Friedrich St. Florian, an Austrian-born architect who practices in Providence, Rhode Island. The team includes Washington, D.C.-based Hartman-Cox Architects, landscape architect Oehme, Van Sweden & Associates, and architect-of-record Leo A Daly. Their unabashedly Classical scheme comprises

# Capital Offense

**An overblown war memorial will destroy a sacred site on the National Mall.**

a symmetrical pair of semicircular colonnades and earthen berms surrounding a 15-foot-deep plaza, which incorporates the Rainbow Pool at the eastern end of the Reflecting Pool. The imperious ensemble is obviously meant to evoke the Baroque spaces of European cities and the Beaux-Arts-inspired 1901 Senate Park Commission Plan for Washington. But unlike those historic urban models, the new memorial's sunken plaza is removed from the street and the city.

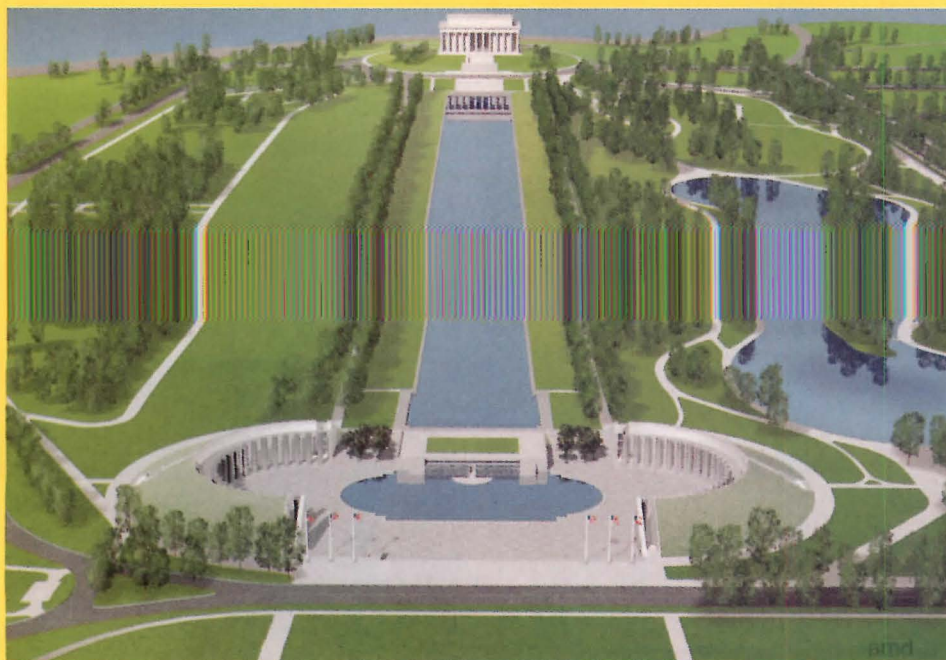
Moreover, St. Florian's ambitious design overreaches its commemorative purpose. It is a museum masquerading as a memorial. The complex is vast, covering 7.4 acres—nearly as broad as Bernini's Piazza of St. Peter's in Rome—and incorporates

over 43,000 square feet of building. Its 40-foot-high colonnades are flanked by 50-foot-high walls and sloping, earth-covered wings housing exhibition and educational spaces. Its low-lying site in the middle of the Mall invites flooding of these partially underground rooms.

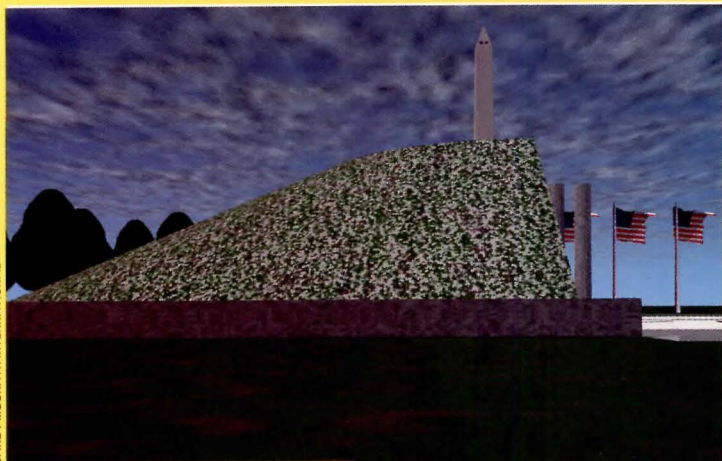
This scheme is not only more building

than memorial, but appropriates symbolism that is insensitive to its surroundings and the very veterans who fought the war. Each colonnade comprises 25 truncated Doric columns to symbolize the 50 states in the Union. (There were 48 states at the time of World War II.) But the fluted columns are incomplete, their capitals lopped off, a curious gesture that parodies the Lincoln Memorial's proud pillars to the west. These stripped elements also recall the Classicism

**The World War II memorial is sited on axis with the Lincoln Memorial and Washington Monument. Its grandiose, colonnaded plaza will incorporate the Rainbow Pool to the east of the Reflecting Pool.**







The new memorial tries to camouflage its educational and exhibition spaces in grassy berms behind 40-foot-high colonnades of decapitated Doric columns (right). The sloping roofs will block views of the Washington Monument (above) and other Mall vistas.



of Nazi architect Albert Speer, a painful association that could have been avoided by a more abstract, contemporary composition in the spirit of Maya Lin's moving Vietnam War memorial nearby.

The design's ultimate failure, however, is its site. Constructing a memorial with a \$100 million building program directly on axis between the Washington Monument and Lincoln Memorial is wrong. The Mall's center, as conceived in 1791 by its original designer, Pierre Charles L'Enfant, has never been a place for buildings, as subsequent planners understood. Not only will the new memorial's monumental colonnades and grassy roofs visually disrupt the Mall's open landscape from nearly every angle, but they will interrupt the symbolic connection between the Washington Monument (left) and Lincoln Memorial.

The American Battle Monuments Commission argues that Robert Mills's obelisk to Washington and Henry Bacon's temple to Lincoln represent the Revolutionary and Civil wars, and that a World War II memorial fits into this grouping. (By the ABMC's own reasoning, then, the memorial to President Franklin Delano Roosevelt, now under construction in West Potomac Park, also commemorates World War II.) But the real purpose of the two presidential memorials is to remind Americans of the enduring strength of our Union,

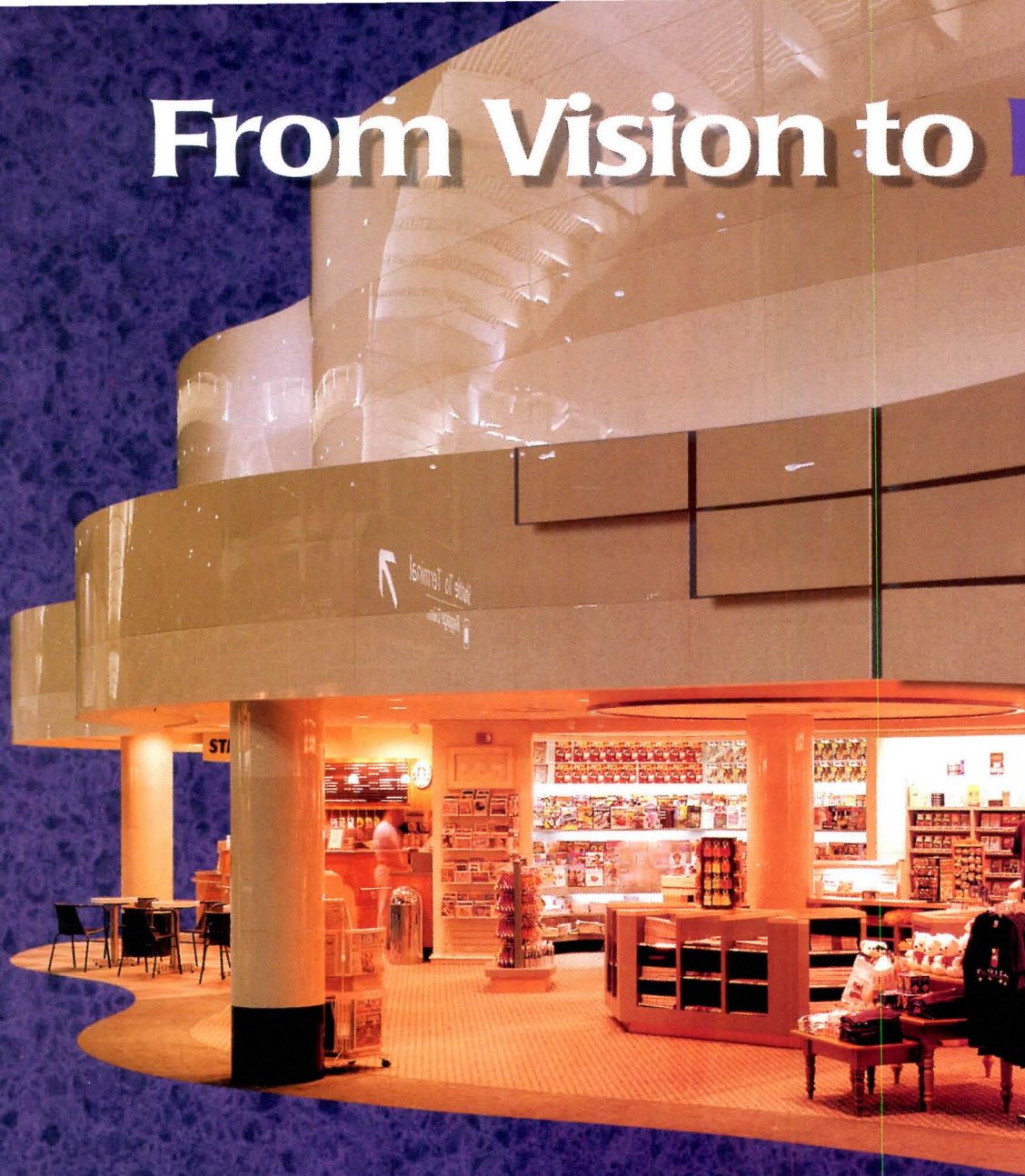
not of the wars fought by these leaders. The open view between the pair symbolizes our democracy and must be preserved.

Why not shift the World War II memorial to downtown Washington, which would benefit from its grand plaza and educational mission? The U.S. Navy Memorial, for example, fronts Pennsylvania Avenue across from the National Archives and successfully creates a solemn public space for the city.

The American Battle Monuments Commission considered Freedom Plaza, a downtown site, along with six other locations, including the edge of the Tidal Basin and a tract near the FDR memorial. Any of these sites would have preserved the dignity of the Mall. As Senator J. Robert Kerrey (D-Nebraska) asserts in a letter to F. Haydn Williams, chairman of the site and design committee for the project, the memorial "will change the entire nature" of the Mall. "It will become the World War II Mall, with Lincoln and Washington on either end." Even the project's sponsors seem to think that's true: The ABMC is now looking at ways to reduce the size of the memorial's program. These revisions would invalidate St. Florian's design.

Veterans of World War II deserve a monument that honors their contribution to history, not one that dishonors the inspiring vista of the Mall and the ideals it represents. The American Battle Monuments Commission should select a different scheme and a different site. *Deborah K. Dietsch*

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## SCHOOLS OF THOUGHT



Architects are passionate about their education. They value the intensity of their university curriculum and the transformative experience of the design studio. And now the American Institute of Architects is requiring architects to continue their education throughout their professional lives. In theory, the idea of continuing education is unassailable. However, some architects express concern about the AIA program's lack of rigor, substance, and quality, as our article on this new requirement reveals.

Others believe tradition is the best teacher. In addition to a 1964 private school in Ohio, Kennedy & Violich Architecture took a lesson from the original's unyielding postwar anatomy, and gave the building bright new spaces. The striking designs by Amsterdam architect Van Berkel + Bos deliver a loyal critique of the Dutch Modernist School, both heeding and challenging its abstract tradition.

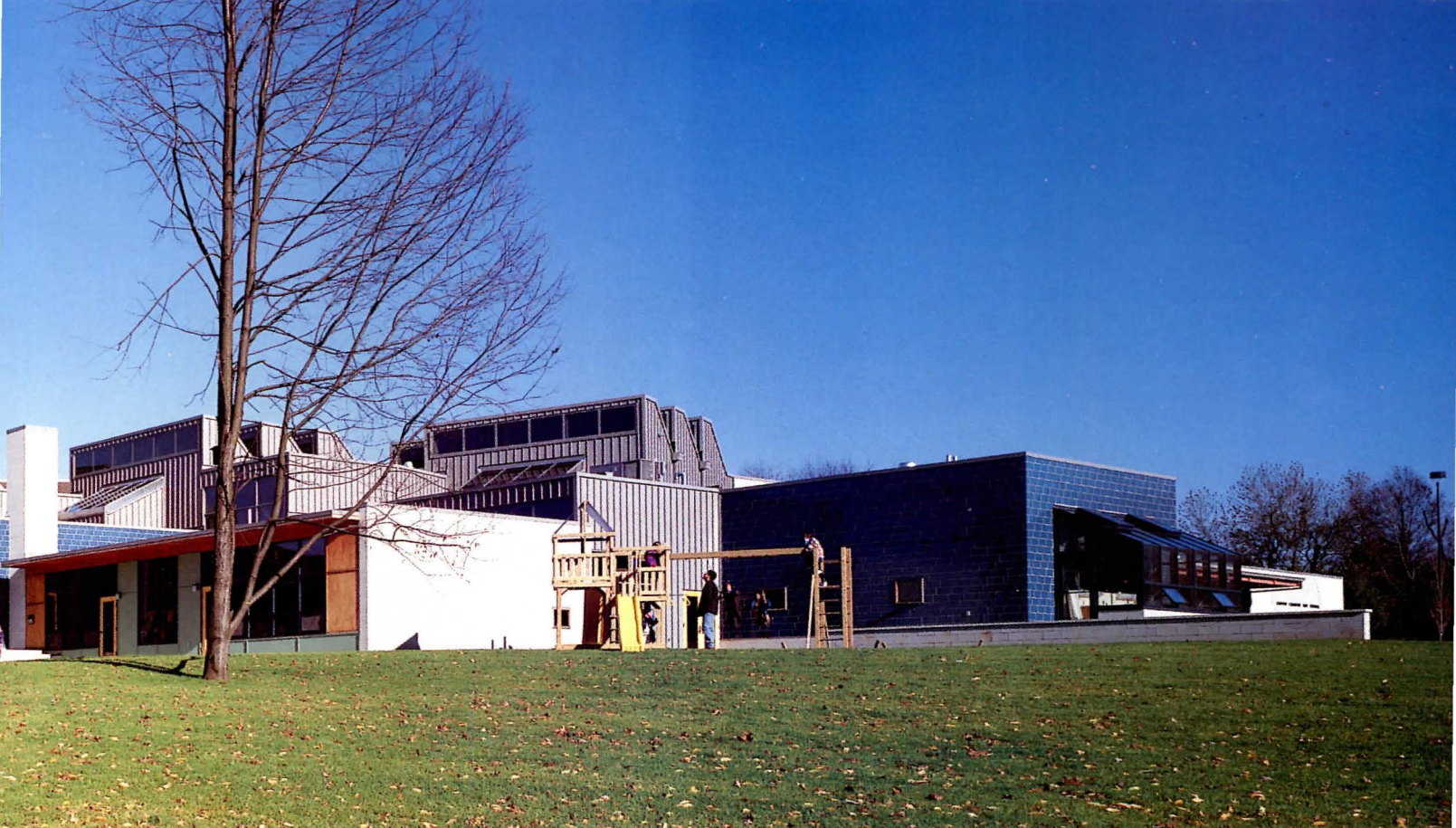
Similarly, reviving important historic artifacts allows architects to learn from the past, as vividly demonstrated by the rehabilitation of cultural monuments such as Pakistan's Baltit Fort and UCLA's Powell Library. And in creating a headquarters for a poverty-relief agency, Eric Colbert & Associates studies the lessons of the street in a poor area of Washington, D.C., then offers a refreshing counterpoint to its turn-of-the-century rowhouses and schools.

# A MAKEOVER WITH



**THE RENOVATION OF A 1960s SCHOOL BY KENNEDY & VIOLICH SUBVERTS ITS OPEN-PLAN PREMISE**

# ATTITUDE



BY STEVEN LITT

At first glance, the recently expanded Canton Country Day School looks like a light manufacturing building that crash-landed in a 40-acre park amidst a well-to-do suburban neighborhood. Located on the north side of Canton, Ohio, 15 miles south of Akron, the building signals factory rather than school: light monitors bristle on its roof, and sober metal and stucco expanses line its low-lying facades.

But the impression of blue-collar toughness quickly fades. A steel sunshade painted a rich red zips across the south facade. Pairs of bright maple and glass doors cheerfully demarcate the entrance. Shiny blue structural blocks poke through the main facade as a virtual announcement that Canton Country Day School, a private school for grades K-8, is an institution with attitude.

Designed by Kennedy & Violich Architecture of Boston with Lawrence, Dykes, Goodenburger and Clancy (LDGC) of Canton as architects of record, the \$4.8 million, 38,000-square-foot expansion more than doubled the size of the original school, built 33 years

ago to designs by Marco Marx, then partner in LDGC's predecessor firm.

The building's amiably subversive exterior gives clues to its persona. But the richness of its design is even more apparent inside. After passing through a low-ceilinged foyer with a cafeteria on one side and a science classroom on the other, visitors enter an exhilarating, irregularly shaped "performance space," the site of special school assemblies, where students cross paths between classes.

The embracing 32-foot-high ceiling canopy, supported by steel columns and finished like an industrial shed with exposed bar joists, ducts, and conduit,

**Art room (below left) with chimney for kiln has garage-style door to expand classroom into paved courtyard.**

**Sawtooth-profiled light monitors admit late afternoon daylight to performance space. Kindergarten wing (below center), with maple-framed doors, is sheathed in plywood.**

## FREESTANDING CLASSROOMS ARE BUILDINGS-WITHIN-A-BUILDING



hovers over a collection of blue-blocked classrooms. These buildings-within-a-building jut into the performance space at odd angles with garage-style doors, which open wide to spill the students' energy into the central area during special events.

The spaces between the blue-blocked classrooms frame multi-layered vistas that lead to a kindergarten and homerooms for 250 students. They also function as informal gathering areas, reading rooms, and play zones. The overall effect is that of a magical village with its own topography, trails, and secret hiding places.

"The school is all about discovery," says Sheila Kennedy, who cofounded Kennedy & Violich Architecture in 1988 with her husband, Frano Violich. "You remember the things you liked when you were a child, and you try to provide that type of space."

Ohio has been making recent architectural news as the Midwestern mecca for new buildings by such star architects as Peter Eisenman, Michael Graves, and Frank Gehry. But the trustees

of Canton Country Day School made an original choice when they picked Kennedy & Violich Architecture after a nationwide search. Principals Violich, 39, and Kennedy, 38, who teaches at Harvard's Graduate School of Design, have developed an alternative practice on the margins of mainstream architecture.

The husband-and-wife team was selected for the Canton job in part on the strength of a science playground exhibit the duo designed for the Children's Museum in Boston, in which pine boards, electrical conduit, and copper plumbing are exposed as working elements of a building. But the pair is better known for edgier designs in

Performance space (below right), as viewed from library terrace, reveals structural system. Open-web joists mediate skewed geometries of light monitors and roofline.

## SPILLING THEIR ENERGY INTO THE CENTRAL PERFORMANCE SPACE



which architecture becomes a form of guerrilla public art, cultural critique, and an exploration of the living archaeology of cities.

In 1993, Kennedy & Violich Architecture's bathroom for the Boston Center for the Arts won a national AIA honor award based on its unusual juxtaposition of pristine white fixtures and exposed plumbing against "unpainted" masonry walls that expose multiple layers of paint. "It's not trying to make an esthetic out of functionalism, but exposing systems that make up architecture—that's what interests us," Violich explains.

Likewise, the firm initiated its Interim Bridges Prototype Project in 1991 to expose the excavations of Boston's multibillion-dollar Central Artery, connecting neighborhoods severed by construction. Working with a \$10,000 NEA grant, Kennedy and Violich temporarily closed their office to work with volunteers to construct a 50-foot section of walkway with a skin of translucent fiber panels. State officials didn't exactly embrace the Bridges Prototype Project, which

eventually fizzled due to lack of funding.

In addition to a tight budget (the school cost \$93 per square foot), the Canton Country Day assignment posed an unusual challenge. The original 1964 building featured two hexagonal pods of open classrooms surrounding central courts. The hexagonal geometry was followed so relentlessly that slop sinks in corner closets are triangular in shape. A Tudor-Modern look with exposed half-timbers and mansard roofs dominated the elevations. "It wasn't easy renovating such a geometrically controlled building," Violich maintains. "It was like adding on to a beehive."

The firm's solution was to subsume the

**Corridor between art and music rooms (below left) leads to performance space (background) and is lined with bookshelves to form satellite library.**

**Second-grade classroom (below center) features vaultlike kitchen with kid-sized pass-through window, built-in plywood shelving, and tongue-and-groove-joined ceiling.**

## KENNEDY AND VIOLICH HAVE CREATED A MAGICAL VILLAGE WITH





original building, leaving bits and pieces of its dark timbering exposed, like an archaeological relic. There are delightful touches throughout the new construction, such as gridded window shelves in the special classrooms, which function as open storage and as display spaces. Working parts of the building are celebrated. Gas heaters sit in miniature power plants that double as utility closets and kitchen units.

Materials are carefully marshaled to make the transition from the spartan metal-work of the performance space to the warmer look of the classrooms, which have glass and maple doors and cabinets. Cork and wallboard cubbies and wood ceilings

give these rooms a cozy feeling. "We concentrated materials in the classrooms," Violich says. "It may sound like a saccharine cliché, but it's where teachers and students spend most of their time."

As in previous work by Kennedy & Violich Architecture, Canton Country Day School carries a polemical twist. It functions as a successful makeover of a 1960s open-plan school and, conversely, as a critique of the open-plan concept. By incorporating a rich hierarchy of spaces for quiet learning, play, discovery, and large assemblies, and by providing for random encounters between children of various ages, Canton Country Day suggests that schools, like cities, should be both open and closed, public and private. Kennedy & Violich's overhaul of the school, the firm's first major commission, has already led to new work—a three-part, multimillion-dollar expansion of the Wheeler School in Providence, Rhode Island.

*Steven Litt is the architecture critic of the Cleveland Plain Dealer.*

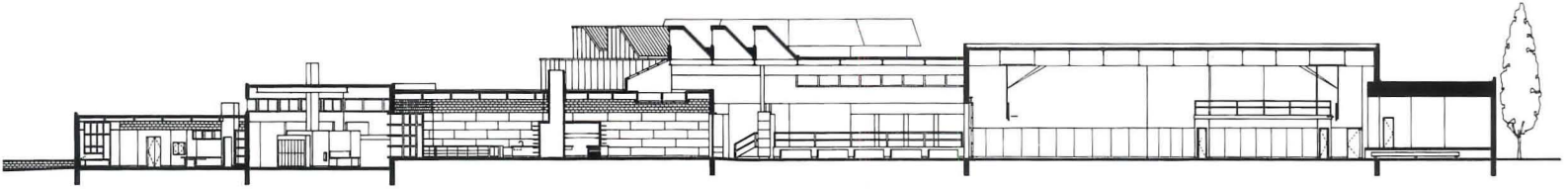
Perforated plywood-clad music room (below right) is flanked by display case with drums. Glazed doors open onto performance space.

