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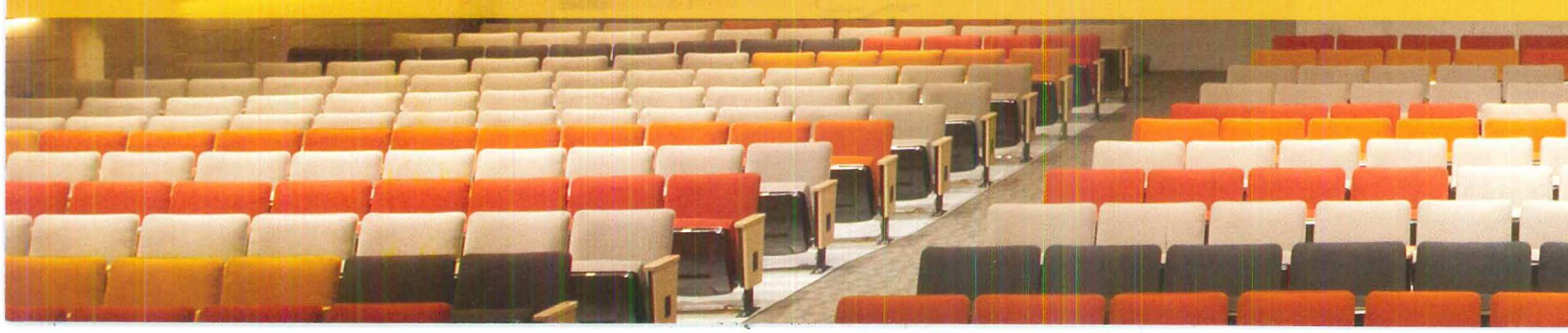

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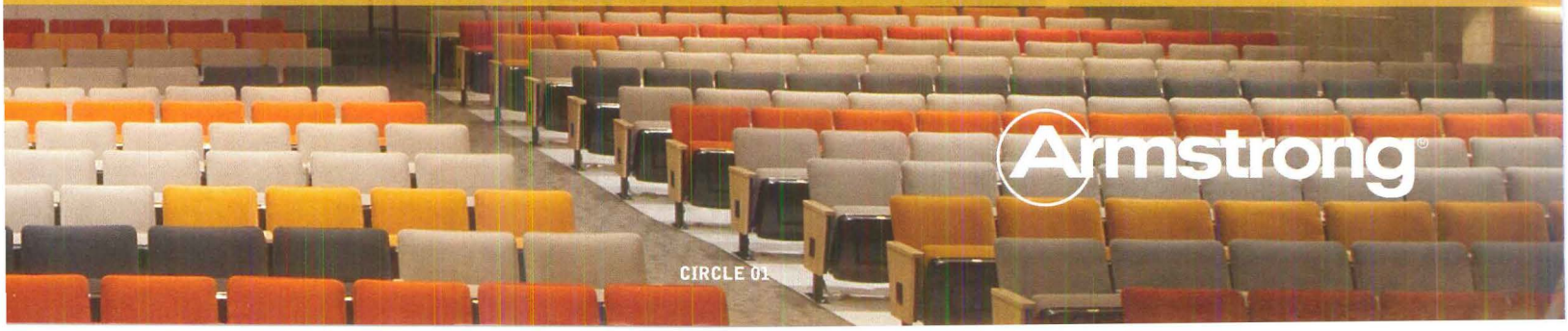

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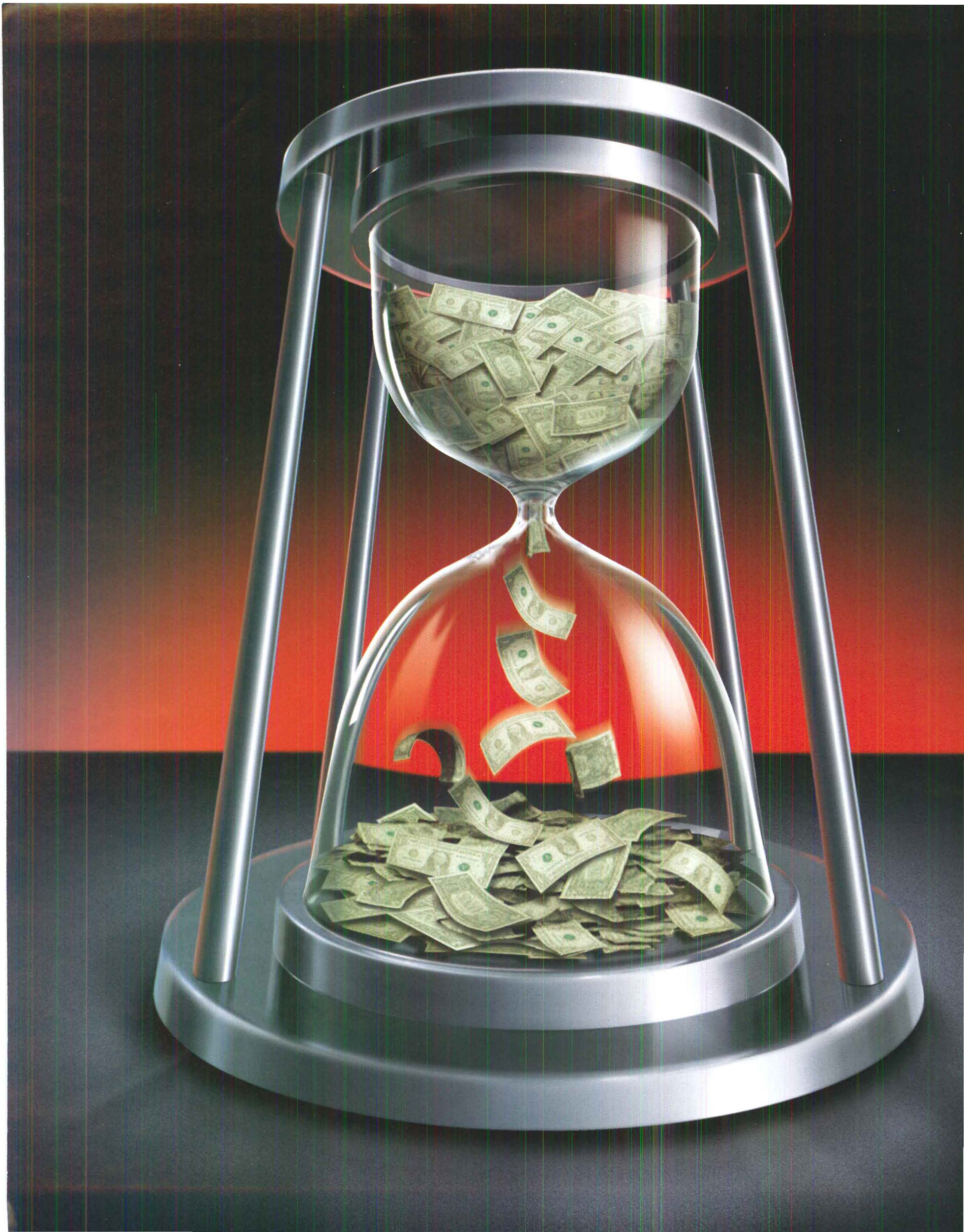

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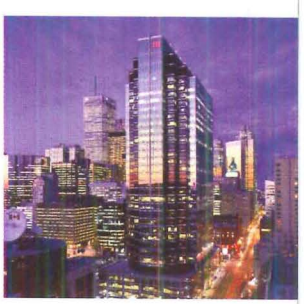

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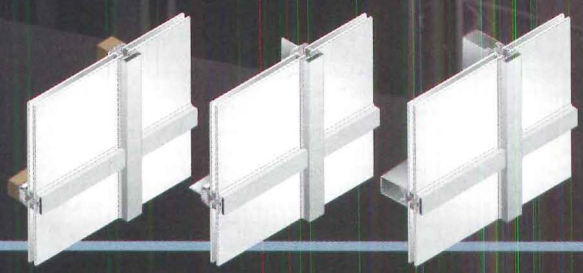

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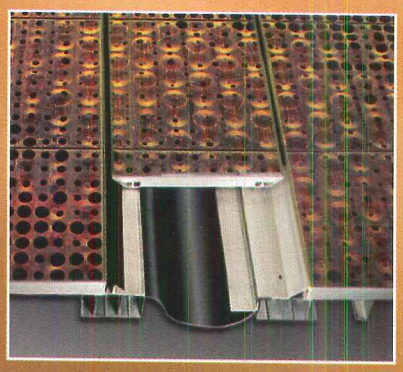

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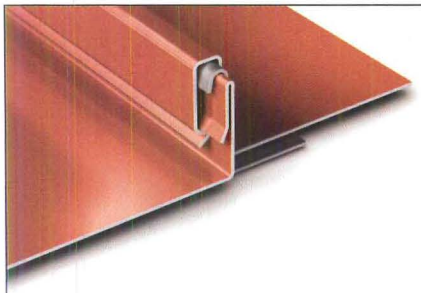

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ARCHITECTURAL RECORD

01.2009

On the Cover: *San Francisco, with Renzo Piano's California Academy of Sciences (foreground right) and Herzog & de Meuron's de Young Museum (foreground left). Photo by Tom Fox.*
Top Right: *Contemporary Jewish Museum, by Daniel Libeskind. Photo courtesy the Contemporary Jewish Museum, San Francisco/Bitter Bredt.*
Bottom Right: *BanQ restaurant, by Office dA. Photo by John Horner.*

News

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Building Types Study 884

Architectural Technology

Residential

Products

Expanded coverage of Projects, Building Types Studies, and Web-only features can be found at ***architecturalrecord.com***.

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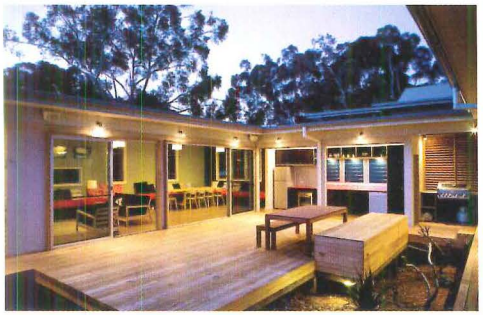
01.2009
On the Web

As the troubled economy signals uncertainty for architects, RECORD has launched **Recession Reports**, a new section of our Web site gathering news about the economy's impact on design.



Reader Photo: *This photo of Bourne Blue Architecture's Kurreki House in Seal Rocks, Australia, is one of more than 2,000 reader-submitted images in* ARCHITECTURAL RECORD*'s online galleries.*

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Recession Reports
Who is laying off? Which major projects are on hold? Find out, and join the discussion about how firms are faring during difficult times.

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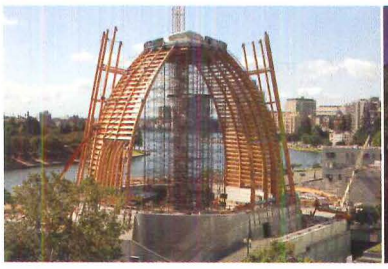
Your Comments

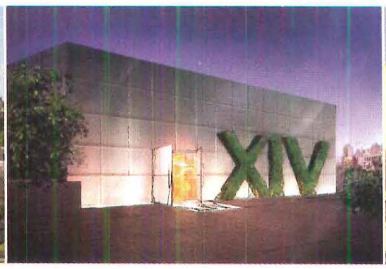
"Here in Dallas, my firm has laid off 25 percent of the company, with more looming over our heads unless more jobs begin to get financing. Of the the people who lost their jobs, most are resorting to work outside the field."

– Anonymous response to news story, "For Architects, the Job Axe Starts to Fall"

Expanded Coverage



Project Portfolio
Read about Bay Area architecture, including SOM's digital light image above the altar at the Cathedral of Christ the Light in Oakland.



Building Types Study
View eleven restaurant projects that range from the elaborate to the austere in cities from London to Las Vegas to Seoul.

AR2
We profile Alejandro Villarreal and his Mexico City firm Hierve, and review the work and research of Wesleyan University's design/build studio.

CEU
Read about three seismic retrofit projects with different approaches, and take an online test to earn health, safety, and welfare credits.

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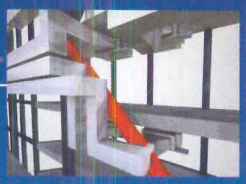

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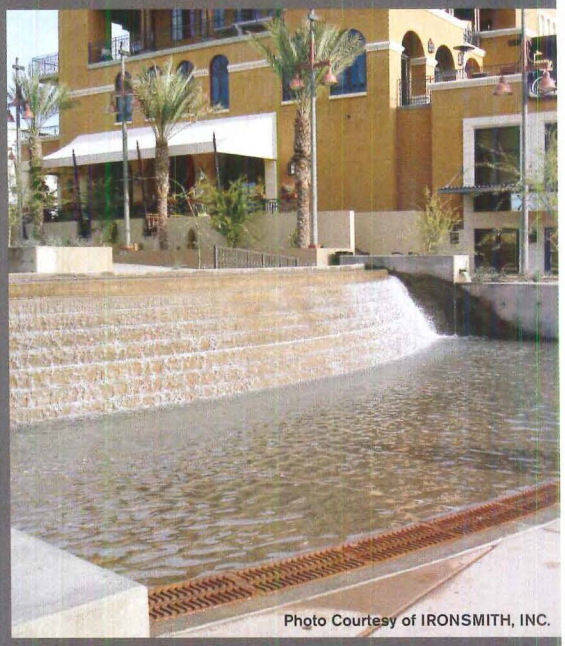

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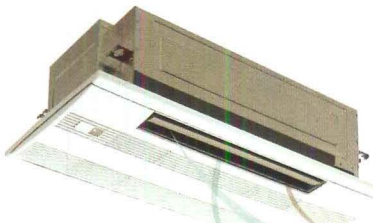

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CIRCLE 10

Dare We Hope?

Editorial

By Robert Ivy, FAIA

Inklings of promise from the new administration are shining out from the torrent of dire economic news. If you feel overwhelmed, listen up: "I still really admire architects, and I love looking at buildings." Although proverbial music to our ears, that direct quote might seem innocuous, even simplistic, if it were not for the speaker—the future President of the United States. Barack Obama, responding in an interview with Barbara Walters on ABC television, declared his admiration for the built environment and his concern for energy usage, positions that have been amplified not only in words but actions.

On Saturday, December 13, the President-elect announced that Shaun Donovan, the 42-year-old commissioner of housing preservation and development in New York City, will be appointed the nation's Secretary of Housing and Urban Development. Again, the President-elect speaks: "Trained as an architect, Shaun understands housing down to how homes are designed, built, and wired," he said.

An architect with a cabinet-level position! According to his official biography, Donovan received both a B.A. in engineering and a master's in public administration and architecture from Harvard, and he has worked as an architect. In his New York City position since March 2004, Donovan has been responsible for the largest housing plan in the country, the $7.5 billion, 165,000-unit New Housing Marketplace plan, which will provide affordable housing for 500,000 people. His previous experience includes work with affordable housing in the private sector, teaching at N.Y.U., and until 2001, serving as Deputy Assistant Secretary for Multifamily Housing at HUD during the Clinton administration.

While having a savvy, accomplished architect in the housing role offers no guarantee that we can solve the nation's housing dilemma, with its obvious challenges of mounting foreclosures and squeezed credit affecting so many Americans, a cabinet-level position places a professional colleague within the president's hearing on issues from crumbling infrastructure to climate change and school construction. Donovan's appointment should hearten all architects.

Others within Obama's close circle of advisers know, understand, and value design and planning. Physicist Steven Chu, a Nobel laureate and head of the Lawrence Berkeley Laboratories, in California, comes from an institution that has pioneered the relationship of buildings and energy usage, and he will head the Department of Energy. Valerie Jarrett, whose grandfather was the first African-American head of the Chicago Housing Authority, and whose current job is C.E.O. of the The Habitat Company, a real estate development and management firm, will become White House Senior Adviser and Assistant to the President for Intergovernmental Relations and Public Liaison. Penny Pritzker, who will not serve in the cabinet, nevertheless served as the Obama campaign chairman and comes from a family that has employed architecture as a vital component of its business success and celebrated its role through the Pritzker Prize. She has been an articulate and visible spokesperson for architecture.

What can we do to support this auspicious beginning? Andrew Goldberg, the American Institute of Architects senior director for federal relations, recommends several initiatives for the administration. If money will be pumped into the economy to rebuild, he and the AIA suggest that we "not just build, but build better," to encourage mixed-use density and smart growth when planning infrastructure improvements in addition to rebuilding highways. As a guidepost of AIA intentions, he points to the AIA's "Rebuild and Renew" initiative. Furthermore, the AIA will support a new Office of Urban Policy proposed by the new administration that will include a component on planning and design under the new coordinator of energy and climate policy (and former EPA head), Carol Browner. And following up Obama's own wish, the AIA offers to help in greening the White House as a signal to other federal agencies and the nation of our potential to improve energy usage as a step toward improving all public buildings.

In reality, as of this writing, the rain continues to fall. Donovan has not yet made it through the hurdles of Congressional inquiry. Obama has not raised his hand nor put a nickel into improvement programs. The recession still looms. In the meanwhile, with the beginning of a new year, we have the opportunity to rethink our priorities as architects, cutting down on our fat intake, knowing that a new administration will bring change. We may become leaner during the transition, but we can be smarter, too. For now, stay alert. Raise your umbrella. Watch the horizon. The architectural signals from Washington seem positive.

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Letters

Give us more

What a pleasure it is to see David Perkes's important work at the Gulf Coast Community Design Studio (GCCDS) grace the cover of the October issue of RECORD. Equally satisfying is the wealth of smart articles in the same issue that explore the strategies that excellent designers employ to make a real difference.

However, one issue is not enough to make a substantial impact. RECORD's role will remain marginal until there is regular coverage of public interest practice as well as serious editorial attention to the programs, policies, and professional cultures that shape the built and natural environments. For example, the small but highly effective HUD program that funded the GCCDS start-up and many other excellent design interventions, including several featured in your magazine, has since been eliminated. If the architectural press had paid even the slightest bit of attention, there might be designers and design students on the ground in the epicenters of the foreclosure crisis, just as they were in the aftermath of Hurricanes Rita and Katrina.

– *Kathleen Dorgan*
Storrs, Conn.

Towering misunderstanding

Shame on Record's Suzanne Stephens and the other jury members who gave to the 2006 Hearst Building addition the International Highrise Award as recorded in Ms. Kaplan-Seem's fine article in Record News [December 2008, page 38]. Perhaps nothing much should be expected of this new award, which uses the silly redundant term "high-rise" instead of the poetic "skyscraper." But for Stephens – or any jury member – who knows Manhattan to fall for this particular high-rise that so violates the "fitting into the urban fabric" mentioned as a criteria, is immensely disturbing. Disturbing because there has always been so much to admire about Stephens's good sense and intelligence, and because it has become so evident that the Foster tower, built on the Joseph Urban base, is the first major recent New York tower that could be built anywhere – Dubai, Singapore, Beijing, fill the blank – but not on my beloved island. Such a towering lack of sympathy for and understanding of Manhattan's scale and design language would be hard to find, but Lord Foster has managed to supply both, and sadly the jury has blindly given 50,000 euros for his nondiscovery. Among the group mentioned as considered for the award, it is Renzo Piano's New York Times Building that is deserving. Any jury should have seen how it brilliantly integrates its fine, quieter skyscraper into the city's urban fabric. Shame!

– *James Rossant, FAIA*
Hudson, N.Y.

[Suzanne Stephens replies]

I must confess I was the lone dissenting member of the jury that awarded Foster + Partners' Hearst Tower the 2008 International Highrise Award. Once we had narrowed it down to five, I voted for the New York Times Building by Renzo Piano Building Workshop and FXFOWLE. I did so because I considered it a refinement of New York's skyscraper tradition. While the Hearst Tower is innovative in its use of a diagrid structure, it is too unresolved in its stubby proportions, the way the top meets the sky (flatly), and the way it hamfistedly squashes into Joseph Urban's Mooresque base. And I agree it doesn't have much to do with the New York City context and its iconic skyscraper tradition. All that aside, in 50 years, the architectural community will probably adore its clumsy harshness and be trying to save it from demolition, or prevent another, taller tower being extruded from its top.

Fuller appreciation

I thoroughly enjoyed Michael Sorkin's Critique on Bucky Fuller in the November issue [page 69]. It showed a deep understanding of Fuller's historic contribution to architecture and geometry, as well his unique ability to explain how advances in technology fuel humanity's economic progress.

– *Pete Chasar*
Brookings, Ore.

CEU woes

After reading Louise Miles, AIA's letter [November 2008, page 31] regarding her problems with the Continuing Education program, I feel the program should be shut down. Personally, I never felt we needed it. By the time they open their office, architects have obtained the necessary expertise and do not need coursework, especially the courses that are offered; the ones I've taken were poor and a waste of time. The program has boiled down to architects running around, taking any course that fits into their schedule just to get the required number of learning units so they don't lose their license. A friend joked that if someone developed a black market in learning units, in no time they'd have more money than Donald Trump. But like all bureaucracies, once they're in place, it's almost impossible to get rid of them.

– *Roy A. Euker*
New York City

For the children

I was intrigued by the cover for your annual December Vanguard issue until I discovered the photograph featured is of a house's children's sleeping quarters. Those poor dears. After having climbed two flights of unprotected stairs through two equally unprotected holes in the floor, past an exposed bathtub ... are they still with us?

Such nonsense. How much could that bleak, black pyramid have cost? We have been wallowing in a period of idiotic, overbudget, Baroque expression for much too long. The pendulum is again swinging toward a rebirth of Classicism.

– *Ray Krueger*
Tucson

I have been receiving Architectural RECORD for the past 40 years and I have never written a letter to the editor until now. The cover of the December issue that pictures an architect standing in a shaftlike space with a skylight prompted me to write. The title on the cover says "Design Vanguard 2008." I think it would better if it said, "Design Sansguard 2008." You wonder what keeps the children from falling into the hole in the floor. You also wonder how one would actually use the stair. I think if you got on hands and knees and went down backwards, you might make it without falling. I have to wonder why you consider this work worthy of a cover photo or an example of good architecture.

– Richard S. Gates, AIA
Novelty, Ohio

Correction

In the article "An Energy-Conserving Technology From Europe Makes Inroads in the U.S." [November 2008, page 183], the name of one of the quoted sources was misspelled. The correct spelling is Donald Haiges. He is an a senior vice president at WSP Flack+Kurtz in Boston.

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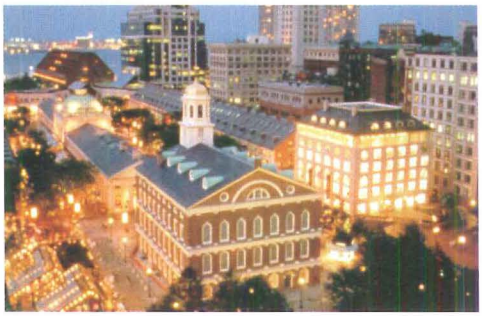
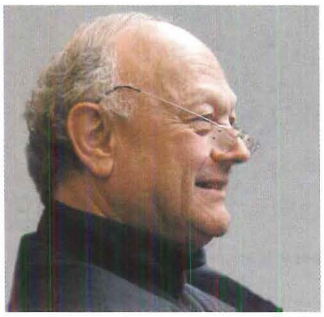
AIA announces 2009 award winners





Winners include Faneuil Hall Marketplace (left) and architect Glenn Murcutt (right).

In December, the American Institute of Architects (AIA) announced the winners of several prestigious awards.

Glenn Marcus Murcutt, Hon. FAIA, will receive the 2009 Gold Medal, one of the highest honors awarded in the profession. Born in 1936 and raised in New Guinea, Murcutt has practiced exclusively in Australia, where he founded his one-man firm in 1970. His ecologically sensitive home designs, which combine an interest in Modernism with local materials and an indigenous aesthetic, have influenced architects around the world. The winner of the 2002 Pritzker Architecture Prize, Murcutt will be the 65th AIA Gold Medalist.

Olson Sundberg Kundig Allen Architects will receive the 2009 Firm of the Year Award. The six-partner, Seattle-based firm is known for a collaborative and hands-on approach to design. Among its many lauded projects are The Delta Shelter in Washington State, Chicken Point Cabin in northern Idaho, and the Frye Art Museum in Seattle.

Adele Naudé Santos, FAIA, will be honored with the 2009 Topaz Medallion for Excellence in Architectural Education, given by the AIA and the Association of Collegiate Schools of Architecture. Since 2004, Santos has served as dean of the School of Architecture and Planning at MIT while also continuing her San Francisco–based practice, Santos Prescott and Associates. She has taught at universities around the country.

Clyde Porter, FAIA, will receive the AIA's 2009 Whitney M. Young Jr. Award, given each year to an architect or organization "exemplifying the profession's responsibility toward current social issues." Both in his present position as the vice chancellor of facilities for the Dallas County Community College District, and as former chief architect of the Dallas Area Rapid Transit agency, Porter has championed female- and minority-run firms, and sought to ensure that low-income students have the opportunities they need to pursue architectural careers.

Barbara Nadel, FAIA, will be honored with the 2009 Edward C. Kemper Award for Service to the Profession. She has worked in many capacities at the AIA and was the national vice president in 2001. Much of her work has focused on outreach and public advocacy, both in local communities and on Capitol Hill.

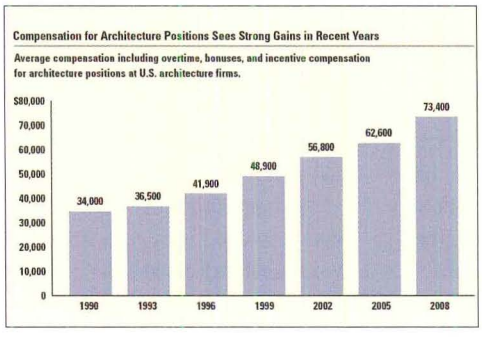
The association's Twenty-Five Year Award for 2009 will go to Faneuil Hall Marketplace, an adaptive reuse project by Benjamin Thompson & Associates. Completed in 1978, the project revitalized one of Boston's most notable landmarks and has remained a vibrant gathering place and commercial center. *Anya Kaplan-Seem*

Salaries for architects rose nearly 30 percent

Although the current financial crisis may make the good times of 2007 feel like ancient history, the AIA has confirmed that architectural compensation has enjoyed a stratospheric rise in recent years.

Since 2002, the salaries of architects and unlicensed staff have grown an impressive 29.2 percent while the salaries of all private workers in the U.S. have increased an average of 18.6 percent, according to the 2008 AIA Compensation Survey. By the start of 2008, the average salary for an architecture job was $73,400; in 1990, it was only $34,000. "Architectural compensation, historically, has been quite low," says Kermit Baker, the AIA's chief economist. "It's probably still quite low given the educational background most architects have, but it looks like it's really made some strides forward."

In addition to a building boom, the AIA attributes much of the rise in pay to consolidation in the industry. "Large firms, with 50 or more employees, control a much larger share of the architectural profession than they did a decade or two ago," explains Baker. "They are the compensation setters for the profession. If larger firms are paying a certain amount, smaller firms really have a lot more pressure to raise compensation commensurately or risk losing their good employees."



By the start of 2008, the average salary was $73,400, compared to $56,800 in 2002.

Of course, there's one big caveat: The report "doesn't take into account any of what has happened in the past year," says Jennifer Riskus, the AIA's manager of economic research. Although she's heard anecdotal evidence of principals cutting their own salaries, freezing employee raises, and trimming bonuses, architects will have to wait until the next compensation survey, due in two years time, to see exactly which way salaries are headed right now. *Tim McKeough*

What will Obama's presidency mean for architects?

On December 6, President-elect Barack Obama revealed key elements of his sweeping economic-recovery plan, part of which calls for building roads, greening federal offices, and making schools more high-tech, all of which should bode well for those in the design and construction industries.

"This has to be great news for architects," says Robert Dunphy, who studies infrastructure issues for the Urban Land Institute, based in Washington, D.C. Advocates have made the case for years that the government needs to invest in infrastructure, he says, "but it was always easy to put off to a future date."

Some are concerned that Congressional squabbling could delay rollout of a soup-to-nuts building plan, which analysts say could reach $500 billion. But many aren't waiting until Obama's January 20 inauguration to make a case for their projects. Chief among them are highway advocates, who calculate that there are 5,000 projects worth a total of $64 billion – from erecting bridges to filling pot holes – ready to launch within six months.

These public projects could put a sizable dent in the construction industry's 10.8 percent unemployment rate, says Tony Dorsey, a spokesman for the American Association of State Highway and Transportation Officials, an advocacy group. "We are very hopeful that in the near future we will see spending on transportation projects that could create 1.8 million jobs," Dorsey says.

Barack Obama's economic recovery plan might bode well for architects.

Schools also will be targeted by Obama's infrastructure campaign, which already has mayors and governors vying for funds. In December, the National Governors Association unveiled a request for $136 billion, part of which would go toward fixing up classrooms; the U.S. Conference of Mayors also recently debuted a $73.2 billion plan with similar aims.

Barbara Nadel, FAIA, a New York architect who has represented the AIA on Capitol Hill for years, says she suspects school construction will represent a significant portion of Obama's spending plan because it "touches every community in America." Nadel is hopeful that veterans' hospitals and embassies will be rebuilt or renovated.

In his December address, Obama said, "Our government now pays the highest energy bills in the world. We need to change that." Creating more efficient heating and cooling systems in federal offices, plus adding more daylight and cleaner air, is embraced by Rick Cook, FAIA, a partner at Cook + Fox, a New York City firm that's been active for more than a decade in the green building movement. "The real pay dirt is in human productivity and health, which is slightly hard to quantify," Cook says. "But I think it's absolutely mandatory the new administration take a leadership role in creating green-collar jobs."

So far, investors seem to like what they're hearing. In early December, stocks had risen for several construction-related companies, including Caterpillar, which makes heavy equipment, and Fluor, which offers engineering services. Granite Construction, which builds airports and tunnels, saw its stock climb to $49.09 on December 8, up from $35.85 in September.

Still, for architects, it may take time for any stimulus to generate commissions and paychecks. "I am heartened by Obama's plans," says Bradford Perkins, FAIA, chairman of Perkins Eastman, one of the country's largest firms. "I just can't imagine any government program will immediately make things look any better than they do now, which is not very good." *C.J. Hughes*

AIA outlines goals for Obama team

In recent years, the American Institute of Architects (AIA) has stepped up its advocacy efforts in Washington on behalf of the design industry. With Barack Obama taking office in January, the association is anticipating more legislative victories in the next four years, from an administration that appears to have architects' best interests at heart, says Andrew Goldberg, the AIA's chief lobbyist.

Though details are lacking, the general themes that Obama has expressed are promising, Goldberg says. "This really could be a once-in-a-lifetime opportunity to help the built environment," he says.

As regards infrastructure, highways need to be upgraded to avoid disasters like the 2007 collapse of the I-35 bridge in Minneapolis. But the AIA also hopes that federal money will support the creation of alternative transportation networks, to "get some cars off the roads," Goldberg says. To this end, new bus stations, for example, could present opportunities for architects.

Commissions might also emerge from the school-construction aspect of Obama's plan. Architects will be needed not to only repair antiquated buildings, Goldberg says, but also to create new classrooms to relieve overcrowding.

As for making federal offices more energy-efficient, the AIA might urge President Obama to go beyond the carbon-emission guidelines spelled out in the energy bill passed by Congress in 2007, to encompass existing buildings and not just new ones, Goldberg says. The AIA also believes the new administration should include a high-level advisor on green buildings.

Another priority is making sure the president follows through on his campaign pledge to form an Office of Urban Policy. Its planners could tackle design-based problems that plague some low-income city neighborhoods, such as flooding from stormwater runoff. Goldberg is optimistic that the office will be created, given Obama's background. "There's a growing recognition that cities are increasingly the drivers of our economy and culture," he says, "and a former community organizer should know that." *C.J. Hughes*

Foreign markets no longer a refuge for U.S. firms

As summer ebbed, U.S. architecture firms were touting how their expansion into foreign markets, which had ramped up in earnest over the past few years, could hedge them against any domestic economic downturn. The reasons? Strong currencies, nonreliance on foreign trade, underhoused populations, robust oil revenue.

How quickly predictions can change. As the financial crisis spreads like a contagion across the globe, markets that once seemed safe are very much less so. Banks' refusal to lend, and investors' unwillingness to commit, have delayed projects or resulted in their flat-out cancellation, often before architects have put pen to paper.

While some cities appear to be capitalized enough that their projects are on track, the overarching sentiment appears to be gloomy. "The world has changed dramatically in just two months," says Julian Anderson, president of Rider Levett Bucknall, a consulting group with 80 international offices that advises governments, schools, and hotel owners, among others. "Some areas are affected less, but there are really no areas that are unaffected, at least not where Western architects would be interested in practicing."

Architects who work overseas agree that the most dramatic change has come to the Mideast, in particular to Dubai, where housing prices have plummeted. Since the end of November, New York's FXFOWLE, for example, has seen two Dubai projects halted; one is a master plan for a mixed-use community, and the other a trio of towers, says Steven Miller, FAIA, managing director of the firm's Dubai office. A two-tower development in Bahrain, too, has been stalled indefinitely, Miller says. Similarly, Cetra/Ruddy, a New York practice, was "days away" from Dubai commissions for both a hotel and high-end mid-rise apartment building when the plug was recently pulled, says partner John Cetra, AIA. And spooked investors have backed out of several regional hotels being designed by HKS, the Dallas firm, says chairman Ralph Hawkins, FAIA. "We're seeing hesitation in all the global markets," he says.

Russia's development industry also appears to be struggling. A year ago, Altoon + Porter, a Los Angeles firm behind the first building in the former Soviet Union designed by Western architects – a retail plaza that opened in 2000 – had 12 projects lined up, says partner Ronald Altoon, FAIA. Now, just one is being built on schedule, the Moskva Collection, a mixed-use project that will include apartments for retired generals, plus a 300,000-square-foot retail space. Altoon says three projects have been postponed for at least three months; the other eight have been delayed indefinitely. "I thought Russia was immune to any financial crisis, but that was based on the price of oil not falling below $100 a barrel," he says. "When it went below $50, everything stopped." Moreover, four of five of Altoon's projects in neighboring Ukraine will not proceed.

Once thought to be immune, India, too, is now stumbling, according to FXFOWLE's Miller, who says three of his projects have been halted in the past few weeks: a northern India information technology center, a Delhi office building, and a Mumbai commercial tower. "The rupee is doing loop de loops and investors aren't sure what to do with the money, because you can't easily trade it," he says. But not all investors seem spooked by the currency issues, as work proceeds on two of Cetra's developments in India's Cochin, including a 13-story marinaside luxury apartment and a 40-story equivalent farther inland, for which he is handling interiors.

Of course, in business it helps to be an optimist, and architects are quick to point to countries where the confidence of investors, developers, and buyers has been relatively unshaken, thus generating commissions. Seattle-based Callison has placed bets on Indonesia, which has less speculative construction than other Asian countries, says principal Bill Gartz, AIA. His 100,000-square-foot, four-story Harvey Nichols department store, an Indonesia first, opened on time in Jakarta in November. HKS' Hawkins, on the other hand, likes Australia, where there's demand for health-care facilities, a sector that appears to do well after a period of commercial growth. His Royal Children's Hospital, a six-story, 1.3-million-square-foot project in Melbourne, is under construction and on schedule, he says. "The demand is coming from a quickly aging population," Hawkins says.

Yet Steven M. Davis, FAIA, a partner at Davis Brody Bond Aedas, which has 39 international offices, has set his sights on somewhere closer: the U.S., where a rebound could be imminent. "It's a stronger market than most, and large," he says, "so we will be looking close to home for a while." *C.J. Hughes*

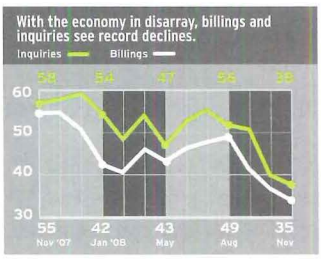
Despite the financial crisis, a hospital by HKS in Australia is on schedule.

Billings hit record low

The Architectural Billings Index (ABI) sunk to 34.7 in November, the lowest score in its 13-year history. In comparison, the score was 54.8 just one year before. The inquiries score also hit an all-time low in November: 38.3.

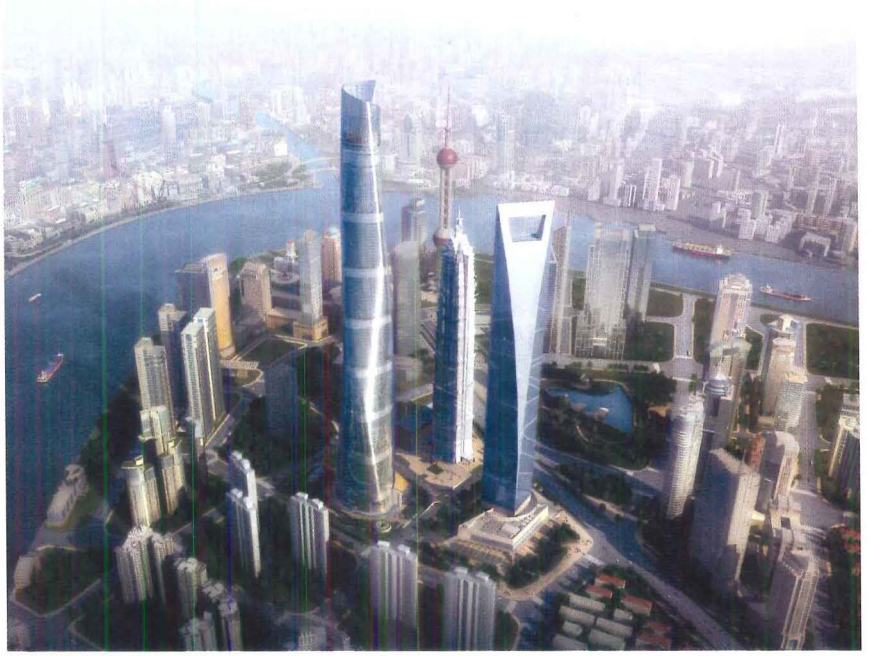
The American Institute of Architects (AIA) compiles the index based on surveys sent to mostly commercial architects. The index has fallen below 50 for 10 straight months (a number below 50 indicates a decrease in billings).

The commercial sector has taken a steep dive, hitting 30.4 in October and 26.7 in November.



"What's just as troubling is that the institutional sector – schools, hospitals, and public buildings – is also beginning to react to tighter credit conditions and a weakening economy," says Kermit Baker, the AIA's chief economist. It dipped to 40.8 in November, down from 41.3 in October, and 44.4 in September. *Jenna M. McKnight*

Despite sinking economy, work begins on skyscraper in China



The Shanghai Tower (left of center) is one of three skyscrapers proposed for the Chinese city. Its neighbor, the Shanghai World Financial Center (far right of center) was completed in 2008 and recently won an award.

Defying signs that the global economy is in a major downturn, the 2,074-foot-tall Shanghai Tower, designed by Gensler, broke ground on November 28. The mixed-use glass-and-steel tower is slated to be the tallest building in China.

While construction of other skyscrapers, such as Norman Foster's Moscow Tower and Santiago Calatrava's Chicago Spire, has been halted due to the market downturn, the Shanghai Tower project is moving full speed ahead, according to the architects. "The client understands that there are cycles in the market," says Jun Xia, a principal in Gensler's Shanghai office. "The client is confident in positioning this building as the first significant building in the new cycle when it is completed in 2014."

The client, the Shanghai Tower Construction and Development Corporation, comprises three state-owned entities: a construction company, a commercial development company, and a development company that is heavily invested in urban infrastructure. Xia says that unlike speculative projects, "the funding is already there" for Shanghai Tower.

After a lengthy competition process that began in 2006, Gensler was named the winner in June 2008, beating out a field of heavyweight favorites including Kohn Pedersen Fox (KPF), Skidmore, Owings & Merrill (SOM), and Foster + Partners.

Located in the Lujiazui section of Pudong, the Shanghai Tower will sit adjacent to the 1,214-foot-tall Jinmao Tower (1998), designed by Adrian Smith during his tenure at SOM, and the just-completed 1,614-foot-tall Shanghai World Financial Center, by William Pedersen of KPF. Shanghai Tower – which will house offices, stores, and a hotel – is the last major part of a master plan for Pudong. The plan, conceived in the 1990s, envisioned three supertall buildings, each taller than the next, rising next to each other.

The 128-story Shanghai Tower will be a double-skinned building that torques and tapers as it rises. Its upper floors reportedly will contain the world's highest unenclosed observation deck.

The project calls for several green features. Reminiscent of David Childs's design for the Freedom Tower in New York City, the Shanghai Center will be topped by a series of windmills that will generate energy for the building. The tower will also have rainwater collection facilities. Moreover, to minimize the amount of trips occupants have to make to the ground level, basic services and common spaces will be located on every dozen or so floors. Mechanical systems will also be located on these floors.

Gensler is working with the structural engineering firm Thornton Tomasetti and the m/e/p firm Cosentini Associates. The Architectural Design and Research Institute of Tongji University, in Shanghai, is contributing to the project. *Andrew Yang*

View a slide show online.

Tower in Shanghai named "Best Tall Building"

The Council on Tall Buildings and the Urban Habitat has named the Shanghai World Financial Center the 2008 "Best Tall Building Overall."

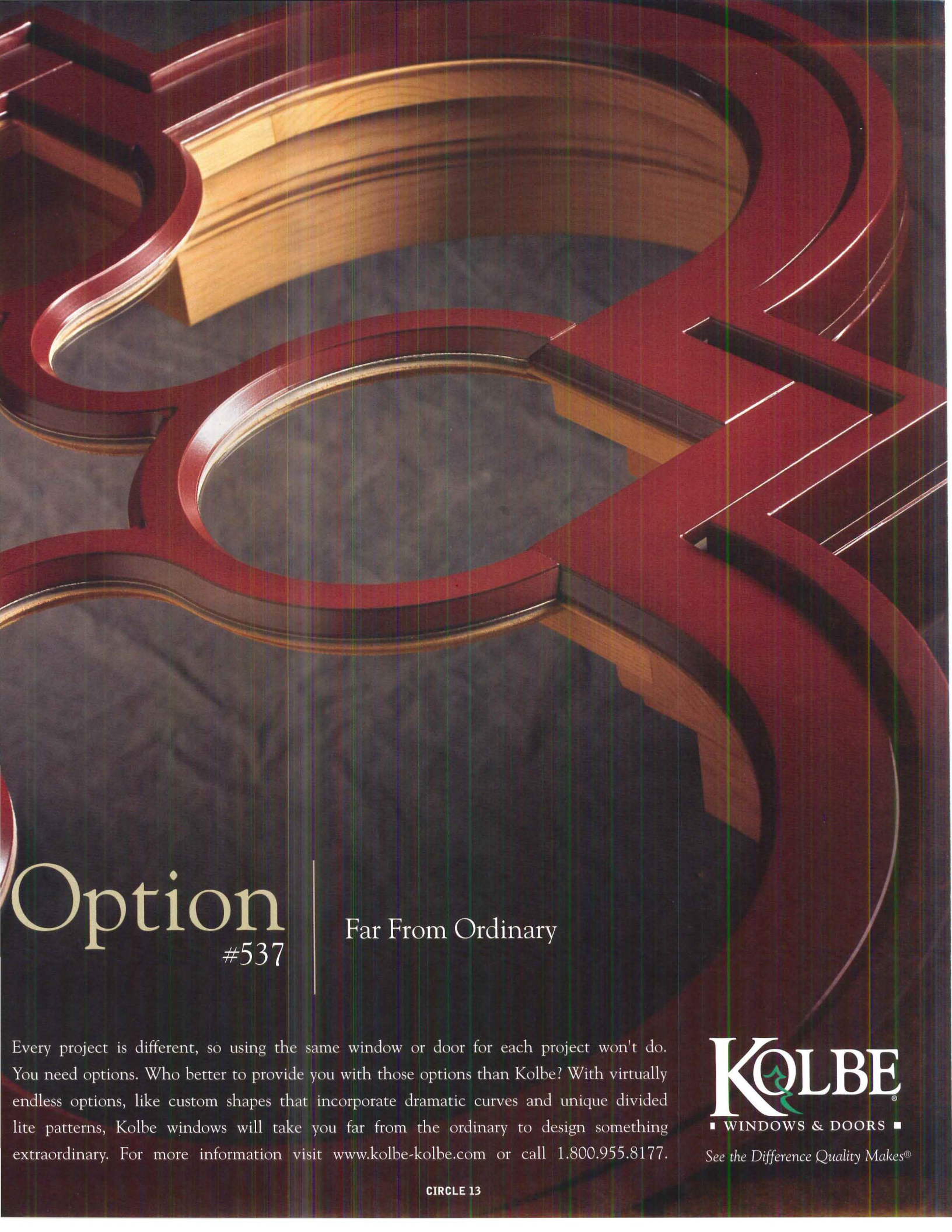
Designed by Kohn Pedersen Fox (KPF) and completed last year, the building was chosen from among four "Regional Tall Building" winners, including The New York Times Building by Renzo Piano Building Workshop with FXFOWLE, London's 51 Lime Street by Foster + Partners, and the Bahrain World Trade Center by Atkins.

The Shanghai World Financial Center, which boasts the highest occupied floor in the world, was chosen as the winner for "its revolutionary structural design and inspirational symbolism," according to the council.

Formed out of a square prism intersected by two "cosmic arcs," the building includes a distinctive, multistory trapezoidal aperture at its upper floors. The design was inspired by two Chinese burial symbols: "a square prism essentially representative of the earth, and a heaven symbol – a circular disc with a circular aperture cut through it," says KPF's Bill Pedersen, FAIA. "We wanted to do a building that was a genuine expression of the relationship between the earth and the sky," he explains, "and also that could be connected to the culture within which it is placed."

The tower's tapering form is more than an aesthetic move – it also allows the building to maximize floor-plate and material efficiency. Structural innovations by the engineering firm Leslie E. Robertson Associates succeeded in increasing the building's volume by 20 percent while retaining its original weight, thereby minimizing its total embodied energy. And the range of floor plates that the design's unique geometry creates allowed KPF to "negotiate the different program necessities" of the building's office, hotel, and retail components, according to Pedersen.

Though the building is replete with unusual features, Pedersen singles out one as particularly important: The tower houses a seven-story observatory and two sky walks on the 97th and 100th floors, thereby opening its most spectacular spaces and best views to the public. "One of the things we're most proud of in this building," says Pedersen, "is that the top 262 feet are devoted to functions that everyone can go in and enjoy." *Anya Kaplan-Seem*



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CIRCLE 13

Piano's design for Kimbell Museum revealed

Twenty years ago, Fort Worth's Kimbell Art Museum announced a major expansion, and promptly got stuffed by critics, architects, and the public. "Hands off Louis Kahn's masterpiece" was the outraged response, and the Kimbell quickly abandoned the idea.

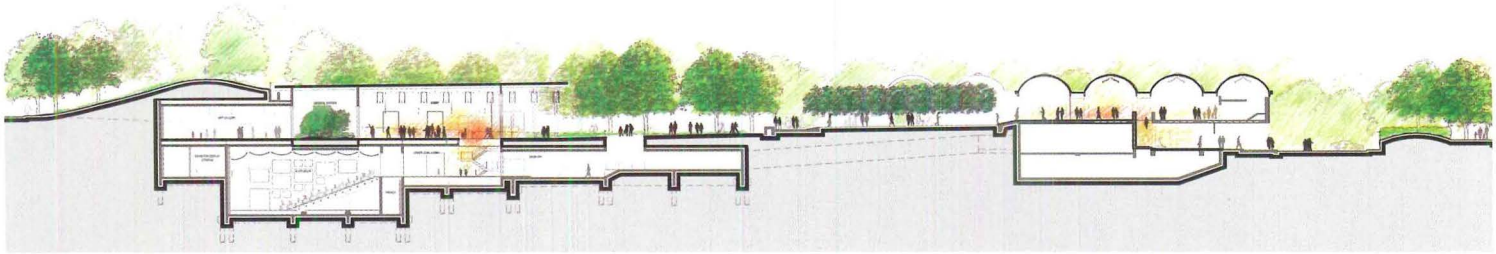
Now it is back with a new $70 million scheme that is more respectful of the Kahn building and, it hopes, less politically toxic. Designed by Renzo Piano and unveiled November 18, it calls for a two-story steel-and-glass pavilion on the sweeping lawn to the west of the existing museum, which opened in 1972. The pavilion will be used primarily for temporary exhibitions, doubling the amount of gallery space and reserving the original building for the institution's extraordinary permanent collection. Currently the Rembrandts, Cezannes, and Picassos go into storage whenever a major traveling show comes to town.

Beyond galleries, the 90,000-square-foot addition will contain studios, classrooms, a library, and an auditorium, mostly located below grade or tucked into a grassy berm to the rear of the site. Visitors will enter through an underground parking garage and then gradually make their way across the lawn, past trees and fountains, to the original building – the procession from nature to art and back again that Louis Kahn originally envisioned. "I am delighted with Renzo's design, and the way, physically and symbolically, he has connected the Kimbell's past and future," says Kay Fortson, president of the Kimbell Art Foundation, which funds the museum.

Fortson, niece of museum founder Kay Kimbell, was the prime mover in selecting Piano in 2006. The architect was a known quantity with no baggage, having worked with Louis Kahn in the 1960s and subsequently having designed three museums in Texas, including the acclaimed Nasher Sculpture Center in Dallas, a cultural competitor. Plus he had the blessing of the Kahn family, who had loudly denounced architect Romaldo Giurgola's obsequious 1988 design. "I doubt we could do better than Renzo," Kahn's daughter, Sue Ann Kahn, says of the choice. "He knows Texas; he'll ponder the relationship of old and new. You can't beat those odds."

The preliminary scheme establishes the location, basic form, and palette of the addition, with most of the details, including cladding and green features, still to come. Construction is expected to begin in 2010, with an opening in 2012. *David Dillon*

The addition will be located west of the Louis Kahn building (below).



A museum proposal stirs debate in San Francisco

Buffeted by criticism of its Modern look and trophylike setting, Gap founder Donald Fisher has agreed to redesign and move a museum that he wants to build in San Francisco's Presidio, a 1,491-acre national park.

There's no assurance the changes announced in December will placate the project's opponents. And it's a twist nobody would have predicted in December of 2007, when members of the city's cultural establishment praised the unveiling of what Fisher calls the Contemporary Art Museum at the Presidio (CAMP) – an institution his family would create and endow to display its art collection, considered to be one of America's finest private collections of post–World War II paintings and sculptures.

The proposal drew fire from all sides. Much of the debate involved the site: Fisher sought to erect a 100,000-square-foot museum at the head of a planned 7-acre "parade ground" in the heart of the former army base.

Though Fisher sweetened the pot by offering to contribute $10 million to the parade ground project, the approach was challenged by everyone from history buffs to the National Park Service, which warned that the museum as planned could endanger the Presidio's status as a National Historic Landmark.

The controversy was exacerbated by CAMP's design: a sharp-edged collage of two long rectangles set atop each other and clad in white concrete and glass. Richard Gluckman of New York's Gluckman Mayner Architects, assisted by San Francisco's WRNS Studio, made the case that such design elements as the width of the structural bays evoked the surrounding context of 19th century barracks. But his arguments made little headway.

The Presidio is part of the National Park System but is managed by the Presidio Trust, a seven-member board that has approval power over all development projects.

After delaying a decision several times, Trust officials made it clear in November that the museum proposal would be rejected unless it was scaled back and toned down. In response, Fisher agreed to submit a new plan that would break CAMP into two buildings, locating the largest south of the parade ground.

Fisher is expected to show a revised design in January, although it's unlikely the Trust will vote on the project before summer. *John King*

A museum (above) by Gluckman Mayner is proposed for the Presidio.

IMAGES: © KIMBELL MUSEUM (TOP); GLUCKMAN MAYNER (BOTTOM)

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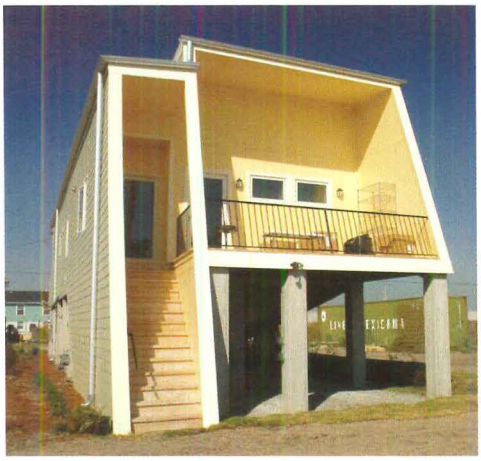
CIRCLE 14

Pitt's first "Make It Right" homes complete



In New Orleans, a house by Graft (left) is one of the six recently completed in the Lower 9th Ward.

A year ago, actor Brad Pitt presented lot owners in the devastated Lower 9th Ward of New Orleans with a portfolio of designs by 13 well-regarded architects, saying, in essence, choose a design and your house will be built.

The first six homes built by Pitt's Make It Right Foundation are now finished. They represent not only fresh starts for homeowners, but also blueprints for affordable, storm-resistant, and sustainable housing designs. "The goal is to bring people back," says John Williams, the New Orleans architect supervising the endeavor. "But this project is also a laboratory for what can be done here and elsewhere."

Heavily subsidized by Pitt's foundation, the per-house budget of $150,000 is possible because of donated materials and services, including the architects' designs. Williams acknowledges that these prototypes exceeded the budget, but says costs will drop as more houses are built. The goal is to build 150 homes; Pitt's foundation has raised money for 87 of them.

The first homeowners selected designs by Billes Architecture and Concordia, both New Orleans firms, along with KieranTimberlake of Philadelphia and Los Angeles-based Graft. With their edgy silhouettes and exuberant color schemes, the new houses stand in stark contrast to the ruined neighborhood that surrounds them.

In late August, as work neared completion, the first houses were tested by Hurricane Gustav's 115 mph winds. Not even a window was lost, due, no doubt, to impact-resistant glass or removable hurricane fabric systems for all doors and windows. Built to accommodate a high-water event, the houses were raised at least 5 feet, with foundations resting on piles driven 35 feet into claylike soil. Rooftop escape hatches address worst-case scenarios.

The houses are among the city's first to earn LEED Platinum certification. Some materials used, such as sustainable wood cabinetry and nontoxic paints, are in broad use these days. Green features that take these houses to the next level include insulation that makes them five times more airtight than typical homes, and groundwater heat pumps for both heating and cooling. In a forward-thinking conservation measure, separate plumbing lines were installed so owners can utilize their rain harvest systems if a current state law banning rainwater for toilet use is repealed.

Work is already under way on additional homes; 40 are expected to be finished by this summer. For the next phase, lot owners have selected designs by Billes and Graft, along with Shigeru Ban Architects, BNIM Architects, Eskew+Dumez+Ripple, and Constructs. *Shawn Kennedy*

View a slide show online.

Jørn Utzon, opera house designer, dies at 90

Jørn Utzon died November 28 at age 90, after a long illness. He never saw his masterpiece, the Sydney Opera House (below), completed. Though it is among the 20th century's most widely admired and audacious works, it is the architect's great failure. It jump-started a promising career and stunted what should have been a glorious maturity.

Utzon married a great intuitive aesthetic to an almost heroic faith in the ability of technology to realize human aspiration. He had only built a few modest projects when he won the international competition for the opera house in 1957 at the age of 38.

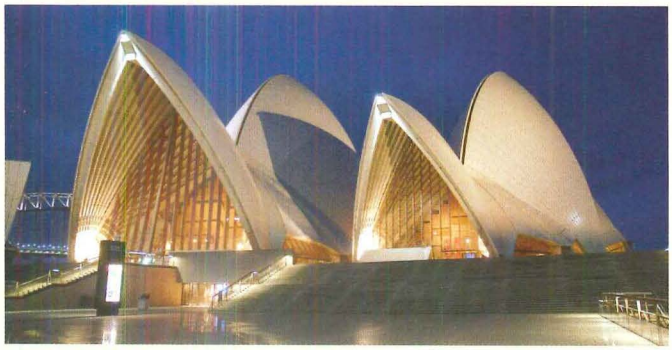
He struggled for years (along with Arup, then a fledgling engineering firm) to find a way to build the hall's sail-form roofs. His Eureka moment was realizing that he could carve triangles that looked like little opera-house roof shapes out of the spherical shape of an orange. These geometries retained the design's intended lyricism while being vastly easier to engineer. That metaphor became legendary as evidence of his extraordinary ability to tease elegantly synthetic solutions out of the most unlikely sources.

His struggle to design the auditorium interiors proved just as difficult; every iteration involved sacrificing sight lines, or acoustics, or the desired seat count. The way the wind blows sand into thin, overlapping layers suggested to him that the ceiling could be made of similar striations, each molded with notches and gentle curves to the unique angle and strength of sound they would receive.

But those ceilings were never to be. By the mid-1960s, a new minister in charge of the project was impatient with the cost overruns and endless delays. In a dispute, he claimed Utzon quit, while Utzon declared that he had been fired. He left Australia in 1966, never to return. A team of three architects finished the Sydney Opera House in 1973.

As the years passed, the shortcomings of the auditoriums became more obvious, and a consensus gathered that Utzon had been done an injustice. In 1999, he was hired to conceive design principles that would guide an upgrade of the building. Utzon was awarded the Pritzker Prize in 2003 in part because of the Sydney rapprochement.

Suffering illness, Utzon worked with his son, Jan, from Denmark on the renovation design. Reported to cost as much as $800 million (Australian), the plan has not been releaed. Its future is uncertain. *James S. Russell*



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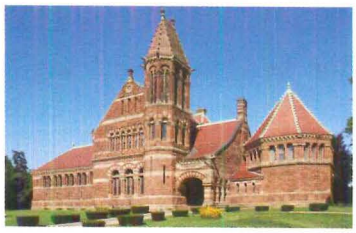
News Briefs



When Charles Bower Winn donated $140,000 to the Massachusetts town of Woburn to build a freestanding public library, he suggested selecting an architect by way of a design competition. **Henry Hobson Richardson** won that five-entrant contest in 1877, the same year his status-making Trinity Church was dedicated in nearby Boston. Now, 129 years after the Woburn Public Library (right) opened, its owners are hosting a competition to **solicit ideas for an expansion**. Entry details will be released on January 2, with submissions due January 23. More information is available at www.woburnlibrarycompetition.com. *David Sokol*

In recent months, motorists passing by the **Polshek Partnership–designed WGBH headquarters** (left), located about 5 miles west of downtown Boston, might have noticed that the building's signature feature – a 30-by-45-foot digital facade – has gone dark. The giant LED screen, which cantilevers toward the Massachusetts Turnpike, was switched off this summer, less than a year after the building opened. The screen is intended to display still images from the public broadcaster's programs, such as *Nova*.

According to WGBH, **ventilation problems caused sections of the screen** to overheat and shut down. In November, the station sued the manufacturer and installer for breach of contract. "The installation was flawed," says Lucy Sholley, the station's marketing director. "They failed to account for building specifications provided by WGBH and for the need to keep the power supplies cool." Polshek Partnership was not named in the suit and is not working on the remediation. As of early December, WGBH and the manufacturer, Mark IV Industries, were close to settling out of court. *Ted Smalley Bowen*

Steven Holl Architects won an international competition on October 31 to design The LM Project (right), an oceanfront development in Copenhagen, Denmark. Envisioned as a gateway for arriving ships, Holl's scheme consists of two mixed-use towers on opposite sides of an entry to the city's harbor. The towers are **connected by a walkway that soars 213 feet** above the water, providing clearance for boat traffic. Consisting of two cable-stayed bridges that branch off their respective towers at slightly different angles, the walkway appears kinked where the bridges meet in midair, evoking a handshake. A construction start date has not been set for the project, which is being developed by a government agency and real estate company. This is one of several commissions the firm has in Scandinavia. *Tim McKeough*

More than 100 members of the American Institute of Architects traveled to Copenhagen (left) in September for the conference, **"Danish Modern: Then and Now,"** organized by the AIA's Committee on Design and Historic Resources Committee. The five-day grand tour included a boat excursion, led by Danish Architecture Center CEO Kent Martinussen, to see waterfront redevelopment sites, and a walk through the Royal Opera House designed by Henning Larsen. The group also visited the factory of furniture maker Fritz Hansen and met with local architects, such as **PLH and Dissing+Weitling**, at their offices. "It was a way to get to know the Danes in their own context and relate to them on a professional level," says event cochair Gunny Harboe. *David Sokol*

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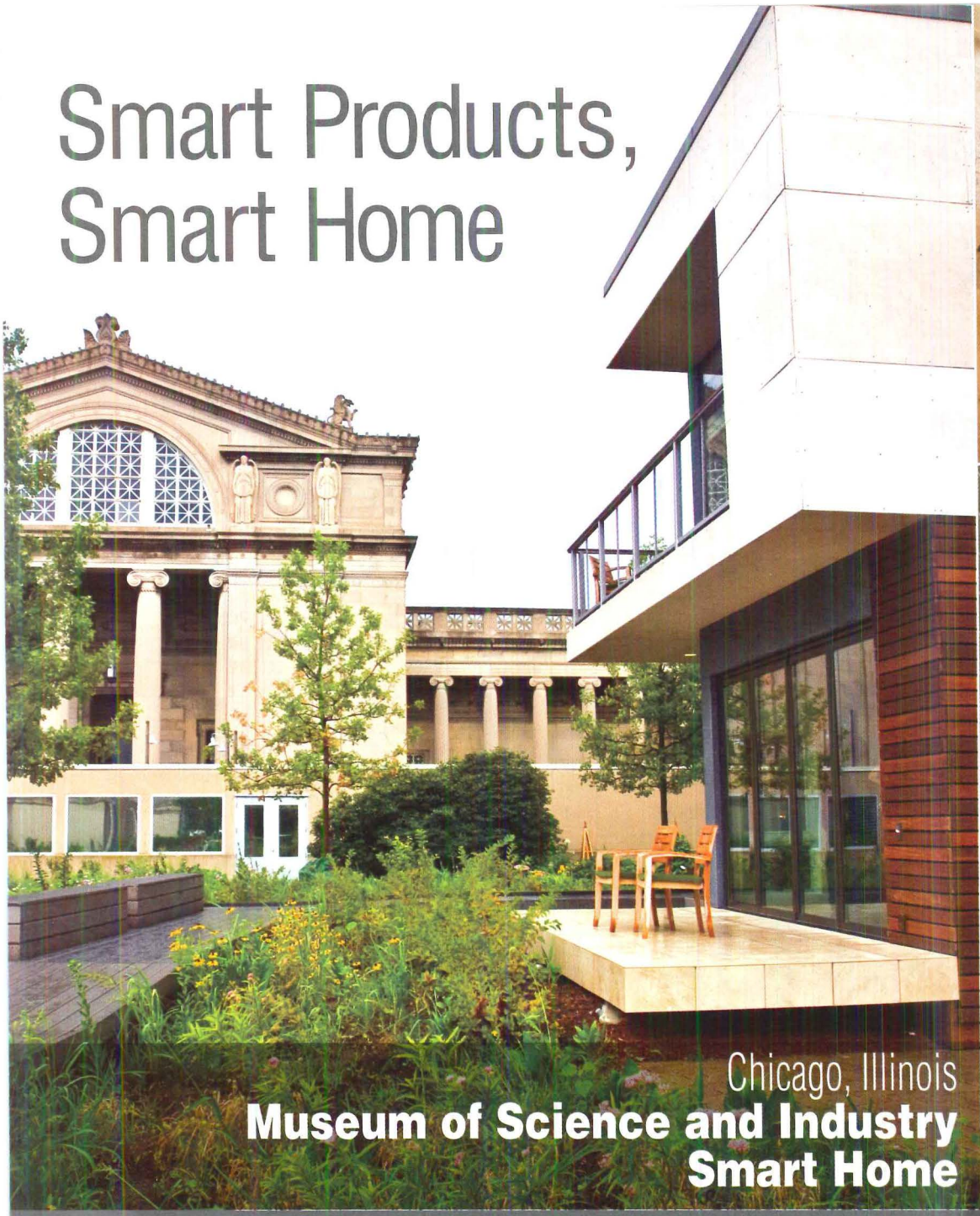
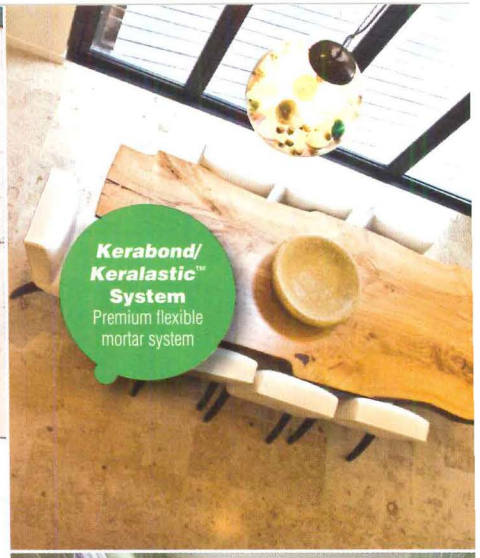


Chicago, Illinois
Museum of Science and Industry Smart Home



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Hesiodo, Mexico City, 2005
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From the age of six, Mexican architect Alejandro Villareal, principal of Mexico City–based Hierve Diseñeria, followed his architect father around to construction sites, and was strangely focused on details – this staircase, that window. While more involved in the real estate side of architecture, Villareal's father instilled in Alejandro a love of the built environment, especially by traveling extensively and visiting buildings. "My family was always interested in architects and architecture," he says.

Cut to 1999, after Villareal had completed his architecture degree at the Universidad Iberoamericana in Mexico City. His thesis was a proposal for owner-built low-income housing, and that was the next project he set out to realize, called Tandacasa. "It was an idea that my father, my brother (also an architect), and I wanted to do. Create a business where we could get the government to give us land to build low-income housing." The fledgling business had good intentions – and hoped to make some money. "We created the housing, but we failed to make money, so it didn't work," says Villareal. During that time, and after stints at SCI-Arc, Harvard's GSD, The Instituto Technologico Autonomo de Mexico, the School of the Museum of Fine Arts in Boston, and even the Central Saint Martins College of Arts in London (for a certificate in creative painting, no less), Villareal decided to chuck the whole real estate thing and plunge headlong into design. He began Hierve (the Spanish word for "boiling"), to focus completely on the creative side of architecture.

Although Hierve was an untried business at the time, Villareal brought a couple of extras to the table when seeking clients. While working on the Tandacasa project, his family developed a building system based on configurations of concrete blocks. "It was something new," he says, "and I was able to use this system for Hierve's first project, a 100-apartment building in Mexico City."

Now a five-person firm, Villareal has worked out Hierve's process and philosophy and has gone from borrowing a room in an uncle's residential building to serve as an office, to renting a real storefront in Mexico City. "We have four things we try to balance with our work," he says with confidence. "Creativity is first, but on its own, it's not that important. There must be positive change – social responsibility. But that,

Liverpool, Mexico City, 2007 *In a remodel of a former office building into 23 luxury apartments, Hierve created rain screens for two of the facades with patterns derived from the Mexican craft of intricately cutting paper.*

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CIRCLE 20

Some free advice to President-elect Obama

Critique

By Robert Campbell, FAIA

President-elect Obama, we're informed, intends to create an Office of Urban Policy. Obama is a lawyer, and I'm sure he's thinking more about social issues than about architecture or urban design. But at this writing (in early December), nobody knows who will occupy the new office, or what its brief will be. Maybe architects will begin to have some influence on public architecture? It doesn't happen often. Architects aren't known for their political skills. My friend Dick Swett, who used to be a United States Representative from New Hampshire, believes he was the only architect to serve in Congress in the 20th century.

Not so long ago, though, the State Department maintained an active panel of architectural advisers, many of them distinguished architects. And the Public Buildings Service of the General Services Administration (GSA) ran its superb Design Excellence Program, based on Daniel Patrick Moynihan's famous 1962 memo, "Guiding Principles for Federal Architecture." Wrote Moynihan, memorably: "The policy shall be to provide requisite and adequate facilities in an architectural style and form which is distinguished and which will reflect the dignity, enterprise, vigor, and stability of the American national Government ... Design must flow from the architectural profession to the Government, and not vice versa ..." Under Design Excellence, the GSA recruited a "National Register of Peer Professionals" to help it select architects and monitor their designs. (Disclosure: I was one of the first batch of 26 peers, back in 1994).

Contributing editor Robert Campbell is the architecture critic of The Boston Globe.

Fear versus dignity

But those admirable efforts were dissipated under the current administration. The State Department retreated to cookie-cutter, standardized designs for its embassies – designs (and sitings) that say more about our fear of terrorists than about our dignity or enterprise. And the GSA, while it still maintains its roster of peers, is far less active than in the years when it was building its fine string of federal courthouses.

For starters, we can ask Obama (hey, what else does he have to worry about?) to restore the active presence of the architectural profession in these two key federal functions.

My other suggestions are a little weirder. But nobody says I have to make them politically feasible.

Raise the gas tax through the roof. I remember hearing the economist John Kenneth Galbraith propose this at least 15 years ago. It's obvious common sense. Gas is incredibly cheap. You pay $20 for a gallon of paint today, but a gallon of gasoline – which has to be extracted, refined, shipped maybe halfway around the world, and delivered to your pump (with the source, perhaps, protected by expensive warfare) – comes, as I write, to less than $2. Back in the early 1950s, when I was a kid, my Dad paid about 30 cents a gallon, which means that the price has been dropping, in real value, all my life. Thirty cents in the early '50s would be worth at least $2.50 today.

PHOTOGRAPHY: © NIC LEHOUX

The Federal Building in San Francisco, designed by Morphosis, was developed as part of the GSA's Design Excellence program.

Exxon says

My newspaper recently carried a full-page ad from Exxon Mobil, informing us that only about a fourth of the world's oil reserves have been extracted to date, but that (hooray!) Exxon is busy inventing new technologies to extract the rest – in order, says the ad, to lower the cost to the

consumer. This from the company that last year posted the largest profit in corporate history.

It's madness. It's as if Exxon were telling us to save and use our old slide rules and typewriters and forget about computers. That's how backward-looking its energy policy is. Exxon should be finding new energy sources, not looking for new ways to carbonize the world's atmosphere.

A stiff gas tax, like those in Europe, could pay for the improvement of our disastrous national infrastructure – our failing roads, sewers, bridges, tunnels, all that. It would make alternative sources of energy more competitive. And people would again collect into walkable, bikeable communities, which could be efficiently served by public transportation. That gain in density might do wonders, too, for the social health of cities, towns, and villages. I'm not as appalled by our scattered car-culture suburbs, as, say, Jim Kunstler, who writes: "The suburbs have three destinies, none of them exclusive: as materials salvage, as slums, and as ruins." Infilling them, surely, is a fourth possible destiny. But I agree that a lot of Americans in those thinned-out suburban worlds are feeling the lack of what used to be called togetherness. Not being members of a genuine, close-knit society, they create surrogates. They watch and discuss the lives of media celebrities as if they were friends or relatives. Or they join one of the fantastically successful so-called megachurches. Those, too, are surrogates: they supply, seven days a week, many of the social qualities that used to be supplied by actual communities.

A bigger gas tax and a revitalized rail system could help reduce traffic and pollution.

The bigger picture

There needs to be a caveat here, though. Density is a plus word today, and it's often said that New York's Manhattan is the greenest community in the U.S., because its high density leads to low per-capita consumption of energy for heating, cooling, and transit. But throw the frame a little wider, and you realize that a lot of the food for New York is coming in carbon-powered trucks and airplanes from California, or even Brazil or China. Maybe there's a more optimal city size, one that would permit us to raise more food nearer home.

Create a great national rail system. It's embarrassing for an American to get on a bullet train in France, Spain, or Japan. Here, as in other ways, we're falling into the status of a low-tech, third-world nation. Amtrak, which I often take, is pathetic by comparison – slow, unreliable, with poorly designed passenger features and services. People argue that the U.S. is too big to be served by trains, and it's true I wouldn't take one from coast to coast. But there are several potential regions, each as big as a medium-size country, that could benefit, the way the BosWash corridor in the east does today. Trains, as everyone knows, are far safer and consume far fewer resources than other modes of travel or shipping. And like my gas tax, the rail system would tend to center a, pulling us together in communities, gathering, perhaps, not too far from the station. The new rail system should have at least the priority that the interstate highway system had in the 1950s and '60s.

Stop development from places where floods happen. I can't believe the way developers are building at the water's edge of my own city of Boston, and many others. Guys, the water is rising. Nobody knows how high it will go, but it appears certain that it's too late to prevent a drastic problem. I've always thought that a rational government would long ago have banned all building on the barrier islands, from New England to Texas. They're basically sandbars, and they're all doomed to suffer a hurricane sooner or later–and in some cases, to be wiped out completely. What we should have had, instead, is a Barrier Island Park, a national necklace of waves and beaches. I feel the same way now about oceanfront city building. Maybe we should pull back? It's time to at least begin to think about what kind of controls might be appropriate.

The other side of this coin concerns the regions that don't have enough water. The American Southwest has long been the fastest-growing part of the country. Yet cities such as Phoenix and Las Vegas are like hospital patients on permanent life-support. They depend wholly on all those intravenous tubes that bring them water – for drinking, for cooling, for irrigation. But water reserves are being drained. I know it sounds like socialism, but especially as we face unpredictable climate change, it might be wise to figure out some fair way to discourage rampant development in arid lands. Sooner or later, I suppose, there will be a successful method of desalinization. But the mind boggles at the thought of pumping vast amounts of water from the ocean to the desert.

On the other hand, don't act like God. I'm quoting Bill Mitchell, the former dean of the School of Architecture and Planning at MIT, in his terrific new book *The Greatest Architect in the World*. Writes Mitchell: "God's limitation was his authoritarian, top-down approach ... He had never heard of Jane Jacobs, and he had no idea that the most complex, diverse, and interesting cities emerge gradually over many years, from countless incremental interventions and adjustments. It's a bottom-up process, without a master plan. One thing just leads to another, and the most amazing results evolve in completely unexpected ways."

I totally believe that, but ... There is always a master plan, of some kind, from some source. Jacobs lived in New York, a city, like so many, shaped by the grid. A good city needs both a plan and what I'll call an insurgency. There must be an order (some of it provided, top-down, by designers, planners, and the government), and there must be an insurgency, a bubbling up of private initiatives from the bottom, in opposition to the plan.

Emerson said it long ago: "There is always an establishment, and there is always a movement." Or as Paul Verlaine put it, "Mankind is permanently threatened by two disasters; they are order and disorder." A good city is in a permanent state of tension between the two. ■

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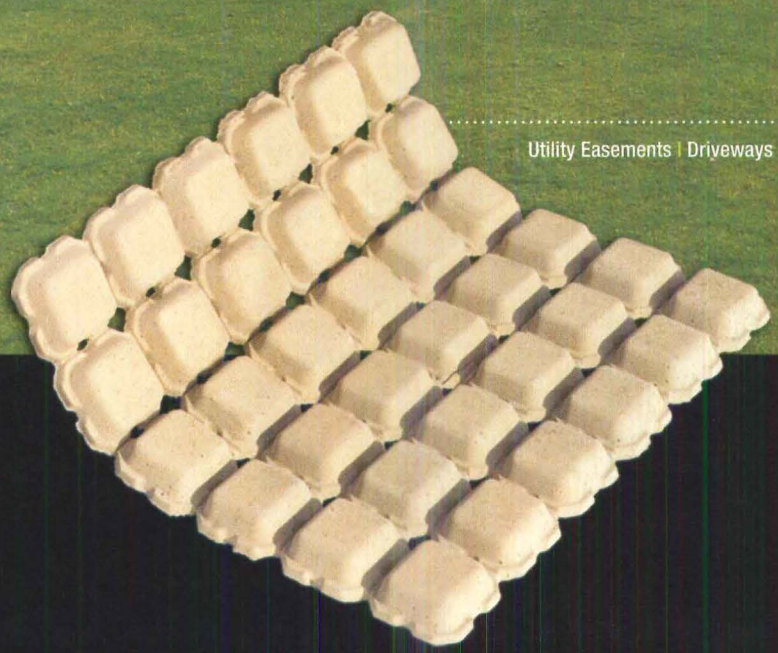

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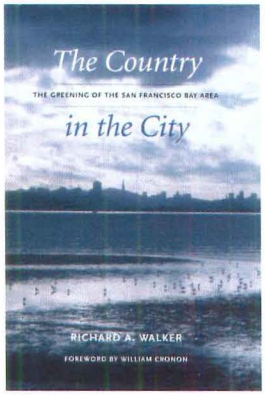


The Country in the City: The Greening of the San Francisco Bay Area, *by Richard A. Walker. Seattle: University of Washington Press, 2007, 378 pages, $35.*

Be forewarned: This wide-ranging history of environmentalism's mark on the San Francisco Bay Area devolves at times into a checklist of who did what. It's also written by a left-leaning professor of geography at U.C., Berkeley prone to such offhand declarations as that a green sensibility "is not the inevitable calling of the national bourgeoisie and satraps of the American empire."

But these are caveats to an exuberantly written and smartly ambitious study of how and why the region takes its present form – where postcard-worthy corridors of open space slice through a metropolis of 8 million people, and where there's been virtually no new development along the bay or ocean in 40 years.

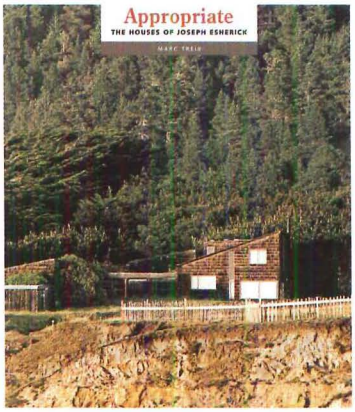
Walker's insight is that the saga isn't a simple tale of "saving" pristine nature or rural land: "The whole of the greensward is an act of social engineering," Walker writes. "The city and country coevolve."

In the Bay Area, Walker shows, this relation is especially complex. Well-off housewives in the Berkeley hills launched the movement that saved the bay from being filled almost beyond recognition, just as the Silicon Valley's wealth poured into the land trusts that have purchased more than 20,000 acres of nearby farmland and forest to keep "country" close to home. Napa Valley was thick with orchards as well as vineyards before zoning was changed in 1967 to block suburban sprawl – a defense of agriculture that allowed wineries to flourish and inadvertently created what is now a playground of wealth.

The Country in the City also surveys the fitful efforts to create a regional government that could steer growth coherently, localized efforts to stop growth in the 1970s and '80s that were imitated across the nation, and the "weak tea" middle-ground of today's "smart growth" movement. That's the value of Walker's book: Even when you disagree with his interpretations, you appreciate his scope. These days, it's all too rare. *John King*

Appropriate: The Houses of Joseph Esherick, *by Marc Treib. San Francisco: William Stout Books, 2008, 252 pages, $65.*

If any San Francisco architect after World War II embodied the "natural and humane form of Modernism" that Lewis Mumford dubbed the Bay Regional Style, it was Joseph Esherick, who today is little known outside California despite winning



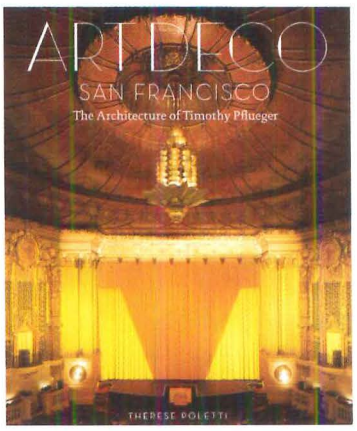
the AIA Gold Medal in 1989, seven years before his death in 1996. Now, this thoughtful study makes a case for the universality of what Esherick described as a design ethos "based on a way of life," since "no successful architecture can be formulated on a generalized system of aesthetics."

Appropriate: The Houses of Joseph Esherick sketches the biographical outline of a man born in 1914 who was educated at the University of Pennsylvania but influenced more by his uncle, a carpenter with an arts-and-crafts sensibility. Esherick headed west in the 1930s, where, after a stint in the Navy, he set up shop in 1946 – a firm that lives on as EHDD Architecture. But author Marc Treib is more interested in the architect's craft, especially the residences designed for owners to live in without a lot of fuss. Esherick's best-known work is the cluster of Hedgerow Houses on the California coast at Sea Ranch, their angled roofs deflecting wind from sheltered courtyards, but he also tucked strong, gaunt homes into hillsides near San Francisco, while a handful of city residences are triumphs of concise yet airy allotment of space.

Besides the text and photographs focused on the homes, *Appropriate* includes generous reproductions of Esherick's sumptuous plan and section drawings. In addition, Treib gives attention later in the book to nonresidential work, such as Wurster Hall, U.C., Berkeley's neo-Brutalist architecture school, and the restoration of a San Francisco cannery into a retail center, one of the first such conversions. Each project was commanding at the time; each has been altered extensively since. And that would suit Esherick fine: "I don't like perfection," he told one interviewer. "Buildings ought to accommodate the possibility of change." *J.K.*

Art Deco San Francisco: The Architecture of Timothy Pflueger, *by Therese Poletti. San Francisco: Chronicle Books, 2008, 256 pages, $55.*

Don't be misled by the title; *Art Deco San Francisco: The Architecture of*



Books

Timothy Pflueger surveys the career of an architect who wasn't locked into a single "look." And if most of the work is located in one city, its exuberance travels well.

Pflueger was the sort of architect who excelled between the two World Wars, a synthesizer rather than an innovator as he rolled out high-quality designs with a stylized punch. In the 1920s this meant such gems as 450 Sutter Street – a 26-story slab enlivened by a terra-cotta facade adorned with Mayan hieroglyphics – and the Castro Theater, a movie house with Spanish Baroque flourishes that extended to the Castilian blue tiles around the ticket booth.

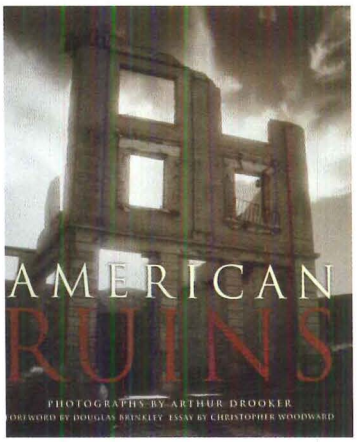
When the Jazz Age succumbed to the Great Depression, Pflueger's firm shifted to educational work with an air of cool rationalist rigor, such as Roosevelt Junior High School with its redbrick walls and factory-like windows. He also paid the bills with cocktail lounges as giddy as an Astaire-Rogers movie set.

Colorful new photographs by Tom Paiva bear witness to how much of Pflueger's best work has survived, while the text by Therese Poletti moves with brisk ease, whether explaining a design's evolution or recounting how this native San Franciscan forged relationships with politicians and clients – giving them straightforward but ornamented buildings while striving to incorporate fresh styles since, he once observed, "If we were to satisfy ourselves with the copying of the works of former times, what progress or advancement would come?" Ultimately, Pflueger was a serious architect with a common touch. When he died of a heart attack outside his club in 1946 at the age of 54, architecture lost a practitioner who might have made Modernism accessible to the masses. *J.K.*

Visualizing Density, *by Julie Campoli and Alex S. MacLean. Cambridge, Mass.: Lincoln Institute of Land Policy, 2007, 160 pages, $40.*

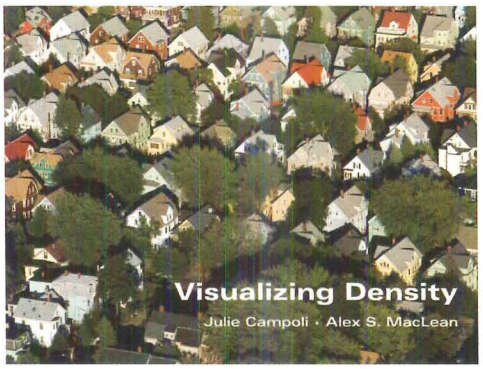
Architecture of Authority, *by Richard Ross. New York: Aperture, 2007, 144 pages, $40.*

American Ruins, *by Arthur Drooker. London and New York: Merrell Publishers, 2007, 144 pages, $45.*



To varying degrees, each of these titles defies the stereotype of the coffee-table book as mere eye candy. Each treats a worthy and serious subject seriously. *American Ruins* offers both fine architectural photography and a carefully reasoned text. *Visualizing Density* and *Architecture of Authority* are valuable for their photography but suffer from commentaries that are oversimplified and preachy. All three volumes raise questions about the current role of architectural photography as a deft tool for communication and persuasion.

