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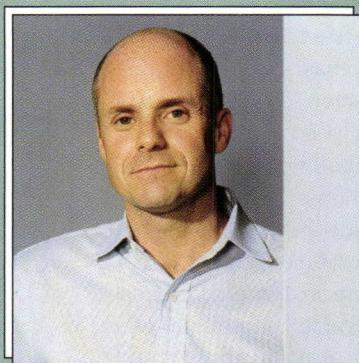
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CREATIVE TIME

BY C.C. SULLIVAN

Where do you find creative space? The search for balance between our detail-focused daily grind and big-picture idea making is a constant for architects. Our intellects earn our bread, yet running our complicated businesses can be an all-consuming affair.

The grass always looks greener on the lot next door. The self-determining sole proprietor draws envy for his freedom, but the star of the one-man show answers to health insurers and tax collectors. The large firm's design director walks a high-design high wire above a corporate safety net, yet she's hamstrung by death-by-committee bureaucracy. In every case, architects must create ways to create. A few broad stereotypes suggest how we do so:

The copier. Most of us behave this way: We work hard until we feel reasonably caught up, and then clear room for trace paper and mouse. So our days are longer, leading to more imagination-inhibiting stress: Last year, two out of five architects worked regularly outside of the nine-to-five fold, versus only 25 percent of all workers in the United States.

The moonlighter. Creative liberation seems more palpable when we're away from the office. The classic case study, Frank Lloyd Wright, started his nocturnal practice by poaching house projects from Sullivan and Adler in the 1890s. Like Wright, young designers take clandestine commissions "not only to make extra money but also to be able to make their own decisions," wrote Dana Cuff in *Architecture: The Story of Practice*. "Moonlighting keeps 'business' at the office and provides an outlet for design."

The night owl. Does your artistic apex arrive in the wee hours (under the spell of wine, perhaps)? Grad-school studios and mid-career moonlighting make us think this is normal, though our life partners and pets argue otherwise. Gio Ponti once admonished budding architects to "think all night architecture, [and] work all day architecture." So we trade free time for free thinking, eroding the boundary between work and life. It's not always healthy.

The partnership. Another classic scenario: One creates while the other tends the till. I.M. Pei, for

example, had the late Eason Leonard, who managed a spotless operation for more than three decades, giving Pei enough freedom to design 200 breakthrough buildings. Successful partners work hard to keep their relationships fair and fresh—especially those husband-wife duos matching business acumen and design prowess, such as the Libeskind.

The collaborator. Some architects formalize their creative space by establishing a mini-atelier of some kind. To boost innovation at Skidmore, Owings & Merrill, design partner Roger Duffy established a "laboratory for architectural innovation" and began publishing books of juried critiques. A similar, trendier mindset is partnering on individual projects with experts and artists; the architects may do less of their own creating, but they find powerful synergies.

The liquidator. I had my own firm, says the seller, but it cramped my style. So I cashed in and (a) stayed on as design partner, or (b) started another life; I'm happy now. New to this category is Canada's talented Peter Busby, who merged his busy practice with Perkins & Will last month to have "a better platform to work from, and access to larger design opportunities," he says. He also happily surrenders sole supervision of a 65-person shop: "This takes a load off my shoulders and gives me time to concentrate on what I like to do."

The academic. Another coping mechanism is teaching. Although a time drain, it yields "creative freedom and therapy from our everyday lives," as Israeli architect Yechiel Korin, who teaches at Technion and Tel Aviv University, told *Architecture of Israel Quarterly*. "The sharp polarity between hectic work in the office and relaxed teaching at the university recharges my batteries [and] compels me to keep searching for ... new ways of thinking."

Architects will always look for ways to break free from the shackles of their very businesses. And whether we prefer private conferences or open competitions, in-house charrettes or far-flung sabbaticals, the search for creative freedom is endemic to our professional lives. Our work realm may be riddled with compromise, but we're loath to compromise on innovation.

How do you get creative? Suggest techniques and approaches via csullivan@architecturemag.com.

A class act

The article on Jewish identity in architecture [July 2004, page 23] was brilliant and thought provoking. You're a class act, making a real and unique contribution to architecture.

Ken Katz

Fort Lauderdale

Go State!

I enjoy your magazine and the issues and projects covered, but you owe an apology to the AIA president-elect Kate Schwennsen [July 2004, page 13]: She's a professor at my alma mater, Iowa State University, not the University of Iowa.

Kevin Timmerman

La Crosse, Wisconsin

Up your ash (quotient)

Regarding the article on shortages [July 2004, page 16], *Architecture* missed an opportunity to educate the profession about fly ash. Depending on design requirements, architects can specify fly ash as a substitute for up to 50 percent of the Portland cement used in concrete. Not only will this help avert cement shortages, but it also helps our environment by reducing cement production and making use of scrubber waste from coal-fired power plants.

John Klopff

San Francisco

Volunteers, please

Thomas Fisher's Protest opinion [July 2004, page 80] is so right-on that it hurts. I hope this stirs up a hornet's nest of dialogue—as well as action. Maybe some person out there in the architectural universe who has made his millions and earned enough glory for two lifetimes will see fit to address homelessness in a meaningful way.

Rolf Fuessler

Boston

The Protest by Thomas Fisher is blatantly anti-American and displays a sophomoric hatred. It destroys without building and offers blanket condemnation without any sense of balance. There must be a hundred better ways to suggest change.

David L. Walker

Corpus Christi, Texas



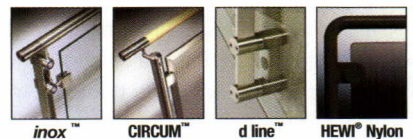
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What do you think? Send letters to csullivan@architecturemag.com.

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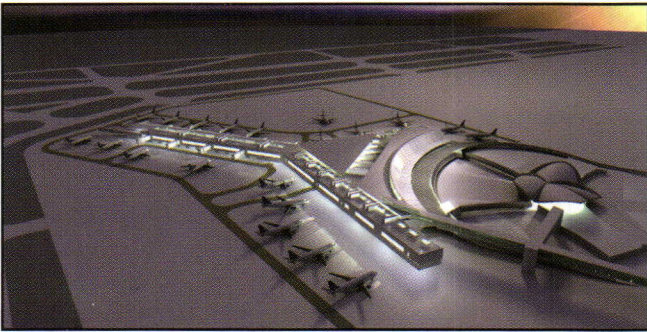
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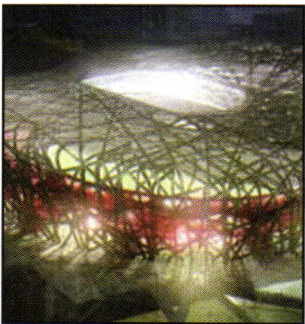
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AIRPORT EXPANSION PROJECTS SOAR



Airports are busy again. Projected numbers suggest that passenger traffic in 2004 should exceed levels not reached since 2000, a banner year for the industry. While this indicates that travelers are overcoming their post-9/11 fear of flying, it also brings a space crisis into sharp relief. To respond to increasing flights and foot traffic—up by 3.5 percent last year—many airports, and especially the nation's 20 largest, are initiating or resuming building programs to meet the rising demand. Atlanta's Hartsfield-Jackson is in the middle of a 10-year campaign to add another runway and two more terminals; Chicago's O'Hare is modernizing and expanding two terminals, expected to be completed in 2007; and John F. Kennedy International Airport in New York City will add a new terminal for Jet Blue Airways (above), to begin construction in 2005, hugging Eero Saarinen's TWA Terminal, in spite of protests by preservationists. "This is going to be a very efficient, very busy terminal," says Bill Hooper, principal in charge of the 640,000-square-foot project for architect Gensler. **Katie Gerfen**

BEIJING OLYMPIC VENUE ON HOLD



While last month's Athens Olympic Games were able to take advantage of a slew of venues completed on a down-to-the-wire schedule—most notably Santiago Calatrava's Olympic Stadium with its dramatic roof design—the status of the the central venue at the next summer games is being

called into serious question. Work on the \$730 million national stadium for the Beijing 2008 Olympics has been suspended indefinitely by Chinese authorities. The structure, the work of Swiss architects Herzog & de Meuron and likened to a bird's nest, may be scrapped as local governments across China struggle to cut spending on so-called "white elephant" projects to prevent "overheating" of the country's economy.

Jamie Reynolds

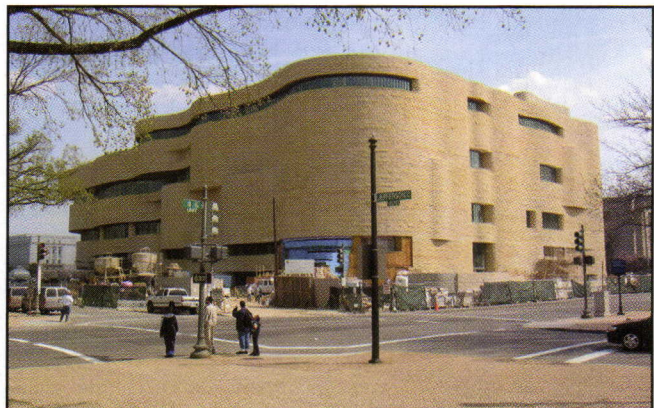
RIBBON CUTTING FOR TROUBLED AMERICAN INDIAN MUSEUM

On September 21st, the Smithsonian National Museum of the American Indian will open amidst celebration and fanfare, including a six-day festival of native cultures. The museum occupies the last available plot of land on the national mall, and represents a distinct architectural style said to embody Native American cultural principles. Reminiscent of "a natural rock form that has been carved by wind and water," according to Duane Blue Spruce, facilities coordinator for the museum, it is likely that this building will come to be a cultural icon.

There are some affiliated with the design process, however, who are not celebrating. Canadian Douglas Cardinal—the original architect of the museum—was terminated from the project in 1998 after what he claims was a politically charged process that resulted in his initial concept being usurped by the rest of the design team, which included Philadelphia-based GBQC Architects. Cardinal left Washington after four years of involvement and has since renounced all ties to the project, claiming that he bowed out of the creative process and was left with a \$1 million debt for the production of construction drawings, models, and plans.

The museum states that the design process was a collaborative one from the beginning, with Cardinal working closely with GBQC, John Paul Jones of Jones + Jones, and architects Ramona Sakiestewa and Donna House. Blue Spruce says that the reason for Cardinal's dismissal was "a breakdown in the working relationship between the office of Douglas Cardinal and GBQC" that "translated into a difficulty in getting things done in a timely manner," a charge which Cardinal denies. In 1998, after Cardinal was dismissed from the project, SmithGroup and the Polshek Partnership were brought in to fill the void in the team. The disagreement has cast a shadow of strife and scandal around the project.

While it is expected that Cardinal will boycott the opening festivities, he still claims that the design is largely his: "That's my signature style. No one else can claim authorship, though everyone has tried." **Katie Gerfen**



ADA GIVEN NEW REACH IN STATE BUILDINGS

In a decision that may have far-reaching repercussions for the compliance of state-owned buildings with federal codes, the U.S. Supreme Court ruled that disabled people can sue in cases where states ignore their federally protected civil rights.

The case in point involved a Tennessee man named George Lane, who was forced to crawl up two flights of steps to make an appearance in a Benton, Tennessee, courthouse. Lane is disabled, and the courthouse did not provide suitable access to the building as prescribed under the *Americans with Disabilities Act*. When Lane refused to crawl or be carried up for a subsequent court date, he was arrested for failing to appear. He is suing the state for \$100,000 in damages.

The Supreme Court voted 5-4 in favor of the decision. Previously, it was thought that, on constitutional grounds, states could not be sued over federal regulation without their permission. **Jamie Reynolds**

TRIUMPHS AND TRIBULATIONS FOR DANIEL LIBESKIND

In the latest twist on what has been a dramatic few months for Daniel Libeskind, the architect has been appointed "Cultural Ambassador for Architecture" by the U.S. State Department's "CultureConnect" initiative. This program, founded in part as a response to the September 11 attacks, sends American emissaries to other countries in an effort to promote cross-cultural understanding through workshops and seminars mainly directed at young people. Other ambassadors include photographer Joel Meyerowitz, cellist Yo-Yo Ma, and author Frank McCourt. In his new role, Libeskind traveled to Tunisia in July, where he spoke with architecture students and professionals, as well as with Boy Scouts and Girl Scouts. Next up, he will be going to India and Bangladesh.

But not all his affairs are as diplomatically serene. Libeskind's spiral-shaped extension to the Victoria and Albert Museum in London, for example, may be in peril after Britain's Heritage Lottery Fund turned down a bid for funding in July. The architect's spokesperson Nina Libeskind reports, however, that the museum has already raised 50 percent of the project's \$114 million budget through private sources, and "there's every reason to feel hopeful that the British Department for Culture, Media, and Sport will step up to fund the gap." Meanwhile, the architect's suit continues against World Trade Center site developer Larry Silverstein for the \$843,000 Libeskind claims he is owed in fees for his master plan and Freedom Tower. The architect hopes to settle before his October court hearing, but he is waiting for Silverstein to agree to a mediation date. **Anna Holtzman**

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SENATE EYES NEW GREEN LEGISLATION

Vermont Independent Senator Jim Jeffords and New Jersey Democratic Senator Frank Lautenberg have introduced the *High-Performance Green Buildings Act of 2004* to the Senate. The legislation aims to improve indoor-air quality, energy efficiency, and user health and productivity in schools and federal buildings by establishing a budget of \$35 million for environmentally sound design, construction, and operation practices. The program also provides \$10 million in grants to state and educational agencies that employ the Environmental Protection Agency's "Indoor Air Quality Tools for Schools" program, and creates an Office of High-Performance Green Buildings at the General Services Administration to promote public outreach, research, and development, as well as a committee to coordinate the activities of existing agencies that promote green design and development. **Anna Holtzman**

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⇒ Peter Busby, the Vancouver, British Columbia-based architect best known for formally novel and highly sustainable designs, has entered into a partnership with Chicago's Perkins & Will to create an off-shoot company. Described by the firms as a merger, the new practice, Busby Perkins + Will Architects Co., and will be based in Vancouver, with offices in Calgary, Alberta, and Seattle.