## ITS OWN TOPOGRAPHY, TRAILS, AND SECRET HIDING PLACES





North-south section



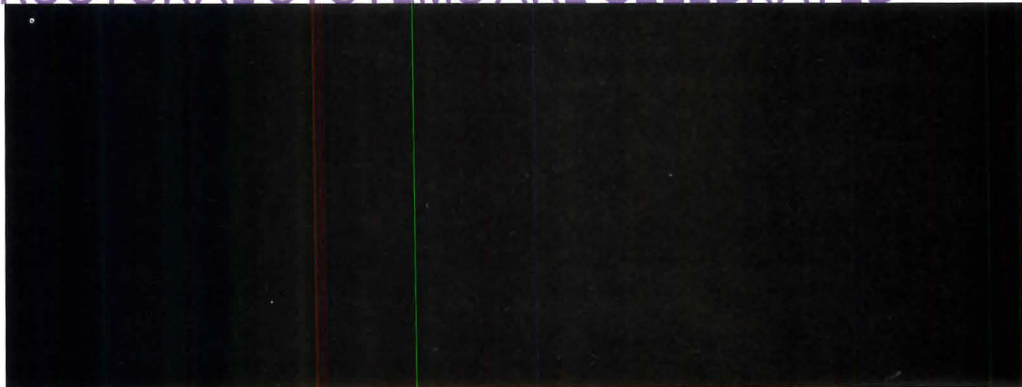
East-west section

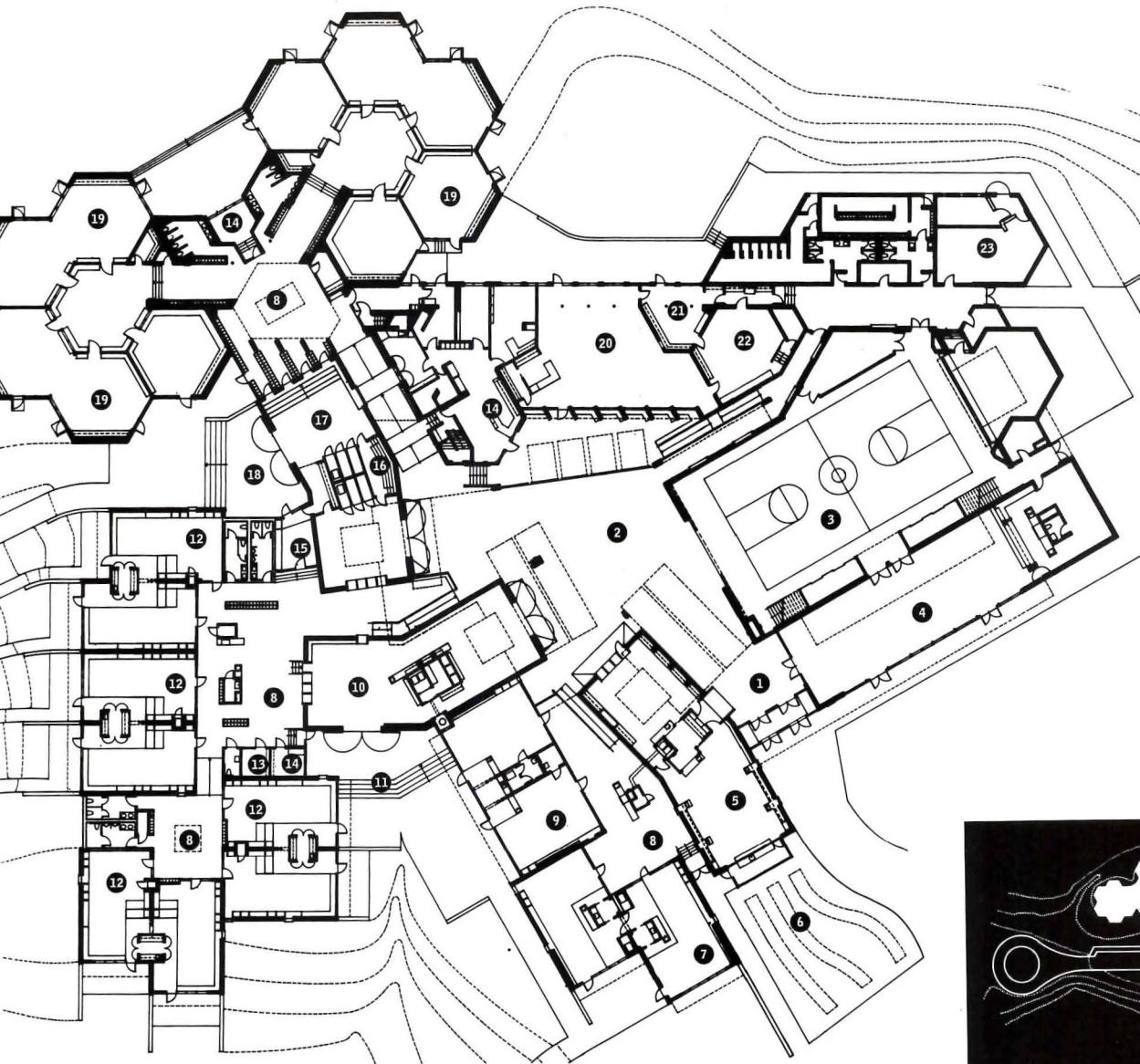
North-south section shows greenhouse and outside of science and art rooms (top, left to right). Mansard-roofed administration and library wing are vestiges of original 1964 building.

East-west section (above) cuts through lower school, art room, performance space, gymnasium, and original dance studio. Maintenance and storage rooms (below left) are configured as independent

structures within building's volume. Seating outside library (below right) becomes an unexpected conversation nook. Removable rail converts library terrace to stage in performance space.

## MECHANICAL AND STRUCTURAL SYSTEMS ARE CELEBRATED





New plan counters strict hexagons of 1964 original and forms school's public spaces (left). Addition doubles square footage and creates a new entry sequence with circular drive (bottom).

**CANTON COUNTRY DAY SCHOOL, CANTON, OHIO**

**ARCHITECT:** Kennedy & Violich Architecture, Boston, Massachusetts—Sheila Kennedy, Frano Violich (principals), R. Craig Mutter (project designer), Nabil Ayoub, Scott Murray, Frédéric Page, Bhupesh Patel, Melissa Vaughan (project team)

**EXECUTIVE ARCHITECT:** Lawrence, Dykes, Goodenberger & Clancy, Canton, Ohio—E.J. Clancy (principal-in-charge), Al Hanft (job captain)

**ENGINEERS:** Gensert-Bretnall Associates (structural); Aapex Engineering (mechanical); Robert A. Horn (electrical)

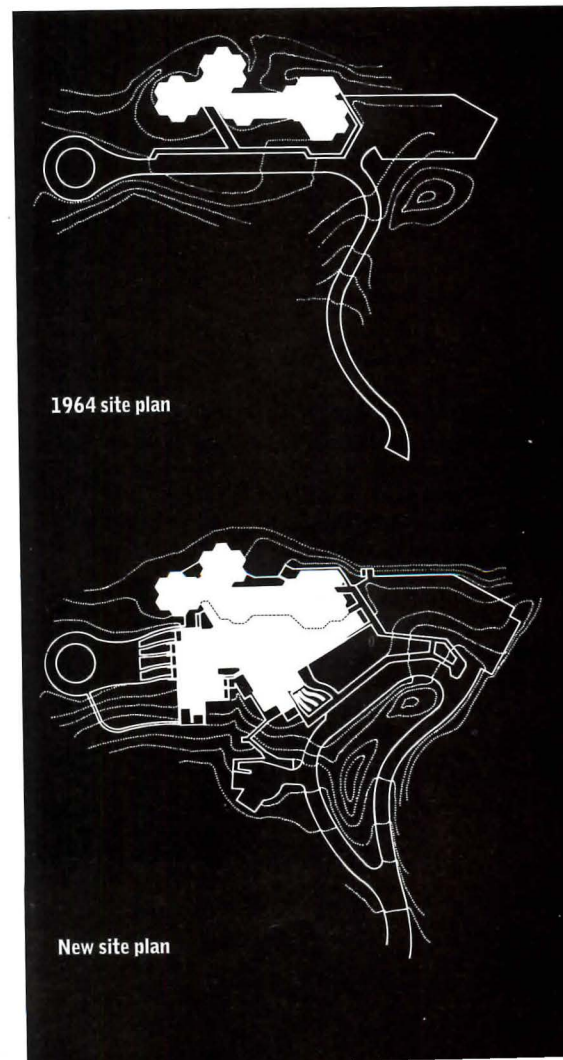
**CONSULTANT:** Birchfield Food Systems (food service)

**GENERAL CONTRACTOR:** Hammond Construction

**COST:** \$4.8 million

**PHOTOGRAPHER:** Willard Traub, except as noted

- 1 entry
- 2 performance space
- 3 gymnasium
- 4 cafeteria
- 5 science classroom
- 6 vegetable gardens
- 7 preschool classroom
- 8 assembly space
- 9 kindergarten classroom
- 10 art classroom
- 11 art courtyard
- 12 lower school classroom
- 13 conference room
- 14 administrative offices
- 15 language lab
- 16 practice room
- 17 music classroom
- 18 music courtyard
- 19 middle school classroom
- 20 library
- 21 faculty lounge
- 22 audiovisual room
- 23 mechanical room



1964 site plan

New site plan

An abstract architectural rendering featuring a complex arrangement of geometric shapes, primarily cubes and rectangular blocks. The color palette is dominated by teal, red, and grey, with some lighter, almost white, surfaces. The lighting is dramatic, creating strong shadows and highlights that emphasize the three-dimensional nature of the forms. The overall composition is layered and dynamic, suggesting a modern, multi-level building structure.

Van Berkel

Holland's *Hyper*



Bos

# modernist

*Dutch architect Van Berkel + Bos applies computers and literary theory to create big, bold anchors for a world of sprawl. By Aaron Betsky*

After decades of zoomy drawings of gravity-defying structures and calls for big form to anchor the globalization of our economy, a generation of architects is actually building these Hypermodern buildings. Prominent among this group is the Dutch architect Ben Van Berkel, who designs very large buildings for prominent locations. Working with his wife and partner, Caroline Bos, 39-year-old Van Berkel is trying to prove that an architect can not only be an information manager of resource allocation masquerading as architecture, but that such an "information architect" can also create beautiful forms. He is in the vanguard of Dutch designers who are condensing new technologies of design and construction, theories on what and how we should build, and the exuberance of a reborn Modernism into dense form.

Van Berkel's international career has been fueled by his education at the Rietveld Academy in Amsterdam and London's Architectural Association (AA), where he studied with Zaha Hadid. The AA of the late-1980s, a meeting place of architectural theory and practice, brought together all those who were fascinated with extending the definition of architecture beyond the confines of the isolated building and codes internal to architecture, such as function, typology, or style. Rem Koolhaas, Hadid, Bernard Tschumi, and Nigel Coates, to name just a few AA luminaries, opened the field up to the notion of architecture as a narrative, allusive, and imaginative collection of images that would have a critical relationship to the existing built environment. There, Van Berkel combined highly stylized formal compositions with a desire to translate the hidden economic, geographic, and historic forces that define our environment into coherent form.

Building on the expressive excesses of High-Tech and the romantic mythologies of Coates and Hadid, Van Berkel proposes forms "as fast as MTV" in their visual immediacy while condensing the history of Modern abstract art into large-scale sculpture. He and Bos justify these forms as arising from the design process—the translation of data by the computer—just as High-Tech architects argue for an expression of construction.

Van Berkel and Bos founded their own firm in 1988 and it has evolved into an unusual structure. Van Berkel acts as principal designer leading a team of young associates, who then pass the project to more seasoned managers for completion. Bos, trained as an art histori-

an, oversees the firm's considerable production of theoretical writing. She also acts as in-house critic, participating in the design process from the conceptual stages. This role reinforces Van Berkel's belief in the integration of theory and practice—they are "no longer things that can be separated," he says. It is a collaborative model he claims is now being copied by other Dutch partnerships, like that of the husband-and-wife team of Wouter Stiphout and Cassandra Wilkins.

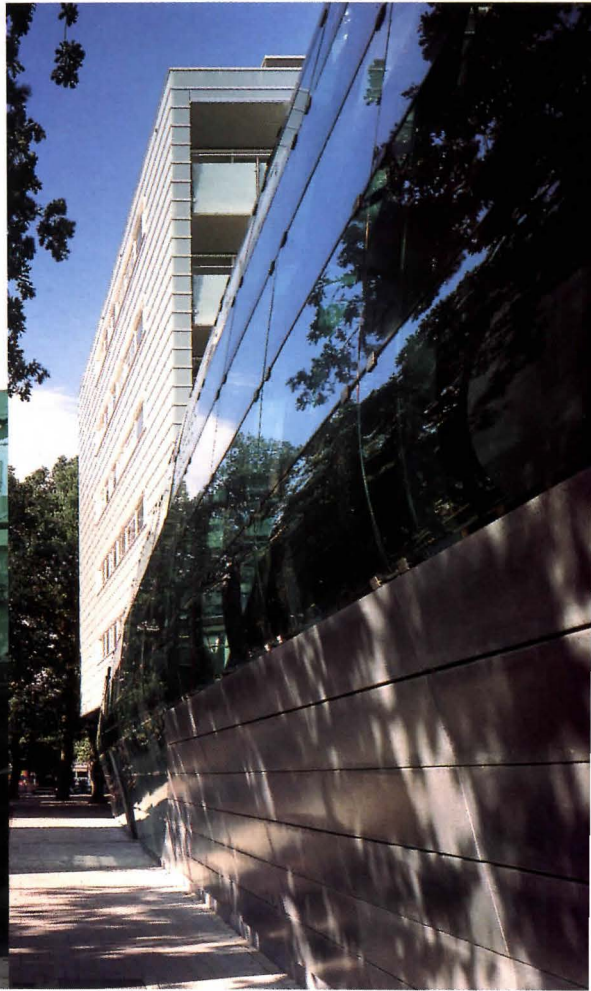
Van Berkel + Bos also boasts a semi-autonomous computer studio. Founded to produce construction documents, the studio serves as Van Berkel's primary realization tool and a profit center that performs consultancy work for other architects. Van Berkel views the computer as a vital tool for managing large amounts of information. "When you start a job right now, the client wants everything nailed down right up front," he maintains. "They want to know the budget, the timing, the phasing, and, if it's a city, they want you to map out the whole area around the project." Van Berkel sees computers as seamless translation devices that, within the digital world of zeros and ones, transform charts and calculations into the basic forms of his designs.

His first designs are often wire diagrams that are not only structural formal explorations, but, as in the work of Peter Eisenman and Greg Lynn, expressions of the particular forces of the site, such as its geography or the size or configuration of the program. As a result of utilizing these computer programs, Van Berkel + Bos's work assumes a fluid shape. Early buildings, like the 1992 renovation of the ACOM Building in the central city of Amersfoort, seem more akin to the striptease of glass over wood one might expect from a Southern Californian architect. But in their 1994 design for an electrical substation for the same city, a fractured, laminated form gives way to a massive, inwardly turned building. More recent designs have become *fully fluid*, as if they were molds wrapped by wire diagrams.

Van Berkel + Bos justify these shapes by their interest in the "morphological transformation inherent in the computer." They point to the notion of "retroactive smoothing" that French philosophers Gilles Deleuze and Felix Guattari claim sets in when the complexity of the pieces of any system, whether it be a city or a machine, blend into one object of dense abstraction.

Van Berkel + Bos have even developed a theory of detailing that includes such categories as the "detail of





## Retail Center Emmen

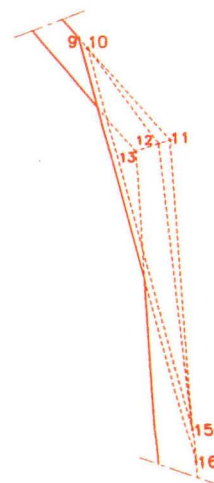
To create a new anchor for a shopping district, Van Berkel and Bos re clad and reorganized a 1966 department store. They integrated the building's retail mass into the surrounding residential area by adding ground-floor retail and an apartment block at the rear. A glass-covered passageway (top left and right) continues the fabric of the shopping area.

The smooth, reflective facade of the passageway comprises glass panels enhanced with an automotive coating. This glazed skin unifies the complex, while concrete, steel, and plaster emphasize the Modernist structure of the existing store and its different uses over time. At the entrances, sculpturally defined steel ribs supporting the glass curtain wall (left) are exposed to emphasize this renovation as a piece of clothing draped over a structure and tied to a variety of new uses.



## Erasmus Bridge Rotterdam

This bridge is the last across the Rhine before the river empties into the North Sea, and ties together the two halves of Rotterdam. Van Berkel + Bos, working with city engineers, adopted a controversial single-stay span, featuring a 420-foot-high steel pylon that folds to accept the bending moment produced by the weight of the span. The bridge's concrete and steel form recalls the nearby loading cranes, while the monumental "V" of its single pylon opens up to the city. This heroic gesture transforms the bridge from a connective arc to a sculptural expression. Much of the architect's effort concentrated on details: The juncture of cables and their concrete anchors and the transformation of the roadway as it folds up to form handrails make the bridge appear thinner and shorter from the surrounding neighborhood. At the base of the largest cables, a stainless steel sleeve (facing page, bottom) encloses shock absorbers to prevent swaying.



25 27 28





Bos

extension" that implies material connection, and "absent detail," which omits articulation and strengthens the enigmatic nature of the project. They also have invented an interior vocabulary of translucent walls that dematerialize spaces into flowing, rather than merely open, environments.

Yet the partners are also quick to point out that in such recent projects as the De Kolk mixed-use development in Amsterdam and a retail center in Emmen (both completed last year), they have maintained a more visibly complex composition. "It all depends on the site and the program," says Van Berkel. "Our buildings are a kind of stockpiling of social flux in organizational structures," which appear as a coherent form. The role of the architect is then to act as "an inventor who brings the imagination to life through materials, geometries, and plan organizations."

Herein lies the paradox of the firm's work. The highly efficient office produces forms that solidify the data that define a building's envelope into an abstracted shape. The computer does much of the designing, both as a tool for condensing program, structural needs, and cost limitations, and as the generator of form. But, just as the computer studio is framed by Van Berkel's traditional role as conceptual designer and studio leader, these seeming abstractions retain a highly individualized look. Their appearance can range from jarring, such as that of the De Kolk complex, to lyrical, as in the new Erasmus Bridge in Rotterdam, but they never disappear into the background. Van Berkel admits to "active design," in contrast to a theory espoused by the Dutch architect Willem Jan Neutelings (formerly of Mecanoo) of "lazy design," in which the architect accepts the surrounding context, the program, and all limitations and in effect tries to do as little as possible.

The Erasmus Bridge has captured the imagination of the Dutch public even while it sways under the high winds of plagiarism accusations (the bridge uses the same single-pylon design as Santiago Calatrava's 1992 structure in Seville, Spain). The De Kolk project at the heart of Amsterdam confronts hundreds of thousands of passersby with a prow of varied materials and planes that slide by each other, only to be abruptly cut off as they intersect the next fragment of the compound building they are trying to contain.

Smaller buildings designed by Van Berkel + Bos are cropping up all over the country, and soon will appear in

other European cities: Van Berkel won the competition to design a new police station in Berlin and other commissions in Germany and Switzerland wait in the wings. Like most young European designers, he is a member of the European Community, commuting between London, where he teaches at the AA, and Amsterdam, where his 40-person office is located.

The term "Hypermodernist" is often applied to Van Berkel's work and is apt as more than just a stylistic moniker. His practice operates as much within the world of business and electronics as it does in an environment of blueprints and art. The programs he has to fulfill are often typical of the challenges confronting architects all over the world today: mixed-use commercial buildings, switching stations in prominent locations, houses for clients who refuse to garden, and warehouses at freeway intersections.

Van Berkel + Bos's sites are all over the urban sprawl that is by now covering almost as much territory in Northern Europe as it does in the United States. Van Berkel responds by creating a new kind of topology for conditions in which context is unclear, in which buildings are seen from highways or by crowds of distracted consumers, and in which value engineering pares all forms down to an essential minimum. Van Berkel's response has been to create a fractured, dense, prow-shaped "hybridization of forms" that he believes is a "direct translation of the masses of information that surround us." He tries to create shapes that he sees as blending the forces that cause the commissions to appear, from zoning to capital requirements to geogra-



# Van Berkel

phy. He believes that built results act as moments of often enigmatic coherence in an increasingly confusing world: These are "compact projects" for "an architecture of in-between."

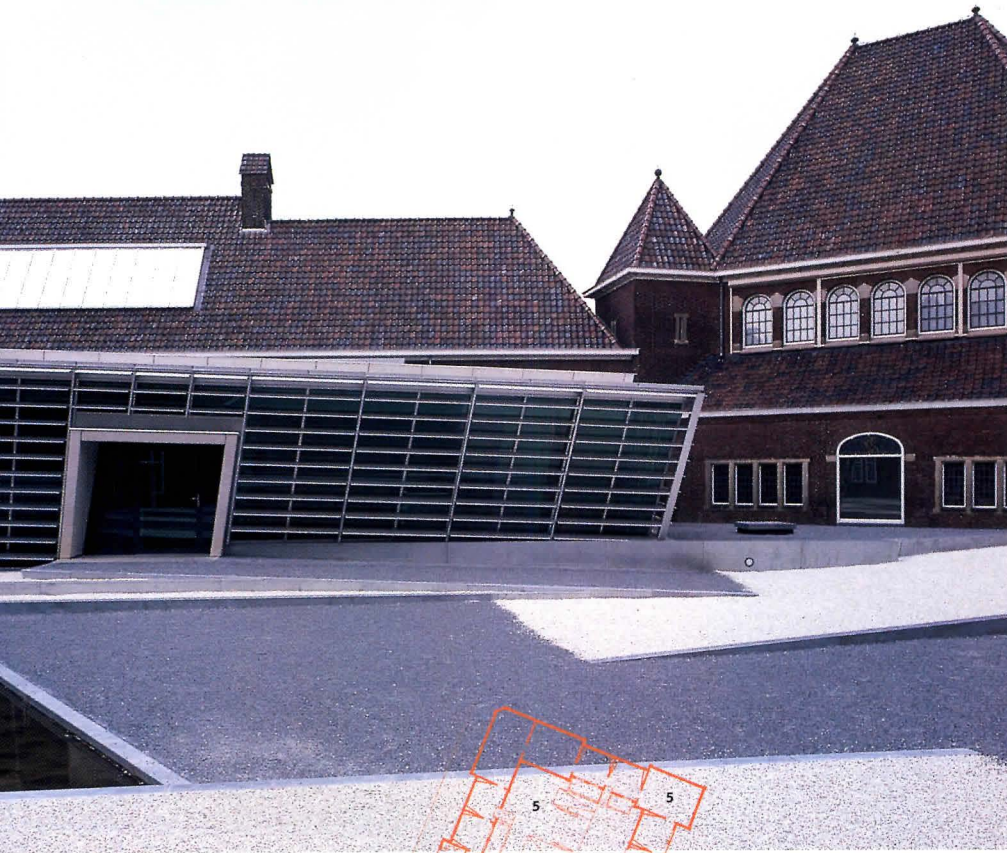
It is perhaps only in the Netherlands that Van Berkel could get away with building designs that to American eyes look like avant-garde shopping malls and civic infrastructure. This trading country is profoundly aware of its own artifice, delighting in its ability to create a manmade world out of what was once a swamp at the delta of the Rhine, turning it into a trading empire. Though the Dutch have become somewhat less visible in the global arena than in the 17th century, they remain among the most active surfers of the high seas of financial data: they own some of the world's largest banks and insurance companies, trading companies, and real estate empires. Almost every Dutchman speaks fluent English, and there is a sense that the robust Dutch economy grows from its ability to be part of a world more dependent on information technology than on the production of goods.

At least a decade ago, the Dutch decided that their ability to design such items as currency, postage stamps, and the products of corporate conglomerates like Philips and Unilever is not only a direct result of cultural heritage reaching back to the traditions of Rembrandt, Vermeer, and Amsterdam's concentric canals, but also an integral part of their economy. Their support of the design profession was codified in the 1991 "Space for Architecture" bill, which unleashed programs aimed at educating the public about architecture. The Dutch government set up the Mondrian Foundation, which gives grants to design exhibitions and publications, including several on and by Van Berkel + Bos ("we never would have gotten anywhere without this support," Van Berkel acknowledges). The government also helps young architects start their own practices, funds the Netherlands Architecture Institute in Rotterdam and the Netherlands Design Institute in Amsterdam, and even requires elected officials to take urbanism courses.

It is this climate of support that has made the Netherlands one of the best designed countries in the world and has given Dutch designers like Koolhaas a leg up in the international competition for commissions. Just as the French gave a few architects careers with the *grands projets* of the 1980s and Spain created an



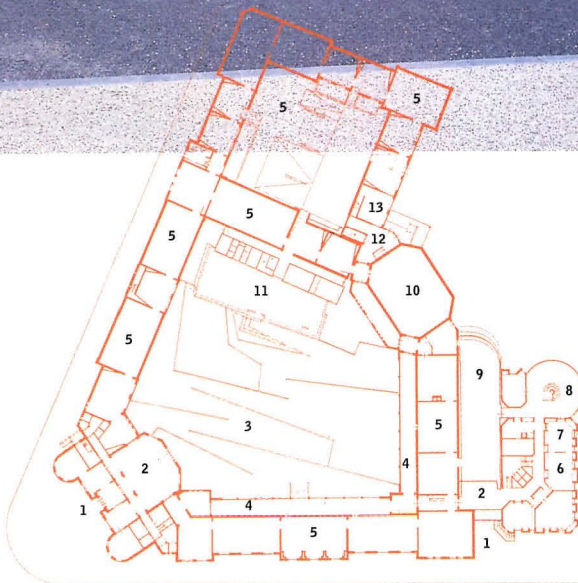
CHRISTIAN RICHTERS PHOTOS



## National Museum Twente, Enschede

In Enschede, one of the poorer cities in the eastern Netherlands, Van Berkel + Bos renovated a small, regional museum. The existing museum was housed in a 1928 cloisterlike building; the architect's task was to expand and reorient the existing structure. The firm added a glass-enclosed cafeteria (left) in one of two newly landscaped courtyards at the north end and a 9,000-square-foot exhibition space under the main courtyard. Topped by a glass roof, this luminous subterranean gallery (facing page) is lit by thin planes of translucent glass panels that partially obscure concrete and wood walls. The architect calls the glass, which fronts an exhaust system, the "lungs" of the construction, sucking air in at the bottom and expelling it into the courtyard above. The new building contrasts an ethereal world of suspended construction to the heavy framing of the original museum.