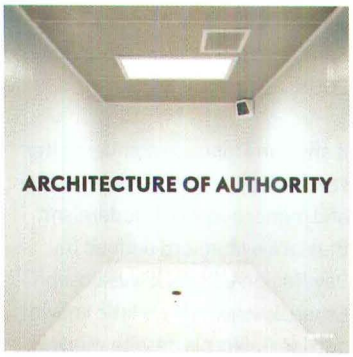
Visualizing Density by the aerial photographer Alex MacLean, reveals patterns of development from the air. An accompanying CD reproduces photos from the heart of the book, showing various kinds of residential density. The images progress from sites with less than one housing unit per acre (Hollister, California) to more than 200 per acre (San Francisco and New York). Clusters of 2-square-inch aerials show a neighborhood and its town or city area, while a line drawing illustrates each development's typical street pattern. A pro-density polemic by



Julie Campoli introduces MacLean's catalog of photographs.

The noted environmentalist Bill McKibben comments in a jacket blurb: "This book makes an abstract concept – density – completely real and easy to understand, to feel. It's like looking at Google Earth with someone very, very smart sitting next to you doing the play by play." This is precisely what the book doesn't do. Google Earth allows the user to zoom in from an aerial to a close perspective. *Visualizing Density* offers only an aerial view – and from that altitude makes density seem abstract. Most people's lived experience of residential density is street-level, concrete (pun intended), and replete with sounds. If describing and advocating density is the goal, it would have been better to intersperse street-level photos, evoking quality-of-life issues, with MacLean's aerial shots. Meantime, use the book supplemented with Google Earth imagery and local zoning-board maps.

Architecture of Authority reveals Richard Ross to be a superb photographer of Kafkaesque spaces. He is a high-gloss, sensationalistic interpreter of extremes, the sublime Neoclassicism of the Getty Villa

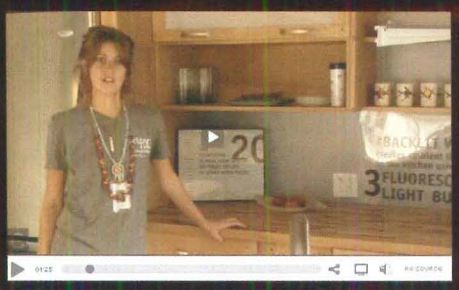


on the one hand, the criminally inhuman holding chambers at Abu Ghraib on the other. If you want to see as much as can be seen of the horror of Iraqi detention cells or L.A. police interrogation chambers, Ross is your guide. Unfortunately, neither John R. MacArthur's introduction nor Ross's afterword offers in-depth architectural analysis. And some readers might find Ross's comparison of a Catholic confession booth with a cop's interrogation chamber offensive.

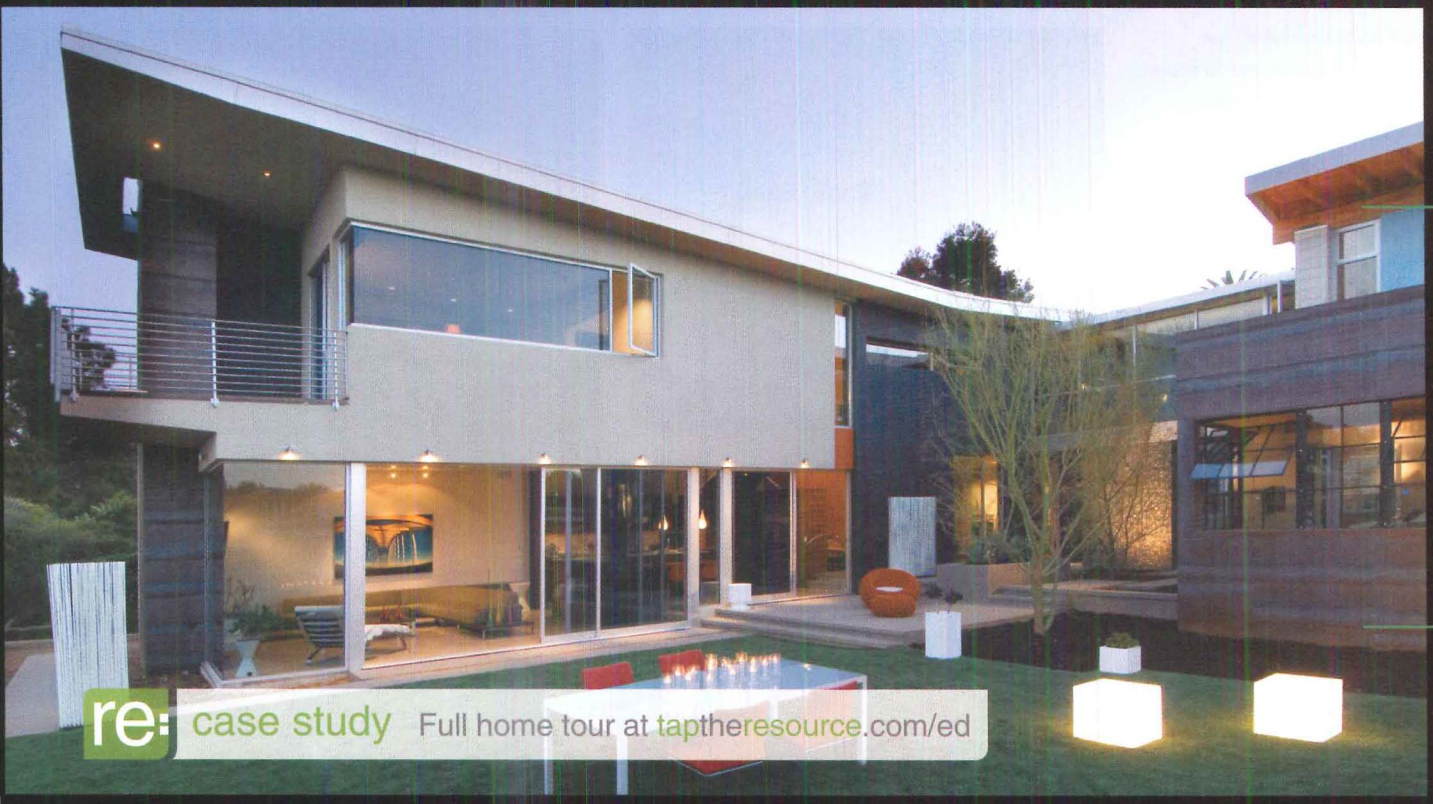
Ross fails to address the question of what constitutes the architecture of authority beyond stark monumentality and moribund minimalism. What made Albert Speer's or Giuseppe Terragni's designs inherently Fascist? Ross has an eye mainly for contemporary manifestations of authoritarian architecture – and makes simplistic analogies linking jail, school, and church interiors without any sense of architectural history or design. And he leaves unanswered the question of whether the architecture of authority, which he sees as corrosive of human dignity and choice, can ever be affirming of the best in human nature.

While Ross rams his political agenda across without a hint of subtlety, and MacLean flies over the noise of dense development, Arthur Drooker in *American Ruins* photographs like someone as much in love with ruins as with functioning buildings. Better yet, he is as engaged with capturing nuanced light flowing across finely textured building surfaces as with astutely writing about ideas evoked by ruins. Shot with high-contrast black-and-white infrared film, ruins ranging from ancient Anasazi sites to an abandoned Bethlehem Steel mill assume unnerving luminescence. It's as if we're seeing x-rayed phantom limbs of once-whole architectural bodies. This is architectural photography in all of its aesthetic and multidimensional glory. *Norman Weinstein*

Kitchen Photo: Kaye Evans-Lutterodt

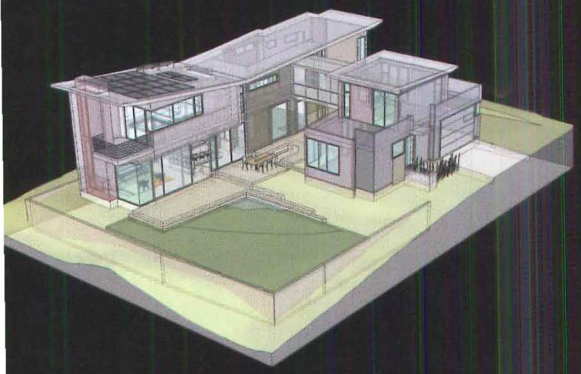


The TriPOD House,
Carnegie Mellon University
Solar Decathlon



connect learn sustain

San Diego, CA Residence - Kevin deFreitas Architects
Google® SketchUp model by Blue Marble Project



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CIRCLE 23

Trade Show Review London • 100% Design

In these shaky financial times, **straightforward goods and tried-and-true techniques** are in vogue. At London's 100% Design, this proclivity was seen in the accent on craftsmanship **and preference for such honest materials** as wood, metal, and leather. *Julie Taraska*

1 Heaven sent The Holier Than Thou series of indoor/outdoor furniture is made of perforated steel sheeting finished in a glossy powder coat. The pieces are light in appearance and weight, yet can still withstand the elements. Available in three patterns and five colors. Falinc, Melbourne. www.falinc.com.au **CIRCLE 201**

2 Pop-up decor Laser-etched petals and tubular stems burst off the backgrounds of Genevieve Bennett's Stucco leather wall hangings. The high-end sculpted panels, which measure 3.9' x 2.6' and come in seven colors (black shown), are an investment at 2,000 British pounds each (equal to $2,925 at press time). Genevieve Bennett, London. www.genevievebennett.com **CIRCLE 200**

3 Flower power Sam Pickard is known for her strong graphic prints and use of nature motifs, so it's fitting that the textile artist's first rug, Dahlia, features oversize blooms on a bold background. It is made of 100 percent wool and hand-knotted. Forty Thieves, London. www.fortythieves.co.uk **CIRCLE 203**

4 Easy glider The Stingray may resemble Harry Bertoia's classic metal Diamond chair, but the former is far more comfortable, offering a shell fully upholstered in fabric or leather, or covered with oak, walnut, or Makassar veneer. Also available in an indoor/outdoor fiberglass option, and a choice of a stationary or rocking-chair base. Fredericia Furniture, New York City. www.fredericia.com **CIRCLE 202**

5 Comeback chaise Introduced in the 1970s, the Casalino chair fell victim to the decade's oil crisis, its plastic frame too costly to manufacture. To mark maker Casala's 90th anniversary, the company is offering a reformulated model comprising PA6 plastic, nylon, and fiberglass. The new version is stackable, scratch-resistant, and suitable for indoors and out. Casala, Culemborg, the Netherlands. www.casala.com **CIRCLE 207**


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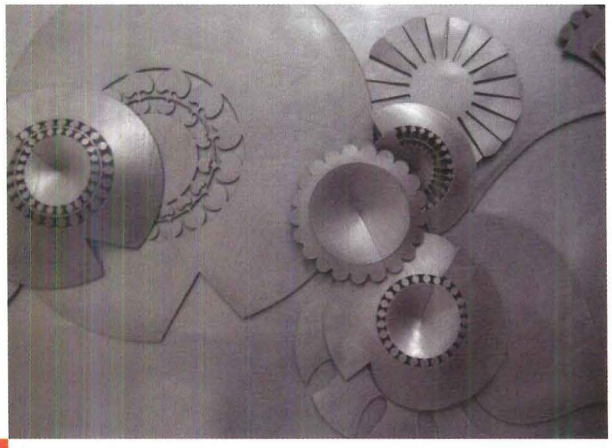
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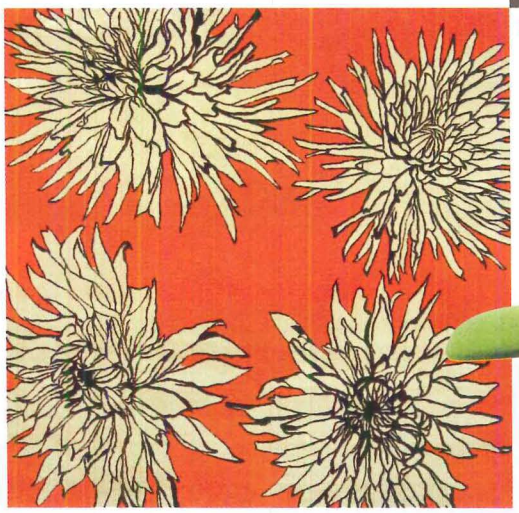
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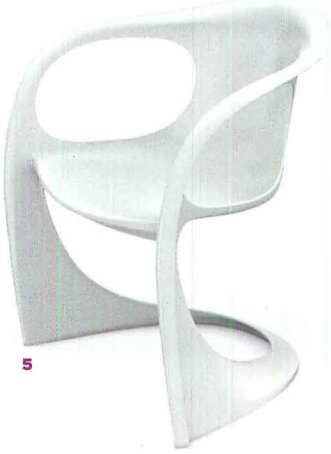
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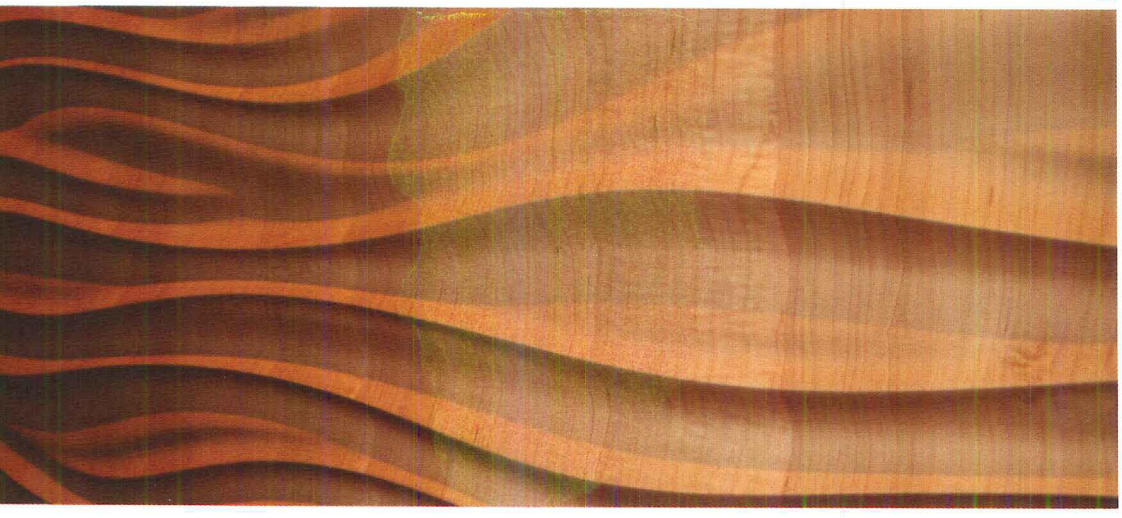


10

6 Cork it Although the pattern on the Bamboo wall covering looks like stitching, it is laser-etched onto the panel's cork surface. The sustainable slabs dampen sound and are offered as either a single sheet or in a custom, multipanel design. Sam Pickard, South Molton, England. www.sampickard.co.uk **CIRCLE 206**

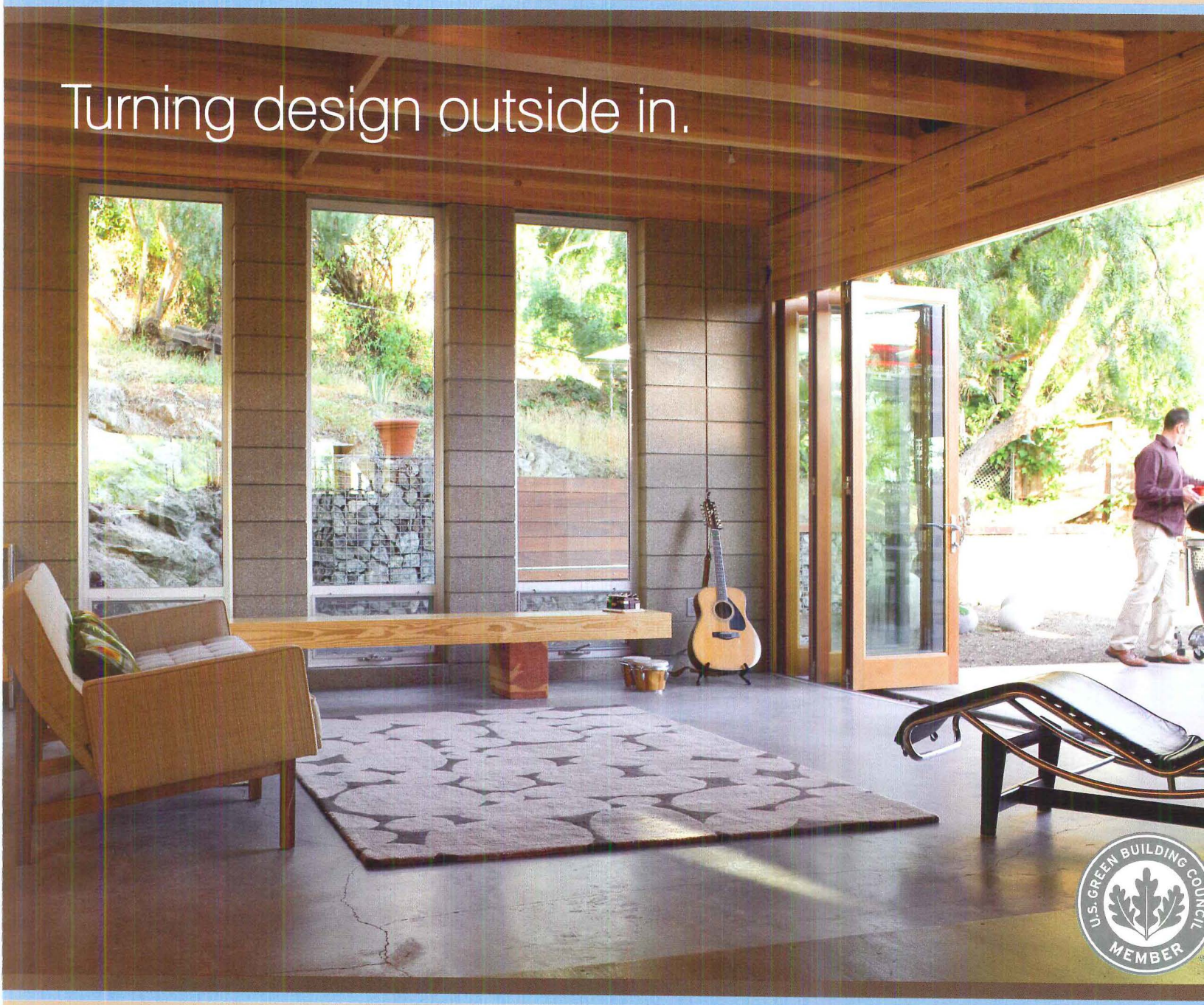
7 Bright idea Tom Dixon's Blow light generates significant illumination with its low-energy, compact fluorescent bulb. Three quarters of the exterior of its latest version is wrapped in pure copper, while its interior contains a vacuum metallized film. ABC Carpet and Home, New York City. www.tomdixon.net **CIRCLE 205**

8 Book smart Fashioned from a patented lightweight wood used to build ships, La Bibliochaise measures 29" high x 33" long x 40" wide and stores 16' of books. The frame comes varnished in a choice of white, black, or aubergine. Prices begin at $5,580 with cotton cushions, $6,060 with leather. Nobody & Company, Milan. www.nobodyandco.it **CIRCLE 208**

9 Wood works Having launched his eponymous, Arts and Crafts–inspired furniture line last year, Matthew Hilton returns with the Manta dining chair and Fracture table. The former, a stackable seat with a solid wood frame and sculptural back, is suitable for residential and contract applications; the latter comprises three free-form coffee tables with powder-coated steel legs that can be used separately or together, forming a square. Both Manta and Fracture come in a choice of oiled American black walnut or white oak. De La Espada, New York City. www.delaespada.com **CIRCLE 209**

10 Throwing curves Made of MDF, Interlam's decorative, sculpted Art Diffusion panels are available in over 100 patterns. Finishes include any color latex paint, membrane films in most wood grains, metal options that will patina, pressed foils, and bonded sand. The horizontal SOU-009 pattern with a medium Sydney maple membrane finish is pictured. Interlam, Claudville, Va. www.interlam-design.com **CIRCLE 204**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/.**



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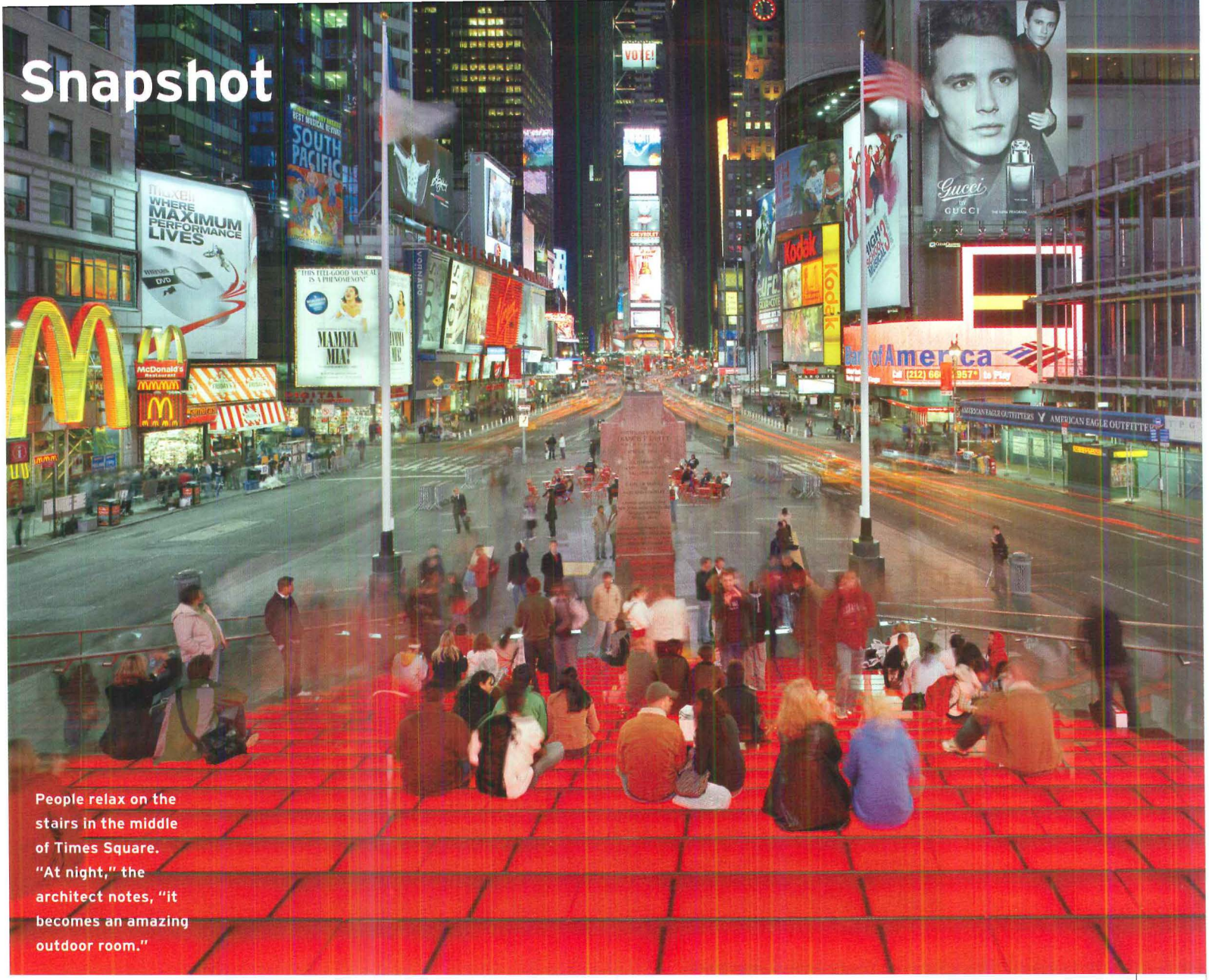
Snapshot



People relax on the stairs in the middle of Times Square. "At night," the architect notes, "it becomes an amazing outdoor room."

New TKTS booth makes waves in Times Square

By Leslie Yudell

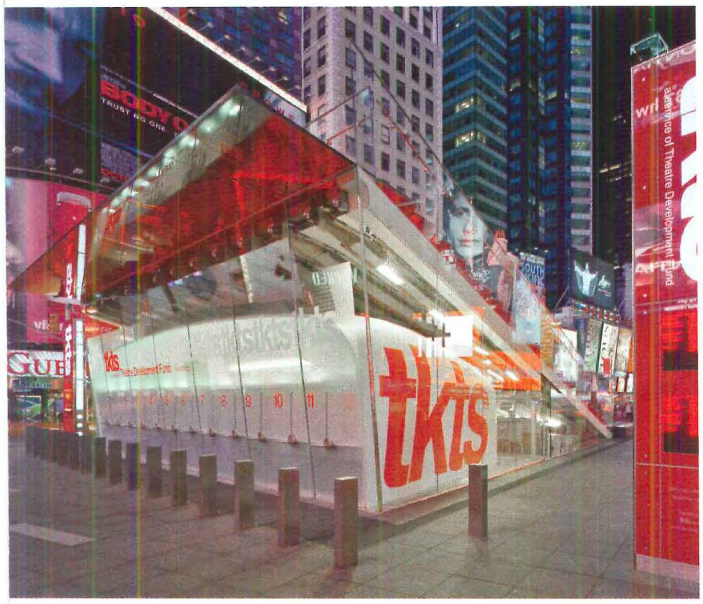
"It's a boat," says Nicholas Leahy, AIA, Perkins Eastman principal and lead architect of the new TKTS discount ticket booth in New York City's Times Square – seconded by Michael Ludvik, Dewhurst Macfarlane engineer responsible for the state-of-the-art structural-glass staircase that envelops it like a cresting breaker, spilling south in its wake onto Father Duffy Square. Since the TKTS program, run by the nonprofit Theatre Development Fund (TDF), opened in a used trailer in 1973, it has been selling half-price theater tickets in this newly expanded plaza between Broadway and Seventh Avenue, but until now it lacked a permanent home.

The new booth, fabricated by boat builders Merrifield-Roberts, is a freestanding, custom-made fiberglass shell with an 800-square-foot interior fitted out like a yacht (complete with back-door portholes) containing workstations for ticket handlers at 12 windows facing 47th Street. Tucked behind the booth, a mechanical unit that includes a geothermal loop with five wells dug 450 feet under the street efficiently provides heating and cooling for the structure while conserving space. To avoid disrupting the highly trafficked area during construction, most components of the facility were prefabricated.

Originally envisioned in red resin by the Australian architects John Choi and Tai Ropiha, who won the 1999 ideas competition sponsored by TDF for the project, the glass staircase – the largest

Snapshot

Theatergoers purchase tickets at the booth on 47th Street while others enjoy exhilarating views of the surrounding scene up on the roof (right and prior page). A red-glass canopy (below) cantilevers 5 feet 11 inches off the north wall. With panels a full 16 feet 8 inches tall by 6 feet 10 inches wide, it is among the largest single-pane structural-glass walls to date.



load-bearing glass building in the world – is an engineering feat and a tour de force of urban design. Conceived as an outdoor amphitheater and public gathering place, with 27 red-glass steps rising 16 feet from the ground and illuminated at night by LED lights beneath the treads, the compact, 2,000-square-foot structure is able to support up to 500 people. Visitors can climb to the top for spectacular panoramic views of the famous surroundings or take a seat and relax amid the hubbub – a novel experience in the frenetic vortex of the Great White Way.

New technology was developed to realize the scheme in glass, which Leahy chose for its purity, contrasting with the ambient visual cacophony and enhancing the sense of an oasis. Composed of heat-strengthened, triple-laminated glass treads carried by tempered, laminated glass beams and load-bearing walls, the translucent structure is entirely self-supporting. A special construction method – dubbed "the Macfarlane splice" after the project's engineers – in which staggered, overlapping sections of the beams are attached without metal plates, using only bolts with nylatron (structural nylon) bushings and stainless-steel pins, enables the stringers to span 28 feet while maintaining transparency. The biggest challenge, according to Ludvik, was connecting the load-bearing walls to the beams. "The windows," he explains, "are holding up the roof." Radiant panels beneath the stairs are tied into the geothermal system, serving to melt ice in winter or provide surface cooling, as needed.

The Times Square Alliance – one of the major partners behind the project – sees the new booth as a catalyst for further development of the city's public spaces and hopes it will have a ripple effect, inspiring others to employ similarly high standards of design so the show can go on all over town. ■

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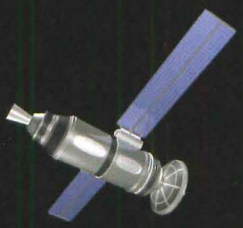

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CIRCLE 25

BAY AREA ARCHITECTS SEE THEIR AFFORDABLE HOUSING WORK AS PART OF A LONG TRADITION OF PROGRESSIVE CULTURE AND URBANISM

Bringing Good Design

FEATURE

HIGH-PROFILE BUILDINGS BY BIG NAMES ASIDE, NEW BUILDINGS IN SAN FRANCISCO AND THE BAY AREA tend to be nondescript—especially the infill housing projects that often look like nothing so much as interchangeable product wrapped in unimaginative garb.

In one field of design, though, the region shows real innovation: affordable housing. The architecture is more likely to be adventurous, the layouts more imaginative. There's a sense of public engagement as buildings provide not just shelter for residents, but engaging spaces for neighborhood shops or community services.

The factors at work include government planners who emphasize the role of such projects as potential catalysts, and nonprofit developers with the track records and confidence to take a chance on less conventional designs. With median home prices in San Francisco still near $700,000 despite the recent housing slump, there's a political imperative to deliver as many affordable projects as possible.

But a key reason that quantity translates to quality stems from the region's progressive cultural tradition. For many Bay Area architects, the design of such housing is an integral part of their craft.

"We're an affordable-housing architect first," says David Baker, founder of David Baker + Partners (DB+P). "Being a business-owning socialist, I enjoy the mission. It's much more satisfying—people need you. They're the world's best clients."

The San Francisco firm has made a mark with projects ranging from the subdued refinement of Hotel Healdsburg in Sonoma County's wine country to the conversion of a printing factory into now-desirable lofts in San Francisco's South of Market district. That same neighborhood contains two recent DB+P projects that are exclusively for low-income residents—each complex a bright accent amid a landscape that elsewhere is a drab procession of low-rise service buildings and crudely detailed "contemporary" lofts that meet the sidewalk with bare walls and iron-barred windows.

At Folsom and Dore Streets, Baker kept the brick facade of a former garage as an artifact and then inserted an emphatic procession of stacked stucco volumes behind it, warmed by balconies clad in horizontal slats of ipé wood and containing 98 apartments for tenants with disabilities or transitioning from homelessness. Nearby, at 8th and Howard Streets, the six-story complex known as SOMA Studios and Family Apartments has a color scheme that's a pastel circuit board of lime green and yellow, orange, and sky blue; on an alley, there's a wavy black stucco wall. And while the upper floors contain 166 housing units, the neighborhood at large benefits from the high-ceilinged corner storefront devoted to a locally owned grocery.

That same formula of strong design and street-level presence is on display two blocks down Howard at Sixth Street, where the San Francisco Redevelopment Agency hired Leddy Maytum Stacy Architects and Paulett Taggart Architects to design Plaza Apartments with 106 single-

John King is the urban design writer for The San Francisco Chronicle.

FOLSOM AND DORE
David Baker + Partners

To Affordable Housing

BY JOHN KING

room occupancy units and in-house social services. A simple cube in shape—80 feet wide and 85 feet high—the Plaza makes a visual mark through the contrast of the gridlike concrete frame with resin-impregnated panels that enclose the units and suggest weathered wood. At sidewalk level, there's an entrance to basement space for a community theater and two storefronts, one for a credit union that will offer the only access to legitimate banking on San Francisco's version of Skid Row.

For nearly a decade, the redevelopment agency has emphasized affordable housing as its core goal, rather than economic renewal. It sees such housing as a means to a more rounded community.

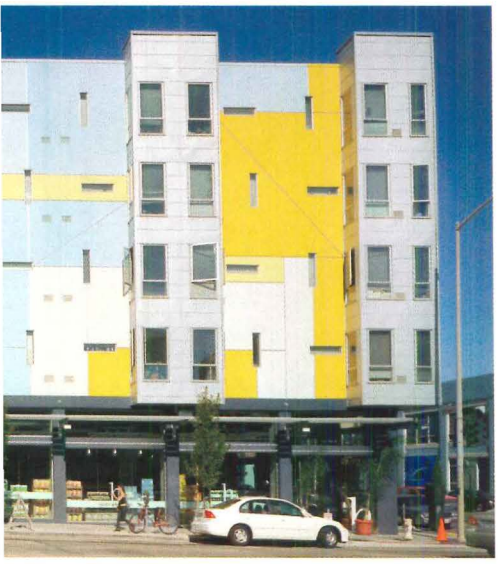
"We try to create neighborhood infrastructure through our affordable housing," says Olson Lee, a deputy executive director at the agency. This translates to the credit union on Sixth Street and the branch library that occupies the ground floor of a senior housing complex in the Mission Bay redevelopment district.

But infrastructure can also be buildings that use distinctive design to establish a sense of place. During the competition procession for a senior complex at the corner of Turk and Gough Streets in fashionable Hayes Valley, the agency stressed its desire for a landmark building. The winning team—developers A.F. Evans and Chinatown Community Development Center—included as its consulting architect Anne Fougeron, whose work has received local and national AIA awards. The result, Parkview Terraces [RECORD, October 2008, page 200], designed with Kwan Henmi, opened last year with rippling bays and a glassy Modern look.

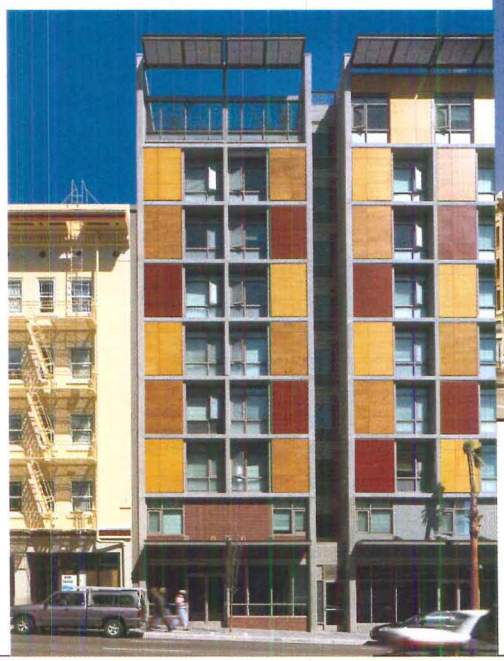
"The public subsidies involved give us a great say," Lee says. "It's a partnership with the developer, so we can push them further. All it takes is one ugly subsidized building and people point at it for the next 50 years."

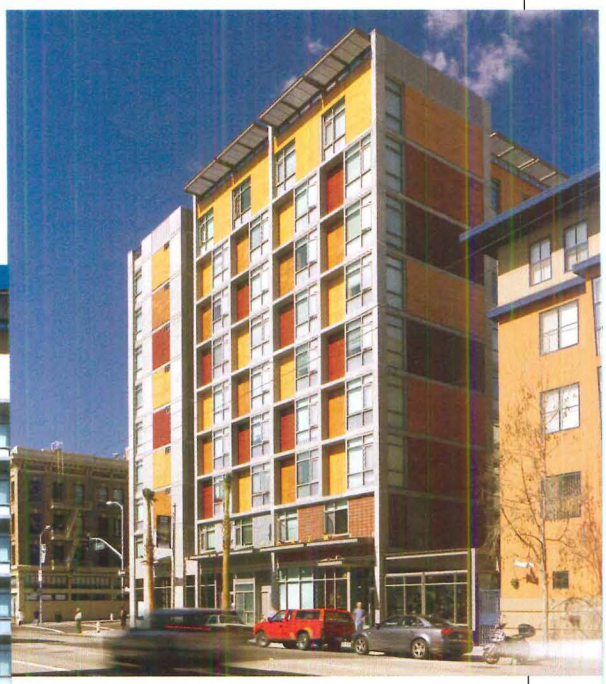
That concern can spawn buildings where the aesthetic goal is to fade into the background—as is the case with many San Francisco affordable-housing projects from the 1980s and '90s. Now, especially in more transitional districts, there's a desire to make a splash, not just among bureaucrats or architects, but nonprofit developers who often represent a new generation of decision-makers.

One of Baker's frequent clients is Citizens Housing Corporation, a 16-year-old company that has 23 complexes in the Bay Area with another five on the boards or under construction. Its president, James Buckley, has advanced degrees in planning and architecture from the Uni-



SOMA STUDIOS AND FAMILY APARTMENTS
David Baker + Partners





PLAZA APARTMENTS
Leddy Maytum Stacy and Paulett Taggart

versity of California, Berkeley.

"There's a split between generations of nonprofit developers," suggests Baker. "The original idea was 'let's fit in at all costs, don't stick out, don't let architects victimize the poor with experimental designs.' Younger project managers [at nonprofits] want to do something interesting."

For a large block of San Francisco's Mission District, Citizens Housing hired Daniel Solomon. While the architect is best-known as a cofounder of the Congress for New Urbanism, he and his firm (now WRT/Solomon E.T.C.) have worked on affordable projects dating back to the 1970s.

"It's so much easier to do good architecture for nonprofit developers than for production builders. You aren't forced to satisfy a bunch of marketer specifications," Solomon says. Also: "You're dealing with decision-makers, rather than layers of organization and committees."

The Mission District project is called Mosaica, and it's perched between the district's heavily Latino residential blocks and a light industrial area that faces gentrification pressures. It opened this winter with for-sale condominiums, family apartments, senior studios, and 12 live/work spaces reserved for light industry or design production, the latter included to soothe critics of the conversion of a former blue-collar site.

Solomon's architectural response to the jumble of uses was a rhythmic march of large bays and oversize details—such as a two-story-high terrace framed by arches—with a new alley to slice the block in two. The alleyway links Alabama and Florida Streets and is framed by live/work spaces with glass garage-door entrances and passes beneath portals created by third- and fourth-floor apartments.

With the large moves come small touches that bring different populations together. The two-story terrace adds depth to a long wall, but also serves as an enticing common space off a shared laundry room. And a community room is available for use by neighborhood residents as well. "It's a big, simple building, but it puts together an extremely interesting mix of uses," Solomon says. "They'll thrive off each other and reflect what this neighborhood is about."

Besides Solomon, other veterans of the affordable-housing scene are Oakland-based Michael Pyatok and San Francisco's Bob Herman, whose firm (now Herman & Coliver: Architecture) since 1969 has designed 20 projects in San Francisco with roughly 1,700 units.

Herman's most recent building is for the Salvation Army in the long-beleaguered Tenderloin neighborhood. Inside the grandly titled Ray & Joan Kroc Corps Community Center and Railton Place are 110 apartments, but also a Salvation Army facility complete with an indoor pool, computer labs, a dance studio, and a full-court gymnasium. The exterior's restrained Modernism includes one jaunty touch: Shallow metallic bays angle out from a concrete facade in such colors as pure yellow and foam green.

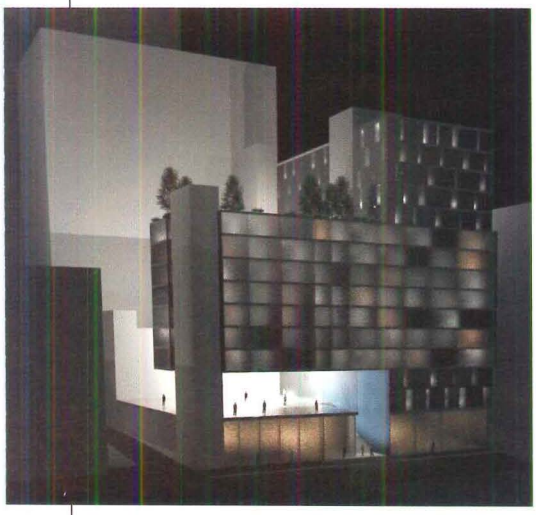
"The Bay Area attracts inventive progressive people, idealists," argues Herman, who taught at U.C., Berkeley's College of Environmental Design for 20 years. "The best of my students are now the best of my competition. It keeps me on my toes."

Wherever they went to school, the interest in affordable housing from younger Bay Area architects continues.

For a 15-story tower planned near San Francisco's Civic Center, Citizens Housing and the Tenderloin Neighborhood Development Corporation has hired Sullivan Saida Design Partners—a firm with just 10 employees and only a handful of completed buildings.

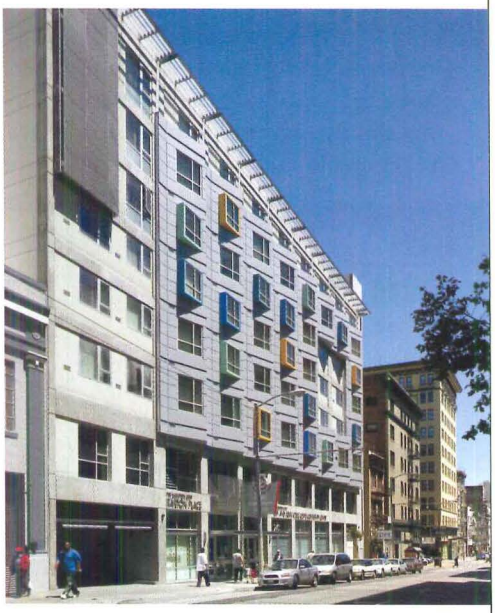
"Affordable housing and the social aspect of architecture are things I've always been interested in," says Mimi Sullivan, who grew up in the Bay Area and returned in 1999 at the height of the dot-com boom with her partner, Koji Saida. "I've seen the social landscape change so dramatically," says Sullivan. "We're losing a lot of interesting people."

Citizens Housing president Buckley is happy to try fresh talent. "David Baker was new at one point, and he has really blossomed," he points out. "We need to be looking into the future." ■



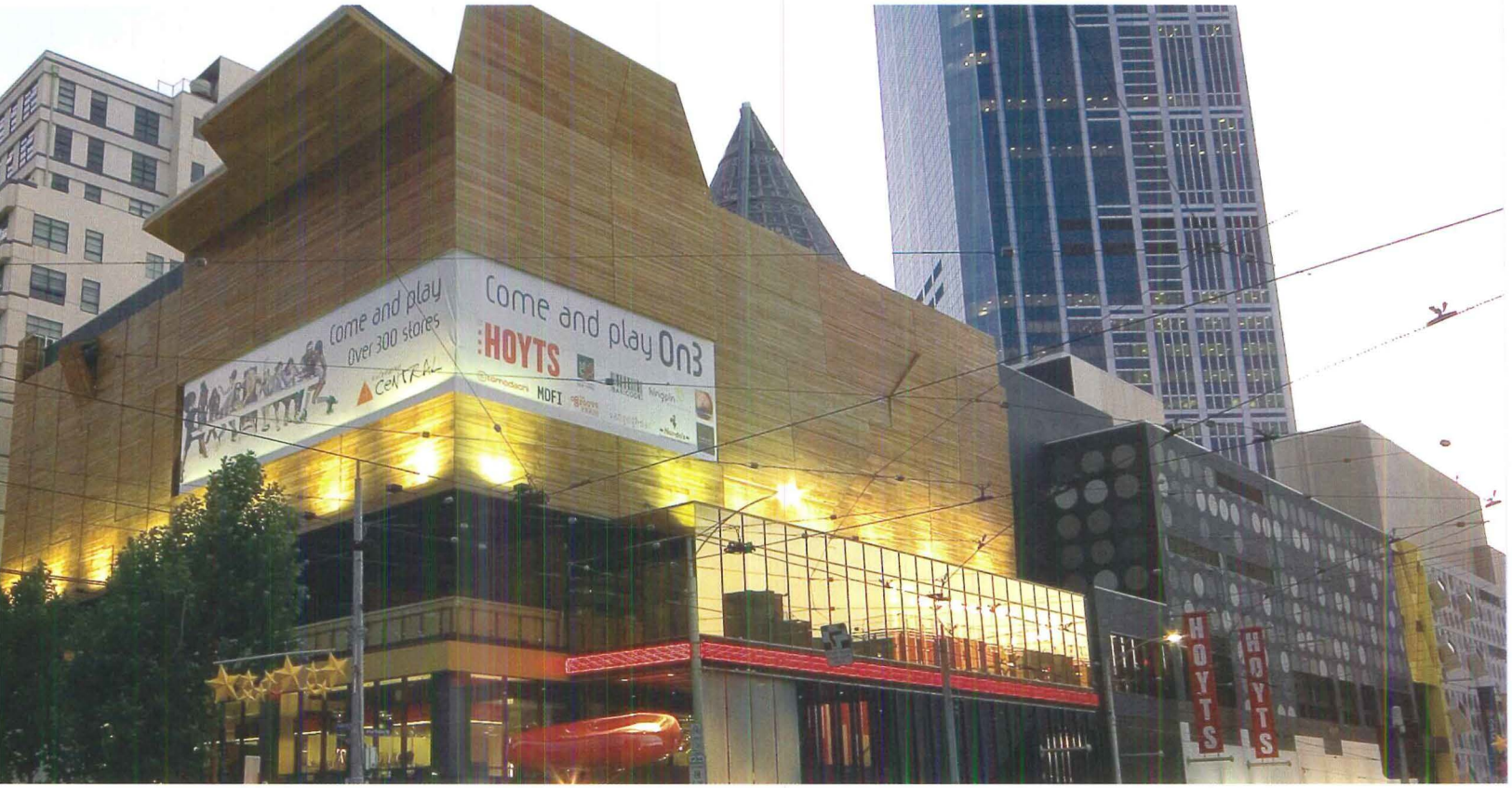
1400 MISSION
Sullivan Saida Design Partners

MOSAICA
WRT/Solomon E.T.C.



RAILTON PLACE
Herman & Coliver

Architect: Ashton Raggatt McDougall



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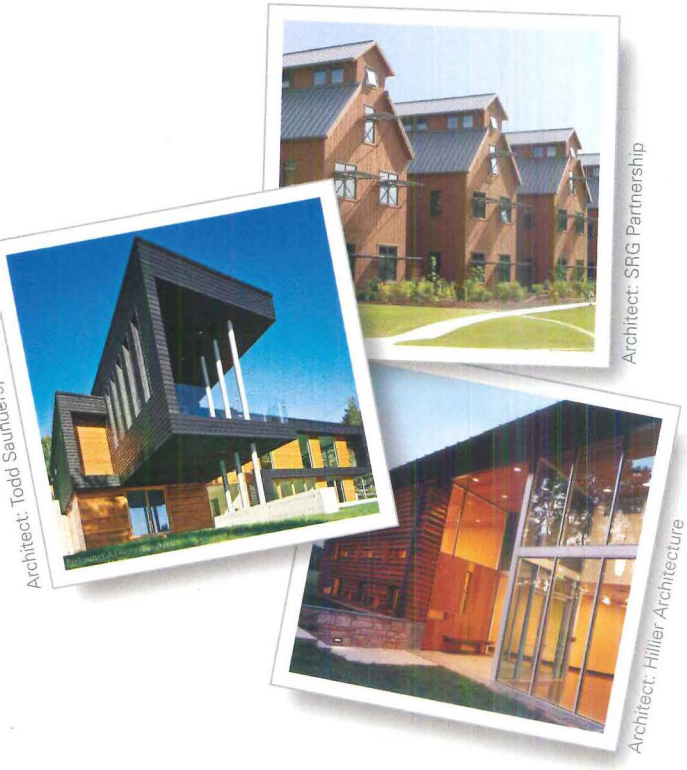

Architect: SRG Partnership

Architect: Todd Saunders

Architect: Hillier Architecture

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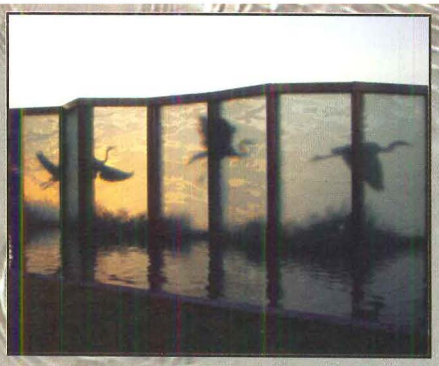
CIRCLE 26



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CIRCLE 27

BAYWATCH

BY MITCHELL SCHWARZER

"It started with the de Young": Many architects launch their explanations for the improved design climate in the San Francisco Bay Area with this phrase. Herzog & de Meuron's 2005 de Young in Golden Gate Park demonstrated the rewards of a sweeping vision. In order to fit in, a new building need not mimic older structures. On the contrary, explorations into site, light, material, and program can be the basis for capturing the ambience of place, even one as precious as San Francisco.

The de Young didn't spring, of course, out of a vacuum. Since the mid-1990s, with the development of the Yerba Buena district downtown, architects from around the world—including Mario Botta, Norman Foster, Rafael Viñoly, FAIA, Richard Meier, FAIA, Antoine Predock, FAIA, Ricardo Legorreta, Thom Mayne, FAIA, and Fumihiko Maki—have stretched the region's sense of how architecture can advance contemporary culture. The past year saw the addition of four more major buildings: Daniel Libeskind's Contemporary Jewish Museum and Renzo Piano's California Academy of Sciences, in San Francisco; Skidmore, Owings & Merrill (SOM)'s Cathedral of Christ the Light, in Oakland; and at the University of California, Berkeley, Tod Williams Billie Tsien Architect's Starr East Asian Library. At the same time, a number of locally based architects have come into their own, producing buildings of craft, conceptual rigor, and sensitivity to the social and natural environment. The collective result is a green light for innovative design in the Bay Area.

The most noticeable new architecture isn't being built across a wide typological spectrum. There have been a few powerhouse civic structures, like Meier's San Jose City Hall (2005), and especially Mayne's U.S Federal Building (2006) in San Franciso. But there haven't been corporate buildings of note. Museum directors, university presidents, and religious leaders who realize that bold architecture can energize their institution's prestige and presence, embrace cutting-edge design. They are aware that the philanthropists who power their boards can more easily fund-raise with a brand-name architect.

Both the Jewish Museum and Oakland Cathedral use ancient religious symbols—the Hebrew letter *chai* and the Christian symbol for the fish (*vesica pisces*) respectively—as a springboard for unflagging contemporary compositions. At the museum, Libeskind's blue steel letters tumble out of the shell of a Beaux-Arts power station; inside, in an upper-story space for musical and philosophical contemplation, their surfaces fracture into 36 diamond-shaped windows. At the cathedral, SOM's design partner Craig Hartman, FAIA, employed a pointed oval for the plan. Instead of a hierarchically oriented basilica, the altar stands near the center of the nave, surrounded by rings for the congregation and clergy. Instead of masonry walls and windows saturated with iconography, the glass building is energized by daylight streaming through a support structure of Douglas fir ribs, where wood louvers and aluminum panels modulate the luminescence.

Light and visibility characterize Renzo Piano's California Academy of Sciences, which is also an exhibition in sustainability, such as radiant heating, sensors that open and close windows, and solar panels along the roof perimeter. Occupying most of the roof is a garden of native plants that continues the vegetation of the park, lessens runoff during winter storms, and cools the interior by funneling heat through vents in its twin peaks.

Jim Jennings Architecture
Kreysler Associates Fabrication Studio, American Canyon, California

Fougeron Architecture
Ingleside Branch Library, Ingleside, California

Inside the Starr East Asian Library, light flows down from skylights into a stairwell cavern. Yet the building stands as a missed opportunity. At the University of California, Berkeley, Williams and Tsien came up against the most rigid design guidelines they had ever encountered. "Because the site was located in the Beaux-Arts core of the campus, it had to have a symmetrical facade," says Billie Tsien, AIA. "We had to have a pitched clay tile roof, and we needed to match the color of our granite to that of

Mitchell Schwarzer, a professor of architectural history at Californa College of the Arts, in San Francisco, writes frequently on architecture.

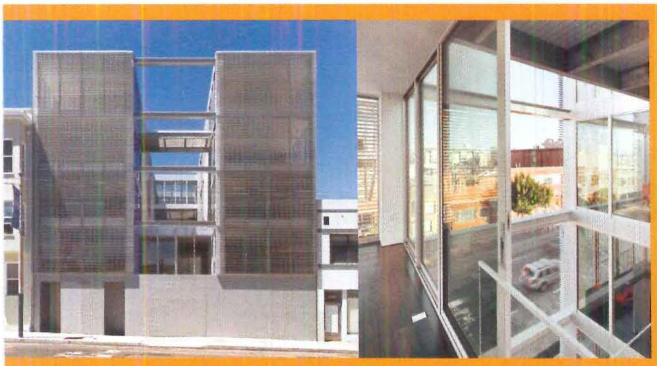
BAYWATCH

the Classical-style Doe Memorial Library (1911). We ended up, at least on the exterior, with a closed treasure box."

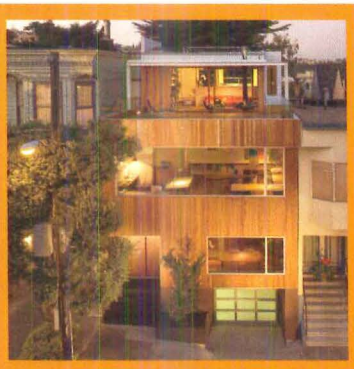
The university's action follows a familiar Bay Area story. Beginning in the late 1970s, at the urging of neighborhood groups, citizen activists, and historic preservationists, planning departments enacted nostalgic design guidelines reflecting postmodern architectural thinking. By the 1990s, the Bay Area became an architectural backwater. How could the most progressive region in the nation, as measured by its politics, cuisine, technology, and social formations, exile itself to the design sidelines? The answer is that the focus on individual, private lifestyles led many people to resist large, collective transformations brought on by architecture and urban design, such as skyscrapers, freeways, and other megaprojects. The 1960s protestors against the war became the 1980s and 1990s protestors against all change to their cherished environment. Opposition took on a life all its own.

Ten years ago, one had to look long and hard to find a new building by a locally based architect that looked Modern. A few, like Jim Jennings, AIA, were lonely, long-distance runners, grinding out winning performances despite a small audience. Today, Jennings is getting commissions for larger buildings. He's designing a laboratory for the University of California at San Francisco. In American Canyon, south of Napa, his Kreysler Associates Fabrication Studio will open in 2010. The 500-foot-long manufacturing building presents Jenning's muscular approach to structure and monolithic handling of surface.

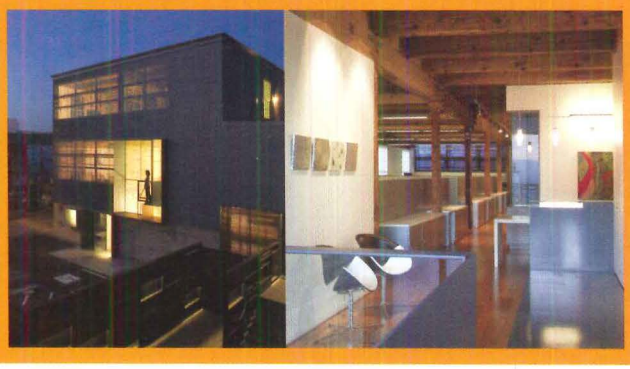
Another architect gleaning public commissions is Anne Fougeron, AIA. Her design for the Ingleside Branch of the San Francisco Public Library will be completed in early 2009. "I was trying to express structure, use light to articulate and energize space, and carefully craft the way materials are put together," she notes. Fougeron was also trying to elevate the stature of the library above its muddled commercial neighbors by erecting a second roof, faced in I-beams, that floats on a grid of steel columns.



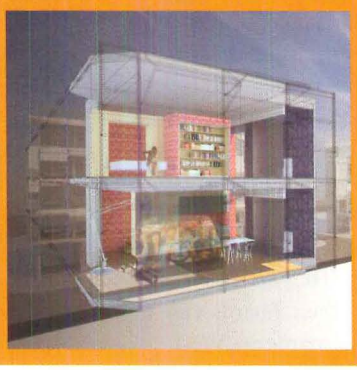
Stanley Saitowitz/ Natoma Architects
1234 Howard Street, 2007, San Francisco



Craig Steely/ Steely Architecture
Beaver Street Reprise, 2007, San Francisco



Aidlin Darling Design
Matarozzi/Pelsinger Builders office building, 2008, San Francisco



envelope Architecture + Design
and/or work/housing for Octavia Boulevard, San Francisco

PHOTOGRAPHY: © BEN VAN BLITHOVEN (TOP THREE);

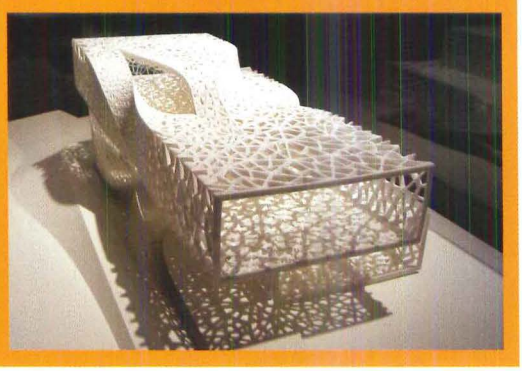
Nowadays, the experience at Berkeley is becoming less the rule. Since the dot-com era, younger Bay Area residents have embraced risk-taking in their personal physical environments. They are encouraged by companies, including Design Within Reach, founded in 1998 in San Francisco, which promote mid-century furniture and design; and shelter magazines, such as the locally published *Dwell*, which showcase untried housing design instead of historicist knockoffs. Modernism is back in vogue.

Locally based architects are also turning Modernism into a building language calibrated to the region's nonconformism and environmentalism. Open plans, daylighting, movable partitions, and sustainability characterize the best new design. More than anyone, Stanley Saitowitz of Stanley Saitowitz/Natoma Architects has crafted new typologies for dwelling in the

BOTH INTERNATIONAL AND LOCALLY BASED ARCHITECTS ARE CAPTURING THE AMBIENCE OF THE BAY AREA THROUGH MODERNISM – NOT HISTORICISM.

Bay Area. His bar-shaped houses dive over and into their suburban and exurban sites, posing the purity of geometry against the seismically ravaged topography. In San Francisco, his loft buildings question the accepted notion that residents must live in versions of cramped, ornamented Victorian houses. For the 1234 Howard Street Lofts in San Francisco, finished in 2007, he extended research that had begun with his Natoma Street building of 1992 and further developed in the Yerba Buena Lofts of 2002. Inside, Saitowitz blasted open the interiors, and thanks to a central courtyard and streetside glazing modulated by aluminum louvers, they become part of the expression of the city. In 2010, this "dwelling as street theater" will debut in a couple of multifamily buildings on Octavia Boulevard, site of the former Central Freeway. Saitowitz has designed one of them, a sliver of metal and icy glass. Across the street, Douglas Burnham, of envelope Architecture + Design, will unveil a similar five-story glass shard of an

Pfau Long Architecture
SPUR Center, San Francisco



IwamotoScott Architecture
Jellyfish House, Treasure Island, San Francisco Bay

apartment building, 240 feet long and only 18 feet deep, wrapped in a skin of adjustable sun shades and woven wire mesh.

Other Bay Area architects are capitalizing on the way the region's powerful light reflects off its surfaces. For the Matarozzi/Pelsinger office building in the city's South of Market district, Aidlin Darling Design clad its warehouse renovation with a corrugated zinc scrim whose rows of perforated holes change dimension across its width. Along with the steel-framed clear glazing, the undulating surface subtly reveals the interior. "We were interested in the idea of pulling the public through a building," remarks Joshua Aidlin, AIA. "So you'll be standing in front of the large public courtyard we created off the street, and see through the restaurant to the garden in back. Or you'll be looking at the facade, where we use translucency and reflection to shadow and mirror people's movement to create the visual equivalent of a fourth dimension of space."

Environmental considerations have moved front and center. Architects tout the steps that lead to a gold or platinum LEED rating. While the obsession with points threatens to become an end in and of itself, buildings have benefited from the green focus. In designing the San Francisco Planning and Urban Research (SPUR) building, which opens in the South of Market area in 2009, Peter Pfau, AIA, of Pfau Long Architecture, fully integrated the mechanical systems into the design. Instead of being laced with ductwork, the entire space becomes the ductwork. Craig Steely of Steely Architecture has designed several houses on small San Francisco lots—including his own, completed in 2007—where considerations of space leap to the forefront. "Too often," he says, "clients initially see Modernism as style and size. I work with them to edit out large closets and multiple bathrooms, so we can increase living spaces, or we give up some interior space—as I did in my own house—to yield an outdoor deck."

Of late, the proposed museum in the San Francisco Presidio by the New York architects Gluckman Mayner for Donald Fisher's art collection has stumbled, in part owing to intransigent preservationists (see page 26). But it also happened because principal Richard Gluckman's avowedly contemporary design doesn't persuasively engage its environment. A focus on site and sustainability can bring architects and the public together. It's hard to imagine those same preservationists, who have been fighting new architecture for decades, combating contemporary buildings that harvest and generate energy. By promoting environmentalism and thus creating new political allies, architects may discover, as Craig Hartman hopes, "a powerful opportunity to invent architectural forms." Those forms can emerge out of inquiries into sprawl and density, consumption and recycling, privacy and community, fire and drought. For the unbuilt Jellyfish House (2006), Craig Scott and Lisa Iwamoto of IwamotoScott Architecture showed that an engagement with sustainability means more than updating common-sense building methods. Designed for a site on Treasure Island in the middle of the Bay, the house is intended to capture rainwater and gray water, filter the fluids through its skin, and allow for that aqueous hide to oscillate, depending on temperature change and user desire, between opacity and transparency. Indeed, by probing the inimitable nature of this place, all these architects have their best shot at producing original works of beauty and virtue. ■

Renzo **Piano** designs a living, breathing building in San Francisco's Golden Gate Park for the **CALIFORNIA ACADEMY OF SCIENCES**

By Clifford A. Pearson

Renzo Piano calls his new building for the California Academy of Sciences a "soft machine." "It sounds better in Italian, because *machine* brings to mind the process of making and Leonardo in his workshop," he explains, pronouncing the Italian word *macchina*. The architect and his team at the Renzo Piano Building Workshop (RPBW) conceived of the 410,000-square-foot project as a manifestation of the academy's mission to study, store, and exhibit the wonders of natural science. "It's a machine for preserving nature," says Piano. Great idea. But this is a big machine, at a key location in Golden Gate Park, and it needs to engage a lot of different people: the 10-year-old kid looking for the live penguins, the 40-year-old ichthyologist working there, and the romantic couple sitting on a bench in the adjacent plaza, called the Music Concourse.

Part museum and part research-and-storage institute, the academy occupies the site of its predecessor—an 11-building complex erected piecemeal from 1916 to 1976 and damaged beyond repair by the Loma Prieta earthquake in 1989. It faces Herzog & de Meuron's de Young Museum [RECORD, November 2005, page 104] across the Music Concourse, creating a dialogue between equally famous foreign architects working on public buildings of equal scale. While Jacques Herzog and Pierre de Meuron wrapped their museum in an array of copper panels (dimpled, bubbled, and flat), and Piano surrounded his with extremely clear, low-iron glass, both projects attach themselves to the park—the de Young with fingers of landscaped space entwined with gallery wings, and the academy with enormous, floor-to-ceiling views outside. The firms' very different approaches to similar sets of issues makes this pairing one of the most fascinating in the country—on par with Kahn and Ando in Fort Worth. When asked about the academy's relationship with the de Young, Piano says he didn't think about it much. "This is what you get when you are yourself and they are themselves."

The undulating green roof echoes San Francisco's seven hills and supports 6 inches of soil holding 1.7 million native plants. Circular skylights open to bring air inside the building.

Piano's initial sketch for the academy shows a long, undulating roof in section: Where large programmatic elements sit, it rises up to accommodate them, and where less is needed, it dips down. "So it becomes organic," states the architect. "At first, I wanted to do the roof as a wood structure, to build it like the keel of a boat," he explains. In the end, though, it was made of steel, in part to limit the number of trees cut down. From the start of the project, Piano collaborated with Chong Partners (now Stantec), even bringing designers from the San Francisco firm to work in his Genoa office for certain periods.

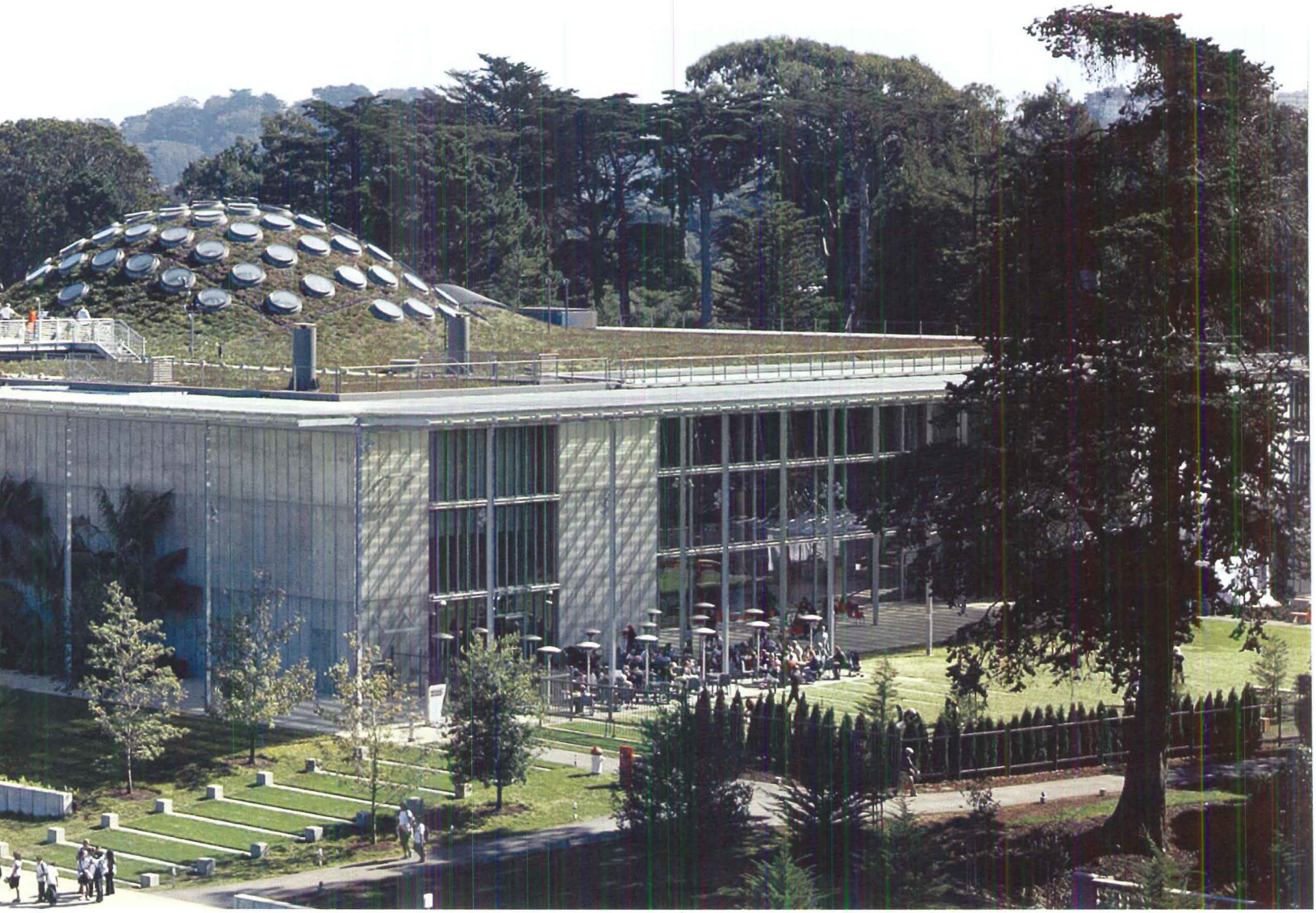
Piano saw the roof as a metaphor for the entire project. "I saw it as topography," he adds. "The idea was to cut a piece of the park, push it up 35 feet—to the height of the old buildings—and then put whatever was needed underneath." From the beginning, he envisioned a green roof that would be an extension of the park and serve as a thermal buffer for the spaces below. "Twenty-first-century architecture must be about sustainability," he asserts. "This isn't a moralistic stance; it's simply what architecture must be."

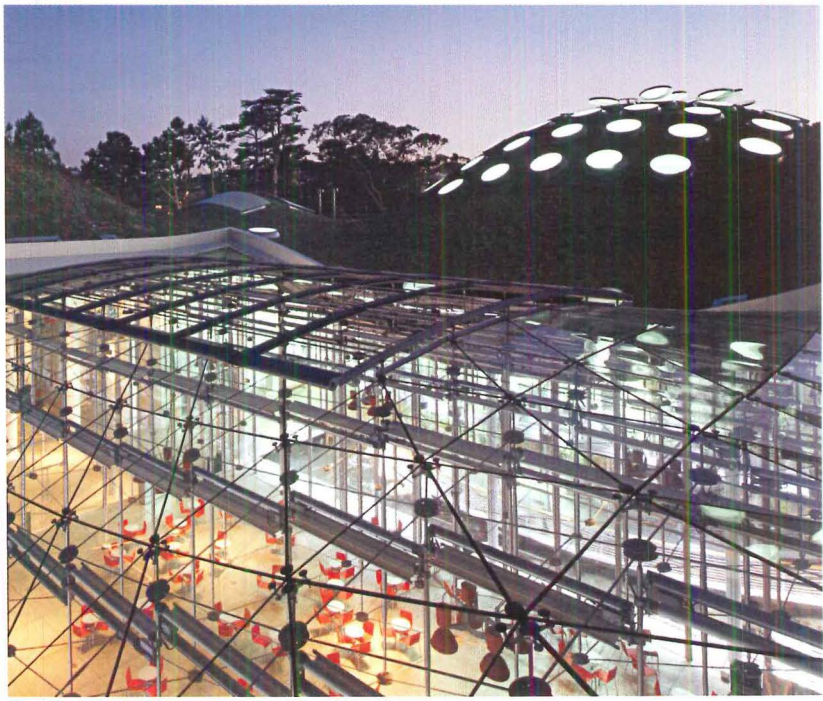
For an institution devoted to the natural sciences, such an attitude was particularly important. The building, which received a LEED Platinum rating after it opened at the end of September, employs an impressive range of green strategies, including recycling 90 percent of the demolition waste from the old buildings; using recycled material for all of its structural steel; incorporating insulation made from recycled blue jeans; employing heat-recovery systems to capture and use heat generated by HVAC equipment; using radiant heating in floors; ensuring that 90 percent of regularly occupied space has access to daylight; naturally ventilating almost the entire building (see sidebar, page66); and reducing the need for potable water by using low-flow plumbing fixtures and reclaimed water from the City of San Francisco.

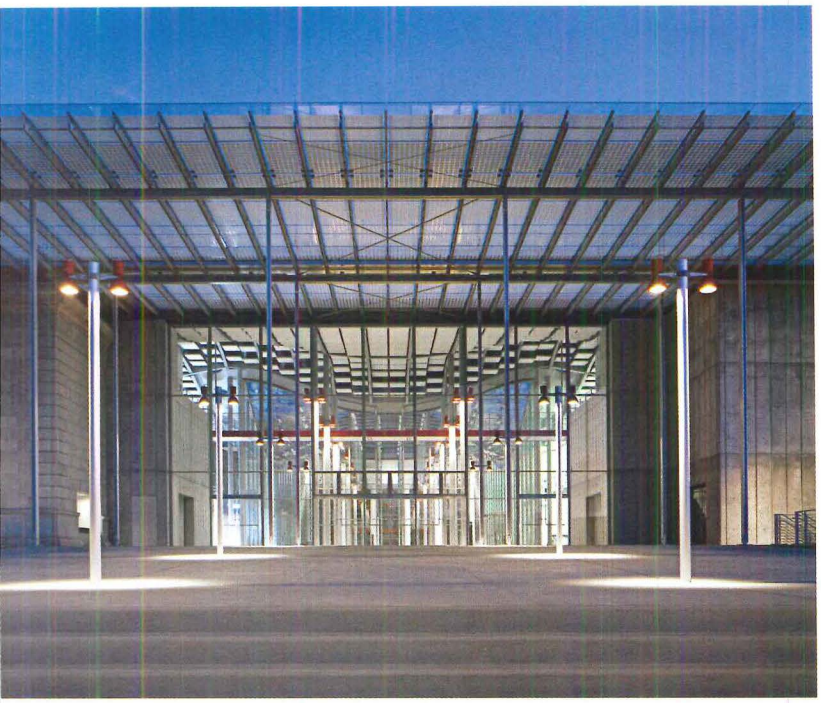
The academy faces the de Young Museum across the landscaped Music Concourse (opposite, bottom left). The public enters on the north and can visit the roof from a small deck (above). A cable-and-glass skylight covers the piazza (opposite, bottom right).

The green roof, which bulges to form seven hills, plays a critical role in the building's sustainable-design performance—reducing storm-water runoff by 98 percent, providing thermal insulation, and creating a 2.5-acre habitat for 1.7 million native-Californian plants and all kinds of insects and birds. The undulating roof incorporates glass panels above part of a central piazza and small circular skylights set into the various "hills." The skylights, which are controlled by an automated system, all open and close to naturally ventilate the spaces underneath. A solar canopy wrapping around the perimeter of the building contains more than 55,000 photovoltaic cells that can generate 213,000 kilowatt hours each year

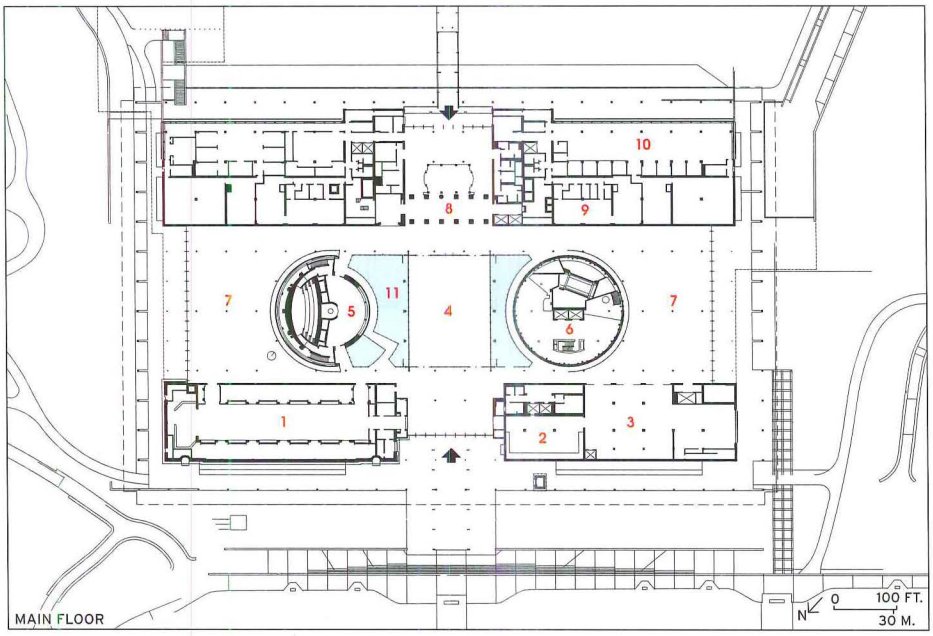
PHOTOGRAPHY: © TIM GRIFFITH (PRIOR SPREAD); CHUCK CHOI (TOP SPREAD







1. *African Hall*
2. *Store*
3. *Café*
4. *Piazza*
5. *Planetarium*
6. *Rain forest sphere*
7. *Exhibition*
8. *Steinhart Arch*
9. *Research*
10. *Offices*
11. *Aquarium (below)*



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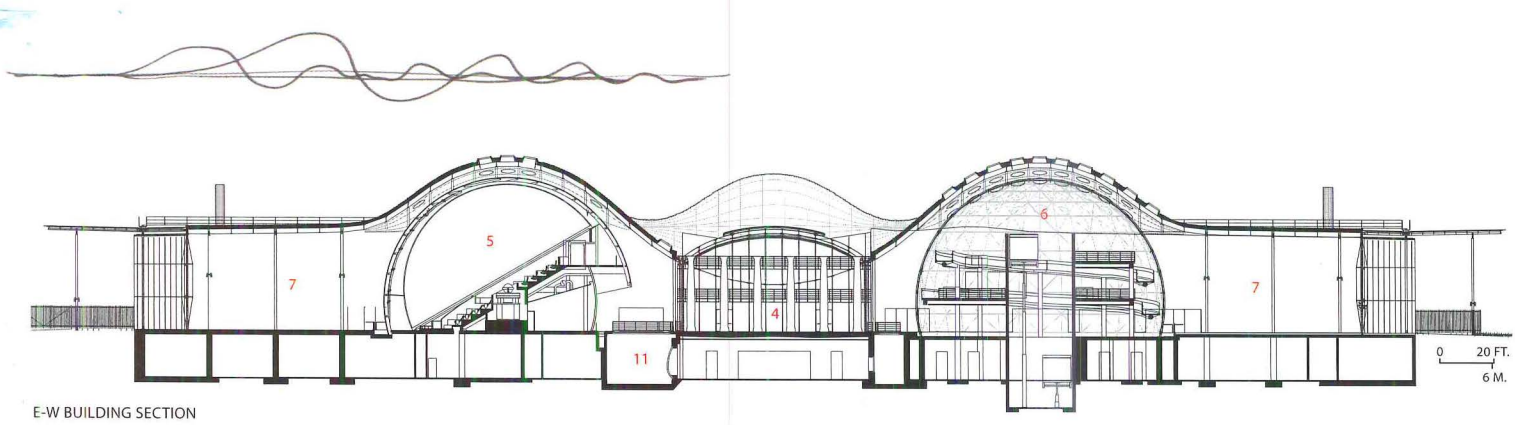


E-W BUILDING SECTION

PHOTOGRAPHY: © TIM GRIFFITH (TOP LEFT); CHUCK CHOI (TOP RIGHT); NIC LEHOUX (OPPOSITE)

(at least 5 percent of the academy's energy needs). According to Arup, which provided sustainability-consulting services, as well as structural and mechanical engineering, the building will consume 30 to 35 percent less energy than required by California's already strict building code.

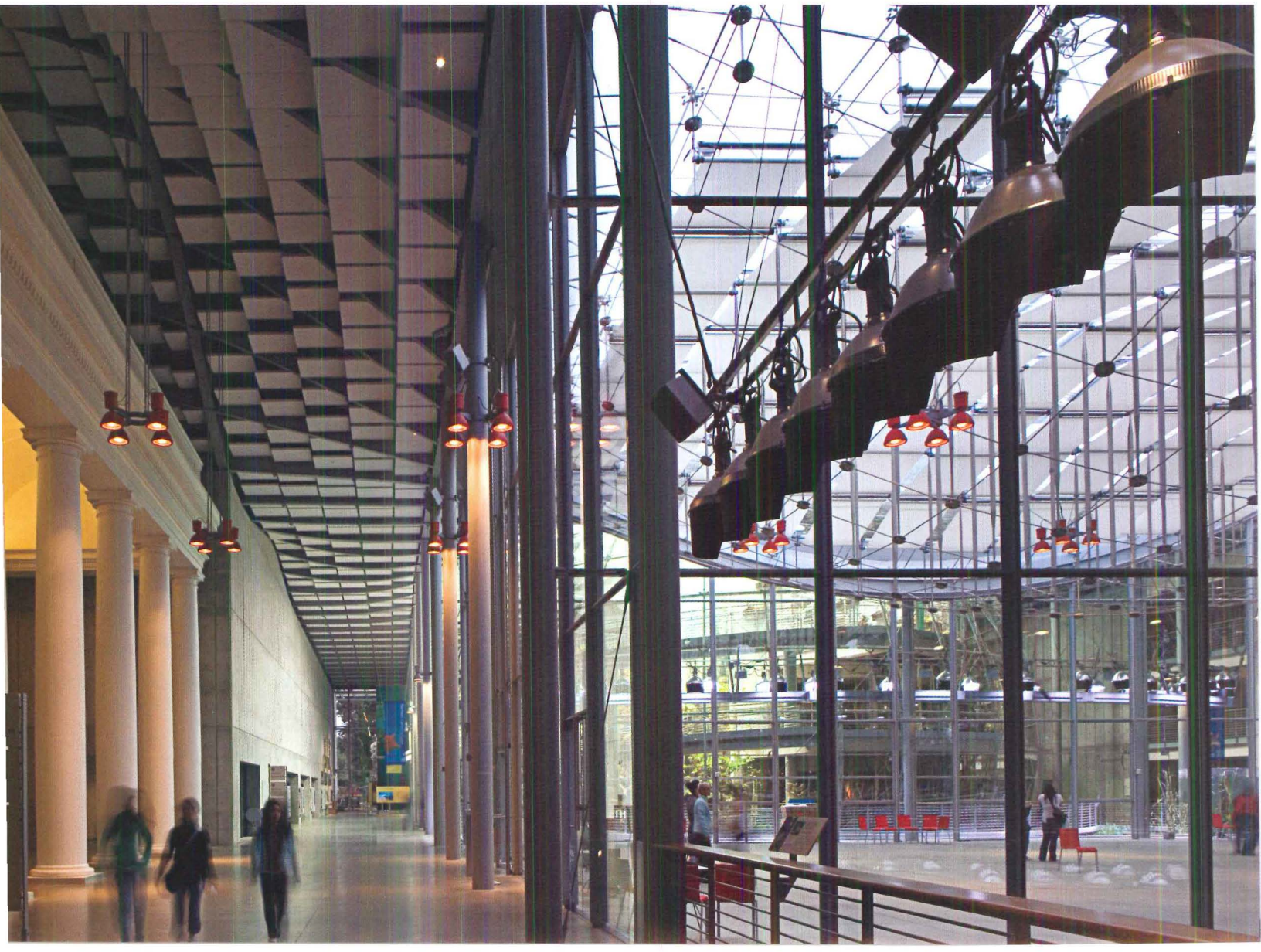
To support the expansive roof, RPBW designed a set of four masonry structures—one at each corner—incorporating two of the original academy's Neoclassical limestone walls in the northeast structure and using poured concrete for the others. Although not immediately apparent, memory informs Piano's modern machine—in the building's Neoclassical symmetry and its slender, steel hypostyle colonnades on each facade. Inside, the central piazza—partially covered by a "spider's web" of cables, rods, and glass—recalls the old academy's central courtyard, while re-creations of the institution's barrel-vaulted African Hall and Doric-columned Steinhart Arch serve as touchstones for returning visitors.