⇒ Scientists at Australia's Swinburne University have built a model of that country's Sydney Opera House—at the size of half the width of a human hair. The iconic edifice was picked to demonstrate the accuracy of two-photon photopolymerisation, a laser construction technique that builds 3-D forms from glass and plastic polymers.

⇒ Frank O. Gehry's Maggie Cancer Care Center in Dundee, Scotland, has been named the British Building of the Year by Royal Fine Art Commission Trust.

⇒ Frank M. Guillot has been elected president of NCARB for 2004–2005. A long-time participant in registration board and AIA initiatives, Guillot is a principal at the Burlington, Vermont, firm Guillot-Vivian-Viehmman Architects.

⇒ A team headed by the New York City-based landscape architecture firm Field Operations and Diller, Scofidio & Renfro will design the master plan for the redeveloped High Line, a disused stretch of elevated railway running 20 blocks along the West Side of Manhattan. The final selection culminates years of grassroots lobbying by neighborhood activists and preservationists to reclaim the space. On the other coast, The Related Companies has announced a team of designers and developers for the massive Grand Avenue project in Los Angeles, a 3.2-million-square-foot undertaking to include commercial high-rises and cultural centers such as the Walt Disney Concert Hall and the Cathedral of Our Lady of the Angels: They include Elkus/Manfredi Architects; Gustafson Guthrie Nichol; Morphosis; Skidmore, Owings & Merrill; and Suisman Urban Design.

⇒ Laurels: Charles A. DeBeneittis, a senior managing director at Tishman Speyer, has been named 2004's Henry C. Turner Prize winner by the National Building Museum in Washington, D.C. The award recognizes leadership in the construction industry.

⇒ German architect Josef Paul Kleihaus, a champion of Berlin's "critical reconstruction," has died. He was 71.



BERLIN'S IDENTITY CRISIS

Fifteen years after the collapse of the Wall, the German capital is still sorting itself out. by Max Page

Across from the Palace of the Republic—the asbestos-ridden 1975 parliament building of the former German Democratic Republic that many want to tear down and still others hope to preserve—and across from the empty plaza where the Schloss, the home of the Prussian kings, once stood, is a little block of stone you could easily miss. A 1981 memorial built in the era of communist East Germany, the block declares the country's "bonds of eternal friendship with the Soviet Union." After 1989, reunified Berlin sought to revise the history displayed on the miniature monument, so they attached Plexiglas panes to it printed with a new text that is not so celebratory of the Soviets, thereby changing the cube's political use.

While the stone block shows some of the layers of history in Berlin, it is also a symbol of the historical hand-wringing that goes on in the city, and in its indecisiveness is an apt metaphor for the larger dilemmas of architectural design in Berlin. On the one hand, it craves "world city" status. As such, over the past decade it has drawn the biggest names in architecture to design the infrastructure for a new-old capital. On the other hand, the city is seeped in architectural conservatism born of its Prussian past and the nervous contemplation of its own history. Since the 1970s, the rejection of modernism in the city—or "critical reconstruction," as it is called by historians—has dominated redevelopment, bringing surprisingly little great

architecture even as it has repaired a city that inflicted more wounds on itself in the postwar period than were inflicted on it during the Allied campaigns of World War II.

Fortunately, this particularly German dialectic, between being at the forefront of modern architecture—Mies is the ghost that commands this town—and tiptoeing around history, has its vibrant synthesis in the form of young architects who are insistent creating something new without angling to level the city once again.

The obsession with architecture, which just a few years ago gripped the city, has receded as some of the biggest projects have been completed. Norman Foster's redomed Reichstag is complete; Potsdamer Platz's icy cool towers by Renzo Piano and Helmut Jahn are now part of the skyline; and the row of 1990s federal government buildings on the Spree River by Berlin architect Axel Schultes are now occupied by the country's bureaucrats. Berlin has become what no one thought possible: normal.

CLAIMING NO-MAN'S LAND

And yet, it still remains a city of cranes, busily filling in the remaining gaps in the cityscape. In May, the U.S. government announced that construction will begin come October on the long-delayed American embassy. Planned since 1931, construction was halted first by World War II, then the Cold War (the site is in the once infamous "no-man's land" behind the

When Eisenman Architects' *Memorial to the Murdered Jews of Europe* is done in January the four-acre monument will nearly fill in the stretch of buildings along the no-man's land, from the Reichstag to Potsdamer Platz (above).



Behind the pink baroque German Historical Museum, is I.M. Pei's 2003 limestone addition. Reminiscent of the National Gallery in Washington, D.C., with its glass stairwell it also nods to the architect's addition to the Louvre.

East German wall). More recent delays were caused by security concerns. Bucking the trend of building American embassies surrounded by large barriers, the State Department has, to its credit, chosen to modify its safety methods and fit its building into the site. Moore Ruble Yudell, who won a competition for the project, has worked within the restrictions of both the State Department and the city of Berlin, the latter insisting that the buildings around the Pariser Platz adhere to a strict set of historicist design regulations, including the use of Berlin limestone. Even Frank Gehry, who built the adjacent DG Bank, had to rein in his metallic tendencies; the quiet stone exterior of that building surrounds a courtyard bursting with his titanium horse, which houses a conference room.

When the embassy is finished in 2008, it will fill in the last empty lot on the Pariser Platz. The embassy's site is, in fact, the most important in central Berlin. It sits at the corner of Pariser Platz next to the Brandenburg Gate and across the street from Peter Eisenman's *Memorial to the Murdered Jews of Europe*, which is nearing its 2005 completion date. With the erection of the Eisenman memorial, a sea of rectangular granite blocks of varying heights spread over four acres, the unbroken link of public buildings along the no-man's land will have largely been

filled in, stretching from the Reichstag to Potsdamer Platz.

Farther down Unter den Linden, the grand avenue that was turned into a dead-end street by the Wall, stands the baroque Zeughaus, home of the German Historical Museum. Behind it, in a courtyard nestled across from Schinkel's almost-perfect Neue Wache, a guardhouse that is a much-visited war memorial, is I.M. Pei's subtle 2003 addition to the history museum. Here Pei has offered a warm, Berlin-limestone façade, ending in an angle reminiscent of his National Gallery in Washington, D.C., but softened with a gentle curve. A dramatic glass-and-steel staircase nods to his Louvre pyramid, as well as to Mies, his former teacher. It seems extraneous though, and a pale attempt to mimic the viewing experience of Foster's Reichstag dome. But the brightly lit atrium and understated gallery spaces bode well for the retelling of German history.

Visitors pay homage to these important new works, as well as to others that have been built across Berlin—Rem Koolhaas's Dutch Embassy, another embassy complex shared by the Nordic countries, and Dominique Perrault's spaceshiplike Velodrome—all of which opened in the past few years. And yet, there is a nagging feeling that Berlin doesn't have its own Guggenheim Bilbao, its work of transcendent architecture.



Representative of the new Berlin on a different scale, in the former East German part of the city the young firm Abcarius + Burns has designed two apartment townhouses with flexible spaces, including a bathtub on wheels.

FLEXIBLE INTERVENTIONS

But these high-profile projects might be the wrong place to look. Lesser-known architects Jean-Marc Abcarius and Chris Burns came to Berlin (the former from Beirut, the latter from the United States) soon after the Wall fell, eager to be a part of the rebuilding of the city. They were struck with the conservatism of the city's architectural culture: Years of bland, stucco modernism on both sides of the Wall had left a city whose dull architecture could not match its cultural vibrancy. "What struck us most," Abcarius says, "was the apparent motto in Berlin: The less building mass and architecture you produce, the higher your chances of winning a competition; the more unassuming the project looks, the greater the chances that the project will go further."

So the two decided to take matters into their own hands. They served as the developers and architects of two new apartment buildings in the former East German half of the city. They began with great reverence for the history of the Berlin residential type—courtyards open to the public during the day but closed at night, five stories built to the street wall, apartments that mingle easily with workshops—but then they did the unexpected. In each building, they offer retail space at the ground-floor level, but also allow passersby to see all the way

back to the courtyard, maintaining a public gesture of openness. Inside, the apartment buildings allow for maximum flexibility of space. Window panels and louvers on runners can be wheeled to the side, almost completely opening up spaces to the street. Virtually every interior wall is moveable, allowing for endless plan configurations. To drive home this point in a whimsical way, Abcarius and Burns have installed a bathtub on wheels in each apartment. This openness and flexibility is what makes these architects both representative of the new Berlin and a hopeful sign for its future.

Long before the architect of the Third Reich, Albert Speer, left his mark on the city—and long after—Berlin's architects and planners were drawn to the grand gesture. The layering of these dramatic interventions in the landscape has usually been destructive to the city's urbanism. Fortunately, a number of young architects, like Abcarius and Burns, who have been left out of the star-search for the huge projects are slowly producing some remarkable, yet humble, works of architecture.

Max Page teaches architecture and history at the University of Massachusetts in Amherst. Architect Jason Danziger also contributed to this article.



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THE NEW ENTREPRENEURS

Architect-developers call their own shots—and make money while they're at it. by Deborah K. Dietsch

Entrepreneurial spirit is alive and well in a new generation of architects who have taken on the role of real estate developer for their own projects. These under-50 designers are following in the footsteps of such pioneers as Atlanta architect John Portman, who built a profitable career by developing and designing hotels around the world.

While the younger architect-developers interviewed for this article haven't yet tackled such large, international projects, their investments in speculative housing and small office buildings are based on the same motivation: financial rewards and control over architectural design.

"I always felt like I was doing all the work, but the developers were getting all the money," says Greg Zahn of Zahn Design Architects in Washington, D.C. Zahn started his career designing condominiums for local real estate firms, but grew weary of "training other people in property development and seeing my designs getting screwed up." With the help of investors and loans, Zahn is now developing his own condominiums in downtown D.C. by rehabbing historic buildings.

Architect-developers say the easiest way to begin a career in real estate development is by learning the ropes from developer clients and using your own office as a springboard for speculative projects. Four years ago, with the help of a loan from the U.S. Small Business Administration (SBA), Zahn bought an 1890s building on Washington's developing 14th Street corridor to set up his offices, then used the property as collateral to secure a construction loan for a small condominium project.

STARTING AT HOME

Other architects start development ventures by purchasing houses with conventional home mortgages, which are typi-

cally easier to obtain than commercial loans. Five years ago, Detroit architect Michael Poris, a partner at McIntosh Poris Associates, split the cost of a \$200,000 house with a former builder client, and then tore it down to build a larger, Arts and Crafts-style home that sold for about \$800,000 in 2003. "We didn't make any money because we spent too much on construction," admits Poris. "It was a good lesson in understanding how construction costs affect the bottom line." Despite that experience, Poris is planning to raze his former home, an early 1900s bungalow, to build another spec house, which he hopes to sell before construction begins.

Working for developers on neighborhood revitalization plans and historic-building conversions also convinced Poris and his partner McIntosh that they could tackle similar projects. "For years we were teaching developers how to navigate the process of building in the city and convincing them to invest in the city," says Poris. "That experience helped us take a risk on our own development project."

The partners recently secured a purchase agreement for the Cliff Bell Building, an abandoned Art Moderne landmark in downtown Detroit. They plan to renovate the second floor of the 1929 building for their offices and rent out the ground-floor bar and retail space. To finance the estimated \$1.3 million project, Poris hopes to secure a loan from the SBA, which requires only 10 percent of the total project costs as a down payment—in contrast to the 20 to 25 percent required for conventional financing. To qualify for the SBA loan, Poris says his firm has to occupy 50 percent or more of the building.

"The biggest challenge of development is securing the capital and building a reputation for credibility," says San Diego architect-developer Jonathan Segal. "I have been

In collaboration with a team of developers and investors, Jay Reynolds, a principal of OJMR Architects in Los Angeles, designed and codeveloped a 2.2-acre cluster of 16 homes south of downtown Palm Springs (above).



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Greg Zahn bought a house in Washington, D.C.'s Shaw district to replace it with a six-condominium building for a total cost of \$2.5 million.

fortunate that all my projects have been successful."

Segal got his start in development in 1990 when he and four investors spent \$1.5 million to buy a scrap of land in downtown San Diego and construct seven row houses. Seven on Kettner, as the project is called, netted Segal \$450,000, encouraging him to design and develop more than a dozen projects over the next decade. Many of his unconventional residential and mixed-use buildings have helped turn downtown San Diego into a more vital, livable place.


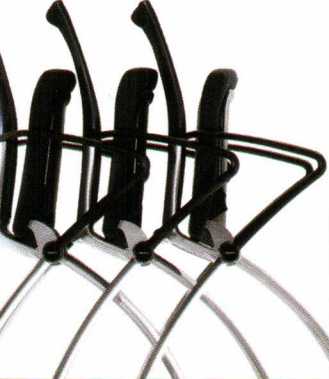

Among Segal's loft and condominium buildings is the Titan, a 22-unit apartment house wrapped in glass and rusted steel, which was finished last year. (He also just completed his own home and office in La Jolla, which will incorporate a glass floor.) Having the freedom to experiment with shapes and materials, Segal says, is a chief benefit of developing one's own projects. "Design control is everything," he asserts. "My advice to other architects is to try to find investors who believe in you. Eliminate the banker and the contractor if you have enough cash."