- 1 entrance
- 2 reception
- 3 courtyard
- 4 gallery
- 5 exhibition space
- 6 archives
- 7 administration
- 8 library
- 9 18th-century gallery
- 10 Gobelin tapestries gallery
- 11 cafeteria
- 12 shipping/receiving
- 13 storage



First-floor plan



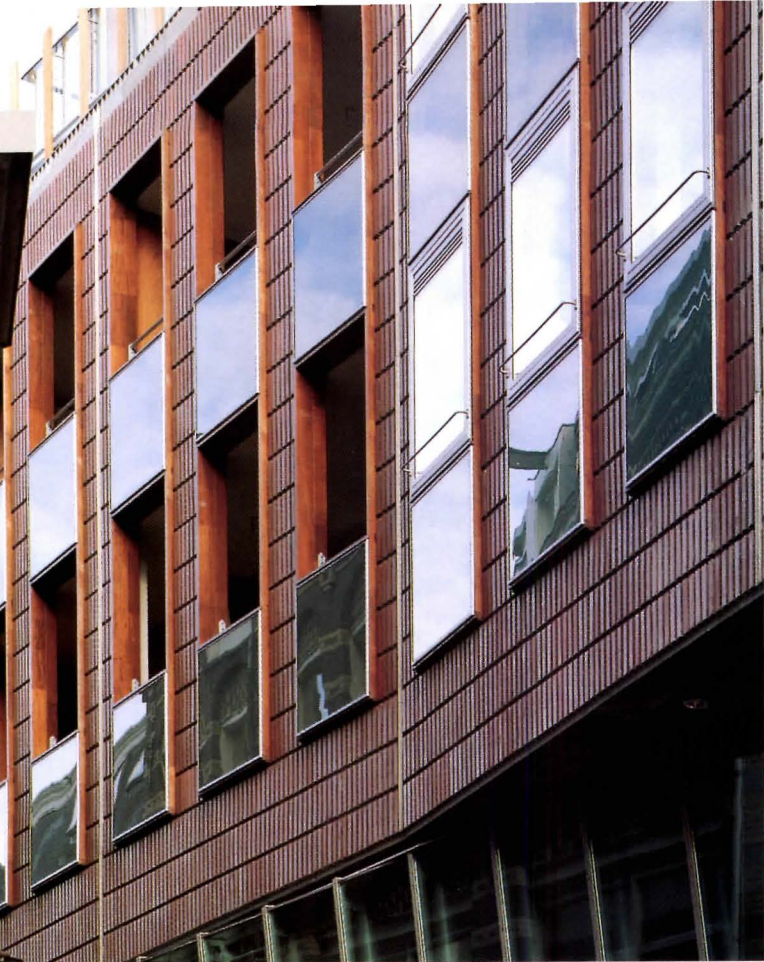


## De Kolk Mixed-Use Complex Amsterdam

Situated in the center of Amsterdam, the De Kolk complex contains stores, offices, restaurants, a hotel, and a parking garage in a form that fills out a complicated site between a busy street and several pedestrian alleys. A skin of both reflective and vision glass and vertically applied brick and wood breaks up the complex's large volume and emphasizes its structural hybrid.

The vertical stair tower, mullions, and other facade elements rising from a clearly defined concrete base are meant to echo the compositional logic of the surrounding facades, some of which date back to the Middle Ages. The strong diagonals of the new building mass respond to the perspectival foreshortening of nearby buildings usually seen from constricted alleyways of Medieval street patterns. The complexity of the resulting composition and shardlike appearance of the various facades mark the De Kolk complex as one of the most visibly compelling pieces of Van Berkel + Bos's portfolio.





architecture culture through the 1992 Seville World Fair and Barcelona Olympics, the Dutch have elevated young firms such as Van Berkel + Bos, Wiel Arets, and Mecanoo to international stardom.

Dutch Hypermodernism comes with its own heroes. Koolhaas is responsible for installing the notion of a latter-day Howard Roark, shaping the forces of capital into a single form. So stated Bernard Colenbrander in his meticulous study of Koolhaas's Office of Metropolitan Architecture and its progeny, *Reference OMA: The Sublime Start of an Architectural Generation* (Rotterdam: The Netherlands Architecture Institute, 1995). This architectural bravura is, in many ways, a surprising development, since the Dutch are famous for not tolerating heroics in their leaders. ("Act normally and you'll be weird enough" is a favorite Dutch saying.) It is perhaps the ability of such architects as Koolhaas and Van Berkel to operate on an international stage, melding countries together through transportation, distribution, and flexible manufacturing that has created an opening for such heroics. Koolhaas's Eurolille (1995), Van Benthem & Krouwel's ongoing expansion of Schiphol Airport, or Van Berkel's Erasmus Bridge (1996), Piet Hein Tunnel (1998), or Nijkerk distribution center (1992) are among notable recent examples.

These new projects are not just uncritical bigness embodied. They are often marked by what Van Berkel and Bos call "an inward turn that recovers the deep layers hidden in the significance of the architect," but that is also typical of a Dutch tradition that seems to both create a sense of delight in those interior spaces and to guarantee a certain moral and esthetic calmness. Van Berkel is insistent on the fact that his work offers a "form of resistance, a counterculture" through their very enigmatic, hybrid form. He claims to be interested in "topology, not typology" as a way of escaping the formal systems. Similarly, he calls his buildings "hybrids, not assemblages," because they have a coherence that melds together the fractured forces of our daily reality, rather than merely gathering them together.

Perhaps Van Berkel is less of an inventor than an alchemist. Like all Modernists, he believes in creating utopian structures. Yet *he condenses the shining emblems of Modernity into expressive nuggets of urban coherence, fashioned out of the mute materials of daily life. It is with this strategy that he seeks to continue Modernism and give shape to our contemporary world.*

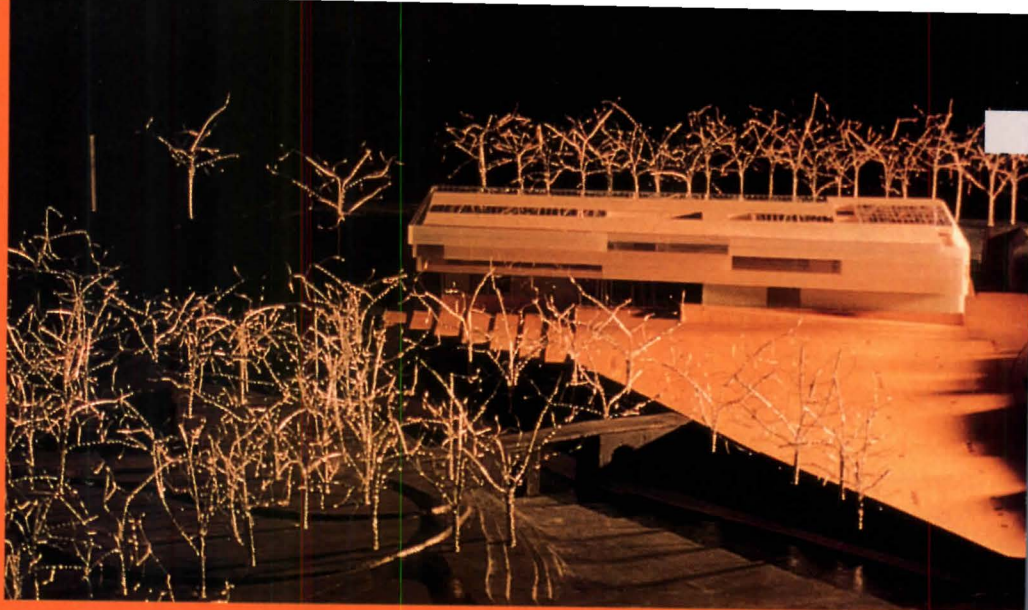


CHRISTIAN RICHTERS PHOTOS

# Van Berkel

## Het Valkhof Museum Nijmegen

Van Berkel + Bos have designed an archaeological museum (right) situated at the edge between a town and a rural area that was occupied by the Romans and has been contested ever since. Instead of emphasizing monumentality or making direct reference to excavations, the architects organized the museum around a staircase that connects city and country through dynamic views from its landings. The new 80,000-square-foot building comprises a set of long-slung concrete levels that interpenetrate this vertical movement. Through glass of various transparencies and concrete blocks, the museum will rise out of the adjacent plaza and excavations as interlocking blocks. Construction has just started and will be completed in 1998.



## Borneo Sporenburg Housing, Amsterdam

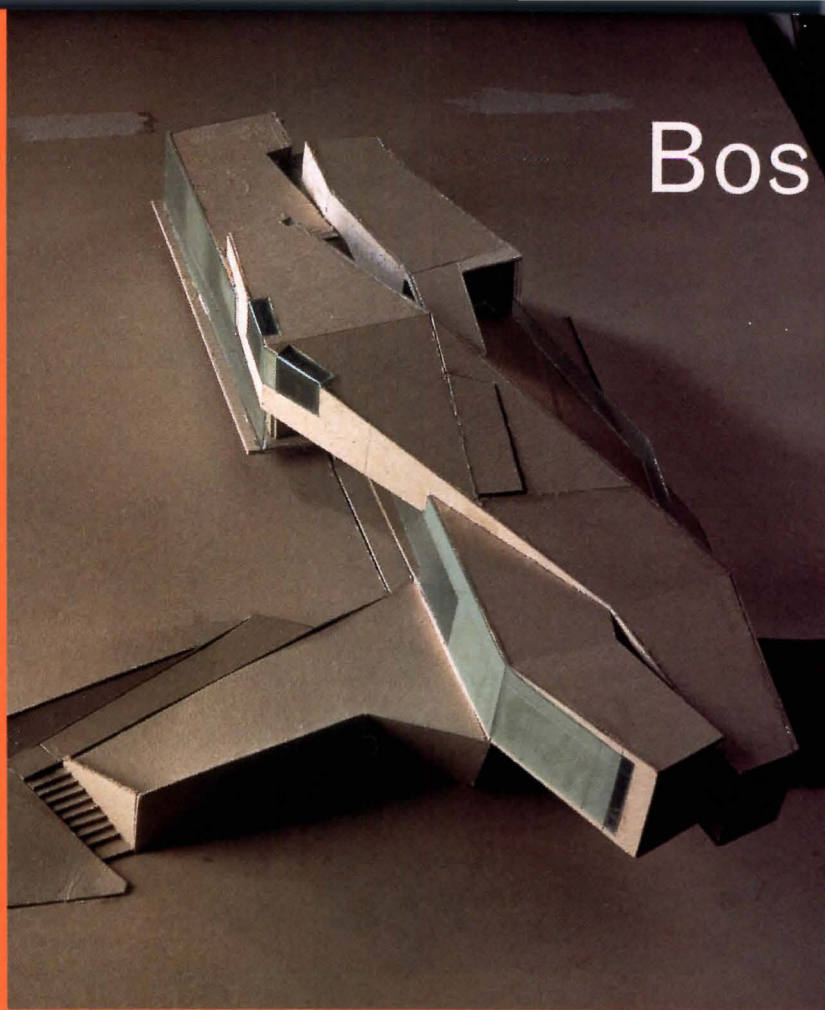
A complex sectional interlocking of small apartments grouped into intricate blocks defines the housing for the Borneo Sporenburg (left), a mixed-use development designed to convert the disused docks of Amsterdam into a rather eccentric neighborhood. Designing housing for the complex, planned by Dutch landscape architect Adriaan Geuze, Van Berkel + Bos sought to preserve an awareness of the water while knitting multilevel units together with diagonal routes. One block of 20 apartments is organized around a central void that has no circulation, while a second block of 10 units looks out toward the harbor. Construction is scheduled to begin this fall.



## Villa Mobius Naarden

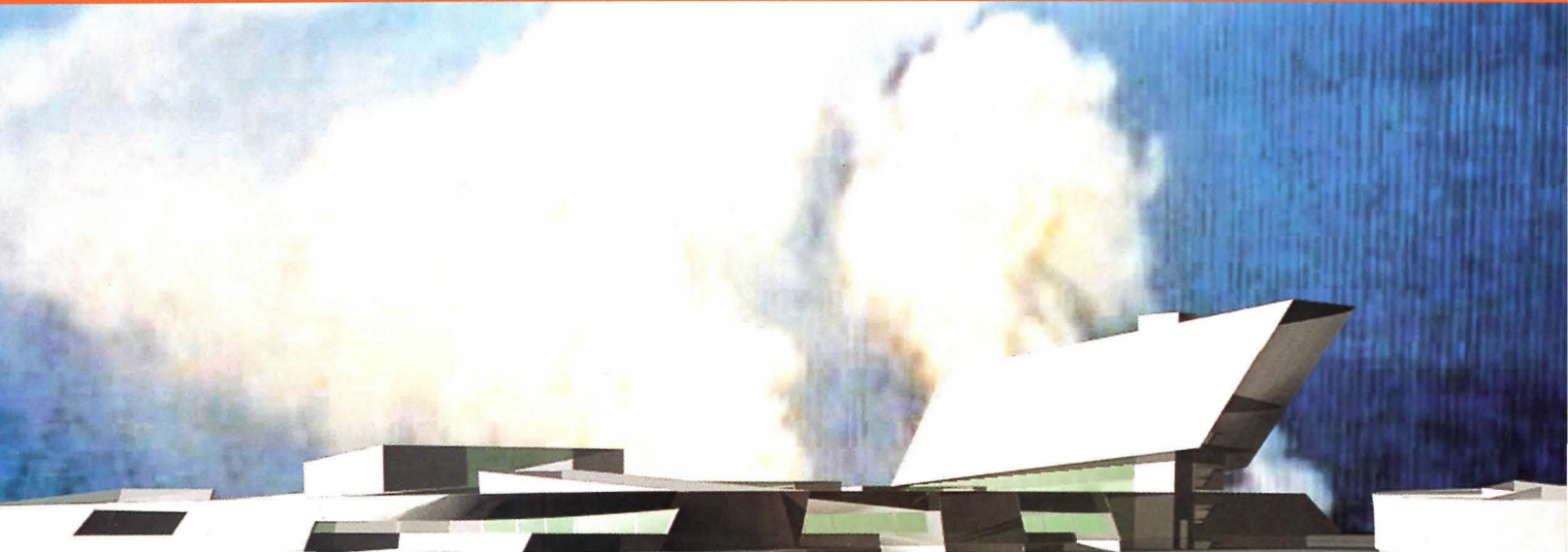
Situated in an Amsterdam suburb, the Mobius house, designed for a television director, stretches itself out toward the landscape in a manner more reminiscent of the American suburban tradition, then wraps back around itself to shelter moments of privacy. The house's scissorslike shape is meant to translate the continually recurring rhythm of daily activities into physical form. To express the occupant's change from consciousness to unconsciousness, inwardness to outwardness, and rest to activity, the materials of the house change roles within a composition of similar spaces, with glass surfaces sometimes covering concrete and concrete becoming furniture. Construction is set for May.

Bos



## Mental Health Center Amsterdam

The self-conscious schizophrenia of this small project comes from the fact that it fulfills an important urbanistic role as the core of a neighborhood, while housing the mentally handicapped. Van Berkel + Bos arranged the patient areas to resemble family units with bedrooms and living rooms looking out over private interior gardens. Only slices of this inner world are visible from the outside through sprayed concrete walls that Van Berkel and Bos studied with computer animation (below). Their intent is to create an urban marker among rows of low-rise apartment blocks.



# Pakistani Treasure

The restoration of a 700-year-old fortress inaugurates a new program to spur economic development through historic preservation.







**Baltit Fort, surrounded by 24,000-foot-high peaks of the Karakoram Mountains, overlooks an ancient agricultural community whose terraced fields are irrigated by melting glaciers. From May to September, the remote valley is a trekkers' destination. For some 5,000 villagers around the newly restored fort, a rural way of life is changing dramatically.**

Architects may be familiar with His Highness Prince Karim Aga Khan IV as the founder of the triennial Aga Khan Awards, which honor architecture and preservation in the Islamic world. The prince also administers the many-faceted Aga Khan Development Network (AKDN), which sponsors economic, social, and cultural programs in Islamic third world regions (see pages 57-59, this issue). Now, with the restoration of Baltit Fort in Northern Pakistan's Hunza River valley, the 60-year-old Muslim leader has inaugurated the Historic Cities Support Programme, which aims to preserve culture and energize local economies through restoring historic third world buildings.

"Culture is expressed in many ways, but the three-dimensional expression of culture is architecture," maintains the Aga Khan, who seems remarkably down-to-earth for a spiritual leader. (The world's 12 million Ismaili Muslims revere him as a direct descendant of the Prophet Muhammad.) He points out that Karimabad, the village of 5,000 in the valley below Baltit Fort, is, like many places in the developing world, "a society rapidly moving from a rural lifestyle to an urban one. Cultural monuments like the fort are essential reference points in this changing world."

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### **Progress has destroyed traditional ways of living in Northern Pakistan, and their physical manifestation in architecture.**

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Tourism is changing the Hunza valley, and the prince has a longstanding awareness of the problems of transition. Since 1982, his Aga Khan Rural Support Programme has funded planners, engineers, architects, and development specialists building schools, clinics, a community center, financial and worker-training programs, and a women's cooperative. Since 1992, his Historic Cities Support Programme has helped create a land-use plan, a town management society, and architectural design guidelines for new houses that echo Karimabad's vernacular buildings.

While tourism has helped the local economy, it has also destroyed traditional ways of living, and their physical manifestation in architecture. Encircled by snowy peaks and dominated in the spring by valleys of flowering apricot and apple orchards, the region has attracted visitors since the 1979 completion of the Karakoram Highway, a two-lane road linking Pakistan with China. Hotels, restaurants, telephones, and electric power

lines, have transformed the valley's quiet summers. Today, local merchants carry on a brisk trade in handicrafts and T-shirts proclaiming Karimabad to be Shangri-La, home of the ageless society of James Hilton's 1936 classic, *Lost Horizon*.

The Aga Khan and his staff have witnessed the helter-skelter construction of hotels, and TV satellite dishes flourishing on the roofs of traditional stone and mud houses. They have seen farmers abandon these historic dwellings, which cling to Baltit Fort's steep perch, as they turn to the tourist trade and build modern houses in their orchards and terraced fields. In response, the Historic Cities Support Programme, directed by Swiss architect and planner Stefano Bianca, restored not only the fort, but five historic houses nearby, for use as a coffeehouse, ticket office, carpenter's workshop, storage area, and a traditional house model. The program also created the Karimabad Planning Support Service, which restored one historic house as a pilot for others, replaced open sewers with modern sanitation, and constructed new cluster housing with modern conveniences. "Our goal was to preserve the environment around the fort by encouraging people to build new houses in clusters," explains Bianca. The program has successfully put an end to a third world version of suburban sprawl.

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**In Karimabad, the Aga Khan's new program for historic cities has put an end to a third world version of suburban sprawl.**

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Restoring this remote Shangri-La began with the efforts of one architect. In 1979, Paris-based architect Didier Lefort was designing schools and clinics in Karimabad for the Aga Khan's development program. He discovered the crumbling 13th-century fort, a patchwork compound of carefully placed stones, mud, dung, juniper timbers, and straw. He returned a year later to find the ancient fortress rotting away into a huge organic pile.

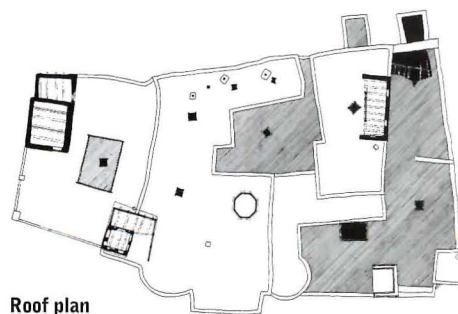
Lefort, then 24 and fresh out of the École des Beaux-Arts, knew little about preservation, but he recognized the fort's cultural importance. Built to protect villagers and their livestock from raiding tribes, the fort grew over the centuries into a warrenlike complex of two defensive towers and more than 70 rooms, constructed of mud and stone like the village houses. Lying cheek by jowl atop and beside one another, the rooms housed





Central defensive tower evolved over centuries into mir's feudal palace and bastion, built of mud and stone. Victorian-style balcony and bay window, added this century, echo British colonial buildings. Historic structures cling to fort's steep slope; traditional stone irrigation channel is visible in foreground.

Baltit Fort was occupied by the valley's "mir," or ruler, until 1974. He and his family lived in a warrenlike aggregation of stone and mud rooms, each arranged around a central hearth, or "ha," like the village houses. Roof plan (right) shows square openings above interior hearths.



Roof plan

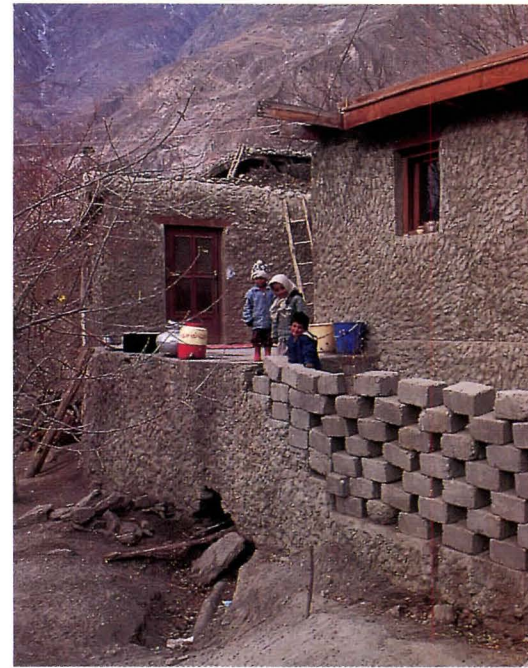


Second-floor plan

When the fort's restoration began, the west facade leaned outward precariously. The architects and engineers tied it back with 13 polypropylene ropes—the kind used to anchor North Sea oil rigs. They paved the fort's dirt site with stones and mortar comprising mud and cement, and fashioned an entrance stair.



Karimabad Planning Support Services rebuilt houses in immediate vicinity of the fort (left) and in Diramashal, a hamlet to the west (right). Local workers carried out renovations, including mud plastering and wood carvings in lintels and window frames. Traditional carving, all but lost in Karimabad, was taught to young carpenters.



Interior of rebuilt house near Baltit Fort shows family around hearth in traditional one-room living and sleeping quarters.





**BALTIT FORT**  
**KARIMABAD, PAKISTAN**  
**CLIENT:** The Aga Khan Trust for Culture's Historic Cities Support Programme, Geneva, Switzerland (with additional funding from the Getty Grant Program)—Tom G. Kessinger (general manager), Stefano Bianca (Historic Cities Programme director), Cameron Rashti (project manager)  
**TRUSTEE:** The Baltit Heritage Trust  
**ARCHITECT OF RECORD:** Didier Lefort/LV2A, Paris  
**SITE ARCHITECT:** Sohail Akbar Khan, Islamabad  
**ENGINEERS:** Richard Hughes (engineer of record); Andrew Cox (resident engineer); Matrix Consultants (building services)  
**GENERAL CONTRACTOR:** Aga Khan Cultural Services  
**CONSTRUCTION MANAGER:** Aga Khan Housing Board  
**COST:** \$1.36 million  
**PHOTOGRAPHER:** Pervez Khan

the valley's feudal ruler, or mir. In 1900, one well-traveled mir, echoing British colonial buildings in the Punjab, built himself a Victorian-style palace right on top of the humbler stone structures. The resulting clumsy pastiche is no design-award winner, but represents, as Lefort explains, "the history and culture of the Asian subcontinent." Lefort decided to save it.

The architect petitioned his employer for funds to restore the fort, but the AKDN, busy with economic initiatives in the region, told Lefort about Richard Hughes, a British engineer who shared Lefort's vision. Hughes, a consultant with Ove Arup, had discovered the landmark while surveying earthquake-resistant historic structures for the Royal Geographic Society in 1979. He points out that the fort, with its seismically stable "cribbage" structure of log-cabin-like timbers fastened with wooden pegs, is one of the last two surviving forts in a chain of 11 such strongholds. "For Pakistan, Baltit Fort is like Windsor Castle or the Tower of London," Hughes contends. "It is the best fort of its type in Pakistan, and its setting is the best in the world. We couldn't allow it to fall into a ruin."