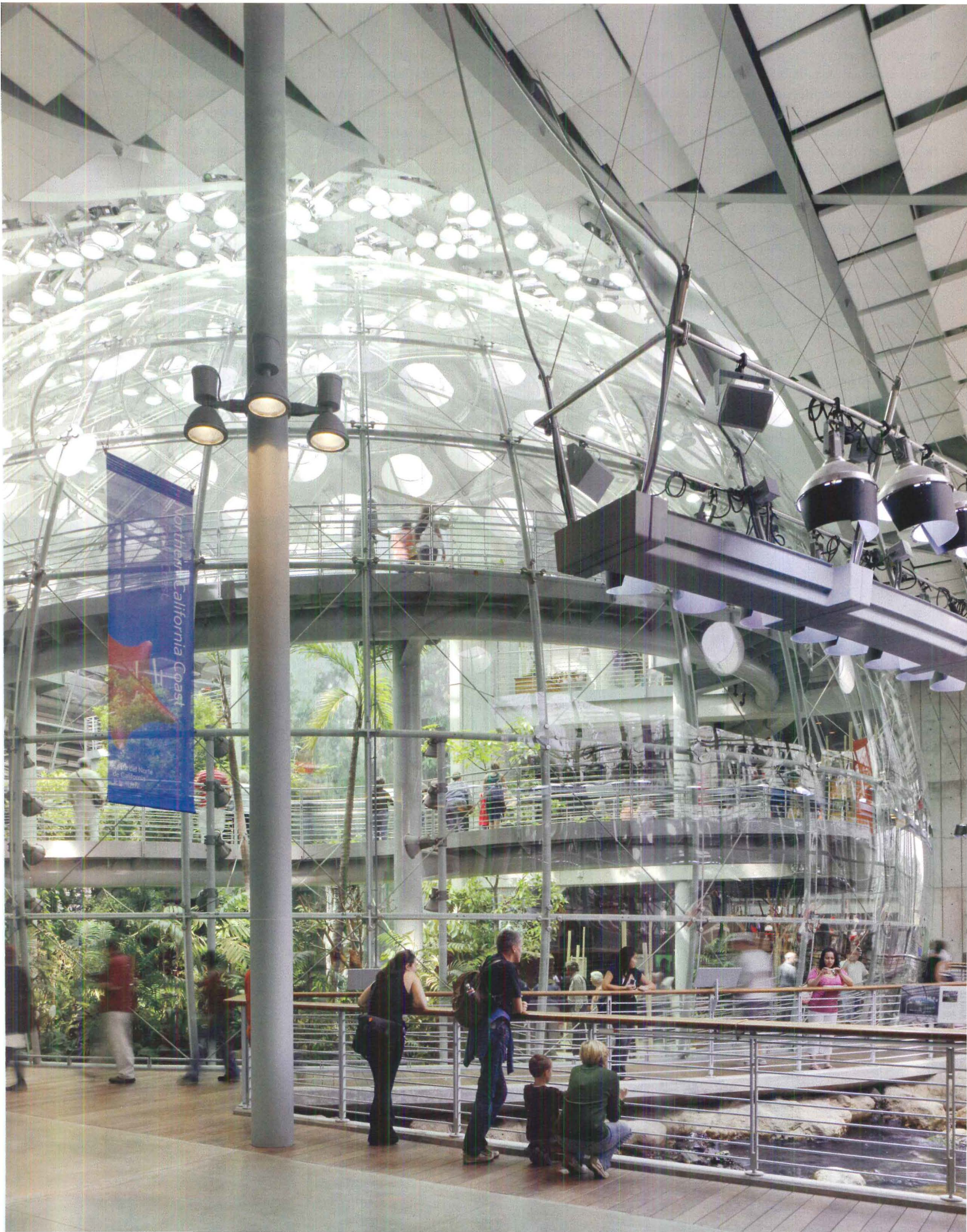
A canopy with nearly 60,000 photovoltaic cells generates energy and shades the main entry (opposite, top left) and the staff entrance (opposite, top right). The old Steinhart Arch has been inserted into the new building (below). A line sketch shows Piano's idea of the roof (opposite, lower left).

The public enters the building from the north up a stepped podium, while the academy's staff and research personnel cross a short bridge over a man-made ravine on the south. (By carving out earth for the ravine, RPBW brought daylight into the building's two lower floors.) The solar canopy wrapping around the building's perimeter provides a shaded transition space between indoors and out, in the process converting the sun's rays into electricity. "It works just like the leaves of a tree," explains Piano. On the west, an outdoor sculpture by Maya Lin helps tie the building to its park setting; a second piece by Lin—on the east—will open on Earth Day 2009.

In the northeast-corner structure, the architects inserted the rebuilt African Hall along with its original dioramas, and in the northwest one they placed the museum café and store. The southeast and southwest blocks house research and administration spaces, some of which the public can look into and see that the building is more than just a museum. Between the masonry structures on each corner, RPBW created a pair of enormous exhibition halls with the glass-wrapped piazza in the middle. Daylight and air enter from the 35-foot-high glass walls on the east and west, as well as from the piazza.

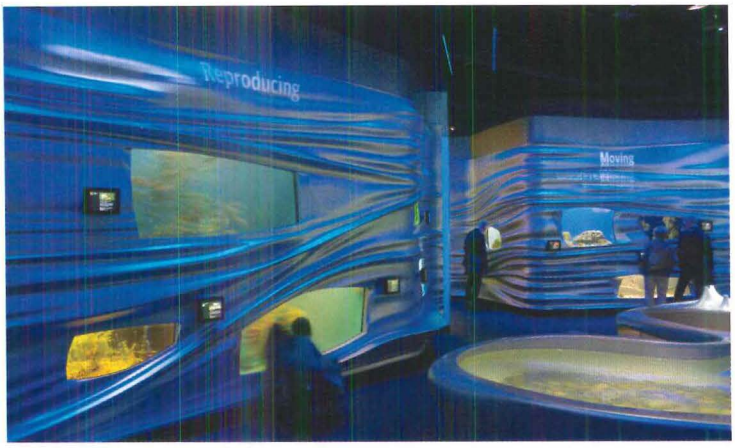
Anchoring the halls are two 90-foot-diameter spheres: an aluminum-clad one housing the new Morrison Planetarium, and a steel-frame one containing a four-story rain-forest exhibition accessed by a steel ramp fabricated by a company that works mostly on roller coasters. Underneath the central piazza and running up to the edge of




Northern California Coast

The aquarium's fish tanks come to the edge of the rain-forest sphere (opposite) and even slide inside and below it (bottom right). A ramp fabricated by a roller-coaster specialist takes visitors to the rain-forest sphere's four levels (top right).

PHOTOGRAPHY: © TIM GRIFFITH (OPPOSITE AND BOTTOM RIGHT); CHUCK CHOI (TOP RIGHT)



The planetarium (above left and opposite) is tilted at a 30-degree angle so that people in the seats inside don't have to crane their necks to watch the star show. An acrylic tube (above) runs through one of the aquarium's six main tanks, letting visitors watch fish swim around them. Images are projected on fiberglass panels in the Water Planet exhibit (top).

each giant sphere, the enormous tanks of the Steinhart Aquarium take visitors into an underwater world filled with sharks, fish, and the largest artificial coral reef in the world. Light from the piazza and circular skylights above provide enough daylight to keep all the water creatures happy (and alive). The New York firm Thinc Design led the exhibition-design team and worked with Urban A&O [RECORD, December 2008, page 80] on the Water Planet exhibit in the aquarium.

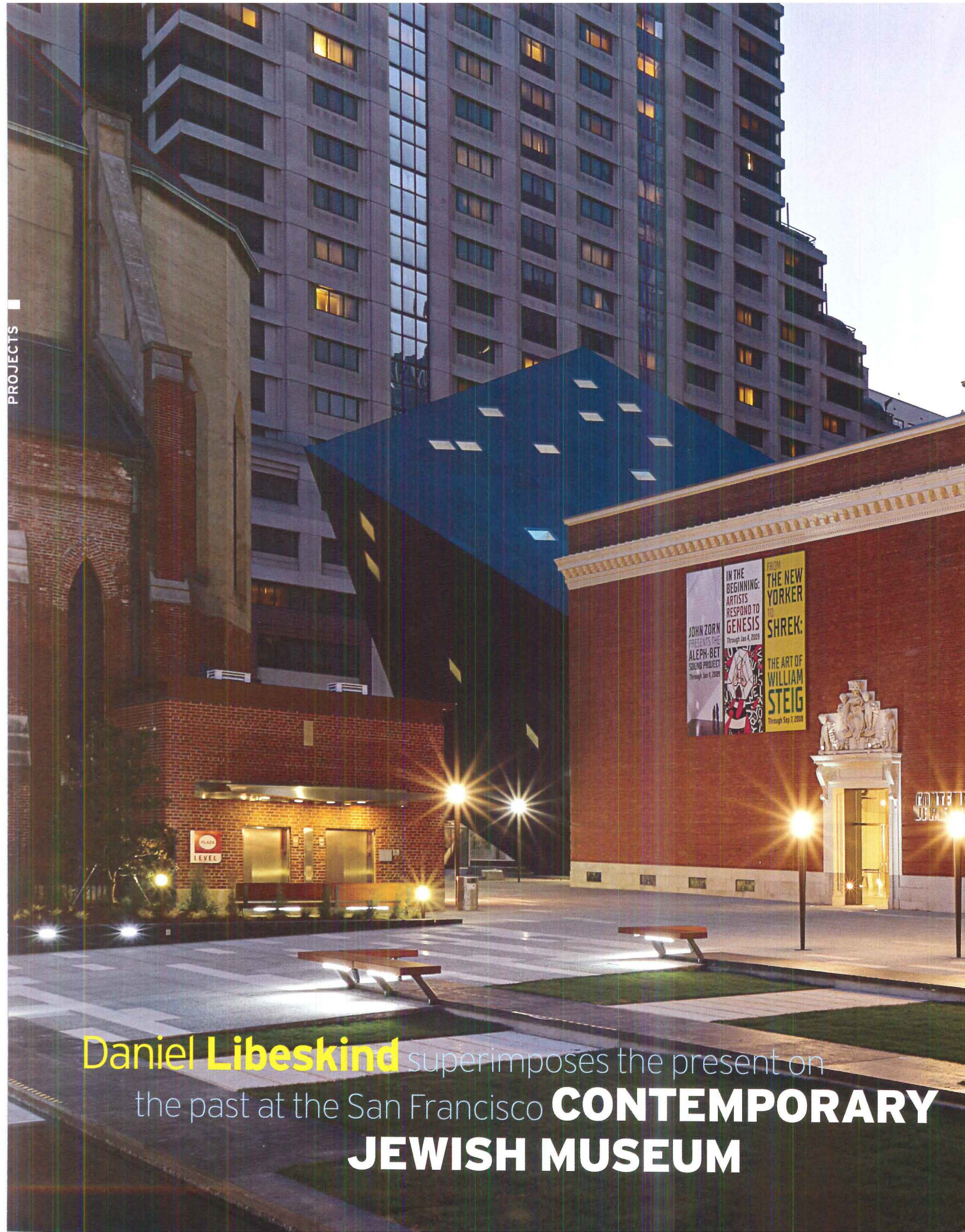
"In the past, science museums were kingdoms of darkness," states Piano. "You would wander from one dark gallery to another, looking for the dinosaurs and then the dioramas." At the California Academy of Sciences, though, daylight animates the major spaces—changing the visitor experience from one of trekking through the jungles of science to that of surfing the broad seas of knowledge. By necessity, the planetarium and African Hall block out most sunlight; but they're the exceptions.

In spirit, the academy recalls Cedric Price's unrealized 1961 design for a Fun Palace in London: a giant glass-and-steel box filled with spaces for all sorts of entertainment activities. While the academy doesn't have the gantry cranes Price envisioned rearranging prefabricated components and modules inside his palace, its large halls accommodate rotating exhibitions, and its planted roof changes color and character with the seasons. In places, the academy building seems too accommodating and its relationship with the past a bit forced. For example, the freestanding Steinhart Arch doesn't really feel at home inside its new setting, and a re-created swamp exhibit with its seahorse railing reads as an act of artificial preservation. But the building's inclusiveness in programming speaks to Piano's notion of a "soft" machine.

Explaining his reaction to the completed building, Piano says he was most excited when he visited the observation deck on the green roof as the sun was setting. "I was up there with my son and we saw the skylights pop open to let air into the building. It was like watching an animal come alive and breath." ■

Project: *California Academy of Sciences, San Francisco*
Design architect: *Renzo Piano Building Workshop—Renzo Piano, Mark Carroll, Olaf de Nooyer, Shunji Ishida, partners*
Architect of record: *Stantec Architecture (formerly Chong Partners)*
Engineers: *Arup (structural, m/e/p, lighting); Bello Associates (structural); SJ Engineers (plumbing); Rutherford & Chekene (civil)*
Landscape architect: *SWA Group*
General contractor: *Webcor Builders*

SOURCES
Curtain wall: *Josef Gartner GmbH*
Motorized roller shades and solar controls: *Nysan*
Built-up roof: *Hydrotech*
Acrylic glazing: *Reynolds Polymer Technology*
Acoustical ceilings: *Armstrong*
Demountable partitions: *Steelcase*
Elevators: *Otis*



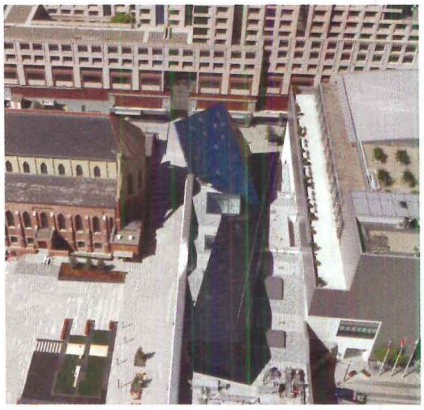
Daniel **Libeskind** superimposes the present on the past at the San Francisco **CONTEMPORARY JEWISH MUSEUM**

Libeskind's blue steel *yud* and *chet* CJM additions (opposite and top, respectively) create a powerful juxtaposition to its existing brick shell, a circa 1881 former power substation.

By Sarah Amelar

Daniel Libeskind, by happenstance or design, has practically become the official architect of Jewish museums worldwide, but that trajectory was near its beginning when he received the commission, in 1998, for San Francisco's Contemporary Jewish Museum (CJM). His Jewish Museum Berlin [RECORD, January 1999, page 76] and Felix-Nussbaum-Haus, in Osnabrück, Germany, were not yet complete, and his Danish Jewish Museum [RECORD, October 2004, page 140] barely conceived. While those European institutions would rise in the dark shadow of the Holocaust, he and the museum determined that the CJM's building should, instead, celebrate California's far brighter Jewish history.

But the CJM is a curious institution that "doesn't fit into any particular category," admits its director, Connie Wolf. "It's not, strictly speaking, a museum of art, or of history, or of the Holocaust, or of Judaica." Its stated mission is to explore Jewish culture, history, and tradition through the prism of contemporary art and ideas. Like a kunsthalle, it has no permanent collection. And when founded, in 1984—occupying cramped quarters in a Financial District office building—it also had no architectural identity.

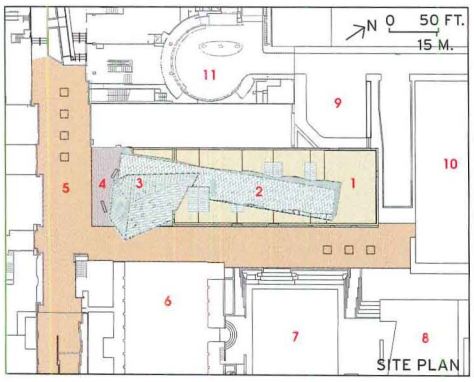


The site of the CJM's eventual home made it tricky to carve out a distinctive, even visible, physical identity. In the mid-1990s, the museum had acquired, for adaptive reuse, the long-vacant Jessie Street Power Substation, a landmarked, 1881 redbrick structure. Though embellished with terra-cotta swags and cherubs by architect Willis Polk, who restored it after the 1906 earthquake and fires, the power station stood publicly off limits, nearly hidden from view along a narrow lane.

Some eight decades after literally empowering the city's rebirth, the decommissioned substation ducked the wrecking ball, when much of the neighborhood was razed for the Yerba Buena arts district. By the time the CJM arrived on the scene, the building was virtually locked in by an impinging, collagelike cluster of eclectic neighbors, including a large church and three modern high-rise hotels.

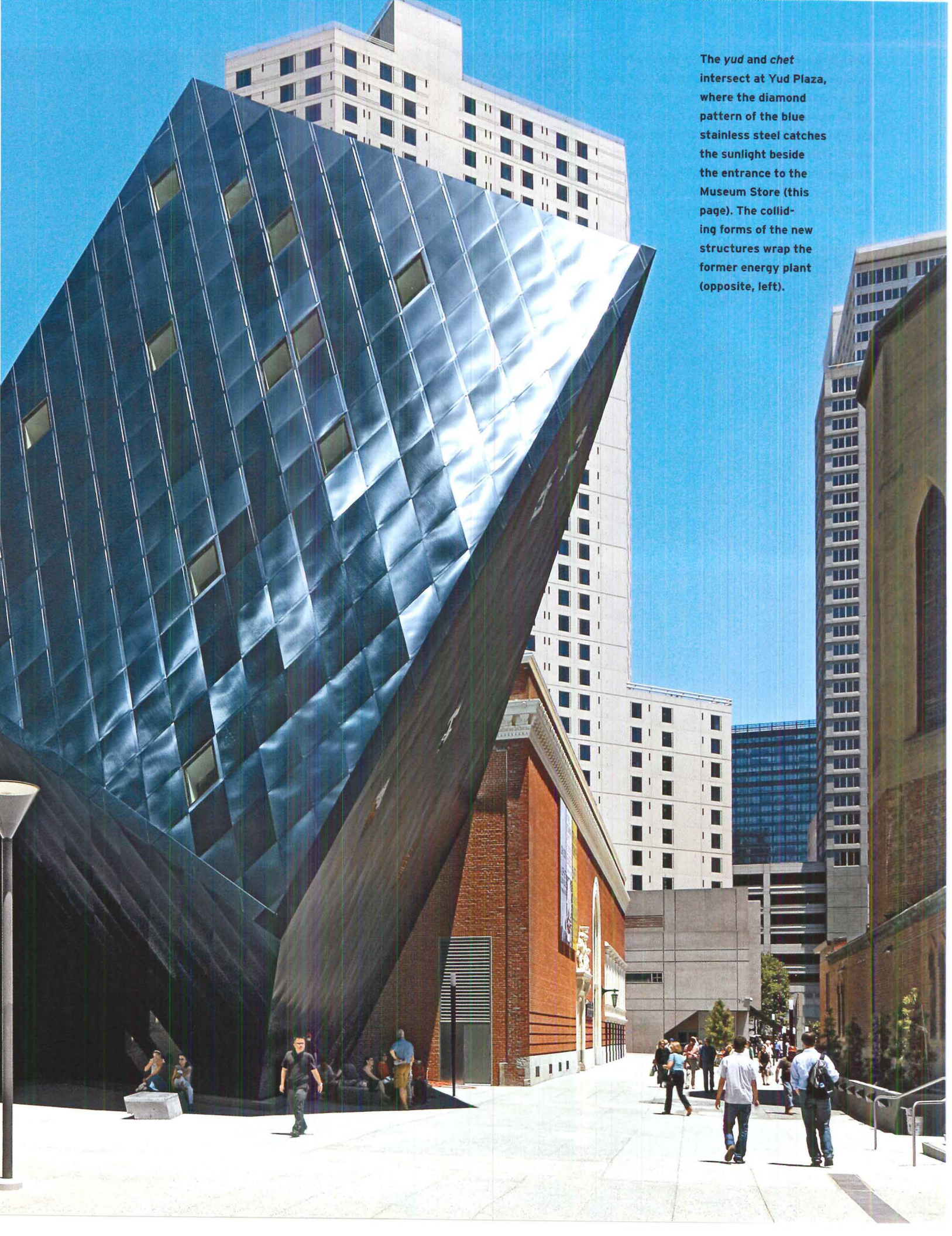
"A survivor with an auspicious history, the power station helped fuel San Francisco's success," says Libeskind, who credits that distinction

Sarah Amelar is a contributing editor at RECORD.



1. *Contemporary Jewish Museum*
2. chet *structure*
3. yud *structure*
4. *Yud Plaza*
5. *Yerba Buena Lane*
6. *Saint Patricks*
7. *Jesse Square*
8. *Future Mexican Museum*
9. *Stevenson Street*
10. *Westin Hotel*
11. *Four Seasons Hotel*

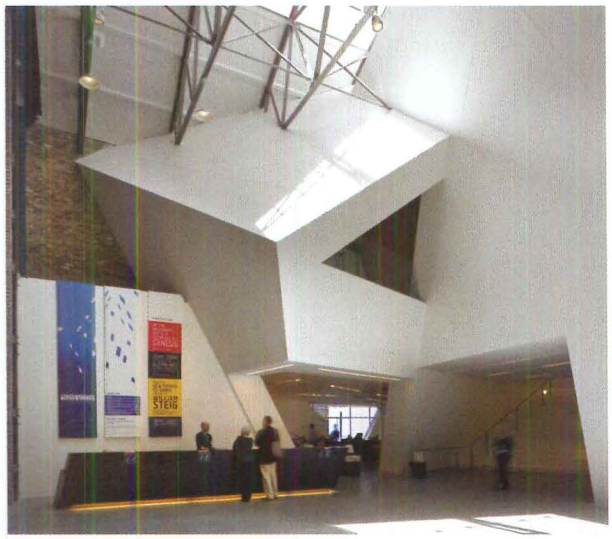
PHOTOGRAPHY: COURTESY THE CONTEMPORARY JEWISH MUSEUM, SAN FRANCISCO/ © BITTER BREDT, EXCEPT AS NOTED

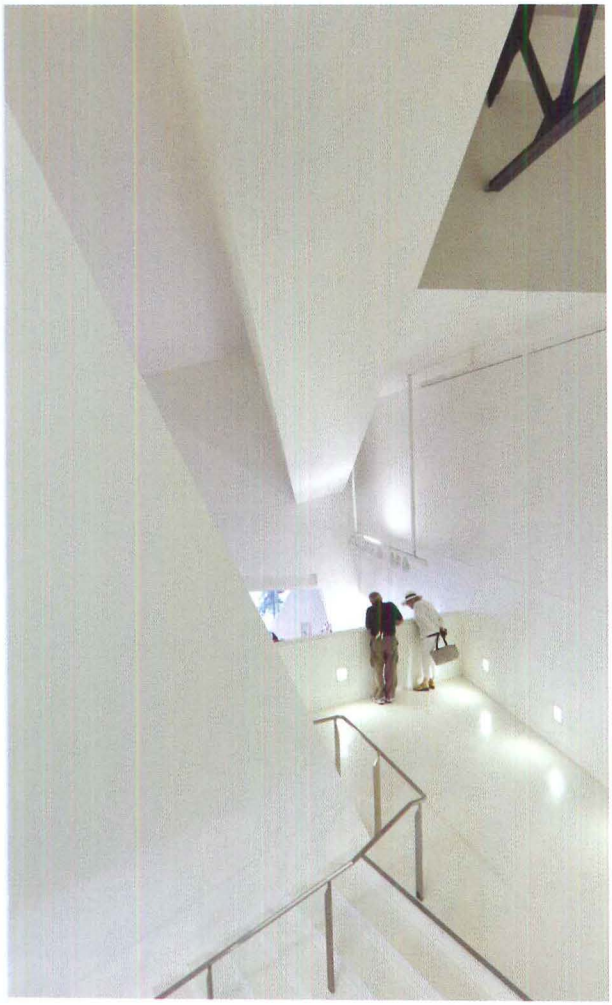


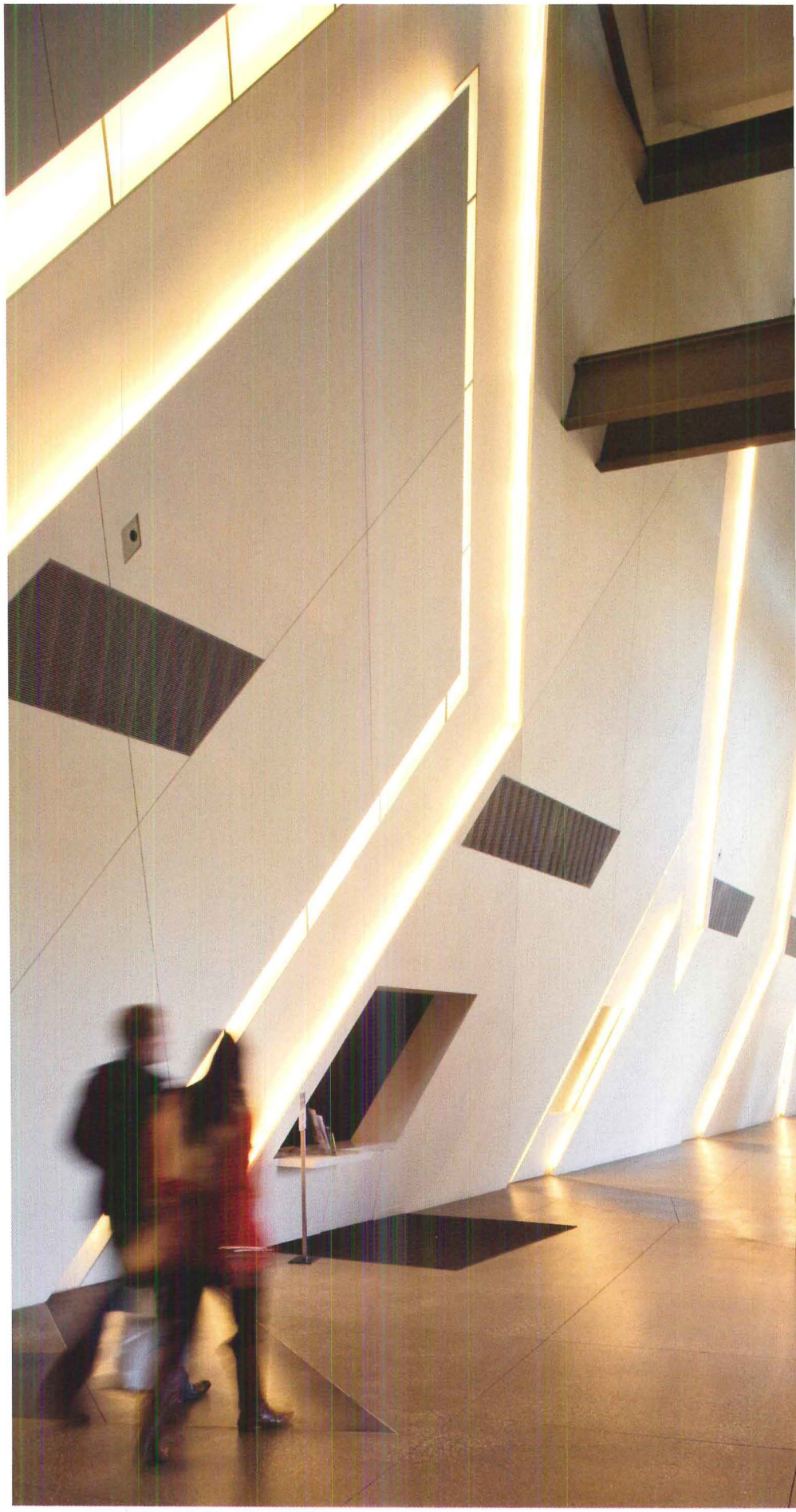
The *yud* and *chet* intersect at Yud Plaza, where the diamond pattern of the blue stainless steel catches the sunlight beside the entrance to the Museum Store (this page). The colliding forms of the new structures wrap the former energy plant (opposite, left).

A web of structural and mechanical elements above the lobby evokes the former energy plant's industrial innards, while the play of daylight and shadows animates the canted PaRDeS Wall (right).

The entrance to the Museum Store as seen from the lobby (below). Visitors view the lobby level from the top of the grand stair (bottom). The CJM looks out on Jessie Plaza (opposite).





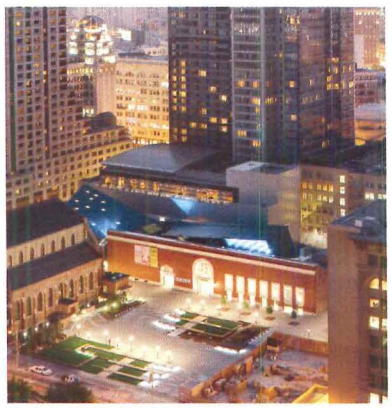


(and the city's positive Jewish history) with inspiring his new sections for the building, based loosely on the Hebrew letters, *chet* and *yud*, spelling *chai*, or "life." Now, in trademark Libeskind style, the historic structure's placid, redbrick shell erupts with jagged, skewed forms—the *yud* (an off-kilter rhomboid) and *chet* (a slanting, toppled L), both clad in blue steel—leaving the line between old and new decisively unblurred. Accentuated by the existing facades' impeccable restoration, this radical juxtaposition has been likened to an iceberg crashing through a ship's hull.

Yet, despite its sense of dynamic collision, the new building's arrival in San Francisco was anything but abrupt. Through a protracted, 10-year process, the CJM engaged Libeskind only after parting ways with architect Peter Eisenman, whose scheme included a huge outdoor screen broadcasting breaking Mideast news. There was also a short-lived merger with Berkeley's Judah L. Magnes Museum, which would have brought a major permanent collection of Judaica. Finally, in a changing economic climate, Libeskind's ambitious design got downsized from 110,000 to 63,000 square feet.

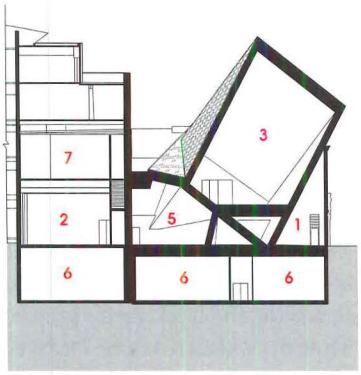
Finally completed last June, the $47.5 million museum, tucked behind the historic church, is reached via a new public entry plaza. Wedged in tight, the building is never fully visible from any single vantage point. So the architecture needed "to mediate and assert its place in the city," says Libeskind, "just as the museum, in affirming its institutional identity, struggles to mediate between different eras and histories."

The building relies not only on the sharp-edged diagonals—sometimes a shortcut to dynamism and architectural self-assertion—that have been a mainstay in Libeskind's work, but also on abundant calligraphic symbols, some more convincing than others. Beyond the vertical *yud* (housing a gift shop below and a gallery above, at the building's west end) and the horizontal *chet* (containing community and exhibition spaces that spike above the original roof plane), the entry hall greets visitors with another spelled-out symbol: the Hebrew word *PaRDeS*, in jagged, fluorescent-illuminated letters across a 140-foot-long, canted wall. As an acronym, the letters refer to four levels of scriptural interpretation; as a word, they allude to paradise. Not readily legible, it's explained on a wall plaque. In like spirit, the auditorium's ceiling bears crisscrossing lines, taken from a 15th-century map of routes to the Holy Land, but who would guess it?

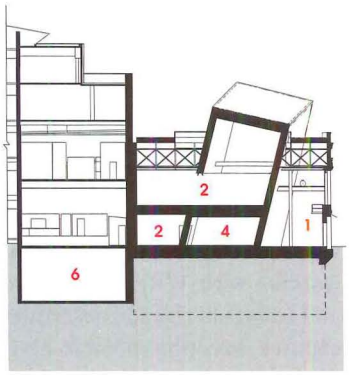


These abstract symbols elude deciphering, even for people familiar with Hebrew (or Renaissance migration paths). The notion of generating architecture from letters has even seemed hokey to some visitors. But is this symbolism meant to be subliminal? Or karmic? "Neither," says Libeskind, who similarly based his Danish Jewish Museum on the word *mitzvah*, meaning "good deed." "There is a mystery about the text. The Hebrew alphabet isn't just a set of signs—each letter has divine meaning," the architect maintains, adding that every character not only tells a story, but is also intrinsically spatial. "Though," he advises, "it's best not to think about it too much—better just to experience the spaces."

On its own physical terms, free from the weighty promise of hidden meaning, the museum offers a small collection of largely successful spaces. Roughly half the size of Libeskind's original scheme, the CJM is modest in program: the entry hall, auditorium, and museum



SECTION A-A



SECTION B-B

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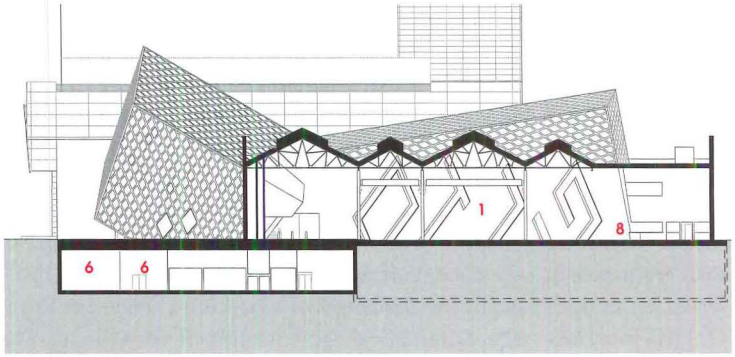
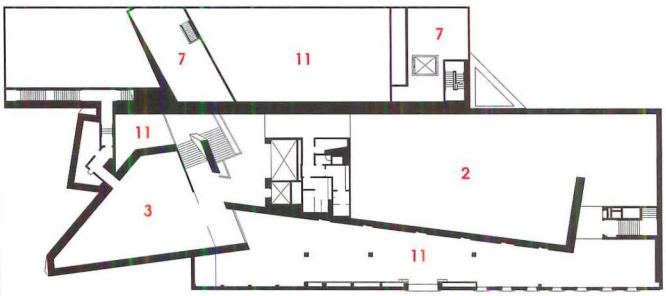
6 M.

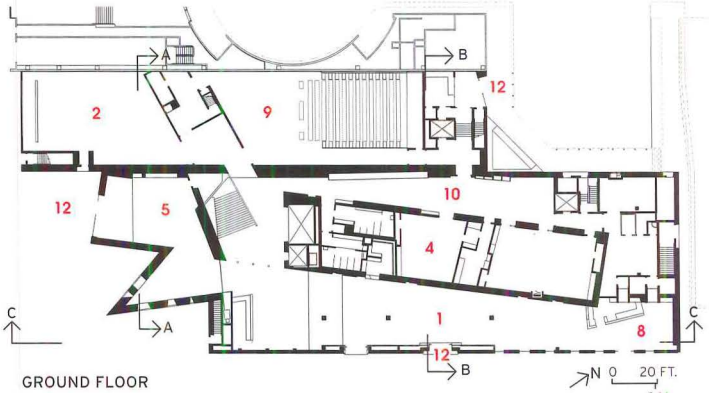


SECTION C-C

1. *Lobby*
2. *Exhibition gallery*
3. *Yud gallery*
4. *Boardroom*
5. *Museum shop*
6. *Storage*
7. *Mechanical*
8. *Café*
9. *Auditorium*
10. *Education center*
11. *Open to below*
12. *Entrance*



SECOND FLOOR



GROUND FLOOR

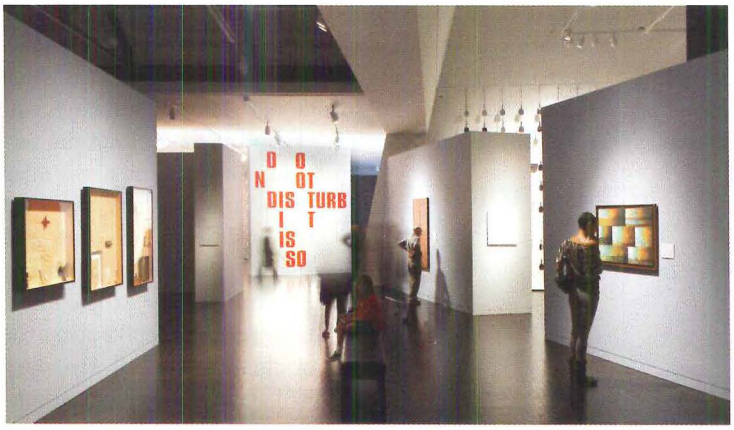
store, plus a gallery, café, and education/activity rooms at grade; and two second-floor galleries. In contrast to Berlin's intentionally dark and disturbing Jewish Museum, marked by severe spatial fragmentation and an unrelenting sense of void, San Francisco's offers a more luminous and fluid spatial sequence.

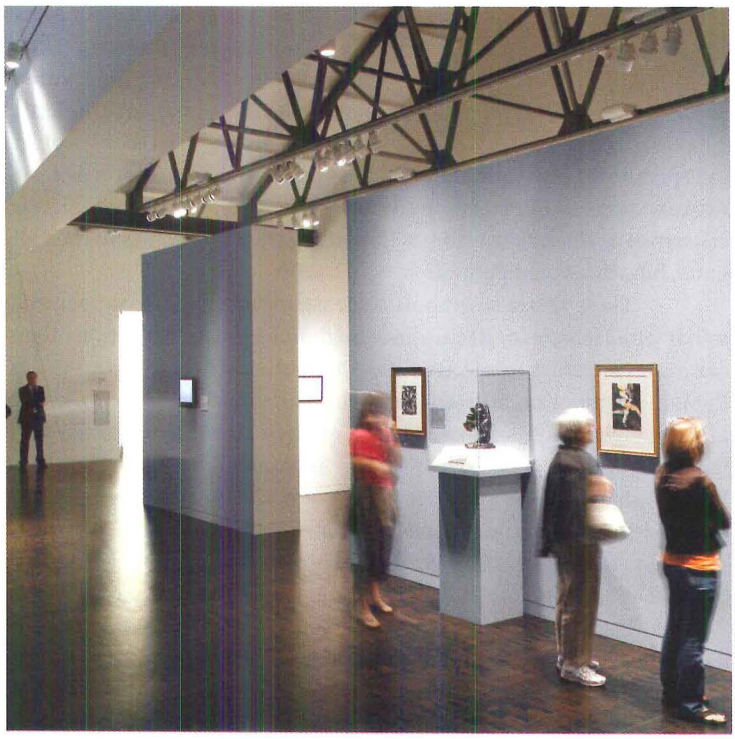
Most striking are the entry hall and Yud Gallery. Two-hundred-feet long and 50-feet high, the reception hall is entered along the power station's long, south side, through existing ornate portals. Libeskind, working with WRNS Studio, replicated the industrial steel catwalks and trusses of this former battery hall, leaving the brick shell's interior exposed, in counterpoint to his own white drywalled surfaces. He laced together old and new with steel I-beams that shored up the shell during construction and now provide seismic bracing. Maximizing daylight, the original skylights are restored and the high windows now extend to the floor. The web of structural and mechanical elements, high overhead, evokes an energy plant's industrial innards, while the play of daylight and complex shadows animates the canted PaRDeS Wall.

A grand stair, paved in white terrazzo, leads up to the second level. Around the stairwell, the prismatic convergence of diagonals recalls such Libeskind work as the Denver Art Museum [RECORD, January 2007, page 84], but this calmer, tuned-down version (likely the fortuitous result of cutbacks in the scheme) benefits from the absence of exuberant excess. And since Wolf requested 90-degree walls in the galleries, her museum avoids the challenges of Libeskind's Denver or Royal Ontario museums, where dramatic diagonals compete with the art. The CJM galleries—comprising only 9,500 square feet—are reasonably proportioned, allowing for varied arrangements of temporary partitions.

While the activity and education rooms, sequestered to the ground floor's darker center, retain a community-basement feel, the Yud Gallery on the second floor has a magical quality. Like a sculpture (though, one might argue, a self-indulgent one, given its limited use as a gallery), this 2,200-square-foot space fills the peaked upper half of the *yud* rhomboid, where 36 deep-set windows penetrate the slanting walls. Daylight, entering like confetti from multiple angles, casts fleeting diamond shapes. (This compelling effect is eclipsed only by utilitarian suspended track lighting.) Here, wisely, the museum will exhibit only sound pieces and host musical performances, wedding parties, and other receptions.

The interior, in contrast to the museum's more jarring exterior, mediates subtly between old and new. Logically relating to the eclectic and encroaching urban context, the radical exterior juxtapositions also enable the museum to elbow out its territory—not merely asserting identity, but calling attention to itself in shining blue steel. The interior journey is more nuanced, never losing touch with the former battery hall, powerfully visible from second-floor overlooks. The emphatic exterior allows the architecture to be less aggressive, more gracious and self-confident inside, breathing *chai* into the power station's once withering remains. ■

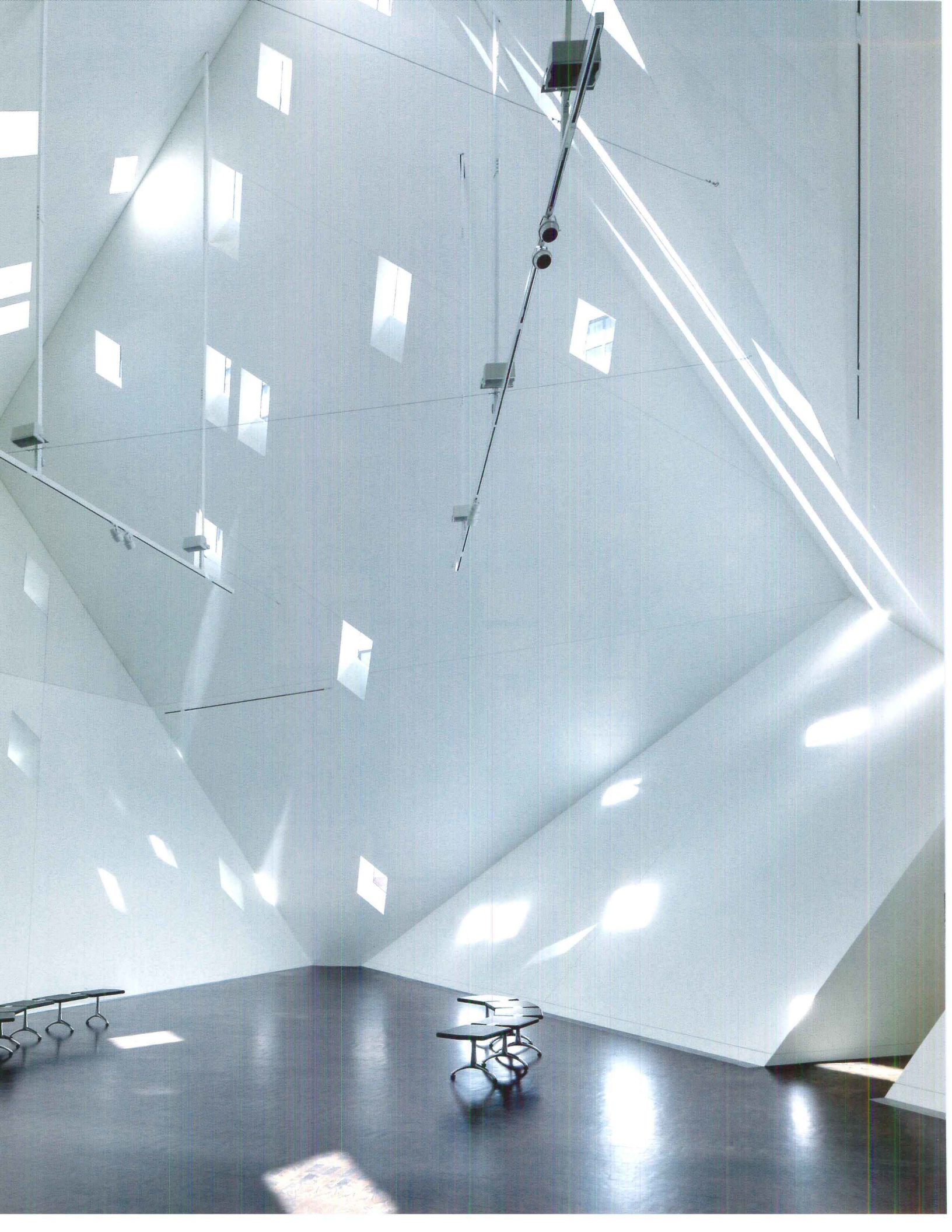




The ceiling of the 3,300-square-foot auditorium/multipurpose room bears criss-crossing lines that Libeskind took from a 15th-century map of routes to the Holy Land (above). The galleries are arranged in a fluid spatial sequence featuring 90-degree walls and track lighting (below and bottom). Daylight streams into the 2,200-square-foot Yud Gallery through its 36 deep-set, angled windows, making for a peaceful and compelling effect (opposite).

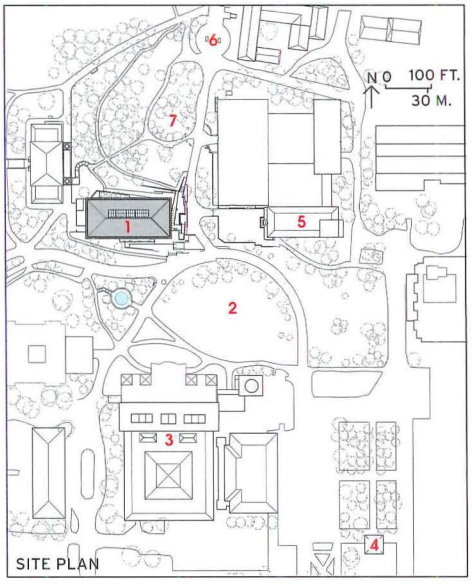
Project: *Contemporary Jewish Museum, San Francisco*
Architect: *Studio Daniel Libeskind—Daniel Libeskind, principal/design; Carla Swickerath, C.E.O./principal; Michael Brown, Joe Rom, Michael Vanreusel, Sascha Manteufel, Omar Toro, design team*
Architect of record: *WRNS Studios*
Engineers: *Arup, OLMM (structural); Ajmani & Pamidi (mechanical/plumbing); Silverman & Light (electrical)*
Consultants: *Auerbach Glasow French (lighting); Shen Milsom Wilke (acoustical); Architectural Resources Group (historic preservation)*

SOURCES
Structural steel: *Olson Steel*
Blue interface stainless steel: *Rimex*
Roofing: *Grace*



A 21-foot-tall cast-bronze screen tops the library entrance. At night, the grilles turn into a golden veil. The boxy structure sits at the heart of U.C. Berkeley's wooded campus (opposite).

Tod **Williams** and Billie **Tsien** unveil a quiet box full of surprises with the **C.V. STARR EAST ASIAN LIBRARY**



1. *C.V. Starr East Asian Library*
2. *Memorial Glade*
3. *Doe Library*
4. *Sather Tower*
5. *McLaughlin Hall*
6. *North Gate*
7. *Observatory Hill*

By Josephine Minutillo

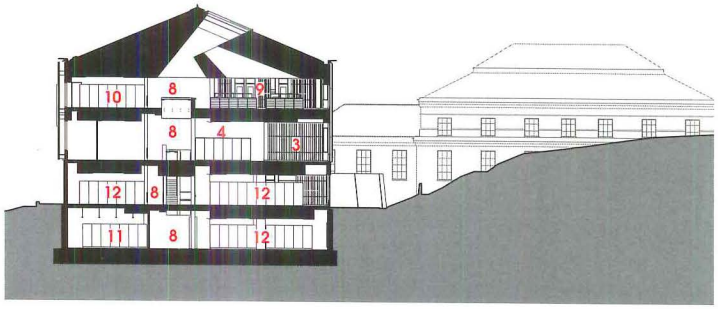
For decades, the University of California, Berkeley had a well-deserved reputation as a place for radical ideas and progressive culture. But these days, its wooded campus—nestled along the rolling eastern shore of San Francisco Bay—is less a hotbed of political activism than a bucolic backdrop for nurturing some of the country's brightest students. And when it comes to campus architecture, the university's all-powerful Board of Regents has become increasingly conservative. For the C.V. Starr East Asian Library, located at the campus's Classical core, Tod Williams Billie Tsien Architects faced an unyielding set of design constraints, imposed on the project well into the more than decade-long effort to get it realized.

Like much of the work of Williams, FAIA, and Tsien, AIA, the rigid geometry and weighty mass of the library's exterior is mediated by a thoughtful interplay of materials. But unlike the contemporary compositions of their earlier buildings, this new one, by mandate, recalls another era. The four-story structure subtly unites Asian influences with an overriding Neoclassicism that defines much of the Berkeley campus.

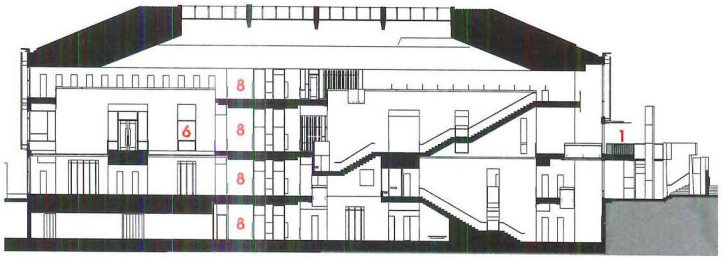
The New York–based architects frequently found themselves in California during the early 1990s as construction progressed on their acclaimed Neurosciences Institute in La Jolla. It was then that they were initially hired to design the first freestanding building for East Asian studies at Berkeley, considered one of the country's premier East Asian teaching and research institutions. After several years, and changes to the program and site, the project seemed permanently stalled. The death in 2002 of Berkeley's beloved former chancellor, Chang-Lin Tien, sparked renewed interest in the project and spurred fund-raising efforts to at long last build such a facility.

During the intervening years, the university would adopt what it calls The New Century Plan, a highly prescriptive set of guidelines for new campus construction. The library's location on Memorial Glade—the campus's main quadrangle—made its design subject to heightened scrutiny. Initial schemes were scrapped to conform to the new plan, which dictated the building's rectangular form; its white granite cladding; its pitched, Mission clay tile roof; and its coplanar siting with respect to the adjacent McLaughlin Hall, among other things. "We followed the rules," Tsien, recalls. "But we broke the rules also."

The large bronze screens that adorn the library's main facades, for instance, adhere to a symmetrical ideal consistent with the building's prominent neighbors, including the imposing, Beaux-Arts Doe Library and the symbolic campanile of Sather Tower (scene of many Vietnam-era protests), both built nearly a century ago on the opposite side of the quad. What they conceal, however, is an irregular

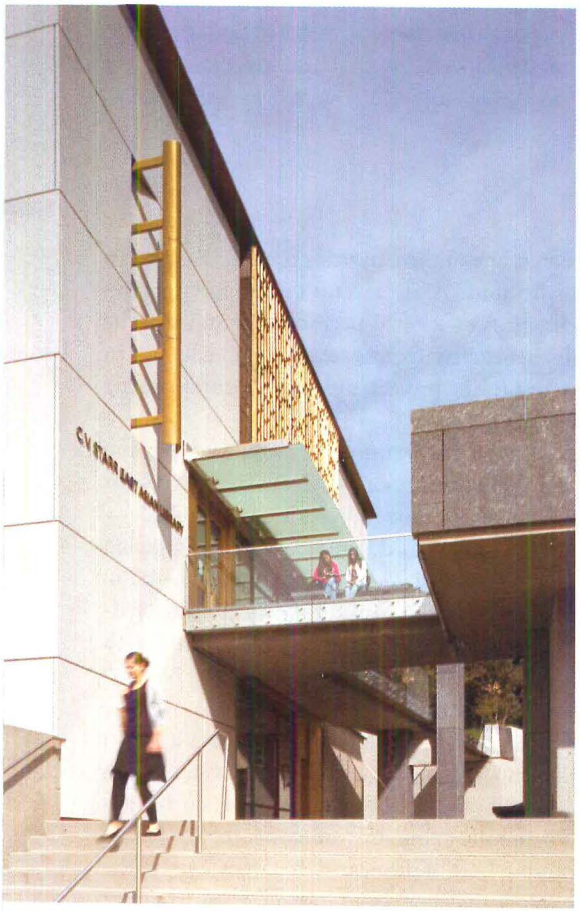


SECTION A-A

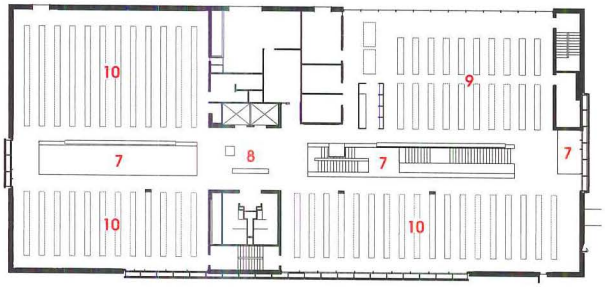


SECTION A-A

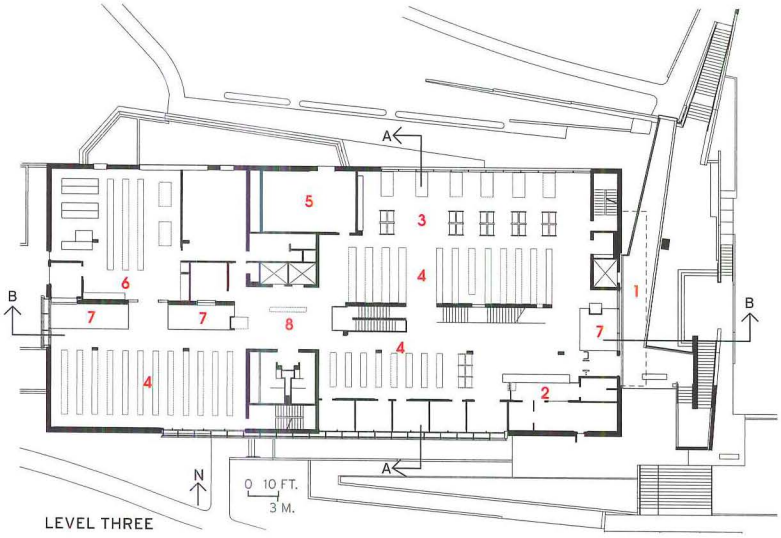
1. *Entry bridge*
2. *Circulation desk*
3. *Reading room*
4. *Reference collection*
5. *Art history*
6. *Coleman Fung Media Center*
7. *Open to below*
8. *Core lobby*
9. *Periodicals*
10. *Collections*
11. *Rare book vault*
12. *Collections – compact*



The 5-foot-wide bronze panels feature bamboo and cracked-ice patterns (above left). Visitors enter the library on the third level via a bridge, which also leads to a lookout (left).

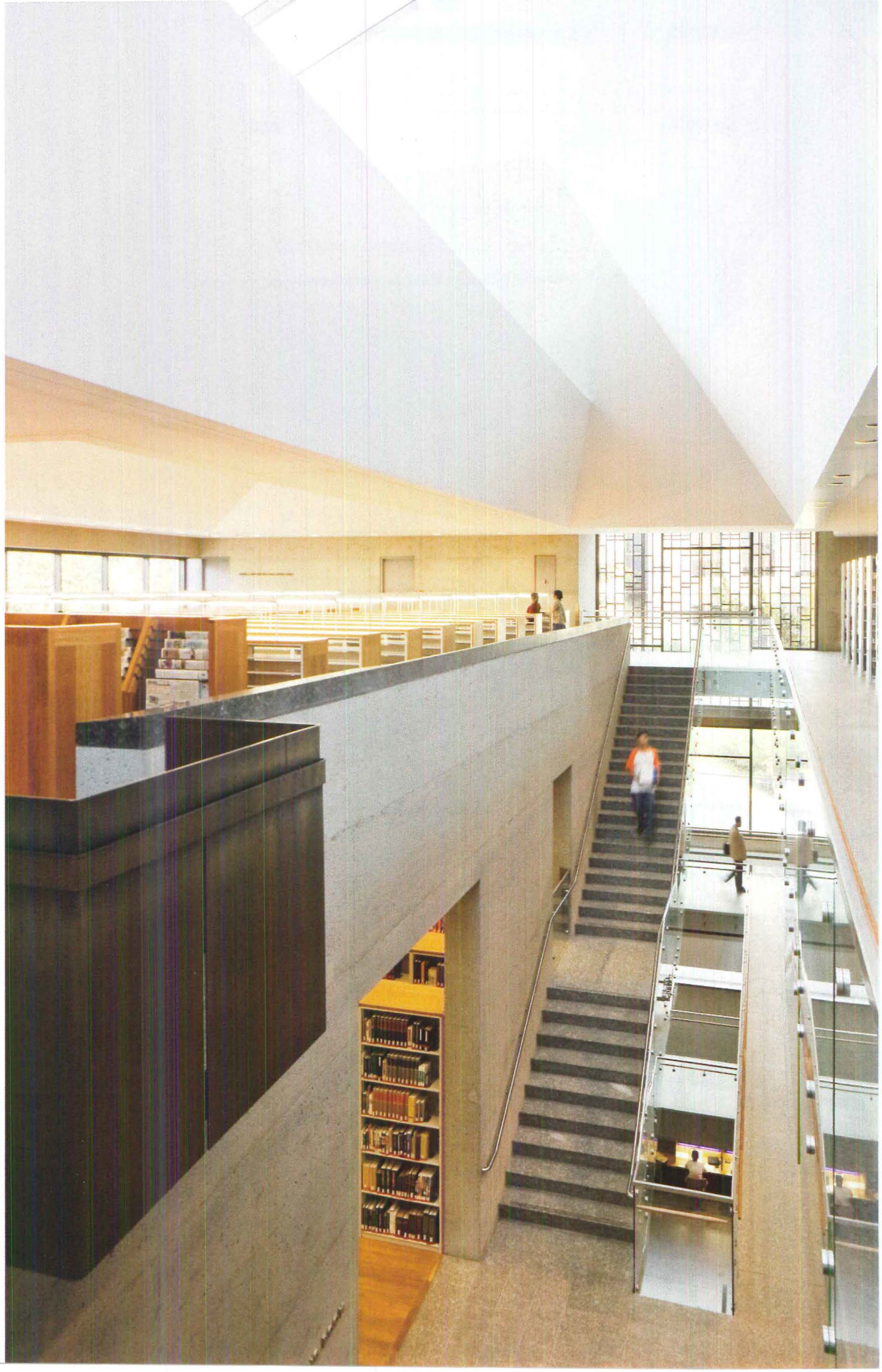


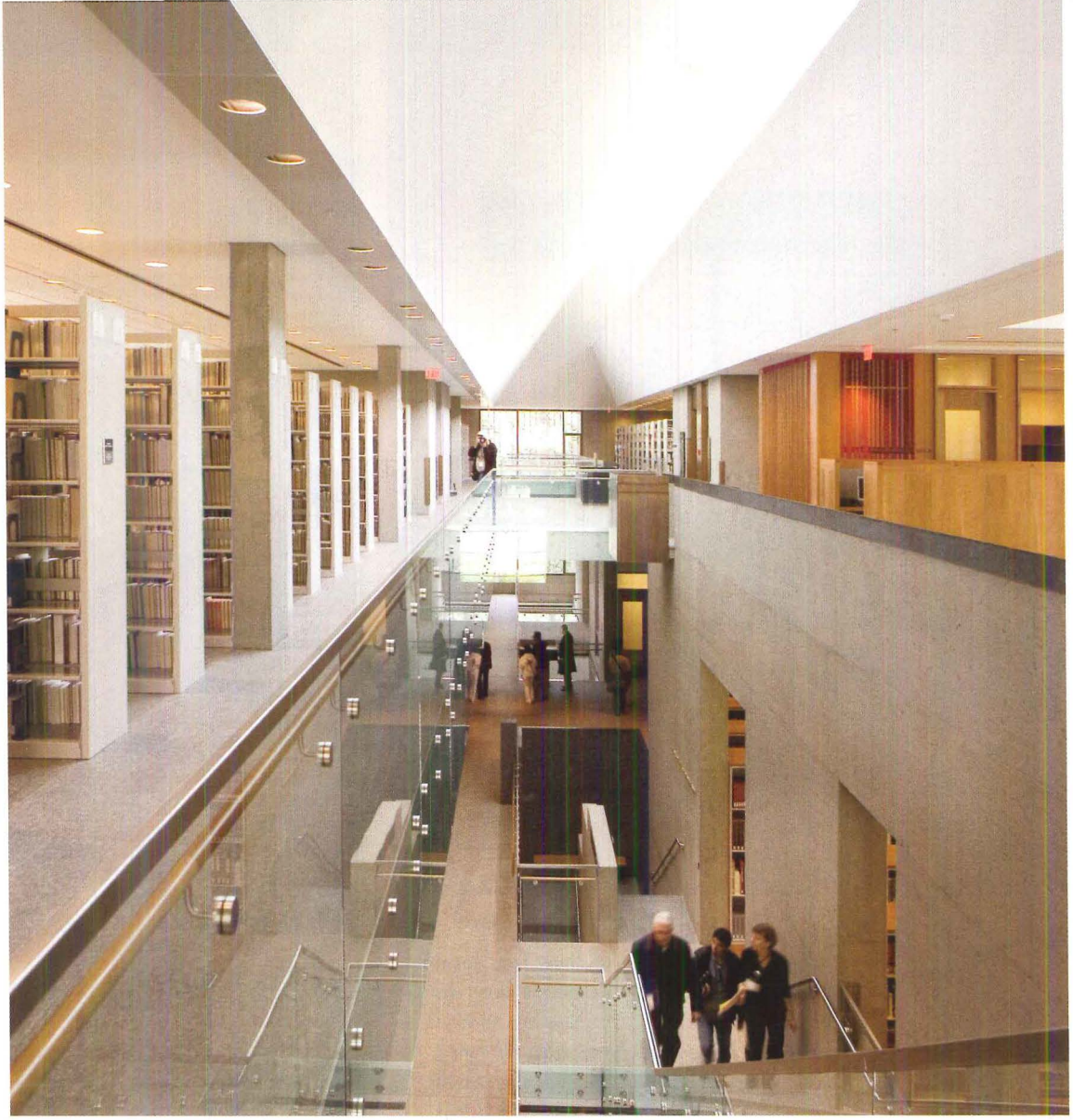
LEVEL FOUR



LEVEL THREE

The core of the four-story building was left open, creating an enormous atrium bathed in natural light. Views to the basement are possible from a bronze-clad lookout on the top floor.





The architects designed the reading carrels and lamps. Openings in the concrete walls feature tall, cherry-wood slats (opposite). Soft north light pours over the stacks and stairwell (right).

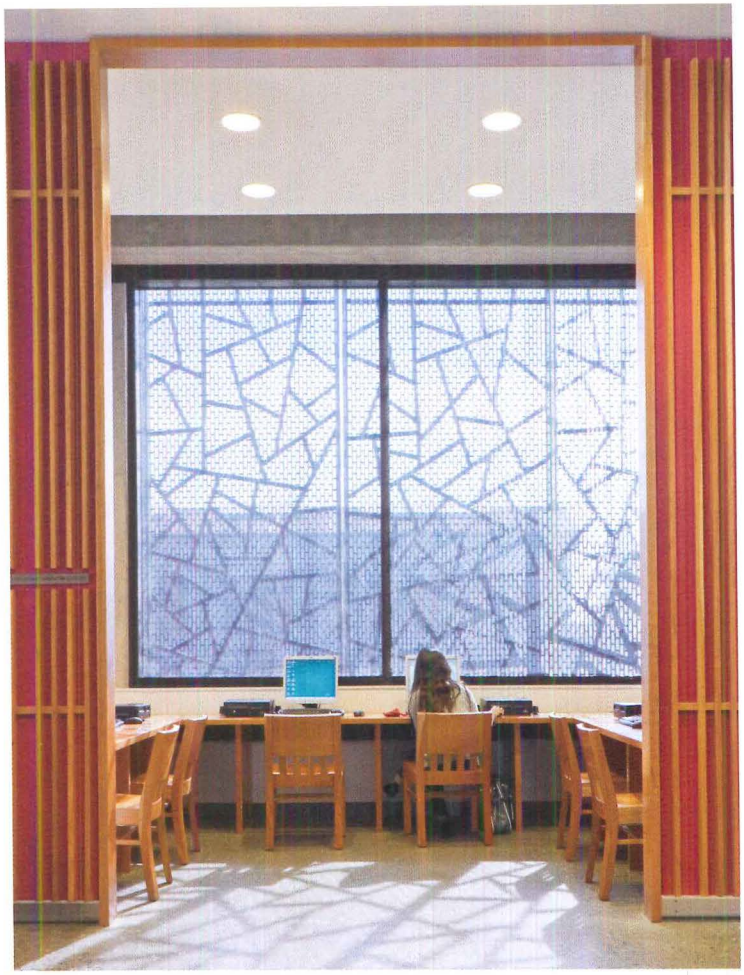
arrangement of windows, which only become visible at night when the metal panels turn into a golden veil. The screen—an important component of Asian architecture—represents the building's Asian mission. Its overall design further alludes to traditional Asian elements: A cracked-ice motif on the 15-foot-tall lower grille is topped by a vertical bamboo pattern on the 17-foot-tall upper grille along the library's southern elevation, which faces those early-20th-century campus icons.

Cast in Hangzhou, China, at an installed cost of $1 million, the fate of the screens—another 32-foot-tall screen graces the narrower west facade, while a smaller, 21-foot-tall version featuring only the bamboo motif marks the building's entrance at the east facade—was not always a sure thing. "We had to step outside the procurement box to get them approved," says Rob Gayle, AIA, U.C. Berkeley's associate vice chancellor of capital projects. "We've never incorporated such a large, custom-made, international building component like this on a campus building before."

For Tsien, the challenge was creating a building that was heavy enough to balance the weight of Doe Library, the centerpiece of architect John Galen Howard's Classical campus ensemble. On a more practical level, the poured-in-place concrete structure—which lies perilously close to the Hayward Fault—needed to resist seismic activity. "We built a very heavy building that sits in a very deep hole," Williams sums up.

Carved into the base of Observatory Hill, the 68,000-square-foot building had to negotiate the steep incline leading down from North Gate, a key campus access point along Hearst Avenue. As a result, visitors enter the library via a bridge on the third level. There, a lengthy glass canopy caps thick bronze doors—one set that swings open to the circulation desk inside and another that slides open to an elevator, an alternate entry option for wheelchair-bound visitors. Continuing past those doors, a stone-clad lookout hovers. Below it, a series of stepped concrete walls marks narrow staircases, while a grander stair leads up from Memorial Glade, from which access is also possible by means of a winding ramp along the south facade.

The dynamic entry procession is a clue that the experience of the building inside is dramatically different from the staid impression one might get from its boxy exterior. Once past the threshold, no traces of Classicism linger. A multilevel atrium animates the building's core, where a dramatic stairwell is cantilevered from a central, concrete structural spine wall. Rising more than 20 feet above the fourth floor, an 88-foot-long aperture bathes the library in soft, north light. Taking advantage of the gently sloping hipped roof—composed



Wood battens on the walls are backed by a fuchsia fabric, which provides sound dampening and adds color (above). Custom-designed rugs, inspired by images found within some of the library's 700,000 volumes, are hung throughout the basement (right).

of steel trusses—the origamilike folds of this light well, and a smaller one at the northeast corner, create a sculptural element within an interior that exploits its natural surroundings to produce artful moments. In another instance, a large picture window reveals the thick, wooded terrain just outside—its flattened image reminiscent of a Chinese landscape painting. Even mundane building components get special treatment: A rock garden conceals a mechanical bulkhead, ensuring that all occupants have pleasant views. On the upper floors, a 70-foot-long span of windows along the north facade provides an uninterrupted vista of Observatory Hill from the main reading areas.

Stacks containing the 700,000-volume collection of character language texts encircle the atrium on all levels. Interspersed are offices and study carrels. The Coleman Fung Media Center is located on the third, or main, level. There, the custom-designed circulation desk—a slab of Claro walnut wood from Sacramento—greets visitors.

Williams and Tsien used local materials extensively, including a locally sourced concrete aggregate. The tactile walls it produced infuse the interiors with warmth. The architects avoid the daunting feeling such heavy walls typically create by fashioning large openings in the concrete, within which tall cherry-wood slats are lined up perpendicular to the wall.

The architects sneaked in surprising little gems throughout the library—small benches at staircase landings, a writing ledge along a railing, built-in cases for future art displays, a reading podium within the reference stacks, a fourth-floor lookout. Most impressive are a series of custom-designed tapestries hidden within the compact stacks of the lower level, an area Tsien otherwise calls "deadly." "We tried to provide a glimmer of color and texture to contrast the severity of the box," she says. "The mystery of the building is revealed slowly. It's a very Asian way of being." It's also a lesson for the university board that you shouldn't judge a book by its cover. ■

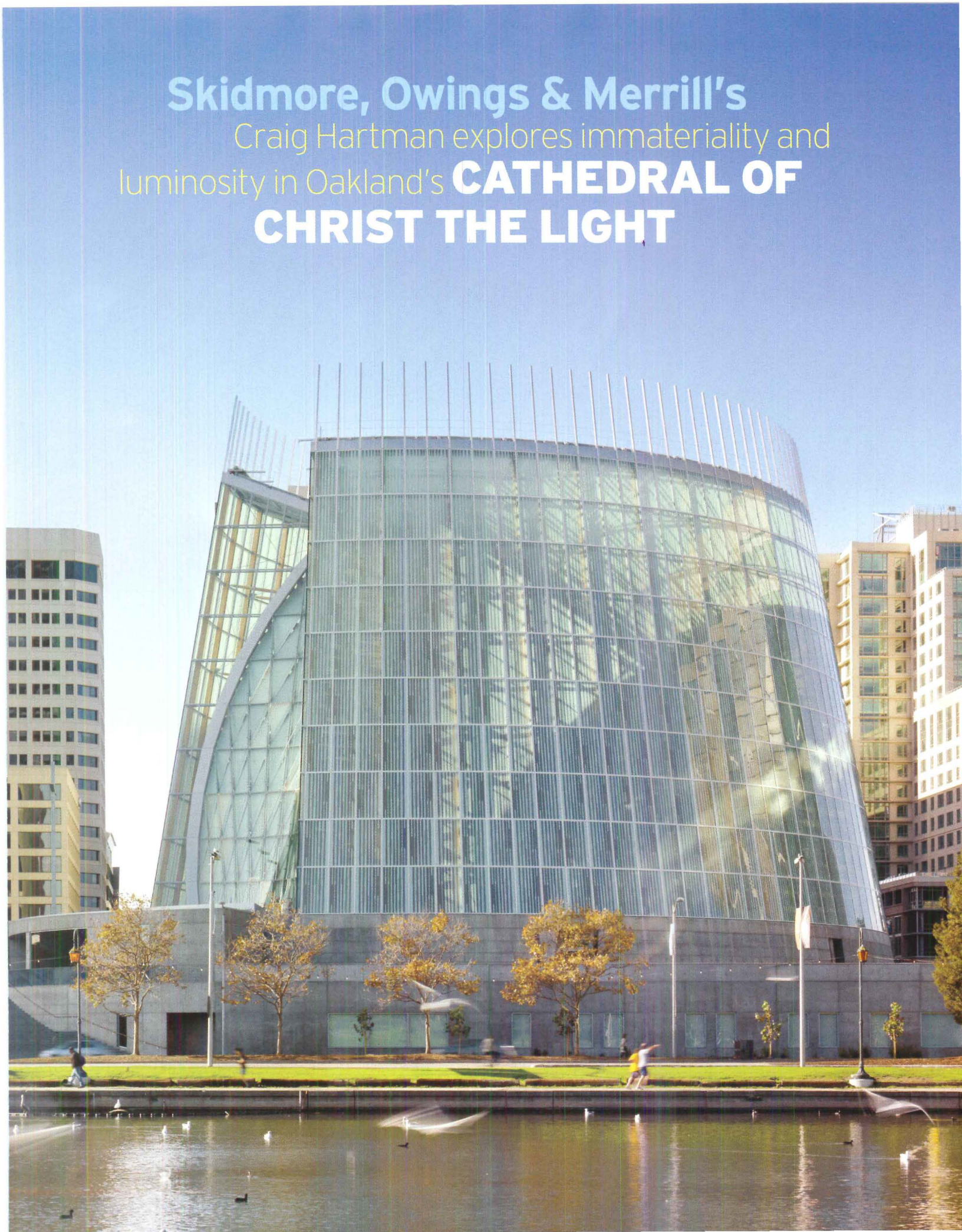
Project: *C.V. Starr East Asian Library, Berkeley, California*
Architect: *Tod Williams Billie Tsien Architects—Tod Williams, FAIA, Billie Tsien, AIA, principals; Jonathan Reo, project architect; Martina Bendel, Peter DePasquale, Andy Kim, John Skillern, Jennifer Turner, project team*
Associate architect: *Tom Eliot Fisch—Amy Eliot, AIA, principal in charge; Alyosha Verzhbinsky, AIA, project architect*
Engineers: *WSP Flack + Kurtz (m/e/p); Rutherford & Chekene (structural)*

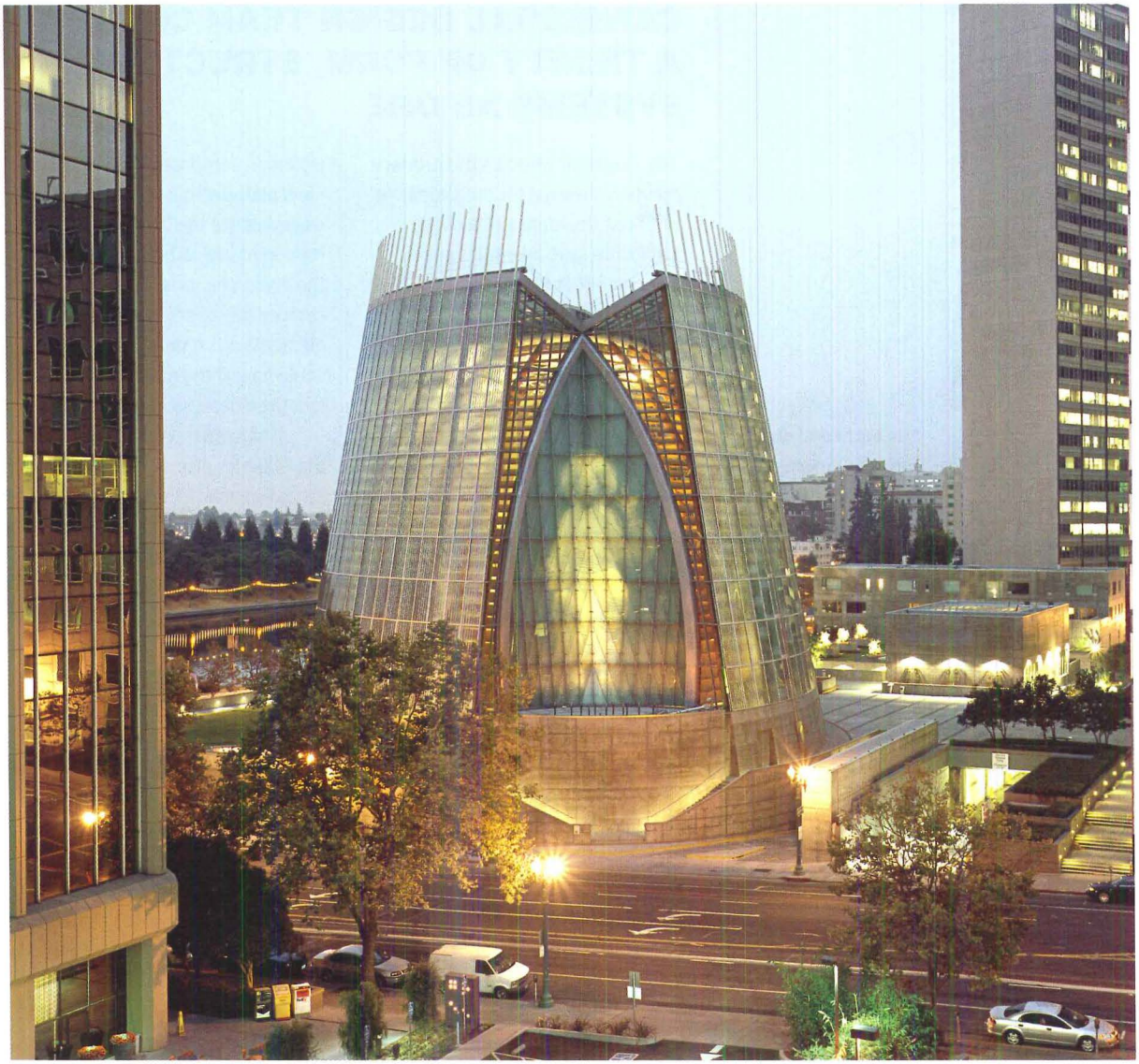
SOURCES
Horizontal fire shutters: *McKeon*
Library shelving: *Spacesaver*
Acoustical ceilings: *Tectum; USG*

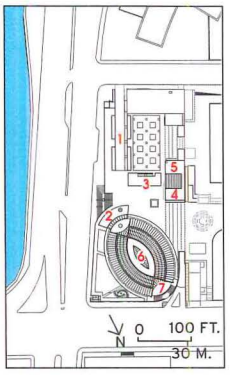
The underside of a cantilevered concrete-and-stone staircase forms a dramatic sculptural element above a study area in the basement.

Skidmore, Owings & Merrill's

Craig Hartman explores immateriality and luminosity in Oakland's **CATHEDRAL OF CHRIST THE LIGHT**







1. *Ramp (Pilgrim Path)*
2. *Entrance*
3. *Courtyard*
4. *Shop*
5. *Café*
6. *Sanctuary*

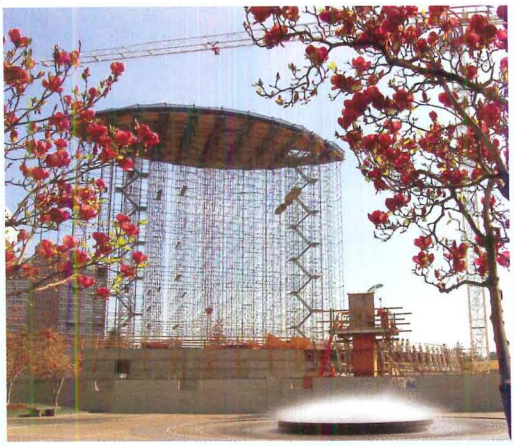
With the 2.5-acre site bordering Lake Merritt (opposite), SOM reconciled a 16-foot drop in grade from the streets on the west to the lakefront on the east by placing the church on a podium (site plan, above). On the north Omega Window (left), the Christ figure glows eerily at nightfall.

By Suzanne Stephens

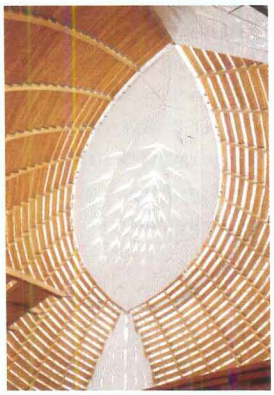
It comes as a shock to discover one of the Bay Area's most riveting examples of recent architecture is not the work of international highfliers imported to San Francisco and its environs to rev up the local landscape. To be sure, Bay Area architects have long held their own with a calmly cool regional Modernism (page 55). But with current media hoopla, cultural institutions by Herzog & de Meuron, Renzo Piano, Daniel Libeskind, and Tod Williams Billie Tsien have tended to overshadow local architects' achievements—at least until the conical and chiseled Cathedral of Christ the Light opened a few months ago in Oakland. Designed by the San Francisco office of Skidmore, Owings & Merrill (SOM), with Craig Hartman, FAIA, as the design partner (and Kendall Heaton Associates the architect of record), the glass, wood, and concrete structure reaffirms the power of an abstract Modern form to function as both a spiritual and civic presence. It also evokes the manipulation of light and space memorably demonstrated by the modern religious architecture of Eero Saarinen, Louis Kahn, Jørn Utzon, and Frank Lloyd Wright. Although Hartman and SOM received accolades for the International Terminal of the San Francisco International Airport (2000), this poetically ethereal cathedral clearly represents a different kind of architectural achievement.

Interestingly, Santiago Calatrava had originally won the commission from the Oakland Diocese to design the chief church for 60,000 Catholics when it lost its Francis de Sales Cathedral to earthquake damage in 1989. Calatrava and SOM, along with Ricardo Legorreta (now Legorreta + Legorreta) had been asked to come up with schematic designs from a group that included Foster and Partners, and Kevin Roche, FAIA. But by 2003, after some fits and starts involving site changes, Calatrava and the diocese dissolved their union. The church officials turned back to runner-up Hartman's scheme.

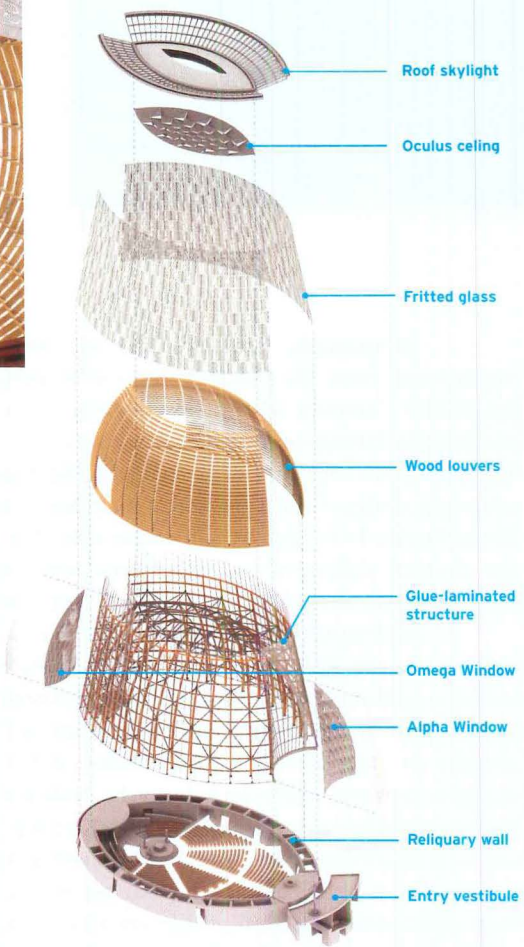
In designing the 226,000-square-foot cathedral complex for the 2.5-acre site, SOM positioned the sanctuary on a poured-in-place concrete podium containing a mix of uses, including a legal clinic, a health clinic, a conference center, and administration offices for the diocese. An interior courtyard embedded in the podium along with skylights provides ample daylight to the underground recesses. Rectilinear outbuildings—an archive, a rectory, a shop for the church, and a café—sit atop the podium, while a mausoleum is located directly under the sanctuary. At this point, a circular chapel and campanile have not been added to the cathedral, which is now estimated to have cost $112.9 million for the construction plus fittings, furnishings, and equipment.



The cathedral structure has inner and outer shells of vertical glue-laminated ribs (left). The inner one, made from curved ribs, takes its shape from the surfaces of a pair of intersecting spheres, while the outer shell is composed of straight elements that define segments of two cones.



At the top of the cathedral, a steel compression ring holds the ribs around the perimeter of an oculus-shaped skylight (above). During construction, contractors supported the skylight on falsework (top) before beginning installation of the wood ribs.



CATHEDRAL DESIGN TEAM CONCEIVES A TRINITY OF FORM, STRUCTURE, AND SYSTEMS AS ONE

The choice of wood as the primary building material for the Cathedral of Christ the Light in Oakland, California, was an intuitive one, says architect Craig Hartman, FAIA, design partner in the San Francisco office of Skidmore, Owings & Merrill (SOM). Because it is a "living material," wood seemed best suited for a space intended to be simultaneously "intimate and monumental," he says.

The soaring cathedral has a structure of glue-laminated Douglas fir ribs vaulting from a pair of curved, poured-in-place concrete walls. About 40 percent of the energy-intensive portland cement that would typically be used to create such a base is replaced by slag, a by-product of iron production.

The wood components "are all primary structural elements," according to Mark Sarkisian, SOM's director of structural engineering. "None are decorative," he says. The cathedral has an inner, 106-foot-tall volume defined by two sets of 13 curving and tapering vertical wood ribs tied to the concrete base walls with pin connections. At the top of the sanctuary, around the perimeter of an oculus-shaped skylight, a compression ring binds these ribs together. Horizontal fixed wood louvers span between the vertical elements, reducing their unbraced length and helping define and control the penetration of daylight, he explains.