DESIGN SELLS, TOO

Most of these architect-developers found investors by convincing former clients to help finance their projects. Key to the sell are compelling architectural designs and the business plan or pro forma that compares anticipated project costs against revenues. "Those are your sales tools," says Segal, who hired a business consultant for \$350 to develop his first pro forma. "That's how you create interest in the project and get investors to loan you the money."

Some architect-developers maintain that the problem-solving skills of architecture are more critical to ensuring success than business acumen is. "You have to prove your worth to a lender by showing the value that you add to the project," says Gregg Pasquarelli, a principal of SHoP Architects in New York City who started his career as an investment banker.

Pasquarelli explains that his idea of expanding a 1905 warehouse in Manhattan's meat-packing district by transferring air rights from adjacent properties



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McIntosh Poris is developing the 1929 Cliff Bell Building, a two-story unfinished skyscraper, with the hopes of building higher eventually.

"radically transformed the development model and helped us outbid our competitors." The transfer allowed a six-story addition, boldly clad in zinc panels, to be built atop the old masonry warehouse, creating room for 22 condominiums. Units in the building, called Porter House (June 2004, page 74), sold out within six weeks, according to Pasquarelli. "People said the main reason for buying was the design."

But patience is a virtue when it comes to development, especially for architects who run conventional practices while pursuing speculative projects. After completing a house for his parents in Palm Desert, California, in 2002, architect Jay Reynolds, a principal of OJMR Architects in Los Angeles, undertook a six-month survey of the local housing market to determine the potential for contemporary-style residential developments. That led him to team with Los Angeles-based Symphony Development and, with the help of eight investors, plan a 2.2-acre cluster of 16 modernistic homes—each with its own plunge pool—south of downtown Palm Springs. Once the houses are completed this fall and then sold, Reynolds stands to earn about 16 percent of the profits. Meanwhile, he has spent the past two years pursuing other development opportunities as well, and completing feasibility studies—everything from design sketches to zoning studies—for about 40 sites in Palm Springs and Los Angeles.

"Development is a way for architects to control their destiny," says Reynolds. "But it takes understanding the economics of the marketplace—what will sell and for how much. It's exciting but a somewhat risky and time-consuming process." That risk, he and others maintain, is worth it. Like those who go into design-build, these entrepreneurs say investing in their projects offers what a conventional practice does not: design control and increased income.

Deborah K. Dietsch, former editor-in-chief of *Architecture*, is a frequent contributor to the *Washington Post* and *USA Today*. Her latest book is *Architecture for Dummies*.

COLLEGE BOOMLET II

Universities prepare for 2009—the largest high-school graduating class ever. by Jane Cady Wright

Today, colleges and universities across the country are bracing for a wave of unprecedented growth—the graduating high-school class of 2009, the biggest in U.S. history. Lest we risk déjà vu, a key question is: “How will the building boom of the millennium be viewed 40 years from now?” And perhaps more compelling, “How can we ensure that, after the design phase fades into memory, the new buildings will make a lasting contribution to the sense of place and signature of each campus?”

The dominant profile of an occasional high-rise building on a nonurban campus is often the souvenir of an era that left many traditional college campuses with flaws in their physical fabric. While design trends certainly influenced the schools, the sharp enrollment pressures of the original baby boomers, who came of age in the early 1970s—and a lack of planning—drove them to build these intruders.

ECONOMY DOWN, ENROLLMENT UP

The resulting functional and aesthetic disconnects, fortunately, made it a short-lived trend. Yet current realities suggest we may again be vulnerable to mistakes. “This is the first time in the modern history of higher education we’ve had a recession in the midst of a projected big enrollment increase,” Patrick Callan, president of the National Center for Public Policy and Higher Education, told *USA Today* recently. “It’s a huge crunch for which states did not prepare well.” These pressures are compounded by a competitive admissions marketplace and a driving societal change: College education has gone from privilege to expectation.

“The challenges are multidimensional,” says James E. Morley, Jr., president of the National Association of College and University Business Officers. “Institutions will have to figure out how to become more efficient.” Ballooning student populations come just as schools face shrinking endowments and reduced tax support (see “Baby Boomlet,” page 38).

Despite financial constraints, many colleges are making capital improvements to accommodate the next wave. This is especially true for student housing, perhaps the most vulnerable campus building type. With 47 percent of colleges surveyed by *College Planning & Management* magazine in 2003 admitting they have too little housing space—or obsolete existing inventory—institutions should be creating comprehensive plans that include new dormitories.

In the 1960s and early 1970s, when campuses faced similar pressures, the physical response was to “warehouse” students—hence the high-rise legacy. There were a few exceptions, notably Harvard University’s highly successful Mather House (1970): Based on Oxford’s tutorial model, the residence by Boston’s Shepley Bulfinch Richardson and Abbott appropriately hosted a high-rise while fostering student interaction by strategically incorporating special program spaces, including dining areas, libraries, computer labs, and art studios.

The lessons of Mather House have not been entirely lost.

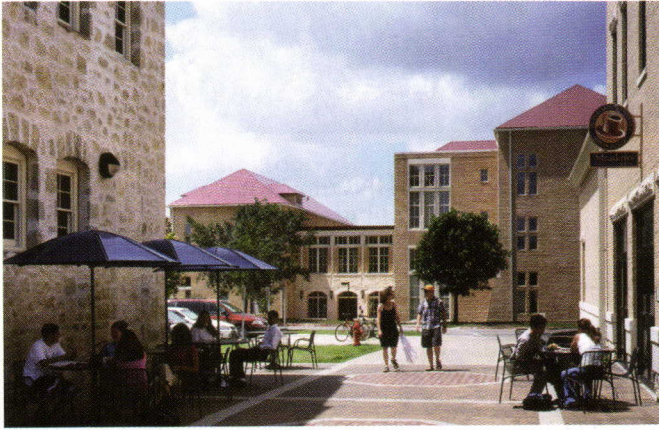


Harvard’s Mather House was among the most successful campus high-rises built in the 1970s, fostering a sense of place and community interaction by locating many amenities within the large residence.

Many of today’s campuses display a renewed consciousness of the role of housing in both the learning process and in shaping great campus spaces.

THE “LIVING/LEARNING” MODEL

One of the greatest shifts in student housing in recent years is that colleges talk more about their “communities” and less about their buildings. High-profile studies such as the *National Survey of Student Engagement* and the *National Study of Living-Learning Programs* suggest that students who live on campus rather than commute have higher GPAs, complete their degrees on time, are more likely to pursue advanced degrees, and are more satisfied with their college



To be more attractive, effective, and safe, universities are incorporating "living/learning communities" into their campuses. At St. Edward's University in Austin, Texas, students socialize by the bookstore.

broader campus master plan—and in contrast to the "mega-halls" of the 1960s and 1970s—student housing can be built in smaller increments and heal its undefined campus edges. Successful examples include a new quadrangle inserted into the campus core at Virginia Tech.

BIG BUSINESS, BIG DEMANDS

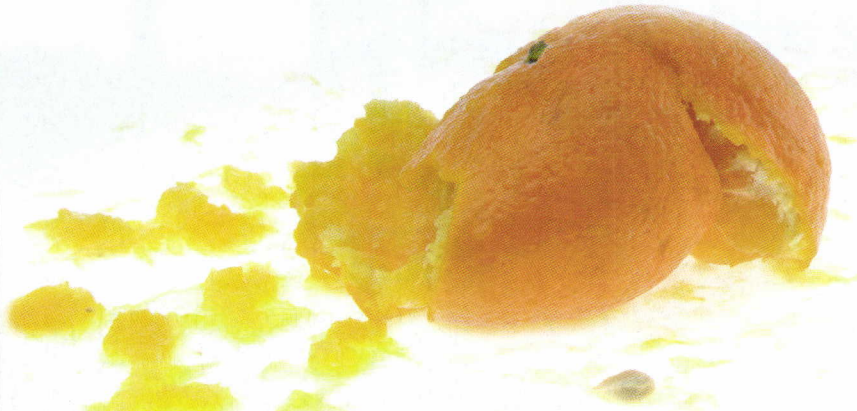
Student housing is big business on campus. It must support itself, covering operating expenses, debt payments, and long-term maintenance. At public institutions, housing systems are not usually eligible for state funding; they operate as "auxiliaries" and pay down their debt from revenues earned. "And there are significant student and family expectations that have changed over time," says Eddie Hull, executive director of housing services at Duke University and president of the Association of College and University Housing Officers International. "The new amenities create additional financial pressures." Hull notes that some schools use public-private partnerships to pay for such projects, a trend confirmed by the *College Planning & Management* survey.

So schools are listening to the most demanding consumers. Despite big budget cuts in California, UCLA is adding 4,000 beds this year. "It's more important than ever to anticipate the needs of students—to be in front of the curve," says Mike Foraker, director of UCLA's housing and hospitality services. He encourages designers to focus on the insides of buildings—details that students can see, feel, and touch—as well as trendy amenities like privacy, wireless connectivity, flexible dining options, and tutoring spaces.

While first impressions are important, a student's sustained emotional attachment to place can benefit a university for a lifetime. Great spaces and buildings create positive memories that directly correlate to alumni giving. What better challenge for architects than to help sustain the very places where we educate future generations?

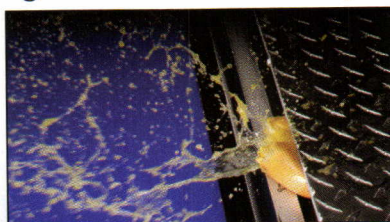
Jane Cady Wright is president and CEO of Hanbury Evans Wright Vlattas + Co. in Norfolk, Virginia.

Are You Comparing Apples to Oranges?

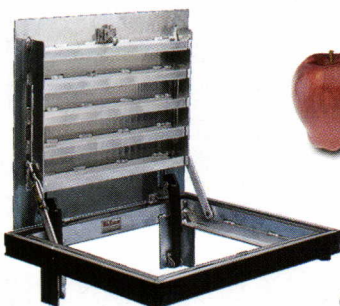


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PRIVATE AFFAIRS: ADVICE FROM A PROJECT MANAGER by Kenneth Levien

firm

Private schools nationwide are building and renovating facilities at a brisk clip. The driving force is manifold: a lack of confidence in public schools; parental desires to for unique educational environments; awareness of special-needs students; and donations by wealthy benefactors. Yet today's independent schools—like many nonprofit clients—present issues that seldom surface during work for public schools. The following rules of thumb will help architects embarking on private-school projects.

PREPARE FOR SELECTION BY PROPOSAL. While profit is the motive for commercial structures, nonprofit construction projects are all about the future. Schools care about material choices, initial costs versus operating expenses, and life cycle. Students are tough on the built environment and renovations are disruptive, so quality and durability are prime considerations.

Unless a firm has a history with a school, there will be a proposal process. At times, a big donor or strong board members can influence the selection of designers and contractors. But the best decision-making forum includes input from a range of leaders: the school's board, administration, and educated parents. Any proposal process should be clear and controlled.

LOOK OUT FOR CONSTRUCTION NOVICES. A private school may undertake a project only once every 25 years, so its administration and board won't be skilled at managing the process; they'll often fail to realize the full impact of the construction on operations. Volunteers on school committees will rarely be familiar with the nuances of school designs and construction—and they won't have time to adequately manage the process. The project team needs to fully educate the client on the process and help them plan for disruptions, especially for renovations and expansions.

CLEARLY DEFINE DECISION-MAKING PROCESSES. The most common lament in private-school projects is, "Had I known you were going to build that I would not have agreed!" During the early stages of a project it is vital to establish a process for decision making that includes all necessary constituents. The architect has to answer to many stakeholders—the board, the administration, the parent body, even students. Clear communications and lines of decision-making are paramount to avoid disappointment and stress.

BUILD CONSENSUS—AND BE AWARE OF FUNDING. Client needs are often complex and difficult to gauge. It is critical to sit down immediately after being hired to discuss their needs. Expect competing priorities and desires; but before starting schematics, be sure that everyone envisions the same project—or risk redesigning at considerable expense.

Initial costs won't be the driving issue; private clients focus on program, durability, cost of operation, and ease of use. Yet it is important to be aware of financial sources; independent schools are funded through donations, special government bond programs, and even commercial loans when rates are competitive. Funding techniques and reporting requirements can often be cumbersome.

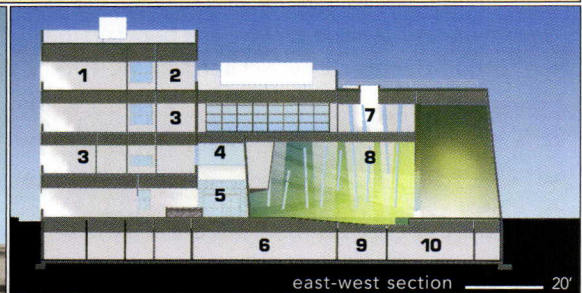
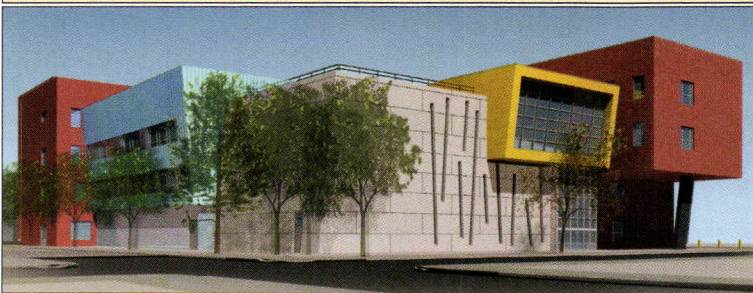
BE READY FOR THE COMMUNITY'S ROLE. As schools tend to be in residential districts, new projects will draw everything from nervous neighbors to community hearings—especially if the project requires a zoning variance. Nearby property owners may even initiate lawsuits. Expect to hear from the community; it will certainly try to influence the project.