In 1982, architect and engineer decided to save the fort themselves. Grants from the United Nations Development Program and the Getty Grant Program allowed them to begin the painstaking process of documenting the structure. "When we started the work, there was not a single drawing of the fort," Lefort recalls. "We had to survey the whole thing ourselves. It took 21 days, and we made about 3,000 measurements—then we spent months in Paris drawing the building. There is not a single right angle in it."

**"To preserve the environment around the fort, we encouraged villagers to build housing in clusters."—Stefano Bianca**

Lefort and Hughes spent the next 17 years flying by helicopter in and out of Karimabad, working on the restoration. The Historic Cities Support Programme eventually took over funding in 1986, and Andrew Cox, a British engineer, and Sohail Akbar Khan, a Pakistani architect, lived in the remote valley for several years while the construction was under way. Local workers were hired to help carry out the repairs.

On September 27, 1996, the restoration was officially completed and President Farooq Leghari of Pakistan and His Highness the Aga Khan transferred

the fort from the Aga Khan Trust for Culture to the Baltit Heritage Trust, a group of local architects and archaeologists who will run the fort in its newest incarnation—tourist museum.

In a country with a female literacy rate of only 26 percent; a huge international debt; and a population of 140 million expected to double by 2025, some international experts question the effort and money—more than \$1 million—spent on making the fort into a museum. "The restoration of Baltit Fort was excellently and lovingly done," notes John Hemming, director until last summer of the Royal Geographic Society, and leader of the society's reconnaissance mission to the Karakoram in 1979. "But it needs museums about the history of the region and much more furnishing to give good value to paying visitors." Others point out that the gentrification of village houses with costly, modern sewage systems will be difficult to replicate in other third world societies.

But AKDN supports "collateral efforts in health, education, and rural development that total many times the investment in the fort," points out Bianca. "Cultural exchange is more important in this rapidly urbanizing area than ever." Indeed, projects of this scale are few in Pakistan, and the restored fort is a model for how other societies can use architecture as a tool to strengthen social and economic development in the changing third world.

Certainly, local pride in the fort's renaissance will never be in doubt. On the day of the dedication, bagpipe bands, boy scouts, and girl guides marched through the village, leading a delegation of 11 foreign ambassadors, Pakistani politicians, and, of course, the Aga Khan himself. At night, the floodlit fort glowed above the village like a tourist beacon—a questionable decision in a region often powered by generators. It was rivaled by a low-tech display that put modern electricity to shame: boys climbed to the high, dark rims of surrounding mountains and rolled hundreds of burning rubber tires down their slopes.

"Remote places," notes the Aga Khan "are the places most surprised by industrialization." Unfortunately, they are often the places where governments have been unable to fashion societies where people can live in dignity. By restoring the fort, the Historic Cities Support Programme is using architecture to draw tourists, recharge the economy, and improve villagers' standard of living. For now, this strategy appears to be working in Karimabad, and only time will reveal the costs. *Heidi Landecker*

Eric Colbert & Associates energizes an inner-city ministry with street-smart design.

# Leap of Faith



A social-minded charity seems an unlikely patron for innovative design. But Eric Colbert & Associates was lucky enough to find an inspired client in the ecumenical nonprofit group So Others Might Eat (SOME), which tapped Colbert to design a \$1.2 million medical and administrative complex in a down-at-the-heels neighborhood of Washington, D.C. SOME feeds more than 1,200 people each day, provides six Washington-area low-cost residences for the poor and elderly, operates substance-abuse rehabilitation programs, and offers free dental and medical services. This local charity, funded entirely by private donations, has worked with Colbert on

**Colbert's lively collage of brightly painted steel cornices, mullions, and window headers is a relief from the neighborhood's sober streetscape.**



renovations of its existing facilities for the past eight years. Says SOME's Director Father John Adams of Colbert, "Eric listens to us, but we listen to him, too. He's our guide to design."

Since setting up his own practice 16 years ago, 44-year-old Colbert has developed a dual expertise: Most of his seven-person firm's work comprises upscale apartment renovations in Washington's trendy Dupont Circle neighborhood, but he is also well-known locally for designing affordable housing.

For SOME's new headquarters, Colbert created a welcoming street face by scoring brightly painted steel I-sections into the brick skin. Colbert's lively collage of cornices, mullions, and window headers is a relief from the neighborhood's sober streetscape of



modest, turn-of-the-century rowhouses, ragged schools and warehouses, and a soup kitchen (also run by SOME) across the street. This playful yet rational framework of colored beams gives a nod to the industrial components of the warehouse that formerly stood on the site, and emphasizes the inherent mass of the brick facade. But Colbert simultaneously treats the facade like a thin, permeable scrim: He punches openings into the wall, carves away outdoor roof gardens behind the facade, and glazes over the stair tower.

Colbert squeezed a dense program into the 17,000-square-foot, two-story building. A medical and dental clinic, where SOME's poor and homeless clients receive free exams, as well as the offices for the agency's social services and counseling staff occupy the first floor. Upstairs, a suite of offices houses the full-time administrative staff. "Nonprofit groups can't afford to spend a lot of money on



**"This environment respects people. It conveys the message that we are upholding the dignity of the poor and homeless."**

**SO OTHERS MIGHT EAT  
WASHINGTON, D.C.**

**ARCHITECT:** Eric Colbert & Associates, Washington, D.C.—Eric Colbert (project designer), Carl Krienen (senior project architect)

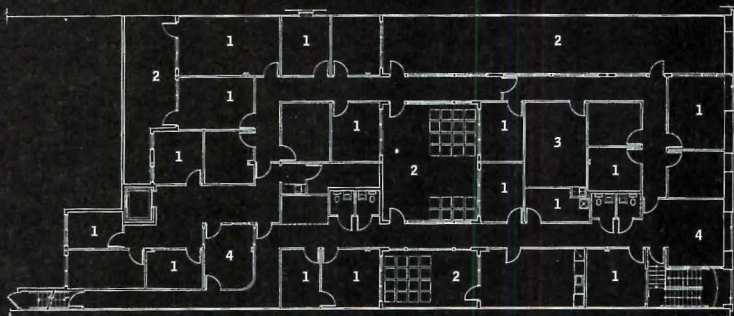
**ENGINEERS:** Structural Design Group (structural); Dwyer Engineering (mechanical, electrical)

**CONSULTANT:** Rebecca Hubbler (interiors)

**GENERAL CONTRACTOR:** Fetsch Construction

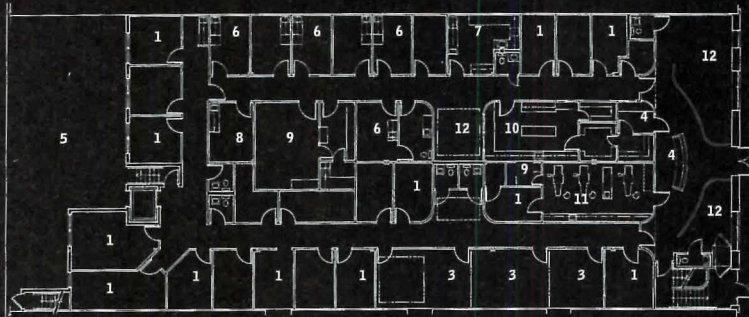
**PHOTOGRAPHER:** Maxwell MacKenzie





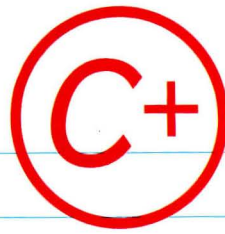
Second-floor plan

- ① office
- ② roof deck
- ③ conference room
- ④ reception area
- ⑤ parking
- ⑥ medical exam room
- ⑦ blood lab
- ⑧ eye exam room
- ⑨ x-ray room
- ⑩ nurses station
- ⑪ dental exam room
- ⑫ waiting area



First-floor plan

extra detailing when their mission is to feed people," Colbert observes. And while there are few frills and no fancy finishes here, the architect creates upbeat surroundings for the building's occupants. Daylight fills the sparse interiors; small lounges break up the monotony of double-loaded corridors; roof gardens create quiet outdoor havens; and inexpensive wood molding imbues standard metal doors with a domestic feel. The building's cheerful optimism inspires its users and its neighborhood. As Adams points out, "This environment respects people. It conveys the message that we are upholding the dignity of the poor and homeless." *Raul A. Barreneche*



# Continuing Education: Scholarship or Scam?

The AIA's newest membership requirement is a big gamble, promising to either elevate or alienate the profession.

By Bradford McKee

Back-to-school jitters are running high at the American Institute of Architects. After five frenzied years of preparation, members of the AIA are counting down to December 31, 1997, their first big deadline to file for credits under the institute's new Continuing Education System. By that date, and again every year thereafter, members must earn 36 "learning units"—which equal between 12 and 18 hours of study time—and file a report with the institute to retain their AIA status. Each October, members will receive transcripts tallying their progress. Those who fail to fulfill their annual duty will not be expelled from the AIA, but given a one-year grace period to make up their credits, after which they will be deemed "inactive," as if they hadn't paid their dues.

This new requirement is a watershed event for the institute, and for the profession. In the early 1970s, when state registration boards began requiring continuing education for doctors, lawyers, accountants, and even hairdressers, architects lagged behind, and are among the last registered professionals required to continue their education. The AIA board didn't form a committee to study such a requirement until 1990; in 1992, more than two thirds of delegates to the AIA's national convention approved a proposal to make continuing education mandatory. Over the next two years, AIA ran a pilot program involving 1,800 members and 101 AIA chapters; in 1994, the board approved the current system.

Few major professional societies require continuing education of their members. The American Institute of Certified Public Accountants, for example, adopted continuing education only after 48 states mandated it. Only six states now require continuing education for architects, though several more are poised to do so.

Several concerns prompted the AIA to send its members back to class. One was a foreboding sense that architects weren't keeping up with changes in technology. This lack of confidence translated into high costs for professional liability insurance, another factor driving the new learning requirements. If architects proved themselves up to demanding professional standards, the wisdom goes, they might lessen their liability. Furthermore, the institute faced pressure from members to jump ahead of state architectural registration boards in formalizing continuing education and setting the rules.

Iowa, in 1978, was the first state to compel its registered architects to continue their education, requiring 40 hours of study every two years; Alabama followed in 1995, requiring 12 hours per year. "I don't know how much value architects place on continuing education," notes Cynthia Gainey, administrator of the Alabama Board of Architects. "But the public places a very high value on it." Last month marked Florida's first reporting deadline for its requirement—20 hours every two years. South Dakota, Minnesota, and Arkansas are about to follow suit, with their requirements taking effect by 1998. Whether architects want it or not, continuing education has arrived.

Or has it? "It seems to be picking up momentum," observes AIA President Raj Barr-Kumar. "But it's an uphill task to get members involved." As the AIA deadline draws nearer, architects express marked ambivalence toward the institute's new education program. Their doubts are not about whether continuing education is a good idea for architects; philosophically, the requirement has considerable support in the profession. Rather, doubts focus on whether the AIA will require educational content of consistently high quality. So far, the young program's

substance is proving erratic after a three-year phase-in, raising questions of accountability, access, and cost.

"This continuing education effort is absolutely critical to maintain architects' credibility," says AIA Fellow Joseph Valerio, principal of Valerio Dewalt Train in Chicago. "But it's what I call kitchen-table education. It's too easy. It's not tough enough."

Some AIA members complain that the program isn't broad enough to meet the needs of a diverse membership; others worry that it hasn't developed an intellectual component to complement technical or skill-based courses. Still others find the honor-system reporting strategy too lax. And there are those who criticize the fact that many of the institute's certified program providers are companies with something to sell to architects, such as Autodesk, which offers credits to practitioners training to use AutoCAD drafting software. Mixing education and advertising creates a potential conflict of goals. "We have to be much tougher about defining 'education,'" insists Valerio. "It can't be holding a seminar with a salesman."

#### **Serving every constituency**

The AIA program's leaders maintain that they have devised the most practical framework possible for helping architects stay abreast of swiftly changing developments in the profession. "It's really what 99.9 percent of architects already do every day to maintain professional knowledge in a radically changing world," insists Virgil Carter, AIA's vice-president for education. Yet program planners have had to tread carefully between posing a respectable challenge to members and scaring them away with onerous amounts of homework.

As a result, the program's main variable is rigor, which is left almost entirely to the individual to enforce. Architects can approach the program seriously and take on challenging educational projects, or they can decide to complete a bare minimum of credits and spend hardly any time doing it—no one will know the difference. This honor system leaves critics wondering whether the AIA's Continuing Education System is serious about strengthening architects' competence through discipline, or whether it merely keeps architects mildly stimulated while boosting the profession's image to the public—and itself.

"It's not very pithy," maintains Chicago architect and AIA Fellow Stanley Tigerman of the institute's system. Tigerman belongs to a subset of members—mature principals of busy practices—whom the AIA will be watching for signs of attrition as the requirements take effect. "I don't find a lot in the program that's useful to me," Tigerman

admits. "Each of us needs continuing education, but the AIA program has to serve every constituency." However, Tigerman adds that the AIA's system may be excellent five years from now, a view shared by many members.

#### **Two ways to win credit**

For now, however, the premier challenge is quality control because the AIA's Continuing Education System is meant to be loosely structured. Architects can earn their 36 learning units ("LUs") in one of two ways: They can either receive instruction from one of the AIA's "registered providers," who report members' credits to the institute, or they can direct their own study efforts—such as reading a book, taking a tour, or watching a video—and report what they've learned themselves.

The system is based on what is known as a "qualitative" model of continuing education, similar to that recently adopted by Canada's Royal College of Physicians and Surgeons. Architects accrue learning units not merely according to "seat time," or how long they spend in a classroom or pursuing self-directed study. Rather, that time is factored along with the degree of interaction involved and how much feedback a learner receives. The more interactive the effort, the more learning units it is worth on a scale of 1 to 3. Credits are earned by multiplying the level of difficulty by the number of hours worked.

To complete the required 36 units, architects may record 36 hours of level-1 activities—self-directed or passive endeavors such as reading. Or they may spend 18 hours in a more difficult level-2 setting, such as taking part in a panel discussion on project delivery. (Level-2 courses account for about 70 percent of credits filed to date.) Or they may choose to spend 12 hours in a level-3 workshop on hurricane codes that requires them to pass a test. They may mix levels, as long as their credits add up to 36.

### **So far, the program's substance is proving erratic, raising questions of accountability, access, and cost.**

This valuation system is meant to make architects spend between 12 and 18 hours a year in the classroom (12 hours of level-3 work equals 36 units), the norm for states and the National Council of Architectural Registration Boards, which do not specify learning units, but count hour for hour of education. Eight of those 12 hours must be devoted to learning about health, safety, or welfare, and cannot be self-directed. The AIA set its threshold slightly above what it expects most states to require. For example, meeting AIA's requirement is enough to satisfy Florida's, but not vice versa.

Architects' time requirements are comparable to the standard for lawyers, who are required by most states to take 12 to 15 hours of continuing education per year. (Some states specify that lawyers spend two hours on ethics.) Doctors, in contrast, must take between 25 and 50 hours of continuing education each year in most states.

The AIA's qualitative model of continuing ed is relatively new, maintains Robert Fox, director of the Research Center for Continuing Professional Education at the University of Oklahoma. Fox played a key role in formulating the AIA's program as well as those for medical groups. He points out that the AIA system departs from old models by considering solitary study. "This system assumes that learning occurs inside and outside the classroom," Fox explains. "Self-directed learning allows the system to capture a more complete picture of how architects learn."

#### **Keeping architects honest**

But state licensing officials don't agree. Many let professionals report their own activities, but rarely allow architects to report self-directed study—and never for health and safety credits. "Allowing people to do their own thing is very idealistic," remarks continuing education consultant Louis Phillips, who tracks trends in 24 professions nationwide. "But it's not very practical in the eyes of licensing boards, which are quite pragmatic," and don't want to be embarrassed by any hint of low standards.

As AIA members scramble to figure out how to fulfill their credit requirements, numerous providers have geared up to help them with continuing education. Architects are packing local and regional AIA chapter events, and lining up for the institute's national convention in May, where nearly every event except dinner will be weighted for its worth in learning units.

Many firms, especially larger offices, have started conducting their own continuing education courses. Professional staff at Callison Architecture in Seattle gather weekly in spring and fall for two hours at a stretch to pick up new presentation skills, study contract administration, or to take computer rendering courses. Architects at DMJM Architects & Planners in New York meet weekly to earn credits studying new waterproofing techniques, emergency-room design, or acoustics. The entire architectural staff at Elliott + Associates in Oklahoma City enrolled in a six-week seminar on local building codes sponsored by code officials. "I think it's a fantastic program," affirms Principal Rand Elliott, an AIA fellow. "Architects can get in a rut and focus on what they do every day, and not look for influence in other things."

Architects who lack such firm-based options can make up their own curriculum, which, critics assert, weakens the program considerably and makes it vulnerable to abuse. They can walk around the Parthenon and report it as a level-1 activity; they may also sleep through a seminar on shopping-center safety and file for credit. There are few ways to police the self-directed aspect of the program for slackers. "It's a big invitation to dishonesty," warns William Saunders, assistant dean for external relations at Harvard's Graduate School of Design.

### **Architects can sleep through a seminar on shopping-center safety and then file for credit.**

So far, however, evidence of widespread cheating hasn't emerged. As of February 1, 65 percent of AIA's 45,430 active members had earned credits under the system; 25 percent had completed their 36 required units. Only about 7 percent of reported activities have been self-directed, according to Thom Lowther, AIA's director of continuing education. Since self-direction is the easiest kind of learning to fudge, Lowther contends the small percentage suggests that most architects are fulfilling their requirements in good faith. "We thought self-directed credits would run closer to 50 percent of the total," Lowther remarks.

#### **Weeding out the phonies**

But what about the providers? Are all the purveyors of continuing education—some of them building-supply companies with marketing agendas—acting in good faith as well? "The hour architects spend on education should not be spent consuming advertising," Lowther says. But the distinction between the two is not always clear. For example, software maker Bentley Systems is a registered "passport" provider—the highest level of corporate sponsorship—offering courses called Essential MicroStation 95 and Essential MicroStation Power Draft. Bentley is applying to teach two more training courses on its products through 70 computer dealers nationwide. For Bentley, the courses are profit-driven, but for architects who use MicroStation, the course fulfills one of the AIA's main reasons for continuing education: to keep architects informed about new ways of working.

Another commercial provider, Andersen Windows, sponsors both two-day workshops and lunchtime programs for AIA members, covering codes, CAD, professional liability, and other window-related topics. "The idea isn't to make money," asserts Andersen's advertising coordinator, William Hinck, "but hopefully to get our

investment back in terms of increased business. If the architects see something they like about our product, then maybe they'll remember it when they do their specs."

Such product-related programs deserve intense scrutiny, insists Saunders. "You can be sure that a number of second-rate providers are meeting what they see as a market need with something that is not educational," he argues. To weed out the phonies, the AIA conducts random audits every month at selected program sites to make sure they are educationally "effective." Currently, these audits are completed by directors of AIA's special-interest committees, members nominated by those committees, and chapter executives. "One of the worst programs we found was a state chapter," Lowther recalls, but contends that it was probably an aberration. Indeed, Saunders has suggested that AIA chapters take the lead in vetting the educational content of providers in their regions.

But even without audits, impurities are easy to spot. Architects can pick up *Architectural Record* and read a five-page advertorial about aluminum-window coatings, provided by Marvin Windows and Doors. Readers can then complete the short quiz at the end (answers to the quiz are printed upside down on the advertorial's final page) and report the results back to AIA themselves. Is this really education? "Architects aren't foolish," assures Roger Schluntz, professor of architecture at the University of Miami. "Most won't seek the easiest route. They'll insist on value." Yet, often what's valuable to architects is material that also happens to be commercial.

The AIA recognizes the looseness of such arrangements, but wants to keep the program as simple as possible. Foremost in the minds of the system's planners is flexibility. The delivery strategy is "built around choice," explains the AIA's Carter, "in terms of matter, media, and method. That's the thrust. We do not have a curriculum."

### **Programming for education or profits?**

Another AIA priority is accessibility, keeping programs affordable and easy to reach, which is why self-directed study is crucial. Elaborate programs such as those at DMJM and Callison are costly to produce, giving large-firm employees an advantage over architects in smaller offices. Many members wait for their annual state or national conventions to rack up their year's worth of credits in a single swoop. Yet many other practitioners live far from cities offering numerous new programs every year, and can't travel to costly conventions to stay in good standing with the institute. For those architects, the AIA and such providers as R.S. Means and APA-Engineered Wood Association market self-study texts and tapes offering up to 60 learning units for anywhere from \$15 to \$150.

Indeed, the AIA's Continuing Education System has spawned a cottage industry in which millions of dollars change hands every year. Each of 1,200 program providers pays the AIA a yearly fee of anywhere from \$250 (for schools of architecture) to \$850 ("premier" providers, including product manufacturers), plus, for some, an extra \$2 to \$3 for each student the provider reports. Transcripts cost \$10 for members but are available free on-line.

"We're still debating whether we should be making money on this," says C. Richard Meyer, president of the Seattle chapter of the AIA. "Should it be a profit center? The programs can be expensive to produce." The national AIA views continuing education as a break-even program. Its 1997 annual report does not itemize costs of or revenues from the Continuing Education System. "It's not a money maker for us," maintains Lowther. "But that's not to say that money won't be made by others."

In Chicago, architects can complete all their credits for free through AIA chapter events, says past president John M. Syvertsen. The chapter's goal for now, he adds, is to keep programs cheap and amenable to stem defections from the AIA. "We may lose the very accomplished architects who have spent their careers learning and don't want to get bogged down in this new program," Syvertsen laments, "They may decide it's time to go emeritus."

### **Facing state obligations**

Architects may drop out of the AIA, but they won't be able to hide from continuing education for long. The typical AIA member holds licenses in four states. It's only a matter of time before most architects face similar obligations to stay licensed in states where there's a lot of work, such as Florida, which counts about 4,000 out-of-state registrants. "You don't want to lose your Florida license; it's one of the hardest to get," insists New York architect and AIA Fellow Bartholomew Voorsanger, who hopes AIA can help shape future state requirements to ensure their uniformity.

If AIA is going to take that leading role in coming years, however, it will have to define continuing education's mission. Is it to raise architects' self-esteem, or to ensure their competency? The states are right behind the AIA in requiring continuing education, and they're seeking solid programs that reinforce architects' practical capabilities.

So are many AIA members. "I would prefer to view what the AIA is doing now as a ramp up to a more meaningful continuing education effort," poses AIA Fellow Leland Cott of Bruner/Cott Architects, recent president of the Boston Society of Architects. "The program needs to have more teeth than it does. This is a good first step, but it is not a good end product."

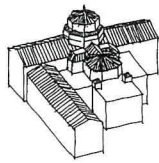




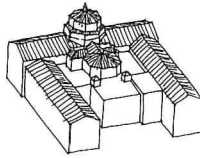
**Moore Ruble Yudell Architects revives a cherished landmark at UCLA by respecting its spatial and decorative nuances.**

One of the most serene outdoor spaces in the chaotic ramble of Los Angeles is the campus of the University of California, Los Angeles (UCLA). Nestled among the wooded hills of Westwood, the 420-acre campus centers on a 1920s quadrangle of academic buildings, arranged along a grassy mall dotted with eucalyptus trees.

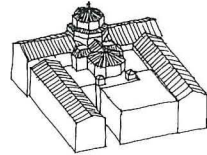
Over the past 70 years, this cluster of historic buildings has suffered damage at the hands of both man and Mother Nature: As the university grew, heavy-handed architects inflicted permanent scars with shoddy interior renovations and insensitive additions. Then, in 1994, the Northridge earthquake weakened and nearly toppled the Romanesque Revival towers of Royce Hall and Neo-Gothic spires of Kerkhoff Hall. The university has tried to repair some of this



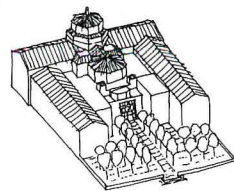
1929



1947



1956



1997

Drawings (above) show how subsequent additions to Powell Library blocked rear courtyard. Brick and terra-cotta detailing on facade of new wing (below) distills patterned ornament of 1929 building, designed by San Francisco architect George Kelham.

damage, with varying degrees of success. The most recent alteration of the main undergraduate library, Powell Library, by Santa Monica architect Moore Ruble Yudell (MRY), stands out as one of the most ambitious and skillful of these restorations.