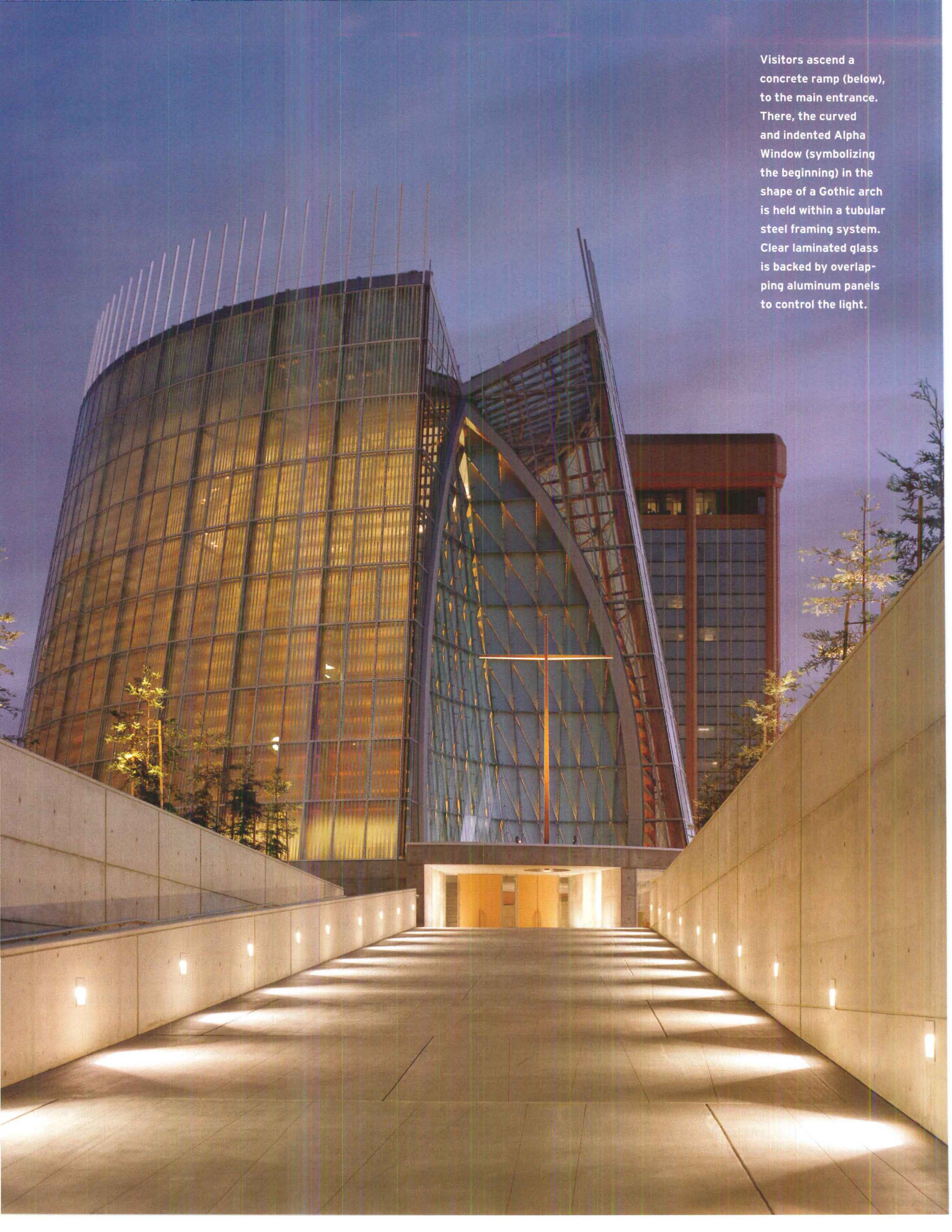
The cathedral's exterior skin – a veil of high-performance fritted glass – is supported by straight glue-laminated ribs that form segments of a cone. Diagonal steel tension rods connect these ribs with each other, while horizontal steel struts lace them to the inner ribs.

The resulting delicate, basket-like structure would not have been possible without the 36 friction-pendulum base isolators inserted between the sanctuary floor slab and a below-grade mausoleum. The isolators, composed of two curved steel plates with a slider in the middle, minimize the transfer of ground motion to the cathedral structure in the event of a temblor. This system allowed designers to make the wood elements more slender than they could have if the building sat on top of a fixed base, says Sarkisian.

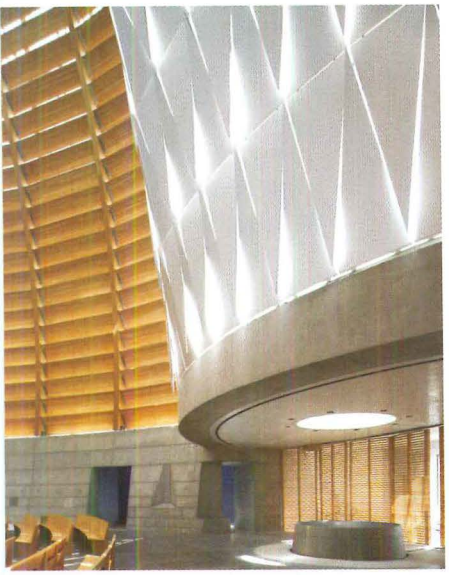
The crawl space that houses the isolators also serves as a plenum for a displacement ventilation system, delivering cool air through floor grilles below the pews to the base of the sanctuary. On chilly days, heating is provided by hot water circulating through piping embedded within the floor slab. Because these systems condition only the zone occupied by people, they are much more efficient than those that provide forced heated or cooled air from above.

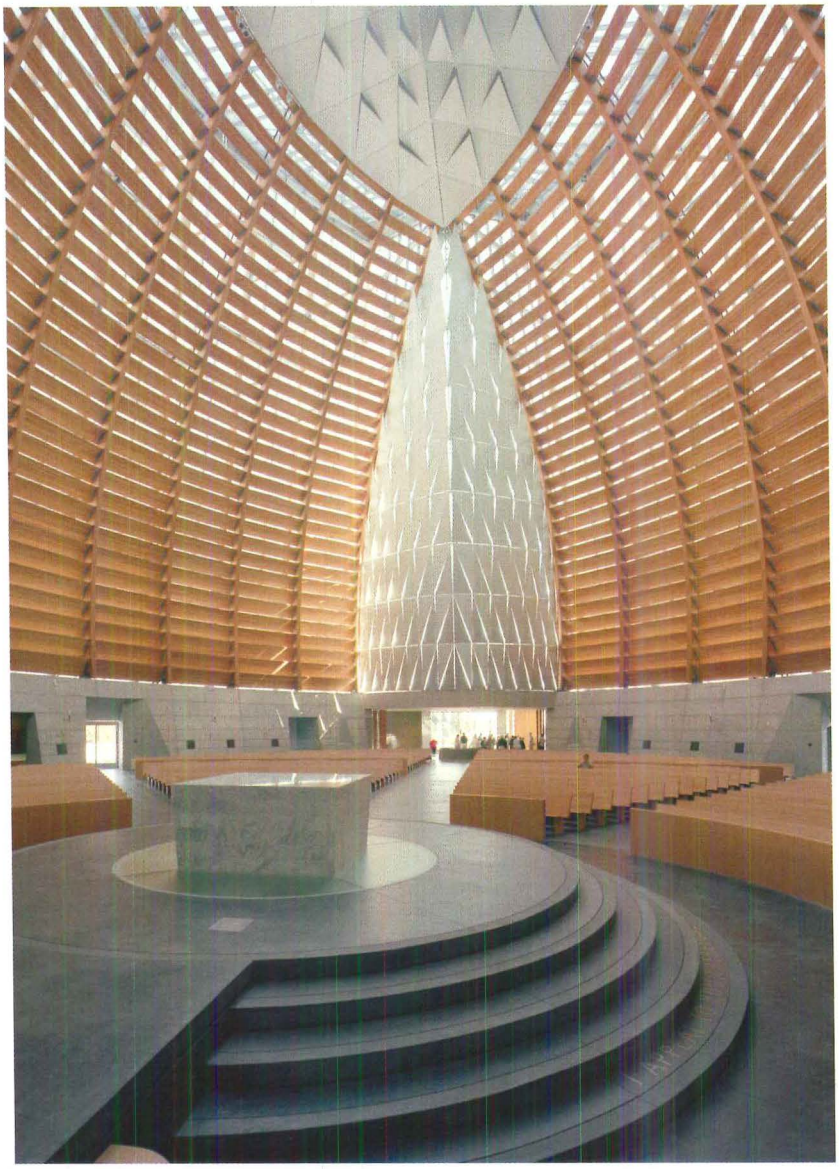
This climate-control strategy also eliminated the need to find a way to unobtrusively place ducts within the timber superstructure. And it is one of several building services integrated seamlessly within the cathedral's architecture. The fire-protection system is another. Although prescriptive codes would have called for sprinklers at the top of the sanctuary, building department officials permitted SOM to locate the sprinklers on the upper edge of the concrete base walls after the design team demonstrated that the potential sources of ignition were located closer to the floor, explains Keith Boswell, AIA, SOM technical director.

Architects and engineers began thinking about how to accommodate such systems even in the earliest stages of the project. To comply with a requirement of the client's competition brief, they drew a building section at ½ inch to 1 foot. Making the drawing, which was 9 feet tall including the below-grade mausoleum, says Boswell, "forced us to think about the integration of elements right up front." *Joann Gonchar, AIA*



Visitors ascend a concrete ramp (below), to the main entrance. There, the curved and indented Alpha Window (symbolizing the beginning) in the shape of a Gothic arch is held within a tubular steel framing system. Clear laminated glass is backed by overlapping aluminum panels to control the light.



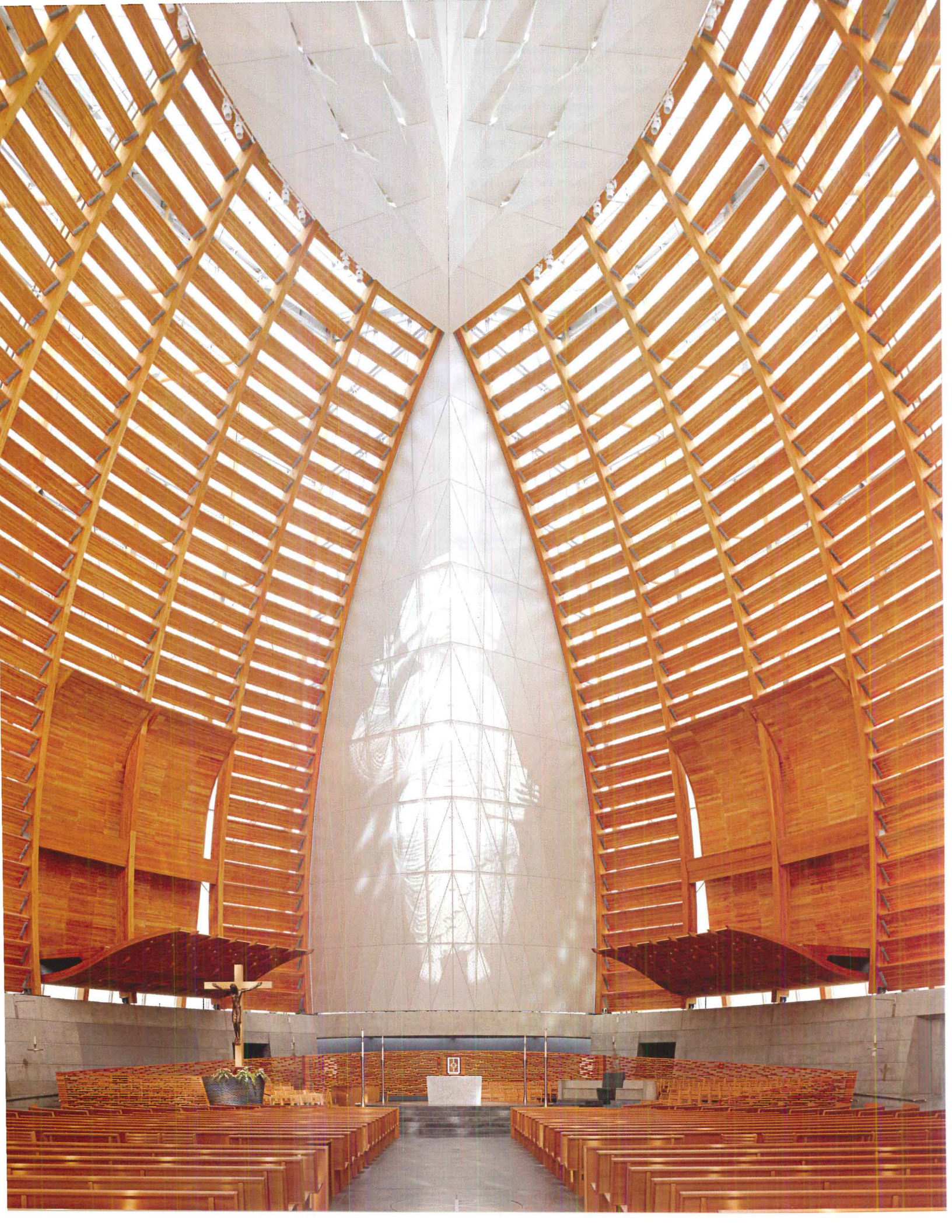


After passing the baptismal font at the entrance (top left), visitors enter the sanctuary. The warm red oak of the curved pews, the Douglas fir louvers of the enclosing wall (bottom left), the light aluminum panels of the Alpha Window, and the white Carrara marble altar (left) imbue the space with a hushed drama. Looking north to the Omega Window, visitors confront a 58-foot-high digital image of Christ (opposite) from the sculpture on the Royal Portal of the west facade of Chartres. The image is formed of laser-cut perforations in aluminum panels, and backed by clear glass laminated with a translucent film. Douglas fir canopies, flanking the altar, indicate where the organ pipes will be placed.

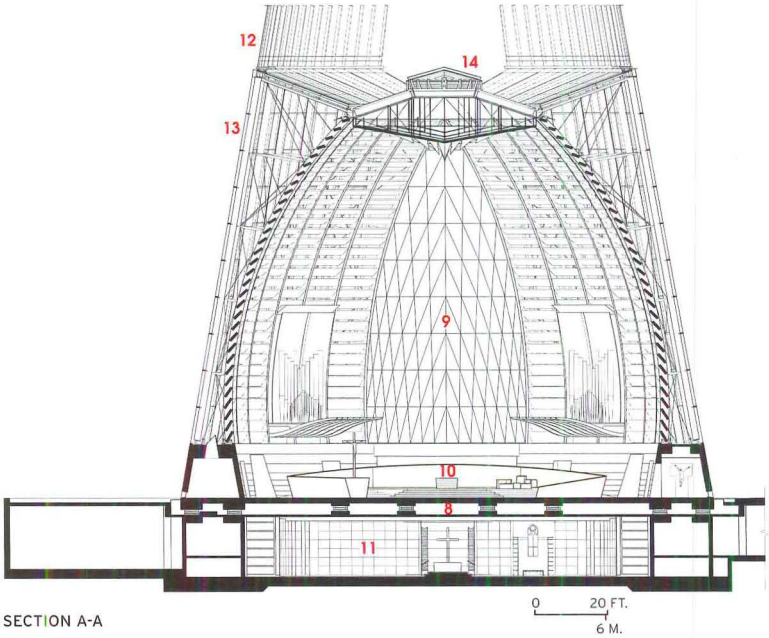
An abstracted curvilinear form had appealed to Hartman from the start: When the late architecture critic Allan Temko, an adviser for the cathedral's architect selection, added SOM to the list, Hartman asked Walter Netsch, long the design partner of SOM's Chicago's office, about his inspiration for the striking Cadet Chapel at the Air Force Academy (1962). Netsch cited the 1958 translation of *The Church Incarnate*, written by German church architect Rudolf Schwarz (originally *Vom Bau der Kirche*, 1938). Schwarz had proposed designing a church with a circular plan around the altar, rather than relying on the typical Latin or Greek cross. Hartman, conscious of the diocese's adherence to the Vatican II's stated mission to promote a sense of community through church design, took for his plan the ovoid form of the *vesica pisces*—an intersection of two circles and a historic Christian symbol.

The resulting sanctuary, 118-feet high on the exterior and seating 1,350 inside, brings together two geometrical forms, the cone for the glass carapace, and a sphere for the ribbed and louvered Douglas fir inner structure, both of which rise from an oval poured-in-place concrete base. Called the reliquary wall, it contains chapels, a vesting room, and a sacristy. (For structural and mechanical details, see page 88.) In order to endow the sanctuary with a luminous quality yet avoid heat gain and glare, Hartman and his team developed a diaphanous outer skin that combines fritted glass (opaque and translucent) and translucent film laminated on glass, with clear low-E glass. The geometric pattern for the fritting is distributed in a way that "looks organic—like the bark on a tree," says Hartman. White aluminum mullions and transom bars, based on a 10-by-5-foot grid, frame the glass; the mullions extend past the top of the enclosure to give a sense of verticality to the tapering form. Atop the structure, a *vesica pisces*–shaped oculus of dichroic glass admits more light to the sanctuary, albeit filtered by faceted aluminum panels. In bright daylight, the veil-like glass enclosure can look too uniformly opaque yet too lightweight—like rice paper stretched over a large drum. But by night, the wood frame begins to show from within: The skin reveals as it conceals.

The detailing of the glazed, monumentally abstract artifact, as complex as it is, does not fully prepare the visitor for the experience of entering the cathedral. The procession begins at the street, with a walk up a plain concrete ramp (called Pilgrim Path, referring to the history of pilgrims climbing up a path to a cathedral atop a hill). Where the ramp terminates at the south entrance, visitors shift their axis of movement as they are drawn into a low-ceilinged vestibule. And

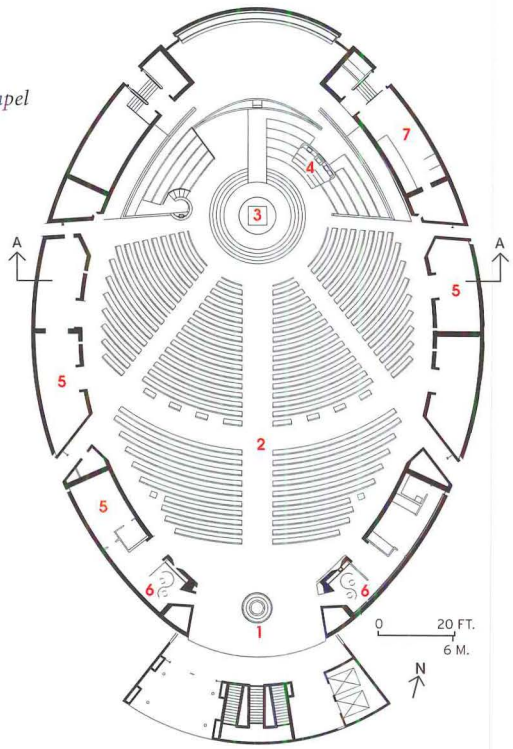


The side chapels in the reliquary wall (top and middle right) around the sanctuary display religious art against tinted Venetian plaster walls. Visitors descending the south stairs to the mausoleum follow an axial path to the catafalque placed directly beneath the altar in the sanctuary (opposite), and backed by an onyx wall. Light enters the area through the glass floor surrounding the altar above. On the perimeter walls, the architects mounted stained-glass windows (bottom right). The space contains 1,300 crypts for coffins and 1,450 niches for urns.



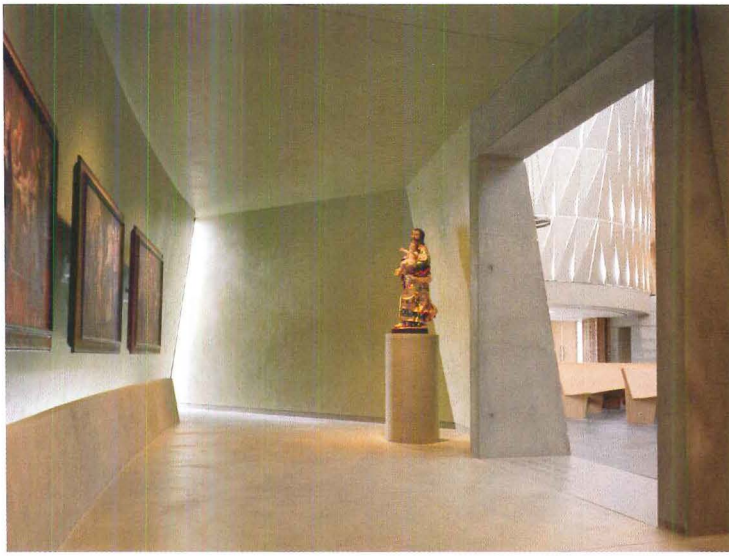
SECTION A-A

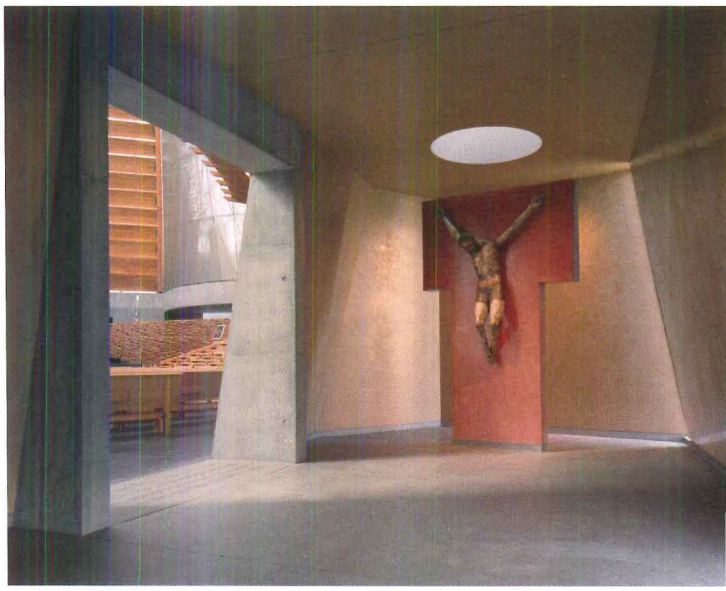
1. *Baptismal font*
2. *Sanctuary*
3. *Altar*
4. *Bishop's Chair*
5. *Side chapel*
6. *Reconciliation chapel*
7. *Sacristy*



8. *Base isolators*
9. *Omega Window*
10. *Reredos*
11. *Mausoleum*
12. *Steel finials*
13. *Support rib*
14. *Skylight*

SANCTUARY FLOOR





then suddenly, the space explodes dramatically upward in a luminous hall framed by semicircular pews and curving lattice walls.

The major surprise comes from encountering the 58-foot-high apparition of Christ, based on a Romanesque sculptural relief (1145–1150) on the Royal Portal of the west facade of Chartres Cathedral. Rather than erecting a stained-glass window behind the altar, the architectural team took a digital image of the Chartres Christ and created a mammoth artwork with 94,000 laser-cut perforations on 10-by-5-foot anodized-aluminum panels. Light admitted through the translucent frosted film on the glass of the north-facing Omega Window seeps softly through the panels. The process enhances the image's ethereal quality: The Christ seems to float like a hologram above the circular altar.

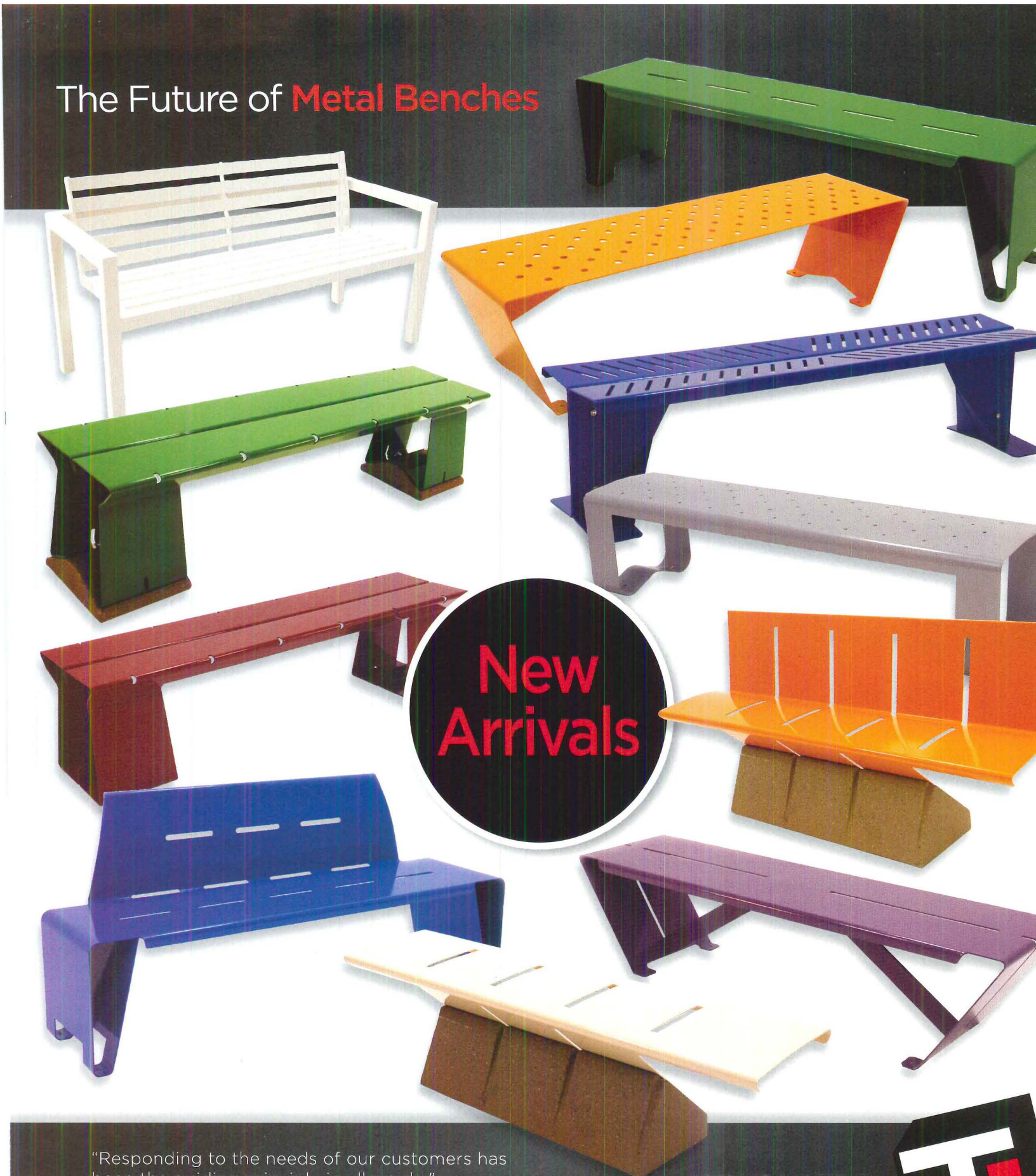
Chapels within the thick gray concrete reliquary wall surrounding the sanctuary contain paintings and sculpture displayed dramatically against a background of polychromed Venetian plaster surfaces. Hartman designed the mausoleum underneath to respond to the sanctuary's oval plan and reinforce the sense of integration between the two levels. Here, the pristine craft of the Douglas fir wood, the sheen of the polished granite floor, and the dramatic use of lighting bring out the stateliness of the 1870 stained-glass windows taken from the previous church.

The light, space, and overall architectonic quality of the cathedral create the appropriate religious setting without its architecture being subsumed by an intensely figurative program of art. To be sure, the architecture belongs to the Modernist tradition. But its resonance also relies on its strong underpinnings in traditional religious architecture, such as the concentric plans of Renaissance chapels or the manipulation of light in Baroque churches. Forceful, spiritual, inventive, the cathedral retains an admirable typological continuity with the past. ■

Project: *Cathedral of Christ the Light, Oakland, California*
Architect: *Skidmore, Owings & Merrill—Craig Hartman, FAIA, design partner; Gene Schnair, FAIA, managing partner; Mark Sarkisian, structural engineering director; Keith Boswell, AIA, technical director*
Architect of record: *Kendall Heaton Associates*

SOURCES
Superstructure: *Western Wood Structures*
Metal/glass curtain wall: *Enclos*
Glass: *Viracon*
Base isolators: *EPS*

The Future of Metal Benches



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CIRCLE 28

RECIPES FOR SUCCESS

Three firms establish strong identities for new eateries – located in challenging big-city buildings – that demonstrate a range of solutions based on architectural and nostalgic elements of their settings.

By Linda C. Lentz

Conduit
San Francisco
Stanley Saitowitz/Natoma Architects endowed a new Mission District eatery with a strong identity by exaggerating electrical and plumbing lines that would have been difficult to conceal within the space.

Corton
New York City
Stephanie Goto Design Group reconfigured and redesigned the interior of a former culinary landmark in Manhattan for an overhaul conceived by its owner and his new high-profile chef/partner.

BanQ
Boston
Office dA designed a whimsical superstructure for a restaurant and bar housed in a 1917 Classical Revival building. The simple intervention defines its layout, serves as an acoustic baffle, and houses the mechanicals.

There was a time when dining out was just one segment of an evening's agenda. But more and more, with customer time and money at a premium, it is likely to be the main event, compelling restaurateurs to go well beyond just providing top-notch meals and service. They must now serve up a total dining experience at even moderately priced venues—one that is complete with a decor and ambience to meet the standards of an increasingly sophisticated audience wanting to get the most for its entertainment dollar.

"Design became much more prominent in restaurants in the early 1990s," says dining impresario Drew Nieporent, who shuttered his culinary icon Montrachet in New York City based on one-too-many negative comments regarding its dated interiors. While the food was still better than average, he says, "the whole episode hurt our business." To remedy the situation, he tapped designer Stephanie Goto, whose elegantly restrained redesign of the space in a circa 1900 building is matched only by chef Paul Liebrandt's dynamic contemporary French cuisine, a visual tour de force in itself.

Typically, the cost of renovating the interior of an aging urban structure far exceeds the modest construction budget often associated with this typology—a conundrum calling for innovative measures on the part of the architect. When Nader Tehrani and partner Monica Ponce de Leon of Office dA were called upon by Hemant Chowdhry and Mark Raab to create an urbane eatery in the restored shell of what was the Boston Penny Savings Bank, an early-20th-century Classical Revival building in Boston's South End, they developed a clever cost-effective thematic program that succeeded in humanizing the large space while also concealing its mechanical equipment.

Indeed, the design of such a demanding commercial enterprise in a city can be problematic even in a new building, due to factors such as high real estate and labor costs, and building constraints. Architect Stanley Saitowitz and contractor/developer Brian Spiers, for example, were faced with an excess of pipes in a recently built San Francisco condo building in which they planned to open a dining spot. Rather than avoid them, Saitowitz went with the flow and ran faux conduits throughout. His solution established a strong visual motif and configured comfortable spatial relationships in a large, low-ceilinged room.

"The success of a restaurant hinges on being clear about what you're trying to deliver," notes Goto. In an industry where any lack of clarity, unforeseen delay, or extra cost affects the bottom line, tailor-made interventions like these have a better chance of making the cut. ■

One: CONDUIT
San Francisco

Stanley Saitowitz adopts a clever thematic program to turn obtrusive mechanicals into the primary visual element of this new SF eatery.

By Sarah Amelar

Architect: *Natoma Architects—Stanley Saitowitz, Alan Tse, John Winder, project team*
Client: *280 Valencia*
Consultants: *Spiers Construction (general contractor); Colin Gordon & Associates (acoustical)*

Size: *3,700 square feet*
Cost: *Not available*
Completion date: *January 2008*

SOURCES
Cabinets, custom millwork: *Zelco Cabinet Manufacturing*
Plastic laminate: *Pionite Laminate Products*
Glass: *DB Glass*
Vinyl carpet tiles: *Chilewich*
Lighting: *Nulite; Spectrum*
Tables, chairs: *Blu Dot*
Restroom sink, fittings: *Corian; Kohler*

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A great "spaghetti" of conduits running along the ceiling and walls dominated the raw space that architect Stanley Saitowitz hoped to convert into a hip San Francisco restaurant. But attempting to hide that endless mesh of electrical, plumbing, and sprinkler lines, he concluded, would make the situation even worse – like covering a huge nose with a bandage. The space, only 9 feet high, would become outright oppressive if he inserted a dropped ceiling. He soon realized, however, that the solution lay in the problem itself, so he determined not only to reveal the abundance of conduits, but to celebrate and even exaggerate it.

A canopy of copper-hued galvanized steel pipes greets diners of Conduit.

Program

The 3,700-square-foot restaurant occupies the entire ground floor of a new low-rise apartment building in San Francisco's Mission District. The owner, Brain Spiers, a contractor-developer with whom Saitowitz had previously worked, built the structure with the idea of enlisting a restaurant tenant at street level, but when none materialized, he decided to open his own dining venue there, offering California/Mediterranean fare. Saitowitz soon signed on as both architect and partial partner in the venture. But, of course, this pair of first-time restaurateurs needed some guidance. So they enlisted a team – an up-and-coming chef named Justin Deering and his experienced front-of-the-house partner, maître d' Brian Gavin – to help conceptualize and operate the place. The two proposed calling the restaurant Duo, but the architect, paradoxically inspired by the existing obstacles, hit on the name Conduit.

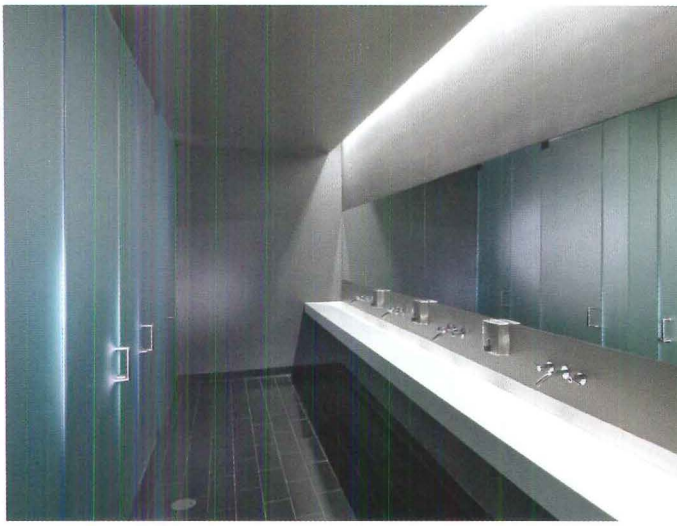
Aimed toward a laid-back but sophisticated atmosphere, the essential programmatic ingredients included a bar; tables for 88 people; an 800-square-foot open kitchen with counter seating, where a dozen diners could watch the spectacle of cooks at work; a 180-square-foot "wine cellar"/private dining room; and a 242-square-foot restroom area, offering its own theatrical ambience.

Solution

Once Saitowitz decided to turn adversity to advantage, conduits became his interior's featured ingredient. It wasn't enough just to expose and highlight the plumbing, electrical, and sprinkler lines, his design expanded the network with faux conduits galore. To the existing mix of copper and galvanized-steel lines, he added look-alike, but purely decorative pipes of galvanized steel, some plain and others powder-coated in copper-colored paint (a more durable and economical solution than real copper). Now conduits, in parallel clusters, not only ascend the walls and cross the ceiling, but also wrap the bar and form screens, cascading like sheets of water, between tables and banquettes.

"The strategy with these conduit partitions," says Saitowitz, "was to break up the scale. Perceptually, a low ceiling can appear even lower in a big space than in a small one."

Vertical partitions of simulated conduits are positioned to define the restaurant's decor, seating plan, and spatial relationships.



Additionally, the whimsical proliferation of piping – a layered 3D weave, with long parallel conduits generating a rhythmic dynamism – enhances the perception of spatial depth.

The silver- and copper-colored tubes, fully cladding the bar, even appear beneath its clear glass countertop. Along the dining room's perimeter, a path of polished black granite reflects Conduit's multitude of pipes, further accentuating the effect. Saitowitz gave the central floor area, where the dining tables have been placed, a large square mat of woven vinyl tiles, marked with slightly irregular striations. While the pattern quietly echoes the surrounding metal "stripes," these resilient floor tiles also provide a much-needed acoustic buffer. (Lining the ceiling above the maze of conduits is another acoustic material, a dense foam, painted black to recede visually.)

To evoke "a sense of theater surrounding the chef," Saitowitz says he created "spectator" seating at a counter positioned along the open kitchen, at the rear of the dining room. "You can watch the performance, the cooks at work, as you eat," he explains. Contrasting lighting heightens the drama: While the rest of the restaurant remains dimly lit, the open kitchen, clad in shiny stainless steel, glows with illumination fit for center stage – as well as the practicalities of food preparation.

A corridor, doglegged off the main dining area, leads past the private party room with its single, long table for 14 diners showcased behind a wall of transparent glass dressed with a series of vertical conduit "curtains." The room's back wall doubles as a wine cellar, a black floor-to-ceiling rack cut with a circular hole for each bottle. Like the tables, chairs, and cabinetry in the main dining room, the "wine wall" is made of plastic laminate with the appearance of ebonized wood. Here, the same chairs are made of plastic laminate masquerading as zebra wood. As Saitowitz puts it, "Faux ebony, faux zebra wood, and faux conduits!"

Across the corridor is the restaurant's unisex restroom, which – surprise, surprise – has no visible conduits. Instead, the stalls of titillatingly translucent, icy-green etched glass play against a glossy floor paved in black granite. After all those conduits, the architect says, "I wanted a relief, an unexpected contrast."

Commentary

When the electrical inspector came to sign-off on the project, she found the abundance of conduits baffling, Saitowitz reports with amusement. "First, she asked: 'Why all this wiring?' And then: "Which ones are real?' " The ingenious design not only fooled the inspector, but it also successfully alters our perception, turning the crude ingredients into haute cuisine. ■

A private dining room has a custom laminate wine wall/rack and conduit drapes (opposite, top left). The sleek unisex restroom features frosted translucent green glass and a white Corian trough sink (opposite, top right). Runs of faux conduit intersect below the black-painted ceiling (below).

1. *Entrance*
2. *Main dining area*
3. *Open kitchen*
4. *Closed kitchen*
5. *Counter dining*
6. *Bar*
7. *Private dining room*
8. *Banquette*
9. *Fireplace*
10. *Host station*
11. *Storage/office*
12. *Wait station*

FLOOR PLAN

Two: CORTON
New York City

Stephanie Goto redefines the architectural aesthetic of a Manhattan culinary landmark to launch its thoughtfully plotted metamorphosis.

By Linda C. Lentz

Architect: *Stephanie Goto Design Group—Stephanie Goto, principal; Arianna Sacks, Gustavo Ramirez, design team*
Client: *Corton*
Consultants: *G2J (lighting); Takeshi Miyakawa Design (chandelier installation coordination)*
General contractor: *GBC*

Size: *2,500 square feet (main room, 50 feet by 35 feet; kitchen, 30 feet by 30 feet 9 inches)*
Cost: *Not available*
Completion date: *September 2008*

SOURCES
Ceiling canopy, brass rods: *Kawahara Design*
Glass eggs: *Bruchetta Glass Blowing Studio and Gallery*
Wall relief: *Silver Hill Atelier*
Custom carpet: *Signature Hospitality Carpets from Evan Shatz*
Lighting: *Philips Color Kinetics (perimeter); DaSal Industries (MR16s); Lutron (controls)*
Custom banquette: *Maharam (mohair); Munrod Interiors Upholstery (fabrication)*
Custom bar stools, chairs: *JC Furniture*

ONLINE: Rate this project and access additional sources at ***architecturalrecord.com/bts/.***

When New York City–based restaurateur Drew Nieporent opened his critically acclaimed Montrachet in 1985, he broke ground on two fronts: launching the career of chef David Bouley (whose food garnered a three-star rating from *The New York Times* just seven weeks after it debuted), and pioneering a yet-to-be-exploited Tribeca (the now über-hip neighborhood in Lower Manhattan). In contrast, the interior space itself – in a two-story commercial brick building typical of the area's historic architecture – was "built with the funds that we had at the time," Nieporent said, and notable only for its lack of ostentation. Consequently, when the restaurant received several "tired" reviews after a successful run of more than 20 years, he closed shop to revitalize its image – which continued to evoke the promise of a great meal – and give equal emphasis to its decor.

What many thought would be a renovation, however, evolved into a full-blown reincarnation, dubbed Corton. The new restaurant, named as a reference to what oenofiles consider the only other white Burgundy to rival a top-quality Montrachet, was the brainchild of Nieporent and his newly enlisted partner and chef, Paul Liebrandt.

Program

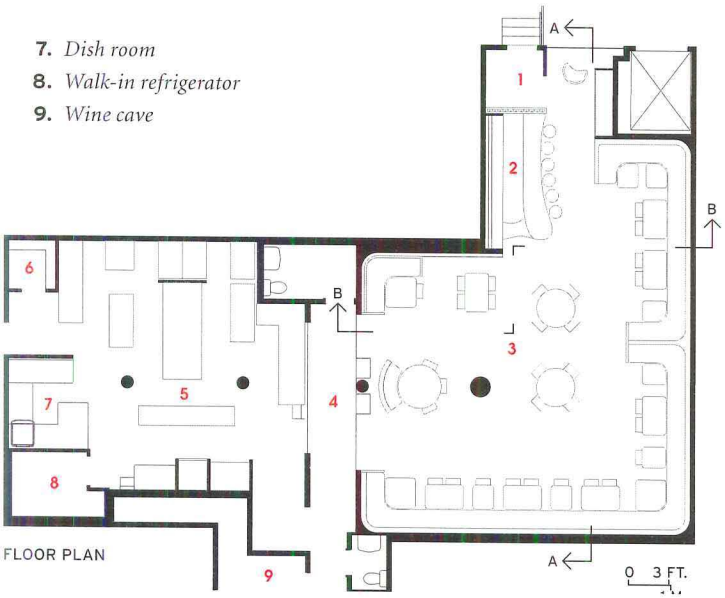
Known for his vanguard approach to contemporary French cuisine, Liebrandt wanted the room to set the stage for – not upstage – his food, with its artful flavors and presentation. So when he suggested bringing in designer Stephanie Goto, a friend and self-acknowledged "foodie," Nieporent agreed.

A protégé of David Rockwell and Rafael Viñoly, Goto was no stranger to restaurant design. She had successfully completed five restaurant projects – including Tadao Ando's Morimoto [RECORD, September 2006, page 98] and Christian Liaigre's Buddakahn, for which she was associate architect. Moreover, Goto understood the chef and his food. And while the room that had been Montrachet held a certain charm and comfort level with its tin ceilings and red tufted banquettes steeped in nostalgia, she knew "it did not take Liebrandt's food into consideration."

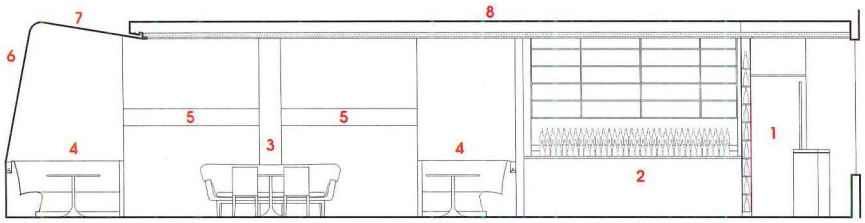
Comprising a series of three rooms – a front room with a bar; a central, L-shaped dining room; and a kitchen at the back – Montrachet was plagued with remote tables in its far corner. As a remedy, Goto lobbied to relocate the kitchen to that back corner to open up the central dining area as one large room. This strategy would also reduce occupancy from up to 100 diners to 70. On the other hand, says Nieporent, "People don't want to feel that they're in a second-class situation." Goto's plan would eliminate the problem. As a nod to the past, though, he insisted that the footprint of the bar and banquette remain similar to the original.

PHOTOGRAPHY: © RICHARD PARE

1. *Vestibule/bottle wall*
2. *Bar*
3. *Dining room*
4. *Hallway/window*
5. *Kitchen*
6. *Office*
7. *Dish room*
8. *Walk-in refrigerator*
9. *Wine cave*

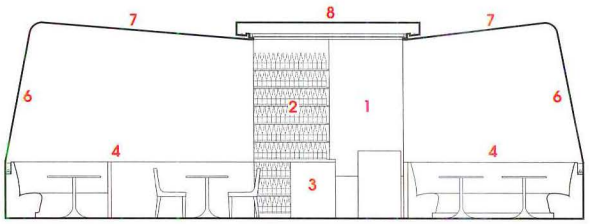


A canopy made of tensioned cables serves as the visual and functional focal point of the dining room and is enhanced by brass rods fitted with fiber optics forming a luminaire at its center.



SECTION A-A

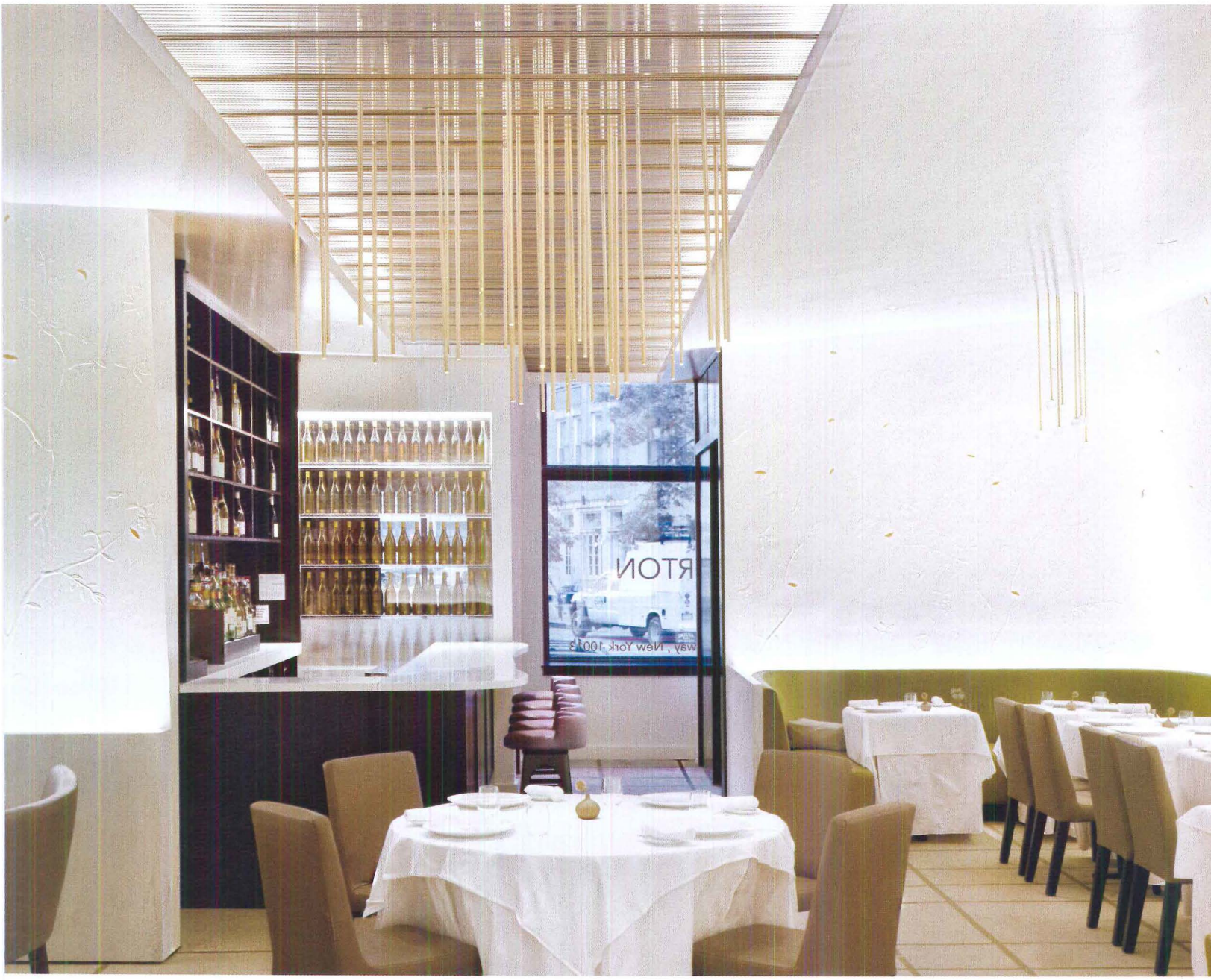
1. *Vestibule/bottle wall*
2. *Bar*
3. *Dining room*
4. *Banquette wall*
5. *Viewing window*
6. *Sloped wall*
7. *Sloped ceiling*
8. *Canopy*



SECTION B-B

0 3 FT.
1 M.

Featuring light-transmitting labels, a wall of faux wine bottles encased in museum-grade acrylic backs a Corian-topped bar that seats five diners (below). The subtle texture and sloping of the walls is revealed slowly as one enters the room (opposite.)



Solution

With limited funds, Goto aimed to create something luxurious. "From the onset, we wanted a room that would embrace the diner," she explains. She achieved this by gently sloping and curving the walls and corners of the reconfigured space. The ceiling, too, slopes toward a central canopy made of tensioned cables – a visual connection between the dining room and entry that also houses ambient lighting, offers a path for ventilation, and provides access to the mechanicals hidden in the curvature of the walls and slope of the ceiling. Also, says Goto, "The slow curve of the walls allowed us to conceal the existing nuances of a Tribeca building."

Not one for "decoration," Goto admits, "restaurants require an element of whimsy." Taking her cues from the imagined salon of an elegant French maison, she treated the warm white walls with a textural plaster relief of leaves and branches – routed, and then filled and sculpted by hand, and uplit by perimeter LEDs. Golden leaves appear to float. The color palette recalls the restaurant's namesake wine with subtle variations of its greenish gold hue in the mohair banquettes – embroidered with 19th-century herb motifs – real and faux leather seats, and carpet. Lavender-topped stools evoke the region's flora and vintage red. The architect designed delicate brass rod chandeliers fitted with fiber optics, some with hand-blown glass eggs, and had structural columns coated with luminescent mica dust.

Ever the star, the food shines at each table via carefully pointed MR16 pinholes. And diners can glimpse the chefs at work through the kitchen's sliver of a window set high into a stark black proscenium that never intrudes on the experience.

Commentary

In a series of subtle architectural gestures, Goto crafted a setting that does not overwhelm but reveals its character in the course of the dining experience – like a fine wine as it breathes. Nieporent reports that the redesign "is working tremendously well." There's not a bad seat in the house now, he says, and the customers are happy. ■

Three: BANQ
Boston, Massachusetts

Office dA uses a single gesture to address pragmatic concerns and create an identity for a new restaurant inside a historic South End bank.

By Beth Broome

Architect: *Office dA—Nader Tehrani, Monica Ponce de Leon, project design; Dan Gallagher, project architect; Catie Newell, Brandon Clifford, project coordinators; Harry Lowd, Richard Lee, Lisa Huang, Remon Alberts, Janghwan Cheon, Jumanah Jamal, Aishah Al Sager, project team*
Client: *SOWA Restaurant Group—Mark Raab, Hemant Chowdhry*
Consultants: *Simpson Gumpertz & Heger (structural); Wozny/Barbar & Associates (m/e/p); Collaborative Lighting (lighting); Acentech (acoustical); Harold R. Cutler (building code); TriMark (kitchen); Homeland Builders (general contractor)*

Size: *3,500 square feet (dining room, bar, restrooms); 1,150 (kitchen, offices)*
Cost: *approximately $1.5 million (dining room, bar, restrooms only)*
Completion date: *February 2008*

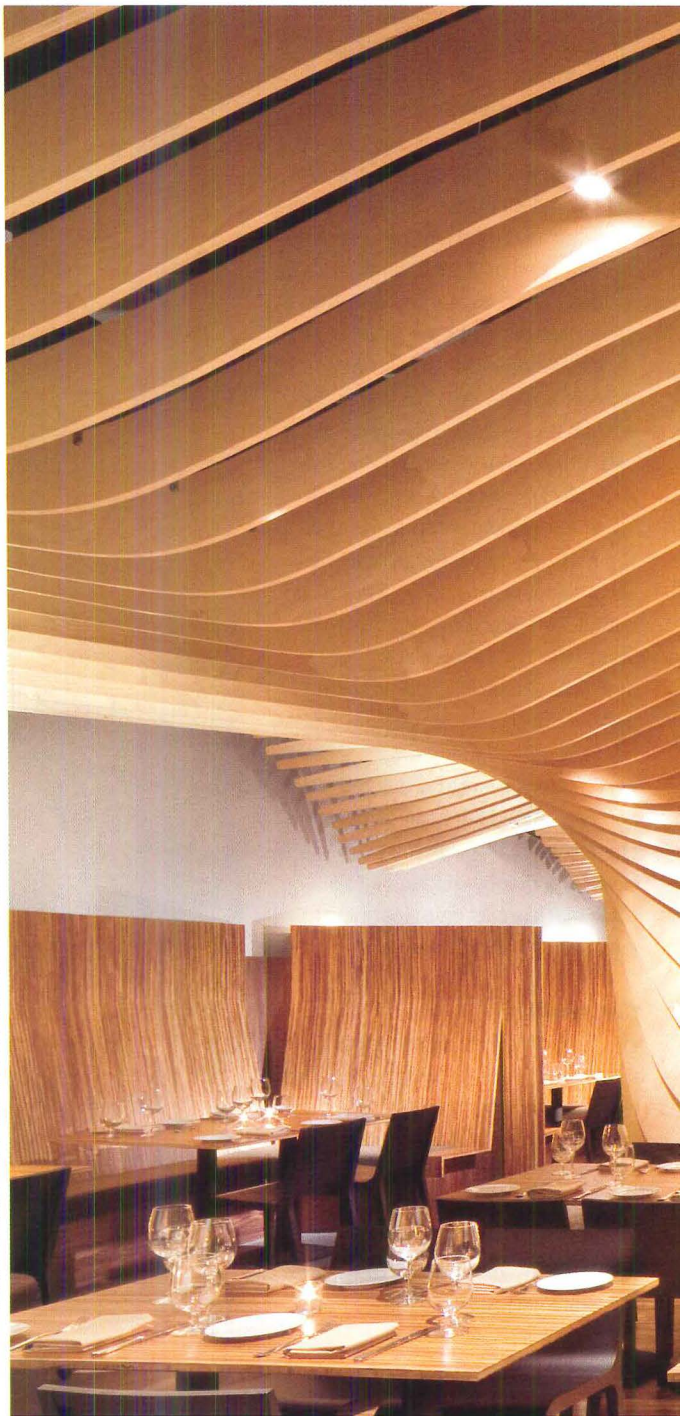
SOURCES
Floor, tables, banquettes: *Plyboo Neopolitan plywood*
Wood-slatted canopy: *Baltic birch*
Bathroom tile: *Nemo Tile Company*
Bathroom sinks: *Corian*
Back curtain and upholstery: *Maharam*
Front weather curtain: *Knoll*
Resin wait-station screen: *3Form; Lumicor*

ONLINE: Rate this project and access additional sources at ***architecturalrecord.com/bts/.***

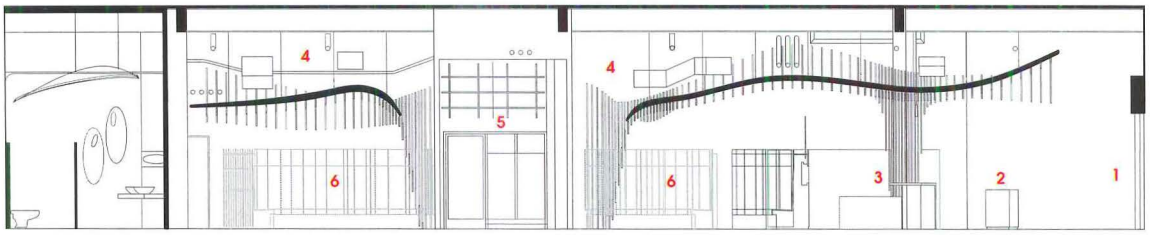
"Restaurants are like calisthenic exercises," says architect Nader Tehrani, a partner, with Monica Ponce de Leon, of Boston-based Office dA, explaining how these projects are great places to flex experimental muscles. "You test out a technique, certain means and methods of production, and they give you a way to expand on them." With BanQ, a new Boston restaurant serving French-inspired food with Southeast Asian influences, the architects had the opportunity to continue their long-standing investigation of CNC milling. Here, Tehrani says, "The experiment was to radicalize the difference between the ground and sky; to do something economical, but have its effect appear incredibly luxurious."

Program

Like much of Boston's South End before its recent renaissance, the Boston Penny Savings Bank, a once resplendent Classical Revival marble building dating from 1917, had suffered from long neglect. After sitting abandoned for years, the building was given new life by a local developer who converted it into condominiums, restoring its historic facade, gutting its interiors, inserting new structural elements, and popping a glass box out of its roof to provide an additional three stories of residential space. The project provided two retail spaces at ground level, one of which was claimed by restaurateurs Hemant Chowdhry and Mark Raab. Since Chowdhry had previously worked with



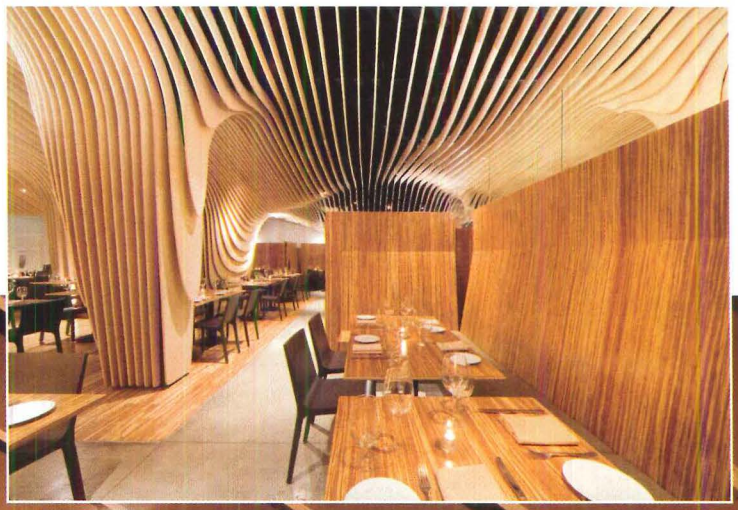
PHOTOGRAPHY: © JOHN HORNER PHOTOGRAPHY

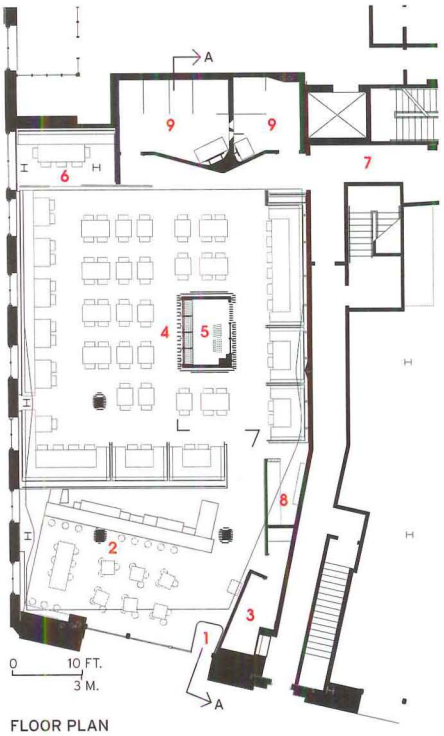


SECTION A-A

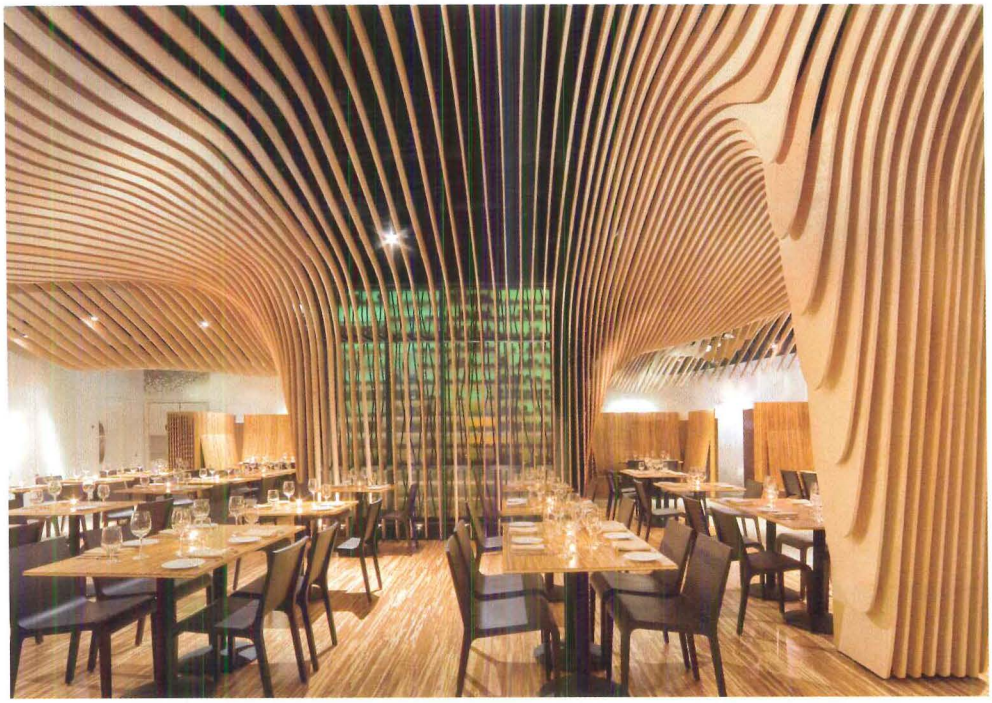
1. *Main entrance*
2. *Hostess station*
3. *Bar*
4. *Mechanicals and plumbing systems*
5. *Wine cove*
6. *Main dining room*

One hundred sixty-eight uniquely shaped plywood ribs fit like puzzle pieces into the space. All joints are glued, except at the edges, where they are screwed for accessibility. The system is strong enough to support workers when they need access to the mechanicals above.



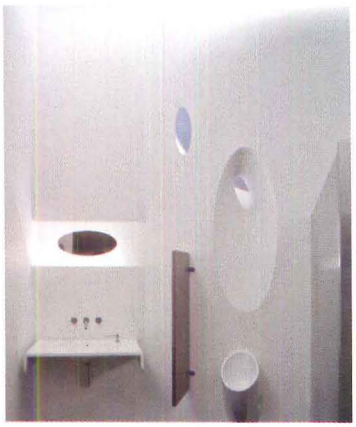


FLOOR PLAN



1. *Main entry*
2. *Bar*
3. *Coat room*
4. *Main dining room*
5. *Wine cove*
6. *Private dining room*
7. *Corridor to kitchen*
8. *Wait station*
9. *Bathrooms*

Bathrooms have an extreme ellipse theme (below); oculi connect the men's and women's rooms, creating a voyeuristic atmosphere. Ribs cascade down the wine cove (above), which appears to anchor the dining room.



Office dA on Mantra, another of his Boston restaurants, he and his partner brought the firm back to work on the new space. Their programmatic requirements were limited to a private dining room that could be closed off, a long banquette section able to accommodate 20, a wine room, and a separate bar/lounge area.

Solution

Visiting the raw space with the clients, the architects realized they were inheriting structural and mechanical systems that were likely to compromise the interior. The cheapest solution would have been simply to paint the ceiling, its ducts, and plumbing black to make them go away. But the roughly $1.5 million construction budget (excluding kitchen equipment) allowed them to consider a more interesting intervention. So, Tehrani says, they asked themselves: "How do we control everything overhead to take advantage of the height and give the most flexibility to the ground?" He found the answer while passing through Amsterdam's Airport Schiphol, whose metal ceiling system acts as a visual foil for the infrastructure behind it. Instead of metal, the architects fabricated their baffle system out of CNC-milled Baltic birch plywood. To engage, rather than ignore, the services, the architects in effect "shrink-wrapped" them. The ceiling's undulations are defined as they wrap around and yield to columns, a wine room, sprinkler system, ducts, windows, and even exit signs.

One hundred sixty-eight plywood ribs (each made of four to 10 component pieces) hang across the length of the restaurant's ceiling, suspended with steel hurricane ties from six birch structural members painted black (like the mechanicals behind them) running from the front to the back of the room. No two pieces are alike. The thickness of the ribs ranges from 2 inches near the walls to 6 inches at the middle and 18 inches around the wine room and columns. Spacing between the ribs varies from about 9 inches at the restaurant's center to 3 inches around columns, causing a rhythm of compression and release. Plyboo floors, tabletops, and banquettes carry the stripe theme through the dining room, and visually separate it from the lounge area at the front of the building, whose bar, floor, and tabletops are made of dark walnut. Splashes of green inject color into the woody interior, as seen in the private dining room's translucent curtain, a resin wait-station screen, and illumination emanating from the wine cove – a trunklike structure that almost appears to support the canopy above. While creating a distinct interior landscape, the ceiling serves as a counterpoint to the exterior. Its relationship to the facade, says Tehrani, is based "more on dissonance, rather than on integration."

Commentary

Combining an economy of means with an intrepid spirit, Office dA gets maximum mileage out of its elegantly simple system. With a single gesture, the architects, in the process of concealing mechanicals and providing an acoustic baffle to mitigate sound for the residences above, have given the restaurant its identity, at once obscuring and exaggerating the infrastructure, creating motion, and introducing a topography and texture to an otherwise featureless space. There is nothing subtle about BanQ – it is in-your-face architecture, eagerly calling out for attention and never letting guests forget where they are. But it does so at a tenable volume and, while pouring on the drama, manages to carve out zones that reinforce dining out as an intimate experience. ■

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CIRCLE 29

A seismic retrofit is part of plans to transform an unappealing 1960s-era office building (opposite top, far right) into this sleek, daylight-filled structure.

Three Buildings, Three Different Approaches

BAY AREA PROJECTS DEMONSTRATE THAT THE RETROFIT OF EXISTING STRUCTURES DEMANDS AS MUCH SEISMIC SOPHISTICATION AS NEW CONSTRUCTION

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To earn one AIA learning unit, including one hour of health, safety, and welfare credit, turn to page 114 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Discuss the seismic retrofit strategies developed for the three different buildings presented in this article.*
2. *Describe the components of each system.*
3. *Explain why each system is appropriate for its application.*

By Joann Gonchar, AIA

It isn't surprising that architects in the earthquake-prone San Francisco Bay Area incorporate robust and sophisticated seismic technologies into their buildings. Some of the earthquake-resisting strategies in the region's high-profile new construction projects, such as the coupled shear wall system inside the twisting and turning tower at the de Young Museum [ARCHITECTURAL RECORD, May 2006, page 167] or the base isolators below the just-completed Oakland Cathedral (see page 86), naturally attract attention because of their unusual design. But older, more conventional structures are continuously being subjected to seismic retrofit, and interestingly, they require at least just as much engineering finesse.

One of the area's innovative seismic retrofit projects is part of developer TMG Partners' plans to transform a vacant and fortresslike tower at 680 Folsom, in San Francisco's South of Market neighborhood, into desirable office space. The overhaul, designed by Skidmore, Owings & Merrill (SOM), entails installation of completely new building systems and replacement of the seemingly impenetrable precast-concrete cladding with a high-performance glass curtain wall. And even though the steel moment frame is too flexible for a vertical addition under current code requirements, Berkeley-based structural engineer Tipping Mar has found a way to add two floors to the 12-story building and increase the size of each floor plate with four horizontal extensions.

Plans call for enlarging the 1960s-era tower by about 30 percent, adding 125,000 square feet to the current 400,000. Even so, the renovated 680 Folsom will not appear bigger, say its designers. The articulated floor plate will allow "the building to be read as three separate volumes instead of one big hulking mass," says Leo Chow, associate director of design in SOM's San Francisco office.

The new configuration should also provide TMG with an extra edge as it tries to lease the tower before moving forward with construction. The horizontal additions should make the building more attractive to corporate tenants since the protrusions provide the possibility of additional corner offices on each level, explains Chow.

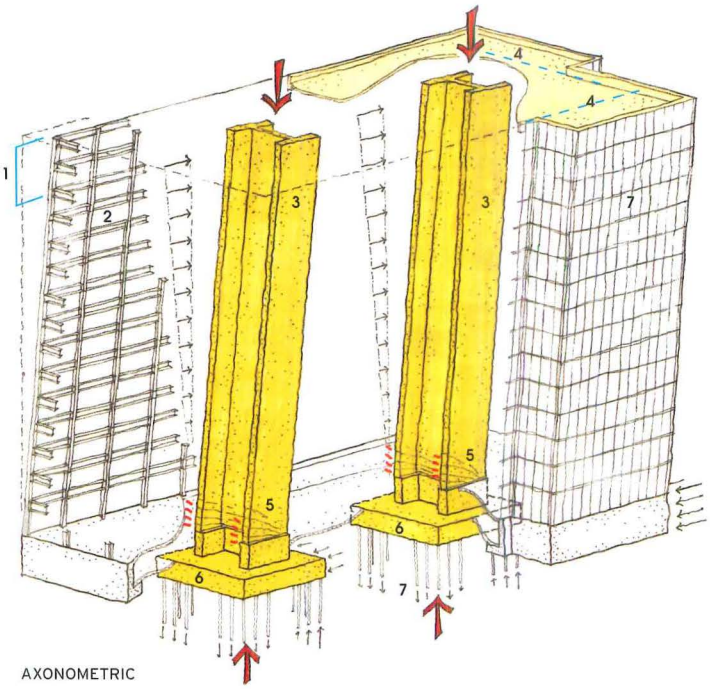
Early in the design process, the team considered a retrofit scheme that included a perimeter bracing system, but they worried that such a strategy would add to the building's visual bulk. Instead, they opted for constructing I-shaped, posttensioned concrete spines at each end of the tower's core. The addition of these spines, or "flexural walls," will provide strength and stiffness, and displacement will be reduced, explains David Mar, principal of Tipping Mar.

The spines will be "self-healing," according to Mar. The posttensioning tendons inside the concrete will allow them to flex at the base and realign without sustaining damage. Mar and his team have set the strength and stiffness of these spines to protect nonstructural components, such as the glass facade. "We worked with the manufacturer to make sure maximum drifts would not damage the skin," he says.

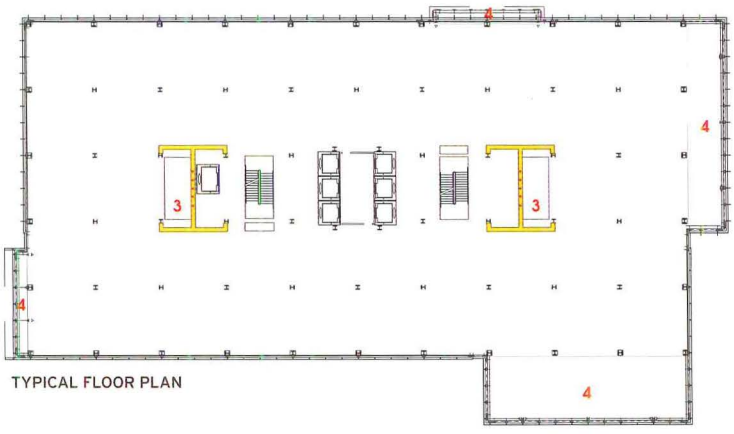
This strategy will help the renovated building exceed the requirements of the seismic code, which emphasizes preventing loss of life rather than minimizing property damage. Even after a powerful earthquake, 680 Folsom should be both operational and safe to occupy.

The vacant 680 Folsom (above, far right) occupies a prime South of Market site near Yerba Buena Gardens (foreground) and the San Francisco Museum of Modern Art (above, far left).

1. *Two-story vertical addition*
2. *Existing steel moment frame*
3. *Posttensioned concrete spine*
4. *Horizontal addition*
5. *Self-healing flexural hinge*
6. *Spine foundation*
7. *High-performance curtain wall*



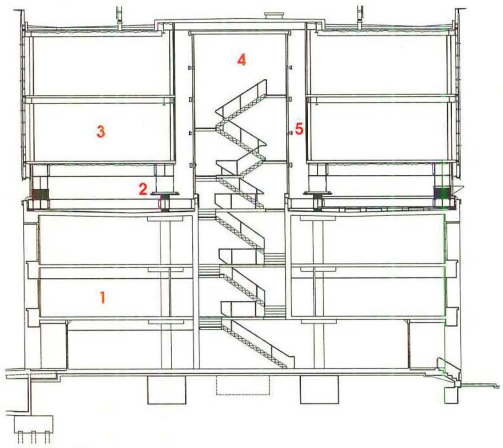
AXONOMETRIC



TYPICAL FLOOR PLAN

Horizontal extensions to each floor plate will help reduce the building's visual bulk and provide the possibility for additional corner offices.

In San Francisco's China Basin, Simpson Gumpertz & Heger and HOK found a way to add 150,000 square feet and two levels (right) to a three-story building (above right) that had been designed to accept a much smaller addition. The strategy included installing seismic isolators on the existing roof (above left) and constructing a moat around new vertical cores (below).



SECTION

1. *Existing concrete frame building*
2. *Seismic isolators*
3. *Steel frame addition*
4. *Vertical core*
5. *Moat*

This resiliency, along with features such as a green roof, its high-performance skin, and energy-conserving mechanical systems, is part of the project's bid for LEED Gold certification. Even though the rating system has no credits that pertain to seismic design, the team has applied for innovation points based on the renovated building's durability. "We are getting 680 Folsom ready for the next 100 years," says Mar.

Less invasive surgery

In China Basin, along San Francisco's southern waterfront, structural engineers from Simpson Gumpertz & Heger (SGH) and architects from HOK faced a not-so-dissimilar design problem from that posed by 680 Folsom: The owners of a three-story, 300,000-square-foot building wanted to expand but were limited by the seismic capacity of the existing concrete structure. However, the client, real estate investment firm McCarthy Cook, had one additional, and significant, requirement: Construction could not disrupt the operations of the bioscience laboratories that already occupied the building.

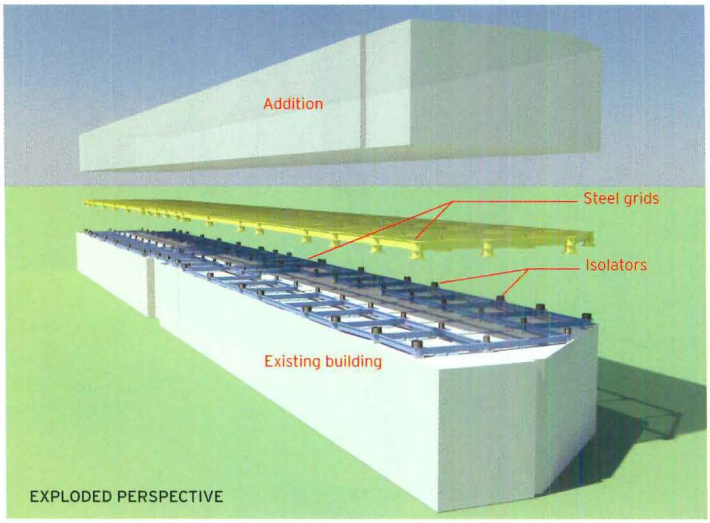
The restriction made construction of shear walls, a solution similar to that proposed for the vacant 680 Folsom, an impossibility, since the strategy could not be deployed without displacing the tenants from the mid-1980s structure. So, to avoid invasive interior construction, the firms devised an alternative approach that included two new steel-framed stories over the roof of the existing building, on top of a system of seismic isolation bearings. At 150,000 square feet, the addition would be three times the size of the one the building had been originally designed to accept.

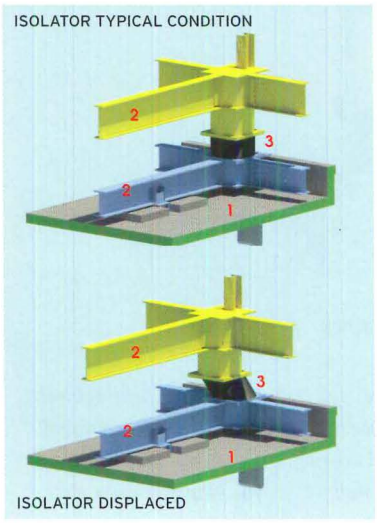
THE POST-QUAKE RESILIENCY OF THE RETROFITTED 680 FOLSOM IS PART OF ITS BID FOR LEED CERTIFICATION.

Bearings like those at China Basin are typically used under structures, for both retrofit applications and new buildings. But SGH engineers say the project, completed last spring, is the first in the U.S. to incorporate seismic isolators in a location other than the base of a building and in conjunction with a vertical addition.

Implementation of the strategy required only minimal construction on the lower floors, to strengthen columns so that they could

The density mechanical equipment mounted on the old building's roof (right) made coordination between building services and the isolator system challenging for designers and contractors.





During a powerful temblor, the China Basin addition will move on top of 87 isolators (left), sandwiched between two grids of steel beams (far left).

1. *Existing roof*
2. *Steel grid*
3. *Seismic isolator*

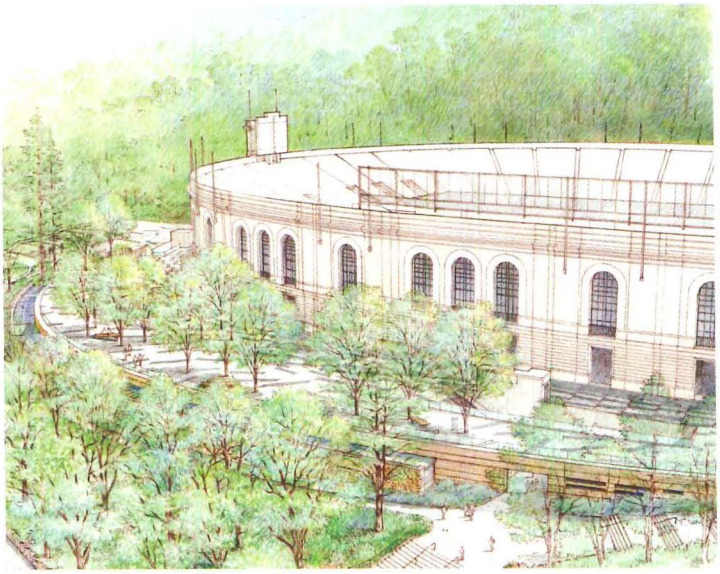
accept the increased gravity loads. But even without major interior retrofit work, the addition "made the existing building better from a seismic standpoint," says John Sumnicht, a senior principal in SGH's local office. The new floors act like a mass damper. "During strong earthquake shaking, the new stories will tend to counterbalance the movement of the lower floors and actually reduce the amount of seismic forces and displacement demand on the existing structure," he says. The isolation system is designed to allow the addition to move as much as 45 inches in either direction relative to the existing structure below—1.5 times the displacement required by code.

The isolators, 87 in total, are positioned on top of the existing building's columns and sandwiched between two grids of steel beams. The system is made up of 33 lead-rubber bearings, and 54 elastomeric slider bearings. The two types are combined, explains Sumnicht, in order to tune the structure's period—the time it takes the addition to move from center, to the extreme right, to the extreme left, and back to center again. Lead-rubber bearings alone would make the period too short; replacing some of these with sliders lengthens the period, he says. "This is one of the ways seismic isolation works. When the period is lengthened, the building isn't shaken so violently."

Because the existing building is a lab, it had a high-concentration of roof-mounted mechanical equipment and utilities. Designers needed to closely examine clearances around isolators so that they would not have the potential of colliding with, and damaging, utilities during a quake. Contractors also had to take special care not to disrupt building services during construction. "Coordination at the roof level was a nightmare," says Sumnicht.

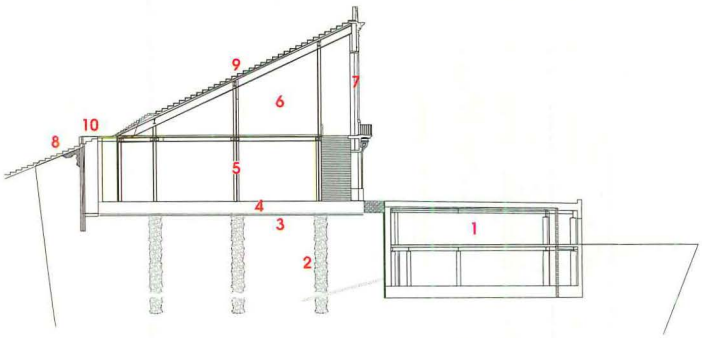
WITHOUT MAJOR INTERIOR RETROFIT, THE ADDITION "MADE THE EXISTING BUILDING BETTER FROM A SEISMIC STANDPOINT."

For the architects, the biggest challenge was design of vertical circulation—the locations where core elements, such as stairs and elevators, extend through the new construction. "In order to accommodate movement, we had to consider what would connect to the existing construction and what connects to the new construction," says Mark



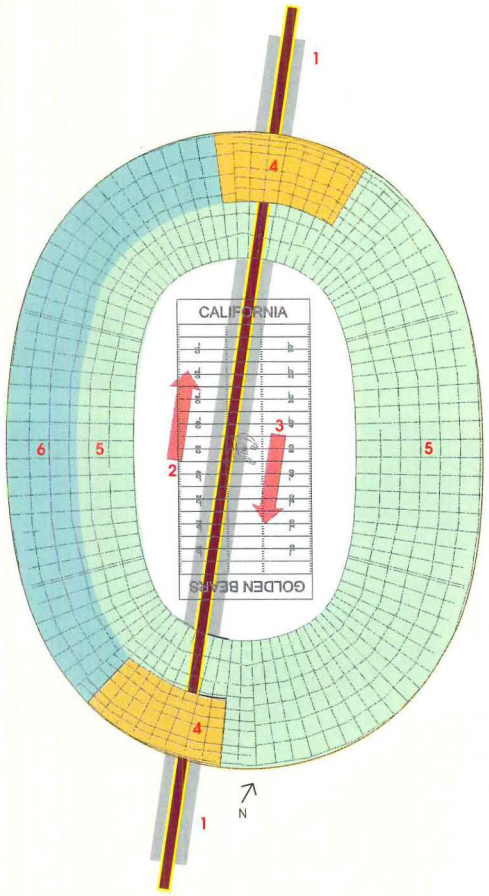
Because Berkeley's Memorial Stadium straddles the Hayward Fault (right), it is slated for a retrofit that includes bunkerlike fault rupture blocks (below left). Construction of the seismic upgrade will begin after completion of a partially below-ground training center (left).

1. *Fault line*
2. *Pacific Plate*
3. *North American Plate*
4. *Fault rupture block*
5. *Existing seating bowl*
6. *Precast-concrete and steel seating bowl*



SECTION THROUGH FAULT RUPTURE BLOCK

1. *Training center*
2. *Stone columns*
3. *Plastic sheet*
4. *Concrete mat slab*
5. *Steel frame*
6. *Concrete shear wall*
7. *Reinforced existing perimeter wall*
8. *Existing seating bowl*
9. *Precast-concrete and steel seating bowl*
10. *Gap with cover plate*



RETROFIT PLAN DIAGRAM

Borchardt, AIA, senior associate in HOK's local office. In the end, the architects decided to extend the cores from the existing building and surround them by a 36-inch moat to prevent core elements from crashing into surrounding construction during a temblor. A tunnel-like device that allows movement in any horizontal direction bridges the moat and connects the cores to the new floor plates.

Sliding slowly

Across the bay, at the University of California, Berkeley, engineers are planning a very different kind of retrofit for the school's 85-year-old Memorial Stadium. The engineering problem presented by the stadium is an unusual one, in part because of the building's heritage—it was designed by Beaux-Arts architect John Galen Howard and was placed on the National Register of Historic Places in 2006. But the characteristic that most clearly distinguishes the building from most other structures slated for seismic retrofit is its location straddling the Hayward Fault. The approximately 40-mile-long fault runs along the western edge of the East Bay hills, separating the North American Plate from the Pacific Plate. It bisects the 72,000-seat stadium, tracing a roughly north–south diagonal from one end zone to the other.

Hayward is the type of fault known as "strike-slip." According to geologists, during a quake on this kind of fault, the earth on each side of a ground rupture moves mostly in a horizontal direction, with one plate sliding past the other. Other types of faults, such as "normal" and "reverse" faults, involve primarily vertical movement, while "thrust" faults involve a combination of angled and vertical movement.

THE TECTONIC PLATES ON EITHER SIDE OF THE HAYWARD FAULT ARE MOVING SLOWLY BUT STEADILY ALL THE TIME.

A major quake has not occurred along the Hayward fault in 140 years, yet the earth around it is moving very slowly but steadily all the time, at a rate of about 3/16 inch per year. Evidence of this "fault creep" can be seen in the stadium's nonductal reinforced-concrete structure, especially under the seating bowl at expansion joints, where adjacent columns and beams no longer align. "Incrementally, the eastern half of the

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CIRCLE 30

building is moving south, and the western half is moving north," explains David Friedman, senior principal with Forell/Elsesser, the stadium project's structural engineer. The San Francisco–based firm has devised a retrofit plan to accommodate expected horizontal surface displacements of as much as 6 feet that could occur during a powerful temblor.