Kenneth Levien is president of Levien & Company, New York City, a project-management firm.

➔ **ARQUITECTONICA AND STV | HIGH SCHOOL FOR ARCHITECTURE AND URBAN PLANNING | QUEENS, NEW YORK**

The first profession-specific high school in New York City to focus on architecture, the four-story, 150,000-square-foot High School for Architecture and Urban Planning is not only a place for learning, but an object lesson in and of itself. Designed by Arquitectonica in partnership with STV, the architect of record, the steel-frame building's multicolored elevations feature multiple materials—steel-and-glass curtain wall, glass block, precast concrete, and brick. An L-shaped brick portion housing classrooms and offices hugs a stacked inner program: The grey exterior of the precast

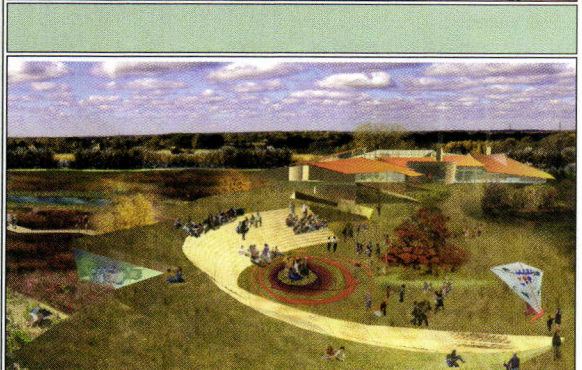
concrete auditorium is punctured by a series of dynamic, narrow-paned window slats; a canary-yellow extrusion tops the gymnasium volume; while design-specific spaces (such as a studio and a display/jury area) further delineate the school's unique role. These specialized functions didn't take away from a modest budget—the \$45 million school, to be finished on a fast-track schedule by 2006, comes in at \$300 per square foot, safely less than the \$450 per square foot the city's school construction authority usually deems acceptable on its commissions. **Jamie Reynolds**



- | | |
|-------------|------------------|
| 1 classroom | 6 student dining |
| 2 storage | 7 studio |
| 3 offices | 8 theater |
| 4 bridge | 9 servery |
| 5 lobby | 10 kitchen |

➔ **ANTOINE PREDOCK ARCHITECT | INDIAN COMMUNITY SCHOOL OF MILWAUKEE | FRANKLIN, WISCONSIN**

Perched on 200 wooded acres in the Milwaukee suburb of Franklin, Antoine Predock's scheme for the Indian Community School, a commission won by invited competition, features a series of glass-enclosed public spaces interspersed with limestone-clad classroom, physical-education, and office volumes. Housing a prekindergarten-through-8th-grade population of local Native American students, the 165,000-square-foot structure—whose program was developed in collaboration with cultural advisor Chris Cornelius of Studio Indigenus and executive architect Eppstein Ehen Architects—lines the edge of a ridge on its hilly site. The school is well integrated into the surrounding landscape: prairie grass berms gently buffer the building and are planted on its roof, and special care was taken to preserve old-growth oak and hawthorne trees. A flying copper roof (over the two-story portion of the edifice) provides a more contemporary gesture. The program also includes a community center; completion is scheduled for 2006. **Jamie Reynolds**



➔ **COOP HIMMELB(L)AU | CENTRAL LOS ANGELES AREA HIGH SCHOOL #9 | LOS ANGELES**

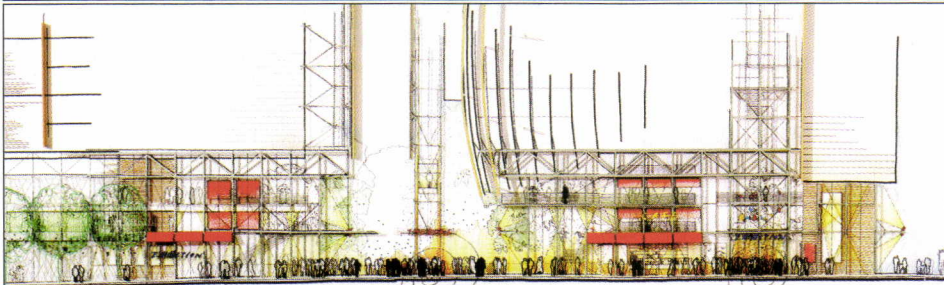
Angles, curves, and cones dominate the otherwise orthogonal expression of a new high school for the arts in downtown Los Angeles by Coop Himmelb(l)au, a firm with offices in the city and in Vienna. The 228,000-square-foot complex sits on nearly 10 acres in the Grand Avenue area, a district newly revived with all manner of high-profile institutions, including the Disney Concert Hall (October 2003, page 66), the Cathedral of Our Lady of the Angels, and the Museum of Contemporary Art. When the new school facility opens in 2006, its dynamic forms will not likely be dwarfed by its neighbors: Above the public lobby, an angular tower—topped with a conference room and event-and-exhibition space, all with city views—is encircled by a spiraling ramp in the shape of a “9.” The glass-enclosed lobby doubles as a performance and exhibition space. A cone-shaped library rises from the midsection of the classroom block, which has giant circular windows meant to provide a visual link between the community and the school. The executive architect is HMC Group. **Abby Bussel**



➔ **RENZO PIANO BUILDING WORKSHOP AND SKIDMORE, OWINGS & MERRILL | COLUMBIA UNIVERSITY EXPANSION | NEW YORK CITY**

With a per-student square footage woefully behind that of its Ivy League peers, Columbia University is planning an 18-acre, 5.2 million-square-foot expansion in West Harlem’s Manhattanville section. But it does not look like the red brick and limestone walls of McKim, Mead & White’s Morningside Heights campus just down Broadway, nor do its buildings form a distinct precinct sealed off from the rest of the community. Instead, the school intends to develop the former industrial area that reaches from 125th Street to approximately 132nd Street, between Broadway and 12th Avenue, for the School of the Arts, science research and other academic buildings, as well as administrative and residential uses. A massive undertaking that will take 25 to 35 years to finish, the \$4 billion project, master planned by SOM and Renzo Piano, calls for the demolition of most of the existing structures that, today, sit on superblocks that interrupt the city’s grid pattern. After civic approvals are received—optimistically in the winter of 2005—an initial 10-year phase to include five new or renovated buildings will begin construction. The project restores the city grid, reconnecting Harlem with the rest of Manhattan south of 125th Street. The expansion emphasizes pedestrian use, by widening sidewalks and planting trees in an effort to integrate the campus with the city’s planned park on the Hudson River.

One of the main goals of the expansion is to include the local community in the design and use of the new campus. The first two floors of buildings facing 125th Street, 12th Avenue, and Broadway are occupied by retail businesses oriented towards the surrounding population and faced in glass to create a sense of transparency. Rooms in university buildings are also dedicated to community use, while open space is made accessible to the public. **Bay Brown**



While the commercialization of cartoon characters is nothing new, Ssamzie has taken the idea to an extreme. The Korean company has built a theme park for Dalki, its popular brand icon who, until now, has lived in an imaginary fruit patch with her friends. Ga.A Architects and Mass Studies, both of Seoul, and Slade Architecture, of New York City, produced this otherworldly domain where scale is used to manipulate visitors' perception of fantasy and reality, the natural and the synthetic, culture and commerce.

Throughout the complex, oversized maquettes of Dalki and her pals wreak havoc on any rational sense of scale and proportion. Funhouse mirrors mounted on the building's underbelly and Froot Loops-colored pavers on the ground plane result in what the architects describe as a "scaleless artificial garden." Upstairs, Dalki products can be played with and purchased in angular and curvilinear volumes, where columns and walls are anything but vertical, and thresholds compress or expand adjacent spaces. The grass-covered, walkable rooftop serves as a "natural" counterpart to the candy-land world beneath, establishing a contextual, if artificial, link to the hills that surround Dalki's new home in the Heyri Art Valley, a mixed-use development in South Korea near the border with North Korea.

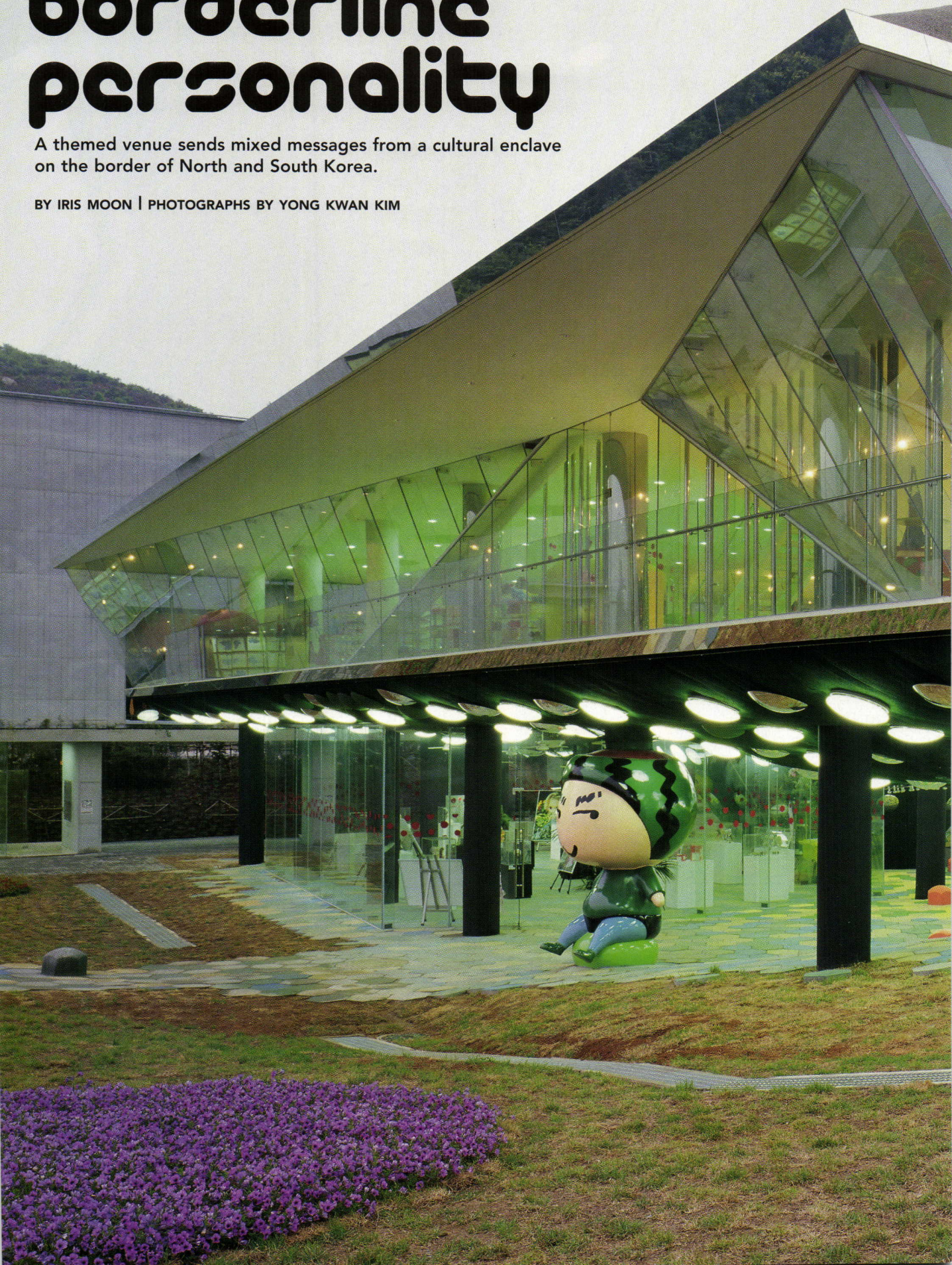
hyper
super
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real

borderline personality

A themed venue sends mixed messages from a cultural enclave on the border of North and South Korea.

BY IRIS MOON | PHOTOGRAPHS BY YONG KWAN KIM







The 14,000-square-foot theme park, which was cited in the 2003 P/A Awards, sits next to an art warehouse in Heyri Art Valley, an unusual arts community located north of Seoul, South Korea, close to the border with North Korea.

Visiting Paju City, in South Korea's Gyeonggi province, can be an unnerving experience. Barbed-wire fences and armed soldiers on constant guard for possible North Korean infiltrators are inherent to the scenery. Daily North Korean propaganda broadcasts ceased only in June. But despite these glaring reminders that the two Koreas are still technically at war with each other, a little cultural oasis has managed to spring up just down the street from the Unification Observation Tower, a structure built on Mt. Udosan in the demilitarized border zone so that displaced North Koreans can view their former homeland.

Dubbed the "City of Romantics" by *Hankook Ilbo*, a Korean newspaper, Heyri Art Valley is a well-planned, 122-acre residential community located about an hour north of Seoul. Meant to spur creative production and thought, Heyri was started by cultured city slickers who wanted to escape the urban chaos of Seoul. Here, fences are banned; architectural harmony, neighborly values, and the arts are encouraged. At least 40 percent of each of the mostly small multi-family buildings must house a public, cultural activity.

Dalki Theme Park, officially known as "I Like Dalki," and the Ssamzie Art Warehouse next door, are perhaps the only two buildings that don't lay claim to heavy-handed messages of peace and culture. With more of an interest in play than politics, the architects—Moongyu Choi of Seoul's Ga.A Architects, Minsuk Cho of Seoul's Mass Studies, and James Slade of New York City's Slade Architects—say that their plan was to create a dynamic, visually stimulating place where low and high culture, and reality and fantasy, would mix.