The project that has left the 68-year-old library resplendent inside and out defies easy categorization: It is part seismic upgrade, part historic preservation, and part renovation and addition. Designed by San Francisco architect George Kelham and completed in 1929, the robust Italian Romanesque Revival library suffered numerous indignities over the years. A series of unseemly additions concealed the structure's original south facade (axonometrics, left); garish fluorescent lighting all but obscured the ornate domed plaster ceiling above the main reading room; and earlier unsympathetic restorations turned the building's interiors into a labyrinth of poorly finished spaces unable to accommodate the high-tech demands of today's university libraries.

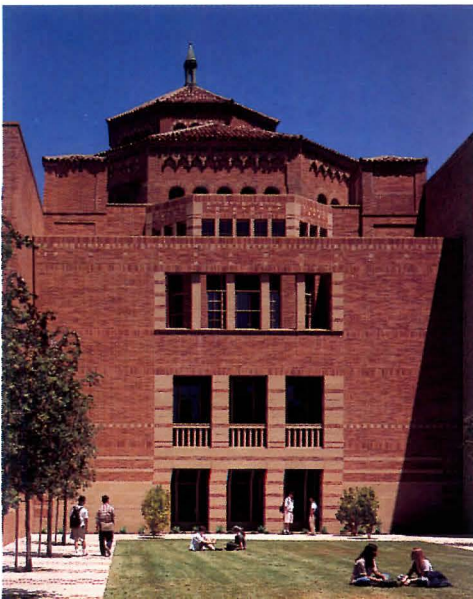
Moreover, the library's unreinforced concrete structure was never really strong enough to withstand a massive earthquake; the fact that it escaped serious damage from periodic quakes over the years was pure luck. In fact, when MRY first began working on the project in 1989, Powell Library was one of the most seismically at-risk buildings in California, according to the UC system and the state legislature.

MRY's original charge was to seismically upgrade the vulnerable building and reprogram its interiors with an eye toward integrating new computer technology, bringing outdated fire and emergency exit systems up to code, and improving access for wheelchair users—a task that seemed “fairly unromantic” at the outset, MRY Principal Buzz Yudell admits. But Campus Architect Duke Oakley and University Vice-Chancellor Peter Blackman saw the project as a chance to reinvigorate every inch of the library while strengthening the structure and reorganizing the interiors. “With such a tight budget, we had to make every move count in two ways, like a chess game,” explains Yudell.

MRY and engineer Ove Arup & Partners identified major seismic weaknesses in the original library's concrete frame and unreinforced brick walls, as well as mechanical and life-safety problems in a boxy 1956 concrete addition to the south. The ungainly seven-story addition, which housed stacks, also blocked access from the courtyard behind the library, cutting the building off from the southern edge of the campus and eclipsing views of the octagonal drums crowning the library's roof.

MRY reinforced the library's brick walls with shotcrete, demolished the 1956 addition, and replaced it with a porticoed brick volume containing a small reading area and a new stair tower. This new wing, detailed in brick and terra-cotta to echo the

## A new porticoed wing echoes







## the patterning of the original library and restores views of its octagonal drums.

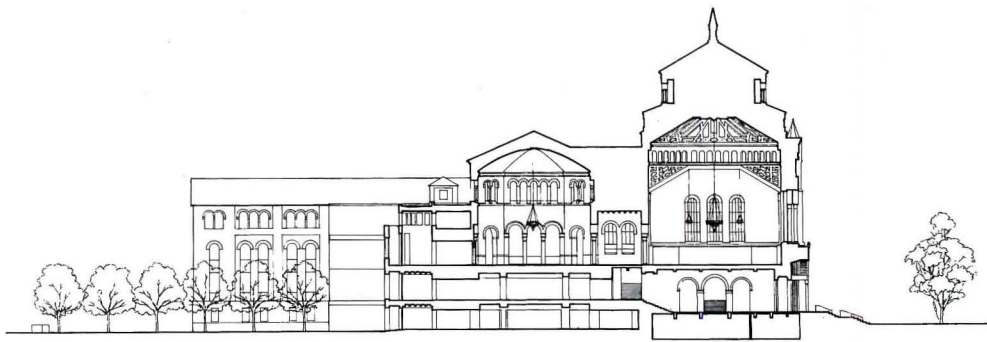
subtle patterning of the original library, steps down in height to restore views of the octagonal drums from the south side of the building. To reestablish Kelham's symmetrical south facade, MRY inserted a second brick volume containing bathrooms and mechanical risers to the west of the portico.

In the reopened courtyard to the south of the portico, the architect planted a tiny lawn and a small bosque. Although the library can't be entered from this court for security reasons, this pleasant outdoor space successfully reconnects the library to the southern end of the university and Bruin Walk, the terraced path that is the pedestrian lifeline of UCLA's sprawling campus.

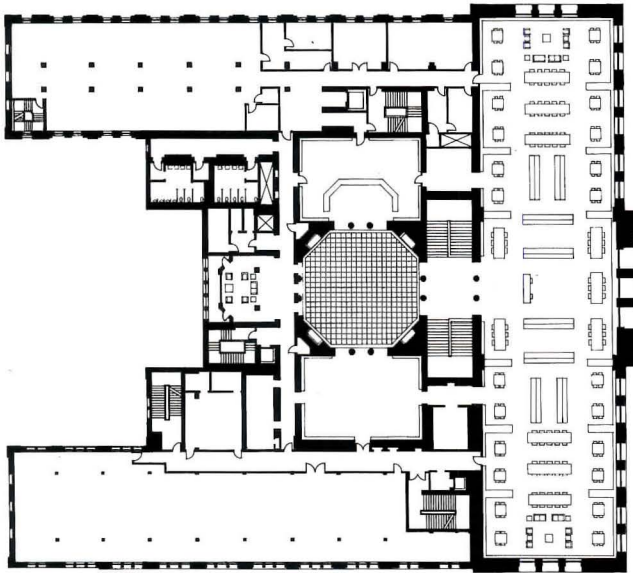
Inside and out, the ornamental brick, tile, and plaster finishes were simply washed with soap and water to restore them to their original condition. MRY left intact the spatial character of primary public areas such as the entry vestibule, main reading room, and second-floor rotunda. But, mindful of maintaining the library's strong axial hierarchies, the architects reconfigured the existing stack areas and created new computer and informal reading rooms from existing secondary spaces on the ground floor.

In these areas, the architect worked with color specialist and interior designer Tina Beebe to select materials that harmonize with the existing palette of ornate brick, tile,

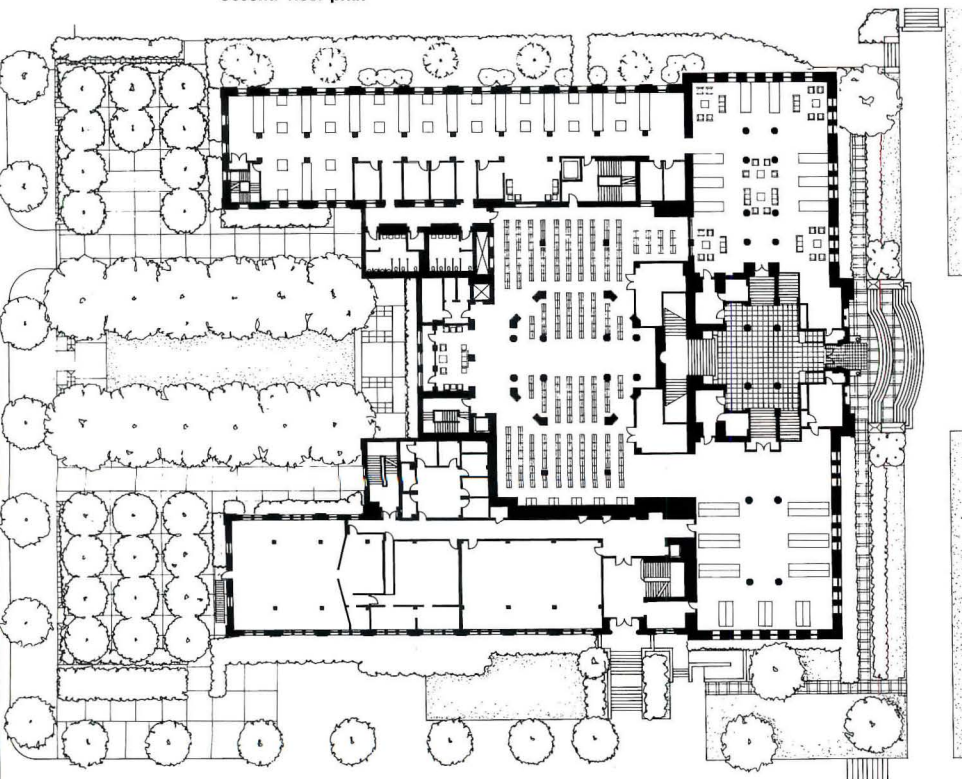
**MRY's 10,000-square-foot addition (above) restores symmetry of library's rear elevation and reopens courtyard to southern edge of UCLA campus.**



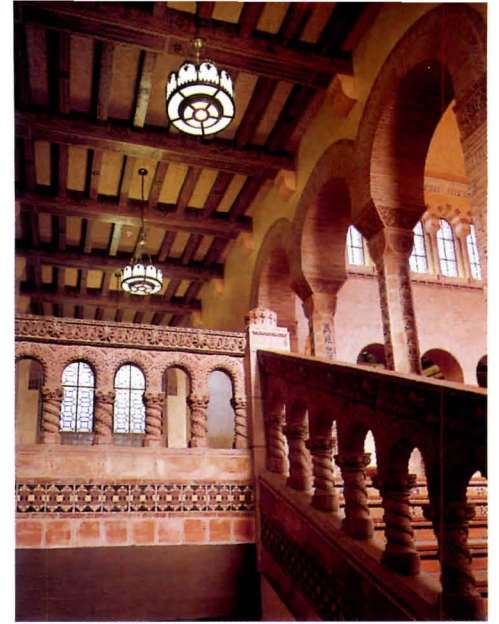
North-south section



Second-floor plan



First-floor plan



## MRY preserved the finishes o

Floor plans and section of refurbished building (left) reveal how MRY strengthened existing library's axial organization. In original spaces such as main stair hall (above), simple soap-and-water cleaning brought dingy historic masonry back to life.

### POWELL LIBRARY RENOVATION AND ADDITION LOS ANGELES, CALIFORNIA

**ARCHITECT:** Moore Ruble Yudell, Santa Monica, California—Buzz Yudell (principal-in-charge), John Ruble (principal designer), Michael de Villiers (project architect), Jeanne Chen, Alfredo Diaz, Mary Beth Elliott, Angel Gabriel, Stephen Harby, Wendy Kohn, Ying Chao Kuo, Neal Matsuno, Robert Meiklejohn, Jim Morton, Bill Murray, George Nakatani, Wing-Hon Ng, Martin Saavedra, Tony Tran, Gene Treadwell (project team)

**LANDSCAPE ARCHITECT:** Burton & Spitz  
**ENGINEERS:** Ove Arup & Partners (structural, mechanical, electrical); Paller Roberts Engineering (civil)

**CONSULTANTS:** Horton Lees Lighting Design (lighting); Carmen Nordsten Igonda Design (interiors); Tina Beebe (color); Philip Leighton (library planning); Rolf Jensen & Associates (code); Adamson Associates (cost); Sussman Prejza & Company (graphic design)

**GENERAL CONTRACTOR:** Morley Construction

**PHOTOGRAPHER:** Timothy Hursley

and terra-cotta—some literal replications of historic elements, others complementary additions. New linoleum flooring, for example, exactly matches the color of existing floor tiles; but the interior columns clad in bands of blue, red, and beige sandstone, and sparse, new Shaker-inspired furniture set a new material palette that is clearly distinct from the old.

Some original light fixtures, including the large bronze chandelier above the main reading room, were restored with new lamps and hardware. Where historic fixtures were missing and could not be replicated, MRY created new pendants and wall sconces that echo—but don't copy—the design of the originals. "There's always a

conscious division between old and new," Yudell points out.

MRY's elegant refurbishment of Powell Library has won praise from the university's librarians and from Campus Architect Duke Oakley. The school's 24,000 undergraduates are using the building in record numbers, and California Governor Pete Wilson commended the building's restoration last fall with the Governor's Award for Historic Preservation. Like a cleverly played game of chess, Moore RubleYudell has achieved multiple goals with minimal moves: reconnecting an important campus destination to the rest of the university while infusing a weary building with new life. *Raul A. Barreneche*

Limestone column cladding, linoleum floors, and pendant lamps in new ground-floor reading room (below) interpret detailing of historic spaces.

he original public rooms, but set a distinct material palette for new spaces.



# OUR WINDOWS ARE MADE FROM WOOD. AND SOMETIMES,

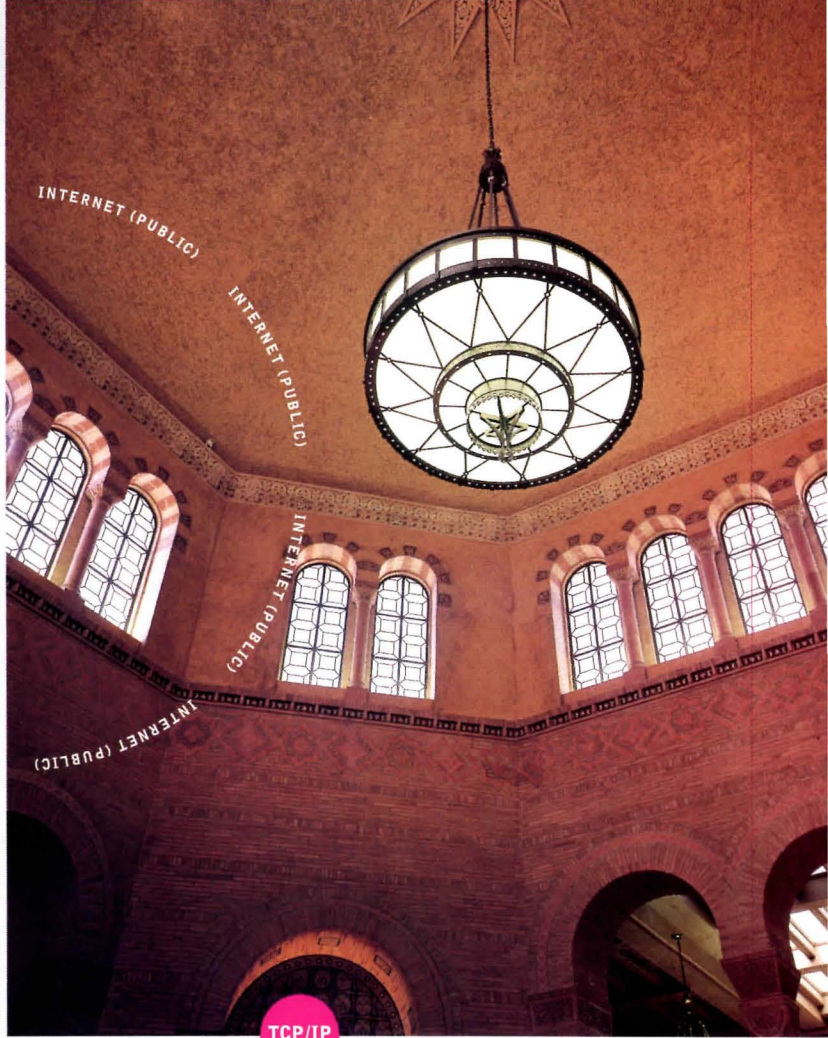
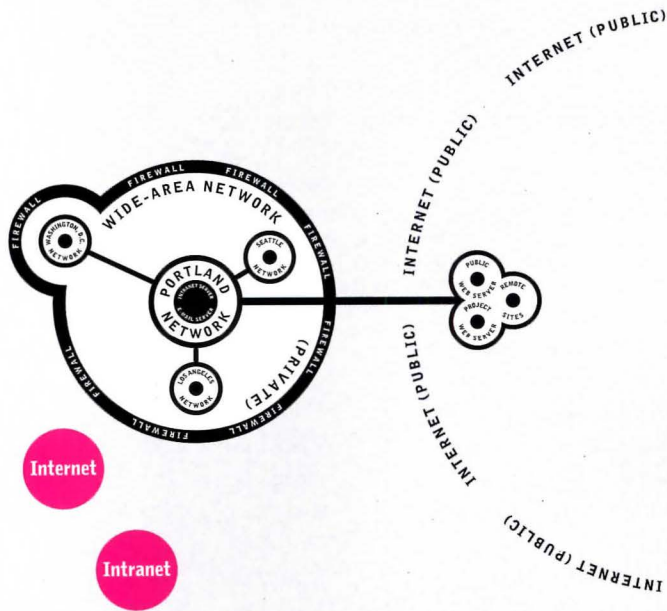
When architect Bill Becker redesigned this summer retreat in the Berkshire Mountains, the home's setting provided all the inspiration he needed. He used native wood and stone extensively. Fashioned the front porch supports from 8" logs. And for the north end of the home, which looks out over a lake to the mountains beyond, he created a wall of glass using windows and doors with custom-designed

muntins that echo the shape of the surrounding pines. Who did he contact to supply these unique products? Bill Becker's search began and ended with one phone call. To Marvin Windows & Doors.

From Bill's drawings, the company produced three large fixed windows and eight doors, three of which open onto the deck. Marvin's ability to create these custom products inspired similar design elements in the home's interior, including a rustic stairway made from pine logs and branches. Still, as unique as they are, these aren't the only Marvin windows that figured prominently in the design.

To double the home's square footage without violating local zoning codes or overwhelming the surrounding cottages, Bill skewed the second level off the long axis of the first floor by seven degrees to create the illusion of a dormer. Marvin windows which step down in height help further the illusion. And to optimize their energy efficiency, these





TIMOTHY HURSLEY

Electronic media are transforming the role of spec writers, revealing new potential for internal communications, and changing daily office protocol.

## Technology and Practice

**Preservation Technology** **Back in the Stacks**

Moore Ruble Yudell recasts a delicate plaster ceiling and reinforces the structure of earthquake-damaged Powell Library at the University of California at Los Angeles.

**Computers** **Firmwide Networks**

Architects are following big business's lead, embracing computerized networks to connect far-flung work sites and create handy office archives.

**Technology** **Earthquake-Proofing Wood Buildings**

With correctly designed connections and supports, timber-frame structures combine flexibility and strength for extraordinary stability in earthquake-prone regions.

**Practice** **Are Spec Writers Obsolete?**

Increasingly common electronic formats are reshaping the critical process of specifying building materials and systems.

## Preservation Technology **Back in the Stacks**

A much-needed seismic upgrade saved UCLA's Powell Library—but the Northridge tremor added new preservation challenges.



Concrete shear walls reinforce perimeter.

The renovation of the Powell Library at the University of California, Los Angeles (UCLA) wasn't originally planned to be one of the most comprehensive restorations in the history of the campus (pages 102-107, this issue). Architect Moore Ruble Yudell (MRY) began the project as a reorganization, expansion, and seismic upgrade of one of UCLA's original campus buildings. But the 1994 Northridge earthquake forced the architects to take on some unexpected preservation work: The quake damaged many of the library's interior finishes, and nearly destroyed the hand-troweled plaster ceiling above the reading room.

The library's nonductile concrete-frame and unreinforced brick walls were never properly seismically braced. And although the building survived the 1933 Long Beach, 1971

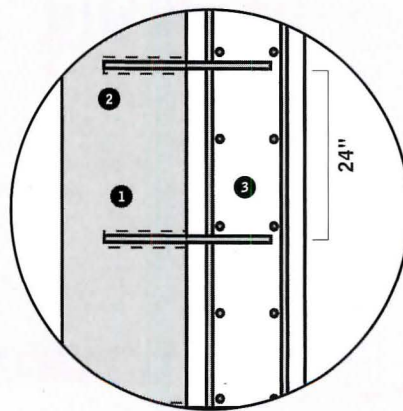
Sylmar, and 1987 Whittier earthquakes with little visible damage, some experts speculate that the particular ground motion caused by the Northridge quake's strong tremors would have leveled the building without MRY's structural upgrade. Luckily, most of the basic seismic strengthening of the 68-year-old structure was already complete when the quake struck.

MRY and the Los Angeles office of engineer Ove Arup & Partners began their first seismic upgrade by computer-modeling the existing structure to analyze its seismic strength. The team determined that the library's concrete frame was indeed too weak, and the unreinforced brick walls too brittle, to withstand another major quake. To improve the earthquake resistance of the structure, the original plaster interior walls were removed and shotcrete was pumped onto the brick

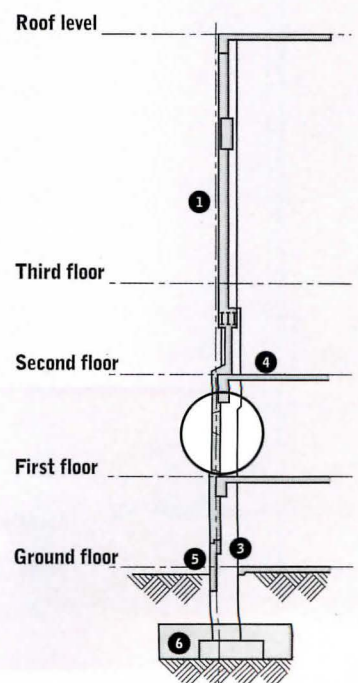
substrate over a reinforcing steel mesh to create shear walls. According to engineer Catherine Wells, the existing 2-foot-deep wall cavities were wide enough to allow the shotcrete to be added and the interior walls to be reconstructed in alignment with existing interior ceilings and finishes. These shear walls extend around the entire building perimeter and are tied into the library's concrete foundations, which were enlarged for improved seismic stability.

### Rotunda restored

The rotunda at the center of the library required its own special reinforcement. The challenge was how to add concrete without destroying the ornate interior finishes of decorative brick, tile, and plaster inside the rotunda. On the library's upper floor, MRY carefully cut away and dismantled the interior surfaces and added shotcrete and steel reinforcements



- 1 Existing brick wall
- 2 3/4"-dia. threaded rods, grouted into brick
- 3 New shotcrete with steel reinforcing
- 4 Existing slab
- 5 Existing concrete wall
- 6 Enlarged footing

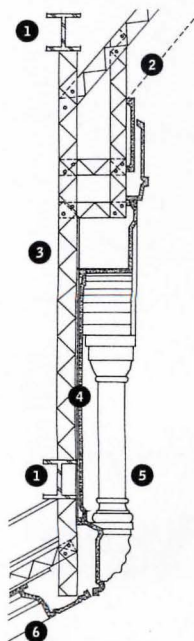


Typical exterior wall section



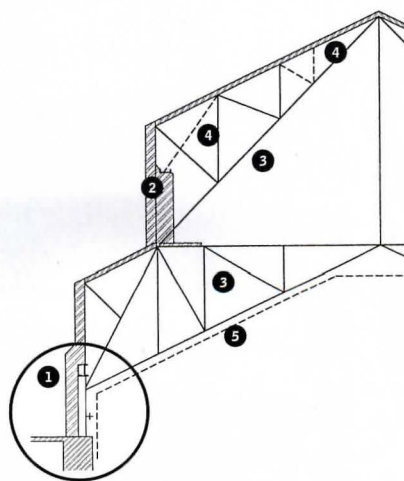
In rotunda, MRY reinstated brick, tile, and plaster wall finishes after adding shotcrete inside wall cavities.

- 1 New steel beam
- 2 Dome ceiling panel
- 3 18-gauge steel studs, 16" o.c., 7" o.c. at corbels
- 4 Glass-fiber-reinforced gypsum plaster panel
- 5 Colonnette
- 6 Coffered pendentive

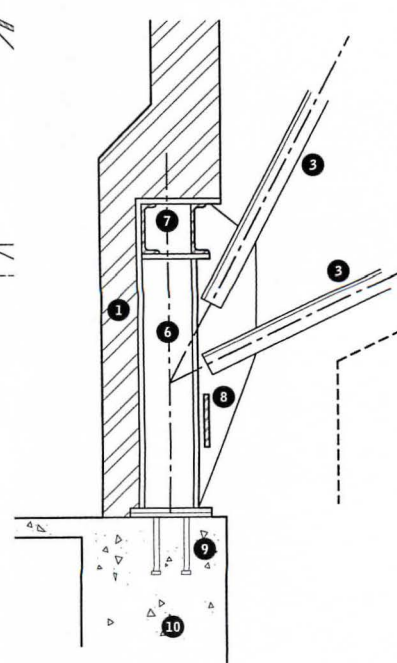


Partial section at pendentive/drum wall

- 1 Existing brick wall
- 2 New concrete-encased ring beam
- 3 Existing steel truss
- 4 New steel braces
- 5 Existing plaster ceiling line
- 6 Existing steel column
- 7 New 1/4" steel plate
- 8 New plate supporting tie beam
- 9 Anchor bolts
- 10 Concrete wall



North rotunda section



North rotunda strengthening detail



Craftsman (above) applies finish glaze to original star-shaped plaster ceiling panel. Mock-ups (below left) were created to test paints and glazes for reconstructed ceiling elements. Workers erected new steel-stud frame (below right) as substrate for restored ceiling panels.



to the existing concrete structure. The architect also added shotcrete to bulk up the original ground-floor piers supporting the octagonal drum.