The seismic retrofit is part of a multiphase development plan for the stadium, designed by the Los Angeles office of HNTB Architecture, that includes a new plaza and the partially below-grade Student-Athlete High Performance Center (SHPC) to be built along the western edge of the stadium. The training and sports-medicine facility had been stalled by several lawsuits and protests by local residents opposed to the removal of a grove of trees on the site. But construction of the SHPC is now cleared to move ahead in early 2009. The seismic retrofit project, currently in schematic design, will follow as a second phase.

The goal of Forell/Elsesser's retrofit scheme is to allow the portions of the stadium directly over the fault to move independently from the rest of the building. It includes replacing two wedge-shaped pieces of seating bowl with bunkerlike "rupture blocks" built on top of plastic sheeting and separated from adjacent parts of the structure by a 5-foot gap. During a strong Hayward quake, the blocks may twist or tilt, but occupants will be protected, explains Friedman.

Construction of the blocks will involve several steps. After first reinforcing the stadium's historic perimeter wall, contractors will increase the density of the soil with "rock columns." They will then install the plastic sheet and a 30-inch mat slab before building steel framing and concrete shear walls to support the wedgelike pieces of the seating bowl above. As the final step in the retrofit, workers will reconstruct the upper portion of the western half of the seating bowl. The eastern half, which is built into the Berkeley hillside, along with the part of the seating bowl closest to the field, are slab-on-grade construction. As such, they are not subject to collapse during a temblor, and are therefore not slated for replacement as part of the retrofit project.

Underpinning the scheme is extensive research and collaboration with the university's own experts in fault rupture mechanics, says Friedman. But the solution they developed doesn't rely on high-tech devices such as base isolation or high-damping bearings, he points out. For all its sophistication, "the retrofit involves a fairly conventional use of materials and seismic systems." ■

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- Complete the questions below, then fill in your answers on the next page.
- Fill out and submit the AIA/CES education reporting form on the next page or take the test online at continuingeducation.construction.com/ to receive one AIA learning unit.

QUESTIONS

1. Which of the following is true regarding 680 Folsom in its current condition?
   a. it has a precast-concrete structure
   b. its structure is too stiff to accept a vertical addition
   c. its structure is too flexible to accept a vertical addition
   d. it has a high-performance glass curtain wall
2. Retrofit plans for 680 Folsom include all except which?
   a. a perimeter bracing system
   b. flexural walls
   c. posttensioning
   d. self-healing spines
3. The seismic code emphasizes which?
   a. minimizing property damage
   b. extending the useful life of buildings beyond a major quake
   c. preventing damage to building contents
   d. preventing loss of life
4. Which is part of the Folsom Street project's bid for LEED certification?
   a. the green roof
   b. the projected longevity of the building
   c. the high-performance skin
   d. all of the above
5. Which of the following was part of the China Basin project?
   a. the addition of shear walls
   b. strengthening of columns to accept increased gravity loads
   c. major retrofit work inside the existing building
   d. the installation of lead-rubber bearings and elastomeric slider bearings at the base of the existing building
6. All of the following are true regarding the two-story addition to the China Basin building except which?
   a. it acts like a mass damper
   b. it made the existing structure better from a seismic standpoint
   c. it increased displacement demand on the existing structure
   d. it reduces the amount of seismic force on the existing structure
7. Which strategy resulted in lengthening the period of the addition to the China Basin building?
   a. providing a moat around vertical circulation elements
   b. adding posttensioning to core elements
   c. providing sufficient clearance around isolation bearings
   d. combining two types of seismic isolation bearings
8. The Hayward Fault is which type?
   a. normal
   b. reverse
   c. strike-slip
   d. thrust
9. Which best describes how the tectonic plates that meet under Memorial Stadium will move relative to one another during a quake along the Hayward Fault?
   a. vertically
   b. horizontally
   c. at an angle
   d. a combination of angled and vertical
10. All of the following are components in Memorial Stadium's rupture blocks except which?
    a. base isolators
    b. a concrete mat foundation
    c. shear walls
    d. a plastic sheet

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Program title: "Three Buildings, Three Different Approaches," Architectural Record (01/09, page 108).

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5.	a	b	c	d	**10.**	a	b	c	d

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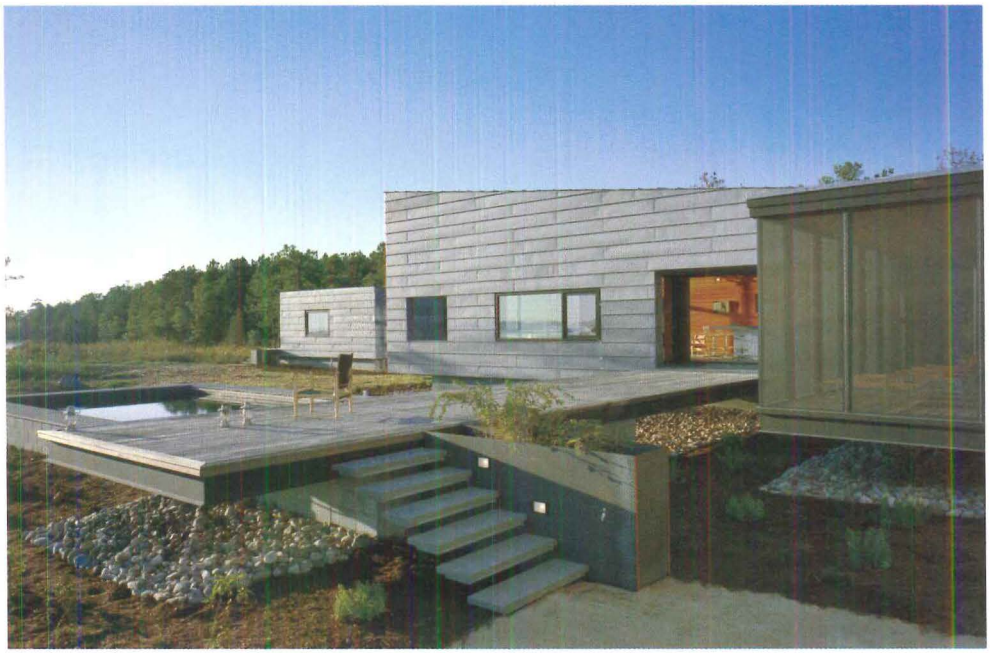
CIRCLE 32

Residential

Houses find freedom under wide-open skies

To establish a feeling of protection, architects often tuck houses into hillsides or hollows, or shelter them with trees. The four houses featured here express something different—a freedom from the constraints of cover. By occupying valleys, meadows, or prairies exposed to the sky and elements, they appeal to homeowners interested in residences that afford expansive landscape views and dramatic sky panoramas.

The Zen Garden House in Crestone, Colorado, opens onto the 14,000-foot-high, snow-capped Sangre de Cristo mountains on the east, the Great Sand Dune National Park on the south, and a flat valley floor on the north and west that terminates in another high mountain range on the distant horizon. By exposing the house to the heavens in this high alpine desert, architect David Jay Weiner was able to use a single photovoltaic panel to collect enough solar energy to power the house's electricity year round.



The House on Hooper's Island was envisioned as a "camp," with cabins and other structures.

Situated next to the Blackwater National Wildlife Refuge between a marsh, a river, and a forest, the House on Hooper's Island, in Maryland, is all about the sea, the sky, and the land. Connecting the three main buildings with a screened porch, architect David Jameson, FAIA, brings the occupants repeatedly outside to enjoy the stunning vistas.

The remote southern shores of Nova Scotia serve architect Brian McKay Lyons well as the home of his Ghost Lab Design/Build Workshop. The buildings include the Shobac cottages, an assembly of four dormlike structures, plus a studio, that are framed by a wide-open sky, the jagged Atlantic coastline, and a hilly landscape dotted with agrarian structures and fishing villages.

A small weekend house on a 10-acre plot in northern Illinois occupies a rolling alfalfa meadow. Inspired by a Yuan Dynasty scroll, in which two scholars contemplate the landscape from an open-fronted pavilion, Alfred Swenson and Pao-Chi Chang Architects purposely kept the house at a formal distance from its surroundings.

While humbled by the starring role of the sky, each house maximizes the opportunities inherent to its location in both orientation to the views and response to the area's prevailing design vocabulary. *Jane F. Kolleeny*

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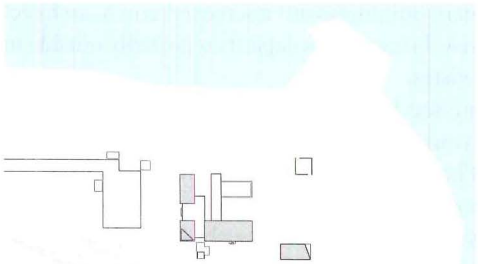


SITE PLAN N

The house is a bridgelike structure, taking cues from the surrounding marsh walkways and docks.

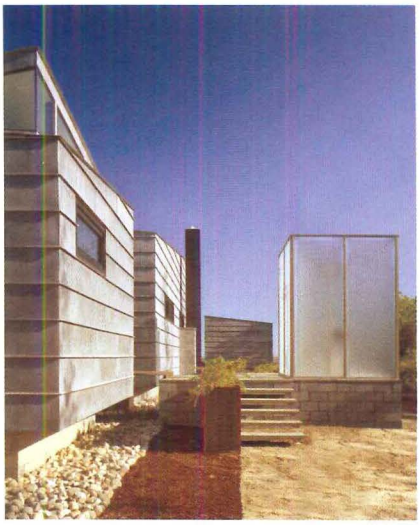
The House on Hooper's Island is about land, sea, sky

By Beth Broome

A couple hours drive from Washington, D.C., Hooper's Island, on Maryland's Eastern Shore on the Chesapeake Bay, seems to exist in a time warp. One of the state's oldest settled areas, the island was originally agrarian. Today, many of the 400-odd residents of the sleepy community—with simple, saltbox houses dotting the flat, waterfront expanses—are watermen: crabbers, oyster tongers, and seafood packers. For some 300 years, it is said, the population could be traced to 10 families. So when a Modernist, metal-clad weekend compound designed by Alexandria, Virginia–based architect David Jameson, FAIA, started to rise along its shores, one can only imagine the chattering rattling the walls of The Island Pride, the local gas station-cum-hardware store and grocery-cum-restaurant.

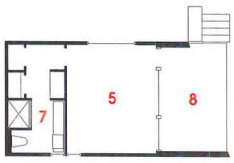
Some years earlier, a professional from D.C. and his partner had purchased the isolated, 6-acre property and its white clapboard cottage, situated alongside the Blackwater National Wildlife Refuge, between a salt meadow marsh, the Honga River, and a pine forest. Not long afterward, however, in 2003, Hurricane Isabel destroyed the cottage. Rather than trying to reconstruct the past, the owners saw this wiping-clean of the slate as an opportunity to build something that would connect them to the awe-inspiring environment. "This house is about the land, the sea, the sky, and bringing that all together," says Jameson. "The idea is to get you out of the house, to be a part of the landscape." Beyond this, the clients modestly requested that the house have places to sleep, cook, and sit.

Because the house's function changes with the seasons and the frequency of visitors, Jameson envisioned a "camp" composed of separate cabins that can be opened or closed as needed, and broke the program into a number of components: lodge, master cabin, guest cabin, and "art studio." The components are unified by their lead-coated-copper cladding and coplanar roofs, and the three main structures are



An outdoor shower (left) sits adjacent to the house's main entrance, acting as a beacon at night. A fire pit (below) is made of the same concrete block used for the house's foundation.

1. *Entrance*
2. *Lodge (living, kitchen)*
3. *Master cabin*
4. *Guest cabin*
5. *Art studio*
6. *Screened porch*
7. *Bath*
8. *Deck*
9. *Pool*
10. *Outdoor shower*
11. *Fire pit*



Deep overhangs provide shading, and strategically placed apertures enable cross ventilation, while concrete floors create thermal mass.

literally linked by a large screened porch. To move between the parts of the 2,200-square-foot house, which also include a swimming pool, fire pit, and a beaconlike outdoor shower, the owners and their visitors must move outside and engage with nature.

Following Hurricane Isabel, the Dorchester County Zoning Department instituted an ordinance requiring new housing to be built at least 3 feet above the base flood elevation. In response, the steel- and wood-framed house cantilevers off a series of raised, black ground-face concrete-block plinths. Given setback and footprint restrictions, the architect used the cantilevers to increase the square footage while minimizing the impact on the environment.

Jameson, who grew up on the Eastern Shore, calls the house a "coming home" project. Responding to its context, he drew on the local vernacular of silos, chicken coops, and fishing shacks with their metal shed roofs. As with the in-between spaces animating grain elevators and other structures on rural compounds, the voids in this project are just as important as the buildings themselves, says Jameson. The low-tech material choices, while nodding to the fabric of the regional architecture, also respond to the house's natural environment: The heaviness of the concrete secures the house to the earth while the metal has "a lighter materiality, like that of water," says Jameson. Not coincidentally, these choices took into account the capabilities of the island's "yesteryear contractors," as Jameson calls them (KieranTimberlake's Loblolly House, also on the Chesapeake Bay, greatly circumvented this issue by incorporating a prefab system), and also render the house low-maintenance.

Interiors, as well, are shaped by what lies beyond the house's confines. Glass walls, or "view portals," frame undulating waves of salt-meadow grasses and expansive water vistas, and the concrete floors continue outside onto covelike porches protected by deep overhangs and extended exterior walls. Reclaimed Douglas fir cladding provides a warm counterpoint to the metal surfaces outside and, while creating durable surfaces, makes reference to the hunting cabins that populate the area. In the kitchen, glass doors slide open to an ipé-wood runway, which leads to the pool, partly elevated above ground because of the water table.

Beyond the house's ample accommodations, the catwalk, and the built-in ice bucket in the kitchen counter, it is the acid-etched-glass-and-stainless-steel outdoor shower—which by night becomes a gigantic, habitable light fixture animated by the obscured figures of the bathers within—that proclaims that this is a party house. At the same time, though, it is a meditative place—with the sky for a roof and the endless landscape as wallpaper—that has a humbling effect, most certainly underscoring for its inhabitants their small place in the world. ■

Project: *House on Hooper's Island, Hooper's Island, Maryland*
Architect: *David Jameson Architect—David Jameson, FAIA, partner in charge; Ron Southwick, project architect*
General contractor: *CJ&E*

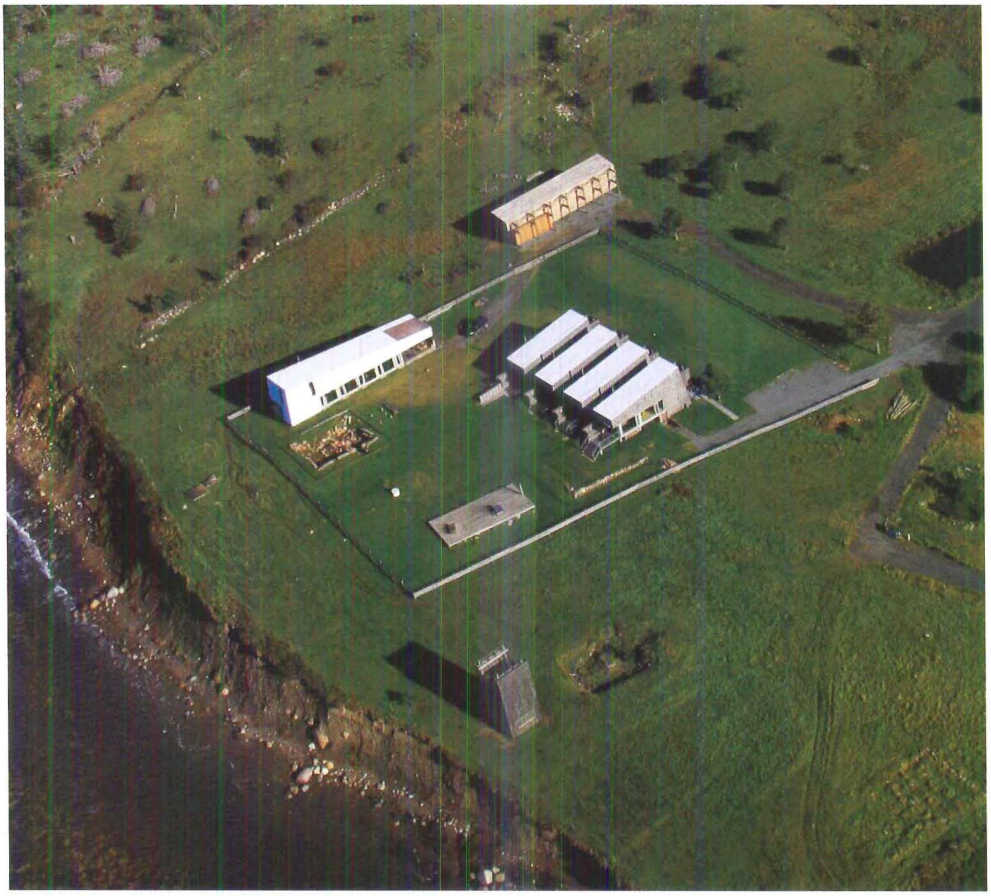
SOURCES
Curtain wall: *Kawneer*
Lead-coated-copper roof and siding: *Louis McGraw*
Built-up roofing: *Firestone*
Windows and sliding doors: *Fleetwood*
Wall paneling and cabinetry: *RKI*
Lighting: *IRis; Sistemalux; Bega*

A screened porch connects the house's three main volumes (above). Interiors act as portals to the landscape (left). An ipé-wood catwalk leads to a raised swimming pool (opposite).

Shobac Cottages and Studio form a protourban setting on a craggy Nova Scotia coast

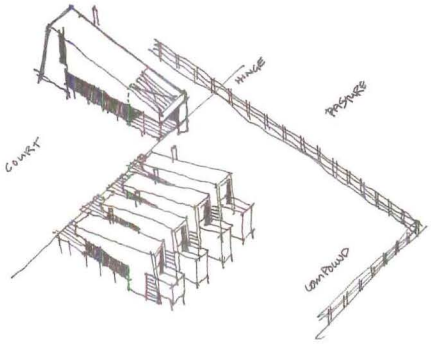
By Suzanne Stephens

The place seems to be at the edge of the world, where an expansive sky, shimmering water, and a hilly landscape dotted with spruce and pines are only interrupted by rustic cottages and barns. It is here that Brian MacKay-Lyons, whose firm, MacKay-Lyons Sweetapple Architects, located in Halifax, Nova Scotia, has renovated or designed a cluster of buildings. The architect started buying property some years ago in Upper Kingsburg on the southeastern coast of the province. Known for its hilly, glacial land formations (called drumlins) with panoptic views of the Atlantic Ocean, this peninsula held a primordial attraction for MacKay-Lyons: His French-Acadian forebears had settled there after Champlain's arrival in 1604.

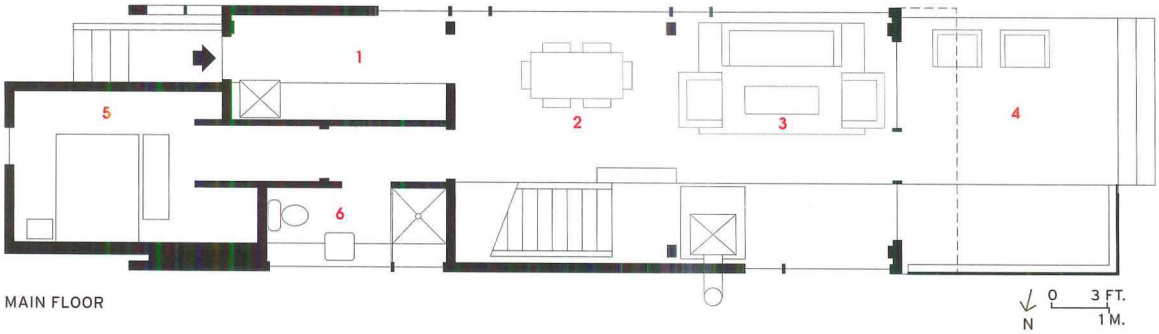


In 1994, MacKay-Lyons established a camp on the property where architecture students (mostly from Canada and the U.S.) and a few architects and critics would meet two weeks each year for a design-build workshop. The idea was to connect contemporary architectural practice to timeless construction techniques, materials, and vernacular forms. It was soon dubbed Ghost Lab, partly inspired by the eerie look of the new structures at night, and partly by the presence of ruins and other traces of earlier communities nearby.

The first series of design-build enclosures were temporary. But others, including four cabins and a studio, were envisioned as permanent structures. The four cabins provide sleeping accommodations for the design-build students for two weeks each summer, then are rented out the rest of the season. The studio, a barnlike structure that serves as a work space and meeting house for the workshop, is used the rest of the time by Brian MacKay-Lyons and his wife, Marilyn, as a summer office and living space.

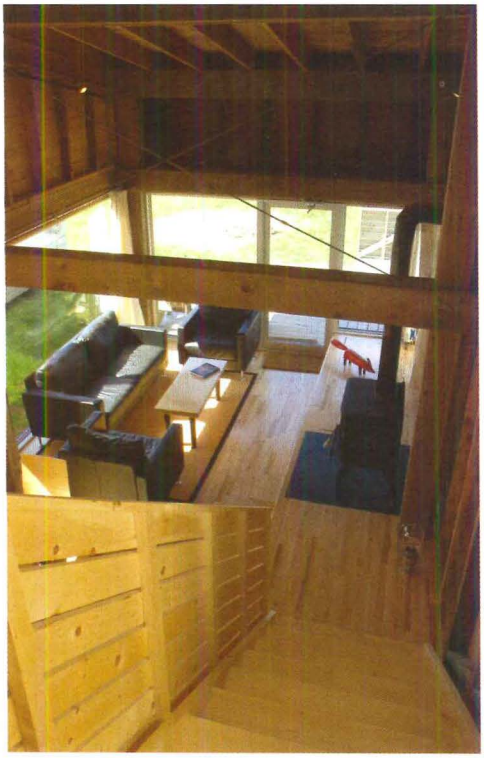


1. *Kitchen*
2. *Dining*
3. *Living*
4. *Deck*
5. *Bedroom*
6. *Bath*



MAIN FLOOR

An enclave that resulted from a series of design-build workshops for architecture students features a cluster of four pavilions (below) and a communal studio, along with a horse barn and a nonfunctioning lookout tower near the water's edge (opposite).



Visitors approach the cabins from a road that leads past a pond (above) and the horse barn. On the opposite side of the cabins are decks (left) that have views of the Atlantic Ocean. They open off the double-height living space (below left).

Both cabins and studio were designed and (largely) constructed in two different Ghost Lab sessions—the cabins in July 2005 and the studio, the following year. Since the lab runs for a short term, with the first week devoted to design and the second to construction, only certain stages in each project could be brought to completion by the students—many of them novices at building. (Fortunately, practicing architects and builder Gordon MacLean were on hand to guide them.) Both projects were finished during the remainder of the year by MacKay-Lyons Sweetapple working with MacLean.

The cabins, positioned on a 12-foot grid, are 14 feet wide, with 10-foot-wide spaces separating the pavilions. Inserted into the high, narrow end of each wedge-shaped shed is a two-level block containing kitchen, bedroom, and bath on the ground floor, with a bedroom loft above. Living and dining areas open out to east-facing decks and views of the Atlantic Ocean. Exterior sheathing is white-cedar shingles for the long sides of the cabin, with 1-by-4, tongue-and-groove vertical boards—a mixture of two-thirds hemlock and one-third spruce, pine, and fir (called SPF)—for the protruding bedroom blocks. The architects used rough-sawn lumber with the same mix of wood for the stud walls, bolstering them with prefabricated built-up wood trusses, 12 feet on center.

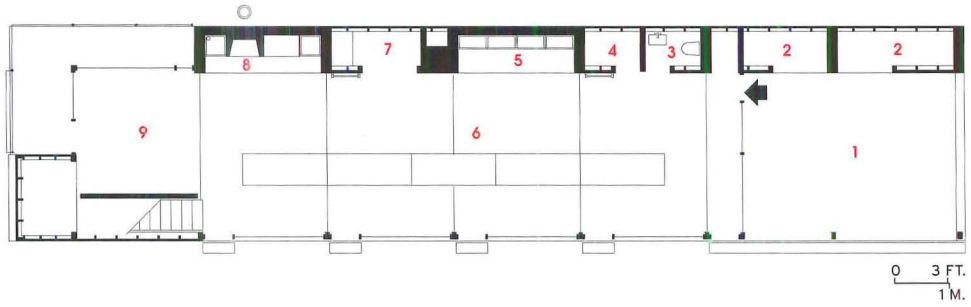
The studio employs similar rough-sawn local timber for a post-and-beam structure, although exterior cladding is corrugated steel sheet. Angled steel struts and beams span the space and give the upper portion of the hall a strong tectonic quality. The 100-foot-long studio is designed so that residents can work or dine at centrally placed refectorylike tables, with a bathroom, kitchen, and fireplace arranged along the south perimeter wall. At the east end are sleeping and sitting nooks, with more sleeping accommodations contained in the mezzanine that wraps around the east and south sides of the structure overlooking the main room.

In *Ghost, Building an Architectural Vision* (Princeton Architectural Press, 2008), which details the efforts of the first nine sessions of the design-build labs, MacKay-Lyons calls the entire compound an "idealized protourban court." The cabins and the studio partially enclose two sides of a grassy turf that gently slopes to a ledge over the sea. The manner in which the cabins, the studio, and a new horse barn, plus an earlier nonfunctional "tower," sit on the clearing furnishes the lab participants with a strong sense of community. Juhani Pallasmaa, as guest critic for the Ghost 7, noted in *Ghost* that the settlement represents the "primordial encounter of land and water, air and fire." But the encounter with the sky, especially on a starry night, deepens and strengthens that awe-inspiring, yet strangely intimate communion. ■

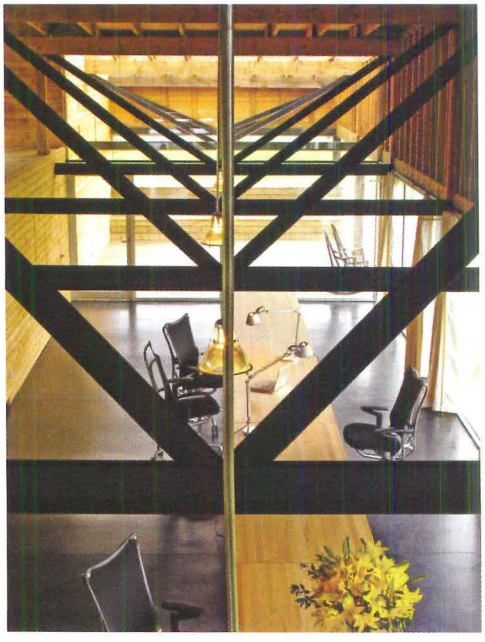
Project: *Shobac Cottages and Studio, Upper Kingsburg, Nova Scotia*
Architect: *MacKay-Lyons Sweetapple Architects—Brian MacKay-Lyons, Talbot Sweetapple , principals; Peter Blackie, project architect.*
Engineer: *Campbell Comeau Engineering*

SOURCES
Metal-and-glass curtain wall and corrugated metal: *Vicwest*
Aluminum windows: *Alumicor; SouthShore Glass*
Glazing: *PPG Industries*
Task lighting: *Artemide*
Exterior lighting: *Halophane*

The studio, also a result of the design-build workshop, is clad with corrugated sheet metal (above), and creates an urban enclave with the cottages (below, right). Its barnlike interior (below, left) provides communal work space as well as living accommodations.



1. *Porch*
2. *Exterior storage*
3. *Bath*
4. *Mechanical*
5. *Kitchen*
6. *Work/dining area*
7. *Storage*
8. *Fireplace*
9. *Sitting area*



The 1,500-square-foot weekend house sits atop a raised terrace. A screen of pine trees shelters the rolling field on three sides.

Casina is a Modernist country retreat, with a twist

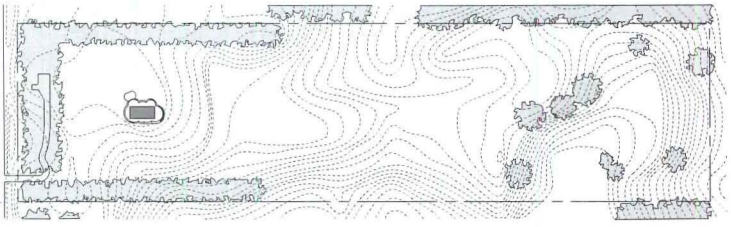
By Josephine Minutillo

Alfred Swenson and his late wife, Pao-Chi Chang, were drawn to the Illinois Institute of Technology (IIT) for one reason: Mies van der Rohe. Both studied architecture there under Mies during the 1950s. The Modern master's influence would inform their work for decades, first while practicing at larger firms like Skidmore, Owings & Merrill, where Chang worked, and later when the couple started their own studio together. After all those years designing public buildings, the Chicago-based architects finally had an opportunity to design a home for themselves when they purchased a 10-acre plot in northern Illinois, a few miles from the Wisconsin border.

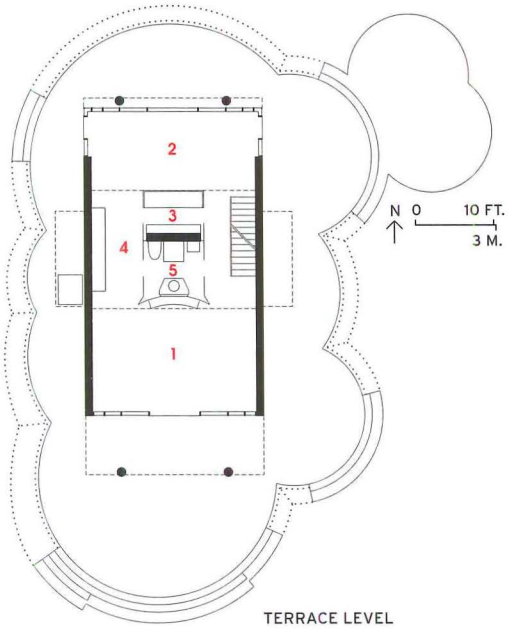
The design for the 1,500-square-foot weekend retreat—which the architects called Casina after the Latin word for a small cabin—emerged slowly over several years. Once built, the steel-and-glass structure was an unexpected sight among the barns and silos that dot the surrounding corn fields. And while at first glance Casina appears as a temple to Modernism, much stronger influences—both cultural and cosmic—were at play.

Chang, who lived for years in Shanghai before arriving at IIT, brought many Chinese ideas, if not forms, to the design. Following traditional Chinese architecture, the house faces south. Like a Chinese temple, the structure is symmetrical about its north–south axis, and rises from a stepped, earthen terrace. Though it sits within a rolling field, the building purposely does not engage its surroundings, but keeps them at a distance. The architects were inspired to do this by a Yuan Dynasty scroll: In the painting, two scholars contemplate the landscape from an open-fronted pavilion.

Inside, dark, classic Modern furniture—including pieces designed by Mies and Gordon Bunshaft, and inspired by Le Corbusier—contrasts with the stark white interiors, where the only hint of decoration is the ceil-



SITE PLAN N←



TERRACE LEVEL

In keeping with Chinese tradition, the main facade is oriented south, away from the road. Helices encircle the columns (above right). The salon offers sweeping views over the alfalfa meadow (above).

ing's scattered arrangement of PAR lamps, meant to resemble a star cluster.

"We were taught that ornament is crime," Swenson, who is now semiretired, reminisces. The designers did allow themselves some leeway on the exteriors—most noticeably, the helices that wrap around the steel columns at the north and south facades. Like the star cluster inside, the metallic appliqués along the east and west facades, and the spherical wave shape of the raised terrace, these twisting rods are manifestations of the dwelling's astronomical and mathematical inspirations—which also dictated the proportions of cabinets, the pattern on fascias, and the arrangement of mullions. "My architecture friends joke that the house is very intellectual," he says. Though he doesn't disagree, calling the house a "lodging for the mind," Swenson is also able to joke about it. "I might put up pictures at some point, but like Philip Johnson said about his Glass House, we've got very expensive wallpaper." ■

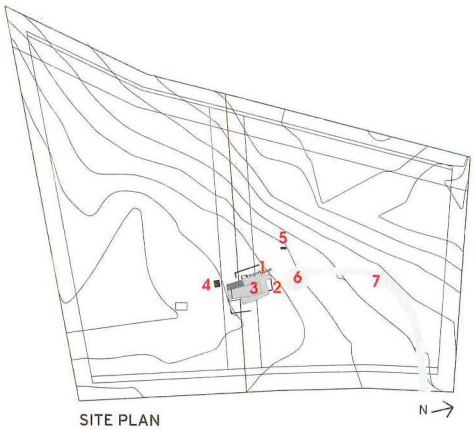
1. *Salon*
2. *Dining*
3. *Kitchen*
4. *Library*
5. *Bath*

Project: *Casina, Northern Illinois (www. swensonchangcasina.com)*
Architect: *Alfred Swenson Pao-Chi Chang Architects—Pao-Chi Chang, project designer; Alfred Swenson, project manager*
Engineer: *B + A Engineers (m/e/p)*

SOURCES
Curtain wall: *Kawneer*
Hardware: *Hewi*
Resilient flooring: *Armstrong*
Lighting: *Tech Lighting; Lithonia*
Paints: *Benjamin Moore*

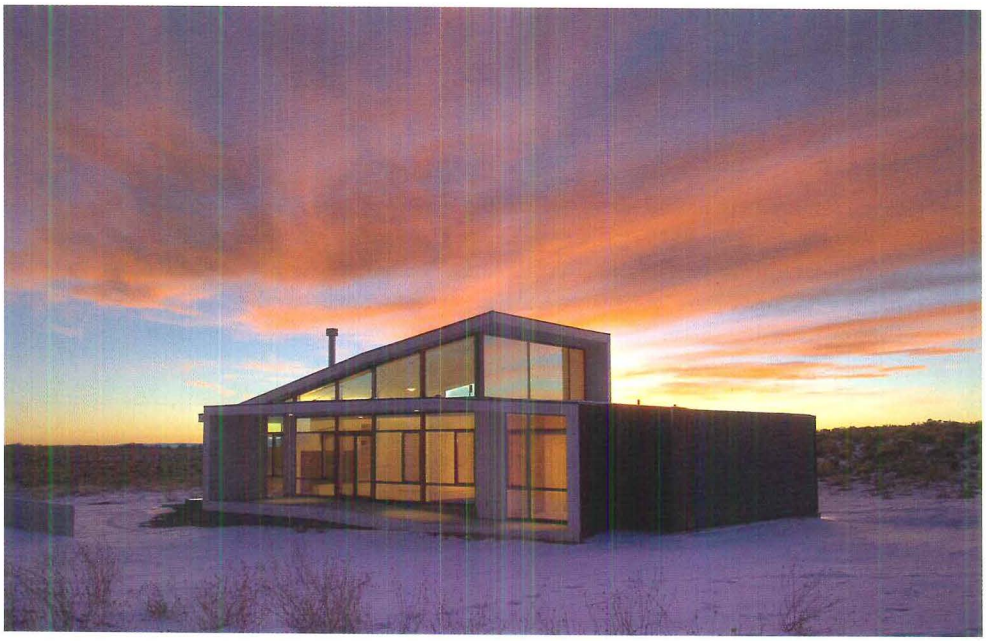
The Sangre de Cristo mountains frame the house on the eastern side of the San Luis Valley (above).

In this remote valley, the sky changes color and mood dramatically from dawn to dusk (below).



SITE PLAN

1. *Entry courtyard*
2. *Zen garden*
3. *Residence*
4. *Solar panels*
5. *Well*
6. *Parking*
7. *Driveway*



The Zen Garden House finds shelter under the sky

By Jane F. Kolleeny

The town of Crestone, Colorado, population 800, occupies a small swath of land on the eastern side of the remote San Luis Valley. At elevations of 8,000 feet, the valley extends 122 miles nort–south and 74 miles east–west between the Sangre de Cristo and San Juan Mountain ranges. It is among the highest and largest deserts in North America, where little more than sage, rabbitbrush, and greasewood can survive the harsh alpine conditions. Crestone hugs the base of the Sangre de Cristos, shadowed by the 14,000-foot-high summits of Crestone Peak and Crestone Needle.

Established as a small mining town in the 1880s, Crestone emerged in the past few decades as an enclave of spiritual retreats, where a Zen center, a Carmelite monastery, a Hindu temple, and several Tibetan Buddhist centers join ranks with a host of New Age groups. Throw into that eclectic mix a handful of artists and mountain-climbing enthusiasts, and one gets a feel for the off-beat flavor of the place.

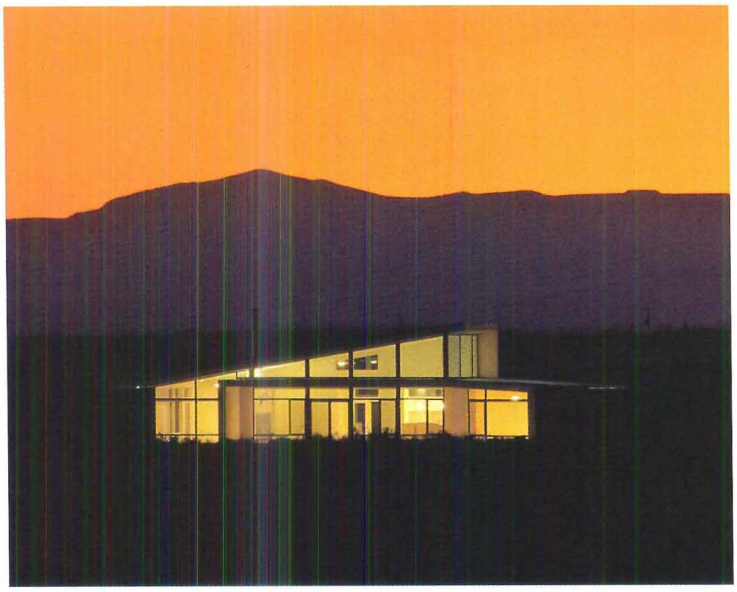
In 2005, David Jay Weiner Architect of New York City built a 1,200-square-foot residence on a 7-acre property in New Lebanon, New York, for a Japanese woman. This successful collaboration led two years later to the architect undertaking a modest retreat house in Crestone for this woman. Weiner had lived in Japan and worked for Arata Isozaki in the 1990s. He was inspired by traditional Japanese architecture, which he feels "invokes a sense of serenity and repose in connection with how a structure relates to the landscape and how interior spaces flow into each other and are oriented to specific views." He made sure to bring such qualities to both the houses he designed for his Japanese client.

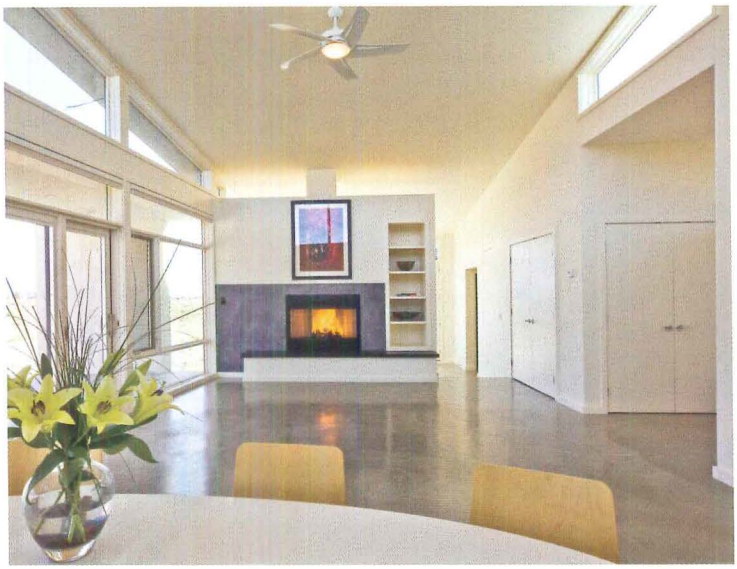
Called the Zen Garden House, the 1,600-square-foot Crestone residence contains three major interior spaces—a living/dining/kitchen great room, flanked by a meditation room on one side and a master bedroom suite on the other. The exterior envelope of black corrugated-metal siding folds, wraps, and bends to define the central interior space, which is vaulted on one side and has a continuous clerestory extending around three sides. "The house is conceived as if a sheet of paper had been folded and tucked around itself, almost like an origami exercise," says Weiner. Low stucco walls extend out to the landscape to define an entry court and encircle a Zen rock garden adjacent to the meditation room. A sliding door in the meditation room establishes a strong indoor/outdoor relationship—almost bringing the Zen garden inside. Other than the garden and entry court, Weiner left the site completely untouched.

While most of Crestone's residents live at the foot of the peaks, Weiner's client chose a 22-acre plot of land on the valley floor, distanced

1. *Entry courtyard*
2. *Entry*
3. *Kitchen*
4. *Master bedroom*
5. *Living room*
6. *Dining/study*
7. *Meditation tatami area*
8. *Zen rock garden*
9. *Terrace*

At dusk, the house appears to glow (right). Abundant glazing on the south and clerestories allow sunlight to penetrate the interiors (below).





enough from the mountains to offer spectacular views of them and of the Great Sand Dunes National Park, which occupies 63 acres of the valley 10 miles south. Being off-the-grid and removed from neighbors pleased the client, who wanted privacy, quiet, and a building that could be self-sustaining. The area's 330 sun days a year ensured that a single photovoltaic panel standing outside would collect enough solar power to provide electricity for the house. Fully glazed facades on the south and southwest capture views and light, while wide overhangs protect the interior spaces from the heat of the day. Water comes from a well that accesses an aquifer—one of the largest in North America—of mineral-rich water that runs under the valley, sustaining not only this residence but the sparse population here, and the several hot-spring resorts in the area. The floor is a finished concrete slab with radiant heating, and an efficient on-demand water-heating system adds to a variety of sustainable features, such as low-VOC paints and high R-value insulation.

The house's sleek lines and spare interior spaces make a unique contribution to Crestone's funky eco-architecture of geodesic domes, earthships, and mountain-lodgelike dwellings. The materiality of the building breaks with tradition, too. Weiner found a kindred spirit in Keith Teahen of Teahen Construction, whose five years in Crestone taught him that the dryness and daily extreme temperature changes at this altitude cause "wood to shrink and adobe to peel." So far, the choice of metal and stucco for the house's exterior has proved extremely durable, says Teahen.

The Zen Garden House seems to wait patiently in its valley setting, changing with the light, anticipating the return of its owner, who travels much of the year. Humbled by the force of nature, which takes center stage here, the house coexists modestly with the wide-open sky above it, the mountains encircling it, and the valley that accommodates it. ■

Project: *Zen Garden House, Crestone, Colorado*
Architect: *David Jay Weiner, Architects—David Jay Weiner, principal; Andrew Saunders, Chris Dufresne, team*
Engineer: *Robert Silman Associates*
General contractor: *Teahen Construction*

SOURCES
Exterior cladding: *Fabral*
Windows, doors: *Pella*
Tile: *Daltile Kolorine*
Lighting: *Halo*
Photovoltaic solar panels: *BP*
On-demand hot-water heater: *Runuai*

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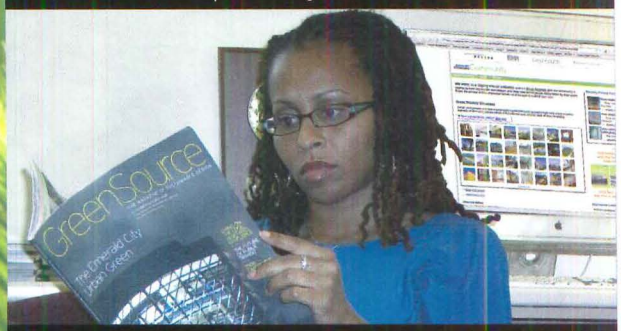

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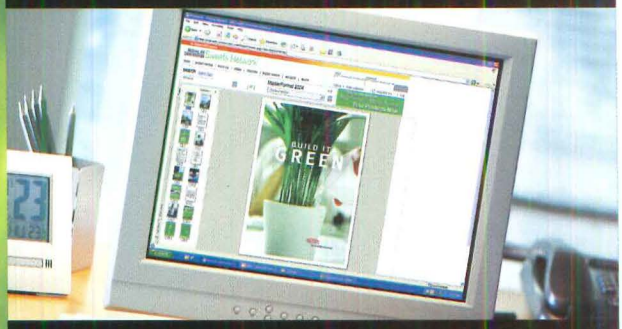

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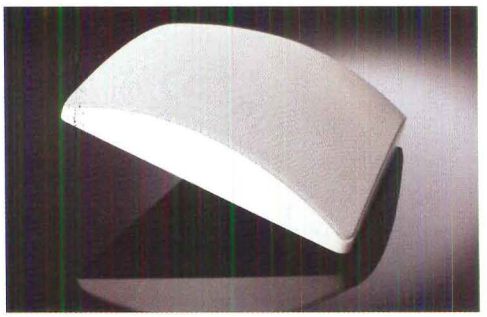
The **Custom Electronic Design & Installation Association's** most recent Expo in Denver was a showcase for flat-panel TVs and their accessories, environmental control products, new architectural loudspeaker designs, **and home theater products.** *Rebecca Day*

▲ **Stop surges** Electrical spikes wreak havoc on AV gear. American Power Conversion's P8VNTG protects home theater components from damaging power transients such as surges and spikes. The strip builds in AC and video line surge protection and offers master/controlled outlets that automatically cut power to unused equipment to help reduce energy consumption. American Power Conversion, West Kingston, R.I. www.apc.com **CIRCLE 217**



◄ **Slice of sound** Designed for multidwelling units where in-ceiling speakers are difficult to install, the Sonance SM55 mounts to the ceiling while protruding just 2½" from the surface. For installation, a round steel mounting plate that accepts conventional speaker wire affixes to a standard J-box via two supplied screws. The speaker is set into position beneath the box and is held into place by two powerful neodymium magnets. Sonance, San Clemente, Calif. www.sonance.com **CIRCLE 210**

► **Soundproof door keeps noise inside**
Serious Materials QuietHome door helps ensure that the booms and screeches of a home theater don't leak into the rest of the house. Approved by theater certification company THX for home theater performance, the soundproof door is said to exhibit noise-reduction ratings up to 51 STC. The internally damped, multilayer, QuietWood-based construction is complemented by high-performance door seals. The door measures 2¼" thick. Serious Materials, Sunnyvale, Calif. www.seriousmaterials.com **CIRCLE 212**

◄ **Support your TV** Moen has adapted its SecureMount Anchor system for bathroom pull bars for its first foray into flat-panel TV mounting systems. The mounts provide secure installation without the need to find studs and can support flat-panel TVs up to 55" in screen size and up to 150 pounds. Moen claims the anchors are 67 percent stronger than other TV anchor mounting solutions. Moen, North Olmsted, Ohio. www.moen.com **CIRCLE 213**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com**/products/.

◄ **Barely there** Sharp's Limited Edition series of LCD TVs, in 52" and 65" screen sizes, measure 1" deep at their most narrow point. The TVs incorporate Sharp's Aquos Net capability, which allows direct access to Internet content over a broadband connection. Sharp's Limited Series TVs have the latest tech features, including 1080p resolution. Sharp Electronics, Mahwah, N.J. www.sharpusa.com **CIRCLE 214**

► **Lights out** Lutron's motorized skylight shade integrates with the company's lighting control systems to offer one-touch control of hard-to-reach shades. Placing the shade within the frame maximizes the view, and the shade offers complete light block where needed for home theaters or to protect furnishings and carpeting from ultraviolet rays. A wide variety of fabrics are available and the shades can be mounted inside, recessed, or outside depending on application. Lutron, Coopersburg, Pa. www.lutron.com **CIRCLE 216**

◄ **Like a hawk** WeatherHawk has redesigned its Series 500 weather stations with a lower fairing that reduces the outdoor unit's visual profile to better meet residential architectural requirements. When integrated with home control systems, Series 50 weather stations help control energy, heat, and irrigation systems based on ambient conditions. Solar sensors can tell window treatments to close to protect furnishings, outdoor thermostats can trigger a driveway melting system, and moisture sensors can prevent overwatering of lawns. WeatherHawk, Logan, Utah. www.weatherhawk.com **CIRCLE 215**

► **Pop open a seat** Salamander Designs' Jump Seat Ottoman unfolds into a theater seat that can be used for ad hoc seating in a home theater or video game room. The mechanism rises to a vertical seating position and offers a padded seat and backrest. Available in black or brown leather, the seat measures 22" wide x 17" deep and offers a cup holder along with an accessories compartment for remote controls. Salamander Designs, Bloomfield, Conn. www.salamanderdesigns.com **CIRCLE 211**

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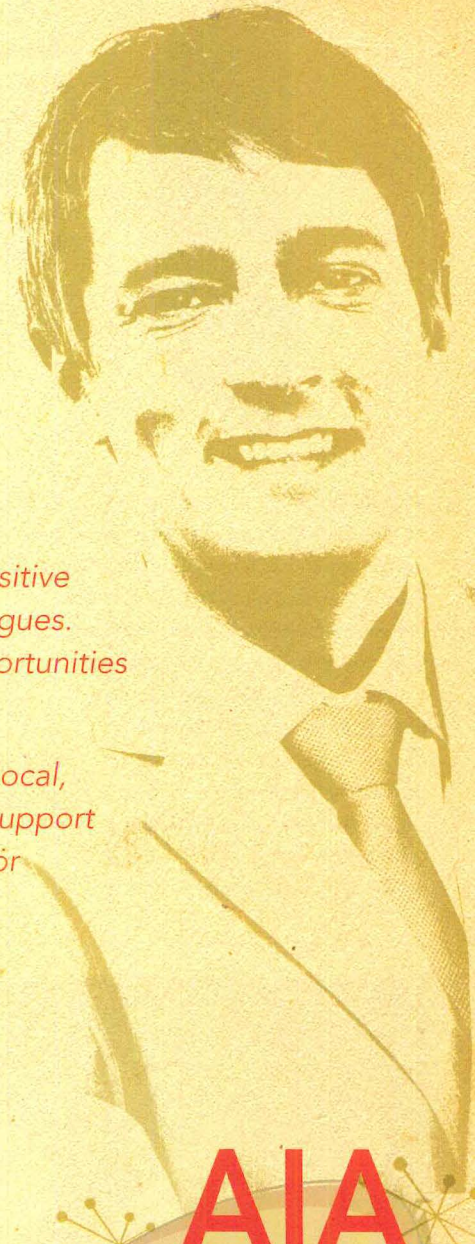

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The Square One child-care center in Holyoke, Massachusetts (far left); the Covenant Health System's Lakeside Campus in Lubbock, Texas (above); part of the expanded color range for noraplan environcare 3.0-mm flooring (left).

Health-care and education markets remain strong for rubber-flooring leader

Flooring firm nora systems was one of more than 800 exhibitors showcasing sustainable building offerings at last November's GreenBuild in Boston. "We estimate that approximately 600 architects and other professionals came through our booth," says nora's marketing manager Carol Fudge. High-quality natural and industrial rubber are the basis of nora's PVC-free floors; they are supplemented by raw mineral materials extracted from natural deposits and by environmentally compatible color pigments.

According to Fudge, nora is still faring well despite the recession. "Fortunately, the economy has not affected our business at all. We continue to grow and had a record year in 2008," says Fudge. "The same is true of our two strongest markets, health care and education, which are still going strong." Those two segments make up approximately 60 percent of the company's total business. According to Fudge, both areas share similar issues for architects, including indoor air quality, maintenance, comfort, acoustics, and aesthetics.

Two recent renovation projects where nora figured prominently in the design include the Covenant Health System's Lakeside Campus in Lubbock, Texas, and the Square One child-care center in Holyoke, Massachusetts.

Redesigned for the consolidation of the system's women and children's services, the seven-story, 457,000-square-foot Lakeside Campus serves as the region's only licensed children's hospital. After nora products installed in an operating room met with positive reviews, 3.0-mm noraplan mega flooring was placed in the renovated surgical suite, the pediatric emergency trauma center, and other areas where it withstands heavy equipment and betadine. As the flooring doesn't require monthly maintenance, it helps improve IAQ and reduces downtime for the facility. According to Fudge, 67,000 square feet of product has been specified to date, but as the project is still ongoing, that number might increase.

As many children in the area suffer from asthma, improved indoor air quality was one of the main reasons nora flooring was chosen for the Square One child-care-center project in downtown Holyoke. The more than 15,000 square feet of noraplan environcare, noraplan classic, and noraplan uni that run throughout the facility are Greenguard certified and California 01350 compliant.

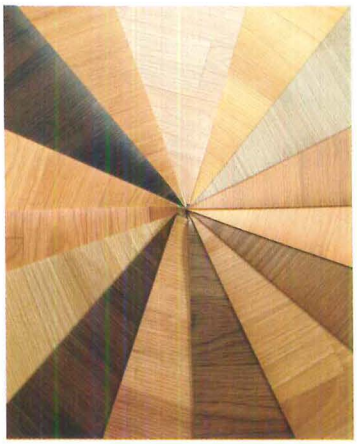
Coincidentally, Dietz & Company Architects chose a design of square inlays of brightly colored nora tiles against a neutral field before it was aware that the organization was planning to change its name to Square One. nora systems, Lawrence, Mass. www.norarubber.com **CIRCLE 218**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/.**

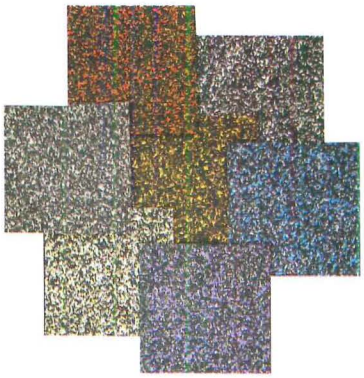
◀ **From real rubber** Allstate claims to be the only manufacturer offering a complete line of naturally sourced rubber flooring. Allstate Au Natural rubber tile is made from 100 percent plantation-grown sustainable rubber. It is available in 95 percent of the company's current product line, excluding only the palest colors and certain special qualities. Manufactured in Dalton, Georgia, the line is available in over 80 colors, 35 textures, and any color combination in the Marble and Confetti styles. Allstate Rubber, New York City. www.allstaterubber.com **CIRCLE 219**

▶ **Windswept floors** Inspired by the natural patterns of sand dunes, LonElements Sahara flooring is ideal for corporate, hospitality, and retail spaces. The sheets are 100 mil thick, giving the surfacing added flexibility to accentuate and complement curvatures of floors and corners. Lonseal's heterogeneous flooring sheet vinyl is composed of more than 35 percent preconsumer recycled content and constructed with GreenAir technology to emit low VOCs. Lonseal, Carson, Calif. www.lonseal.com **CIRCLE 220**

▶ **Firsts in flooring** Responsive Flooring is a Mumbai, India–based company distributed stateside by the New Jersey–based Floorfolio Industries. The manufacturer claims to offer the first 50 percent postconsumer recycled resilient vinyl flooring option on the market and the nation's only complete commercial flooring line that is manufactured with polyurethane throughout the product, rather than just finished with a top coat of the material. FloorFolio Industries, Edison, N.J. www.floorfolio.com **CIRCLE 221**



◀ **Linoleum and rubber lines** Johnsonite has updated the Linoleum xF Collection (left) to include 78 colors in a range of natural and earthy tones ideal for health-care and education segments. As part of the new program, Johnsonite also offers the Allegro pattern made with a subtle veining technique. Also new from Johnsonite is Mesto marbleized rubber-tile collection in 16 neutral colors. Mesto is slip-resistant and FloorScore certified, meeting stringent indoor air quality standards. Johnsonite, Chagrin Falls, Ohio. www.johnsonite.com **CIRCLE 222**



▲ **Rubber stamp it** ECOshapes are precut shapes and patterns from ECOsurfaces that take the time and cost out of creating custom designs. A diamond (45-degree angles), a 24" hollow frame, and a 12" square will be launched this month, with other patterns to come later this year. Also new from the company is the ECOstars collection, which was inspired by the night sky and features larger flecks of color and a black background. Made from 100 percent postconsumer tire rubber and 30 percent preconsumer ColorMill EPDM. Ecore, Lancaster, Pa. www.ecosurfaces.com **CIRCLE 223**

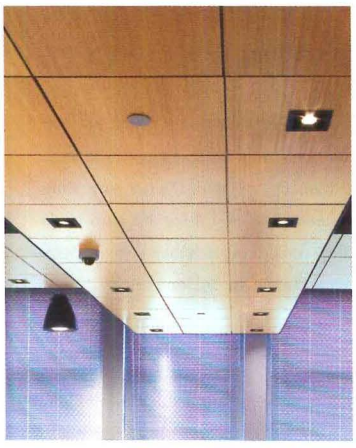
▶ **Cork substrate** Vencork Flooring, available through the New York City–based materials showroom Architectural Systems, combines real wood veneers with the benefits of a cork substrate. Featuring a highly durable anti-scratch transparent PVC wear layer, the flooring comes in a range of hardwood options from light to dark with custom color capability (mahogany, above right; walnut, below right). The flooring contributes to LEED for recycled content, low emissions, and rapidly renewable construction materials. Architectural Systems, New York City. www.archsystems.com **CIRCLE 224**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord. com**/products/.

Products Briefs

▼ **Secret skyline** In order to camouflage the mechanical equipment and exhaust vents of a residential rooftop in Chicago, Scrafano Architects, with the help of McNichols Designer Metals, created a series of sculptural, framed-stainless-steel wire-mesh panels in varying heights, widths, and textures scaled to replicate the skyline in the distance. The mesh material provides sufficient openings to circulate exhaust, yet is solid enough to obscure the equipment. McNichols, Tampa. www.mcnichols.com **CIRCLE 225**

▲ **Easier BIPV system** EnergyPeak's integrated-systems approach standardizes the use of building-integrated photovoltaics (BIPV) for standing-seam applications, making the specification of a solar roofing system easier and more affordable. Formed by Centria in partnership with Uni-Solar, EnergyPeak offers BIPV laminates that can be applied at the roofing manufacturer's plant, reducing installation cost and time. A ROI calculator determines expected power production and 25-year cash flow information. EnergyPeak, Moon Township, Pa. www.energypeak.com **CIRCLE 228**

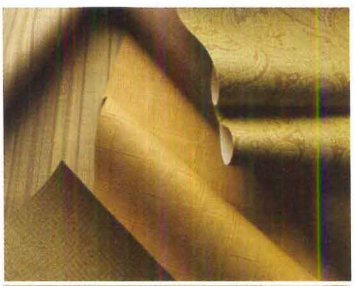


◄ **Ceiling first** Armstrong offers a broad portfolio of wood ceilings that are FSC-certified, contain no added urea formaldehyde, and have a Class A fire rating, according to the manufacturer. The WoodWorks panels also have a 92 percent preconsumer recycled content and are California Air Resources Board Phase 1 compliant. WoodWorks ceilings are offered in a variety of veneers, including Maple, Light Cherry, Dark Cherry, and rapidly renewable Bamboo. Armstrong World Industries, Lancaster, Pa. www.armstrong.com/woodworks **CIRCLE 227**

▲ **Spatial butterfly** To create a vivid butterfly mosaic design for the pool at Gallery Plaza – a mixed-use development in San Juan, Puerto Rico, designed by LRA Architects – Trend USA used proprietary CAD-software programs to carefully cover about 5,600 square feet of the pool (including the wall, floor, and stairs) with ¾"-square mosaics. The software assigns each square with a color code at an exact position, which is then produced into a real mosaic composition. Trend USA, Miami. www.trendgroup-usa.com **CIRCLE 231**

▲ **A huge fan** The new 12' diameter Element industrial-grade ceiling fan is designed specifically for air-conditioned spaces. By using Element as the first method of cooling, the startup of the HVAC system can be delayed several weeks in mild climates, reducing operational costs. The patented airfoil and winglets help move air silently and efficiently over large spaces, which can reduce the amount of ductwork required and lower overall energy consumption. Big Ass Fans, Lexington, Ky. www.bigassfans.com **CIRCLE 230**

► **Well-dressed wall** Menswear design brand Joseph Abboud collaborated with Versa Wallcovering to create Abboud's first line of commercial wall coverings. The 14-pattern collection is inspired by Joseph Abboud's roots in menswear, incorporating textures resembling nubby linens, brushed silks, and burned suedes, and designs influenced by paisleys, damasks, and weathered materials. Made of Type II, 20-ounce vinyl, the collection features deeply embossed 3D textures and 20 percent recycled content reclaimed and recycled through Versa's Second-Look program. Versa, Louisville. www.versawallcovering.com **CIRCLE 229**



For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/.**

Products Resources On the Web

http://greenbydesign.com

Owned by Noribachi, a "venture accelerator" focused on the clean technology industry, this blog provides information and independent ratings for green products. Although it is focused on the home and garden and intended for a consumer audience, green professionals should also enjoy reading about the latest trends, products, and musings from the blog's writers. Archives go back to October 2007.

www.udesignnow.com

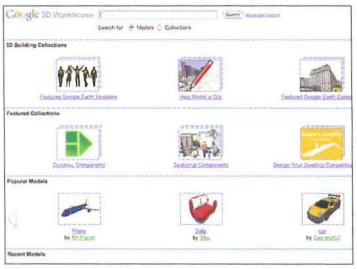
This new Web site – which has a slightly demanding moniker – was designed and created by Tricycle to give J&J/Invision customers the ability to browse patterns, use standard colorways, or create custom colors on selected styles. The tool allows the user to immediately see on their screen what the product is going to look like – either as swatch or dropped into a room scene.

www.themohawkgroup.com

The Mohawk Group has unveiled the LEED PLUS Calculator, a free Web-based tool that allows users to search building products and quickly calculate the USGBC's LEED points, along with other industry environmental ratings such as CHPS (Collaborative for High Performance Schools) and GGHC (Green Guide for Health Care). Results are delivered in minutes via a PDF report.

www.trane.com/K12Systems

Trane's High Performance Systems Portfolio is a Web-based tool that identifies the right heating, ventilation, and air-conditioning system type from the company to earn LEED points for schools. A specifier or school engineer simply inputs the school building's locations and requirements and in return receives the most efficient design for a Trane system, which includes product family and model numbers.



http://sketchup.google.com/3dwarehouse

Kolbe & Kolbe claims to have received a strong reception and high ratings since unveiling its first 3D window models last year. Kolbe's Ultra Series windows and doors Google SketchUp models were selected to be a "Featured Collection" at Google 3D Warehouse. Now presenting more than 1,000 models, Kolbe plans to add Windquest Series vinyl window and door Google Sketchup models.

www.dinocfilm.com

The 3M Di-Noc Architectural Finishes Web site highlights this versatile and cost-effective refurbishment solution for restaurants, hotels, banks, and other projects. The site includes an interactive virtual showroom that allows users to create different looks with Di-Noc finishes in various settings or environments. It is possible for visitors to upload their own project photos so they can try various combinations of finishes and patterns.

www.apawood.com

In an effort to provide designers, code officials, and building professionals with current product performance evaluations for engineered wood products, APA Product Reports are available free of charge at APA's Web site. A typical report covers the product's description, qualifications, design properties, installation recommendations, fire-resistant construction, supporting load tables, span ratings, and limitations.

www.convia.com

With the launch of the newest version of its interactive Web site, Convia hopes to familiarize the m/e/p and A&D communities with the Convia platform, which features energy savings and reporting capabilities, and can contribute up to eight points toward LEED certification. Through an interactive ROI calculator, users can use concrete figures to calculate and assess the savings the Convia platform can offer their company.

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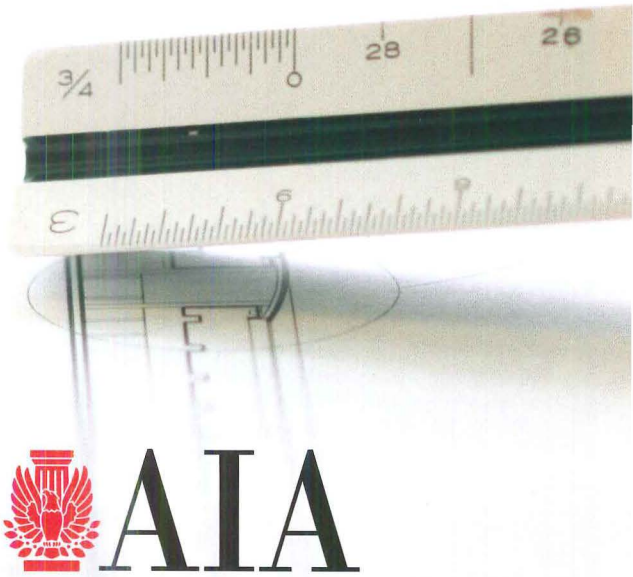

AIA

Dates & Events

New and Upcoming Exhibitions

Make It Work: Engineering Possibilities
New York City
January 22–April 25, 2009
Featuring new projects by Arup, Foster + Partners, Zaha Hadid, Herzog & de Meuron, and more, this show will focus on the engineers as much as the architects. The exhibition will highlight cutting-edge building projects – as well as new research – that stand to change the way we build. At the Center for Architecture. Visit www.aiany.org/centerforarchitecture.

Detour: Architecture and Design Along 18 National Tourist Routes in Norway
Washington, D.C.
January 24–May 25, 2009
This exhibition explores the ways the Norwegian government has changed the country's landscape with amazing architecture projects along popular tourist roads. Scenic overlooks, rest areas, and service facilities are transformed into works of art with sweeping lines, bold colors, and unexpected textures. At the National Building Museum. For more information, call 202/272-2448 or visit www.nbm.org.

Atelier Bow-Wow
Los Angeles
February 5–April 5, 2009
This Tokyo-based architecture studio explores the use and function of space within urban environments. As working architects in Tokyo, Atelier Bow-Wow developed the term "pet architecture": small, ad hoc, multifunctional structures that make the most of limited space. For more than 10 years, the firm has also created "micro public spaces" within the framework of art exhibitions. The project, Atelier Bow-Wow's first solo show in the U.S., will expand on the possibilities of designing a gallery space to relate to its surroundings and the urban environment. At the Gallery at Redcat. Visit www.redcat.org or call 213/237-2800 for more information.

The 35th Annual Wright Plus Housewalk 2009
Oak Park, Illinois
May 16, 2009
This exceptional housewalk, which attracts visitors from around the world, offers an intimate look at a collection of beautiful homes lining the historic streets of Oak Park. Four of the homes on this year's tour have never before been open for Wright Plus visitors. Noted architects represented on the 2009 tour include Frank Lloyd Wright, Tallmadge & Watson, E.E. Roberts, and George W. Maher. Tickets also permit entry to three landmark public buildings by Wright: the Robie House, Unity Temple, and the Frank Lloyd Wright Home and Studio. Visit www.gowright.org.

Ongoing Exhibitions

Rambusch: 110 Years of Designing and Making Objects
New York City
Through January 15, 2009
The Rambusch Company's workshops have designed and made mosaics, stained glass, sculpture, ecclesiastical art, and luminaires for tens of thousands of buildings all over North America. This exhibition will feature drawings, paintings, and photographs from the Rambusch Archives at Columbia University's Avery Art and Architecture Library, as well as some of the studios' current custom work. At the National Arts Club Marquis Gallery. For more information, call 212/475-4324 or visit www.rambusch.com.

+Housing: 2008 AIA New York "Designs for Living" Exhibition
New York City
Through January 19, 2009
This exhibition focuses on eight current housing developments that illustrate mixed-use hybrid design, public uses combined with and financed by housing. At the Center for Architecture. Visit www.aiany.org.

Ours: Democracy In the Age of Branding
New York City
Through January 30, 2009
This show is a multidisciplinary investigation of democracy as a consumer brand. Timed to coincide with the final stages of the American presidential elections, it also seeks to reflect on the electoral process in this country. At the Anna-Maria and Stephen Kellen Gallery at the Sheila C. Johnson Design Center at Parsons The New School for Design. For more information, visit www.parsons.newschool.edu.

Vertical Cities: Hong Kong/New York
New York City
Through February 2009
Examining the evolving identities of the world's most strikingly similar vertical cities, this exhibition uses photographs, film, architectural drawings, maps, and large-scale models to convey Hong Kong's character: its iconic skyline, a crowded commercial

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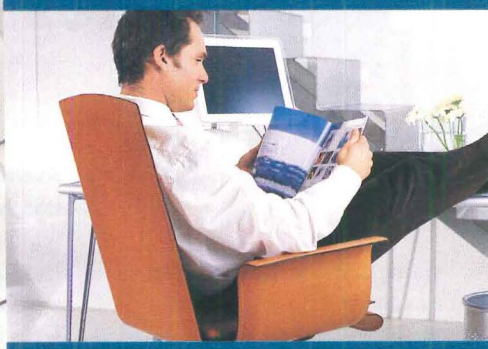

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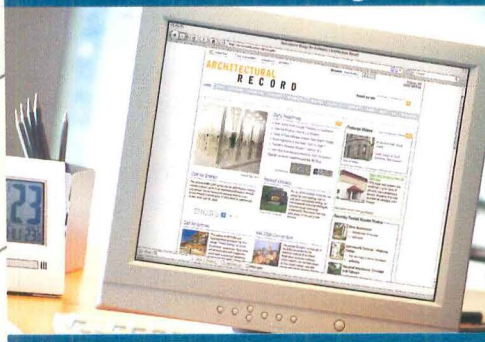

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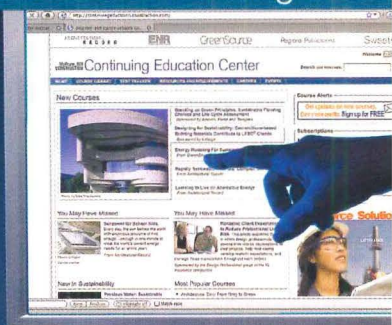

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core with multilevel traffic, a network of pedestrian bridges, and vertical shopping malls. The unifying theme is density, exemplified by the city's uniquely slender towers on tiny lots, or the monumental apartment blocks of 50 to 60 stories or taller, multiplied by the dozen in New Town housing estates in the New Territories. At the Skyscraper Museum. Call 212/945-6324 or visit www.skyscraper.org/verticalcities.

Dreamland: Architectural Experiments since the 1970s
New York City
Through March 2, 2009
The 1970s saw an explosion of architectural thought and experimentation, with the city, and New York especially, becoming a screen for the projection of architectural fantasies and utopias. This installation includes documentation of built projects that resulted from these innovative ideas, including such traditional building types as single-family houses and skyscrapers. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

Lectures, Conferences, and Symposia

Symposium on Building Envelope Sustainability: The Future Is in the Balance
Washington, D.C.
Registration Deadline: January 2009
April 30–May 1, 2009
This symposium is intended for any building design professionals – architects, engineers, consultants, building material specifiers, and contractors – interested in finding out how they can contribute to a more sustainable built environment. Energy consumption, life-cycle assessment, recycling material, and green roofing are a few of the topics to be covered. At the Marriott Wardman Park Hotel. Call 800/828-1902 or visit www.rcifoundation.org.

CityVision: Final Presentation
Washington, D.C.
January 9, 2009
The students of Browne Gibbs Education Center and Howard Road Academy present their innovative development plans, prepared in collaboration with the D.C. Office of Planning, for the area near I-395 between Penn Quarter and Union Station. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Fencetech '09 and Decktech '09
New Orleans
January 14–16, 2008
With more than 9,000 fence, deck, and railing professionals expected to attend and more than 450 exhibitors, Fencetech was recently announced one of Tradeshow Week's Fastest 50. From innovative gate technology to custom-made ornamental iron and traditional wood pickets, the world's top fence, deck, railing, and security professionals will find the industry's newest products at Fencetech '09 and Decktech '09. At the Ernest N. Morial Convention Center. For more information, visit www.fencetech.com or call 800/822-4342 or 630/942-6598.

The Design Build Architect Conference
Boston, Chicago, Atlanta, and Miami
January 17, 2009, and March 28, 2009
The Design Build Architect Conference is a program developed for architects by architects. The conference strives to motivate design professionals to achieve greater degrees of success through the addition of deliverables. Incorporating "build" services into an existing design practice has the potential to better serve the client, fortify the practice, and revitalize the role of architect. At Harvard University, Northwestern University, Georgia State University, and Florida International University. For additional information, visit www.Thedesignbuildarchitect.com.

The Urban Divide in Latin America: Challenges and Strategies for Social Inclusion
Gainesville, Florida
January 28–30, 2009
The central theme for the 58th Annual Latin American Conference is social inclusion in Latin American cities. The issues comprise social and spatial equity, informal economies, access to employment and services, economic expansion and capacity building, crime and violence, supportive urban systems, political representation, and sustainable development practices. At the University of Florida's Center for Latin American Studies Annual Conference. For more information, visit www.conferences.dce.ufl.edu/LAS/.

Indiana Building Green Symposium
Indianapolis, Indiana
January 31–February 1, 2009
In Indiana, the green building movement is just beginning to take shape and gain momentum. Continuing on the success of last year's inaugural symposium, the Indiana Building Green Symposium will emphasize green building economics, technology, and operational strategies that enable designers, builders, and owners to build green and maximize both financial and environmental performance, contributing to an improved bottom line as well as an improved quality of life. The program will include educational workshops and informative sessions intended to benefit a diverse audience, including construction professionals, corporate leaders, real estate developers, local and state policymakers, educators, and students. At University Place Hotel and Conference Center. For more information, visit www.bsu.edu.

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- MCAA Fastest Trowel on the Block Feb. 5th

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Dates & Events

Super Slender Midtown Towers
New York City
February 19, 2009
Hong Kong Slender describes a type of pencil-thin tower common in Asia and recently returned to the New York scene. The program will include architects, engineers, and developers explaining the equation of aesthetics, structure, and real estate values that make possible this new generation of super-slender skyscrapers. At the Skyscraper Museum. Call 212/968-1961 or visit www.skyscraper.org.

ReThink/ReDesign/ReCycle
Chicago
Ongoing
The ongoing exhibition *Public Process for Public Architecture* will be updated with the display of more than 100 entries for the competition to design on-street recycling bins created by members of the City of Chicago and the AIA Chicago Young Architects Forum. At the CAF's CitySpace Gallery. For additional information, call 312/922-3432 or visit www.architecture.org.

Competitions

GE Edison Award Competition
Deadline: January 12, 2009
Through this competition, GE recognizes excellence and quality in professional lighting designs that employ the significant use of GE light sources (lamps and/or LEDs). The GE Edison Award competition is open to professional designers, architects, engineers, and consultants. Entries are judged on the following criteria: functional excellence; architectural compatibility; effective use of state-of-the-art lighting products and techniques; appropriate color, form, and texture revelation; energy effectiveness, and cost effectiveness. Visit www.GEEdisonAward.org.

Wood, Paper, Checkmark
Deadline: January 13, 2009
FSC-certified wood is produced using sustainable forestry practices recognized by the Forest Stewardship Council, which is vital to saving the world's forests. To be considered for the competition, entrants must provide a compelling and persuasive message that sparks an interest in FSC and drives people to a consumer-searchable Web site, a campaign design for online and print ads, and a clever URL name for FSC's consumer Web site. For more information, visit www.design21sdn.com .

AIA Building Information Model (BIM) Awards
Submission Deadline: January 15, 2009
The BIM Awards, given by the AIA Technology in the Architectural Practice Knowledge Community (TAP), honor projects that highlight proven strategies and the latest trends in design and technology in the building industry. Visit www.aia.org/tap.

SMIBE 2008-2009 Short Film Competition: Story about a Place
Deadline: January 15, 2009
With its first annual competition, the Society for Moving Images about the Built Environment (SMIBE) brings together a growing body of moving-image stories about the built environment with hopes that the competition will become a forum for the exchange and discussion of persuasive issues about the built environment. For this competition, SMIBE welcomes moving-image stories that investigate, explore, and entertain our communities about social, environmental, political, technological, and economic issues that designers of the built world should be discussing. Visit www.smibe.org.

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Design for the Children Competition: Pediatric Health Clinic
Deadline: January 15, 2009
Open to students and professionals, this international design competition asks participants to explore the potential of future pediatric and prenatal clinics for East Africa. Entry is free, and our goal is to use the winning design as the basis for a pediatric and prenatal health center in Rwanda. For more information, visit www.designforthechildren.org.

USITT 3rd Annual Student Architectural Design Competition
Deadline: January 15, 2009
The Architectural Commission of the United States Institute for Theatre & Technology (USITT) has announced calls for entries for its third annual student Architectural Design Competition to design an "Ideal Theatre" on an academic campus. The competition is open to any U.S. or International architecture and theater student at an accredited college or university. For additional information, visit www.usitt.com.

AIA Justice Facilities Review
Submission Deadline: January 16, 2009
The AIA Academy of Architecture for Justice invites architects to submit projects that represent the state-of-the-art in justice-facility design. Visit www.aia.org/aaj.

AIA COTE Top Ten Green Projects Awards
Submission Deadline: January 23, 2009
The AIA Committee on the Environment (COTE) and its Top Ten Green Projects Awards program recognize the benefits of sustainable

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THE AMERICAN INSTITUTE OF ARCHITECTS

design and acknowledge architects as leaders in the creation of environmentally responsible design solutions. For more information, visit www.aiatopten.org.

2009 Metropolis Next Generation Design Competition

Deadline: January 30, 2009

This competition challenges designers to help cure our energy addiction. The winning design will be awarded $10,000. For more information, visit www.metropolismag.com/nextgen.

Beyond Media
9th International Festival for Architecture Call for Entries

Deadline: January 31, 2009

Every author of videos devoted to architecture can submit work to the 2009 edition of the festival. Recent works are expected by architects, artists, and students. It is possible to submit videos of various kinds; for example, conceptual, interpretational, documentary, and advertising works. Each author can submit more than one piece of work. Visit www.beyondmedia.it.

The Chicago Athenaeum 2009 American Architecture Awards

Deadline: February 1, 2009

The 2009 awards program considers new corporate headquarters, skyscrapers, institutions, sports and transportation facilities, interiors, urban planning projects, airports, and residences. Projects may be built in the U.S. or abroad (since January 1, 2007) by a U.S. architectural firm (unbuilt projects are also eligible). International firms headquartered outside the U.S. are eligible to submit projects built or designed for the United States. Call 815/777-4444 or visit www.chi-athenaeum.org.

The ASLA 2009 Awards

Professional Awards Entry Deadline: February 6, 2009

Student Awards Entry Deadline: May 29, 2009

The American Society of Landscape Architects (ASLA) Awards program honors the best in landscape architecture from around the world, while the student awards program provides a glimpse into the future of the profession. For more information, visit www.asla.org.

2009 AIA New York Chapter Design Awards

Registration Deadline: February 6, 2009

Submission Deadline: February 20, 2009

The three categories for the design awards are Architecture, Interiors, and Projects. Architecture located anywhere in the world designed by AIA New York members, BSA members, or by registered architects practicing in New York City or Boston, and architecture located in New York City or Boston designed by registered architects practicing anywhere in the world is eligible. Visit www.aiany.org.

The 2009 Ceramic Tiles of Italy

Design Competition Deadline: February 6, 2009

The Ceramic Tiles of Italy Design Competition, now in its 16th year, celebrates the outstanding work of North American architects and designers who feature Italian ceramic tiles in their institutional, residential, or commercial/hospitality spaces. Visit wwwtilecompetition.com.

9th Annual Steel Design Student Competition

Registration Deadline: February 9, 2009

Submission Deadline: May 20, 2009

The program will offer architecture students the opportunity to compete in two separate categories and is intended to challenge the students, working individually or in teams, to explore a variety of design issues related to the use of steel in design and construction. Call 202/785-2324 or visit www.acsa-arch.org.

2008–09 Green Community, International Student Design Competition

Registration Deadline: February 9, 2009

Submission Deadline: May 20, 2009

The competition offers students the opportunity to think critically about communities looking to a sustainable future. Locate a site in your local community or region, identify the barriers and strengths to living sustainably, and develop a proposal to create a flourishing and sustainable community using the tools of the environmental design disciplines: architecture, landscape architecture, and urban planning. Call 202/785-2324 or visit www.acsa-arch.org.

AIA Committee on Design 2009 Ideas Competition

Registration Deadline: February 13, 2009

The AIA Committee on Design (COD) invites architects, students, and allied design professionals to submit sketches to the international COD Ideas Competition. In this unique sketch competition, submitters are asked to explore the legacy of Modernist design through a conceptual design problem. For more information, visit www.aia.org/cod_ideas.

Going with the Grain: Design an Object Using Sustainable Wood

Deadline: June 2, 2009

The "Going with the Grain" challenge is to design an original and compelling object that can be made from a single sheet of FSC-certified plywood measuring 4 feet by 8 feet by 1 inch. All are welcome to enter, including furniture designers and manufacturers, architects, and industrial designers. Visit www.design21.cmail.com.

E-mail information two months in advance to elisabeth_broome@mcgraw-hill.com.

Special Advertising Section

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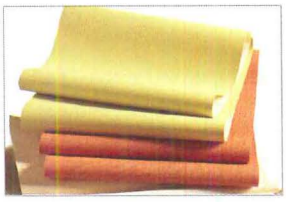
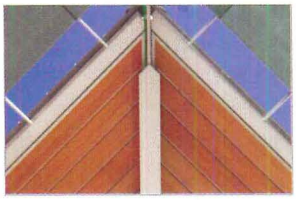
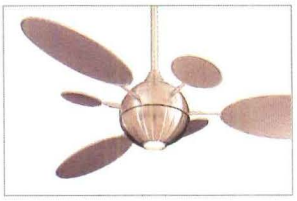



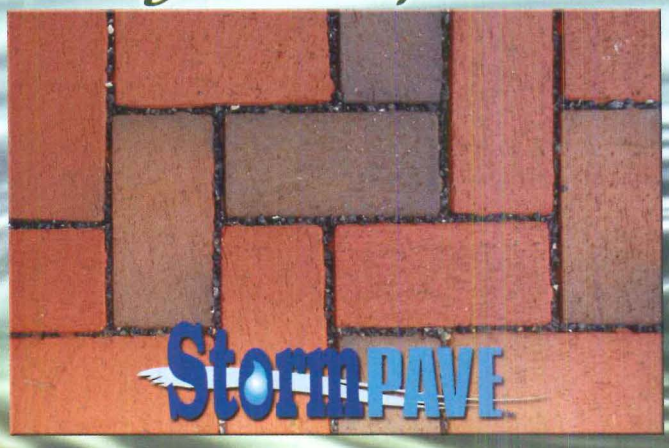
The Companies Behind *Architectural Record*'s 36th Annual Juried Selections of the Year's Most Remarkable New Products

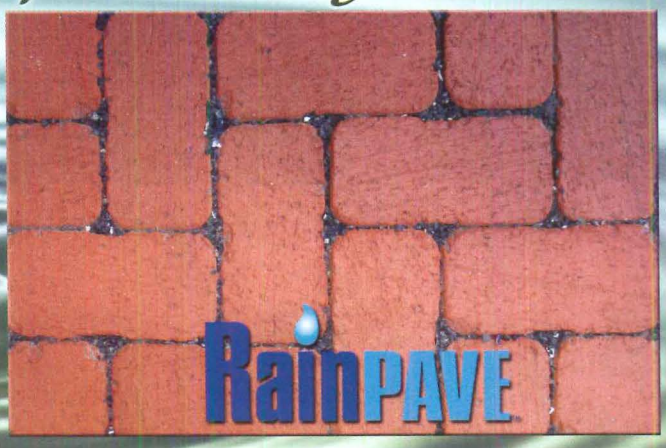
Each September, *Architectural Record* invites a jury of architects, lighting designers, and product specialists to convene for the day to help our editors select the most noteworthy products of the year. The December 2008 issue of *Architectural Record* featured over 100 of the top picks alongside BuildingGreen's selections for the Top Ten Green Products of the year. The companies featured here were in that section and are so proud they wanted to be sure you got a second look.