BLURRING THE BAPSANG

Two years ago, Hokyun Chun, the bohemian-spirited president of the Korean clothing and accessories company (and sponsor of the arts) Ssamzie, was inspired to create "some kind of commercial space" in Heyri. On the western side of I Like Dalki, a warehouse was constructed where leftover space on the lot allowed room for another building. Low-budget innovation is the defining characteristic of the three-story warehouse, which playfully serves the double function of storing and exhibiting the company's art holdings. The 17-



A sod roof and walls holding bags of earth and grass seed suggest the garden home of the venue's namesake character and offer counterpoint to its whimsical artifice: metal orbs, translucent mesh, and bright acrylics.

foot-by-130-foot building is built of exposed concrete; stored art pieces are visible from the outside through standard-sized (about 8 feet by 11 feet) sheets of ready-made insulated glass, while the interior walls are lined with plywood.

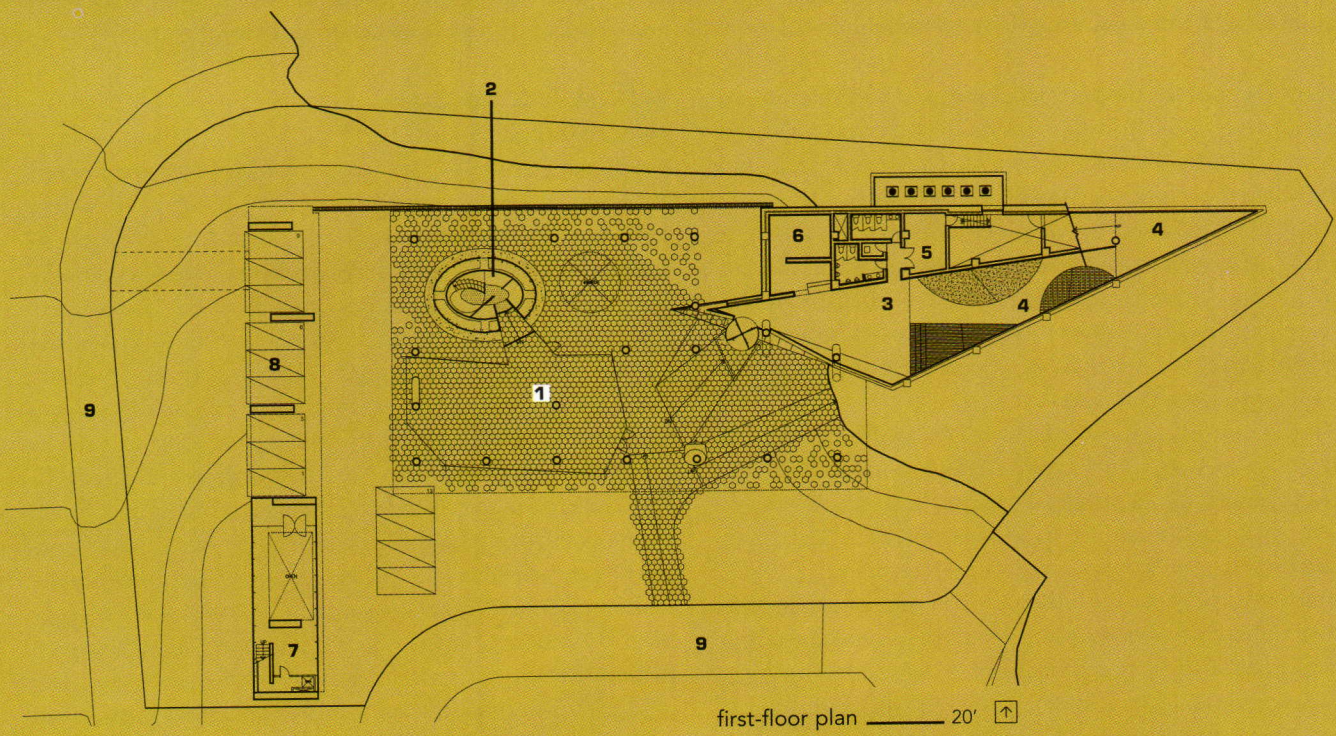
The theme park and the warehouse opened June 12 to a modest crowd of mostly elementary-school students and teenage girls. These two groups form the central fan base for Dalki—which means “strawberry” in Korean—a redheaded cartoon character that serves as a branding icon for a whole line of Ssamzie merchandise.

The central idea behind I Like Dalki is the blurring of boundaries between multiple programs and open areas, between structural and visual elements. Visitors are guided by the architects' newly coined concept of a “*bapsang* sequence,” named for the traditional table setting in Korea. Instead of serving the meal through courses, diners choose from a variety of *banchan*, or side dishes, simultaneously. Choi said that while this process of picking and choosing activities is often used in theme parks, the architects chose to implant that sequence within a singular structure.

VIDEO-GAME COCOON

The 27,000-square-foot Dalki Theme Park building changes in appearance depending upon the visitor's viewing angle. The slanted roof is carpeted with a thick turf of grass that extends to the northern façade. Large panels of floor-to-ceiling reinforced glass, fixed at sharp angles, offer views of the art valley to the south and the art warehouse to the west.

Chung-woo Lee, a critic who reviewed Dalki for the Korean architecture magazine *Space*, said that walking through the photogenic interior is comparable to being immersed in a PlayStation 2 video game. On the exterior ground-level area where an “artificial garden” is located, visitors can choose between two entrances. One leads into the theme park's exhibition area and the other into “Dalki's bedroom,” an activity space for kids to draw and play. Inside, pink, purple, and green paint seem to be the only things dividing program areas. The transitional areas between floors vary from tunnels and ramps to spiral staircases. The raised interior ground-level section contains a large, open shopping area. Oblong shelves display purses, toys, and

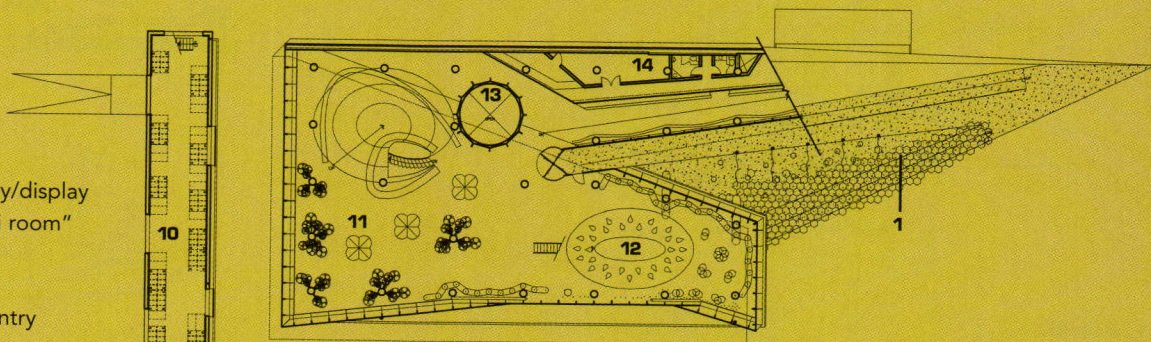


first-floor plan — 20' ↑

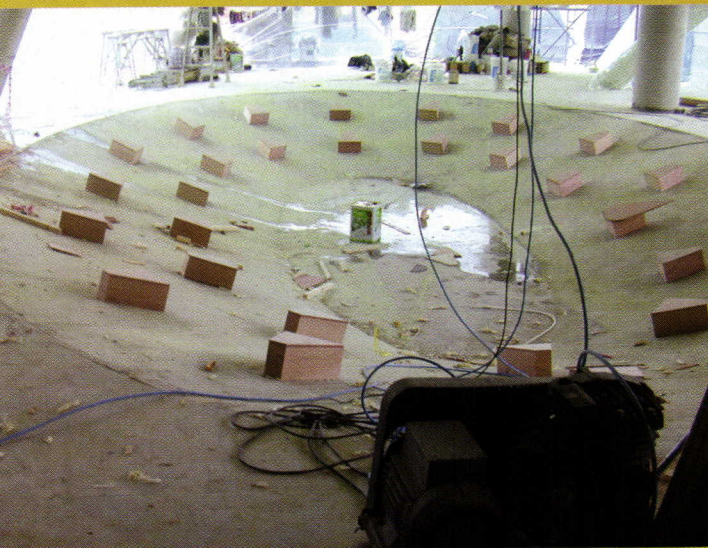


Multiple, blurred circulation routes bridge fantasy and prosaic domains, including "Dalki Room" (above), retail displays, a children's book café, and performance and play areas like the bowl-shaped amphitheater with cheese-wedge cushions (opposite), surrounded by merchandise. Like the traditional Korean *bapsang* meal, there is no prescribed sequence. As is also customary in Korea, the interiors were delivered as a design-build package.

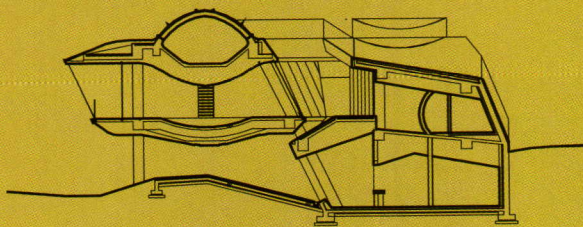
- 1 terrace
- 2 exhibit space
- 3 theme-park entry/display
- 4 ramp and "Dalki room"
- 5 mechanical
- 6 coat check
- 7 art-warehouse entry
- 8 parking
- 9 road
- 10 art storage and display
- 11 retail display
- 12 amphitheater
- 13 open to below
- 14 gift shop



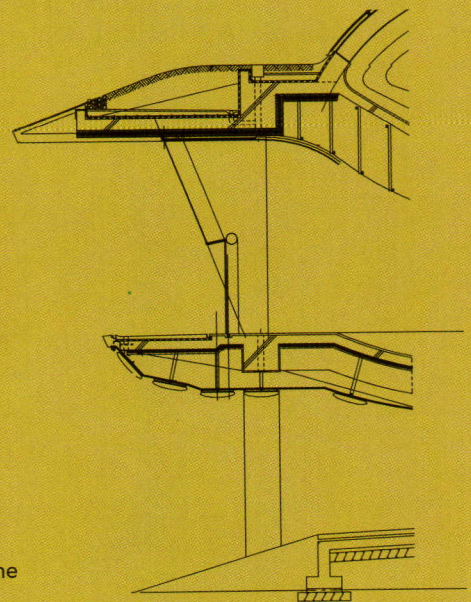
second-floor plan ——— 20' ↑



The complicated concrete formwork (top left) and unusual details, such as the green plastic-coated metal mesh (above right) punctuated by misters, light fixtures, and heating elements, presented some risk for the builder. The project took about 18 months to construct, 50 percent longer than anticipated.



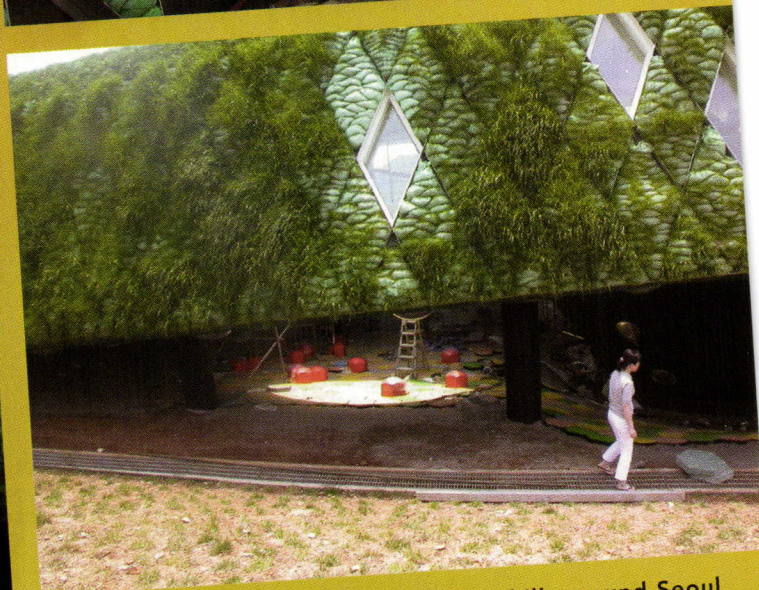
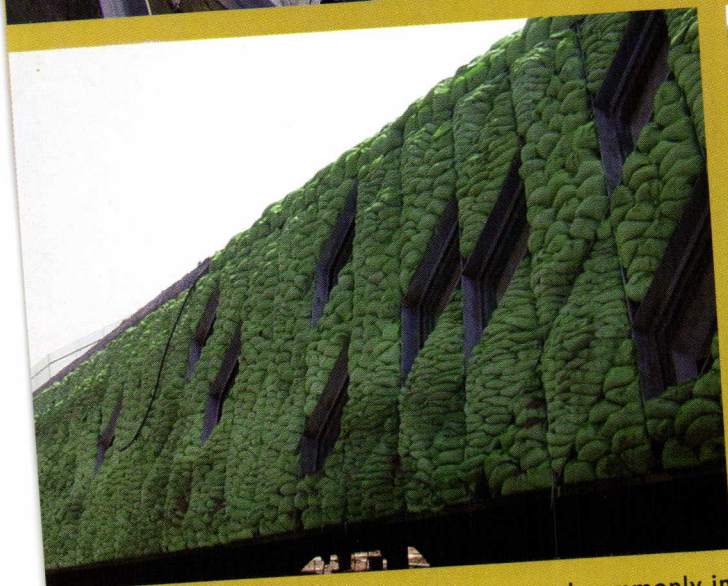
north-south section ——— 12'