### Preserving plaster ceilings

The most complex portion of the restoration was repairing the richly hued cast-plaster ceilings above the library's main reading room. The ceilings, including a 65-foot-high octagonal drum at the center, were painted by muralist Julian Ellsworth Garnsey in 1929 to resemble hand-carved wood, with a vaguely Moorish design incorporating 40 different colophons, or signature marks, of 14th- and 15th-century European printers. The original plaster panels were attached to straw- and jute-fiber anchors and suspended by these anchors from a wire grid fastened to the library's steel roof trusses.

When the project first began in 1989, the university felt that the ceiling posed no safety risk, and it was omitted from plans for a structural upgrade of the building. The Northridge quake, however, caused serious cracking in the ceiling. "Some portions of plaster fell to the floor, and the overall structure was significantly weakened by the earthquake," reports project architect

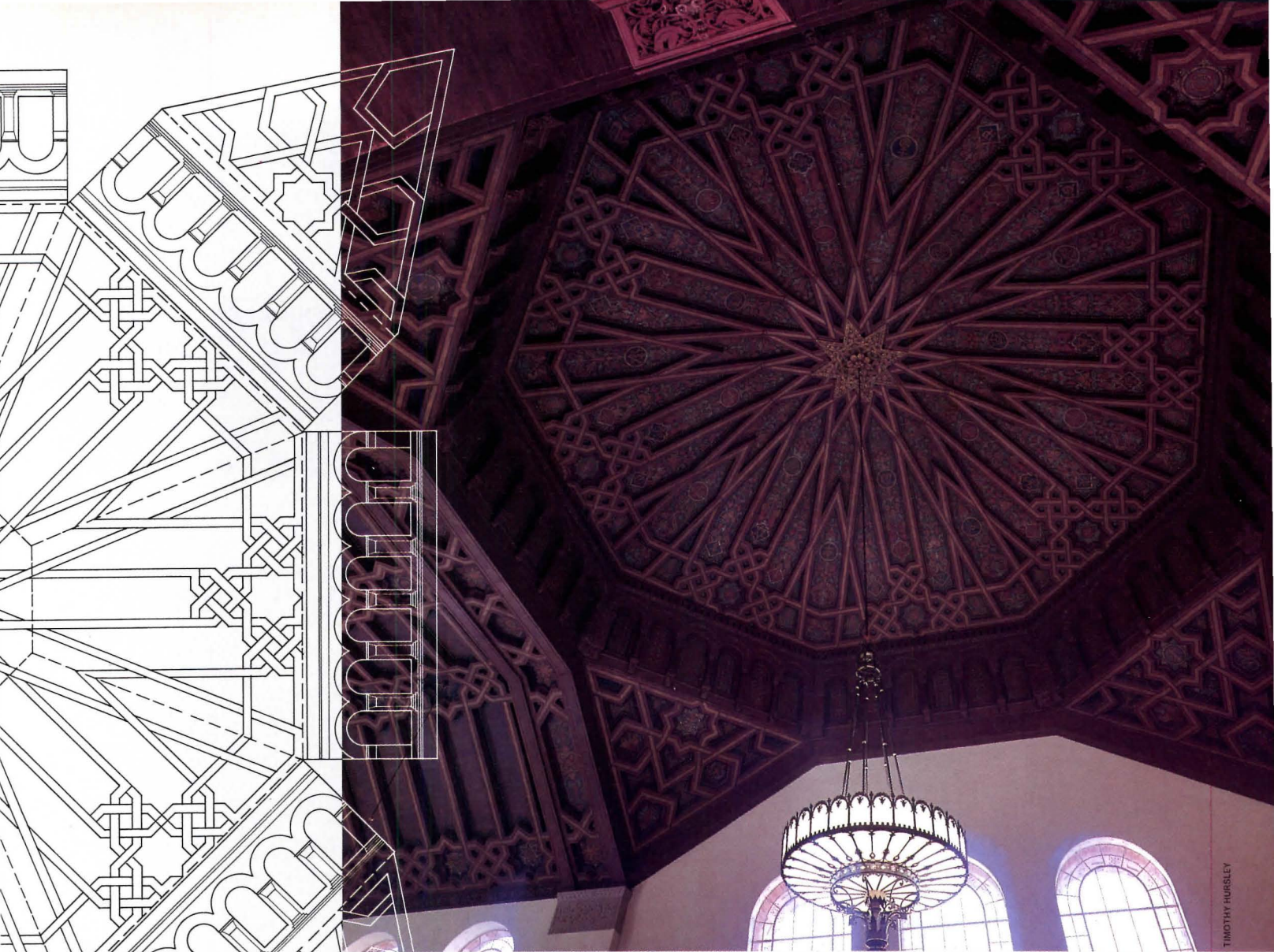
Michael deVilliers. The anchors and wire grid were beyond repair, and the ceiling on the brink of collapse.

Armed with \$7 million from the Federal Emergency Management Agency, MRY was charged with restoring the damaged plaster panels or recasting new ones, and inserting a new superstructure to support both the new and salvaged panels. The architects again collaborated with Ove Arup & Partners, as well as with preservation experts, art conservator Tatyana M. Thompson, university architects, and Santa Monica-based contractor Morley Construction, to develop a strategy for saving the imperiled ceiling.

### Restoration techniques

Workers began by cataloging and photographing each plaster ceiling panel before removing it. The panels were then numbered and tagged, and their appearance, texture, and decorative patterns documented before being stored. When possible, the elaborate original units were salvaged. The back of each panel was ground to within 3/4 inch of the face, and strengthened with glass-fiber-reinforced gypsum plaster (GFRG). Cracks and holes were repaired with plaster and the painted surfaces





Reflected ceiling plan (above left) reveals ornate Moorish-inspired geometric patterns. Many panels in newly renovated ceiling (above right) were recast from glass-fiber-reinforced gypsum plaster and finished in acrylic paint and oil-based glazes to match original appearance.

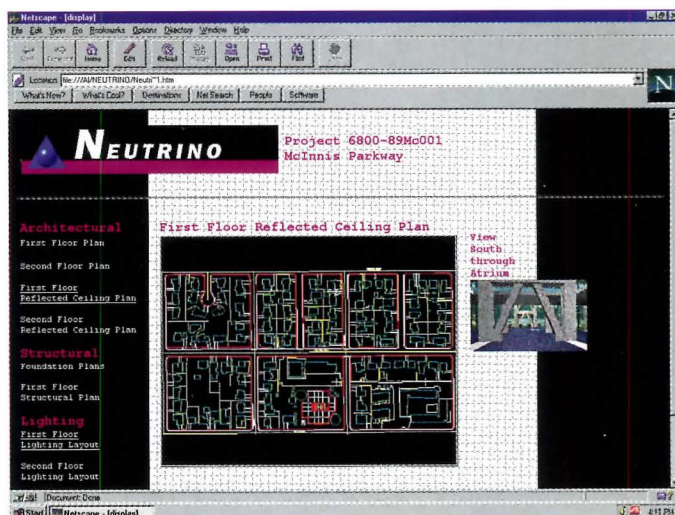
carefully restored. Panels that were heavily damaged or missing were entirely recast from GFRG using molds taken from existing ceiling elements, as were some undamaged units that were easier to recreate than to repair. New metal fasteners were attached to the backs of original and new panels to anchor them to a frame composed of gypsum board over steel studs.

To closely match the colors of the original panels, Thompson developed a process that combines oil and acrylic paints with oil-based stains and finish glazes. (The lead-based pigments used on the historic panels are outlawed and no longer available.) According to Thompson, the final glaze helps minimize the sheen on the panels, rendering the ceiling in a matte finish.

MRY also reconfigured the reading

room's lighting and mechanical systems, concealing new ducts and incandescent uplights within new wooden bookshelves—which echo original shelving—lining the perimeter. The massive bronze chandelier hanging from the domed ceiling's center was also strengthened, fitted with new lamps, and refinished.

The scope of the restoration may have been more than MRY bargained for, but the firm's work has set a new standard in building excellence for UCLA and, indeed, for the entire University of California system. And while some of the most important aspects of the project remain invisible to the naked eye, there is still plenty for visitors to see. Like the touched-up print of a vintage movie, the library's vibrant colors and rich textures have been carefully restored. *Raul A. Barreneche*



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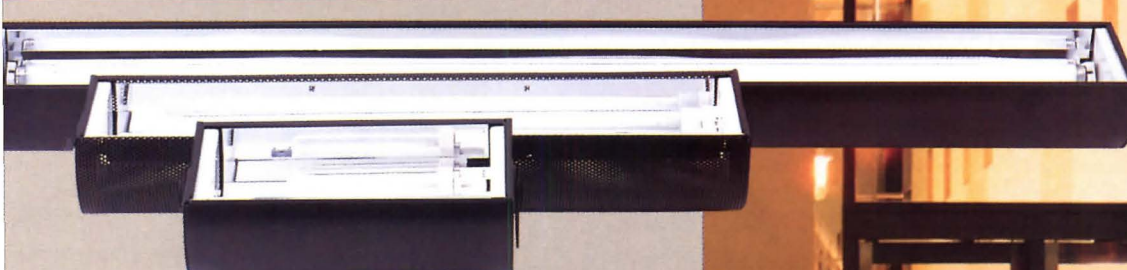
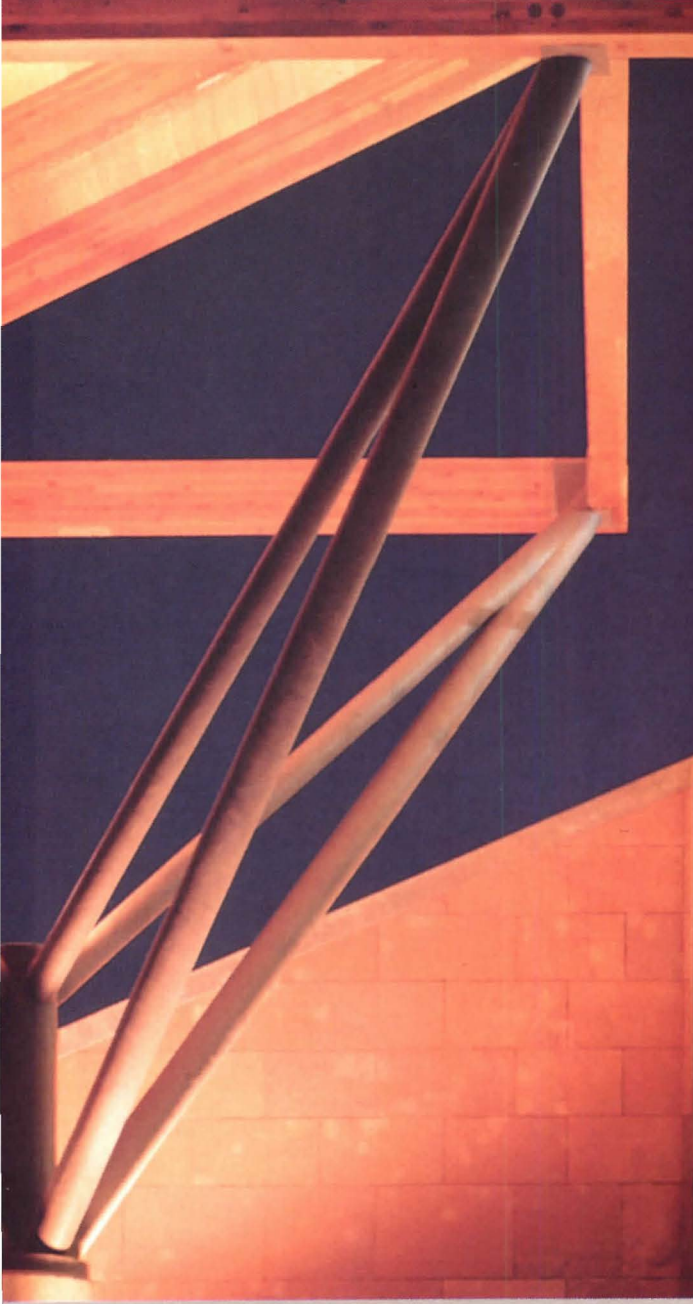
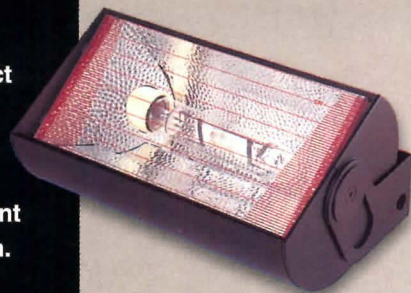
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# Computers Firmwide Networks

Intranets allow architecture firms to set up centralized company reference libraries on computer.

*By Ken Sanders*

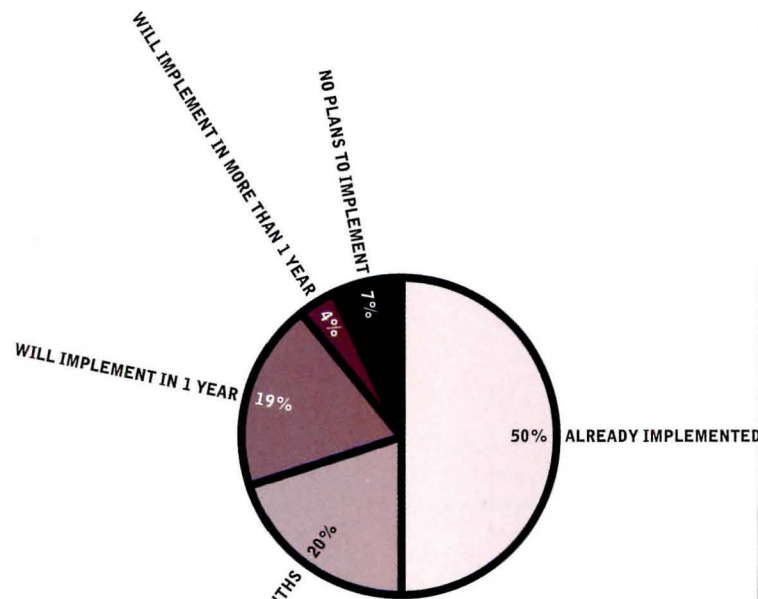
Private computer networks known as intranets are emerging as powerful new tools for individuals within an architecture firm to share their talents and expertise with one another. An intranet, also called an internal web or private internet, uses the same communications protocols as the Internet. It provides an excellent resource to help architects remember problems already solved, and is well-suited to capturing many (but certainly not all) of a firm's design ideas, technical solutions, and office guidelines in digital formats.

From Xerox to Levi Strauss, hundreds of public companies are deploying intranets. Such standard references as phone directories, employee manuals, and benefits information can be distributed electronically, eliminating the cost of reprinting these documents as their

content changes. In a survey of 500 of the largest organizations with corporate networks, International Data Corporation of Framingham, Massachusetts, and *Network World* magazine found that 50 percent already have an intranet operating and 39 percent plan to set up an intranet within a year.

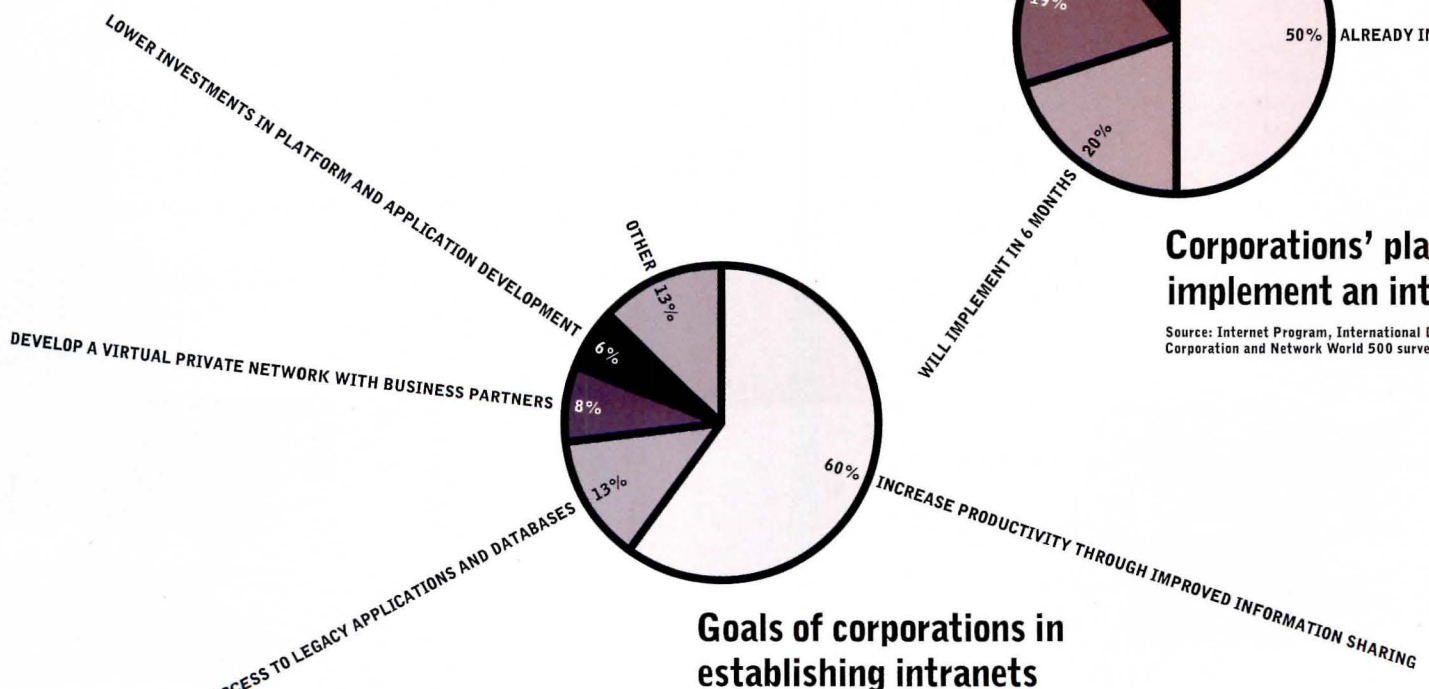
Large architecture firms such as Portland-based Zimmer Gunsul Frasca Partnership (ZGF) are doing the same. According to Managing

Partner Robert G. Packard, the intranet deployed last year by ZGF allows employees, all of whom are equipped with Internet-linked computers, to easily and cost-effectively gain access to common resources and project archives from any of ZGF's four offices. Gensler's intranet, scheduled to make its on-line debut this spring, will include a project library with schematic drawings, floor plans, program, materials, cost, and scheduling information for innov-



**Corporations' plans to implement an intranet**

Source: Internet Program, International Data Corporation and Network World 500 survey, 1996



**Goals of corporations in establishing intranets**

Source: International Data Corporation and Webmasters 100 survey, 1996

ative and newsworthy projects completed in Gensler's 14 offices. Entering the data is time-consuming, admits Gensler intranet creators Helen Dimoff and James Maloney, but the benefit of putting these resources on the desktops of design architects and marketing staff outweighs the initial cost. Other firms setting up intranets include Hellmuth Obata & Kassabaum, NBBJ, and Callison Architecture.

Properly organized and maintained, an intranet is the on-line, digital knowledge base of a firm—a filtered, searchable collection of its service products and the shared experience of its employees. In essence, it is the firm's institutional memory. For all but the smallest architecture firms, deploying an intranet is more strategically important than establishing a marketing presence on the World Wide Web.

### Browsing and linking

Gaining access to an intranet requires using a Web browser such as Netscape Navigator or Microsoft Internet Explorer. Installed on an individual's personal computer (PC), the browser communicates with a server on the firm's private network, and documents stored on the server are transmitted and displayed on the PC. Intranet documents are written in HyperText Markup Language (HTML), the same language used to create documents on the World Wide Web. They can contain text, graphics, and—most importantly—hyperlinks pointing to other documents. Hyperlinks are words or images highlighted within a document by underlined text or the presence of a border around the image; clicking on one will open and display a related document, allowing documents to be cross-referenced easily.

Intranets offer two key advantages in publishing a firm's information. Because the Web browser can be used to access both an intranet and the World Wide Web, internal and external documents can be linked together *seamlessly*. A document inside the firm describing waterproofing membranes, for example, can be linked directly to the Web

sites of related product manufacturers. To accomplish this, a firm's private network must be connected to the Internet and secured from unauthorized access using a "firewall," or electronic privacy device.

In addition, an intranet offers access to different types of information—such as text, images, audio, and video—through an inexpensive Web browser instead of several different software programs. Using a browser, most documents can only be viewed, not modified. One exception is databases, which can be searched, queried, sorted, and even updated. And a remarkably large amount of information within an architecture firm is suitable for organizing within databases, including project archives, personnel files, cost-estimating tables, CAD libraries, and marketing boilerplate. The Web browser becomes a universal tool to search, view, and edit records from these various databases on an intranet.

### Spinning a Web

From a technical viewpoint, creating intranet content is actually easier than creating World Wide Web content. A public Web site must be designed to support different browser types and versions, each of which has minor but distracting differences in how it displays content. An intranet's documents, on the other hand, do not need to be designed to the lowest common denominator because a firm controls the software tools used to access them. The firm's in-house network needs to support only the basic Internet communications protocol, known as TCP/IP, and a Web browser must be installed on all computers that will access the intranet.

At the same time, developing the content for an intranet does not lend itself to outsourcing as easily as developing a public Web site. Many architecture firms have discovered that establishing a marketing presence on the Web is not particularly difficult, and there are hundreds of Internet access providers and consulting firms eager to help with the job. But an intranet is different. As

## GLOSSARY

### TCP/IP

TCP/IP is an acronym for Transmission Control Protocol/Internet Protocol, the basic networking protocol by which computers on the Internet communicate with each other.

### Internet

The Internet is the TCP/IP-based global interconnection of computers.

### Intranet

An intranet is a closed or tightly controlled network within an organization that uses Internet and World Wide Web technology and standards. Intranets may or may not be connected to the Internet.

### WWW

The World Wide Web is a network of Internet computers using special protocols for communicating text, graphics, audio, or video contained within hyperlinked documents. The documents are written using Hypertext Markup Language (HTML) and transmitted between computers using Hypertext Transport Protocol (HTTP).

### Browser

A Web browser is a software program used to view documents and exchange information with computer servers on the web. Browsers run on any type of computer.

### HTML

HyperText Markup Language (HTML) is the language used to create documents on the World Wide Web. It controls the presentation of text, graphics, and other information displayed by Web browsers.

### Firewall

A firewall is a special hardware device or computer server that behaves as a network traffic cop to separate a firm's private intranet from the public Internet.

the digital knowledge base of the firm, its content and presentation are interwoven with the firm's culture, values, and operational character. Outsourcing the development of an intranet makes no more sense than outsourcing, say, project management or schematic design. This puts a substantial burden on firms that lack sufficient in-house technological expertise.

**Content and distribution**

New tools are slowly easing this burden, which is good news for smaller firms. Web-authoring tools such as Microsoft's FrontPage and Adobe's PageMill help insulate a firm's intranet designers from learning the arcane syntax of HTML. Many current versions of commercial Web-server software—developed by Microsoft, Netscape, and others—are remarkably easy to configure, affordable (less than \$1,000), include built-in search engines, and run on standard PC hardware and operating systems. And browsers today are more robust than in the past at displaying non-HTML documents such as spreadsheets, CAD drawings, animations, and even interactive, three-dimensional environments.

An intranet's largest cost, however, is not the initial task of deploying its hardware and software, but the ongoing task of creating and updating its documents. A key strategy is to distribute the responsibilities of content development and maintenance to people within the firm. At the same time, an information gatekeeper must be identified who is responsible for the organizational framework of the intranet and who coordinates revisions to its content. In addition, a mechanism to gather feedback from users is essential to help determine what is useful, what is missing, and what resources are viewed most often. Most Web-server software programs create log files which identify when and how often document sites are visited.