One repeated sentiment this year was the desire to find products strong both technically and aesthetically. Our jury felt a special appreciation for the submission that accomplished both, and recognizes that these days, products must work harder to earn space in their budgets and buildings.

We applaud the efforts that go into these award winning products. To recognize their achievements, and as a valuable resource to our readers and the architectural community, we present this **Celebration of Product Reports 2008**■

Preserve natural water drainage through a classic segmental permeable clay pavement system.





Pine Hall Brick™

earth friendly...naturally green

CIRCLE 45

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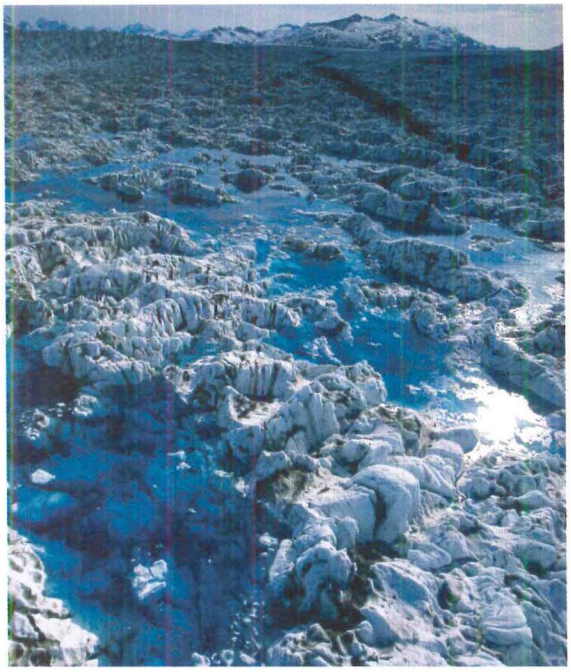

Peter Essick, National Geographic.

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GREENERGOOD
conversations that will change the world

Sustainability Roundtable
What does climate change mean for the built environment, natural world, and politics? Join editors from *Architectural Record* and *National Geographic* as they discuss the future of green.
Tuesday, January 27, 2009

A Green World is a Safer One
Wednesday, February 18, 2009

Healthy Hospitals
Monday, March 23, 2009

Vertical Farming
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For the Greener Good lecture series is presented by The Home Depot Foundation.

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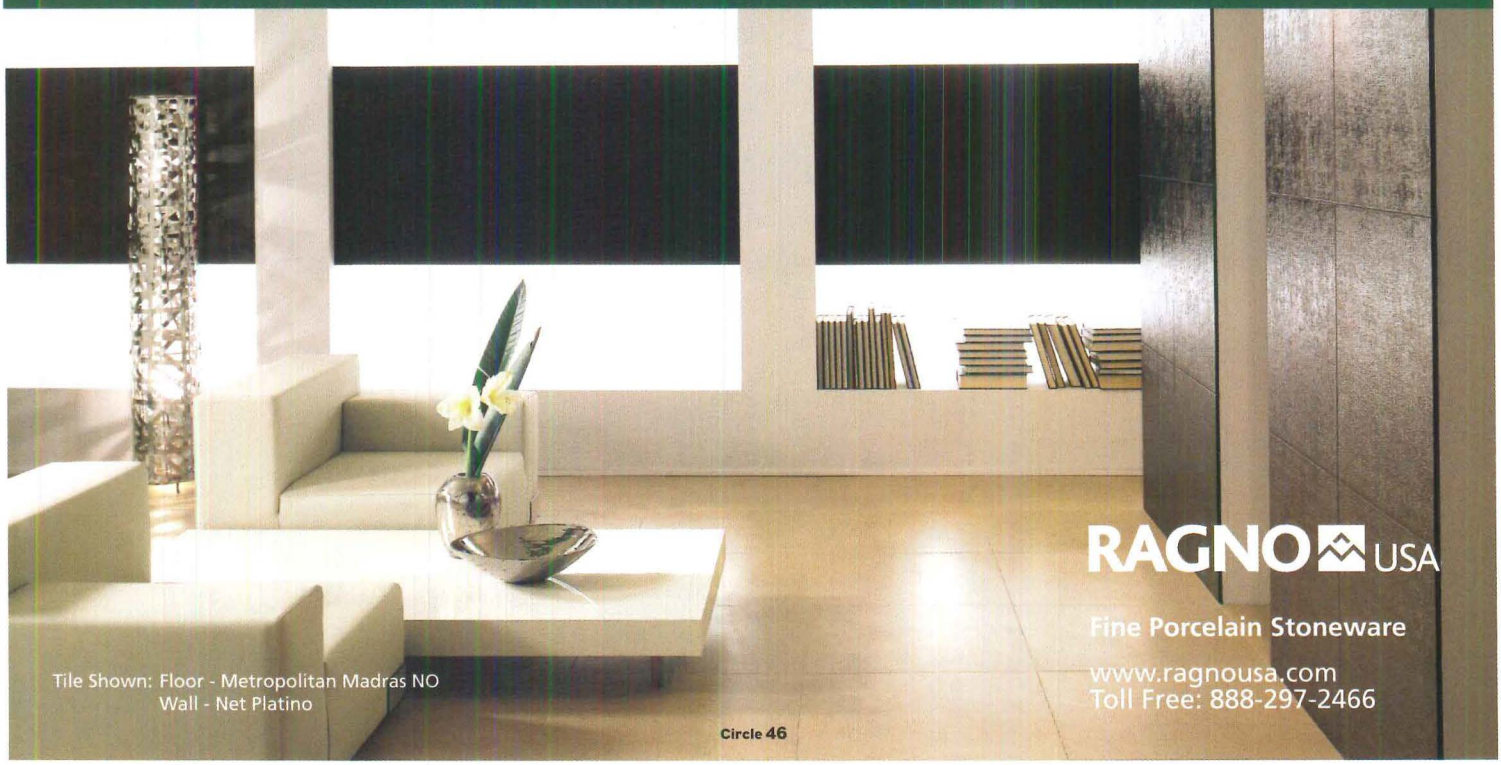
Sculpting space
with dramatic contrasts of texture and pattern



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Wall Tiles

Ragno USA

Intricate made easy; glamour made affordable; fashion made durable . . . SOHO's Fascia Deco represents the point at which art converges with geometry to create stunning walls that beg to be touched. It is uniquely comprised of multiple pieces cut from field tile in varying thicknesses. These are firmly adhered to a fiberglass backing, making installation simple. 888-297-2466 Email info@ragnousa.com www.ragnousa.com

Circle 60

Task Light

Alkco

Little Inch2 Fluorescent is a specification-grade undercabinet task light that addresses the needs of residential and commercial environments. Installation simplicity, ease of use, illumination quality and product aesthetics are all considered in the design. This translates into years of worry-free use that is backed by Alkco's limited lifetime guarantee. 847-451-0700 www.alkco.com

Circle 61

Permeable Clay Paver

Pine Hall Brick Company, Inc

StormPave is a permeable clay paver that allows rainwater to filter down through a specially constructed paving system and dissipate into the soil, rather than carry excess pollutants into storm drains. StormPave is perfect for institutional and commercial projects where impervious surface restrictions apply and joint openings need to meet ADA restrictions (less than 1/2-in.) when onsite retention/infiltration is mandated. 800-334-8689 www.americaspremierpaver.com

Circle 62

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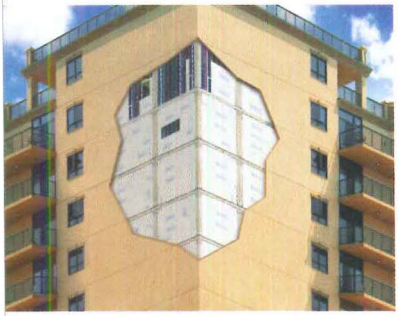
Sheathing

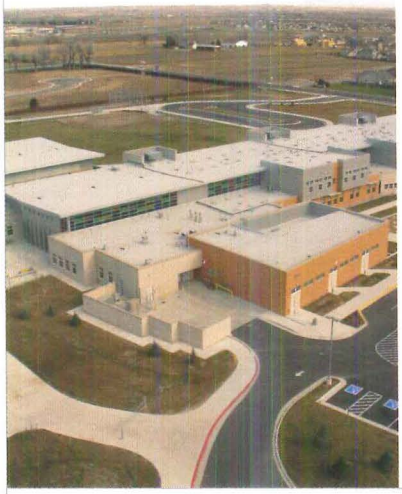


CertainTeed Gypsum

CertainTeed's GlasRoc® sheathing features reinforced glass mats, fully-embedded into a water-resistant core for complete protection inside and out. The sheathing is lightweight, designed to cut like regular gypsum board. It holds up to long-term weather exposure during the construction process. GlasRoc Sheathing meets ASTM C 1177. 800-233-8990 www.certainteed.com/gypsum

Circle 150

High Performing Roofs for Schools

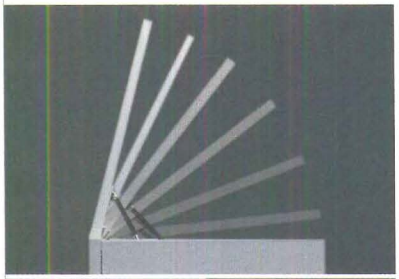


Johns Manville Roofing Systems

Kinard Junior High School in Fort Collins, Colorado, was designed using nationally recognized sustainable design guidelines to enhance student performance. The school district selected a Johns Manville SBS modified bitumen roofing system for energy efficiency and durability. The roofing system has a 20-year No Dollar Limit guarantee to meet life cycle goals. 800-922-5922 www.specjm.com

Circle 153

Soft-Down Lid Stays



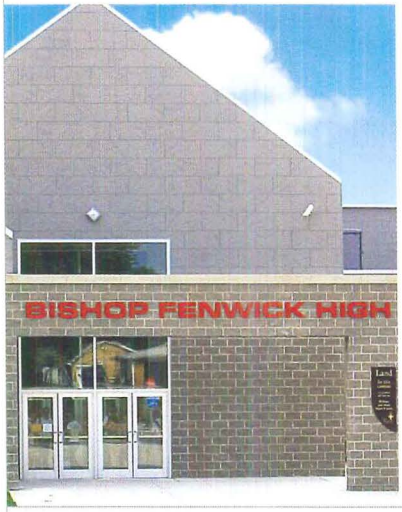
Sugatsune America, Inc.

Manufacturer of commercial and residential hardware, Sugatsune features Lapcon Soft-Down Lid Stays. Lapcon's built-in, patented dampening device allows lids of toy-boxes to close softly and safely without slamming shut and smashing fingers, suitable for use by children. This function helps to enhance a variety of environments to improve safety within schools. Lapcon soft-down lid stays are available in three opening types: downward-, top- or upward-opening. The NSDX model is pictured. 800-562-5267 (U.S.A. only); 310-329-6373 www.sugatsune.com

IBS Booth #S8237

Circle 151

An Economic Opportunity for Education

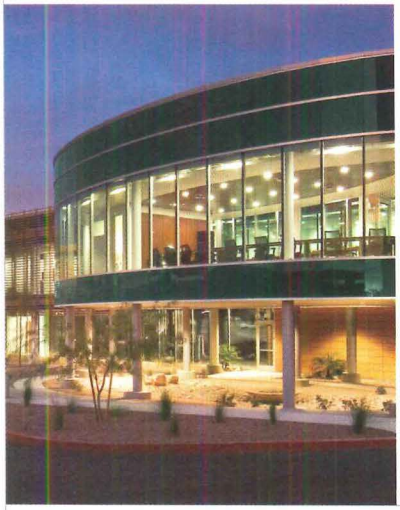


Nichiha USA, Inc.

Nichiha presents the education industry with the opportunity to build with integrated value on every project. The industry demands lower material and labor costs, design flexibility, durability, plus be green. Nichiha fiber cement products easily meet these demands, with over 30 brick, stone, block, shake and smooth textures. 86-Nichiha-1 (866-424-4421) www.nichiha.com

Circle 154

Ceramic Rainscreen Cladding System

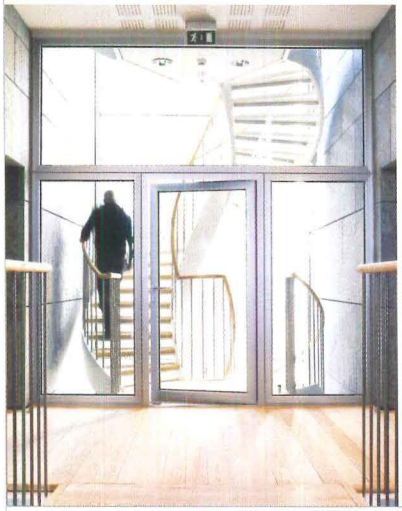


Boston Valley Terra Cotta

TerraClad is a natural terra cotta product formed into a high performance architectural ceramic rainscreen panel. These fired clay products offer many LEED point possibilities for recycled content and regional material use. Available in louvers, baguettes and panel sizes, all in an infinite color palette to match the designer's imagination. 888-214-3655 www.bostonvalley.com

Circle 152

Fire-Rated Aluminum Products



Aluflam North America

Imagine being able to specify a fire-rated system that looks so good you wouldn't know it's fire-rated. Imagine the clean, rich lines of clear glass. With ALUFLAM storefront and curtainwall systems, this is reality. Contact them for further information. 714-899-3990 www.aluflam-usa.com

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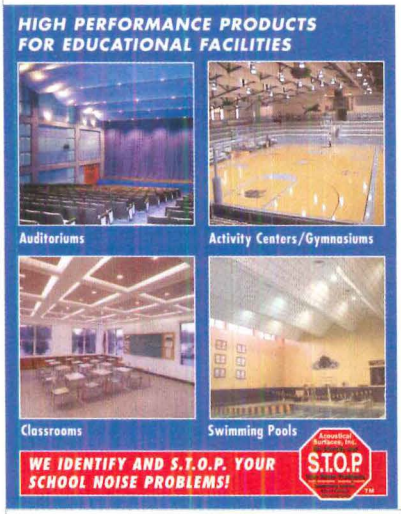
Emergency Response Grilles

Cornell Iron Works

CrossingGard® is the only Emergency Response Grille compliant as an access-controlled means of egress per the International Building Code®. Every day, CrossingGard helps secure the corridors of schools and public buildings with its unique AutoLock device. But upon alarm, power failure or emergency activation, the motorized CrossingGard opens automatically allowing escape without delay. 800-233-8366 www.cornelliron.com

Circle **156**

Better Acoustics = Better Schools

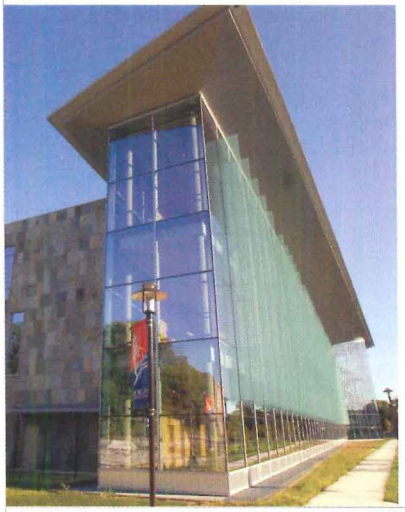


Acoustical Surfaces, Inc.

Acoustical Surfaces, Inc. is a company with over 25 years of experience and carries over 200 specialty soundproofing, noise control, vibration control and acoustical products for schools. Their products help schools meet the ANSI S12.60-2002 American National Standard Acoustical Performance Criteria, and are class A fire retardant. Ask their knowledgeable acoustical and soundproofing professionals to explain their cost effective solutions. They have hundreds of products in stock including their complete line of eco friendly "Green" products. 800-626-7868 Fax number 952-448-2613 Email sales@acousticalsurfaces.com www.acousticalsurfaces.com

Circle **159**

An Educational Landmark

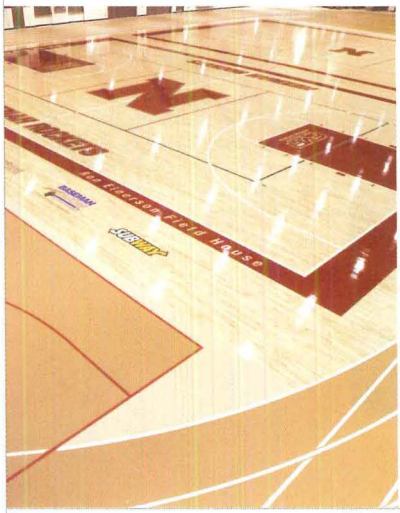


EFCO Corporation

At the center of Morgan State University in Baltimore stands a new 220,000-sq.-ft. signature library facility featuring a 3-story high atrium-style wall of windows overlooking the campus. EFCO System 5600 Curtain Wall, Series 403 Thermal Storefront and D300 Doors were integral to achieving the scope of this striking instructional space. 800-221-4169 www.efcocorp.com

Circle **157**

Choice of "Toppings"

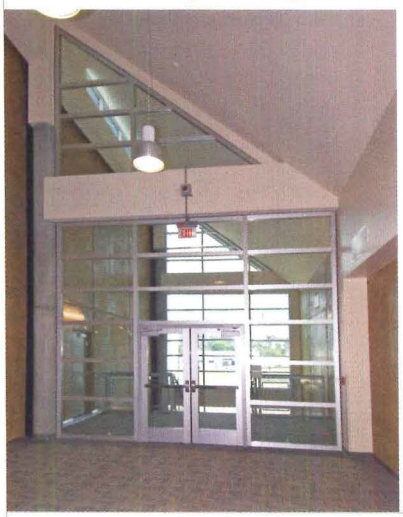


Action Floor Systems

Action Floor Systems, a leading manufacturer of athletic floors provides an option for facilities to combine both a premium American hard maple court surface and water-based, seamless synthetic surface for a surrounding running track. Stunning white maple grown in the north woods of Wisconsin & Michigan tops a selection of engineered subfloor systems to match specific performance requirements. Action Herculan® polyurethane poured floors feature environmentally friendly solvent-free materials throughout. For more information, visit their web site or contact their toll-free number or e-mail. 800-746-3512 Email info@actionfloors.com www.actionfloors.com

Circle **160**

Fire-Rated Glazing & Framing

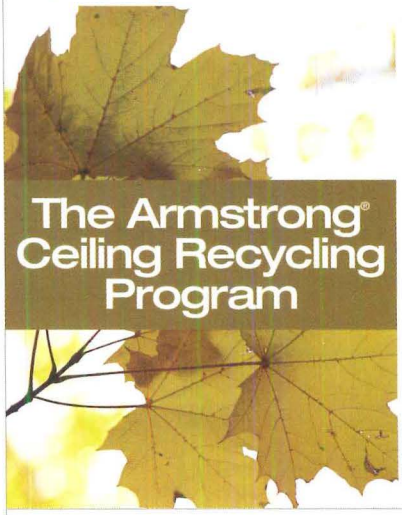


SAFTI *FIRST*

SAFTI *FIRST* offers complete fire-protective and fire-resistive glazing and framing products for door, window and wall assemblies that provide maximum fire and life safety. SuperLite™ glazing and SAFTI*fire* frames are also available in unlimited custom architectural make-ups, such as hurricane, ballistic and enhanced energy performance. For over 25 years, SAFTI *FIRST* has offered some of the most innovative lines of fire-rated glazing systems for every application. 888-653-8888 www.safti.com

Circle **158**

Recycling Program

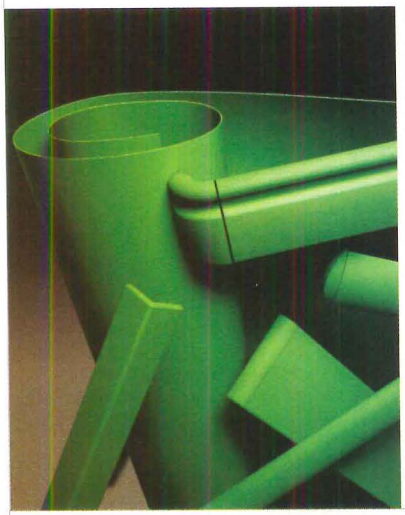


Armstrong

Armstrong Ceilings has a long history of diverting post-industrial and post-consumer waste from landfills. As part of this commitment, Armstrong offers the Ceiling Recycling Program, a first-of-its-kind, closed-loop program that diverts used ceilings from landfills to Armstrong plants where they are recycled into new ceilings. More than 65 million sq. ft. of old material has been recycled since the program began in 1999. 877-ARMSTRONG www.armstrong.com/ceilings/recycling

Circle **161**

Wall Protection



Construction Specialties

PVC-Free Acrovyn® 3000 from Construction Specialties performs as well as traditional Acrovyn Wall Protection and it is MBDC Cradle to Cradle Certified. It has the same outstanding impact resistance and a Class 1 fire rating without the use of halogens. This revolutionary line of wall protection is available in 55 corner guard, handrail and crash rail profiles as well as wall covering. Acrovyn 3000 is currently available in 25 of the most popular Acrovyn colors. 888-621-3344 www.c-sgroup.com/3000

Circle **162**

Custom Capabilities

Roppe Corporation

Custom capabilities in floor designs allow the creativity of the classroom to extend itself into play areas, lunchrooms and hallways to encourage school spirit or just to add interest to the space. Roppe welcomes your designs or can create a design for you based on your desired impact. 800-537-9527 Fax number 419-435-8546 www.roppe.com

Circle **165**

Sports Flooring

Flexco

Make style and endurance an everday practice. With its patented vulcanization process using predominantly recycled rubber, Tuflex® Force™ Resilient Rubber Flooring tiles have been keeping sports and commercial facilities in peak condition since 1957. 800-633-3151 www.flexcofloors.com

Circle **163**

Carpet Makes the Grade

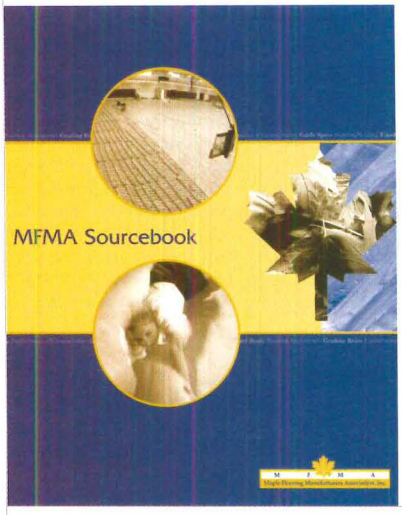
The Carpet & Rug Institute

The Carpet and Rug Institute (CRI) is a source for science-based information and insight into how carpet and rugs can create a better environment—for living, working, learning and healing. CRI's membership consists of manufacturers representing over 90% of all carpet produced in the United States, and suppliers of raw materials and services to the industry. 706-278-3176 www.carpet-rug.org

CRI™
THE CARPET AND RUG INSTITUTE

Circle **166**

Technical Information for Maple & Sports Flooring

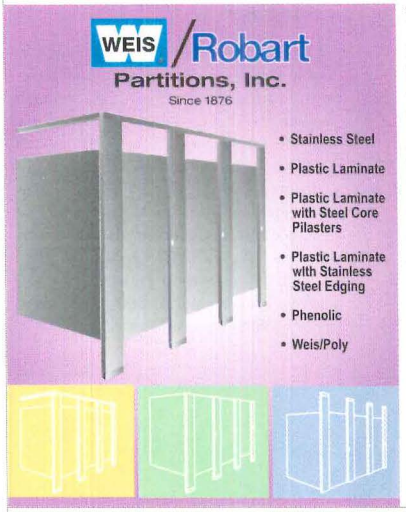


Maple Flooring Manufacturers Association

MFMA is an authoritative source of innovative technical information for maple and sports flooring systems. MFMA establishes product quality, performance, installation guidelines and maintenance issues. Additionally, it promotes the use of maple flooring products worldwide. MFMA has combined all their information in one place, the MFMA Sourcebook. Request a free copy through e-mail. 888-480-9138 Email mfma@maplefloor.org www.maplefloor.org

Circle **164**

Toilet Partitions



Weis/Robart Partitions, Inc.

Since 1876, Weis/Robart Partitions, Inc. has been providing quality toilet partitions for the building industry. Weis/Robart stocks a large inventory of toilet partitions in stainless steel, phenolic, plastic laminate and polyethylene. Weis/Robart Partitions is concerned about the environment. They now provide materials that are recyclable and materials that contain post consumer content. Coming this summer, they will introduce their new line of toilet accessories. 734-467-8711 www.weisrobart.com

Circle **167**

Versatile Table Solutions

Virco Mfg.

Virco's GREENGUARD® certified TEXT™ tables for technology-based learning environments and offices combine proven Virco construction with elliptical legs, swooping yokes and arched feet for exceptional elegance. Designed by the award-winning team of Peter Glass and Bob Mills, the TEXT line includes dozens of adjustable-height and fixed-height models. An array of TEXT tilt-top tables are also available for multi-purpose facilities requiring variable furniture set-ups. For versatile table solutions, TEXT gets the message. 800-448-4726 www.virco.com

Circle **168**

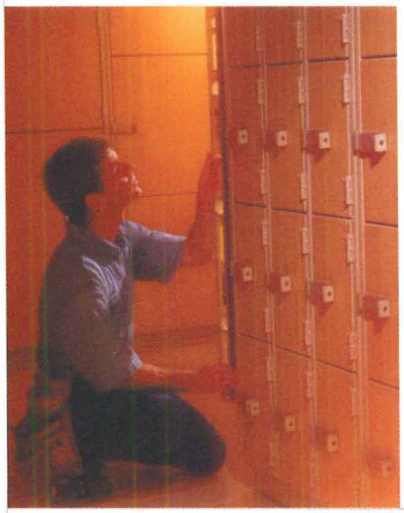
High-Efficiency Toilets

Sloan Valve Company

The Efficiency Series by Sloan® includes High-Efficiency Toilet Systems, which package water-efficient Flushometers with vitreous china floor- or wall-mount toilets. Choose from single- or dual-flush Flushometers in manual and sensor-operated models. Sloan also offers High-Efficiency Urinal Systems that flush with as little as a pint of water. Call their toll-free number or visit their web site. 800-9-VALVE-9 (982-5839) www.sloanvalve.com

Circle **171**

Products & Solutions for Classrooms & More



Wenger Corporation

Wenger Corporation provides innovative, high-quality products and solutions for customers across various markets: elementary, secondary and higher education; performing arts centers, theatres and places of worship; parks and recreation venues; rental companies; and athletic facilities. Wenger products include sound-isolating practice rooms, storage cabinets, staging, risers, seating and acoustical solutions, including portable and full-stage acoustical shells. Along with superior customer service, Wenger delivers outstanding value with a beautiful blend of form and function. 800-4WENGER (493-6437) www.wengercorp.com

Circle **169**

Water-Source Heat Pumps

Climate Master

Tranquility 16™ Compact (TC) Series water-source heat pumps with EarthPure® HFC-410A zero-ozone-depletion refrigerant is extremely environmentally-friendly. With one of the smallest cabinets in the industry, it's compatible with thousands of older water-source heat pumps, and utilizes scroll compressors to exceed ASHRAE 90.1 efficiency requirements; available in sizes from 1 to 5 tons and geothermal capable. 405-745-6000 www.climatemaster.com

Circle **172**

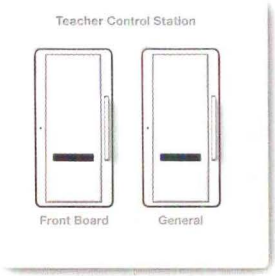
Green Spin on Solid Surface Material

Bradley Corp.

Bradley Corp. has combined eco-friendly recycled materials and nearly unmatched durability with its new Terreon®RE solid surface material for handwashing fixtures. Composed of an eco-friendly bio-based resin, pre-consumer recycled granule fillers and other natural materials, Terreon®RE is one of the greenest product materials on the market. Call their toll-free number or visit their web site. 800-Bradley www.bradleycorp.com

Circle **170**

Classroom Lighting Control Fixture Solution

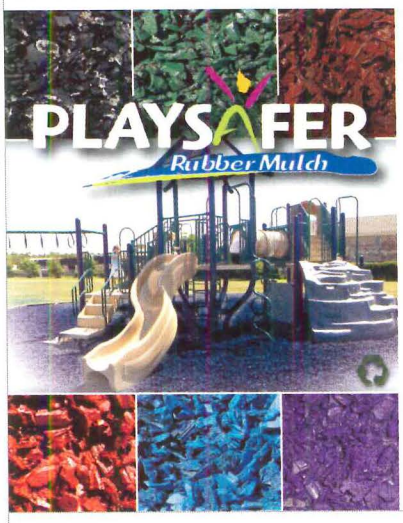


Lutron Electronics Co., Inc.

Balance LC from Lutron is the first educational light control solution to combine individually controllable fixtures, high-performance manual control, and automatic sensors into one simple package that enhances the learning environment, saves energy and contributes to sustainable classrooms, and supports the community. 888-LUTRON1 www.lutron.com/k-12

Circle **173**

Rubber Mulch



Playsafer Rubber Mulch

Playsafer rubber mulch is the ideal surface for resilience and durability in playgrounds, landscaping and equestrian facilities. It also provides the highest quality fill for ropes courses, obstacle courses, training pits for hand to hand combat training and backstops / bullet traps for shooting ranges, both for public and military applications. Ipema Certified. ADA Accessible F1951-99. Exceeds ASTM F1292-99. Guaranteed to last a lifetime. For more information, please contact Rubberecycle at their toll-free number or visit their web site. 888-436-6846 Email info@rubbermulch.com www.rubbermulch.com

Circle 174

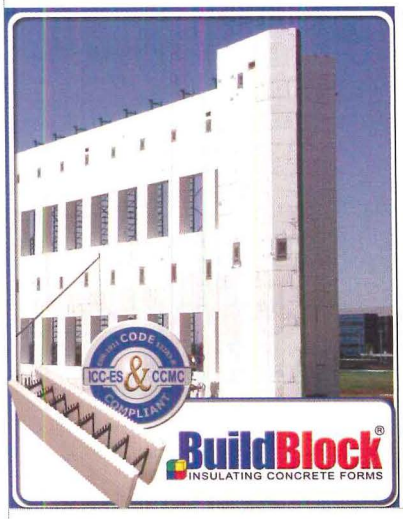
Fireproofed Steel Column

FIRE-TROL Div., Dean Lally LP

The Fire-Trol column is a prefabricated, fireproofed unit consisting of a load-bearing steel column, encased in a proprietary insulating material, which is permanently protected by a non-load-bearing steel shell. Fire protection and structural integrity are such vital considerations for building design making the Fire-Trol column an unsurpassed choice. The durable design allows for either interior or exterior applications that require a 2-hr. to 4-hr. fire rating. Fire-Trol columns are commonly used in schools, parking garages, shopping centers, prisons, etc. 800-323-5514 www.deanlally.com

Circle 177

Insulating Concrete Forms (ICFs)

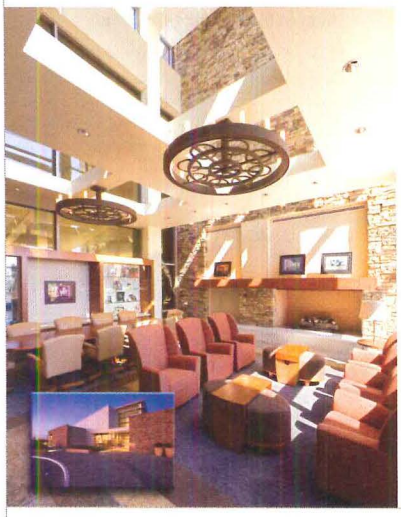


BuildBlock® Insulating Concrete Forms

Reach your LEED Certification goals with monolithic concrete walls built with BuildBlock ICFs. BuildBlock's fully reversible, symmetrical design results in minimal waste. Two 2-1/2-in. EPS foam panels stay in place, contributing significantly to energy efficiency. Molded-in cut lines and other unique features make BuildBlock faster to install. Projects built with BuildBlock ICFs won the 2008 ICFA Excellence Awards for Best Large Commercial, Large Residential, Small Residential, International, and Sustainability. 866-222-2575 www.buildblock.com/LEED

Circle 175

Innovative Stone Uses

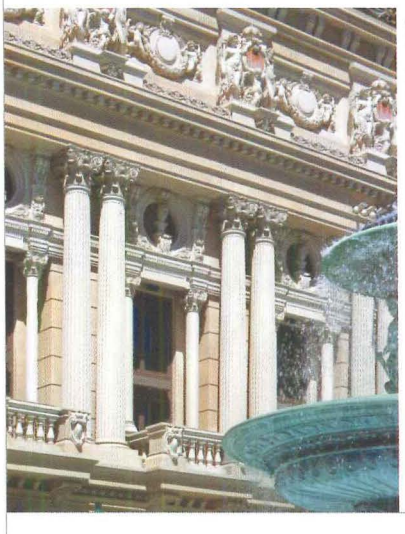


Eldorado Stone

Eldorado Stone offers several distinct, highly authentic profiles and color blends as well as new, eco-friendly custom mixes that can help earn LEED points from which to help you create a distinctive look for your next project at an affordable price. Known as "The Most Believable Architectural Stone Veneer in the World,"™ visit their gallery of stone and brick applications and be inspired. 800-925-1491 www.eldoradostone.com/walkthrough.

Circle 176

Columns, Balustrades & Cornices



Architectural Columns & Balustrades by Melton Classics

Architectural Columns & Balustrades by Melton Classics provides the design professional with the most comprehensive selection of quality architectural products including architectural columns, balustrades, mouldings, cornices, and a wide array of architectural elements. Architectural columns are available plain or fluted, load-bearing or column covers, round or square in fiberglass, fiberglass/marble composite, synthetic stone, cast stone, GFRC, and wood for paint or stain. Architectural Columns & Balustrades by Melton Classics offers a maintenance free balustrade product ideal for any application. 800-963-3060 www.meltonclassics.com

Circle 178

Frameless Glass Railing System

Glass and Glass

Glass and Glass's Pat. Pending Flextech frameless glass railing system allows you to install bent glass without the use of a channel to support the glass. While this system is very cost effective and friendly, makes the staircase look like the glass is floating on the air. Ideal for residential and commercial use, the system is made of 316 marine grade stainless steel, has been tested and approved by Dade County and other municipalities and is 90% American Made. Services include design, engineering, manufacturing and installation complying with Building Codes. 305-416-5001 www.glassandglass.com

Circle 181

Rainscreen Panel System

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Circle 179

Reduce Energy Costs with Daylighting

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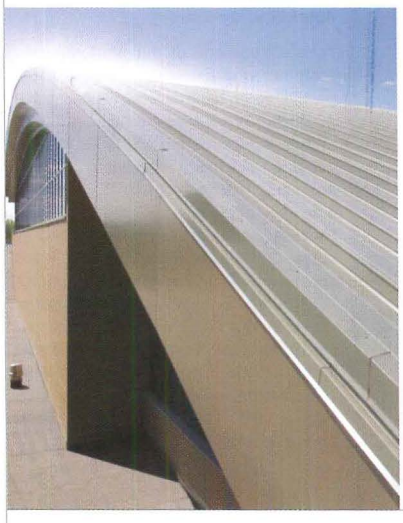
Guardian 275® Translucent Daylighting Panels from Major Industries allow natural light to illuminate interiors while eliminating unwanted glare and hot-spots. Guardian 275® systems are also a lightweight and energy-saving alternative to traditional glass skylights and curtainwall. Major's daylighting systems are custom-designed and built for any environment—and are backed by industry-long warranties. 888-759-2678; 715-842-4616 Fax number 715-848-3336 www.majorskylights.com

Circle 182

Metal Roofing & Wall Systems



Fabral

Architecturally appealing and consistent with green building guidelines—Fabral's product line includes standing seam roof panels, concealed fastener and exposed fastener panels, liner panels, secondary structural framing and a complete accessory offering most of which are available in a wide variety of substrates including aluminum, galvanized steel, galvalume, copper and stainless steel. 800-884-4484 Email info@fabral.com www.fabral.com

Circle 180

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Specialty Doors

Transform space. Some of the world's finest hardware and specialty glass doors together at last. Make a statement with sliding glass doors. Wide selection of styles, sizes and finishes. Enhance any office, loft, condo or home with hardware that can transform a room. Wide selection of choices for exterior applications as well. From rustic to contemporary and from sliding to folding, their friendly knowledgeable staff has your solution. For old-fashioned service give them a call. 866-815-8151 www.specialtydoors.com

Circle 183

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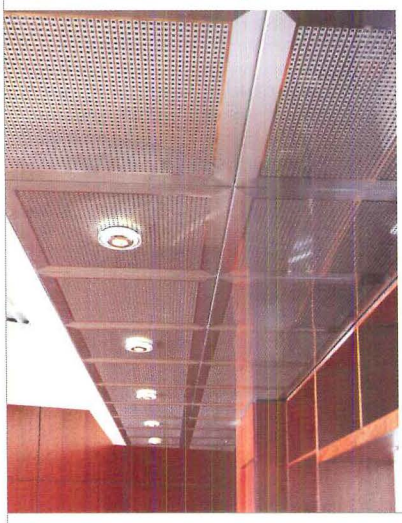
The ultimate technology of a unique single-source system comprised of structural aluminum box beams combined with Kalwall® translucent sandwich panels to form a lightweight composite system. The result is a durable, long-lasting structure that stands up to hurricane-force winds, high snow loads, hail, and the most demanding code requirements, while delivering diffuse, natural daylight for glare-free, shadowless illumination to the area below. Virtually maintenance free. Snow guards, gutter systems and downspouts are available. 800-225-3895 www.structuresunlimitedinc.com

Circle 184

Decorative Metal Ceilings

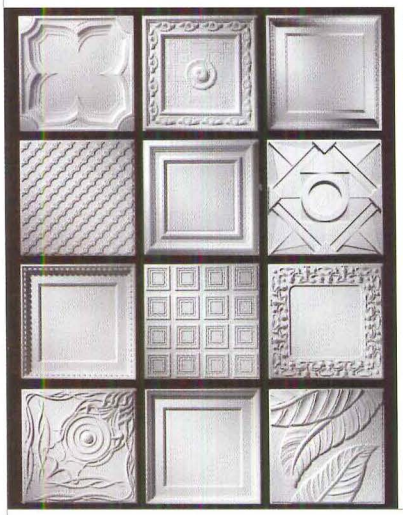


Gage Corporation, Int.

The Gage Corporation International has been designing and manufacturing decorative metal ceilings since 1989. Gage ceilings feature more than 50% post-consumer recycled material and are visually rich, functional, and versatile as a design medium. Custom collaboration is encouraged. Contact the Gage factory for literature and sample requests. 800-786-4243 Fax number 608-269-7622 www.gagecorp.net

Circle 187

Ornamental Plaster Ceiling Tiles

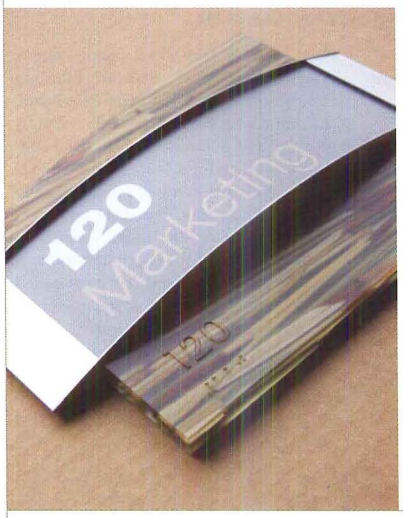


Above View Mfg., By Tiles, Inc.

Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request. 414-744-7118 www.aboveview.com

Circle 185

Green Sign Solutions



APCO Graphics, Inc.

Incorporating modular signs within a facility is an ecologically smart option that doesn't have to mean sacrificing quality or design. APCO offers a range of eco-friendly solutions that incorporate GREENGUARD certified sign faces, ADA compliant plaques comprised of up to 40% recycled content and frames which are 100% recyclable. 877-988-APCO www.apcosigns.com

Circle 188

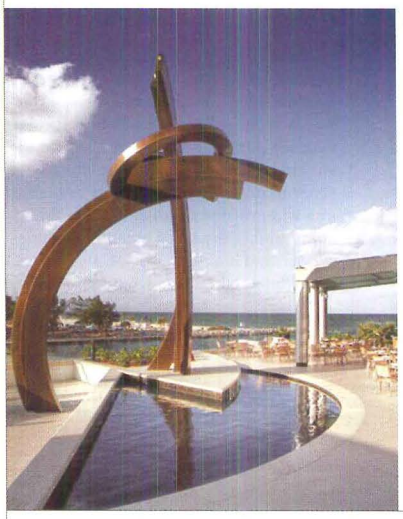
Genuine Stone Tiles

Architectural Products by Outwater

Hand sorted by color, size and thickness, Outwater's Genuine Stone Tiles comprise 100% natural stones that are individually adhered in mosaic or stacked patterns onto mesh style backings to create easy to install, seamless interlocking 12-in.x12-in. and 4-in.x12-in. tiles. Ideally suited for interior or exterior use in a vast range of residential and commercial new construction or renovation projects, Outwater's Genuine Stone Tiles are offered in a variety of exotic and traditional round and flat stones in numerous styles and colors to suit a wide assortment of vertical or horizontal applications. 800-835-4400 www.Outwater.com

Circle 186

Sculpture Commissions



Peter Findlay Gallery

"Guy Dill is one of our contemporary sculptors who has consistently over the past 20 years been able to achieve what might be called meaningful monumentality — sculpture that proclaims itself as needing to be made in monumental proportions," Steven Nash, Ex-director, Nasher Sculpture Center, Dallas. Fabricated bronze sculptures created by nationally known artist Guy Dill available for public and private commissions. Dill's work is included in 20 Museum collections and over 60 public and corporate collections: Qualcomm-Mitsubishi-Transamerica-Sony. Left: Close Hauled, 2005, Fabricated Bronze, 32-ft. high – Regent Bal Harbour Hotel, Miami www.findlay.com

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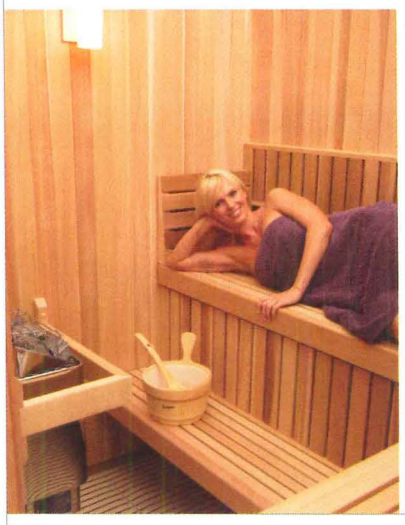
Saunas

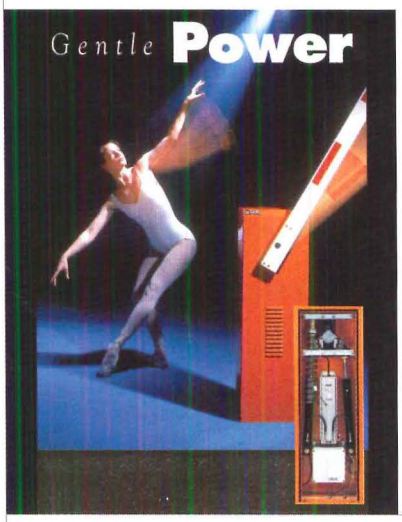


Finlandia Sauna Products, Inc.

Finlandia Sauna has manufactured exclusive and authentic saunas (no infrareds) since 1964. Finlandia offers precut sauna packages and modular sauna rooms as an affordable luxury that can be included in any remodel or new construction. The company markets four all-clear western softwoods and is the only manufacturer to use 1-in. by 4-in. paneling, instead of the cheaper 1/2-in. by 4-in. material used by others. The complete package includes a choice of electric sauna heater with optional AV EverReady, the exclusive new energy saving heater which is always on—no heat up necessary. 800-354-3342 www.finlandiasauna.com

Circle 190

Barrier Gate Operators



FAAC International, Inc.

FAAC is the world's largest specialized manufacturer of hydraulic operators for barrier, slide and swing gate systems. Barrier features include 100% continuous duty operation, the ability to raise beams up to 23-ft., and control panels with full system compatibility. High-speed and economy models available. Visit their web site for brochures and specs. 800-221-8278 www.faacusa.com

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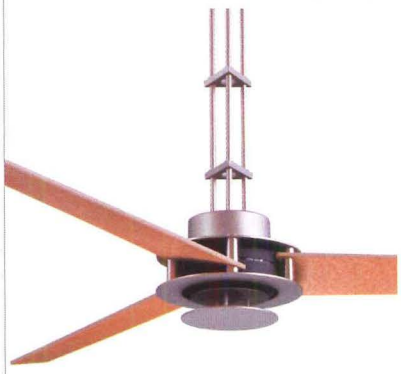

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Balanced design that is light and airy. The San Francisco ceiling fan—a GOOD DESIGN Award winner. Whisper quiet, powerful, reliable and beautifully made this timeless design is also available with a light kit and can be used on 8-ft. ceilings or on cathedral ceilings with optional downrods up to 6-ft. long. Suitable for sloped ceilings up to 29 degrees. Lifetime warranty. Air conditioning can increase your electricity bill by a third or more. A fan uses one tenth of the energy. To buy high-design architectural fans and lighting please visit G Squared Art's web site or call M-F 7 AM - 5 PM PST. 877-858-5333 www.g2art.com

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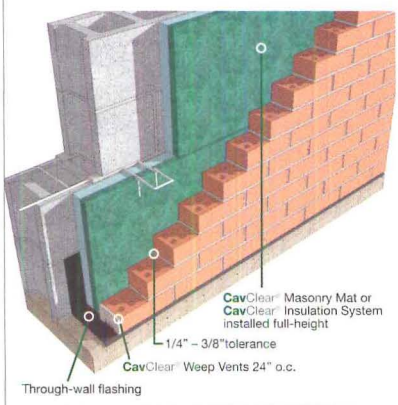
Take it to the top.



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Halfway is no way to protect a wall. CavClear® systems help protect masonry wall integrity by controlling moisture and eliminating mortar bridging/drop and debris in air spaces. CavClear® recycled mesh can help your project qualify for LEED points. 888-436-2620 www.cavclear.com

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Sternberg designed UNRIVALED™ light modules use industry leading LED's. Each fixture is specifically redesigned for LED light sources. Heat sinks and thermal paths are engineered to maximize LED output and LED life. Sternberg utilizes its highly efficient NIGHTSKY® optical systems. IESNA roadway Type III and V distribution is available. 800-621-3376 www.sternberglighting.com

Circle 192

Reclaimed Wood Products

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الجامعة الأمريكية بالقاهرة

KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KAUST) AND THE AMERICAN UNIVERSITY IN CAIRO (AUC)

Within the framework of the joint collaboration between King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia, and The American University in Cairo (AUC), Arab Republic of Egypt, applicants are invited to apply for post-doctoral positions.

KAUST (http://www.kaust.edu.sa) is an independent world-class, international graduate-level science and technology research university dedicated to inspiring a new age of scientific achievement in the Kingdom that will also benefit the region and the world. KAUST is governed by a self-perpetuating Board of Trustees and supported by a multi-billion dollar endowment. It reinvents the modern research university by establishing advanced research institutes that focus on interdisciplinary problems as the central organizing unit, and offering only graduate (M.S. and Ph.D.) degrees. As an independent and merit-based institution and one of the best endowed universities in the world, KAUST intends to become a major new contributor to the global network of collaborative research. The KAUST mission emphasizes research on applications of science and technology to problems of human need, social advancement, and economic development. It will enable researchers from around the globe to work together to solve challenging scientific and technological problems. The admission of students, the appointment, promotion and retention of faculty and staff, and all the educational, administrative and other activities of the University shall be conducted on the basis of equality, without regard to race, color, religion or gender.

KAUST's new 36 million square meter state-of-the-art campus in Thuwal (80 km north of Jeddah) will open its doors to students in Fall 2009. The campus includes a seaside town with housing, shops, schools, and numerous recreational amenities. KAUST welcomes exceptional researchers, faculty and students from around the world. To be competitive, KAUST will offer very attractive base salaries and a wide range of benefits.

AUC (http://www.aucegypt.edu) is a premier English-language institution of higher learning in its region. The university offers a strong liberal arts education in a cross-cultural environment and aspires to a tradition of life-long learning. AUC is committed to teaching and research of the highest caliber in diverse scholarly and professional fields, and to making significant contributions to Egypt and the international community. AUC is an independent, not-for-profit, equal-opportunity institution. Founded in 1919, AUC's campus has moved recently to a new, state-of-the-art campus in New Cairo beginning Fall Semester, 2008. AUC's degree programs are accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools. The Management program is accredited by AACSB. Construction, Electronics, and Mechanical Engineering Programs are accredited by the Engineering Accreditation Commission of ABET whereas the Computer Science Program is accredited by the Computing Accreditation Commission of ABET. All university academic programs are accredited by the Supreme Council of Egyptian Universities.

POST DOCTORAL POSITIONS

Within the framework of the joint research project on Integrated Desert Building Technologies, applicants are invited to apply for a Post-Doctoral Research Fellow Position in Building Energy Performance through Architectural Design. This position is available for applicants with demonstrated expertise in one or more of the following areas: building energy performance simulation and experimentation, day lighting simulation, analysis and design, building systems integration, green architecture, sustainable architectural design, and eco house design. Applicants must hold a Ph.D. degree or the equivalent in Architecture or Building Science. The position is effective as soon as possible. The project will last until August 2012. Serious commitment for the whole period of the project is a priority in making the final selection.

BUILDING ENERGY PERFORMANCE THROUGH ARCHITECTURAL DESIGN: (IDBT#1) One position is available for applicants with demonstrated expertise in one or more of the following areas: building energy performance simulation and experimentation, day lighting simulation, analysis and design, building systems integration, green architecture, sustainable architectural design, and eco house design. Applicants must hold a Ph.D. degree or the equivalent in Architecture or Building Science.

The successful candidate must have the ability to work independently and as part of a research team, demonstrated high work ethic, creativity, initiative, and experience in technical publication, and excellent English writing and communication and interpersonal skills. Appointed post-doctoral fellows are expected to share their time between AUC and KAUST. Their appointment will start at the American University in Cairo (Egypt) as soon as possible and then they will move to King Abdullah University of Science and Technology (KSA) for the rest of their contract according to the approved collaborative research plan. Deadline for applications is January 15, 2009 or until the position is filled.

All applicants must submit the following documents via the AUC online system a) an updated CV; b) a letter of interest; c) a completed AUC Personal Information Form (PIF); and d) names and contact information for at least three references familiar with the applicant's professional background.

http://tinyurl.com/auckaust

Better thinkers; Better futures

Founded in 1919, AUC's campus has moved to a new, state-of-the-art campus in New Cairo beginning Fall Semester, 2008. AUC's degree programs are accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools; Engineering programs are accredited by ABET and the Management program is accredited by AACSB. For more information visit our website at www.aucegypt.edu.

The normal teaching load is three courses per semester and English is the language of instruction. For expatriates, benefits include housing, annual round-trip air travel for appointee and qualifying dependents, plus schooling for the equivalent of up to two children at Cairo American College. In view of AUC's protocol agreement with the Egyptian government, which requires specific proportions of Egyptian, U.S., and third-country citizen faculty, at this time preference will be given to qualified applicants who are U.S. citizens.

Application Instructions:
All applicants must submit the following documents via online.
a) A current C.V.
b) A letter of interest
c) A completed AUC Personal Information Form (PIF)
d) Please ask three referees familiar with your professional background to send reference letters directly to our office in New York or to the Office of the Provost

THE AMERICAN UNIVERSITY IN CAIRO

ARCHITECTURAL DESIGN BASICS (ARCH-1-09)

Job Description:
The Department of Construction and Architectural Engineering initiated a new bachelor level degree in architecture in Fall Semester 2007. The department is inviting applications for a tenure-track faculty position in Architectural Design Basics at any professorial level to teach undergraduate level design studios and design foundation courses, beginning in September 2009.

Requirements:
The candidate must hold a doctoral degree in architecture. Professional registration is preferred. The candidate should have a strong track record of teaching and research in the areas of architectural design, architecture design methods, design foundation and basic architectural composition skills. He/she is also expected to lead research activities in these areas. Strong intellectual background and artistic direction are encouraged. All candidates must possess professional design experience and demonstrate a strong record of recognized research which may include built work, theoretical explorations, scholarship, publications, or exhibitions.

Additional Information:
Deadline of applications is January 15, 2009. Review of applications will start immediately.
One-, two- or three-year appointment, subject to mutual agreement will begin September 2009. Renewal of an appointment depends upon institutional needs and/or the appointee's performance.

HUMANITIES IN ARCHITECTURE (ARCH-2-09)

Job Description:
The Department of Construction and Architectural Engineering initiated a new bachelor level degree in architecture in Fall Semester 2007. The department is inviting applications for a tenure-track faculty position in Humanities in Architecture to teach undergraduate level design studios, and courses in humanities and contextual design, beginning in September 2009.

Requirements:
The candidate must hold a doctoral degree in architecture. Professional registration is preferred. The candidate should have a strong track record of teaching and research in the areas of architectural design, humanities in architecture, contextual design, environmental psychology and architectural research methods. He/she is also expected to lead research activities in these areas. All candidates must possess professional design experience and demonstrate a strong record of recognized research.

Additional Information:
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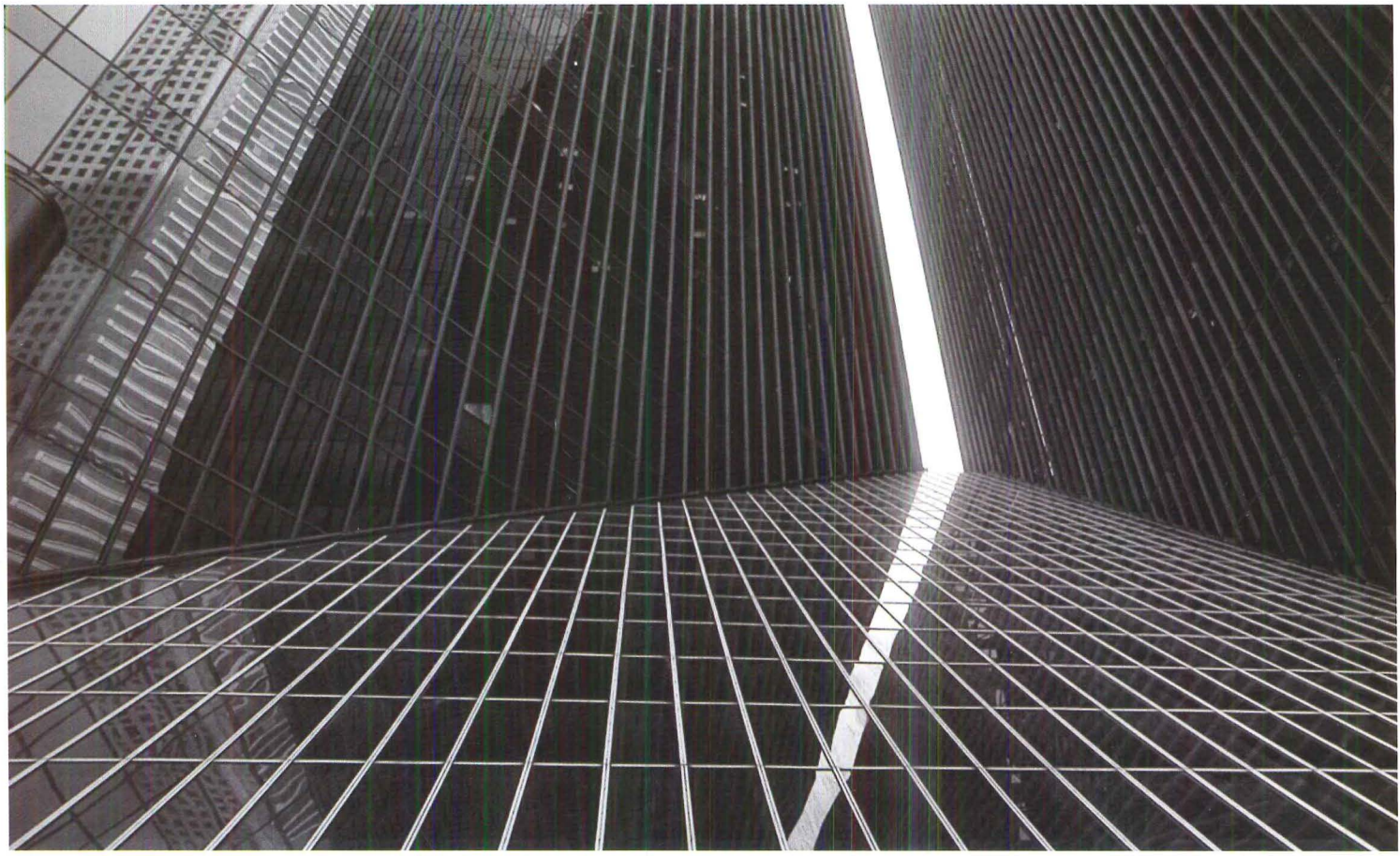

Olivier Blouin photographs Philip Johnson's Pennzoil Place. The 1975 project's two towers, separated by a signature 10-foot crack, rise 36 stories over downtown Houston. The photographer is finishing his master's degree in architecture at the University of Montreal, Canada. He shot Pennzoil Place while studying Texas architecture on a recent trip to the States.

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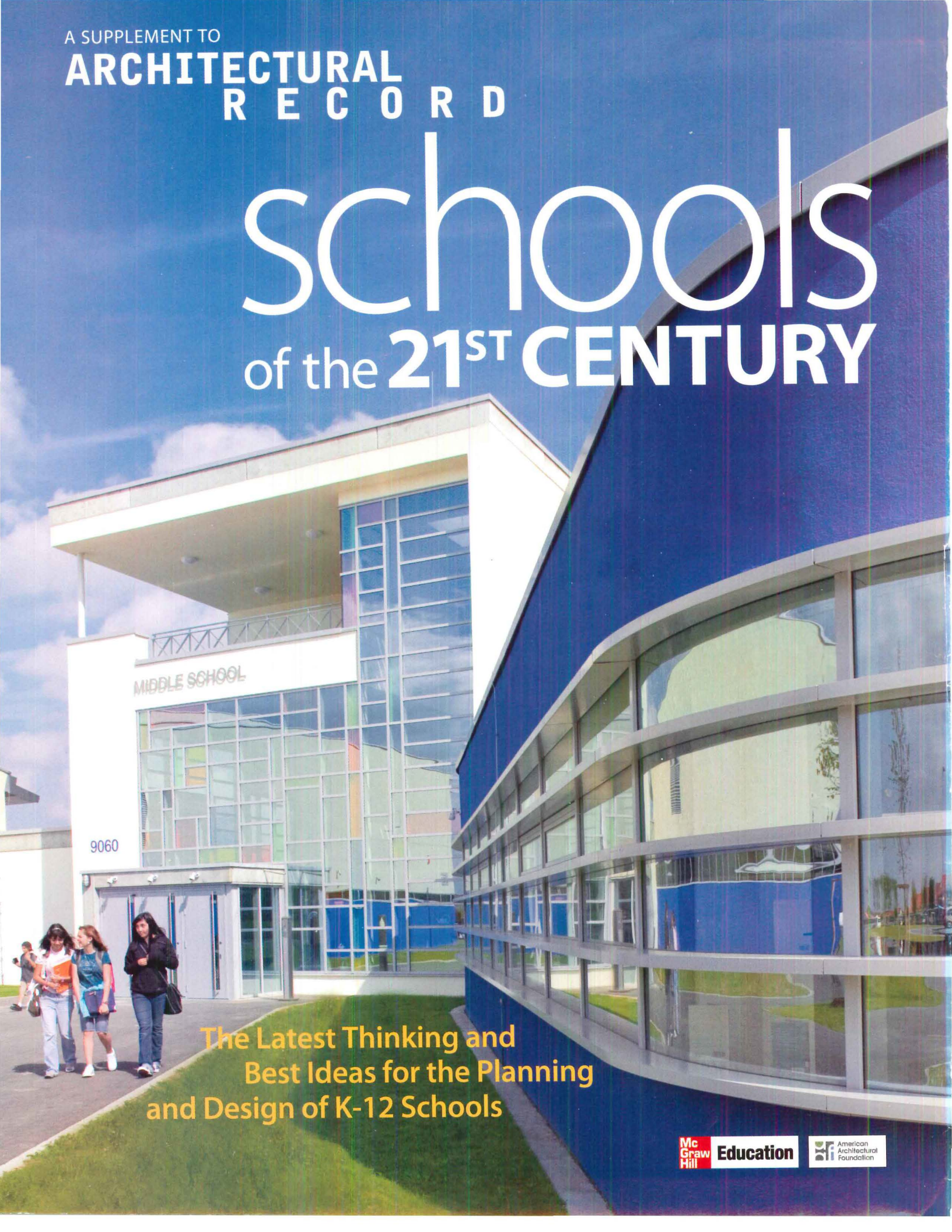

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CIRCLE 01

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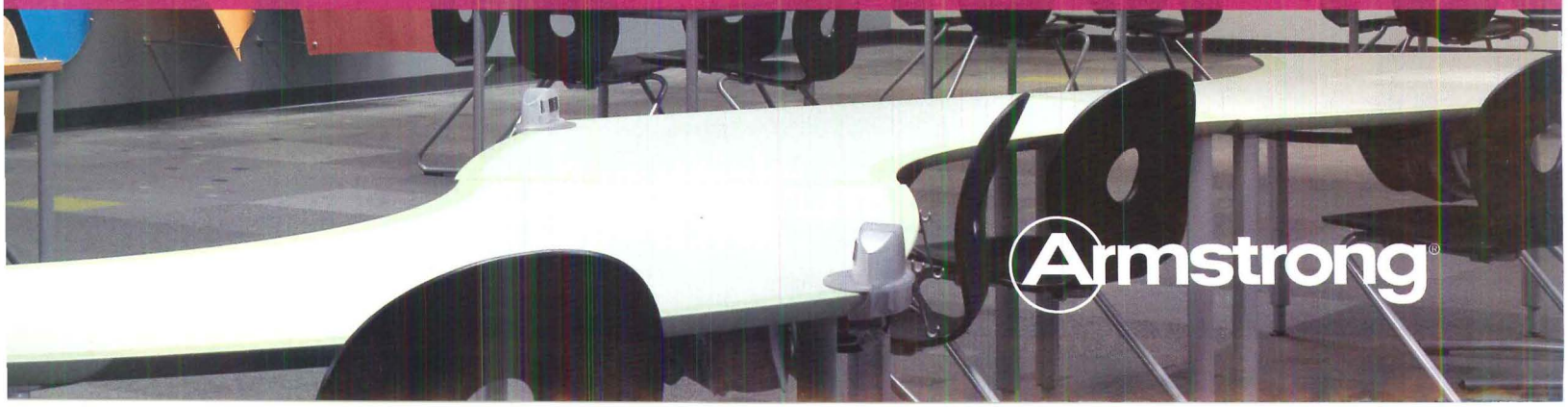

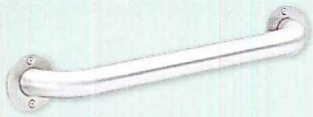

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CIRCLE 02

Greening America's School Restrooms

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With TerreonRE solid surface, combined with ndite light-powered technology and a 0.5 GPM sprayhead, the Express MG is one of the greenest handwashing fixtures on the market.

ARCHITECTS AND DESIGNERS GREENING AMERICA'S SCHOOLS know that restrooms and locker rooms are notorious for consuming large amounts of water and energy. Albeit only one part of a building, the fixtures in schools' restrooms can significantly impact the "greenness" of the overall facility.

Clients jumping on the green bandwagon are looking for innovative restroom design choices. These products not only should conserve water and energy and utilize environmentally sound building materials, they need to address vandalism, traffic flow and ADA compliance. When you add contemporary styling and durability, working with an industry leader like Bradley is key.

For 85 years, Bradley has provided high-quality restroom solutions for schools – from multi-height lavatory systems, juvenile-height washfountains and classroom sinks to commercial showers and lockers – ideal for green restroom design. A number of Bradley products help earn LEED credits.

Here are some ways Bradley is helping to "green" schools' restrooms and locker rooms:

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The first light-powered handwashing fixture, ndite® technology, uses photovoltaic cells integrated into the top of Bradley's Express Lavatory System to capture and store solar or normal room-level lighting. The light is then converted into energy, which activates the flow of water.

Bradley has built a solid history of manufacturing innovative restroom and locker room products that conserve natural resources, water and energy. With continued focus on green design, Bradley will help build high-quality and environmentally sound school washrooms fit for the future. ■

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schools of the 21ST CENTURY

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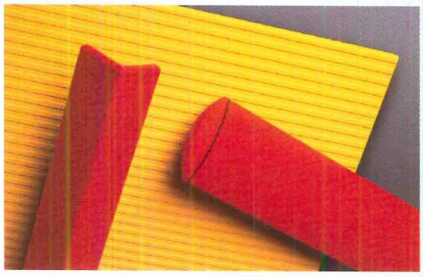

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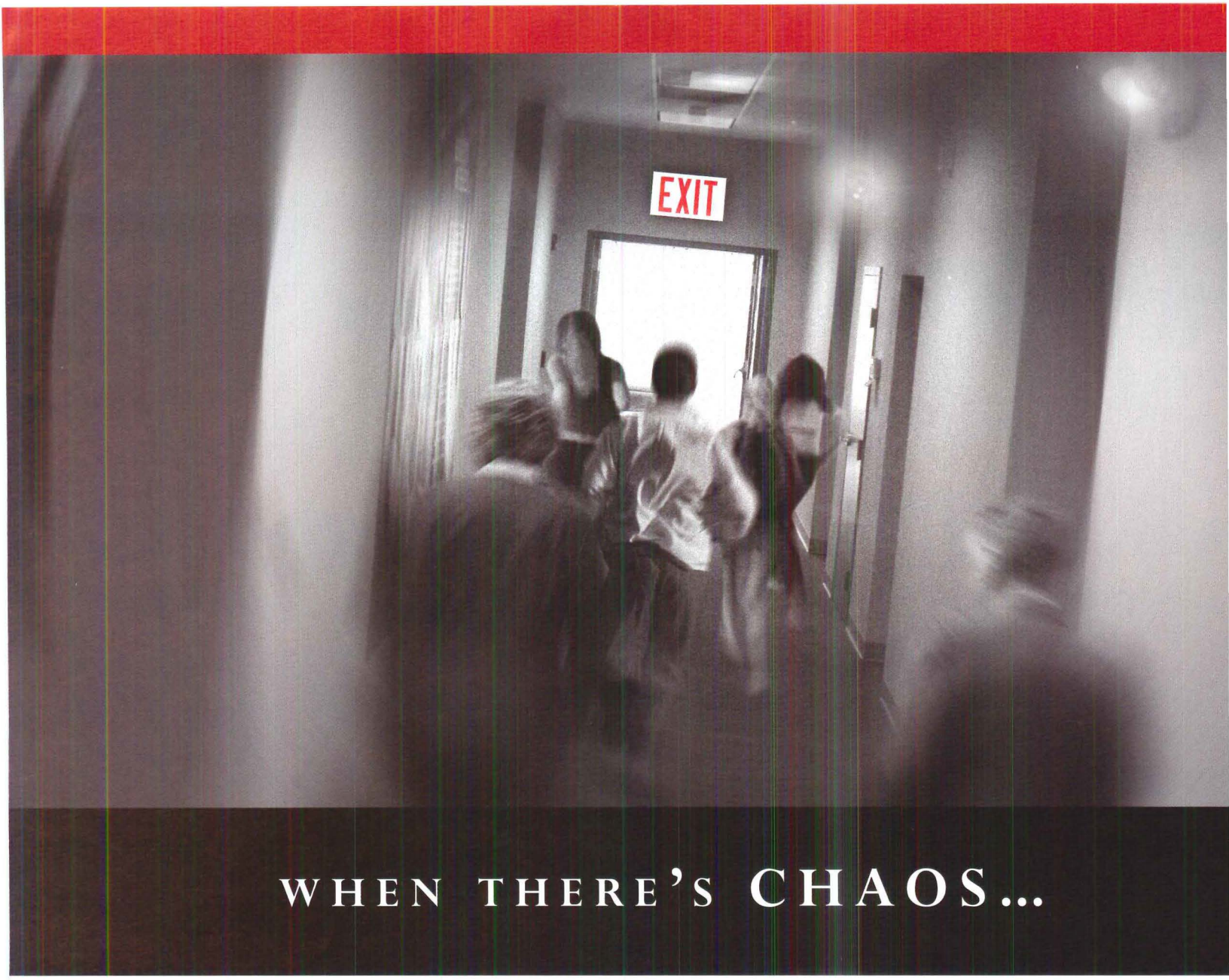

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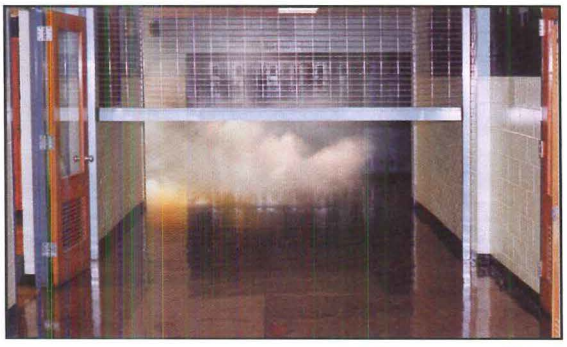

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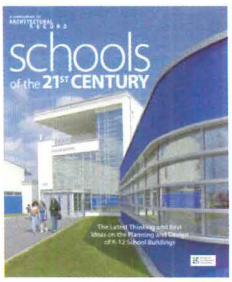

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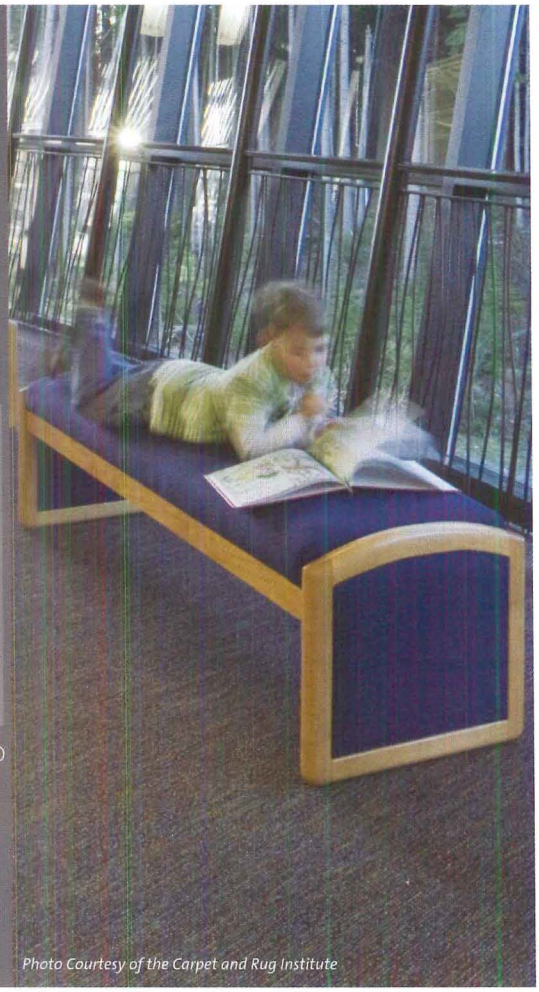

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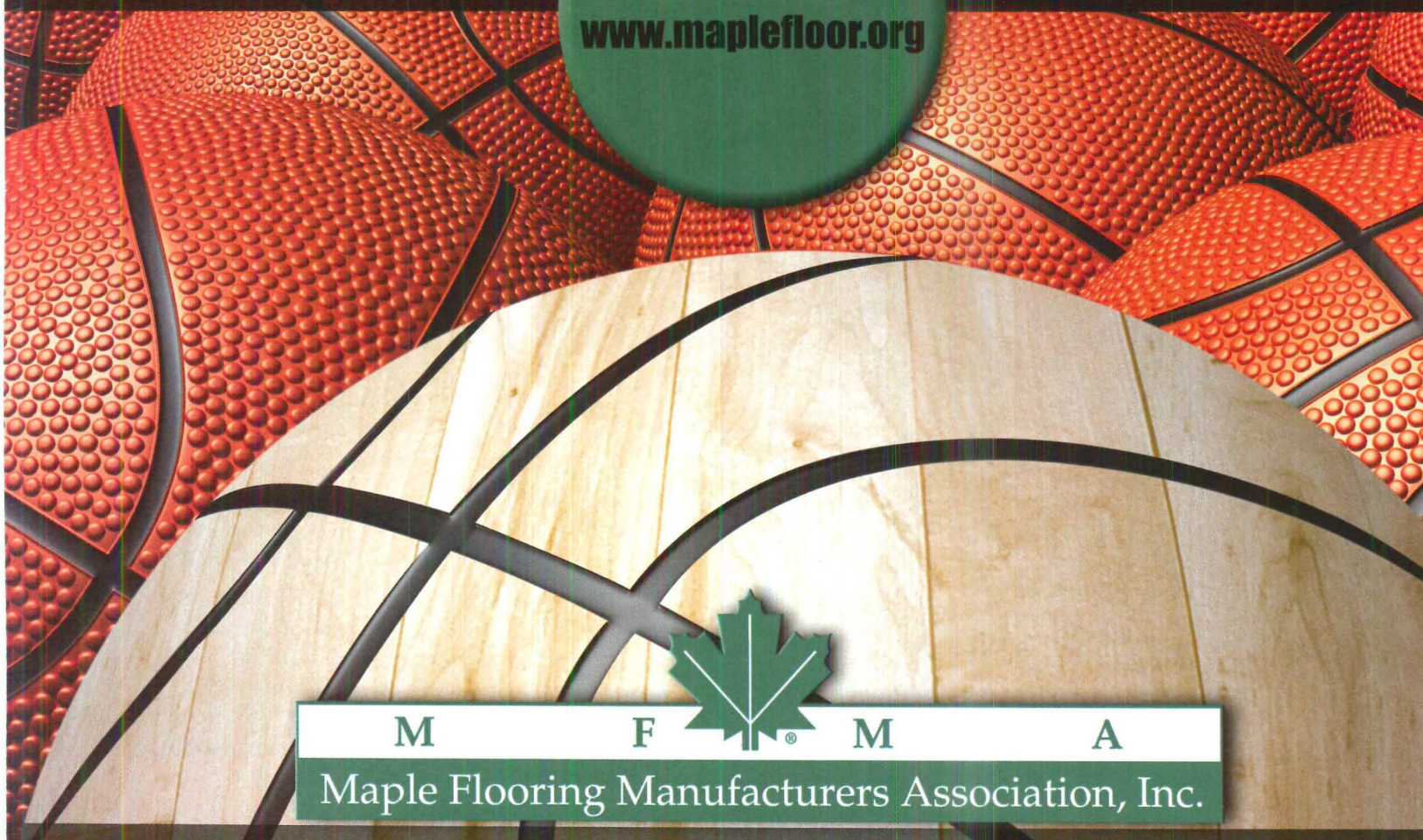

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CIRCLE 07

There is no "right" answer

FOR THE RATIONAL CHILD WHO PREFERS ABSOLUTES TO AMBIGUITY, "There is no right answer" is probably one of the most frustrating phrases a teacher can utter. Architects and school officials who are involved in the design and construction of schools sometimes find themselves in a position of saying something similar when parents or other members of the public ask why most school buildings are unique. Why can't they all be alike? Wouldn't that be cheaper? Better? Not necessarily. No two sites are alike. Each district's needs are different from any other's, and what works for a grade school seldom works for a high school. In other words, there is no "right" answer.

But one thing that is universally true is that the senses of a child are nearly always more acute than those of an adult. Poor air quality, bad lighting, extraneous noise, and rooms that are too hot or cold are enormously distracting, especially if one is struggling to learn. In 2006, the editors of ARCHITECTURAL RECORD magazine decided that we could help those who are charged with making decisions about the future of our schools do a better job by publishing some of the best school-design work in the United States. As a result of our decision, you are holding the third annual issue of SCHOOLS OF THE 21ST CENTURY. In previous editions we wrote about green schools, integrating IT into existing school buildings, and several programs put on by the American Architectural Foundation (AAF). This year's issue includes six more case studies, feature stories on schools for special-needs children, and school building additions. And, we have coverage of a special design charrette sponsored last year by the AAF and Target. This exciting program, called "The Voice of the Student Design Charrette," brought together four teams of architects and educators to put shape and form to student design ideas that have been collected by the Foundation over the past two years.

On April 3, 2009, please join us for the third annual SCHOOLS OF THE 21ST CENTURY design symposium. We'll have presentations—and great conversations—with some of the nation's leading experts on school design (along with continuing-education credits for architects). It will be collocated with the National School Boards Association's annual conference and, best of all, it is free of charge. Visit schoolsofthe21stcentury.com to register. We will offer attendees many answers, if not the "right" one.

Laura Viscusi, Publisher, and Charles Linn, FAIA, Editor

On April 3, 2009,
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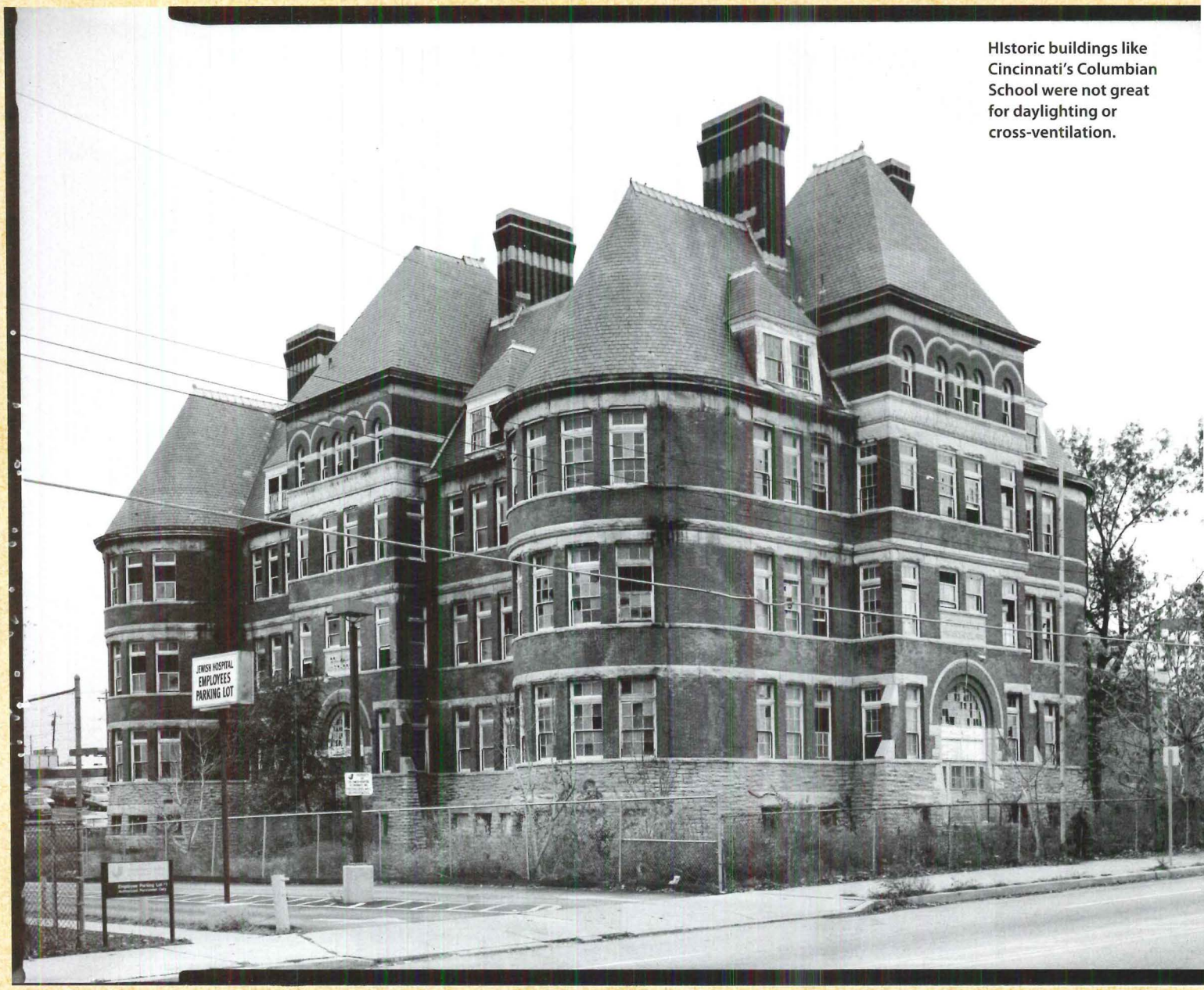
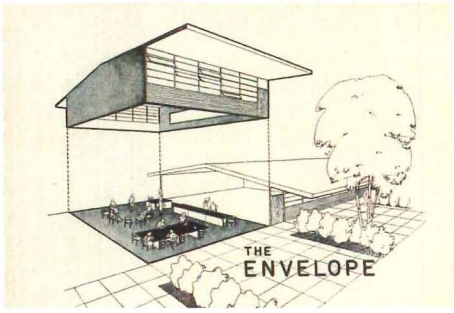


HIstoric buildings like Cincinnati's Columbian School were not great for daylighting or cross-ventilation.

History Lesson

Anyone concerned about greening schools can learn from William Caudill's 1954 book, *Toward Better School Design*. It extolled the virtues of daylighting and natural ventilation seeing a resurgence today.

BY CHARLES LINN, FAIA

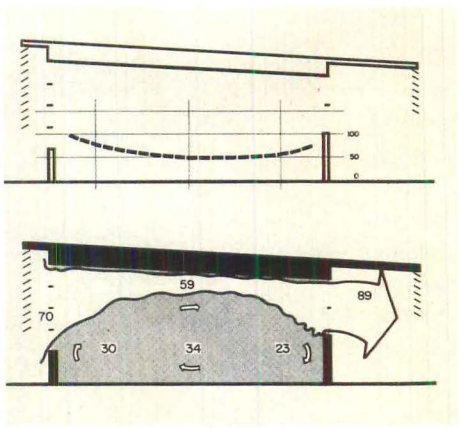


In 1954 the number of births of American children exceeded four million for the first time. This was just the beginning of the baby boom and the school construction explosion that would follow. The nation's need for schools was acute, and knowledge so scarce that ARCHITECTURAL RECORD devoted not one but two issues to the subject that year. We also published a wonderful book called *Toward Better School Design*. Its author was a gregarious Texan named William Caudill, who had been running a practice and doing research on school design at Texas A&M since the late 1940s. His firm, Caudill Rowlett Scott (CRS), was well on its way to becoming one of the largest architectural firms in the United States, in part because of its innovative approach to the planning, design, and construction of schools.

By 1950 architects all over the country had already abandoned the idea that schools must look like grand mansions for learning. This quaint notion was being swept away by one of the core tenets of Modern architecture—that function dictated form, and buildings could be stripped of ostentatious ornamentation without apology. Out went brick palaces, and in came flat-roofed schools with tall expanses of glass. This dovetailed nicely with the need to build quickly and cheaply on vast suburban greenfield sites.

Caudill organized his book into three parts: Education, Environment, and Economy. Many theories of child psychology and education were going mainstream at the time, and architects were eager to contribute to the theorizing. He spent a great many pages discussing ideas for making school buildings stimulate students and make learning interesting. He was well ahead of his time when he wrote, "In all grades provide nooks in classrooms for individual instruction and guidance." In recent years these ideas have been recast somewhat; now we say that such classrooms "accommodate different learning styles."

Most schools built prior to World War II had daylighting and natural ventilation in common with these new schools. But Caudill's research took these ideas much farther. His book showed how combinations of windows, overhangs, and skylights could provide generous amounts of daylight without adding more heat or creating glare on desks and chalkboards. Other diagrams showed ways in which strategically located windows and vents could allow classrooms to be naturally ventilated with cool breezes.



Back to the future
The influence of Caudill's book (drawing, upper left) could be seen in America's schools almost immediately (top). Many pages were devoted to daylighting and cross-ventilation diagrams.