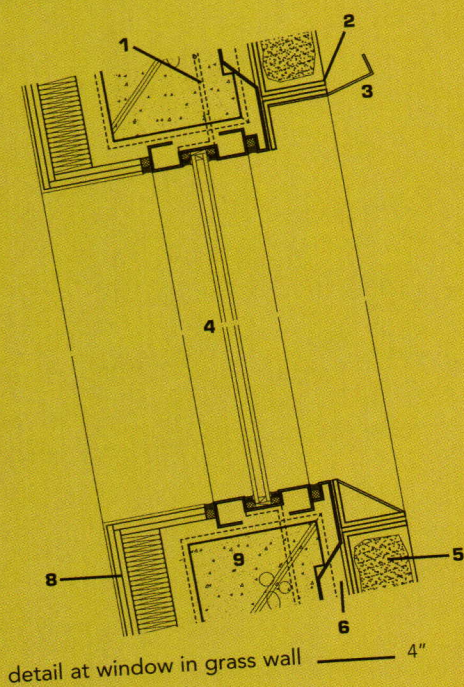
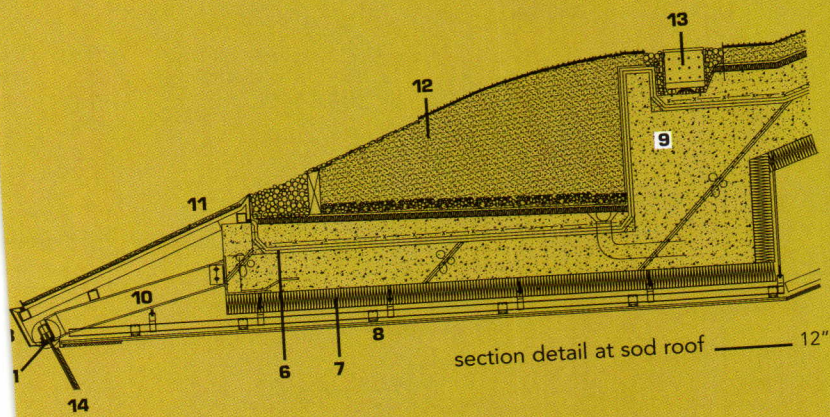
section detail ——— 4'

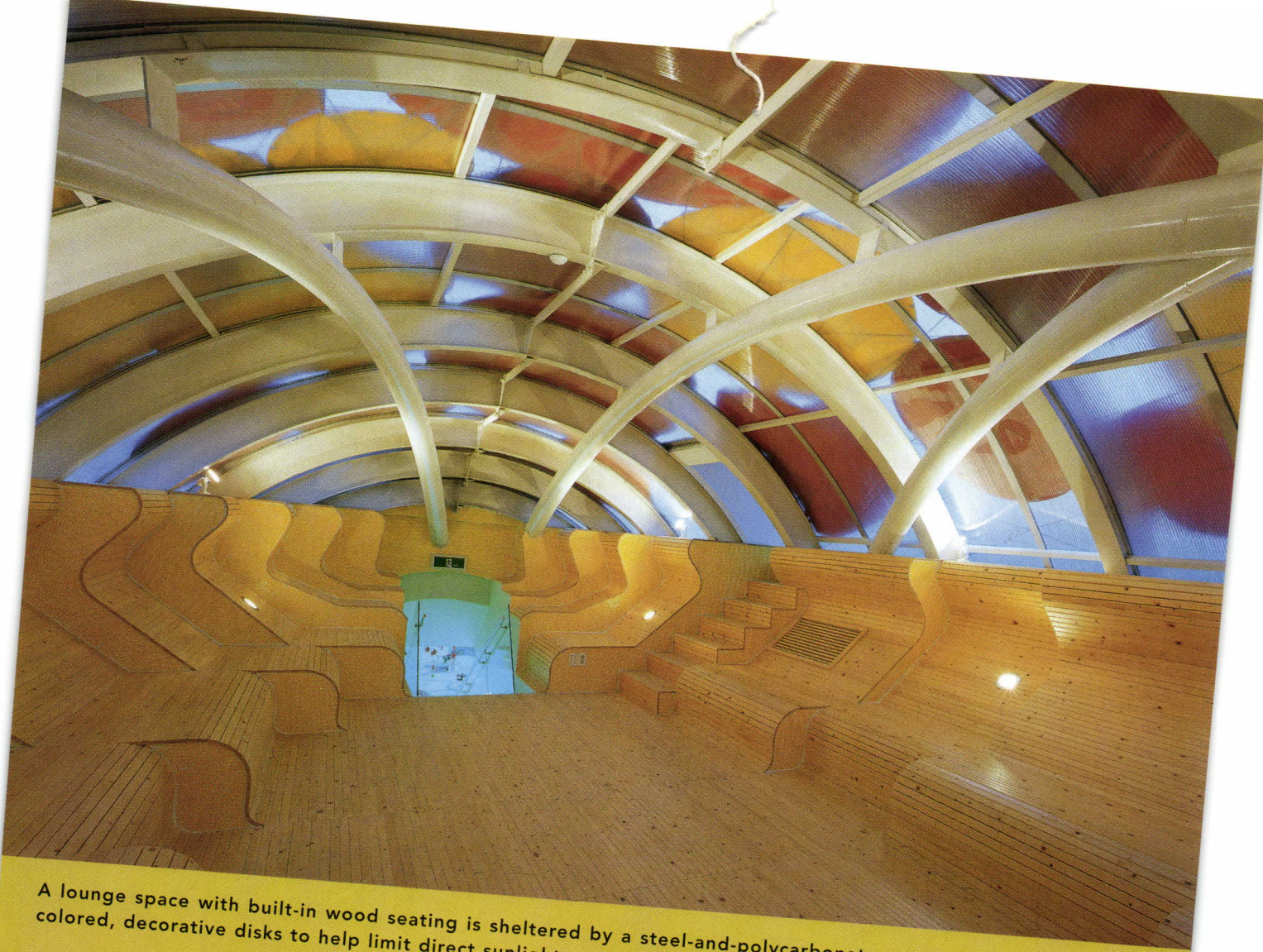
- 1 steel plate
- 2 steel angle
- 3 galvanized steel sheet
- 4 clear double-glazed panel
- 5 PVC mesh and burlap bags of earth with grass seed
- 6 asphalt membrane over mortar
- 7 insulation

- 8 painted gypsum board
- 9 concrete slab
- 10 steel channel and tube
- 11 gravel and urethane on steel plate
- 12 grass over porous plastic pad
- 13 stainless-steel drain in volcanic stone
- 14 tempered glass with safety film
- 15 lamps, heaters, and misters



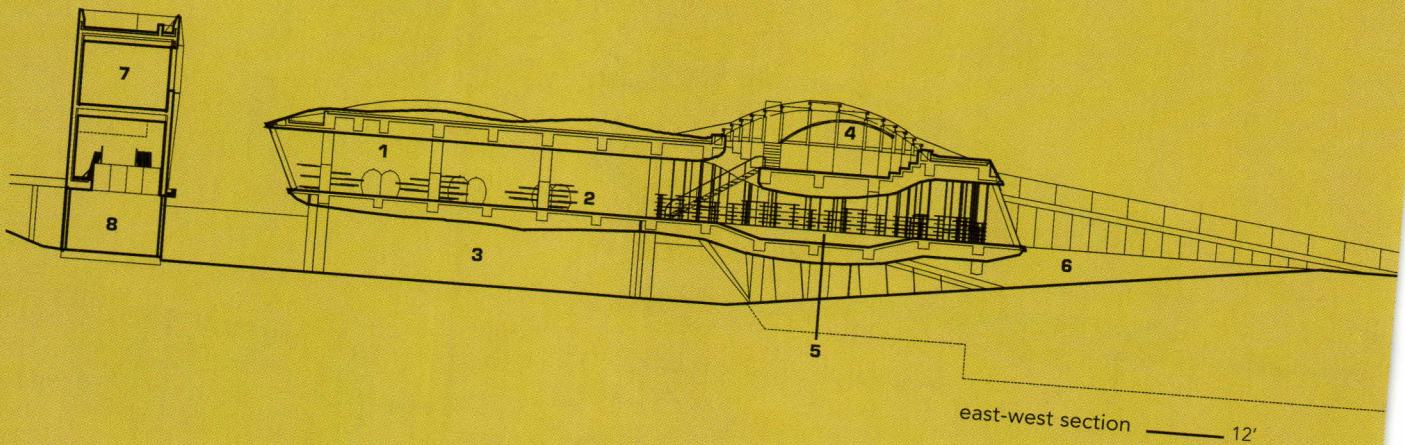
Sacks filled with earth and grass seed—used commonly in landscaping and building projects in the hills around Seoul to camouflage structures—were set inside a steel frame resting on a poured-concrete wall. (The original design concept called for a steel truss wall.) Detailing was kept simple to control costs and match local materials and standards.





A lounge space with built-in wood seating is sheltered by a steel-and-polycarbonate space frame, with brightly colored, decorative disks to help limit direct sunlight.

- 1 retail
- 2 cantilevered shelving
- 3 terrace
- 4 lounge
- 5 amphitheater
- 6 ramp and "Dalki Room"
- 7 art storage and display
- 8 entry





Bubbles, blisters, and tubes intersecting the main spaces offer shortcuts between levels and activities. Originally planned to contain a slide, a light shaft (above) instead offers visual connections between spaces.

other Ssamzie products. The merchandise takes on a decorative effect around a seating area comprising a concavity in the floor, where visitors can sink into cheese-wedge-shaped cushions; architect Cho calls it a “cocoonlike autonomous space.”

While others have timidly stepped into cultural-commercial enterprises elsewhere by setting up adjoining galleries and cafés, Ssamzie’s Chun knows that his roughly \$2.4 million building is not about the merchandise on sale. “In the case of ‘I Like Dalki,’ the space is more important than the contents,” he says; it’s the building itself that is the selling point. But according to Lee, Dalki is also “the worst kind of experiment, [one] that combines the narcissism of Frank Gehry’s greedy commercialism while taking orders from Rem Koolhaas with weak logic.” Yet, he said, it’s a success, “because people like it. I’ve heard they have to wait in line to get inside.”

It would be nice to imagine Heyri and its buildings as representative of South Korea’s flourishing capitalist and cultural future, the panacea to its war-scarred past. But if anything, this strange little valley where a nexus of geopolitical tension, commercial fantasy, and utopian dreams coexist is just a part of the reality of present-day Korea.

I Like Dalki Theme Park, Heyri Art Valley, Paju City, Republic of Korea

client: Ssamzie Corporation—Hokyun Chun (president) **architects:** Ga.A Architects, Seoul, Korea—Moongyu Choi (principal), Jeonghui Kim, Kwangho Cha, Inchul Kang, Taekwon Yun, Bongki Song, Daegon Koh, Jeyong Kang (project team); Mass Studies, Seoul, Korea, and New York City—Minsuk Cho (principal), Kisu Park, Hyungjoo Lee, Joungwon Lee, Sunbok Choi, Soon Pyo Lee, Byulnam Yoo (project team); Slade Architecture, New York City—James Slade (principal), Hayes Slade, Ilya Korolev, Francisco Pardo (project team) **interior designer and interior architect:** Ga.A Architects; Mass (Interior) Studies **engineers:** Shin Structural Engineering (structural); Han On Eng., Dong-Ho Eng. (M/E/P); Kyoung-In Eng. (civil) **consultants:** Jun Sung Kim, Jong Kyu Kim (master plan); Hyungjoo Lee (artistic collaboration); 44 (Sasa)... (mural design) **general contractor:** Hanoool Construction, Seoul—Daeshik Kim (CEO), Sang Yong Choi (construction manager) **area:** 12,000 square feet **cost:** \$2.4 million

Based in Seoul, Iris Moon reports on art and architecture for *The Korea Herald*.

Maurice Cox is an advocate of what he calls “slow architecture”—projects of a scale and complexity that require time to percolate, following extensive research and consensus-building among constituents and collaborators. If this sounds like a political process, it should. While teaching at the University of Virginia, Cox was elected to the Charlottesville City Council in 1996, a role followed by a two-year term as the city’s mayor that ended this summer. From these posts, and as a practicing architect, he has addressed issues from affordable housing to zoning to historic preservation, all the while increasing public participation in the planning process. In Cox’s opinion, you don’t initiate change by breaking the rules, you rewrite them at City Hall.

This is not to say that he is an armchair activist. Not only have his public-service efforts been noticed—he recently appeared in a *Fast Company* magazine cover story, served as a delegate to this year’s Democratic National Convention in Boston, and this month begins a year-long Loeb Fellowship at the Harvard Design School—but his Charlottesville-based firm, RBGC, is producing influential models for urban and rural revitalization. Most notable among these is Bayview, a

rural village of what were, until recently, dangerously decrepit shacks on Virginia’s Eastern Shore.

THE OWNERSHIP MODEL

Inspired by its successful, three-year struggle to stop construction of a maximum-security prison planned for its town in the mid-1990s, the grassroots group Bayview Citizens for Social Justice (BCSJ) teamed up with the Nature Conservancy to secure a \$20,000 environmental justice grant from the Environmental Protection Agency to plan improvements to living conditions in the village. Through the grant, an interdisciplinary team was established that included an environmental planner, an environmental engineer, and a facilitator—RBGC.

When Cox and RBGC partner Giovanna Galfione arrived on the scene in 1997, there were 52 families living in Bayview. Most had only barely functioning outhouse facilities. The water supply came through communal hand pumps connected to shallow wells. Unsanitary conditions—the intermingling of waste and storm water, for example—were rampant. It was, says Cox, “a self-preservation battle.”



taking the

"Our first meetings were about getting citizens to talk about their history," he says. "We showed them how to cluster buildings to start to develop a center. We assisted them in organizing a community cleanup day—100 people participated and a local contractor donated his services to help remove 27,000 pounds of debris—and in identifying structures for demolition.