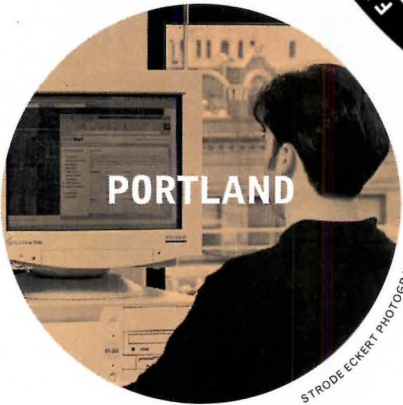
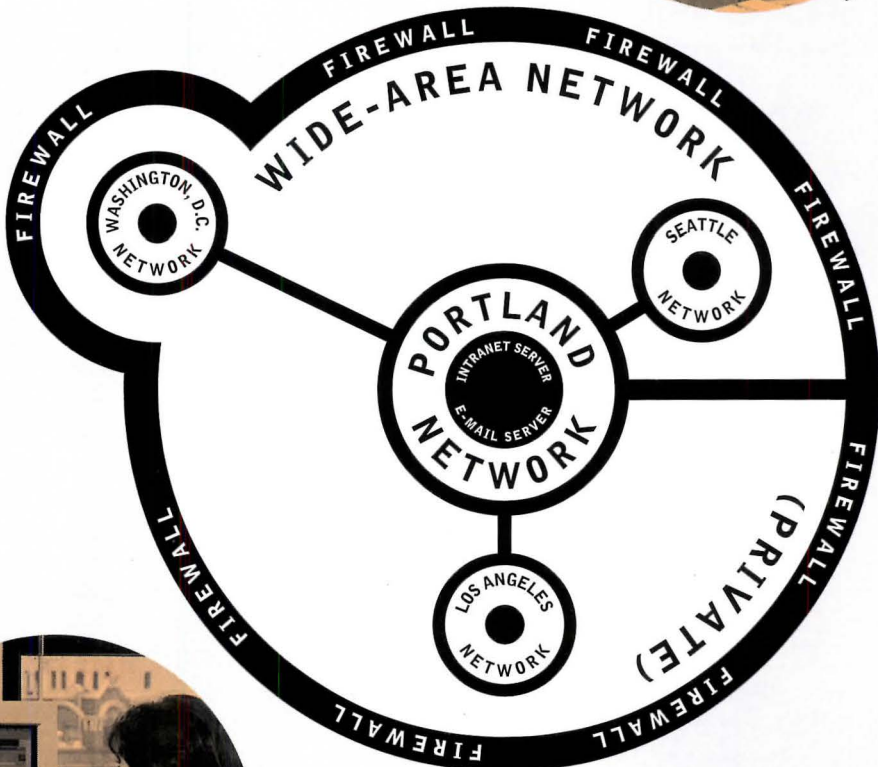
Like the Internet itself, an intranet is different from communication media such as fax and e-mail, or broadcast media such as TV and radio. All of these push content to



STRODE ECKERT PHOTOGRAPHIC



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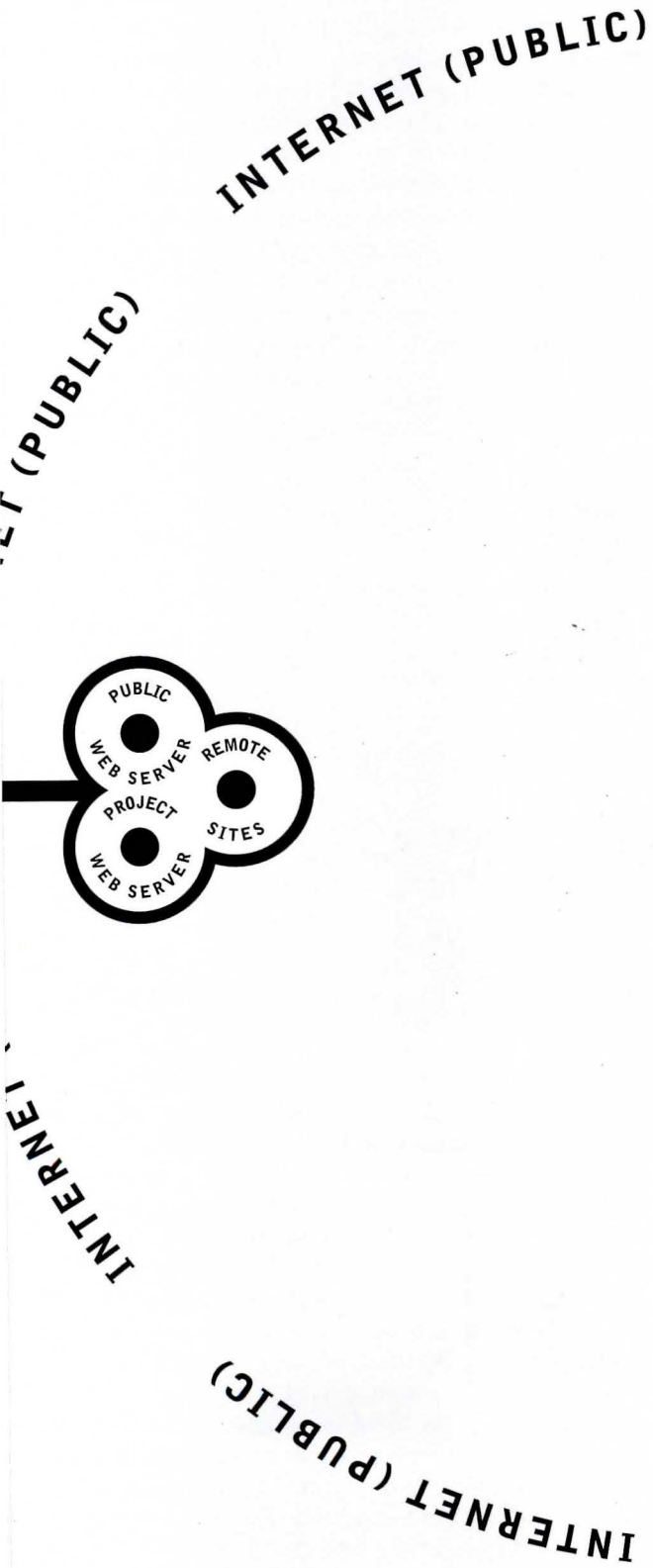


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JAMES F. HOUSEL

ZGF's private resources are shared firmwide through a wide-area network. ZGF's public resources, including the firm's Web site and project Web servers, are directly connected to the Internet. The firewall protects the firm's intranet from unauthorized access.



recipients who have little control over its packaging. An intranet allows individuals to pull information of interest without being distracted by inappropriate or irrelevant data. The prerequisites for an intranet's effective use include standardizing and simplifying the way documents are organized and presented, as well as providing tools to search their content. Even so, pulling information places a burden on individuals to look for and find the information they need in a timely manner.

New intranet tools combine both push and pull models. PointCast's I-Server and DataChannel's Channel Manager, for example, are software programs that allow intranet content to be broadcast directly to desktop PCs without any user intervention. This idea is also a key feature of Active Desktop, part of Microsoft's Windows 97, which provides placeholders for information to be pushed to desktop computer screens from network servers. Other software programs, such as InterMind's Communicator, are agents that automatically search an intranet for recently modified documents and report the results back to the user.

A critical design issue in developing a professional intranet is determining the appropriate balance between information push and information pull. Too much emphasis on pushing data may cause electronic-information overload among employees; too much emphasis on pulling it may prevent users from finding important information quickly. Neither model is sufficient by itself,

and a balance between the two typically provides the best mix of information in a timely manner.

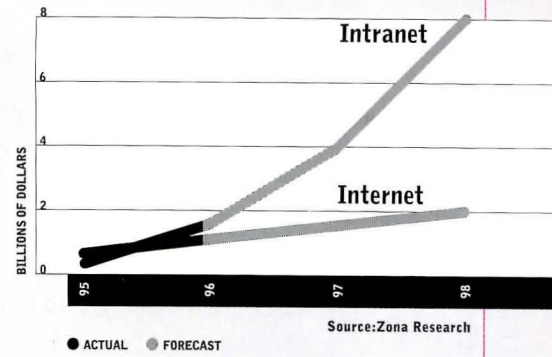
### Value of conversation

Ultimately, an intranet's success must not be measured by the volume of information pushed and pulled, but by the quality of services produced by individuals using that information. Even in a technological world, the talent and experience of the people within a firm are still the primary determinants of its professional value, and an intranet does not alter this basic equation. If anything, an intranet magnifies the value of the individual by providing a mechanism to share his or her expertise with others in the firm.

Like many new computer technologies, an intranet is a supplement to—not a replacement for—traditional forms of communication and mentoring. A potential danger, in fact, is that an intranet makes it too easy for people not to talk to and learn from each other. As a result, a good intranet contains not only endpoint information, but also pointers to the right people—those who possess specialized knowledge or experience.

Indeed, a well-designed intranet is less a substitute for old personal conversations than a powerful catalyst for new ones. Technology notwithstanding, it is those conversations by which the quality of a firm's work continues to be inspired, executed, and ultimately judged.

*Ken Sanders is an associate partner of Zimmer Gunsul Frasca Partnership.*



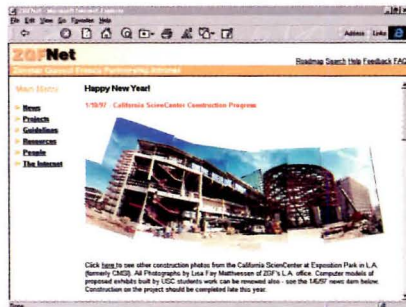
Within a year, sales of intranet server software will reach \$8 billion.

# ZGFNet

The intranet developed by Zimmer Gunsul Frasca Partnership, called ZGFNet, allows the firm's four offices to share resources such as CAD libraries and construction progress reports, and provides a direct link to the Internet.

The intranet at Zimmer Gunsul Frasca Partnership—dubbed ZGFNet—was first launched in mid-1996 to provide everyone within the firm, no matter where they are, access to the same on-line information resources. The firm's four permanent offices in Portland, Seattle, Los Angeles, and Washington, D.C., are connected by a wide-area network (WAN). Employees at other locations, such as construction site offices, are provided secure access to ZGFNet via the Internet.

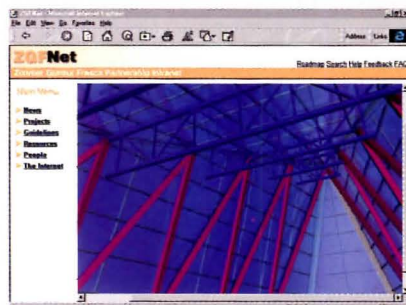
ZGFNet is deployed from a server in Portland running Windows NT 4.0 with Microsoft's Internet Information Server (IIS), and is reached by employees from their PCs using Microsoft's Internet Explorer software. ZGFNet's layout is intended to make the system easy to navigate, even for casual users. The header contains links to a roadmap, search tool, help files, feedback form, and a database containing Frequently Asked Questions (FAQs) and is always displayed at the top of the ZGFNet window (right).



The hierarchical menu on the left of each screen changes with the content currently being displayed, and allows a person to explore additional menus or return to the previous menu. The large frame on the right of each screen displays actual content and can be printed at any time.

Internet Explorer is employed to tap into both ZGFNet and the Internet so private ZGFNet documents can easily be linked to public Internet documents. Computer models constructed by architecture students at the University of Southern California, such as that by Jonathon Wong (above), represent selected exhibits and building areas of the California ScienCenter, designed by ZGF, currently under construction across the street from the USC campus.

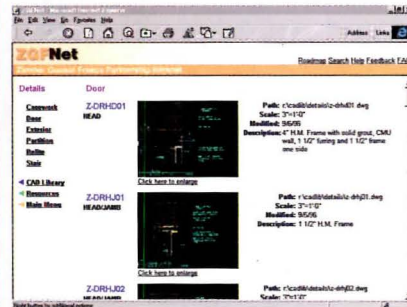
ZGF and West Office Exhibition Design provided CAD drawings to the students. The students published their work on USC's Web site, which in turn was accessible from ZGFNet. Some students also included links from their Web page to ZGF's public web site.



ZGFNet documents—including HTML, word-processing, and spreadsheet documents—are indexed automatically by Microsoft's Index Server as they are placed on-line. The indexing allows for fast searches of actual document content, not just titles or keywords. For example, a search query for all documents containing the word "sustainability" returns excerpts from and hyperlinks to the found documents.

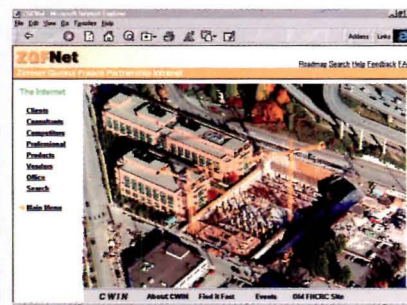
Database resources published within ZGFNet, stored in Access or SQL Server formats, are accessed using the searching, querying, and reporting capabilities of Microsoft's Open Database Connectivity (ODBC), which connects the database resources to the server software. A CAD library database is searched using a Web browser form on a PC. The information entered in the form is sent to the database on the server, the database searches for the matching records, and the results

of the search are sent back to the PC for display (left). Actual AutoCAD drawings are displayed by the Internet Explorer Web browser using a plug-in developed by SoftSource.



ZGFNet allows employees working away from the office to stay connected to those at the office, and vice versa. For example, ZGF staff working in trailers on the site of the Fred Hutchinson Cancer Research Center expansion, currently under construction in Seattle, is

connected to ZGFNet and the Internet using PCs linked to the contractor's local-area network. This arrangement allows them to receive news and updates from ZGF's four offices, and to gain access to the firm's resources in the same way any other ZGF employee does. Back at the four offices, ZGF staff can also view the cancer research center's construction progress via ZGFNet, which provides a link to a public Web site maintained by the client. This Web site contains construction photographs (above, by Soundview Aerial Photography), an animation of the first day of excavation, and a remote video feed of the construction site updated every five minutes. Such a video feed from a construction site is uncommon. But the Web site is not: 30 of ZGF's clients, largely educational and healthcare institutions, currently maintain Web sites that are linked to ZGFNet.





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# Technology Earthquake-Proofing Wood Buildings

Wood-frame buildings survive earthquakes when shear walls, framing connections, and bracing are designed to maximize seismic durability.

By C. C. Sullivan

Ductile in compression, brittle in tension, strongly jointed, firmly footed, and adequately sheared, trees are inherently resilient. Not surprisingly, these qualities are the guiding principles of seismic-resistant wood-frame design, exemplified by the centuries-old designs of pagodas, which have survived many high-magnitude earthquakes intact. Inspired by the material's seismic benefits, architects, engineers, and professional associations the world over are reexamining wood framing details and construction to create structures that better withstand earthquakes.

## Code reviews

Single-story wood-frame houses statistically outperform all other building types during earthquakes, which explains their popularity in quake-prone regions. "In Japan, recent projects have used a hybrid between the American platform frame and the traditional Japanese post-and-beam style," explains Madison, Connecticut-based architect Duo Dickinson, who has worked on several projects with Japanese seismic design experts. "The hybrid simulates the classic seismic connections of traditional post-and-beam framing."

But idiosyncratic failures during notorious tremors in the U.S. and Japan have prompted reviews of these structures by code-review teams as well as architects. New York state's Uniform Fire Protection and Building Code Council proposed codifications of wood seismic design after the state experienced a 5.5-magnitude tremor last year. Throughout the U.S., many local and state codes have been changed to require improved quake resistance.

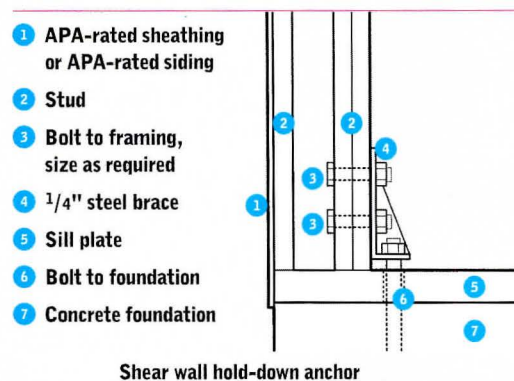
Following the earthquakes at Loma Prieta (1989) and Northridge (1994), California, investigators from APA-The Engineered Wood Association (formerly the American Plywood Association) and the American Wood Council noted three causes of failure: insufficient shear capacity, inadequate stiffness, and disparate floor levels in adjacent structures. Much of the damage was associated with poor foundation connections, a lack of subfloor bracing, and asymmetrical layouts of lateral-load-resisting elements. In particular, ground-level openings for garages and parking lots eliminated much of the needed shear wall.

Tension and shear tolerance are critical to resisting lateral loads and, therefore, to maximizing seismic durability. Shear walls and diaphragms with nailed sheathing, nailed joints, and adequate nail-plate connections act as ductile structures that transfer lateral forces directly back to earth. Like a tree anchored by its roots, wood-frame structures must be built on a firm foundation with relatively massive connections holding vertical elements in place.

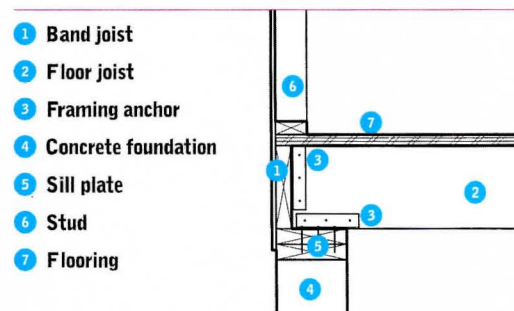
## Foundation connections

"Hold-down clips and other anchors bolt the building to the foundation so the whole structure functions as one unit," explains Peter Caradonna, an architect in Stony Brook, New York, who has conducted independent seismic design studies. "That's one of the keys of seismic wood design." Post-and-pier foundations may cause catastrophic failures if pier-post and post-beam connections allow significant shifting.

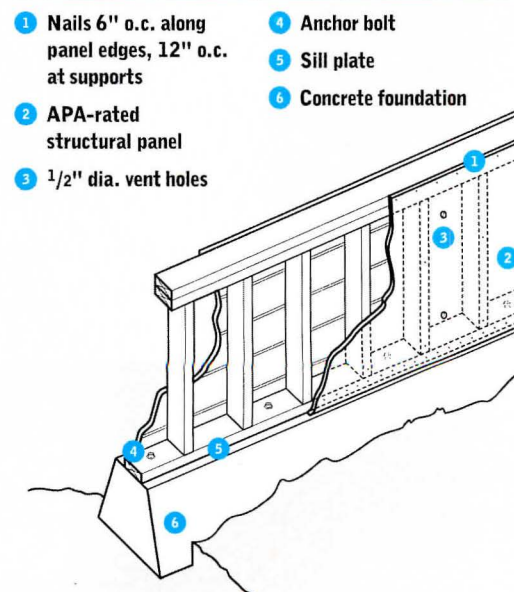
Resistance can be added by structural steel column bases, which are attached directly to pier reinforcements within the concrete.



Shear wall hold-down anchor



Framing anchor connections



Cripple wall sheathed in APA-rated structural panels to create shear wall

straps or wood bolsters can splice beams and firmly set them atop posts. Additional lateral support is offered by diagonal bracing, usually 2 by 4s, from post to post.

For poured concrete foundation walls and slabs on grade, a well-anchored wood sill drives the connection choice, usually an anchor bolt preset between a double run of rebar. (Wedge bolts or structural steel plates add strength in retrofit applications.) All foundation anchors should be centered, reinforced, sized, and spaced in accordance with expected shear force.

Steel brackets tied to the foundation and bolted to wood framing at corners serve as shear-wall anchors to keep walls right during earthquake stresses. "In retrofits, we use steel angles to tie the vertical framing into the foundation," explains Michael J. O'Hearn, an architect practicing in Santa Cruz, California. "There are a lot of methods; what you're trying to do is prevent the structure from jumping off the foundation."

### Adding shear walls

Above the sill, all design decisions must track the movement of inertial forces throughout the structure, particularly overall lateral action. With proper framing anchors, platform frame design is highly effective, contend Dickinson and O'Hearn. Overlapped members at each floor plate boost lateral stability

when spaced and nailed correctly. Overlaps should exceed 4 feet, and splices should fall over studs, with a minimum of four nails spaced evenly at each joint.

"Up until recently, we never talked about shear walls in houses; they were reserved for high-rise construction. But now they're a major element of earthquake design," observes Caradonna. Shear-wall systems, comprising APA-rated structural wood panels nailed to 16-inch-on-center stud framing, provide lateral control as well as a stable substrate for exterior siding.

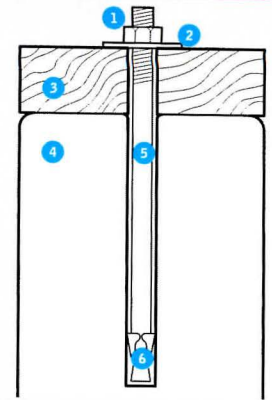
These walls are vital for cripple walls, the structural Achilles heel of Loma Prieta quake failures. "During the tremors, the shift was so rapid," O'Hearn explains, "that the dead-weight above caused the cripple wall, varying from 1 to more than 4 feet in height, to collapse." Panels are best installed starting at corners, says O'Hearn, with 1/8-inch spacing for expansion and vent holes if applied inside cripple-wall framing.

Stress testing of shear-wall assemblies conducted by APA and the University of California at Irvine's structural research facility is helping to determine how the assemblies behave under seismic loads, with particular attention paid to the effects of components such as gypsum wallboard, nails, and hold-down connectors. In addition to numerical modeling, the stress testing method is shedding light on wall-system strengths and weaknesses for optimal shear wall performance through design refinement and modification.

### Wall anchors

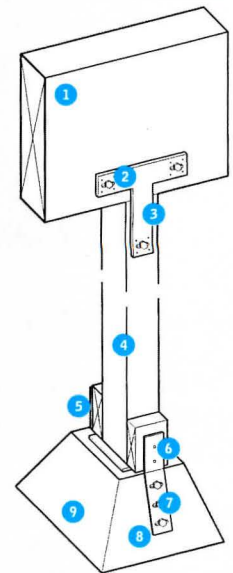
As for nonstructural wall materials, any siding or veneer should be well attached and should be as light-weight as possible, as earthquake forces throw heavier objects harder. For stucco finishes, scratch coats should be well supported by mesh standing off the sheathing, which is best achieved with long nails. Brick veneer demands more sophisticated structural framing and connections to channel heavier forces to the foundation. Similarly, nonstructural chimneys tend to fail easily; one key

- 1 Nut
- 2 Washer
- 3 Sill plate
- 4 Concrete foundation
- 5 Anchor bolt
- 6 Metal collar



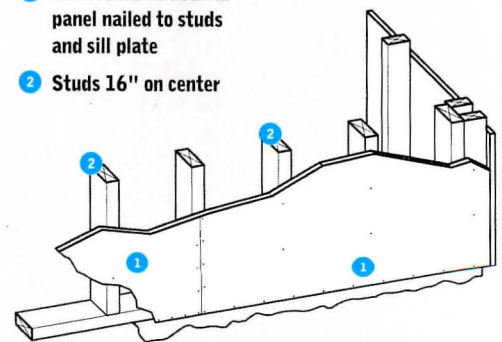
Typical mechanical wedge anchor bolt

- 1 Beam
- 2 Machine bolt
- 3 Steel T-strap
- 4 Post
- 5 Wood backer
- 6 Lag screws
- 7 Mechanical wedge anchor belt
- 8 Bent sheet metal connector
- 9 Concrete pier



Reinforcing post-and-pier foundations

- 1 APA-rated structural panel nailed to studs and sill plate
- 2 Studs 16" on center



Shear wall corner detail

## Did You Know ?

**The contents of a building are as much a hazard during earthquakes as the building itself. Nonstructural elements, especially plumbing, gas piping, and electrical lines, must be well secured and integrated into the overall design. When installing pipes, allow at least 1/2-inch gaps on all sides for movement and apply flexible caulk to seal the openings. All gas lines must have separate safety valves. Even large appliances such as water heaters and refrigerators should be bolted and/or strapped in place.**

precaution is adding plywood panels on attic floors to stop falling debris.

"Depending on the width of the house, plywood shear walls should be supplemented by bracing the span, especially when the framing is not clear-span and has intermediate supports," says O'Hearn. In addition to knee braces and gusset details, he explains, plywood panels are indispensable for floor and roof diaphragms, which receive shear and bending loads generated by stud walls during seismic movement. Panels are nailed to joists or blocking butted, rather than spaced, to prevent displacement. Careful diaphragm design ensures that panel edges line up with joist center lines—allowing adequate room for edge nailing—and are well connect-

ed to rim joists and top plates at the perimeter.

### Boundary detailing

Continuity of perimeter conditions and floor openings at stairwells and level changes is vital for withstanding the tension and compression generated by earthquakes. Splicing of top plates and joists must be well detailed at interruptions, O'Hearn notes, with additional splints and adjacent blocking for special discontinuities, such as stack openings and inside corners or other complex diaphragm plans. Countersunk lag bolts should be specified for connections where extreme loads are foreseen.

But boundary details should also separate building sections that will

react to lateral forces differently. Where roofs and floor plates are at different levels, for example, a separate stud wall should support each roof section; and rather than connect the framing for each wall, a space between adjoining wall structures of about 1/4 inch per foot of height difference is allowed. Flashings with slip joints permit needed multidirectional movement. Architects should also consider using larger studs spaced closer together to compensate for the generation of increased forces due to disparate movements.