"Mansions for learning" fell out of favor.

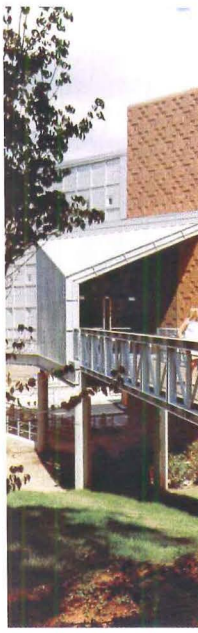
The benefits of daylighting and natural ventilation on the quality of classroom spaces seem to have been forgotten in the 1960s, perhaps due to the widespread introduction of air conditioning and fluorescent lighting in schools. Some school architects in this period even reduced their windows to vertical ribbons barely a foot wide, reasoning that views to the outside were distracting. Today, Caudill's ideas about daylighting and natural ventilation are experiencing a vigorous renaissance. The U.S. Green Building Council's LEED for Schools program, the American Society of Heating and Refrigeration Engineers' Advanced Energy Design Guide for K–12 School Buildings, and several publications put out by the Collaborative for High Performance Schools (the ASHRAE and CHPS documents can be downloaded free of charge from their Web sites) all utilize these concepts. Their energy conservation and indoor air quality benefits are indisputable, although some expertise is required to apply these principles without causing other problems.

Caudill's exploration of Economy, the means by which construction dollars could be made to go as far as possible, has never become irrelevant. McGraw-Hill Construction's Outlook Report, issued in October of 2008, noted that while the number of square feet of primary and middle schools constructed in 2008 was down only 2 percent over the prior year, the number of square feet built for high schools was up 13 percent. The years ahead will bring great challenges: The number of schoolchildren increases by about 300,000 each year, but unlike the mid-1950s, our economy is not booming. ■

Contrast and Context

School expansions are opportunities to teach students about different expressions of design.

BY DAVID SOKOL



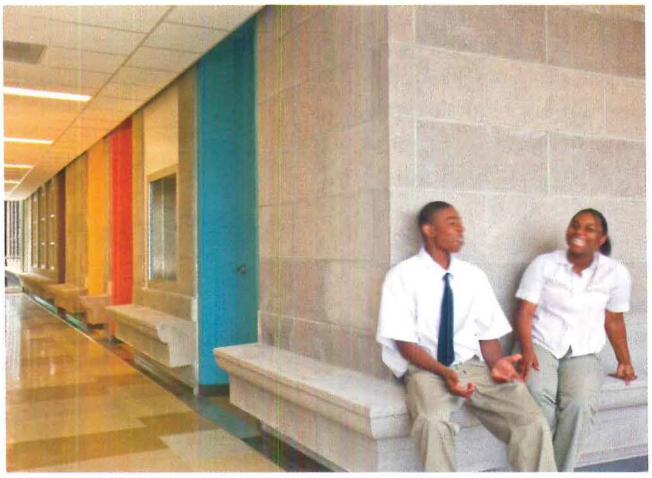
As America's cities go, so go its schools. With people streaming into cities, school districts from Los Angeles to New Haven are renovating and expanding their existing building stocks to serve the growing student base. These ambitious programs are also helping urban school districts shed reputations once predicated on crumbling environments and poor academic performance. "Traditional settings have failed some kids, especially in larger urban systems," says Trung Le, AIA, design director of the education group at OWP/P in Chicago. "Interestingly enough, these urban areas are pulling ahead of well-to-do suburban districts in experimenting with new teaching methodologies and new environments."

Thanks to a lack of large, vacant sites in many cities, urban projects require adding onto existing buildings, rather than starting from scratch. Not only are the results innovative pedagogically, but these expansions also spark an architectural dialogue with the urban fabric—and, perhaps, serve as an introduction to design for the next generation.

OWP/P's design for Chicago's charter facility Ralph Ellison High School serves as an object lesson in appending new to old. A glazed volume containing science and multimedia labs as well as administration workspace attaches to one side of a 1926 limestone building originally constructed as a Catholic elementary school. The old interior was renovated, too. The design team preserved such original features as wood-framed clerestory windows and added accents of bold color.

That color palette is echoed in the addition, although its distinguishing feature is its curtain wall in which an excerpt from Ellison's Invisible Man is etched in the glass. "The contrast was very conscious," Le says of the disparate exteriors, which are meant to symbolize Ellison's break from the African-American literary tradition begun by author Richard Wright. Le also calls the glass inscription a teaching tool, enticing students to read Ellison's novel.

Alice Kimm of Los Angeles's John Friedman Alice Kimm Architects also thinks of her studio's two-year-old Aragon Avenue Elementary School expansion project in Los Angeles as a medium for educating students. The $6.2 million Aragon expansion, comprising a 16-classroom building with freestanding kitchen and cafeteria spaces, pragmatically responded to site conditions. The original faux Spanish colonial offered little respite from the surrounding Cypress Park neighborhood, Kimm says, and so the new classroom structure now defines a central upper courtyard. The building provides contrast as much as resolution. Its stucco surface features giant blocks of paint whose colors evoke neighboring bungalow houses and the landscape, which give the illusion that the building has a much more complex, faceted geometry. "We like to set up a dialogue. It allows you to interpret the old and new in a more interesting way," Kimm says, adding, "The

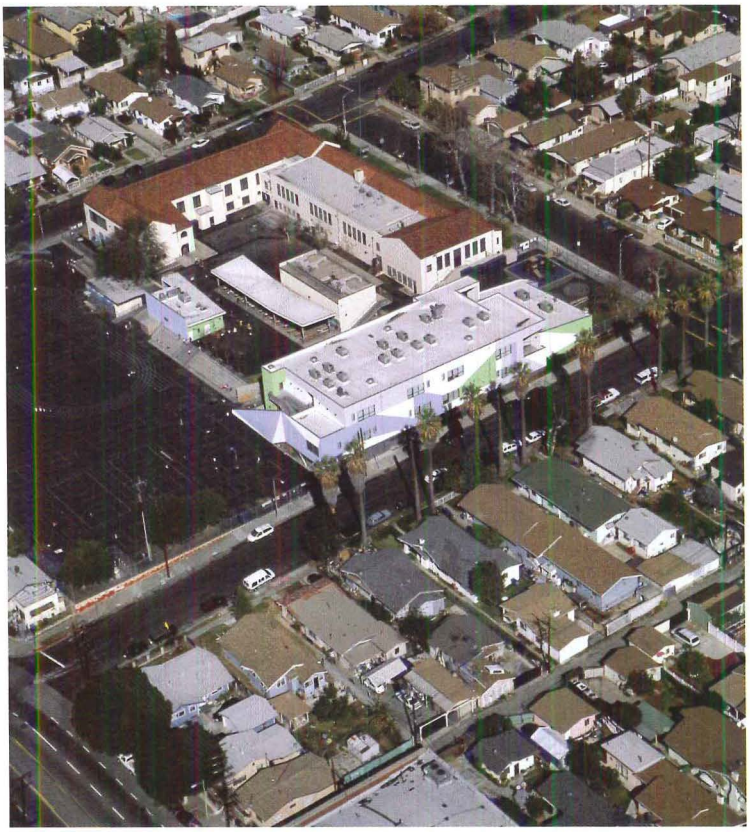


Ralph Ellison High School A glassy addition features an Ellison excerpt (right), while the historic building's interior got a colorful update (above).

"Dialogue allows you to interpret the old and new in a more interesting way."

PHOTOGRAPHY: © JAMES STEINKAMP (LEFT AND BOTTOM RIGHT); WAYNE SOVERNS, JR. (TOP TWO)

Beaver Country Day School
To house a new black box theater (left) at Beaver Country Day School, HMFH Architects created visual interest on its exterior by designing an intensely textured brick skin (far left), since windows were out of the question. It is surrounded by a new classroom wing that's more aesthetically similar to the original school building. The theater connects to that older building by a pedestrian bridge.



Aragon Avenue Elementary School John Friedman Alice Kimm Architects designed an inexpensive addition that wrestles the once-open site into a courtyard-campus configuration (left). Exterior paint creates the impression of a faceted facade (below).

arts are so underfunded in these schools that we wanted to give students a physical environment that could provide the inspiration they may not be getting in the classroom."

In Dallas, an addition to a school dedicated specifically to the arts still expresses the difference between old and new. The Portland, Oregon-based Allied Works Architecture won a 2001 competition to design a 170,000-square-foot expansion to Booker T. Washington High School's 1922 landmark building. Firm founder Brad Cloepfil, AIA, calls the new building "just an industrial space" reminiscent of the lofts where contemporary artists work. Cloepfil used a masonry structure to achieve some consistency with the 86-year-old building, and also opted to arrange the campus in a courtyard so students feel sheltered in the city's vibrant Arts District.

Despite his modesty, Cloepfil did design the expansion of Booker T. Washington to prompt a "visceral" response in students and visitors alike. The new building's brick is manganese-flashed to give it the appearance of igneous stone, standing out from the red brick of yesteryear. And the interwoven public spaces, such as the central courtyard and interior corridors

stacked to create an atrium, are configured to accommodate students' Fame-like bursts of energy. Cloepfil views the students as an element of this animated design, and as collaborators—he even proposes that students enliven the building with their own graffiti.

Despite this trend of urban-school additions in which architectural contrast trumps context, Kimm says that not all clients are willing to catch the wave. "Upper-level establishments," she says, "are fairly resistant to contemporary design. Tradition and its icons are harder to uproot."

In a sign suggesting that the phenomenon is emerging from nascence, some of those institutions are embracing Modernism. At the venerable Beaver Country Day School, in Brookline, Massachusetts, for example, HMFH Architects of nearby Cambridge, created a pearl within an oyster when it wrapped a new black box theater featuring an intensely textured brick pattern in a classroom wing whose exterior looks more like the original 1920s campus. "Because [the theater] is such a different and creative, creature we thought it should reflect that," HMFH principal Pip Lewis, AIA, says of the unique brick-clad structure. To be sure, circumstances may not always permit an expressive architectural response. But clients and designers are clearly recognizing an opportunity to elevate a common building type to an inspirational art form. ■

Booker T. Washington High School
Portland, Oregon-based Allied Works Architecture designed the expansion to Booker T. Washington High School in Dallas. The new building's brick exterior (above) complements the masonry of the 1922 building, although its fiery gray color is meant to convey the rawness of an industrial space. Inside (right), the daylit circulation core encourages students' impromptu performances.

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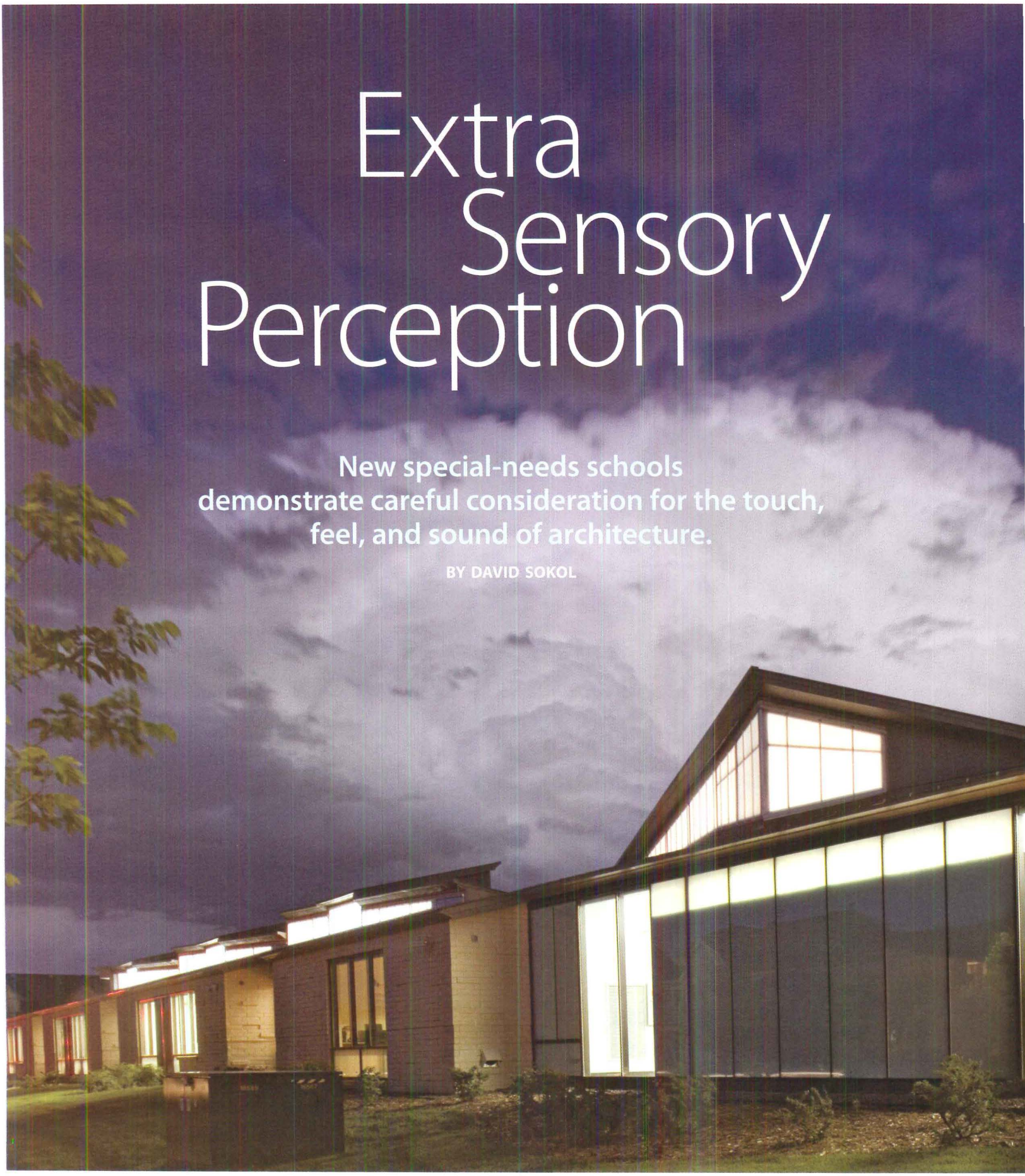
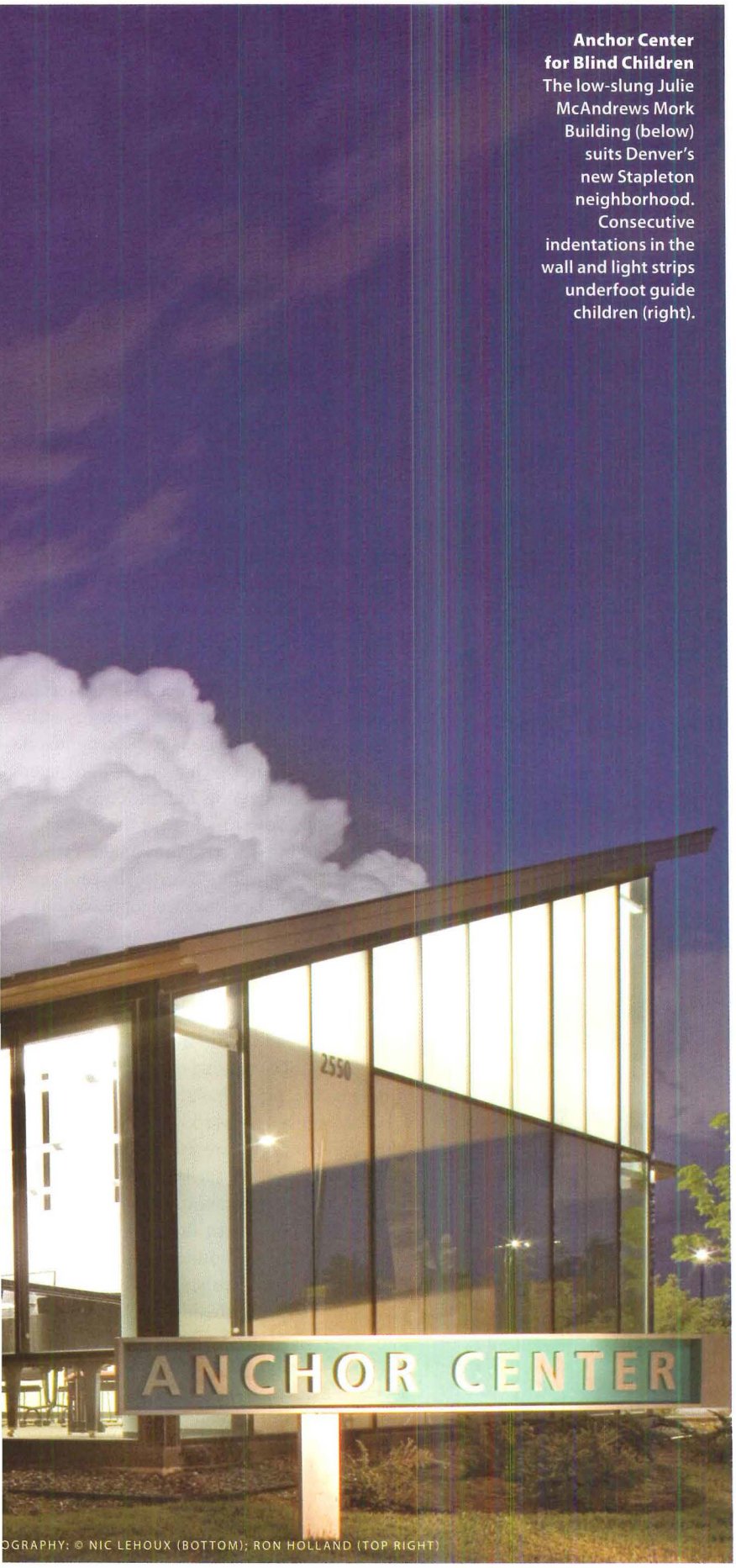
CIRCLE 11

Extra Sensory Perception

New special-needs schools demonstrate careful consideration for the touch, feel, and sound of architecture.

BY DAVID SOKOL





Anchor Center for Blind Children The low-slung Julie McAndrews Mork Building (below) suits Denver's new Stapleton neighborhood. Consecutive indentations in the wall and light strips underfoot guide children (right).

OGRAPHY: © NIC LEHOUX (BOTTOM); RON HOLLAND (TOP RIGHT)

We won the project through a competition, which was a complete surprise because we didn't have previous school experience," Alan Dunlop of Glasgow-based Gordon Murray + Alan Dunlop Architects says of Hazelwood School (featured on page 56). The year-old Glasgow facility serves a small group of children with dual sensory impairment and, Dunlop's inexperience notwithstanding, Hazelwood has racked up a series of accolades—a DesignShare Honor Award, the Civic Trust Award, placement on the World Architecture Awards shortlist, and the Andrew Doolan Award for the best building in Scotland. Tellingly, the juries of these prizes make their selections from a wide range of building types for diverse sets of users.

In other words, Hazelwood is an award winner not just for the ways it serves its unique student population. It exemplifies design excellence in general.

One could rightly assume, then, that there is very little to differentiate a carefully considered school for special-needs children from another well-designed work of education architecture. Yet, as a series of recently completed facilities for special-needs students demonstrates, designing for disability requires dedicating extra attention to the experiential aspects of architecture.

Though thousands of miles apart, Hazelwood and the Julie McAndrews Mork Building—part of the Anchor Center for Blind Children located in Denver's Stapleton neighborhood—have analogous features. At Hazelwood, for example, the central corridor boasts a so-called sensory wall which appears like unfurled origami. Students trace the folds of the

Hazelwood School
The Glasgow-based school teaches life skills to pupils between the ages of 2 and 9. The interior's "sensory wall" (left) as well as exterior material selections (above) provide cues for students as they move between activities.

wall and the channels in its cork-covered surface to guide themselves between destinations. The building's exterior materials are varied, too, so that children can navigate gardens.

The main hallway of the Mork building, by the local studio Davis Partnership Architects, is home to a cousin of Hazelwood's sensory wall. A generously scaled recess is embossed into one side—a kind of inverted handrail—and material changes at interior doors indicate one's arrival at a class, the eye exam room, or the sensory gym. An illuminated strip runs underneath and parallel to this "Trail Rail," since the youngest of Anchor's preschoolers may feel more comfortable crawling, and because many students, possessing limited sight, can perceive brightness.

The pair of schools deploys other wayfinding concepts. Children wielding canes may use echolocation as an additional guide through the hallways: The tapping of the cane produces different perceptions based on the volume of the space. Moreover, for Mork students who sense light levels, skylights are situated in the ceiling of the hallway "where the kids stop or turn to go into a classroom or other function spaces," says Davis managing partner Brit Probst, AIA.

Both design teams undertook empathetic research to determine these elements. Dunlop recalls hours spent listening to teachers and parents, while at the Anchor Center's old facility, Davis's architects outfitted themselves with special glasses that "help re-create the different kinds of sight impairments that are common in the blind population," explains Probst, who also notes that all other senses were heightened by the experience. "You begin to understand the importance of sound, or whether you were walking on a hard or soft surface."

Brewster Hall
The new building at the Governor Baxter School for the Deaf in Falmouth, Maine (above), deploys multiple strategies for infusing the interior spaces such as the library (right) with daylight without glare, thereby optimizing the environment for K–8 students who learn primarily by visual engagement.

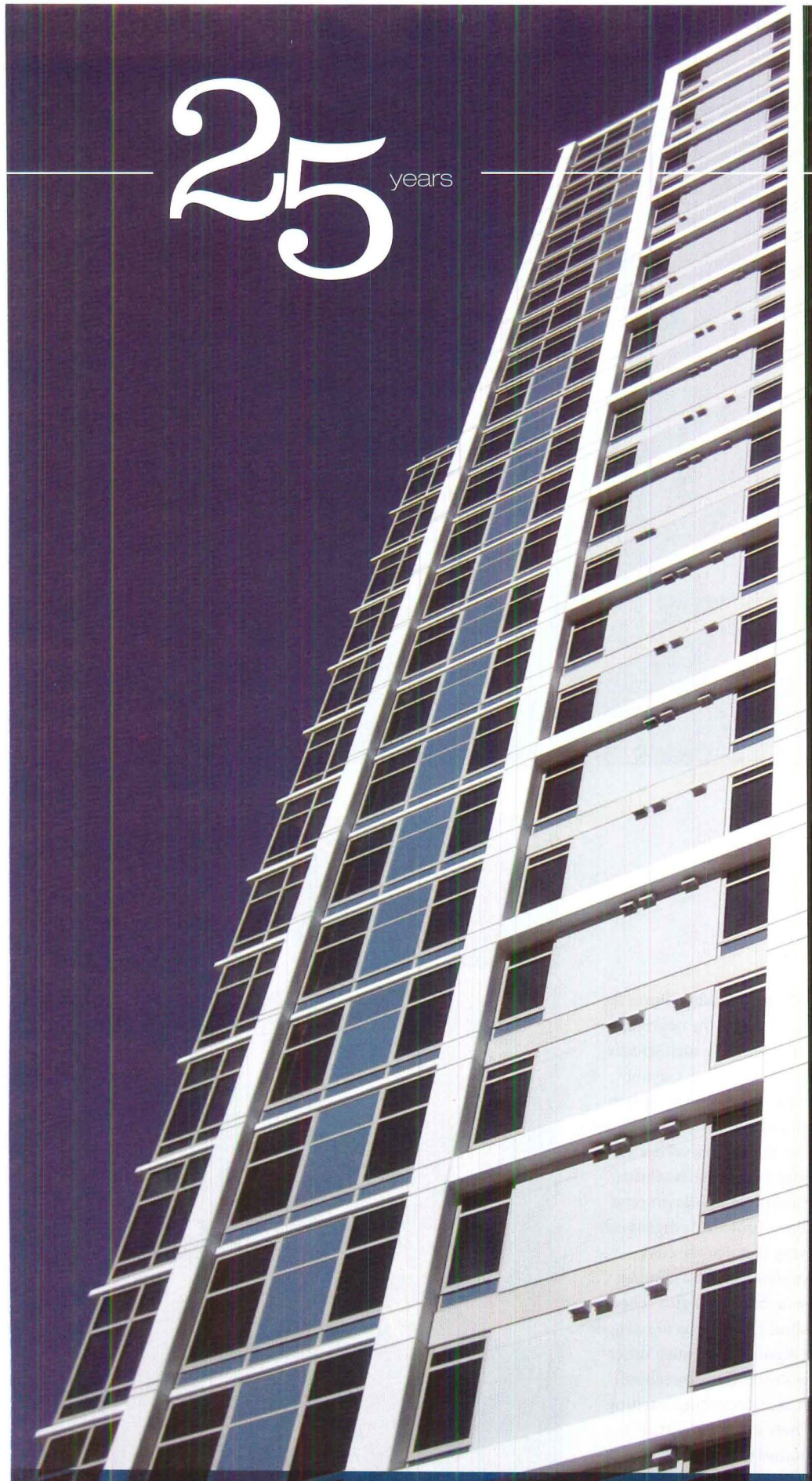
Stephen Gaynor School
Stephen Gaynor School shares its new multistory home on Manhattan's Upper West Side with the Ballet Hispanico. A muscular stairwell (left) connects the school's floors, providing students with a consistent wayfinding landmark. While the library (below) enjoys extensive glazing, classrooms feature clerestory windows to minimize distractions.

"You begin to understand the importance of sound, or whether you were walking on a hard or soft surface."

Paying special attention to compensatory senses also characterizes schools for special-needs students. At Brewster Hall, a new K–8 building at the Governor Baxter School for the Deaf in Falmouth, Maine, Portland-based architect Barba+Wheelock deftly balanced daylighting and lamp illumination. The resulting system of light shelves and roof monitors allows daylight into deep interior spaces like the library and minimizes glare in order to facilitate hearing-impaired students' reliance on visual information. (The design also reduces lighting and cooling demands, helping the building secure LEED Silver certification.) In a slightly different take on this principle, Mork's classrooms include tapered vertical surfaces, corrugated wall panels, and scalloped drywall to minimize noise distraction for students whose precise hearing counteracts lack of sight.

Regardless of where children lie on the spectrum of special needs, the new buildings serving them exemplify such sensitivity. Take Manhattan's Stephen Gaynor School, where high-functioning children cope with attention deficit, dyslexia, or low muscle tone: The Rogers Marvel design features a colorful central stairwell that expedites wayfinding; small classrooms' clerestory windows provide daylight without the distracting views of the city.

These tactics should sound familiar. So how does an architect design a school where a deaf, blind child learns to navigate the world with dignity? Not much differently from how she designs any school where students are conquering learning disabilities. "There's no reason that it couldn't be a mainstream school," Dunlop says of Hazelwood. Which suggests that what a student experiences in any school should be conceived so carefully. ■



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On any given school day, thousands of students across the country are unable to understand 25 to 30 percent of what's said in their classroom.

The reason: excessive noise and reverberation within the classroom interferes with their ability to clearly hear their teacher.

The result: a decreased level of concentration, an increased level of stress, and an overall reduction in the level of learning.

Considering that the primary mode of teaching involves speech and listening, is it any wonder that good speech intelligibility is required in classrooms?

Acoustic environment

The quality of the acoustic environment in a classroom is vital to all students because all need to understand the teacher, but it is of particular importance to students who have hearing impairments or learning disorders; to very young students with limited vocabularies; to students for whom English is a second language; and to students with a temporary hearing loss due to illness such as a head cold.

To help remedy problems caused by inadequate acoustic design, the American National Standards Institute (ANSI) approved ANSI Standard S12.60 for Classroom Acoustics.

Titled "Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools," the standard provides an enhanced learning environment for students and teachers alike by improving the conditions for good speech intelligibility.

ANSI Standard S12.60

ANSI Standard S12.60 addresses both the issues of reverberation time and of background noise as they affect speech intelligibility by setting maximum permissible levels on each.

Under the standard, the maximum acceptable reverberation time in unoccupied but furnished classrooms with volumes up to 10,000 cubic feet is 0.6 seconds, and 0.7 seconds for classrooms between 10,000 and 20,000 cubic feet. Reverberation time is the time required for sound reflections within a room, such as from a loud hand clap, to become inaudible.

The maximum acceptable background noise allowed in these classrooms is 35 decibels (dBA). By comparison, the loudness of a normal face-to-face conversation is about 60 dBA.

These acoustical performance requirements apply to the design and construction of new classrooms of small-to-moderate size, and, as far as is practical, to the renovation of existing classrooms.

At the present time, the ANSI standard is voluntary unless referenced by a code, ordinance or regulation. Individual school districts, for example, may require compliance with the standard as part of their construction documents for new schools.

New classrooms

ANSI Standard S12.60 is a performance specification in that it states desired results but not how to attain them. However, it does include a number of appendices that are prescriptive in nature, with specific design suggestions, including choice of materials.

Designing a classroom to meet the acoustical requirements of the standard is neither difficult nor costly. The key is to include acoustic concerns early in the planning and design stages. With this in mind, general guidelines are described below.

Reverberation time. For any given room, reverberation time decreases as additional sound absorptive materials are added in the space. Both the amount of sound absorptive materials and its location in the space are important considerations that affect the quality of sound within the room.

- For classrooms with ceiling heights of approximately 10 feet, place most, if not all, of the sound-absorbing material on the ceiling. This is usually the easiest and lowest cost solution. For best results, choose an acoustical ceiling panel that has a Noise Reduction Coefficient (NRC) rating of at least 0.70.
- For rooms with ceilings between 12 and 14 feet high, it may be advantageous to place some of the absorptive material on the walls as well as on the ceiling.
- For ceiling heights 15 feet or over, it is usually necessary to utilize wall absorption. Acoustical wall treatments usually consist of 3/4" to 1" thick mineral fiber or fiberglass backer board with a vinyl or fabric covering.
- If there is no possibility of acoustical wall treatment, try to ensure that three-dimensional furnishings such as bookshelves are distributed around the room to diffuse sound reflections, thereby reducing the possibility of echoes.

Carpeting may also help reduce reverberation, but not as much as a good acoustical ceiling because most commercial carpeting is generally a poor absorber (NRC of 0.25 or lower). However, carpeting can help reduce background noise caused by the sound of people walking, and desk and chair shuffling.

Figures #1 and #2 show the difference in sound paths in a classroom that is not acoustically treated compared to one that is.

Background Noise. There are many sources of background noise that may intrude into a room. How these are handled depends of the path the noise takes in entering the room. The primary contributors to background noise are described below.

Noise Traveling Through the Plenum. Some rooms are constructed with walls that are only as high as the suspended ceiling, rather than extending all the way up to the roof or floor deck above. As a result, noise from an adjacent room can

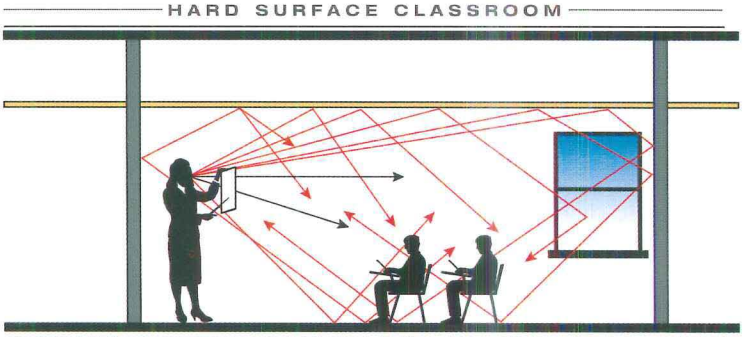


Figure 1: Black arrows represent direct sound with a clear path from teacher to student. Red arrows represent reflected sound. Note the many red arrows which indicate the longer, more indirect path taken to reach the student.

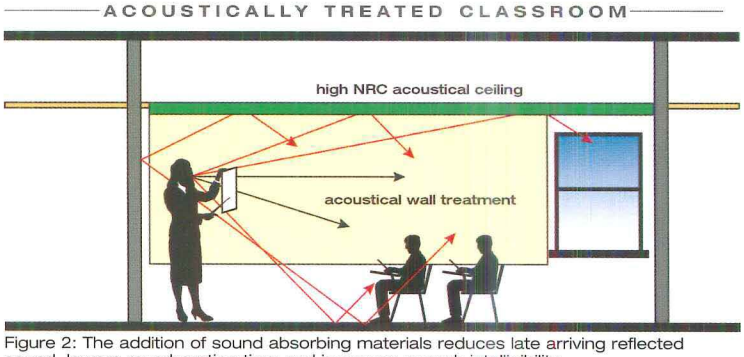


Figure 2: The addition of sound absorbing materials reduces late arriving reflected sound, lowers reverberation time and improves speech intelligibility.

penetrate the ceiling plane and move unimpeded throughout the ceiling plenum. Some portion of this plenum noise will pass back down through the ceiling into adjoining rooms, thereby adding to the background noise in each room. To help reduce plenum noise intrusion:

- Choose an acoustical ceiling panel that has a Ceiling Attenuation Class (CAC) rating of 35 or higher.
- Backload the suspended ceiling with R-11 fiberglass building insulation batts.
- Install a gypsum board plenum barrier between adjacent rooms, being sure to seal all penetrations such as pipes, ducts, cable runs, etc.

Noise Traveling Through the Walls. Years ago, interior school walls were built of brick or concrete block, so intrusion of sound through a partition wall was not much of a problem. Today, noise intrusion must be addressed because most walls are constructed using metal studs with a layer of gypsum wallboard on each side.

According to the ANSI standard, the minimum Sound Transmission Class (STC) rating of a wall separating two adjacent classrooms is 50. To achieve this rating and reduce noise transmission between rooms:

- Add R-11 fiberglass insulation in the cavity between the gypsum board layers.
- Add a second layer of gypsum board to each side.
- Seal all gaps between the walls and the floor and ceiling.
- Seal any openings in the wall such as piping, electrical outlets, and HVAC registers.

HVAC Noise. The main source of background noise in classrooms is usually the heating, ventilation and cooling (HVAC) system. A centralized system is usually much quieter than window or room units which usually contain high velocity fans that are very loud and difficult to treat with sound absorbing materials in the room. To help reduce HVAC noise:

- Locate air handlers and rooftop mechanical equipment away from critical listening spaces such as classrooms.
- Locate the equipment over spaces that are inherently noisy, such as corridors, cafeterias and gymnasiums.
- Position units over hallways and then run ducts to nearby classrooms.

Existing classrooms

A classroom designed without regard to good acoustics will often include a high ceiling of plaster or gypsum board; masonry or gypsum board walls; and a hardwood or tile floor.

Unfortunately, numerous classrooms fitting this description were built in the days before sensitivity to acoustical needs. In such a classroom, long reverberation times tend to destroy speech intelligibility, especially for younger children.

Acoustical problems in existing classrooms can be solved, but the options are often limited. This is because little can be done to change the architectural infrastructure or HVAC system without great expense. Consequently, the most common and affordable solution is to control reverberation through the addition of sound absorptive materials. To improve the acoustical environment of an existing classroom:

- Install a suspended acoustical ceiling in a classroom that does not have one.
- If an acoustical ceiling is already in the room, replace panels that have a low NRC (0.50 or lower) with panels that have a higher NRC (0.70 or higher).
- Add acoustical wall treatments and "space absorbers" (baffles).
- Add carpeting.
- Seal as many openings in the common walls as possible.
- Add a second pane of glass with an air gap to the windows, if possible, to help block exterior noise.
- Install vibration isolators under HVAC equipment, and silencers in the ductwork.

Solutions such as these do not add significantly to the construction cost of a new building. It is when they are included as part of a retrofit that additive costs usually apply.

Quiet classrooms

The need for good classroom acoustics and the methods for attaining them have been known for decades. However, in the absence of a standard, far too many schools have been built with little or no concern for good hearing.

The establishment of ANSI S12.60 fills that void by providing clear design goals for both school planners and administrators. It also raises awareness of the learning problems associated with poor acoustics and, hopefully, eventually eliminates design problems from being repeated as new schools are built.

Resources

The information on classroom acoustics and ANSI Standard S12.60 has been provided by Armstrong Ceiling Systems. There are additional resources available to you to meet your needs. They include:

- Classroom Acoustics CEU course at armstrong.com/ceu
- Online Reverberation Tool at armstrong.com/schools
- Reverberation Calculations through TechLine™ at 1-877-ARMSTRONG
- Reverberation Calculation Form at armstrong.com/schools
- "Classroom Acoustics, a resource for creating learning environments with desirable listening conditions;" Acoustical Society of America, asa@aip.org
- Your Armstrong Ceiling Systems representative at 1-877-ARMSTRONG

Case Study

An evaluation conducted by Dr. Kenneth Roy, senior principal research scientist for Armstrong Building Products, demonstrates the difference a high performance acoustical ceiling can make in a classroom renovation.

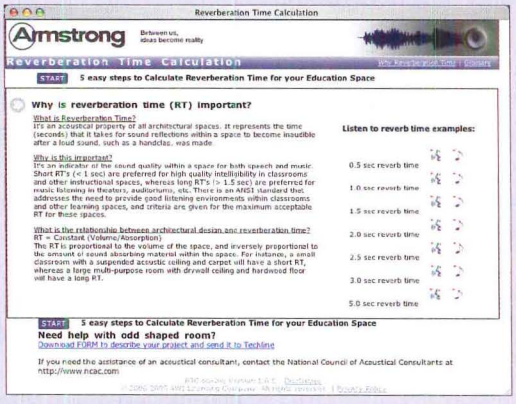
The acoustic test took place in a sixth grade classroom at the Robert E. Lamberton Public School in Philadelphia, PA. Built in 1949, the 24'x44'x11' classroom had a spray-applied 1/2" fiber-on-plaster ceiling, concrete block walls, and a vinyl tile floor. The NRC of the existing ceiling was estimated to be approximately 0.25.

The reverberation time in the existing room was 1.1 seconds averaged over the frequency range specified by ANSI S12.60, far exceeding the maximum acceptable reverberation time of 0.6 seconds.

An Armstrong School Zone™ Fine Fissured suspended ceiling with an NRC of 0.70 was then installed. This ceiling is designed specifically for educational facilities and features more uniform sound absorption than most conventional ceiling panels commonly used in these applications. Following the change in ceilings, measurements were re-taken and the average reverberation time was now 0.56 seconds, within the acceptable limit.

Reverberation Calculator

To help demonstrate the beneficial effect of acoustical treatment in a classroom, Armstrong Ceilings has developed a web-based, interactive Reverberation Calculator that allows users to hear the difference in sound quality both before and after treatment. It will even provide recommendations for a new space or an upgrade to an existing space.



To access the calculator, simply log on to armstrong.com/schools and follow the prompts regarding a description of the space and its surface materials. The program will first calculate the current reverberation time and allow users to hear the quality of the sound. Following selection of acoustical treatment options, the program will then allow users to hear the difference in sound quality with lowered reverberation time.

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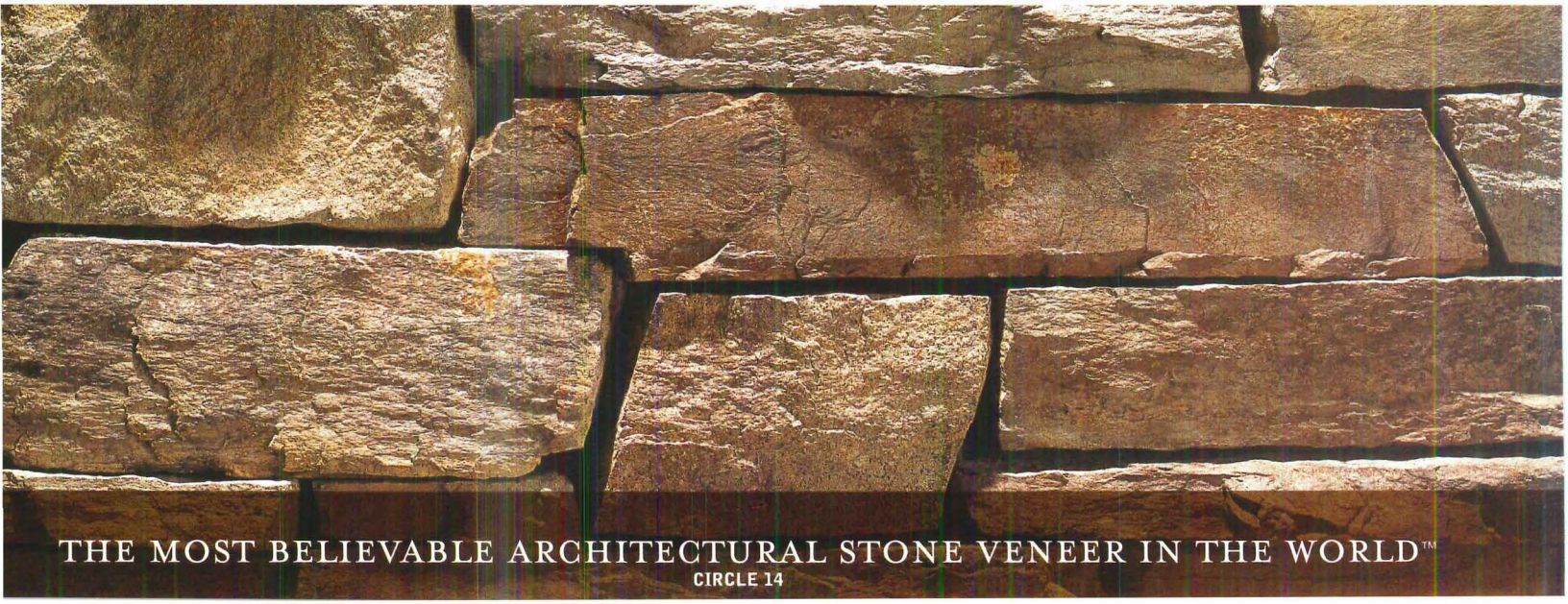

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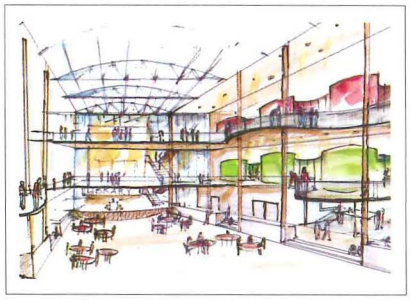
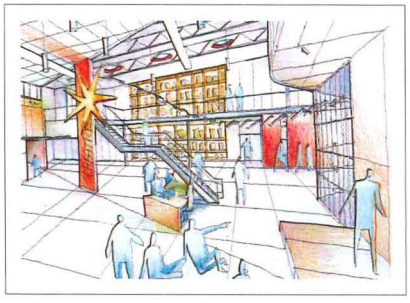
CIRCLE 14

34 Connection to the Outdoors

36 Nontraditional Schools



39 Spaces for Social Learning



41 Physical and Emotional Comfort

Now Hear This

Architects and educators interpret design ideas submitted by students across the U.S.

BY CHARLES LINN, FAIA

When conversations turn to what schools should be like, ironically the unfiltered, uncensored voice of the student often goes unheard. In fact, says Ron Bogle, president and CEO of the American Architectural Foundation (AAF), "In the history of our nation, there has never been any serious research into what kids themselves say they really want in their schools."

The gathering of the raw material that could fuel that research was part of the purpose of last year's "Redesign Your School" competition sponsored by the AAF and Target. Five thousand students registered for the competition, and 250 entries were completed. Bogle says, "We quickly realized that although many of the students were not sophisticated in the way that they expressed their ideas graphically, the written essays they submitted were quite rich in ideas." Story Bellows, the director of research for the architecture firm OWP/P, has been studying the entries for the AAF. She said at a recent AAF conference, "Some unexpected themes popped out. Some of these were: connection to the outdoors; safety and security; the shape of a learning unit; feelings and emotions. These things were not inherent in the entry materials they were given."

Here are some others. Students want their school's spaces to be connected to the outdoors and the community. They want them to be refuges of emotional safety and security. They'd like alternative kinds of learning spaces that take advantage of multimedia offerings and accommodate many different learning styles. And, they want their schools to provide fun places for relaxation and socializing.

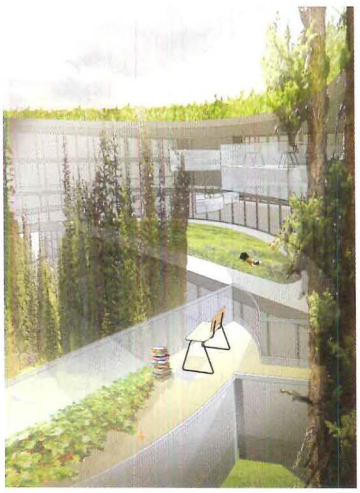
"One of the objectives of looking at the entries is to find ways of reinterpreting them into more practical, more direct useful ideas, that could be built in communities today," says Bogle. And to do that, last September the AAF convened a gathering of architects, architecture students, and educators. The groups worked for 24 hours to conceptualize new kinds of environments for schools. On the following pages you will see some of the ideas they came up with. ■

Connection to Outdoors

"If students are taught in a box, they will always think in a box. I am reminded of Galileo, who always taught his students outside."

ONE OF THE THEMES THAT CAME UP REPEATEDLY IN THE STUDENT DESIGN competition essays is their desire for schools to do a better job of connecting with the outdoors. We were struck by how intimate that connection was for many of them: Nature was seen as a nonjudgmental, personal friend—something they can relate to in a safe way. Schools connected to nature are refuges: calm, stimulating, but invigorating

We also saw that students want to use the school complex to connect to the community and the larger world. We decided to expand on the connection to the outdoors theme, and to develop a hypothetical school that would illustrate several additional ideas. The village green is the heart of the school. This large outdoor gathering space welcomes the students and community by functioning as the entrance to the campus, and the traffic drop-off loop. It could be multifunctional and accommodate, for example, a farmer's market on weekends. The school itself comprises a series of small learning communities, or "habitats" organized around the village green. The kindergarten-through eighth grade habitats would be located on one side of the green, and the high school opposite it. Shared facilities, such as a performing arts building and library would close the gap at one end. We also envisioned adding a preschool and a senior citizen center, so the learning campus could embody cycles of life, continuous learning, and transitions from one generation to another. Finally, it would also be ideal if the school could reclaim a brownfield or take advantage of an underutilized site, and in this way might stimulate the revitalization of a neighborhood. ■



Students think of school as a refuge, so the team provided calm outdoor spaces (above). Like the small learning academy (right), buildings in the complex utilize sustainable elements such as photovoltaics, rainwater collection, and green roofs.

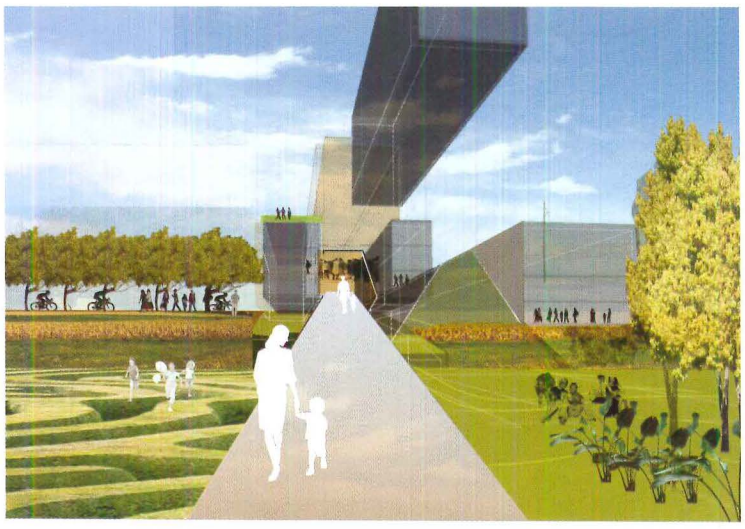
Above, the school is organized around a village green, with kindergarten through eighth grade learning academies on one side and a high school on the other, joined at one end by shared facilities like an auditorium. Below right, the team felt it would be ideal if their school could reclaim a brownfield. This would possibly help stimulate revitalization of the surrounding neighborhood. Team members from left: David Lee, FAIA, Stull and Lee; Kas Kinkead, Cascade Design Collaborative; Helen Avery, Howard University; Steve Turckes, AIA, Perkins + Will.

Nontraditional Schools

"No one wants to learn in sterile institutional spaces. Give us beauty, real life projects, choice, opportunity and ownership, and we'll show you what we can do."

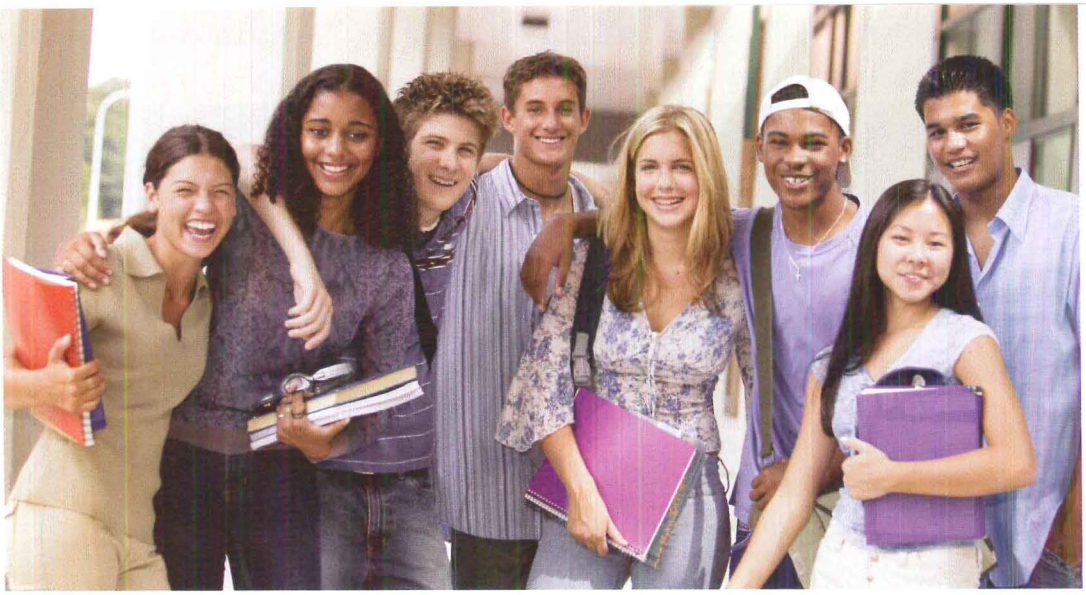
STUDENTS WHO PARTICIPATED IN THE "REDESIGN YOUR SCHOOL" COMPETITION had the opportunity to wipe the slate clean and start over from scratch. And, in an iPod-obsessed culture, we expected most would simply junk the traditional school building structure in favor of computer-based virtual learning that could take place anywhere.

This was true, but only to a limited extent. We were surprised to learn that few students wanted to give up interacting with their peers or learning from teachers; most wanted more opportunities for engagement. In fact, in our analysis of the student essays, we saw that there is a perception among the students that many traditional school spaces do not provide adequate opportunities for the informal exchange of ideas and chance encounters between students and teachers. We responded by creating "nexus points" that act as living room, library, cafeteria, gallery and performance space. The students' visions of nontraditional school design also incorporate many landscape elements that allow learning to be extended outside the classroom and into the environment and community. Spaces that have multiple uses and possibilities were also embraced by these young designers—who see themselves as busy learners who want to use the time they spend moving from space to space to accomplish both their assigned and their self-imposed learning goals. To that end, buildings could function as didactic tools. Why, asked one, couldn't a hallway be shaped like strands of DNA? We agree with the students that the traditional grid of desks does not take advantage of the many wireless and multimedia tools available to teachers and students today, but we believe the traditional components of the school environment can be updated while preserving the valuable traditions of teaching and learning. ■



Students' vision of nontraditional school design (above) uses the landscape to extend learning outdoors. One student's idea that a hallway could be shaped like a strand of DNA (right) converges with another's concept of buildings that can be made into didactic tools.

Nexus points allow all sorts of interaction and activities (above). Classrooms (right) make use of the latest technology. Team members from left: Darrell Puffer, AIA, SOM; Beth Hebert, Crow Island School (retired); Lisa LaCharité-Lostritto, University of Maryland; Don Carlson, FAIA, Mithun Architects.



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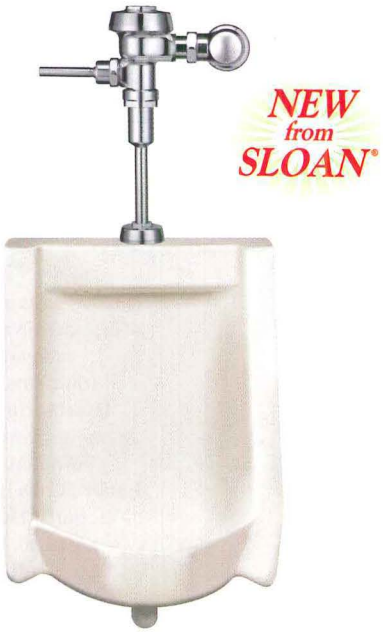

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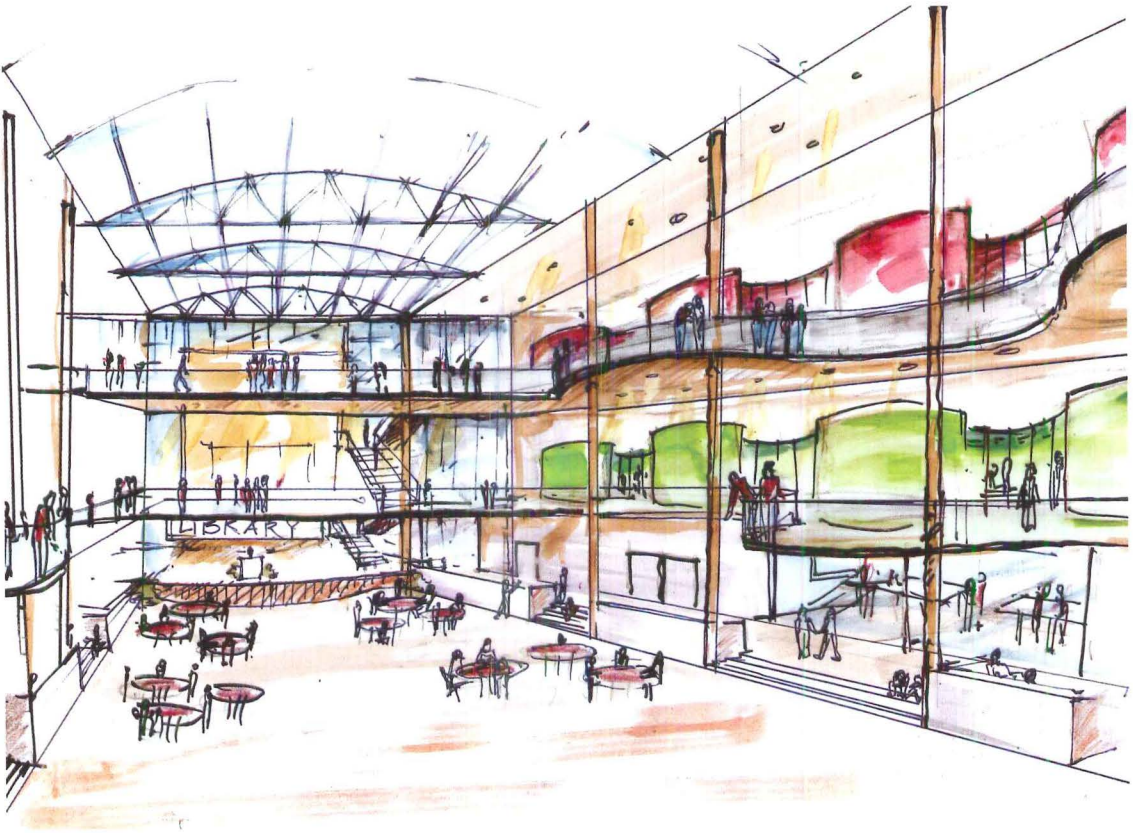
CIRCLE 16



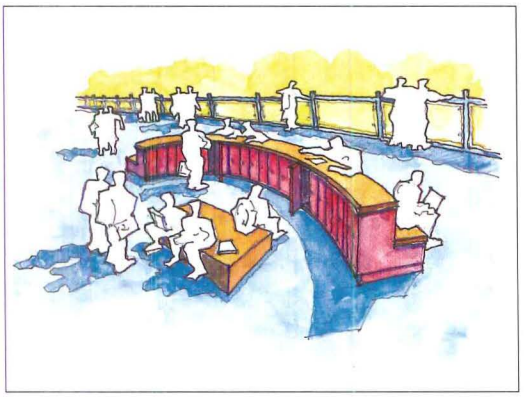
VOICE OF THE STUDENT DESIGN CHARRETTE

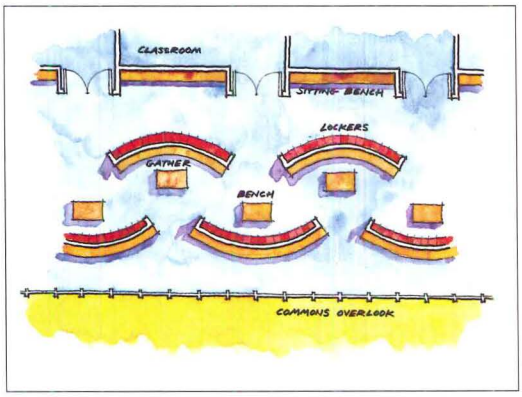
"I like spaces where there is lots going on, but sometimes I just need a quiet place to study and hang out with my friends."

Spaces for Social Learning

WE BEGAN BY ESTABLISHING PRINCIPLES THAT CAN GUIDE ANY KIND OF enlightened school design. One is that the built environment facilitates discovery through active participation. Another is that growth occurs when students are allowed personal responsibility. Finally, opportunities for one-on-one interaction foster social awareness of other cultures' perspectives and ideas. We confined our discussions and design concepts to finding ways to encourage the kind of learning that occurs when students are socializing with each other informally. We already knew that multi-story atria found in shopping malls are successful in attracting kids and encouraging interaction. This idea is as old as the Greek agora. And yet, the controlled chaos and excitement of centralized spaces is not conducive to the social learning of all types of students. We designed arc-shaped seating pods built around lockers, which are, in most schools, the only form of personal space, where students can gather for peer-to-peer and small group study. To maintain the connection to the atrium, we substituted balconies for typical double-loaded corridors in the levels above the main floor. Schools should provide a flexible framework that allows students the freedom to achieve common educational goals in individual ways. Providing spaces—large and small—for groups gives them the freedom they need to develop personal responsibility skills. ■

Team from left: Cliff Hardison, Thomas Jefferson High School; Ruth Coates, AIA, Miller Hull Partnership; Liselle Coker, Howard University; Kerry Leonard, AIA, OWP/P.





A central atrium (top) offers a big space where students can gather to eat, play games, or watch a performance. Seating and workspaces at lockers (lower left and right) provide more-intimate places to socialize and study.

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CIRCLE 17

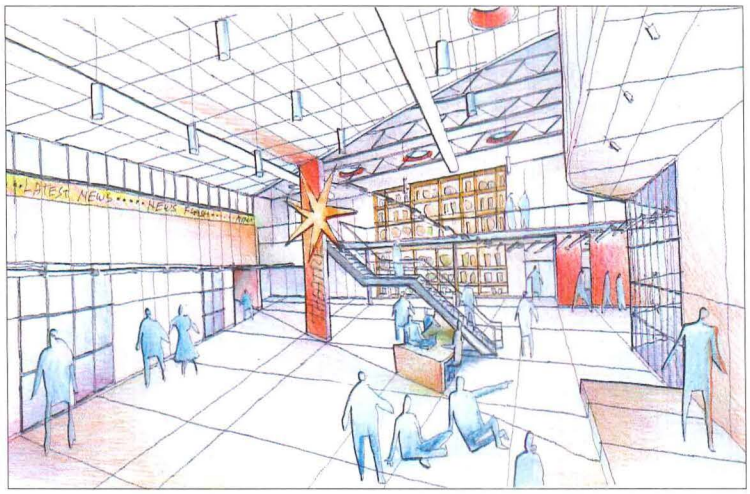
Physical and Emotional Comfort

THINKING ABOUT PHYSICAL AND EMOTIONAL COMFORT AS A COMPONENT of learning provided us with a wonderful lens for considering how to manipulate the qualities of space in schools and to maximize their effectiveness as places to learn. We found that the student entries provided a range of places that were stimulating, inviting, exciting, often highly personal, but fostered both creativity and academic rigor.

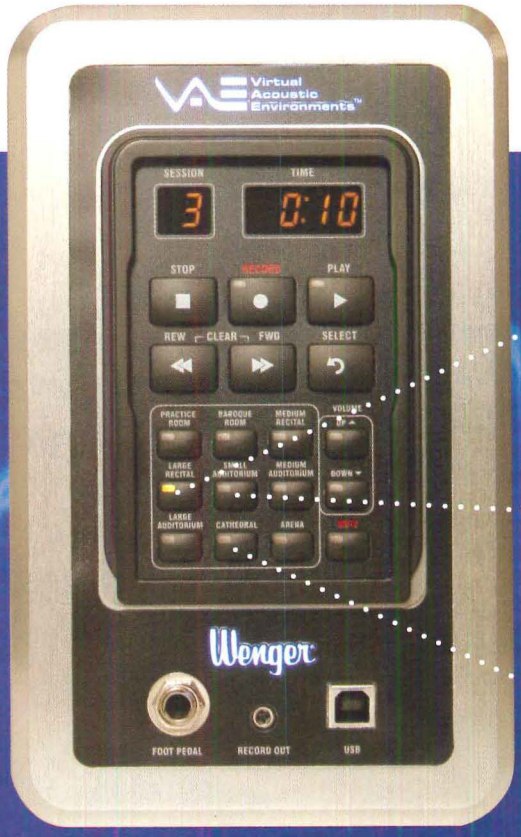
"I learn best in classrooms with comfortable seating, large windows, and colorful surroundings."

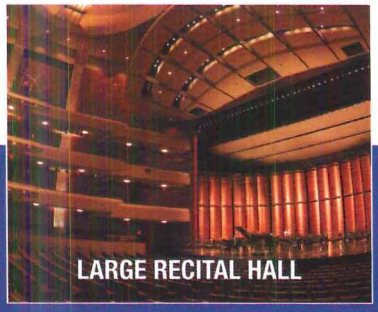
We also noted that the students say that transition, study, and gathering spaces have become more important as places to learn, so we explored how variables like lighting, acoustics, size, and shape can be enhanced to help us design supportive, and ultimately, more "comfortable" space. A few themes emerged. We know students want to feel safe and secure within the learning environment, and several things help accomplish that: provide a clear and controlled school entrance, roomy corridors, and clear visual connections throughout the building. We found a strong school identity can also help students feel connected to their community and ease isolation they may feel. This can be achieved by introducing landmarks and thematic motifs throughout a building. Finally, we learned that flexibility within study and gathering spaces is paramount. While one student might need a quiet, isolated place for individual study, the same student might find comfort in a project-based learning space that is loud and stimulating. Giving students a greater sense of control over their space may also contribute to giving a them sense of comfort. This means making schools less institutional: provide more open space, plenty of areas where student work can be displayed, and individual study areas that students can personalize by being able to move partitions and furniture. ■

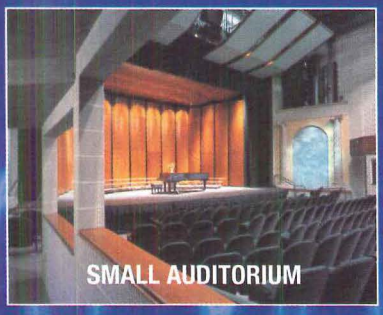
Team members from left: Graham Stroh, American Architectural Foundation; Laura Wernick, AIA, HMFH Architects; Beret Dickson, University of Maryland; Carol Ross Barney, FAIA, Ross Barney Architects. Transition and gathering spaces (below left) using thematic motifs enhancing school identity help break down the isolation kids can feel. Flexibility is important in study spaces (below right) to accommodate a multitude of learning styles and project types.

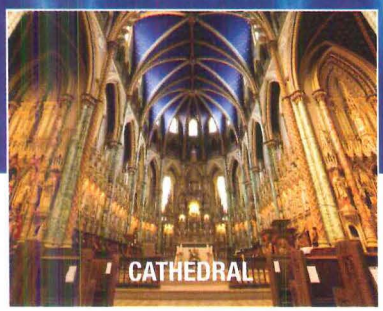


MUSIC EDUCATION JUST GOT **A WHOLE LOT SMARTER**









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CIRCLE 18

Teaching by Example

Project teams for six schools tackle diverse design problems, creating high-performing buildings for high-performing students.

BY JOANN GONCHAR, AIA

Schools, like other buildings, are the outcome of innumerable and complex factors, such as the demands of clients and occupants, the particulars of site and climate, and practical concerns like budgets and codes. And the six schools on the pages that follow are no exception: They are each the unique product of fulfilling the needs of the students and educators they house, their institutions' curricula and philosophies, and their surroundings.

For example, the design concept behind a magnet school for the performing arts in Trumbull, Connecticut, was born of the need for acoustic separation between classrooms and the desire for a shared space where students could socialize and work together informally. And the scheme for a school for deaf and blind children in Glasgow, Scotland, is a response to its setting among massive beech trees in a city park. The resulting serpentine plan allowed for a curvilinear inner street that serves both as the connection between programmatic elements and as a wayfinding device.

Some of the schools featured here have dramatic settings, like a middle school in Aspen, organized to make the most of spectacular views of the Colorado Rockies, or a performing arts center on the campus of an international school in Shanghai, with a rooftop terrace that looks out over the city's dynamic skyline.

Designers for a few of these schools were motivated by a desire to foster a sense of community within large institutions. One of these is at the edge of Phoenix, where architects created a mini-college campus, dividing the 2,000-student facility into more intimate learning environments and multiple buildings. Architects for an elementary and middle school in the Bavaria region of Germany took a similar approach by breaking up the single "megastructure" originally called for in a master plan into three bar-shaped structures. That arrangement provides children of each age group with a building they can call their own.

Despite the diversity displayed in these case studies, the six buildings share, to a greater or lesser extent, a commitment to sustainability. All the schools included here strive to maximize the use of daylighting, and most include other resource-conserving strategies, like radiant heating and cooling, well-designed exterior envelopes, and natural ventilation. Such features are not only earth-friendly, but occupant-friendly as well. They help create environments that are comfortable and conducive to teaching and learning. In short, sustainability is not only a strategy for better-performing buildings, but one for better-performing students as well. ■

Making Connections

Despite space and budget constraints, Concordia International School Shanghai embraces a community feeling.

BY JAMES MURDOCK

CREDITS

OWNER: Concordia International School Shanghai

ARCHITECT: Perkins Eastman—*Ron Vitale, AIA, principal-in-charge; Pam Loeffelman, FAIA, Aaron Schwarz, FAIA, design principals; Mark Markiewicz, AIA, John Neary, AIA, John Dias, Paul Chen, Mary Ye, design team*

CONSULTANTS: Edwards & Zuck *(MEP and fire protection)*; Theatre Projects *(lighting)*; Jaffe Holden *(acoustical)*; The PAC Group *(project management)*; Shanghai Yangzijiang *(general contractor)*

SOURCES

EXTERIOR MASONRY: YTong

EXTERIOR METAL: Shanghai Huayuan New Composite

ROOFING: Beijing Kalairuiyu Waterproofing Materials

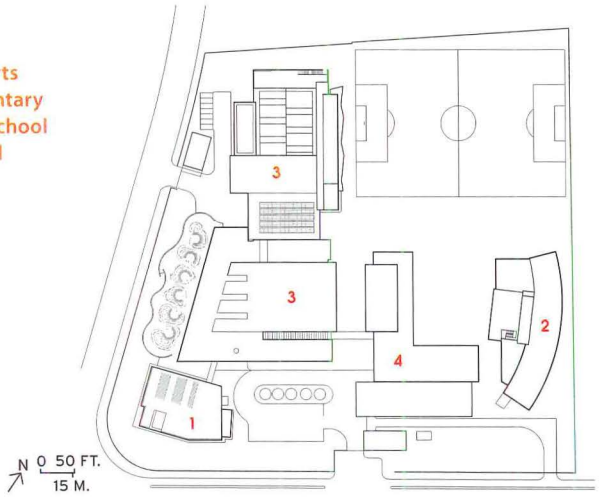
GLAZING: Pilkington

Only in China, perhaps, is it possible for a private academy serving grades pre-kindergarten through 12 to construct an innovative 64,600-square-foot elementary school and a richly appointed 24,000-square-foot performing arts center in 18 months and for a scant $15 million.

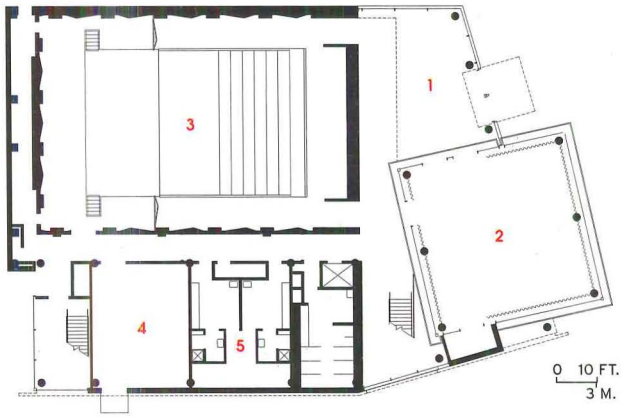
The Concordia International School Shanghai opened these facilities, in 2007, as the first phase of a new campus master plan designed by the New York City-based firm Perkins Eastman. China's inexpensive labor pool helped the school maximize its construction budget, but the design still underwent value engineering to cut costs. During this process a different sense of the word "value" guided Concordia: what Louise Schini Weber, a cofounder and principal of the elementary school, describes as a commitment to nurturing "cooperation and collaboration."

Indeed, administrators refused to skimp on a performing arts center. Located in the southwest corner of the 10-acre campus, the trapezoidal-building connects to the high school to the east via a skybridge. Movable platforms and seating, as well as variable acoustics, enable its main volume to function as a 400-seat recital hall as well as a 335- or 300-seat thrust-stage theater. A rooftop studio opens onto a terrace for art classes whose aluminum-slatted canopy echoes the look of aluminum sunscreens throughout the campus's south- and west-facing elevations.

"The terrace would have never survived the typical value engineering process in the U.S.," observes Ron Vitale, AIA, managing principal of Perkins Eastman's



Site Plan
1 Performing arts center **2** Elementary school **3** High school **4** Middle school



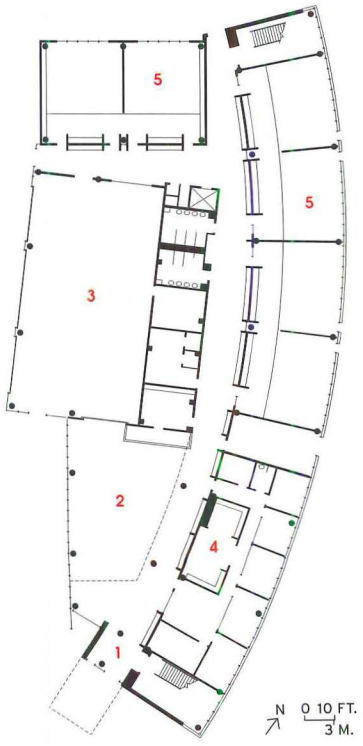
Performing Arts Center, First Floor Plan
1 Lobby **2** Band room **3** Black box theater **4** Scene shop **5** Dressing room

Concordia's expansion included construction of a new performing arts center, which contains a 400-seat recital hall.

Shanghai office. "But the school's board decided it was as important a space for teachers and students as it was for the community."

Concordia's commitment to community building is manifested strongly in the design of the elementary school, a D-shaped structure located at the campus's southeast corner, opposite the performing arts center. The first and second grades, as well as the third and fourth grades, occupy the four-story building's top floors in "paired" classrooms separated only by a partial wall. "In a classroom with four walls and a door, other teachers don't know what you're doing," Weber explains, "but in a paired classroom, collaboration is unavoidable."

There's another, prosaic reason the elementary school feels so intimate. Wetlands surrounded Concordia when it opened in 1998. But just as enrollment grew from 22 students to more than 1,000—nearly three-quarters of whom are the children of U.S. and Canadian citizens—foreign business executives moved to the vicinity and the swampland was developed into a residential enclave. Only half the 20 acres that Concordia initially wanted were still available when it began



Elementary School, First Floor Plan

1 Entrance **2** Commons
3 Motor skills **4** Administration
5 Classroom

CREDITS

OWNER: Cooperative Educational Services

ARCHITECT: JCJ Architecture—*James E. LaPosta, Jr., AIA, principal-in-charge; Gregory J. Smolley, AIA, project manager; Peter Rader, AIA, design team leader; Julie Norris, interior designer; Ronald N. Paolillo, Assoc. AIA, senior designer*

CONSULTANTS: CES *(MEP & fire protection);* Michael Horton Associates *(structural);* Stantec *(civil);* Fisher Dachs Associates *(theatrical);* LaRosa Building Group *(general contractor)*

SOURCES

CURTAIN WALL: Vistawall

WINDOWS: Peerless Products

UPSWINGING DOORS: Marshfield

Creative Community

A high school for the performing arts makes the most of students' energy without taming their spirits.

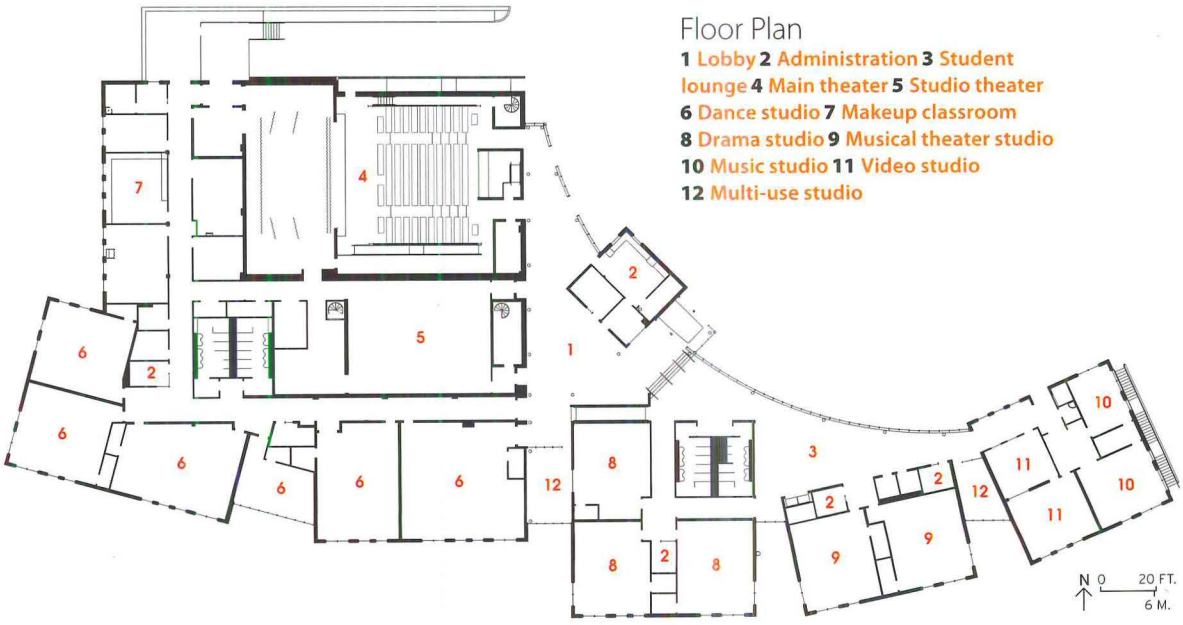
BY SEBASTIAN HOWARD

The Regional Center for the Arts (RCA) is a magnet high school in Trumbull, Connecticut. Most of its faculty commutes from nearby New York City, and 250 students from 15 districts attend the school part-time, in the afternoon. In RCA's new facility, JCJ Architecture made sense of what can be—and has been—a frenetic environment.

Connecticut has no county governments, so state-funded organizations like Cooperative Education Services (CES) have been created to raise the standard of public education. Dianne Wheeler, principal of RCA and a CES coordinator, explains that CES is "charged with bringing cutting-edge technology and school-based academics to our district." RCA is the most recent of four schools the group has built since its inception more than 40 years ago, and it is the only performing arts school in southwest Connecticut. Construction of the 47,700-square-foot, $16 million facility, which opened in November 2007, was funded entirely by the state.

The school has shuffled through several buildings since its 1998 founding. Until RCA moved into its new home, classes were held in a repurposed warehouse. To save money for the construction of its new facility, RCA partitioned the warehouse with half-walls.

It would have been a challenging situation for any organization, but in a performing arts school it was



Floor Plan

1 Lobby **2** Administration **3** Student lounge **4** Main theater **5** Studio theater **6** Dance studio **7** Makeup classroom **8** Drama studio **9** Musical theater studio **10** Music studio **11** Video studio **12** Multi-use studio

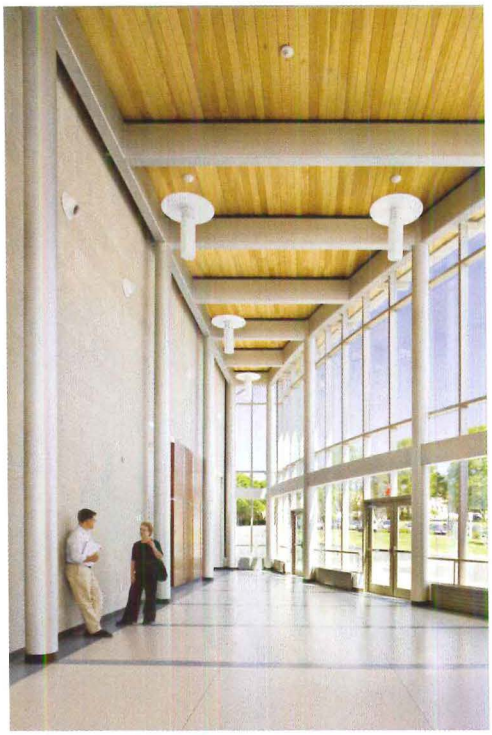
sheer bedlam. For the three years they spent in that building, students had trouble concentrating. "The musical theater department had to drown out the band, which had to drown out the dance music and the acting department," Wheeler says. JCJ design director James LaPosta, AIA, remembers, "It was like a maze."

The school's leadership invited JCJ to spend time on-site with students and faculty to learn what it would take for programs to succeed. LaPosta's team ended up shadowing Wheeler for several days, interviewing teachers, and spending time in classes.

Perhaps not so surprisingly, the process revealed that acoustic separation was a top priority for RCA. In response, the design team

The articulated southern elevation of the Regional Center for the Arts reflects the pod scheme of its interior, and complements surrounding houses.

PHOTOGRAPHY: © ROBERT BENSON



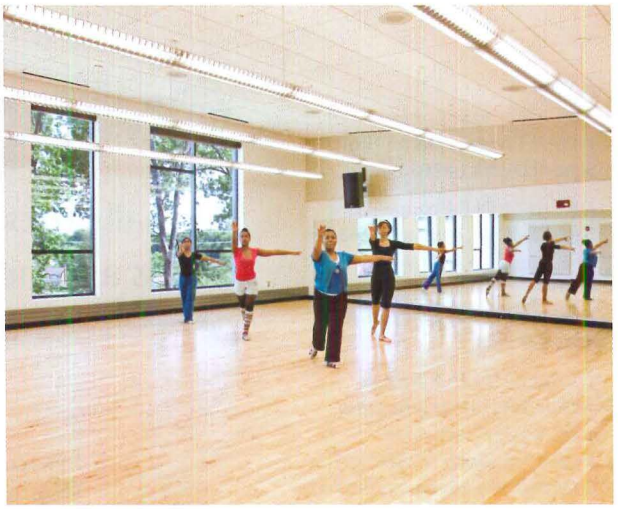
A dramatic circulation corridor arcs from one end of the RCA building to the other, tapering at either terminus.

proposed a single-story building with the school's departments isolated in discrete pods that splay out from a panhandle shape; double walls and doors between classrooms further combat noise leakage.

The pods, each of which contains two, three, or four classrooms, open onto a lobby and common space. "The whole building was designed to promote community—instead of a hallway, you have this flowing area that connects the pods together," LaPosta says of the public space, which also adjoins a main theater large enough to fit the entire student body. "There are all of these nooks and crannies where students can hang out and work on scenes."

RCA sits on a slope between an existing

The crescent-shaped, north-facing entry elevation is finished almost entirely in low-emissivity glass, which welcomes daylight but mitigates heat gain.



RCA's free-form hallway links pods containing separate curriculum programs, such as music (left) and dance (right). The pods, as well as the theater (below) located in the northwest corner of the building, are acoustically separated so that one student group's artistic expression does not interrupt another's deep thought.

special-needs school and a residential neighborhood, and in a nod to the larger community, LaPosta wanted the building "to mediate between these two contextual responses." Pods are visually separated on RCA's south elevation to echo the rhythm of homes across the street, and plank-cedar cladding helps the facility meld with the surroundings. On the north side of the building, a crescent-shaped facade of low-emissivity glass frames the entrance, filling the interior with daylight but not excessive heat. "We almost never have to put the lights on," says Wheeler. "We're operating on daylight 90 percent of the time."

Just as Wheeler cites JCJ's on-site presence as a reason for the building's success, LaPosta praises Wheeler's involvement in the design process. "One of the things she said to us was that it was all about the kids." Her actions confirm the claim: One of Wheeler's unorthodox requests was to put her modest office—among the few rooms with no windows—immediately adjacent to the common area, without the customary secretarial antechamber buffering her from the students.

Wheeler, who will retire in the spring after 39 years as an educator, gives the building high marks. JCJ's thorough research made all the difference, she says. The firm "really did resolve all of the challenges that we presented. They obviously heard us." ■

Sebastian Howard is a writer and video editor based in New York City.

CREDITS

OWNER: **Phoenix Union High School District #210**

ARCHITECT: **DLR Group**—*Tom O'Neil, AIA, principal in charge; Karl Derrah, AIA, design principal; Ted Wright, architectural designer; Jim Copeland, AIA, construction administration*

CONSULTANTS: **DLR Group** *(MEP);* **Atherton Engineering** *(civil);* **Design Tech** *(food service);* **Adolfson & Peterson Construction** *(general contractor)*

SOURCES

STEEL: **Quincy Joist**

CONCRETE MASONRY: **Master Bloc**

CURTAIN WALL: **Vistawall**

DOWNLIGHTS: **Lithonia**

CONVEYANCE: **Thyssen-Krupp**

CARPET: **Shaw**

AUDITORIUM SEATING: **Hussey**

College Prep

A small-school approach to education yields a campus plan for a quickly growing district.

BY TED SMALLEY BOWEN

After-school activity at Betty H. Fairfax High School, located in Laveen Village on the southwest edge of Phoenix, includes the usual practice sessions and tutoring. But there's also a good deal of hanging out.

"I'm sitting here in a common area, it's more than an hour after school's let out, and kids want to be here," says lead English teacher Kate Mullen. "It's warm and inviting."

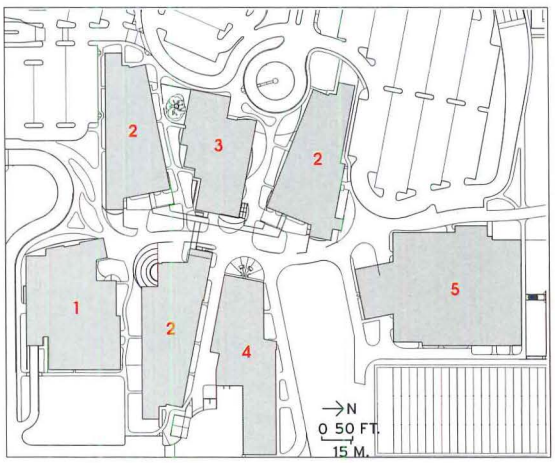
Phoenix Union High School District #210 authorized the school in 2003 as this hyper-growth city absorbed the former agricultural community of Laveen. It was completed for $63 million, in time for the 2007–2008 academic year. The campus, which is expected to accommodate a four-year enrollment of more than 2,000, was designed by DLR Group following a decentralized model known in education and policy circles as small learning communities (SLCs).