"There were never meetings in the traditional sense. All were advertised as a fish fry or gospel jubilee. In this way we got amazing participation. People were reading plans and looking at models. They had never had these kinds of choices. We came with multiple answers on where new houses and roads could be built, for example. If you inform people, they'll make good choices."

The one-year community-planning process resulted in a series of short- and long-term goals. A grant was secured to drill deep wells that relieved the immediate public-health problem. Money was also raised to replace broken pit privies. (Residents waited six years for indoor plumbing.)

With a plan in place for homes, businesses, and collectively owned land, the next challenge was to secure funds. A

campaign by the NAACP to raise awareness of Bayview's plight resulted in a 1998 *Washington Post* article that exposed the hidden poverty that existed fewer than 300 miles from the nation's capital; the news sent state government into action. "All of a sudden," says Cox, "state-level politicians started to call," including Governor James Gilmore, with offers of help. It took time, but public funds allowed the community to begin rebuilding and a private foundation covered the purchase of land—originally earmarked for the prison—for the new village. "Ownership became fundamental to their mission," notes Cox. "It was, 'We're building our neighborhood, our village.'" In fact, the citizens of Bayview now own 160 acres of land, the buildings, and even the sewage system.

Following years of negotiations with funding sources over just how a new village would be shaped—including a fruitful fight for houses with large porches, where the community could continue its tradition of public life—the first families moved into their new homes late last year. Of a planned 136 homes, 42 rental units and 10 single-family residences have been built. ■■■



long view

Architect Maurice Cox, the former mayor of Charlottesville, Virginia, applies his political experience to reinvent an impoverished rural village. BY ABBY BUSSEL | PHOTOGRAPHS BY SCOTT SMITH



The citizens of Bayview own 160 acres, although they've chosen to develop only 15 percent of their land, leaving the rest as a farming collective. Rents are subsidized by the U.S. Department of Agriculture.





The architects derived the designs of homes and communal structures from the “big house, little house, colonnade, and kitchen” sequence, a centuries-old domestic typology found on the Eastern Shore of Virginia.



Frisa Associates (structural); Kincaid-Bryant (M/E/P); FPS (civil) **general contractor:** Armada Hoffer Construction—Dave Hackbirth (construction manager) **area:** 160 acres **cost:** \$1.7 million





As is typical of rural places, the porches of Bayview are gathering places for family and neighbors. With the village's new, federally subsidized housing, the porch became a point of contention. A HUD porch is a 3-foot-by-3-foot concrete pad. After skillful negotiation, Bayview's new porches are 8 feet by 25 feet.

REFABRICATING THE IVY LEAGUE

An unlikely infill building at the University of Pennsylvania by KieranTimberlake tests a new approach.

BY JOSEPH DENNIS KELLY II | PHOTOGRAPHS BY BARRY HALKIN

Upon hiring Philadelphia's KieranTimberlake Associates in 1999 to design a new home for the University of Pennsylvania's engineering school, officials at the urban Ivy Leaguer handed the architects several problems to solve. The simplest involved creating a building that physically connected two outdated structures: one built in the mid-1900s, the other in the late 1960s. In doing so, the new building would establish a singular engineering complex. The other challenges, however, were more daunting: Penn wanted a structure that would dynamically invigorate a previously tired and misused area of campus while also sensitively complementing the university's historic built environment. And the School of Engineering and Applied Science needed a new home that would aptly symbolize the high-tech activities performed by its faculty and students while providing much needed common areas where faculty and students could meet.

The architects realized their goals: The \$22 million, 48,000-square-foot Melvin J. and Claire Levine Hall, a glass-curtain-walled facility with faculty and student offices and dry research labs not only doubled the engineering school's space but also stood as the first U.S. model for KieranTimberlake's theo-

The courtyard view of the secondary façade—a ventilated curtain wall with HVAC system connections and integral blinds—displays varied mullion patterns, which could be altered on the fly during fabrication. The skeptical client asked about substituting a standard curtain wall for the proprietary, customized European system; the architects defended the high-end import based on its lower energy costs and long-term value. The installation took only seven weeks to complete.





retically driven, mass-customized method of architectural production. As the architects explain in their recent book, *Refabricating Architecture* (McGraw-Hill, 2004), these techniques enable the construction of highly efficient buildings quickly and inexpensively; the firm has since employed a similar approach on other projects, including a new dormitory building at Yale University. For Penn, the net result is a hub for the engineering program that is also an effective tool for its recruitment of faculty and students.

DISTINCTIVE, BUT NOT CONFRONTATIONAL

Not only that, this campus addition reaffirms the university's identity as a 21st-century academic leader, a part of its 25-year plan to contemporize its primarily red-brick built environment and to expand its campus toward center-city Philadelphia. Buildings "of varied character" that surround the project's site, observes David Brownlee, an architectural historian at Penn, gave "the architects an opportunity to do something distinctive without being confrontational." The predominately glass-and-steel structure, with accents of gray granite and red brick, "looks without confusion at a rich variety of [historical] conditions," says Brownlee, an achievement he credits to KieranTimberlake's substantial historic-preservation work and the fact that principals Stephen Kieran and James Timberlake had both worked for the historically minded Robert Venturi. Also of help, adds Brownlee, was the firm's technology-based design philosophy, most notably applied to creating what is the engineering school's new icon, the glass curtain wall.

The visual complexity of the six-story, pressure-equalized ventilated curtain-wall system (see "A Façade that Lives," page 74) is well suited to a building that is set back from the street edge. The long approach to Levine via a European-scaled entry court—an energetic and central point of access into the school—gives pedestrians the distance needed to read the curtain wall's seemingly random arrangement of transparent and translucent panels, helping convey to visitors and passersby the high-tech activity that goes on within. The engineering school's dean, Eduardo Glandt, who worked closely with the architects throughout the design process, calls the curtain wall's pattern a "Mondrianesque lattice." Not surprisingly, KieranTimberlake purposefully created this pattern to avoid the corporate aesthetic often realized when using large, undefined panels. The scale and proportions of the final mullion arrangement, informed by plaids of printed circuitry that the design team studied for inspiration during schematic design, resembles the elaborate brickwork—and complements the window and cornerstone formations—of its closely situated masonry neighbors. The result demonstrates that the elaborately glazed structure is an appropriate vernacular for crafting modern academic buildings on a traditional Ivy League campus.

Solar heat absorbed by the highly transparent façade is ventilated from its cavity through tubular ducts (opposite, bottom left). Room air is drawn in near the floor and exhausted above, reducing surface radiation effects. The curtainwall features a "knife-edge" at its northwest corner (opposite, top left). An elegant stairwell and a new 100-seat lecture hall help create community within the engineering school (opposite, top and bottom right).

LIVELY YET COMFORTABLE INTERIORS

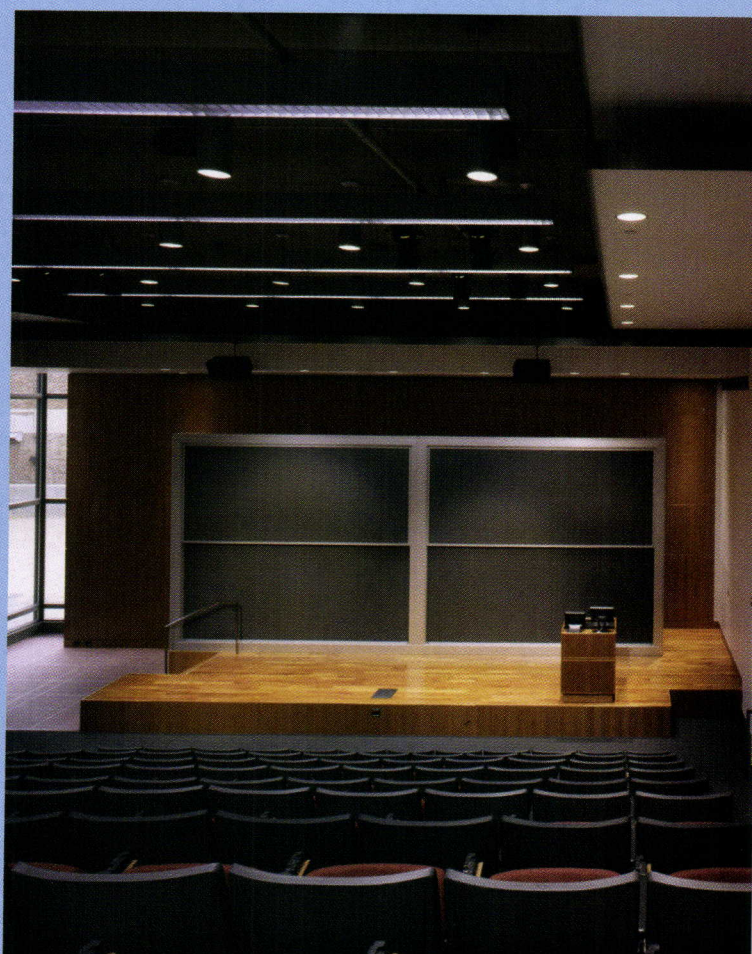
Most surprising to building occupants is the curtain wall's impressively energy-efficient means for comfortably controlling the interior climate while bathing it in natural light. "This building gives [its occupants] useful work space, comfortable offices, close access to students, and [easy circulation]," says Mitchell Marcus, a professor of artificial intelligence and a member of Levine Hall's architecture committee. Marcus, who makes a point of entering the building by traversing the entry court each day, also boasts that the ventilation and circulation systems work extremely well. With exposed M/E/P components, the gray-and-burgundy-hued interiors offer ample evidence of those engineered systems, an aesthetic well suited to its occupants.

The building's dynamic inside/outside visual relationship—and the way it exploits every opportunity to channel natural light into and through the building, via slit windows on interior walls, for example—seems to energize its occupants. Marcus explains that the gracious lounges, framing views of downtown Philadelphia and furnished with contemporary seating and chalkboard walls, are popular places for informal get-togethers and problem-solving sessions. A glass-walled concrete-and-steel stairwell, which overlooks what will be a rear courtyard, is a favored means of circulation.

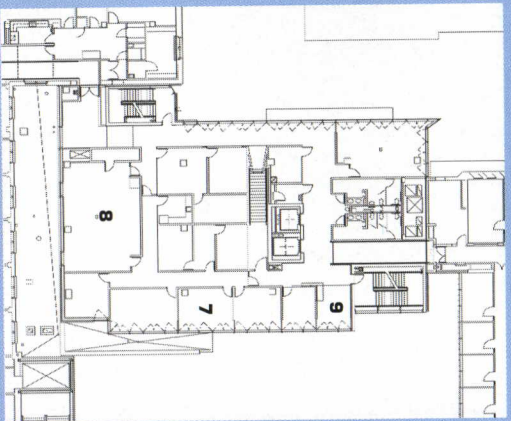
In fact, no other Penn building offers such ample public circulation, notes Brownlee. Levine Hall also provides the engineering school with a 100-seat, two-story auditorium, a public exhibition area, and dynamic ceremonial spaces, including a double-height entry hall with balcony. Ramped corridors smoothly connect Levine to the floors of adjoining structures, which have different ceiling heights. Perhaps the most striking feature of this new facility, though, which Timberlake dubs an "academic loft building," is its reconfigurable layout. The 7-to-10-inch-thick post-tensioned concrete floor plates maximize the interior volume, enabling KieranTimberlake to pull all columns to the periphery. The result is a mutable interior housing informal offices and open-plan labs that can evolve as program needs change, a part of what Timberlake explains was a design with a one-hundred-year life-cycle in mind.

When asked about the overall significance of this project's design achievements, Timberlake modestly deflects the question: The most notable part of this project, he says, was the university's willingness to consider a curtain-wall system untried in the United States. Doing so gave the engineering school a dynamic beacon where the twentieth century is knitted into the twenty-first—with an eye toward the twenty-second.

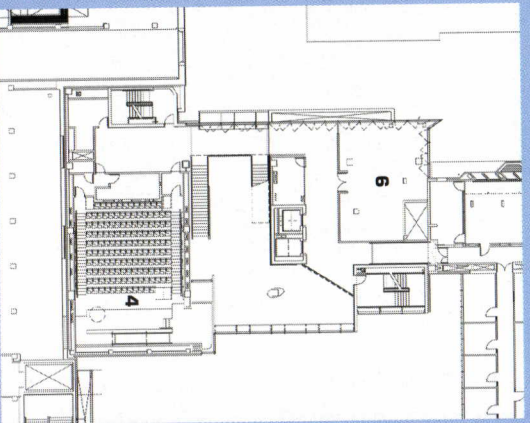
Philadelphia-based journalist Joseph Dennis Kelly II writes frequently on design, culture, politics, and education.