### Fastening nails and bolts

As a rule, all seismic connections in wood-frame structures should maximize ductility. Bolts less than 1/2-inch diameter are reasonably ductile and do not cause timber fracture, whereas large bolts and tooth plates are undesirable. Nail plates can be ductile for cross-braced structures if detailed appropriately.

In the field and lab, studies of wood-frame buildings during earthquakes, such as those conducted at Irvine's structures lab, show the resilience of properly nailed joints, which outperform staples and most screws. Inherent ductility and redundancy afford this power to common nails (specified for framing and sheathing) and galvanized box nails (for siding). "But in a lot of cases it's easier to just power-screw sheathing on," says O'Hearn.

Common sense and good detailing are important: Nails should never be overdriven through panels, and they should not be added carelessly because they may split joists, studs, or blocking.

While timber framing's ductile behavior responds well to earthquakes' lateral loads, all structural elements must be designed to avoid failure when ductile components—the shear wall, floor, and roof diaphragms—reach their strength capacity. Redundancy is the watchword of seismic wood design; like trees, wood structures should shake, not break.

*C.C. Sullivan is a freelance writer based in Brooklyn, New York.*

## Alternative Technologies Offer Seismic Strength

**Recent innovations in timber construction build on the qualities of wood that make it an excellent seismic performer.**

**Timber shear walls and diaphragms fastened with elastomeric structural adhesives have been shown to outperform similar nailed systems. While the stiffer joints must be carefully detailed, the added strength suggests that these adhesives will be considered for future seismic designs.**

**The virtually unlimited lengths and cross-sectional sizes offered by laminated veneer lumber make it a candidate for larger wood structures. Commonly used in bridges, the engineered timber eliminates natural defects, resists decay, and offers higher design stresses (Architecture, February 1997, pages 104-108).**

**Composite panels and oriented strand board can be used for structural panel applications typically associated with plywood. Like standard panels, these products are strong, stiff, and impact-resistant, yet relatively easy to work.**

**Panelized wood roof systems on commercial and industrial buildings did not fail during recent earthquakes, but they suffered from insufficient connections to tilt-up concrete wall panels. Metal-strap connectors were the least reliable, as field studies showed. Novel connection devices and details that offer increased strength to match the needs of these structures, as well as other connections for new and retrofit wood structures, are available from such manufacturers as Simpson Strong-Tie Company, San Leandro, California.**



APA researchers test the seismic performance of a plywood shear wall.

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## Practice **Are Spec Writers Obsolete?**

On-line services and CD-ROMs offer quick specs but still can't master materials selection.

By Nancy B. Solomon

The electronic revolution has increased the number and availability of sources for specifications. The latest information from many building product manufacturers can now be downloaded from the Internet. Architects can pare down a guide spec into a manageable form through a computer-assisted program. They can generate a listing of materials directly from a CAD drawing. These automated tools promise more accurate and comprehensive specifications. And because it is easier to get specification information into the hands of practitioners quickly through disks, CD-ROMs, and on-line services, manufacturers have a greater incentive to develop and distribute proprietary information in an architect-friendly format.

Will these tools replace the spec

writer? Certainly not anytime soon. Although they may reduce the clerical aspects of specifications—perusing drawings to develop a material list, paring down a master specification based on these materials, contacting vendors for updated catalogs, and retyping manufacturers information, for example—they do not replace the time-tested, hard-earned knowledge of material applications that only years of field experience teaches. Such knowledge is a necessity in reviewing all the guide specs for appropriateness to the project at hand and, for that matter, answering questions correctly in an interactive specification program.

But industry experts agree that the input is improving the quality of specifications. According to Richard Master, research development associate at USG Corp in Chicago and

former chair of the Specification and Building Technology Professional Interest Area of the American Institute of Architects (AIA), "Projects will be better, more thorough, and there will be fewer lawsuits caused by improper specifications."

### **Standardizing specs**

Today, for example, many more vendors prepare their data according to the 3-Part Section Format, a standard organizational style for specifications developed by The Construction Specifications Institute (CSI) in Alexandria, Virginia, to establish consistency in the building industry. The format requires information for each CSI section to be divided into three parts—general, products, and execution—and it stipulates a particular alphanumeric

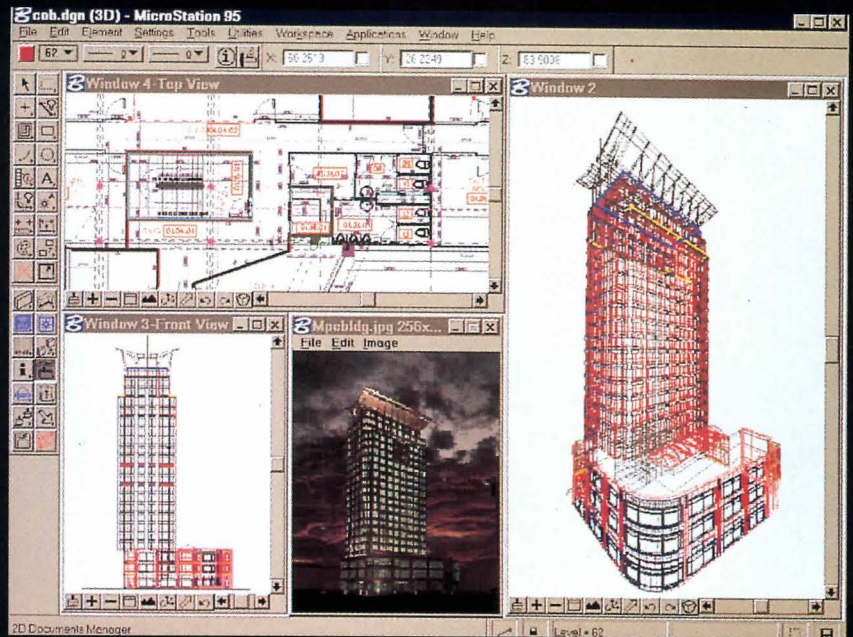


hierarchy for this data. Manufacturers have packaged this information through electronic media and various word-processing programs to facilitate access and manipulation by architects.

"Manufacturers are trying to work in an environment where time-sensitive material is becoming more important," observes specification consultant Barbara Heller, principal of Heller & Metzger in Washington, D.C., of today's fast-paced business climate. While master specification systems such as AIA's MASTERSPEC review and update product data in regular cycles, new product developments can occur at any time. By updating a disk or, better yet, revising information on the Internet, the vendor can be more confident that the current available information on its product line is accurate and complete. Some of the companies currently maintaining a home page on the World Wide Web include: Firestone Building Products Company; USG Corp; Ceco Door Products; Mapei Corporation; Dai-Tile Corporation; and Chicago Metallic.

The content of this electronic information varies widely among vendors — some strictly provide specifications, others include design details, and several offer interactive programs that help the architect formulate a spec based on a series of questions and answers. In addition, services such as SPECDISK by The Architect's Catalog (ARCAT) in Fairfield, Connecticut, and Manu-Spec, developed by CSI and now produced by Atlanta-based Architects' First Source, electronically package specifications from multiple vendors.

By and large, spec writers welcome the proprietary specs. "The manufacturer is really the expert on its product," maintains John Carter, senior associate at Gensler in Santa Monica, California. "We lean very much on them to help us out." Although Carter does edit heavily, he believes starting with a vendor's



MicroStation Triforma software stores materials information within three-dimensional model.

spec is a more efficient use of his time and finds that, by relying on a manufacturer's spec, more assistance is available from the vendor if a problem develops in the field. Such proprietary specs "have certainly improved in terms of form and language," reports Robert W. Johnson, director of technical resources at RTKL Associates in Baltimore.

#### Inconsistent formats

But manufacturers' specs cannot be followed blindly. Despite noticeable improvements across the industry as a whole, many companies still do not follow the CSI 3-Part Section Format. Martin M. Bloomenthal, specifications manager at The Hillier Group in Princeton, New Jersey, has found that some vendors write specs that superficially follow the CSI format but misuse its standard terms and titles, suggesting that they don't really understand their purpose or meaning. "Without a consistent presentation among vendors," contends Bloomenthal, "it can be difficult to see if some fundamental information is missing." And even properly written specs must be reviewed carefully

by the architect and tailored to meet the needs of the particular project. "Canned specs do not represent an architect's best judgment," says Heller. The degree of customization depends on the type of specification being written. "You can stick more closely to manufacturer specs if you are writing a proprietary specification, in which you have chosen a particular product," explains Johnson.

#### Generic systems

Many projects require a more open spec, in which a number of competing products can be considered for a project. In this case, the spec writer must eliminate subtle language that favors one brand over another. In addition, Bloomenthal reports, spec writers must surmount technological hurdles with many of the manufacturer-provided specifications. For example, vendors often furnish documents in ASCII computer-language format, which can be tough to modify by architects when trying cut and paste them into a particular project's custom spec.

In addition to product manufacturers, master specification systems

BSD SpecLink - [Project OFF\_MSTR.SLP]

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SpecLink from Building Systems Design offers alternative to word-processing software.

are offering software to electronically assist the architect in developing project specifications. Architectural Computer Services (ARCOM) of Salt Lake City and Alexandria, Virginia, which produces MASTERSPEC for the AIA, plans to release LINX by mid-1997. The MASTERSPEC database associated with this automated specification editor is cross-linked in several ways so that specific parts of the electronic text will be tagged for deletion, based on information supplied by the architect and, in future editions, from other sources, such as client preferences or drawing keynotes. In this way, LINX can help architects quickly and easily pare down the comprehensive master spec into a manageable form appropriate to a specific project.

Building Systems Design (BSD) of Atlanta launched SpecLink in March 1996. This Windows-based software is connected to an upgraded version of SPECTEXT, a master guide specification system originally developed and maintained by the Construction Sciences Research Foundation for CSI. The internal linkages in the new, relational database allow a project

specification to be prepared based on user input more quickly, completely, and accurately than traditional word-processing programs.

In the meantime, CAD software companies are busily developing connections between drawings and specifications. Take, for example, Softdesk, of Henniker, New Hampshire—its Auto-Architect and Details modules together allow the architect to link a CSI-based keynote to a specific drawing entity on small, detailed drawings. A steel column, for example, will have the CSI section number associated with its material. SOFTDESK's AEC-X object-based technology, to be released in stages through the first half of 1997, will enable architects to link Auto-Architect with any Windows-based word-processing software or to master specifications programs to prepare construction documents, including specifications.

MicroStation's Triforma, released in September 1996 by Bentley Systems of Exton, Pennsylvania, ties data to objects within its three-dimensional conceptual model. Each element in the virtual building is

linked to a variety of information, such as its function—whether it is a wall or door—and its material. The architect can extract a variety of reports from this integrated model, including traditional two-dimensional drawings and lists of materials. By interfacing with Microsoft Word or WordPerfect word-processing software, Triforma can extract the relevant material sections from a master specification directory. The word-processing program can then print this edited version for further refinement by the architect.

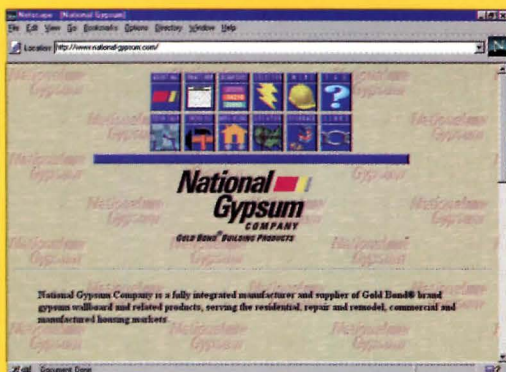
### Changing roles

Looking into the future, Bob Tench, an associate at Burt Hill Kosar Rittelmann Associates in Butler, Pennsylvania, speculates that the electronic tools will eventually result in the transformation of a spec writer's role. "Ideally, the project architect should do the drawings and the spec because he or she knows the project best," Tench explains. The new technologies will facilitate this change in responsibilities.

However, there will always be a need for an expert on building technologies—someone who analyzes the myriad products available and determines which ones are appropriate for which projects. "While the project architect will make the final selection for a project," Tench predicts, "the in-house specifier will provide the overview as the information source for the entire firm."







### Gypsum Wallboard Home Page

Many manufacturers are providing specifications on-line. National Gypsum's World Wide Web site ([www.national-gypsum.com](http://www.national-gypsum.com)) includes specs, CAD drawings of its Gold Bond gypsum systems in DXF and DWG file formats, and an e-mail link to a technical-service manager at its Charlotte, North Carolina, headquarters.

Circle 293 on information card.

### On-line Catalog

The Architects' First Source for Products now offers its three-tiered specifications writing system both in print and on the World Wide Web ([www.afsonl.com](http://www.afsonl.com)). Architects' First Source catalog furnishes basic information on more than 9,000 building-product manufacturers. SPEC-DATA and MANU-SPEC formats, created by the Construction Specifications Institute, offer technical evaluation and proprietary specifications.

Circle 294 on information card.

### CD-ROM Specs

The Architect's Catalog (ARCAT) and Building Systems Design (BSD) have teamed up to provide automated specifications on their SPEC-DISK CD-ROM, using BSD SpecLink specification writing software. SPEC-DISK is available in WordPerfect, Microsoft Word, and ASCII formats; on Windows, Windows 95, and Windows NT platforms; and on 3 1/2-inch diskettes as well as CD-ROM. For a preview, check out ARCAT's World Wide Web site ([www.arcat.com](http://www.arcat.com)).

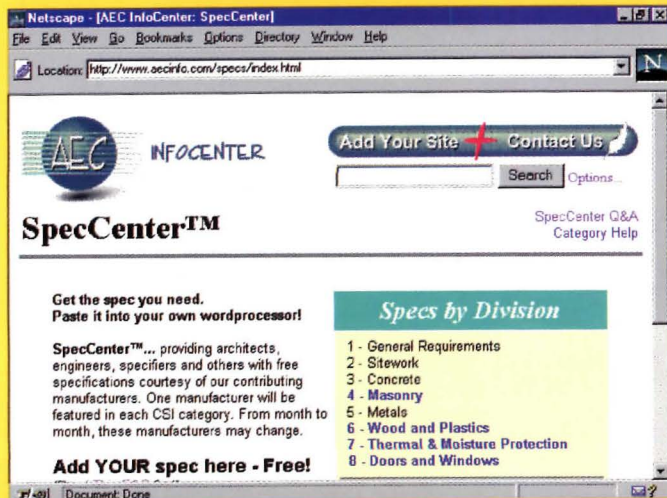
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# Electronic

High-tech media streamline specifications writing.

# Specs



### A/E/C Web Site

AEC Infocenter, counting more than 360,000 hits per month, is purportedly the industry's busiest Web site ([www.aecinfo.com](http://www.aecinfo.com)). And SpecCenter, AEC Infocenter's new division, provides on-line specifications. Information is organized according to the 16 CSI general product categories with listings offered at no charge to manufacturers. Circle 296 on information card.

### CAD Specs

The most recent version of Auto-Architect, an AutoCAD drafting extension from Softdesk, can now attach references to specifications on drawings using a customized keynote database file.

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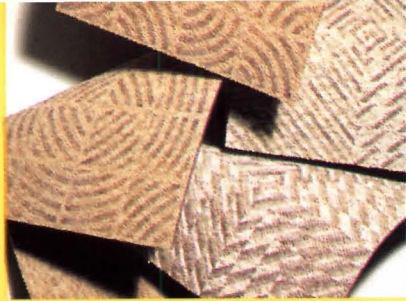
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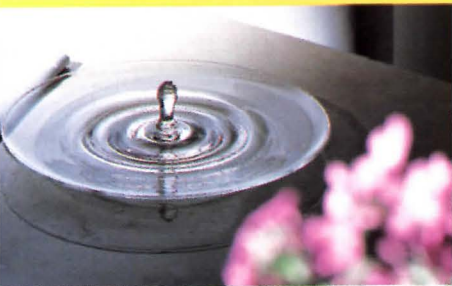
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**Architectural Glass**

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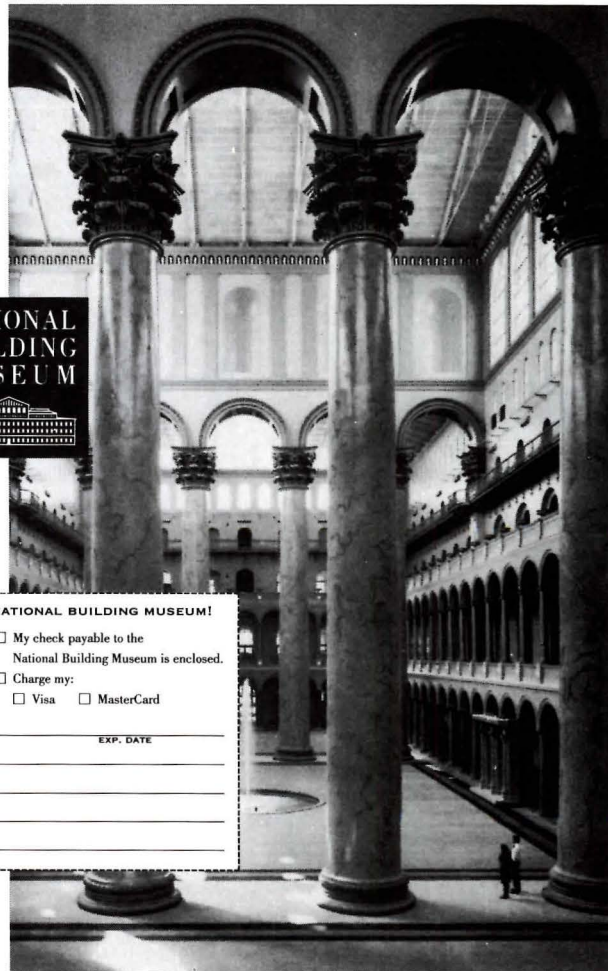
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With the economy rebounding, firms from Boston to San Francisco are not only skir-mishing for their market share of building projects, but for the people who corner those markets. Just last September, H. Crichton Singleton left the Kansas City office that bears his name—Abend Singleton—to join HNTB in the same city. In July 1995, the Washington, D.C., office of Leo A Daly scooped up Richard Clarke, formerly an associate partner of Kohn Pedersen Fox. Edward McCreary, an associate partner of Skidmore, Owings & Merrill of San Francisco crossed the street to join Hellmuth, Obata & Kassabaum (HOK) in July 1996. Offices that cut staff to the core only a year or two ago now find themselves hungry for help—HOK San Francisco alone took on more than 100 new people last year. And when firms can't find help on their own, they turn to corporate recruiters—or **raiders**—to find it for them.

previous position. MacAllister's experience mirrors that of other **raided** executives, according to Pearson. "In many cases, key talent is trying to conduct business in a manner that crosses the path of the mother ship. That person says 'I can do this elsewhere.'"

Who's **raiding** whom? It depends on whom you talk to, and very few principals will admit to **raiding** at all. Herbert McLaughlin of Kaplan McLaughlin Diaz believes **raiding** is a fact of business: "We've been **raided** and done some **raiding** ourselves, and there's nothing wrong with it as long as it is done ethically." And just what defines ethical **raiding**? For McLaughlin, ethical **raiding** is limited to a search for personnel—not ideas. "We won't allow the taking of another firm's work," he avows.

Edward Tsoi is even more circumspect. As principal of Tsoi/Kobus & Associates, a Boston firm that has grown from 55 people

# Raiding

**As architects secure more work, their search for talent intensifies.**

**Raiding** is on the rise, observes head-hunter Marjanne Pearson, who notes that "in the last eight months everybody has gotten busy." Ironically, that makes a **raider's** job more difficult. "When people are busy and the work gets more interesting, talented employees are less anxious to leave," sighs Pearson, who finds herself squeezed between increased demand from clients and a tightening pool of prospects.

Pearson maintains that top architects jump ship only when they are uptight about their sense of upward mobility, unexcited by their work, or unhappy with its rewards. "That, or a midlife crisis," she adds dryly. As John E. MacAllister, president of NBBJ California, notes, "We often put glass ceilings over people in senior positions without realizing we're doing it. They get frustrated."

MacAllister is himself the product of a **raid**, having left Anshen + Allen for NBBJ in October 1995. NBBJ, a much larger company seeking to expand its healthcare practice, offered him a broad canvas, deep pockets, and staff strength unavailable in his

to 90 over the past five years, Tsoi avoids "any direct solicitation to another office, particularly if we compete with them." He admits using search firms, but mostly for administrative, marketing, graphics, and human resources staff. Tsoi/Kobus recruits designers by advertising in newspapers and professional newsletters. But even this gentility has competitive undertones. "Let's be honest," Tsoi admonishes. "Once you float an ad, it has the same effect as **raiding**. Our community is so small—news gets around."

In the tight-knit architectural community, even the best-run firms can't avoid being **raided**. But according to Pearson, there are ways to retain talented people's loyalties. "Taking care of senior people is one way," she says. "The biggest problem is that firms don't do that to begin with." There is also an upside to such turnover, asserts marketing consultant Nancy Egan, who is, at times, an unrepentant **raider**. "I call it opportunity in search of talent," she asserts, "**Raiding** is healthy for the profession. It shows that talent gets rewarded." *Reed Kroloff*



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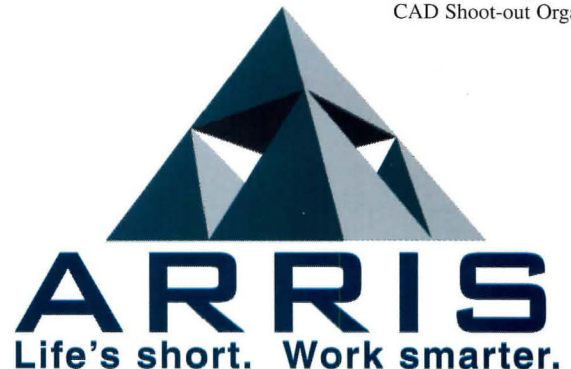
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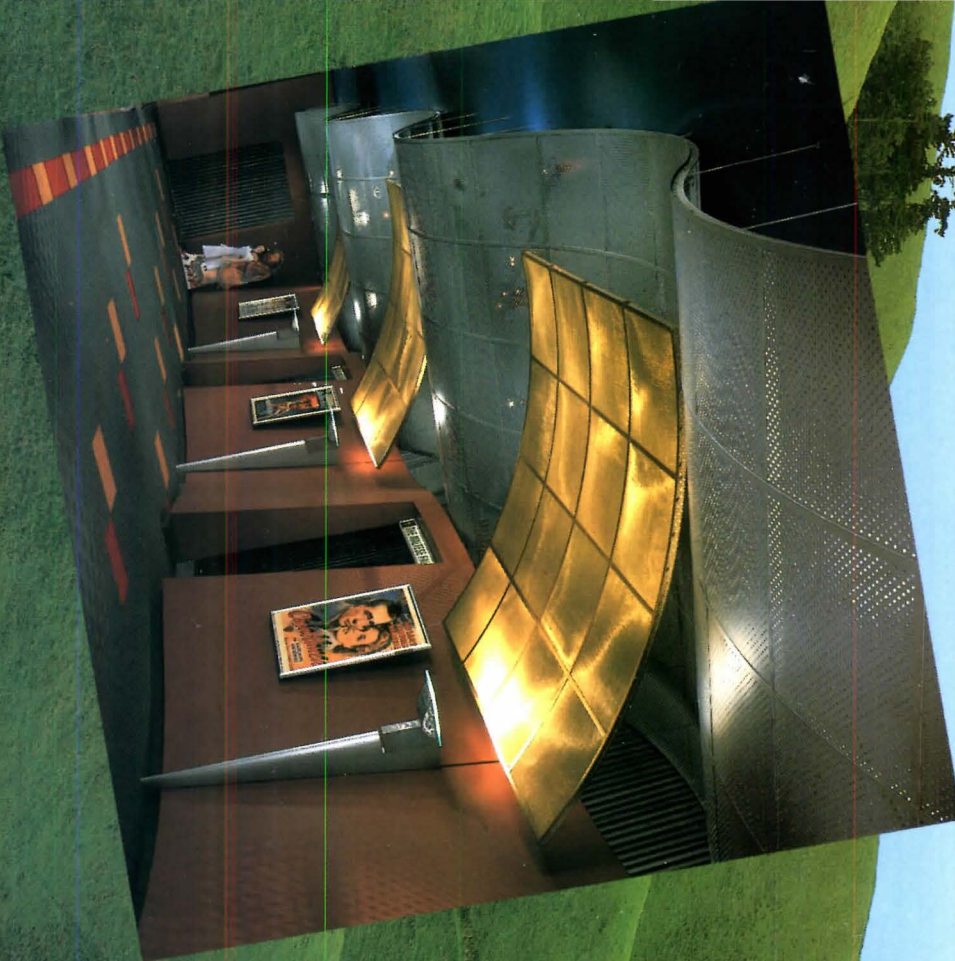


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