"It's basically breaking down a large school population into more relationship-oriented units," explains Karl Derrah, AIA, DLR design principal. Although average class size is around 29, the schools-within-a-school model allows for more individual attention, continuity, and tracking of students, according to principal Zach Muñoz. The 51-acre campus includes three two-story SLC buildings, each of which comprises classrooms, labs, a faculty room, administrative offices, and common space. Separate structures house performing arts facilities, the gymnasium, and food services and student services. The centrally located student services building includes the dining hall and main library.

For a multi-building campus, the scheme makes relatively efficient use of space, according to the architects. In addition to the seven buildings, landscaping, and parking, they managed to work in a full complement of ball fields, courts, and a track. "It's a tight site, but ultimately that was a great benefit," Derrah says. "The smaller footprint is more sustainable, and it brings the buildings and students closer, so it's easier to supervise and socialize."

The buildings are oriented along an east-west axis to maximize daylighting. Overhangs shade windows and cool outdoor spaces in the summer without interfering with solar gain in winter. For materials, the designers opted for painted concrete masonry, corrugated steel cladding, and ample glass. The exterior and interior palettes of gray, green, purple, and yellow reflect the Sonoran Desert and nearby South Mountains and Sierra Estrella range.

Within the campus, generous fenestration and second-floor walkways connecting buildings provide sightlines that foster a sense of community and allow teachers and administrators to keep an eye on things. That openness, in combination with the density of the layout, addressed some students' unease with the small-schools approach, according to Derrah. "In the planning meetings, students were concerned about being isolated from their friends," he says.

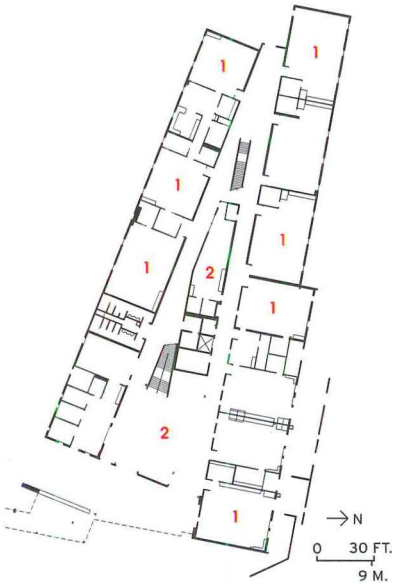


Partial Site Plan
1 Performing arts **2** Small learning community **3** Student services **4** Food services **5** Gymnasium

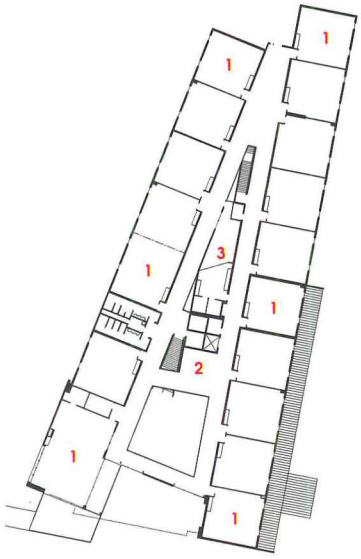
DLR Group designed Betty H. Fairfax High School as a series of small learning communities, distributing the 2,000-student school among less imposing buildings devoted to different functions like academics, arts, and athletics.

The auditorium and gymnasium flank the complex, permitting off-hours use for community programs without requiring the rest of the campus to be open.

The designers followed a checklist based on LEED, but to keep costs down, they didn't register the project, according to Tom O'Neill, DLR's principal-in-charge. "We wanted to put all our resources toward design and construction," he says, adding that the decentralized plan doesn't compromise energy efficiency, as the campus is served by a central plant chiller system. Occupancy sensors reduce HVAC and lighting demand, and energy-efficient lamps complement the extensive daylighting scheme. "We plan to look at the real energy use and compare that to our models," says DLR managing principal Bryce Pearsall, FAIA. The project



Small Learning Community, First Floor Plan
1 Classrooms **2** Commons
3 Faculty office



Small Learning Community, Second Floor Plan

Students lounge in a space between buildings planted with native species and a carpet of drought-resistant sod.

An auditorium is located on one end of the campus, easing off-hours operation. Elevated walkways connect the upper floors of academic buildings (below).

also used locally-sourced products, low-VOC, and recycled materials. The landscaping mostly uses drought-tolerant native plantings, as well as drought- and heat-tolerant hybrid sod.

Eating up agricultural land may not seem like the most sustainable choice, but DLR officials say the district chose the location over urban infill sites because it serves the burgeoning neighborhoods at the city's southwestern edge. Public transportation still lags, though. As of press time the city bus line hadn't extended to the school.

Filling that transit gap would make Betty H. Fairfax High an even more sustainable alternative to the school-as-warehouse approach. Mullen, who moved from Chicago to teach there, says the campus sets the tone for the small-school model of pedagogy. "It feels like we want it to, like a college," she says. "After all, they are college students in training." ■

Boston-based Ted Smalley Bowen writes about design, the environment, and business.

Pavilion in a Park

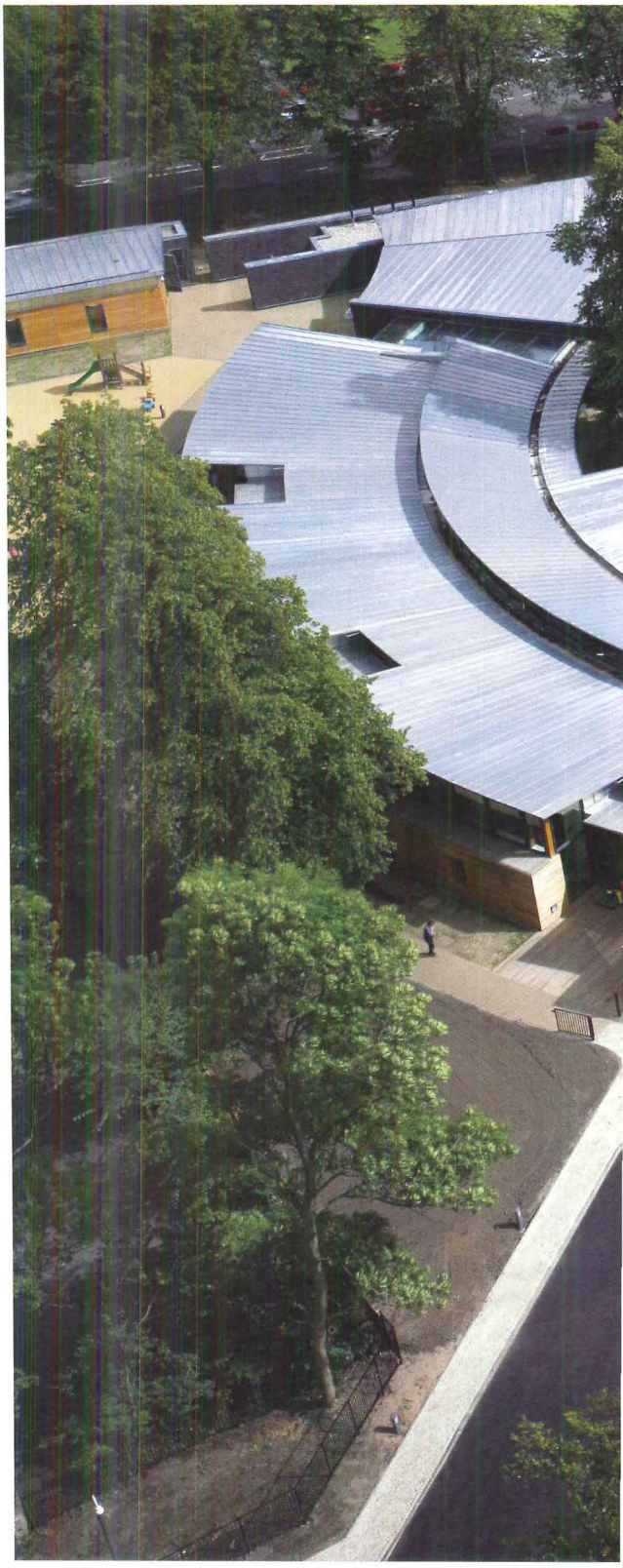
Hazelwood School connects sensory-impaired students to the landscape.

BY DAVID SOKOL

The 46 youngsters attending Hazelwood School in Glasgow, Scotland, have met stringent admissions criteria, but these are not qualifications most parents would wish for their children. Hazelwood's students, who range in age from 2 to 19, endure dual-sensory impairment. In addition to deafness and blindness, "they all have learning difficulties, many are in wheelchairs, and some display challenging behavior," head teacher Monica McGeever explains. Hazelwood focuses on teaching life skills.

"They may never be able to live completely independent lives," notes Alan Dunlop, who has run Gordon Murray + Alan Dunlop Architects (GM+AD) with partner Gordon Murray since 1997. In 2004 the Glasgow-based studio won the competition to design a new building for Hazelwood. In the year that the $9 million building has been in operation, the students have been thriving, demonstrating greater independence and marked improvement in their communication skills, says McGeever.

Previously, Hazelwood's student population was divided between two schools: a 25-year-old former military facility that suffered from disrepair, and an Edwardian villa whose traditional layout restricted children's movement. Upon reviewing maintenance costs for both facilities, Glasgow City Council determined to build a single venue. Due to the complex student profile, the municipality also decided to sponsor a design competition for the building.



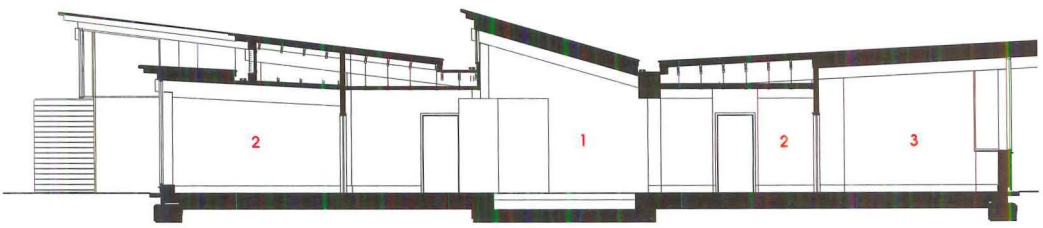
PHOTOGRAPHY: © ANDREW LEE, EXCEPT AS NOTED

Site Plan
1 Administration
2 Hydrotherapy pool/gym
3 Lobby 4 Dining/assembly
5 Nursery 6 General classroom 7 Focus-learning classroom 8 Life-skills home
9 Subject-specific classrooms

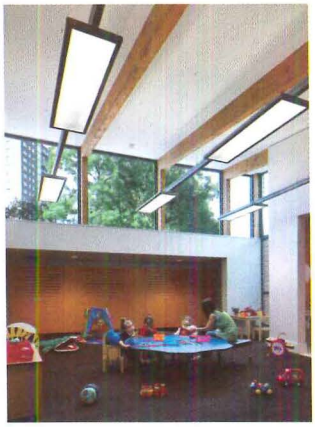
Sitting on the edge of Glasgow's Bellahouston Park, Hazelwood School wraps around old trees and follows the contours of the topography.

Section A-A

1 Central circulation spine
2 Focus-learning classroom
3 Subject-specific classroom



SECTION A-A



Hazelwood School's 10 classrooms feature generous storage space. Clerestory windows provide plentiful ambient daylight, without the glare, or views to the outdoors that could distract partially sighted children.

GM+AD won the competition without any prior school buildings in its portfolio, and Dunlop admits that the look and feel of Hazelwood evolved dramatically over the course of design development. In the earliest schemes, "classrooms, music room, and clinician rooms were like stepping-stones along a linear route," he says. "Now there is still a clear route with well-defined elements along it, but it's much more sensual."

Hazelwood's plan resembles a sea horse with its long axis running roughly east–west. Ten classrooms occupy half as many volumes protruding gently from the sinuous north elevation, while additional functions, such as the music room and library, dot the opposite side of the building; the two sets of spaces face an internal street. A gymnasium, hydrotherapy pool, and kitchen are nestled into the western terminus of the structure, and a wedge-shaped multi-use cafeteria and entrance area sit immediately adjacent to this cluster.

The design responds to several constituencies at once. Hazelwood is located on the site of a dairy near Glasgow's Bellahouston Park. Since that building's demolition in 1926, "the community had considered the site to be part of the park itself," Dunlop explains. The school's plan is in part a response to neighbors' concerns about the construction of the building. The curvilinear form follows the contours of the site and accommodates three massive beech trees. Richard East, director of local landscape consultant City Design Co-operative, says only two trees were removed. A low-slung zinc roof melds with the topography, while its Siberian larch cladding will weather to a soft gray similar to slate shingles applied to other walls. Soon Hazelwood should appear more like a landscape feature than architecture.

"Bringing the trees into the design helps form external classroom spaces," Dunlop also notes. Indeed, garden spaces where teachers can calm children one-on-one are appended to each classroom. The weaving of landscape into the architectural design soothes teachers, too. "It's an incredibly intense job these guys do," says Dunlop. "The building is designed as much to relieve that kind of pressure as to support the children."

Hazelwood's bucolic setting suffuses the 29,000-square-foot interior. Louver-protected glazing and clerestory windows surround the internal street, showering it with daylight. Clerestories dominate the classrooms, since expansive full-height windows could distract those students who have partial sight. "We wanted to make students aware of the change of the seasons, the falling of rain, different smells," Dunlop says. GM+AD never wavered from its intention of building with timber, which the architect calls "warm and good to touch—it creates a non-institutional feeling."

Institutional is exactly what Hazelwood isn't. There are few handrails; instead blind students follow a "sensory wall"—a folded cork plane lining one side of the internal street—to guide themselves between rooms. "We were asked to not make everything too safe," Dunlop says. Outside, students feel the sun-warmed slate or larch slats for wayfinding cues, and East's landscape design is punctuated by unprotected steps. "There are corners in this building, there are challenges," McGeever says of Hazelwood's non-risk-averse design, "the world is not built like a school environment." She adds, "Plus, safe buildings sometimes equate to boring buildings. With some students here for as long as 15 years, we didn't want a building that was boring." ■

Volumes as well as slim walls project from the sinuous building in order to effectively partition the outdoor space for different functions (above). A cork-wrapped "sensory wall" helps students find their way through Hazelwood's main corridor (right).

CREDITS

OWNER: **Glasgow City Council**

ARCHITECT: **Gordon Murray + Alan Dunlop Architects**—*Alan Dunlop, Partner; Stacey Phillips, project director; Fergal Feeney, architect*

CONSULTANTS: **Buro Happold** *(engineering and lighting);* **City Design Co-operative** *(landscape);* **Buro; RMP Acoustic Consultants** *(acoustical);* **Sir Robert McAlpine** *(general contractor)*

SOURCES

METAL ROOFING: **VM Zinc**

ROOF LIGHTS: **Brett Martin Daylight Systems**

WINDOWS: **Scandinavian Window Systems**

CEILING SYSTEM: **British Gypsum**

CREDITS

OWNER: **The Aspen School District**

ARCHITECT: **Studio B Architects**—*Scott Lindenau, AIA, design principal; Gilbert Sanchez, AIA, managing principal; Michael Piché, Kevin Heath, project team;* **Hutton Architecture Studio, né Hutton Ford Architects** *(architect of record)*

CONSULTANTS: **Redwine Engineers** *(structural);* **Beaudin Ganze** *(lighting and mechanical);* **Design Concepts** *(landscape);* **DL Adams** *(acoustical);* **GE Johnson** *(general contractor)*

SOURCES

CURTAIN WALL: **Kawneer**

ARCHITECTURAL PANELS: **Mapes**

MASONRY: **Interstate Brick**

ROOFING: **Firestone**

SKYLIGHTS: **Solatube**

PANELING: **Smith & Fong Plyboo**

Mountain Do

Aspen Middle School takes cues from its picturesque setting, and relieves some stress on the planet.

BY B. J. NOVITSKI

It should come as no surprise that a school in Colorado's Rocky Mountains ranks sustainability high on its teaching agenda. The small town of Aspen, an upscale winter ski resort and summer hiker's paradise, takes civic pride in its ecological awareness. The newest of its three public schools, the year-old, 113,000-square-foot Aspen Middle School by local Studio B Architects and Denver-based Hutton Ford Architects, is designed to support environmental education and to foster a sense of stewardship among students.

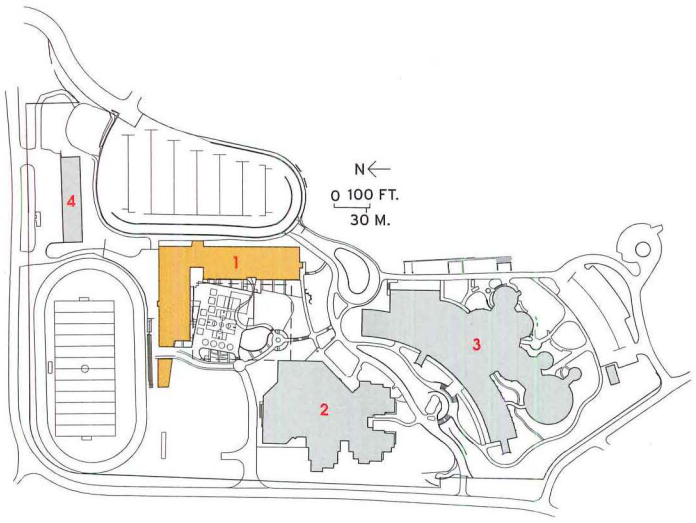
As a symbol of the school's place in the landscape, its exterior materials echo the surrounding mountains. Regionally manufactured brick and metal panels evoke the snowy peaks of the photogenic Maroon Bells. "Our educational concept was to connect the students to the landscape and to the environment," says Studio B principal Gilbert Sanchez, AIA.

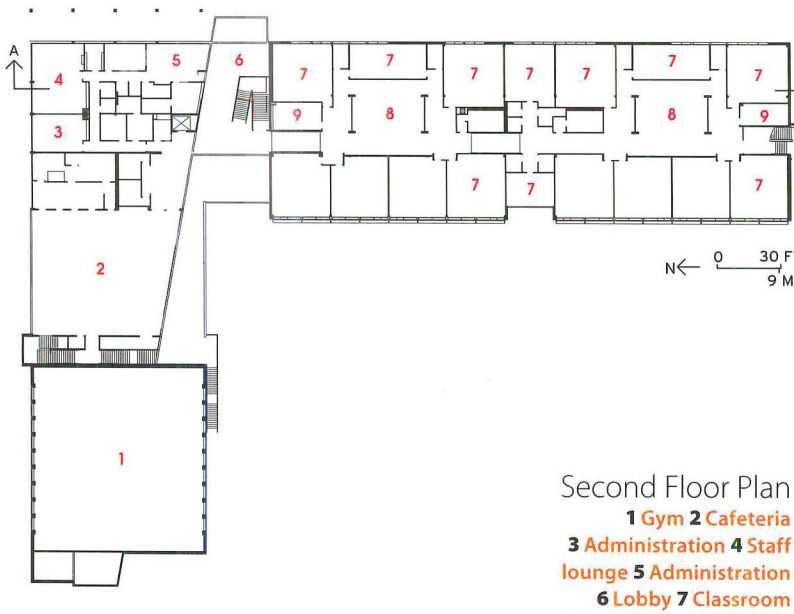
The building's angular form also reminds users of the spectacular surroundings. Studio B principal Scott Lindenau, AIA, explains, "The L-shaped plan bifurcates the classroom wing from the specialty wing and opens the entry toward the view. And as you walk from parking lot into lobby, the major view is oriented toward Buttermilk Mountain; the lobby roof is butterfly-shaped to open up that view."

Unlike its nearly windowless predecessor, the new middle school boasts views of the mountains from every classroom. Operable, double-glazed, low-E glazing controls the flow of heat and light so the

Site Plan

1 Middle school **2** Elementary school **3** High school **4** Bus barn





Second Floor Plan

1 Gym **2** Cafeteria **3** Administration **4** Staff lounge **5** Administration **6** Lobby **7** Classroom **8** Classroom core **9** Office

The butterfly-roofed entrance to the school is located in the elbow of an L-shaped plan, dividing classes from aspecial-purpose spaces like the gym.

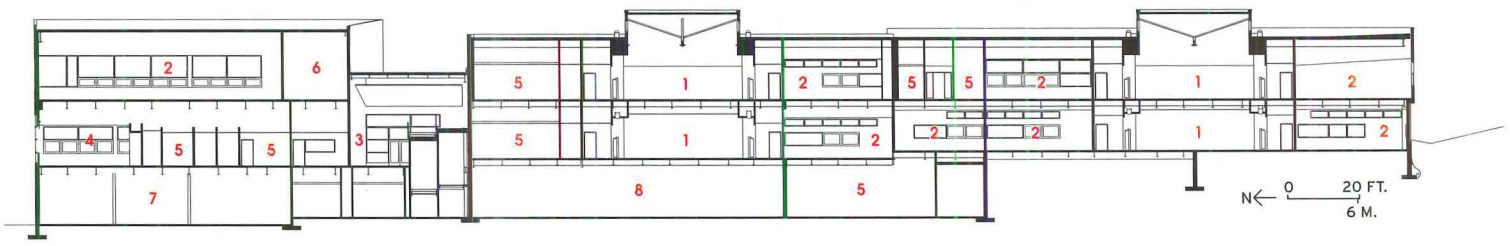
new building is comfortable, fuel-conserving, and filled with daylight. Aluminum louvers on the exterior of the west-facing windows are fixed at a 25-degree angle off horizontal to maximize their shading effectiveness throughout the year. Fixed aluminum louvers on the interiors of east- and south-facing classroom windows help with daylight distribution. On mild winter days, many students eat lunch on the south-facing, wind-protected balcony outside the second-floor cafeteria. Teaching about the building's orientation to the sun and other sustainability features is integrated into science coursework.

All subjects are taught in what school superintendent Diana Sirko calls an "educational teaming approach." Each of the four grades' classrooms clusters around a common area where students of that grade meet for group activities. For the core areas on the lower level, a raised ceiling differentiates the space from the adjacent corridor; the upper-level cores have roof monitors with north- and south-facing clerestories. The rectilinear cores are further differentiated by their carpet designs.

Small-group classrooms that can be outfitted with movable partitions are adjacent to each core. "We feel it's important to meet the individual needs of students," Sirko says. "So these mini-classrooms are for math or reading

Section A-A

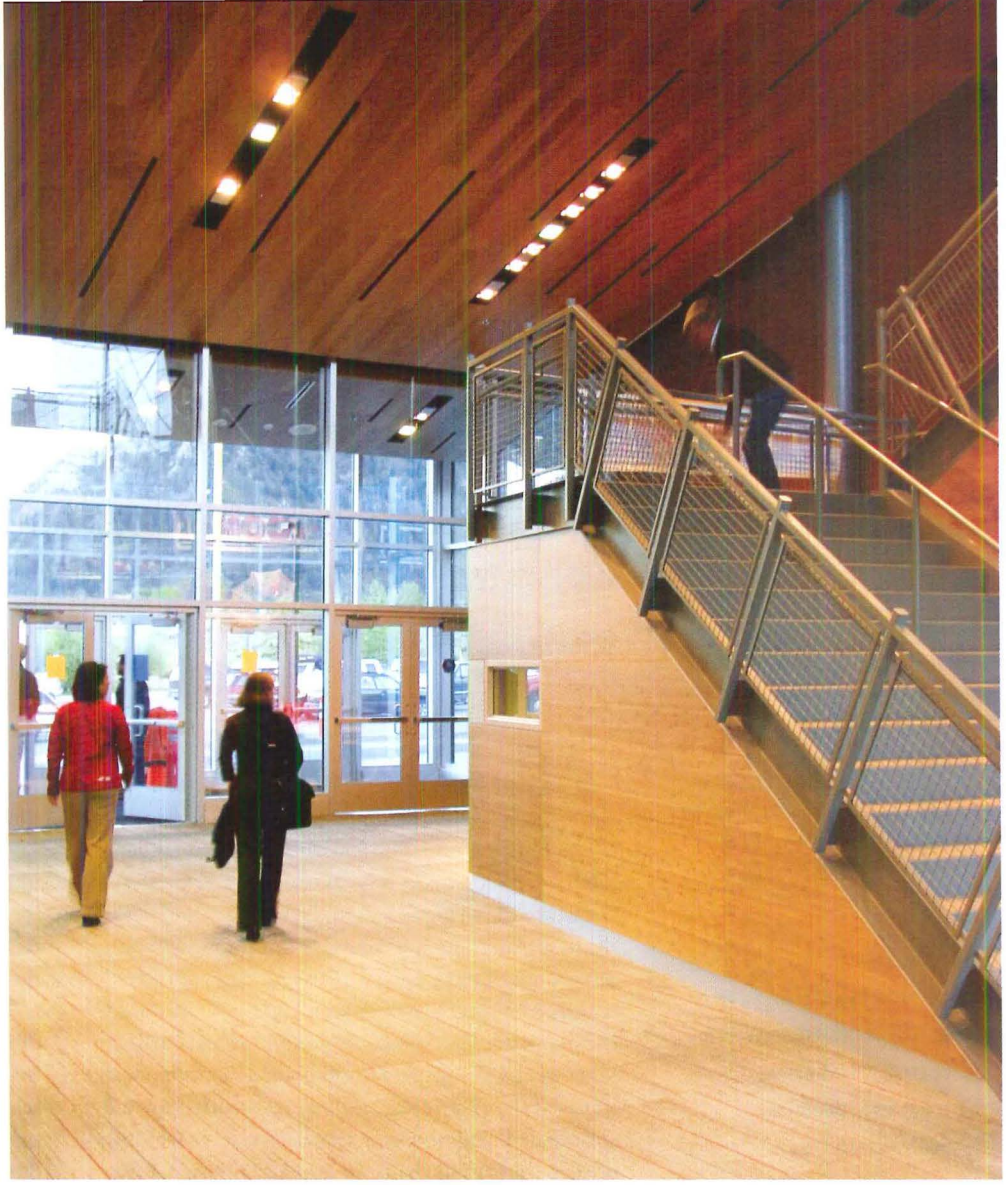
1 Classroom core **2** Classroom **3** Lobby
4 Staff lounge **5** Office **6** Conference
7 Industrial arts **8** Future classroom



CASE STUDY *Aspen Middle School*

A balcony (right) adjacent to the cafeteria and the lobby offers students a wind-protected spot to eat lunch oudoors. The library (below), at the northwest corner of the building, commands spectacular views of the surrounding landscape.

The bamboo-clad lobby ceiling follows the contours of the butterfly roof (right). Its form maximizes the view west to Buttermilk Mountain (bottom), a spiritual and aesthetic lodestar for the project.



specialists to work with individual students for enrichment or remediation."

Another key part of the curriculum is the outdoor educational program. Classes learn recreational skills by taking camping and rafting trips. In addition to the large storage rooms needed for the school-owned equipment, the program called for open spaces, where students learn to set up rafts and tents. The central core areas serve this purpose well.

But environmentalism at Aspen Middle School is more than views and camping trips. The building offers object lessons in sustainability. Bamboo, a rapidly regrown material frequently substituted for wood, clads the ceilings and walls in the lobby. The flooring is natural linoleum and the carpet has recycled content. New cabinets are formaldehyde-free, while some from the previous building are reused.

"Reduce, recycle, reuse" applied to the old school's deconstruction in general. To provide continuous service, it stayed in session while the new building was being erected just a few feet away on the 25-acre site. Later, in plain view of the students, crews painstakingly dismantled the structure to reclaim reusable materials. Rather than compete for attention, some teachers asked curious students to write about the process.

That recycling helped push the school toward LEED Gold territory, a rating granted by the U.S. Green Building Council in late October. Other contributing aspects include energy-saving features, solar air heating, waterless urinals, and sensors that turn lights down when daylight is sufficient and off in unoccupied rooms. Sirko reports the electric lights in the classrooms are largely unnecessary during the day. "This building is saving us about 50 percent in energy costs over the building it replaced," she says. Aside from a few features deleted for budgetary reasons, "mostly we achieved what we set out to accomplish." ■

B. J. Novitski, an ARCHITECTURAL RECORD *contributing editor, writes about professional practice and sustainability.*

CREDITS

OWNER: Confidential

ARCHITECT: Mitchell/Giurgola Architects—*Jan Keane, FAIA, partner in charge; Steven Goldberg, FAIA, design partner; Susan Stando, AIA, interior design architect; You-Chang Jeon, AIA, project architect/designer;* Baurconsult, Architekten + Ingenieure *(architect of record)*

CONSULTANTS: HPS Haustechnikplanung Schreiber *(building services);* SHL Architekten *(landscape);* Brandston Partnership *(lighting)*

SOURCES

GREEN ROOF: Benkert and Zinco

EXTERIOR SOLAR SHADES: Warema

COLORED GLASS: Vanceva

LAB CABINETRY: Waldner

RUBBER FLOORING: Nora

CORRIDOR LIGHTING: Zumtobel

At Home, Abroad

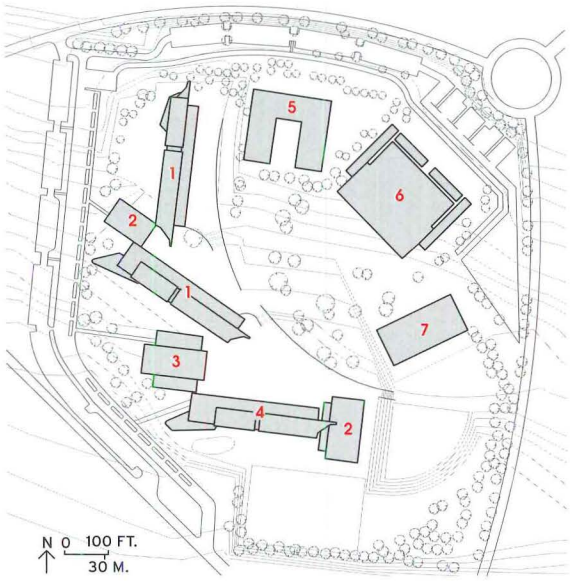
Mitchell/Giurgola infuses an American school in Germany with a taste of the States.

BY MICHAEL DUMIAK

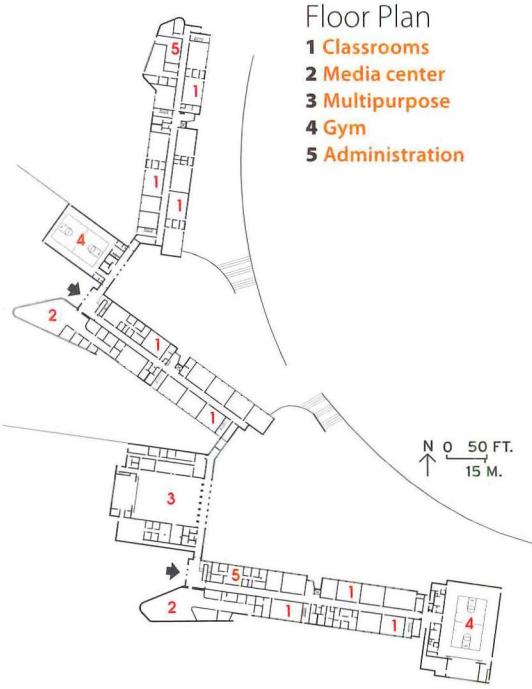
An American elementary and middle school designed by Mitchell/Giurgola in Bavaria forges form with specific purpose. The $36 million, 1,500-student project reflects educators' requests: There are gathering spaces in the hallways and between the long classroom buildings for impromptu breakout groups, for example, and larger classroom sizes handle computer equipment or "national" sessions for German-language lessons or sampling local cuisine. Long, gently rising green roofs complement the steep slopes of the 17-acre site, and natural ventilation and abundant daylighting courtesy of clerestory windows breathe life into the halls. In doing so the New York-based architects had to successfully negotiate many significant differences in both culture and curricula.

The project required skillful coordination among multiple partners, too. The client's project architect says that while it helps to have a local architect who understands local building codes and construction methods, it was necessary to hire an American architect who understands what American students and teachers expect and need.

Indeed, students residing in foreign countries often rotate schools every few years, so it's important to keep a level of consistency in curriculum between schools. The same idea applies to architecture, which should feel approachable to a student body that may move through multiple schools both Stateside and abroad, and which should take 21st-century American



Site Plan
1 Elementary school
2 Gym
3 Multipurpose
4 Middle school
5 Administration
6 Planned chapel
7 Youth activity center



Floor Plan
1 Classrooms
2 Media center
3 Multipurpose
4 Gym
5 Administration

Blue exterior surfaces characterize the middle school, which is located uphill from the elementary school.

teaching approaches into consideration.

Mitchell/Giurgola partners Jan Keane, FAIA, and Steven Goldberg, FAIA, started work from a community master plan done by a local landscape architect. The school suggested in that scheme showed a much more German approach to pedagogy and its architecture. "It was a giant, curving megastructure," Keane says of the sober vision, which distinguished little between grades.

The site's 24-foot overall grade change was a challenge, as was seamlessly situating the playing fields and creating identities for elementary and middle schools, Goldberg says. Their reworked design broke down the school components and resulted in a series of buildings placed along one side of the slope in 12-foot terraces—three bar-shaped structures set like falling dominoes. This splintered the megastructure, bringing in breathing and play space. Students work their way up the hill over time. Primary-grade buildings are accented in yellow, and higher grades feature cerulean blue. Other entrances and administrative buildings are white.

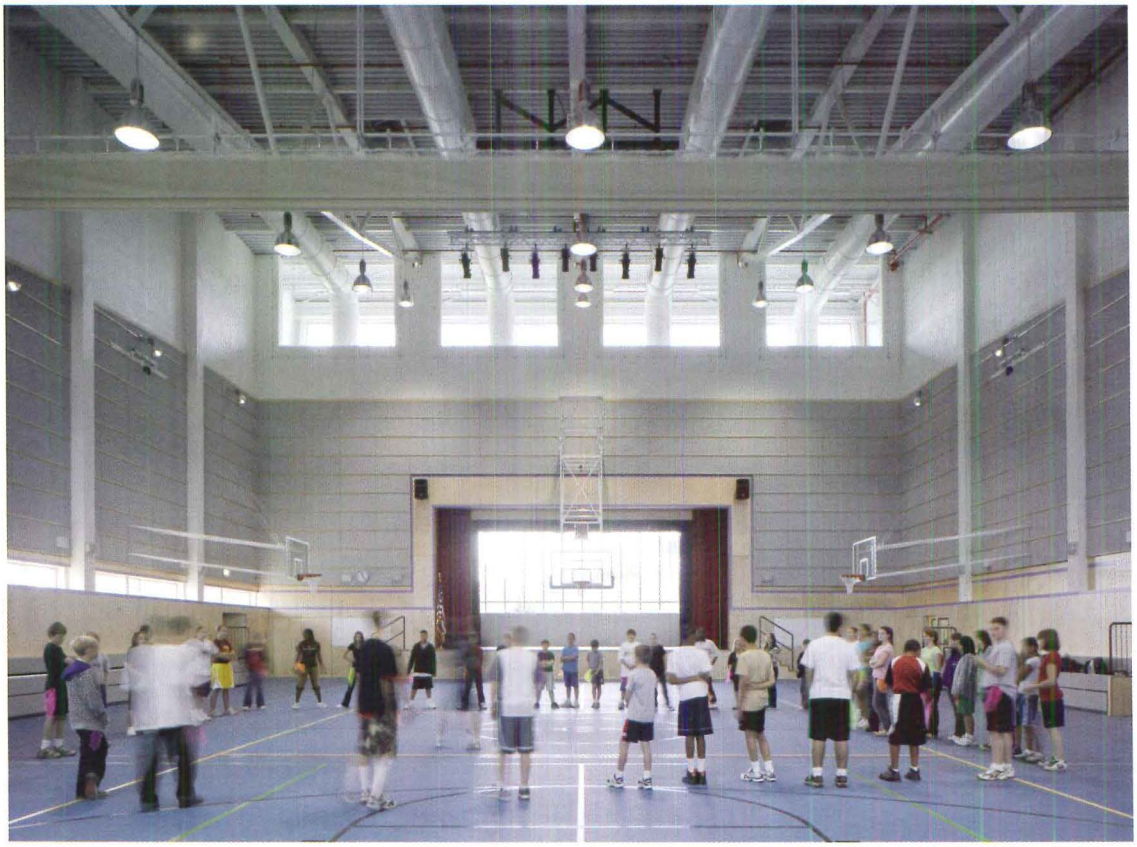
Two rounded, boomerang-shaped multimedia

Like the middle school, the elementary school entrance (above) is defined by lozenge-shaped volumes. Clerestory windows enhance interior daylighting and natural ventilation (right). The wedge-shaped building (below, foreground), which has a companion at the middle school, houses a multimedia library.

library rooms in yellow and blue emerge from two of these three wings. Meanwhile, nearby multipurpose rooms are used for both remedial and advanced students—there's no shoving the remedial kids into substandard space. Keane also says that on the weekends or after hours, both sets of rooms host meetings and activities because they can be isolated from the rest of the school.

With their bright colors and strip windows these spaces suggest something of the International style instead of Americana. Another building signature is the large, prow-shaped canopy identifying one entrance, as well as other overhanging roofs that shield the school from the elements during the long European winter. These climate-sensitive weather buffers would be commended anywhere, just like the eco-friendly details that include photo sensor–controlled exterior blinds, radiant floors, and a pond and science garden fed by stormwater runoff in, addition to the natural ventilation and daylighting strategies. So would modern conveniences, like a central utility tunnel that winds underneath all the buildings so that repairs don't disrupt classes. Overall results are measured pretty quickly. "Kids are in it," says the client's project architect. "And they love it." ■

Michael Dumiak writes on architecture, design, and science from Berlin.



Clockwise from top: Glass panes featuring inlaid color film evoke a Mondrian painting. These colors accent particular building surfaces, including each school's entry elevation. Mitchell/Giurgola's daylighting strategies are on display in the corridor of the middle school, and in the school's generously scaled, wood-paneled gymnasium.

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Carpet Scores Good Marks in Schools: A Smart, Sustainable Solution in Floor Coverings

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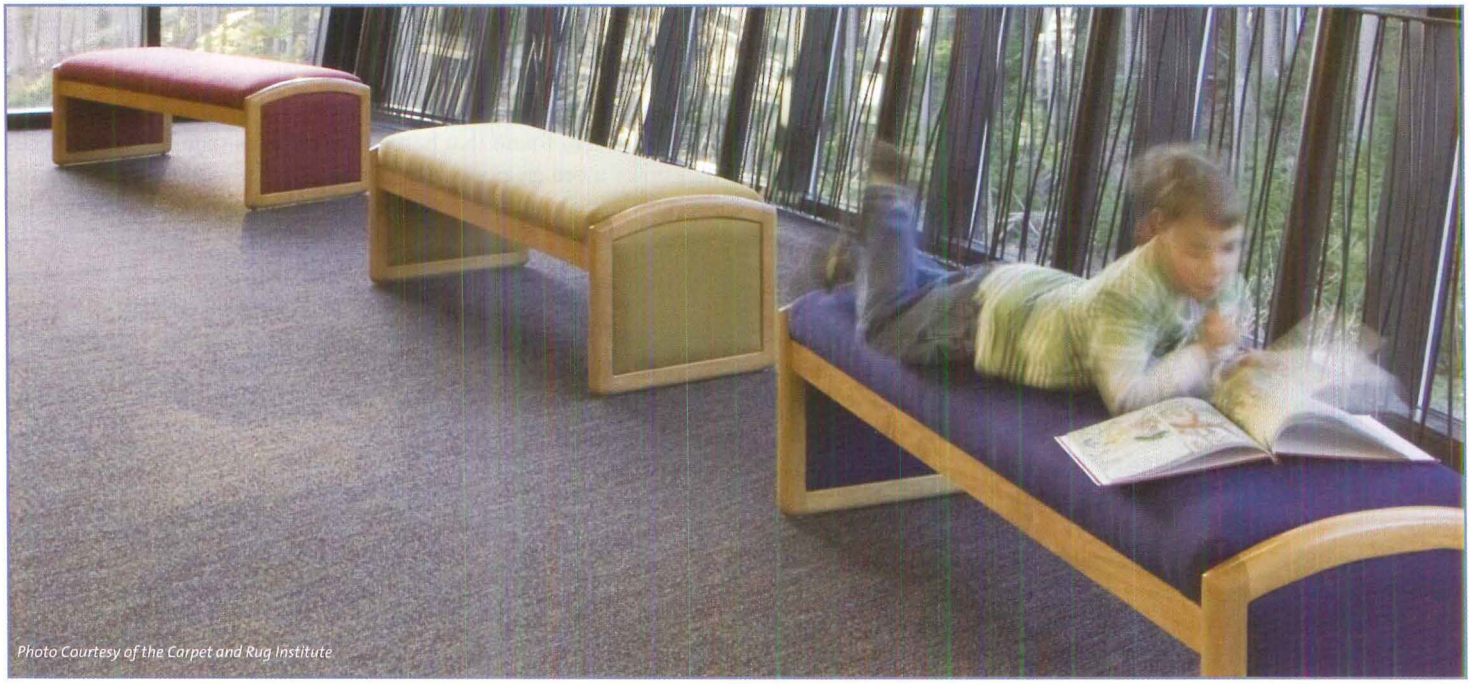


Photo Courtesy of the Carpet and Rug Institute

Provided by the Carpet and Rug Institute

From kindergartners to postgraduate students, a pleasing school environment is a plus that can add up to superior performance. Over the past several decades, school design has been widely recognized as a factor in creating a good learning environment that strongly affects student achievement, social development and attendance, as well as teacher retention and satisfaction. In a 2001 study by the Atlanta-based research firm, Beth Schapiro & Associates, more than 92 percent of teachers surveyed believe general classroom design has a strong impact on students' learning and achievement. In the same study, teachers identified the top five design elements that promote the best learning environment: comfort, safety, lighting, temperature control and good acoustics.

Carpet helps achieve several of these design goals, and is a factor in the creation of welcoming, friendly and less institutional classrooms that can contribute to a better educational environment for students, teachers and school personnel. In fact, more than 70 percent of teachers surveyed in the Schapiro study prefer carpet on their classroom floor.

This article will cover the safety and health issues related to carpeting in schools, as well as guidelines to selecting the right carpet and keeping it a sustainable choice for the life of the product. The proper way to clean and maintain carpets will be explored, as well.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Carpet Scores Good Marks in Schools: A Smart, Sustainable Solution in Floor Coverings.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare/sustainable design (HSW/SD) credit, answer the questions on page 73, then follow the reporting instructions or go to **ce.ArchitecturalRecord.com** and follow the reporting instructions.

Learning Objectives
After reading this article, you should be able to:

- Discuss the benefits of carpets in schools
- Specify the right carpet for high, medium and low traffic areas
- Recommend a Carpet Maintenance Plan

BENEFITS OF CARPETS

Carpet is a foundation for the look and feel of a room. It can provide a casual simplicity to reinforce a soft, livable ambiance or it can lend vibrancy to a room through strong colors and heavier textures. One of the easiest methods of personalizing an environment, carpet also offers a host of health and safety benefits.

Improved Safety. Because it affords more traction, carpet helps prevent falls. According to the above-mentioned Schapiro study, 77 percent of teachers agree that carpet helps prevent falls and injuries and makes a classroom safer. Not only do fewer slips and falls occur with carpeting, but when they do happen the chances of injury are greatly diminished on a soft floorcovering. Further, carpet provides a non-glare surface that reduces reflection and eyestrain.

Reduced Noise. With carpet, less acoustic protection is needed on the ceiling and elsewhere. This provides a better learning atmosphere with fewer distractions. According to the Technical Committee on Architectural Acoustics of the Acoustical Society of America, the speech intelligibility rating is 75 percent or even less in many classrooms, meaning that those with normal hearing can understand only 75 percent of the words read from a list. Research shows that background noise from inside and outside the classroom negatively affects learning. Excessive noise and reverberation interfere with speech audibility, leading to diminished understanding, learning and ability to focus on the lessons at hand.

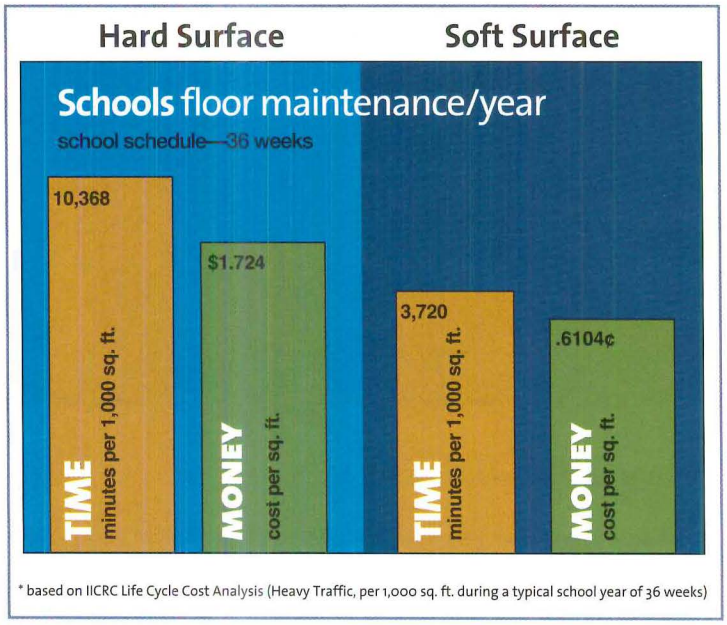
Flooring is a major component of comprehensive noise management. Based on a study by the American Society of Interior Designers, carpet is deemed to be 10 times more efficient in reducing noise compared to other flooring options. When a cushioned backing made with polyurethane technology is added, noise levels can be further reduced.

Increased Comfort. For teachers and other staff, a cushioned walking and standing surface reduces leg fatigue. Several studies have investigated the influence of floor surfaces on the body during long-term standing, and results show that softer floor materials usually result in less postural discomfort than standing on hard floor surfaces (Redfern & Cham, 2000). According to Rys and Konz (1988), heart rate was higher after two hours of standing on a concrete floor compared to carpet, and perceived comfort was higher when standing on carpet. Similarly, In 1997, Madeleine et al. found that after two hours of standing, the comfort level was greater for a soft surface. Standing on a hard surface increased parameters, such as shank swelling and muscle fatigue. It also detrimentally changed subjects' standing posture.

Better Insulation. Carpet is warmer to sit on or work on, extending the learning areas to space on the floor. Thermal comfort exists because carpet retains inside ambient temperatures for longer periods. Because of its fibrous construction, carpet traps a layer of air close to the floor. Air is an excellent thermal insulator and consequently carpet acts to increase the thermal insulation of a surface. Additionally, a pad beneath carpet can further increase this thermal insulation effect.

Research conducted at the Georgia Institute of Technology School of Textile Engineering tested the thermal insulation values (R-Values) of carpet and cushion and found that the total R-value was more dependent on the total thickness of the carpet than the type of fiber content. The research indicated that a carpet system comprising carpet and pad can increase the R-value of the floor to somewhere in the range of 2 to 4.

Lower Life-cycle Costs. Carpet that is properly selected, installed and maintained lasts up to 10 years or longer. When product, installation and maintenance supplies and labor costs are considered over a 15- to 20-year period, carpet showed lower life cycle costs than other flooring options. A 2002 report, "Life-cycle Cost Analysis for Floor Covering in School Facilities," prepared by the Institute of Inspection, Cleaning and Restoration Certification (IICRC), found that carpet could be 65 percent less expensive to maintain than hard surface flooring. In the study, buying and installing the hard surface flooring was less expensive than carpet. But when labor, supplies and equipment costs were calculated over a 22-year life cycle, carpet proved to be more cost effective. The life expectancy of the hard surface flooring was 22 years. The cost of replacing carpet after 11 years was factored into the analysis. The study also found that hard surface floors require two and one-half times more cleaning than carpet and that hard surface cleaning supplies are about seven times more expensive than supplies for carpeted floors.



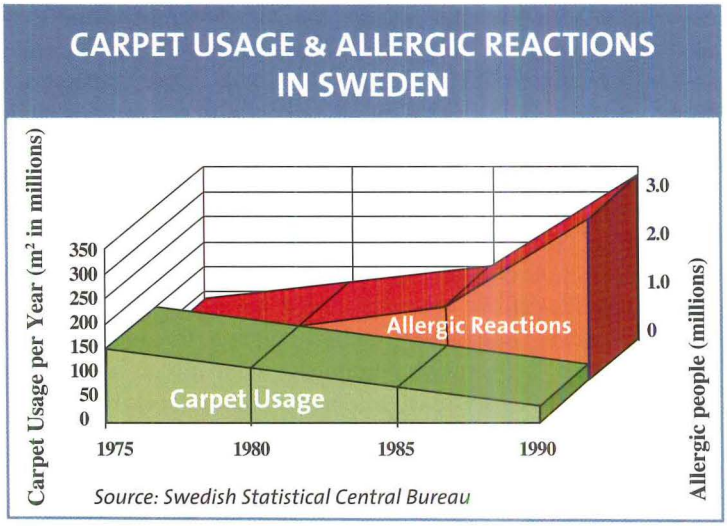
Source: The Carpet and Rug Institute

The carpet industry is working to make carpet even longer lasting in schools by creating more durable fibers and fabrication methods, improving primary and secondary backings and increasing the number of different design and performance options. Modular carpets, the fastest growing segment of the industry, provide the option of replacing parts of a carpeted surface, instead of the entire carpet.

Improved Indoor Air Quality. Allergies are usually affected by airborne particles. Carpet traps allergens in its fiber and does not allow them to circulate in the air, even with the activity of children. The allergens trapped in the carpet then can be easily removed by adhering to a regular cleaning and maintenance schedule that includes vacuuming and periodic extraction cleaning using Seal of Approval-certified products. Studies have compared the distribution of airborne dust associated with normal activities on hard and soft flooring surfaces. In 2002, research by G. Asbury titled, "Cleaning and Foot Traffic Emissions Analysis," for the Professional Testing

Laboratory, Inc., in Dalton, Georgia, showed that walking on hard surfaces disturbed more particles. These particles became airborne and entered the breathing zone. In contrast, carpeted surfaces trapped more particles so that walking disturbed fewer particles. The result was less dust in the breathing zone over carpeted floors.

In a government study in Sweden, when carpet was banned from public buildings and replaced with smooth surfaces, the allergic reactions of people actually increased as carpet use decreased. There were intensive discussions and reports in Sweden in the 1970s claiming that carpet was the source of harmful contaminants, resulting in allergic reactions. As a result, Swedish consumers and public building officials severely reduced their use of carpet. Carpet's share of the total floorcovering market in Sweden dropped from 40 percent in the mid-70s to only 2 percent in 1992. Based on historical figures published by the Swedish Statistical Central Bureau in the early nineties, Professors Roshan L. Shishoo and Alf Börjesson, Swedish Institute of Fibre and Polymer Research, published an article for *Carpet & Floorcovering Review*, pointing out that while the use of carpet in Sweden had steadily decreased since 1975, the occurrences of allergic reactions in the general population had increased. Professors Shishoo and Börjesson contend that the removal and decline of carpet usage did not mean improved conditions for allergic patients, who in fact missed the advantages of carpet such as comfort, insulation, and noise reduction.



Another indoor air quality issue is that of carpet and mold. Clean carpet does not support mold growth even at prolonged and elevated temperatures. However, left unresolved, leaks and spills, heavy condensation and localized flooding, especially when followed by prolonged high humidity, can lead to mold growth in many areas of a school. For mold to grow, it needs water, oxygen, a warm temperature and something that contains nutrients to feed on, such as dirt, wood or paper. Moisture trapped below a carpet can result in mold growth and the release of mold spores and mold metabolic products (microbial VOCs or MVOCs) into indoor air. Effective moisture control is critical to protect all building systems from the potential for mold growth. That said, studies have shown that the biggest source of mold spores is actually an improperly operated and maintained HVAC system. Shutting the HVAC system off at night or during downtime creates the perfect incubator for mold spores, which are then flushed into the breathing zone.

Indoor air quality also involves the emissions of volatile organic compound (VOC) levels from building materials. Carpet may be the lowest VOC emitter of common flooring choices and one of the lowest emitting products used in new construction and renovation, much lower than products such as paint. The already low VOC emission of new carpet drops significantly after 24 hours, even sooner with fresh air ventilation. According to Werner Braun of the Carpet and Rug Institute, the industry has developed a program known as the Indoor Air Quality Green Label Program to determine the level of VOC emissions from carpet, floor adhesives, and cushion products. Attached to a carpet, floor adhesive or cushion, the label signifies that a representative sample of the product type has been tested by an independent laboratory. The recent Green Label Plus is an enhancement that incorporates additional requirements to meet California's Collaborative for High Performance Schools (CHPS) low-emitting materials criteria. Products listed as CHPS-compliant materials have been chamber tested to meet the indoor air quality guidelines outlined in California's specification section 01350.

SELECTING THE RIGHT CARPET

In many instances, new schools have incorporated a mix of floor coverings, with carpet in entrances and corridors to minimize dirt brought in and spread throughout the facility. Carpeting in these areas also provides extra traction for school children entering the building, particularly when it's wet or snowy outside. In elementary school classrooms carpeting is increasingly being used around teachers' and students' desks, with smooth surfaces reserved for around sinks and water fountains and in bathrooms and cafeterias.

Choosing the right carpet to stand up to the heavy traffic expected in a school is critical. Industry guidelines are geared to choosing an appropriate carpet for any area, from corridor to classroom to school office, classifying carpet's use according to expected traffic, determining the performance required for the location and for determining the carpet's desired physical characteristics. Compromising any specification recommendation can dramatically affect the way a carpet looks and its ease of cleaning.

Experience has taught that a low profile, densely tufted, tight loop construction is very functional in a school. Color selection is a prime factor in long-term appearance retention and facility managers and maintenance supervisors who understand this can increase the longevity of the carpet and save on future capital replacement. While a light color cut pile can make rooms and hallways look brighter, they are a poor choice in heavy traffic areas and can make successful maintenance more difficult. A darker color loop pile will retain its appearance longer and is a better choice in heavy traffic areas. Tweeds or patterns in the carpet are also a good choice as they add interest to the floor and hide soil.

"Carpet is a cost-effective way to bring color and texture into a project and has the flexibility to transition between areas within a school," says Lisa Pinyan, ASID, IIDA, LEED® AP, Director of Interior Design for Greenline Architecture in Savannah, Georgia.

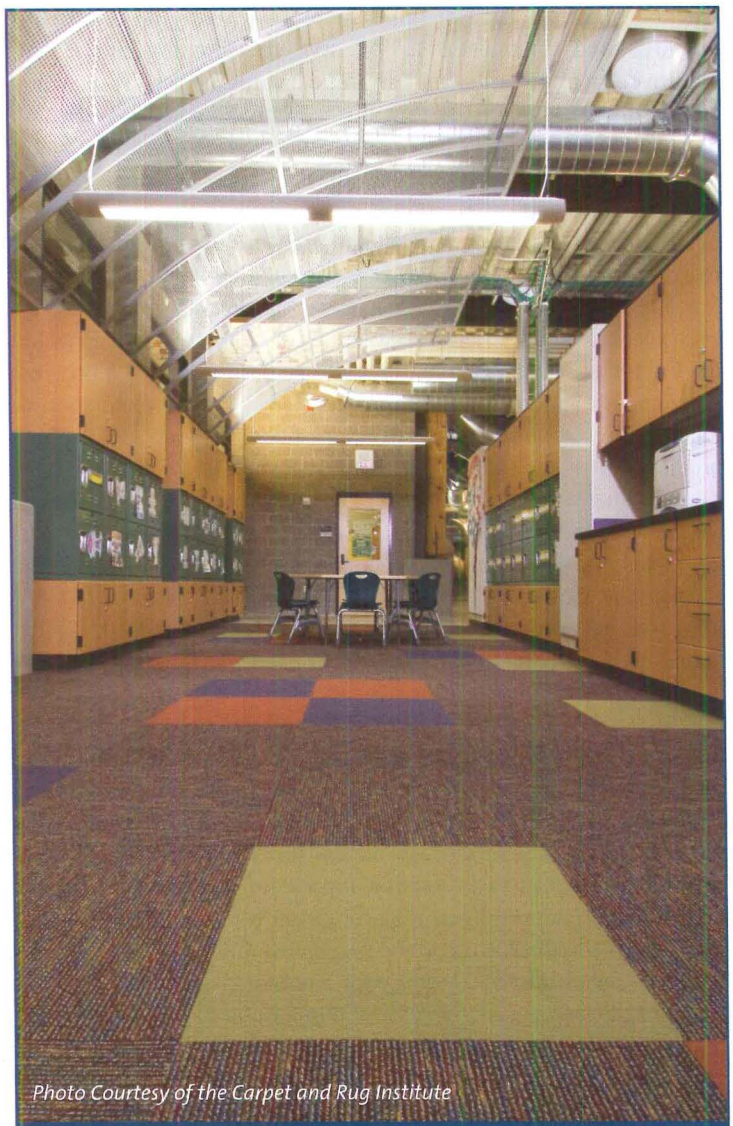


Photo Courtesy of the Carpet and Rug Institute

Variation in color and pattern can mask the effects of traffic in school settings.

Pinyan favors some variation in color and pattern to mask the effects of traffic. "Darker colors and solid colors don't perform as well. They show the dirt and lint and all other debris," says Pinyan, noting that the construction method — preferably loop — and dye methods are two key factors in her specifying decisions. "When budgets allow, we go with solution-dyed carpets." Pinyan also notes that carpet tiles, the fastest growing component of the carpet industry, have their place. She specified them for Georgia Southern University's new College of Information Technology, where computer access flooring was used throughout much of the building. "They're more expensive initially, but they are easier to replace as individual carpet tiles become damaged. If the school has the budget for them, carpet tiles can have a longer life cycle," she says. Carpet tiles ranged from a modern pattern in common areas to those with color and warmth in the professional development area to classrooms where less pattern and stain hiding ability were considerations.

Carpet performance ratings, found on the carpet label, are a tool used by some manufacturers to help specifiers select the most appropriate carpet for various areas of a facility. Rated from 1 to 5, the scale represents the carpet's ability to withstand extended wear. A carpet with a higher performance rating such as 5 or 4 is one that will maintain its new appearance longer in various traffic conditions than one with a lower rating. A rating of 4.0 is considered outstanding. These carpets are recommended for a school's heavy traffic locations, which would include such areas as entrances, corridors, student break areas and classrooms. A rating of 3 or higher is predicted to provide normal durability and would be appropriate for libraries, conference rooms, media centers or classrooms with limited use. A rating of 2.5 or higher is predicted to be appropriate for teacher or administrative offices.

These ratings do not take into account soiling, poor maintenance or other factors of use; just the change of texture related to matting and crushing that might occur from walking on it. For these reasons, it is not practical to associate years of wear with the performance ratings. To obtain the projected appearance retention performance, the carpet must be correctly installed following the manufacturer's instructions and in accordance with industry installation guidelines and must be in accordance with the carpet manufacturer's recommendations.

The Texture Retention Rating value is determined by grading the appearance change of a carpet subjected to simulated traffic exposure either from actual walkers or from laboratory drum tests such as Hexapod or Vettermann Drum testers. Carpet is tested without underlay cushion material. After simulated traffic exposure, the exposure-conditioned carpet is rated according to an assessment of carpet surface change using industry grading scales.

Sustainability. With the plethora of carpet types available in the marketplace, selecting the most sustainable carpet can be a challenge. NSF 140-2007, certified by the American National Standards Institute (ANSI), is the prevailing standard for sustainable carpet. The standard is voluntary, based on life-cycle assessment principles, and provides a single rating system that recognizes levels of achievement — mandatory minimum standards of sustainable performance as well as silver, gold and platinum levels that define a more sustainable carpet. It establishes performance requirements and quantifiable metrics throughout the supply chain for public health and environment; energy and energy efficiency; bio-based, recycled content materials; manufacturing; and reclamation and end of life management. While the standard can be used to evaluate any carpet product, it is primarily intended for commercial carpets as its evaluation methodology is complementary to emerging commercial green building standards.

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Program title: **"Carpet Scores Good Marks in Schools: A Smart, Sustainable Solution in Floor Coverings" (1/09, page 69).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare /sustainable design (HSW/SD) credit. (Valid for credit through January 2011.) **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online and avoid handling charge, go to ce.ArchitecturalRecord.com**

1. The percentage of teachers surveyed that prefer carpet on their classroom floor is :
- ❑ **a.** 70 percent.
- ❑ **b.** 50 percent.
- ❑ **c.** 30 percent.
- ❑ **d.** 15 percent.

2. The effectiveness of carpet in reducing noise compared to other flooring options is:
- ❑ **a.** roughly the same.
- ❑ **b.** 50 times more efficient.
- ❑ **c.** 10 times more efficient.
- ❑ **d.** 10 times less efficient.

3. Carpet's thermal insulation effect can be increased by:
- ❑ **a.** regular cleaning.
- ❑ **b.** a pad beneath the carpet.
- ❑ **c.** a denser pile.
- ❑ **d.** a warmer color.

4. Carpet that is properly selected, installed and maintained:
- ❑ **a.** lasts up to 2 years or longer.
- ❑ **b.** will serve its design life.
- ❑ **c.** requires less vacuuming.
- ❑ **d.** lasts up to 10 years or longer.

5. Studies have shown that the biggest source of mold spores is:
- ❑ **a.** water trapped under carpet.
- ❑ **b.** carpet installed over uncured concrete.
- ❑ **c.** an improperly operated and maintained HVAC system.
- ❑ **d.** wet construction materials.

6. Experience has taught that a low profile, densely tufted, tight loop construction:
- ❑ **a.** is very functional in a school.
- ❑ **b.** should only be used around a school entrance .
- ❑ **c.** should not be used in any area of a school.
- ❑ **d.** is not appropriate for schools.

7. A carpet retention rating of 4.0 is considered:
- ❑ **a.** average.
- ❑ **b.** poor.
- ❑ **c.** outstanding.
- ❑ **d.** not appropriate for schools.

8. Most school carpet is installed using:
- ❑ **a.** the direct glue method.
- ❑ **b.** staples.
- ❑ **c.** nails.
- ❑ **d.** a combination of glue and nails.

9. The single most effective and economical means of keeping carpet in schools clean is:
- ❑ **a.** shampooing.
- ❑ **b.** spot removal.
- ❑ **c.** vacuuming.
- ❑ **d.** extraction cleaning.

10. Wrinkles, ripples and buckles in carpet are most often caused by:
- ❑ **a.** improper glue.
- ❑ **b.** failure to stretch the carpet correctly.
- ❑ **c.** faulty measuring.
- ❑ **d.** imperfections in the carpet.

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Material resources used: This article addresses issues concerning health and safety and sustainable design.

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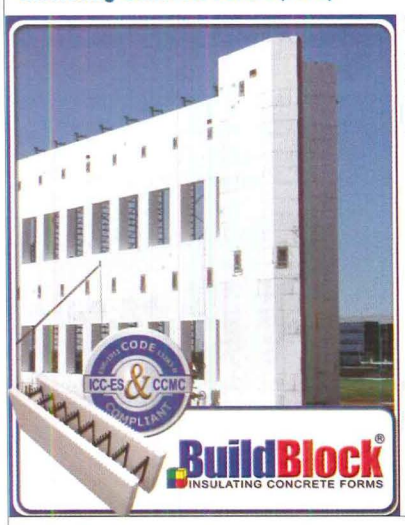

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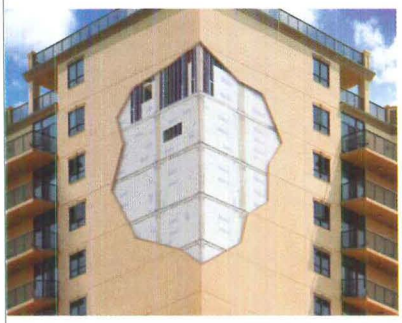
Sheathing



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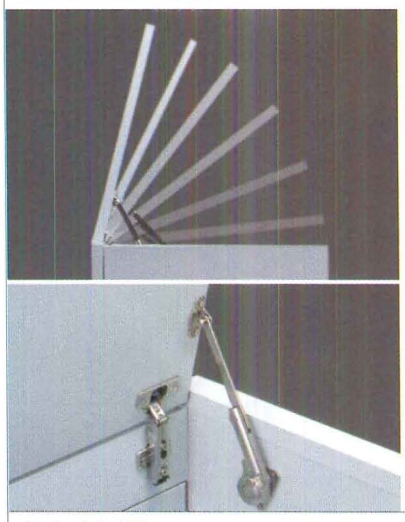
Soft-Down Lid Stays



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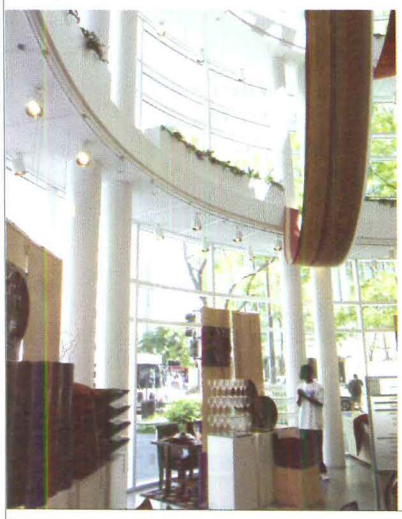
Circle 154

Fireproofed Steel Column



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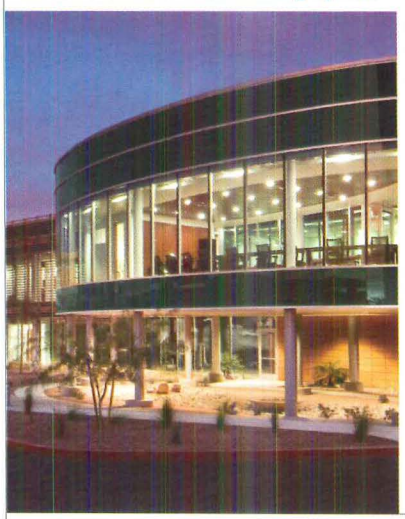

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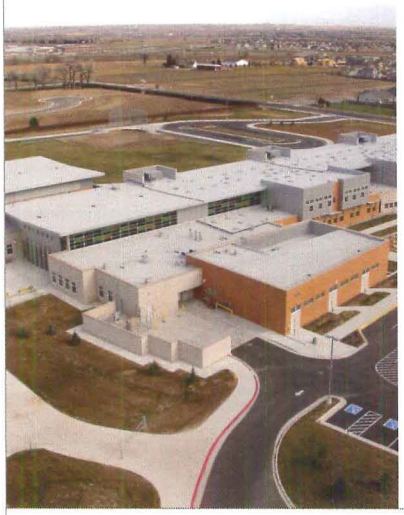

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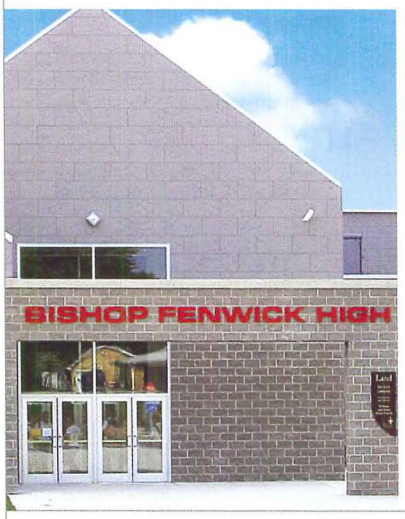
An Economic Opportunity for Education



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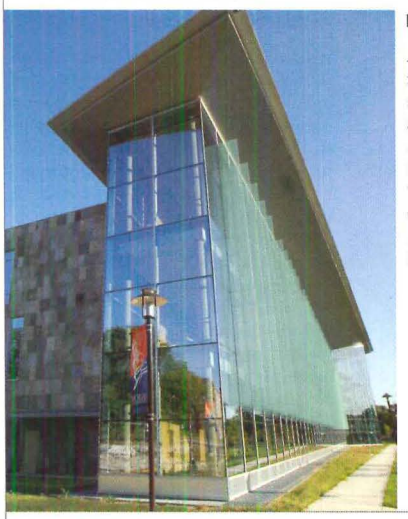

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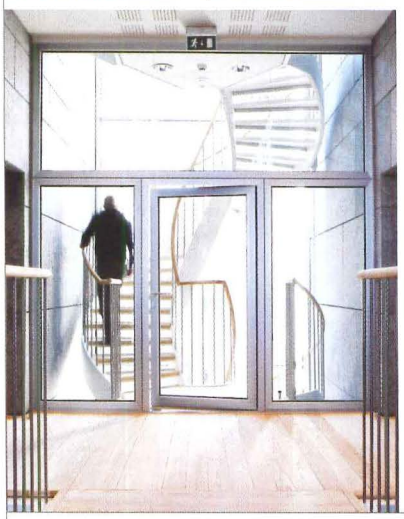

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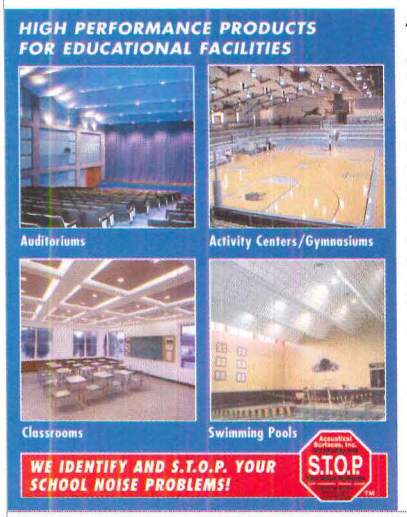
Better Acoustics = Better Schools



Acoustical Surfaces, Inc.

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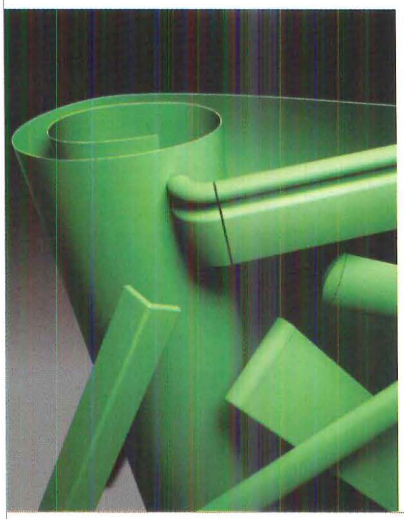
Circle 162

Wall Protection



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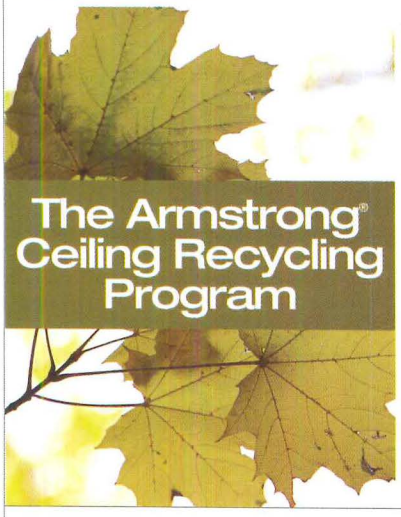
Recycling Program



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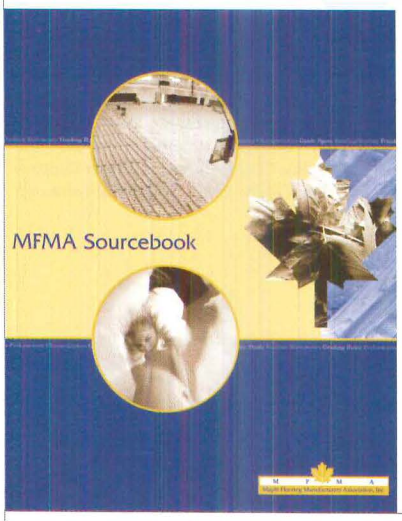
Circle 164

Technical Information for Maple & Sports Flooring



Maple Flooring Manufacturers Association

MFMA is an authoritative source of innovative technical information for maple and sports flooring systems. MFMA establishes product quality, performance, installation guidelines and maintenance issues. Additionally, it promotes the use of maple flooring products worldwide. MFMA has combined all their information in one place, the MFMA Sourcebook. Request a free copy through e-mail. 888-480-9138 Email mfma@maplefloor.org www.maplefloor.org

Circle 167

CIRCLE # OR GO TO HTTP://ARCHRECORD.CONSTRUCTION.COM/READERSERVICE/READERSERVICE.ASPX

Custom Capabilities

Roppe Corporation

Custom capabilities in floor designs allow the creativity of the classroom to extend itself into play areas, lunchrooms and hallways to encourage school spirit or just to add interest to the space. Roppe welcomes your designs or can create a design for you based on your desired impact. 800-537-9527 Fax number 419-435-8546 www.roppe.com

Circle 168

Versatile Table Solutions

Virco Mfg.

Virco's GREENGUARD® certified TEXT™ tables for technology-based learning environments and offices combine proven Virco construction with elliptical legs, swooping yokes and arched feet for exceptional elegance. Designed by the award-winning team of Peter Glass and Bob Mills, the TEXT line includes dozens of adjustable-height and fixed-height models. An array of TEXT tilt-top tables are also available for multi-purpose facilities requiring variable furniture set-ups. For versatile table solutions, TEXT gets the message. 800-448-4726 www.virco.com

Circle 171

Carpet Makes the Grade

The Carpet & Rug Institute

The Carpet and Rug Institute (CRI) is a source for science-based information and insight into how carpet and rugs can create a better environment—for living, working, learning and healing. CRI's membership consists of manufacturers representing over 90% of all carpet produced in the United States, and suppliers of raw materials and services to the industry. 706-278-3176 www.carpet-rug.org

CRI™
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Circle 169

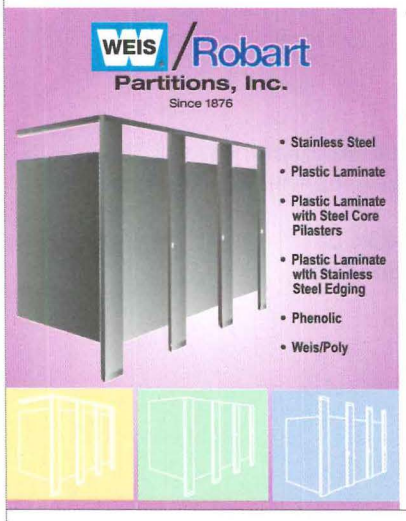
Products & Solutions for Classrooms & More

Wenger Corporation

Wenger Corporation provides innovative, high-quality products and solutions for customers across various markets: elementary, secondary and higher education; performing arts centers, theatres and places of worship; parks and recreation venues; rental companies; and athletic facilities. Wenger products include sound-isolating practice rooms, storage cabinets, staging, risers, seating and acoustical solutions, including portable and full-stage acoustical shells. Along with superior customer service, Wenger delivers outstanding value with a beautiful blend of form and function. 800-4WENGER (493-6437) www.wengercorp.com

Circle 172

Toilet Partitions



Weis/Robart Partitions, Inc.

Since 1876, Weis/Robart Partitions, Inc. has been providing quality toilet partitions for the building industry. Weis/Robart stocks a large inventory of toilet partitions in stainless steel, phenolic, plastic laminate and polyethylene. Weis/Robart Partitions is concerned about the environment. They now provide materials that are recyclable and materials that contain post consumer content. Coming this summer, they will introduce their new line of toilet accessories. 734-467-8711 www.weisrobart.com

Circle 170

Green Spin on Solid Surface Material

Bradley Corp.

Bradley Corp. has combined eco-friendly recycled materials and nearly unmatched durability with its new Terreon®RE solid surface material for handwashing fixtures. Composed of an eco-friendly bio-based resin, pre-consumer recycled granule fillers and other natural materials, Terreon®RE is one of the greenest product materials on the market. Call their toll-free number or visit their web site. 800-Bradley www.bradleycorp.com

Circle 173

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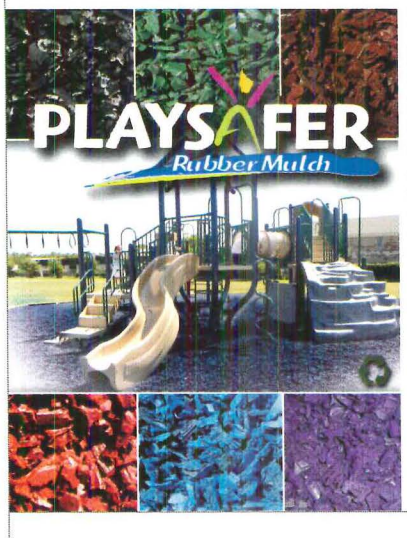
High-Efficiency Toilets

Sloan Valve Company

The Efficiency Series by Sloan® includes High-Efficiency Toilet Systems, which package water-efficient Flushometers with vitreous china floor- or wall-mount toilets. Choose from single- or dual-flush Flushometers in manual and sensor-operated models. Sloan also offers High-Efficiency Urinal Systems that flush with as little as a pint of water. Call their toll-free number or visit their web site. 800-9-VALVE-9 (982-5839) www.sloanvalve.com

Circle 174

Rubber Mulch



Playsafer Rubber Mulch

Playsafer rubber mulch is the ideal surface for resilience and durability in playgrounds, landscaping and equestrian facilities. It also provides the highest quality fill for ropes courses, obstacle courses, training pits for hand to hand combat training and backstops / bullet traps for shooting ranges, both for public and military applications. Ipema Certified. ADA Accessible F1951-99. Exceeds ASTM F1292-99. Guaranteed to last a lifetime. For more information, please contact Rubberecycle at their toll-free number or visit their web site. 888-436-6846 Email info@rubbermulch.com www.rubbermulch.com

Circle 177

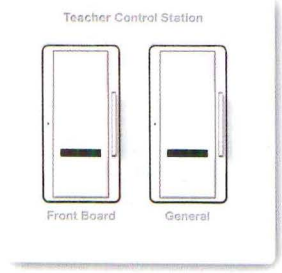
Water-Source Heat Pumps

Climate Master

Tranquility 16™ Compact (TC) Series water-source heat pumps with EarthPure® HFC-410A zero-ozone-depletion refrigerant is extremely environmentally-friendly. With one of the smallest cabinets in the industry, it's compatible with thousands of older water-source heat pumps, and utilizes scroll compressors to exceed ASHRAE 90.1 efficiency requirements; available in sizes from 1 to 5 tons and geothermal capable. 405-745-6000 www.climatemaster.com

Circle 175

Classroom Lighting Control Fixture Solution



Lutron Electronics Co., Inc.

Balance LC from Lutron is the first educational light control solution to combine individually controllable fixtures, high-performance manual control, and automatic sensors into one simple package that enhances the learning environment, saves energy and contributes to sustainable classrooms, and supports the community. 888-LUTRON1 www.lutron.com/k-12

Circle 176

THE MESSAGE IS CLEAR

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VETROTECH'S glass and frame products, designed to meet all safety and FIRE RATED building codes, are a cost-effective solution for your upcoming school project.

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smart choices

Gone are the stodgy colors of red, yellow and blue and in come the computer colors of cyan, yellow and magenta. Students today have grown up with the reference of the computer age and the emergence of illuminated color. Although the colors are saturated, vivid, lively and active; they are used in smaller doses as accents so as not to distract from learning – unless of course, the colors are defining your team loyalty or team spirit. The colors in this palette represent over 85% of the team colors of all schools and professional sports.

– Nada Napoletan Rutka, CMG
www.colordesigner.com

Roppe Education Palette

616 platinum	606 tropical blue	628 shamrock	626 tangerine	186 red	629 golden	613 azalea	118 peacock	100 black	627 mariner	161 snow	185 burgundy

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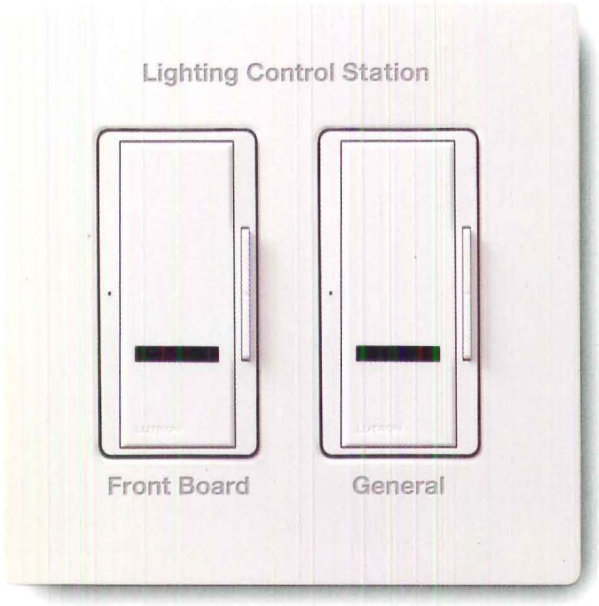
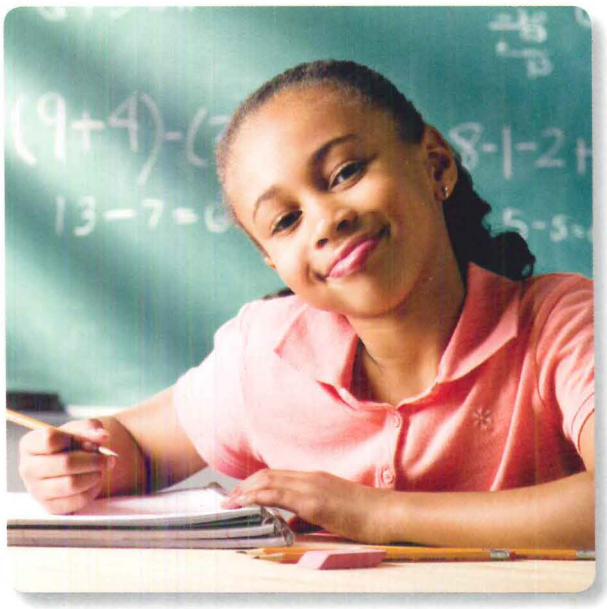
CIRCLE 23

Consume less electric power.

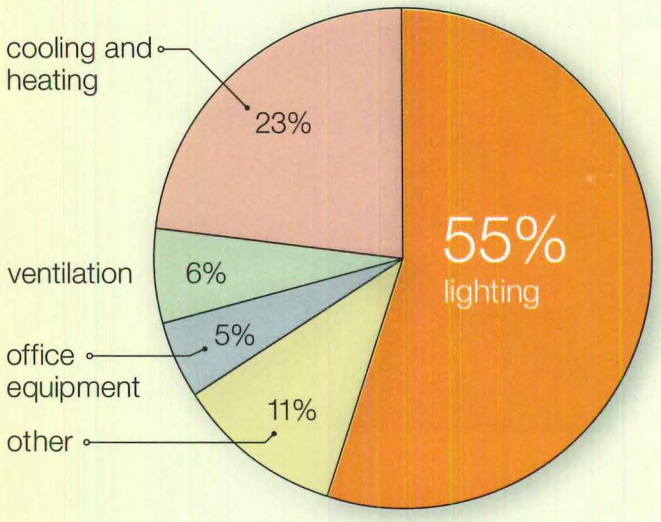


Generate more brain power.



Discover the power of Lutron® Greenovation™, and take the first step toward sustainability.

Electricity consumption in education*



*Source: Energy Statistics for the U.S. Government

The power to adjust classroom lighting for specific student activities. The power to shut the lights off automatically when the classroom is vacant. The power to harvest daylight and conserve energy. The power to teach by example using curriculum-based resources. The power to network with the Greenovation community. And, the power to share it with your community. That's what Lutron Greenovation gives you. This easy-to-use solution can cut lighting costs by as much as 50% compared to dual-level switching, and may also increase student attention and performance.** That's a powerful thing. Visit www.lutron.com/k12 or call 1-888-LUTRON1.

** "The Relationship between Environmental Quality of School Facilities and Student Performance." http://schoolstudio.engr.wisc.edu/energysmartschools.html

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1.888.LUTRON1 | register for more information at www.lutron.com/greenovation

CIRCLE 24