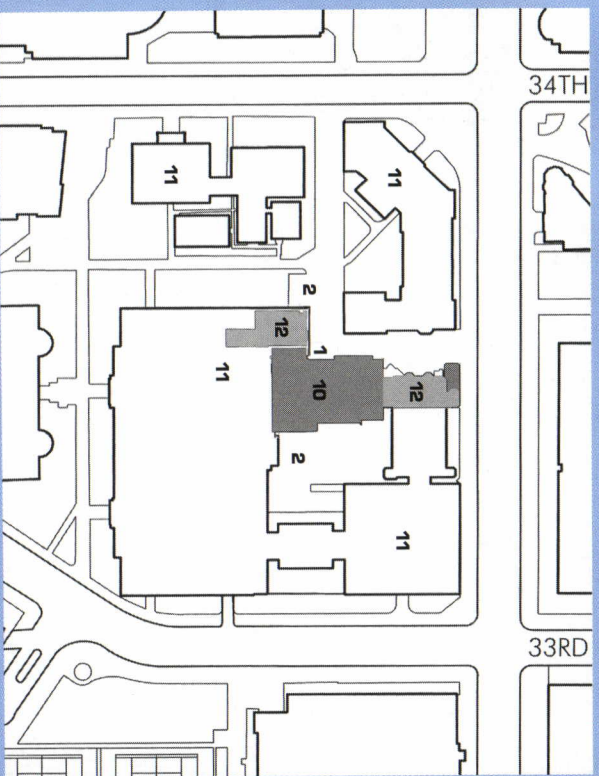
- 1 entry
- 2 courtyard
- 3 lobby
- 4 auditorium
- 5 cyber cafe
- 6 mechanical
- 7 offices
- 8 conference room
- 9 lounge
- 10 new building
- 11 existing buildings
- 12 renovation



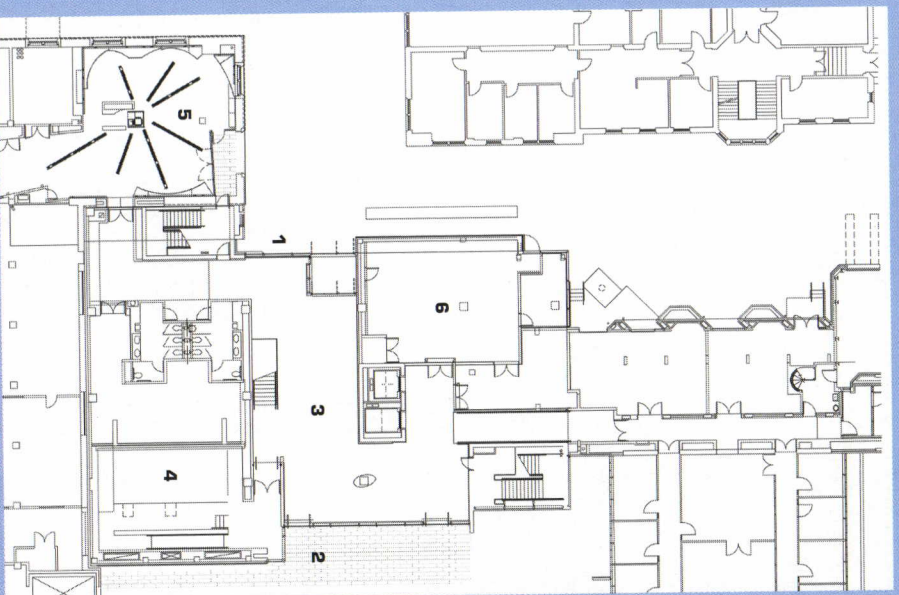
third-floor plan



second-floor plan 60'



site plan 80'

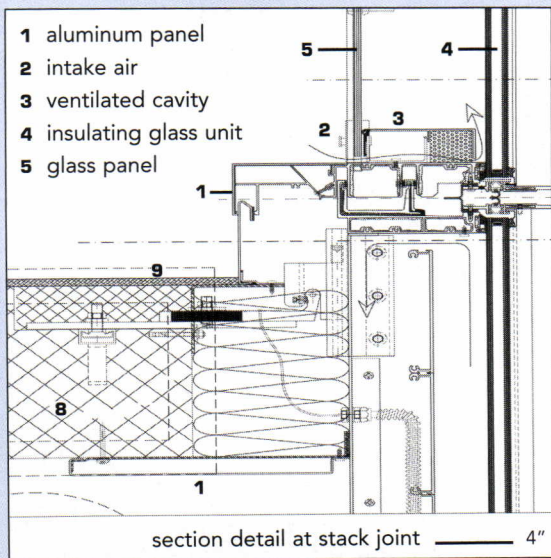


ground-floor plan 40'

Brick quoins weave into the glass curtain wall where it meets existing masonry walls. While the installation sequence should have begun with the dimensionally precise curtain wall, the brick was available first, causing some detailing difficulties. The preassembled façade units saved limited lay-down space and did not require a sealant for installation.



AND CLAIRE LEVINE HALL



A FAÇADE THAT LIVES

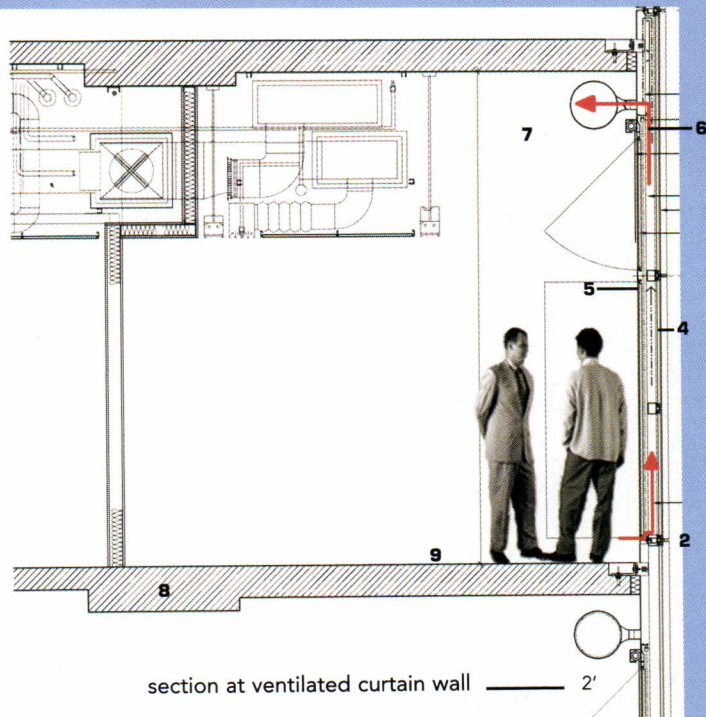
The unitized curtain wall on Levine Hall breathes.

Room air flows between the façade's external, pressure-equalized double-glazed unit and its internal single layer of glass. A small base inlet draws in room air, which rises to exhausts at the head of the glazing frame. The continuous cavity also hosts operable blinds. The glass is untinted, yet the inner panels stay near room temperature even in direct sun.

While this aluminum-framed, "active façade" system—custom fabricated in Europe, of course, where such envelope designs are more common—will chop back energy costs over its projected 40-year life span, it also presented a special opportunity for architects Stephen Kieran and James Timberlake, who seek ways to "mass-customize" their buildings. The idea is that by applying current industrial technology to their projects, they can reduce costs, enhance compositions, and individualize project solutions at will.

Well, one out of three isn't bad: In this case, the architects could change mullion placement without disrupting the manufacturing process, which enlivened the highly transparent façades. But the curtain wall itself is costly (although the preassembled units required no sealants and saved construction time), and the varied frame profiles seem to reflect the designers' whims rather than any programmatic needs of the school's engineering department. (But their proportions, derived from the golden section, do offer a symbolic link.)

Undoubtedly, cutting-edge production techniques—borrowed, for example, from shipbuilders—have the power to transform architecture. But for now, the theories Kieran and Timberlake espouse in their recent book, *Refabricating Architecture*, are well ahead of their fieldwork. **C.C. Sullivan**



Melvin J. and Claire Levine Hall, School of Engineering and Applied Science, University of Pennsylvania, Philadelphia

client: University of Pennsylvania, Div. of Facilities Services **architect:** KieranTimberlake Associates, Philadelphia—James Timberlake (partner); Richard Maimon (associate-in-charge); Steven Johns (project manager); Stephen Kieran, Albert Garcia, Yves Gauthier, Samuel Robinson, Mark Sanderson, Chris Pfiffner, Richard Snyder, Amanda Sachs, Krisada Surichamorn, Castor Kong, Karl Wallick, Meiko Sato, Justin Doull, Kate Czembor, Matthew Spigelman (project team) **engineers:** CVM (structural); Vanderweil (M/E/P); Barton & Martin (civil) **consultants:** Tigue Lighting (lobby lighting); Becker & Frondorf (cost); Code Consultants (codes); SEA (materials handling); Marshall/KMK (acoustics); CMS (audiovisual); Donald Prowler, Arup (energy); Van Deusen (elevators) **landscape architect:** Towers/Golde **general contractor:** Keating Building **area:** 48,000 square feet **cost:** \$22 million

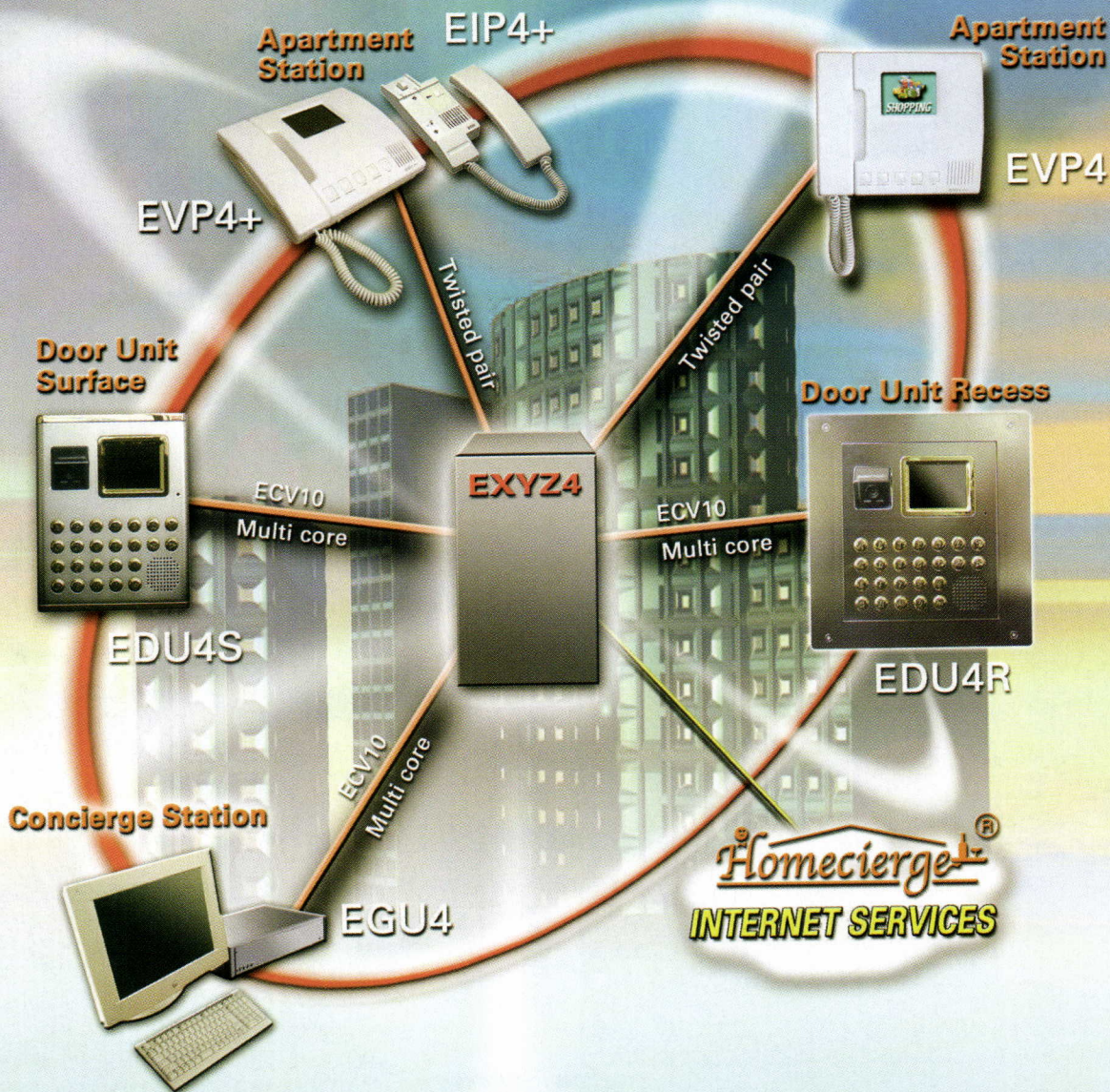
Specifications and Suppliers

concrete: Healy Long Jevin **masonry:** D.M. Sabia, Glen Gery Brick **metals:** Central Metals **metal/glass curtain wall:** Permasteelisa **stone:** Granicor **EPDM roofing:** Carlisle **glass:** Zadra Vetri, Almond Glass **metal doors and fire doors:** de La Fontaine **wood doors:** Osh Kosh **locksets:** Best **hinges:** Hager **closers:** LCN **exit devices:** Von Duprin **ceilings:** USG **custom woodwork:** Delaware Valley Designers and Manufacturers **paints and stains:** Benjamin Moore **ceramic tile:** Dal-Tile **carpet:** Karastan **terrazzo:** Roman Mosaic **custom metals:** Crescent Designed Metals **furniture:** Knoll, Herman Miller, Haworth, Allermuir, American Seating **interior lighting:** Day-O-Lite, Neoray, Portfolio, Peachtree **exterior lighting:** Bega, Elliptipar **auditorium dimming system:** Lutron **elevators:** ThyssenKrupp **plumbing fixtures:** American Standard, Sloan, Kohler, Fiat, Speakman, Elkay, Haws **diffusers and registers:** Anemostat **building controls:** Siemens **blind controls:** Somfy



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SUPERLIGHT, SUPERSTRONG, AND SUPERLARGE

Polymer structures give life to unusual conceptual designs.

by C.C. Sullivan

Wonder materials can blow open the design phase. One oft-derided class of materials that offers potential design breakthroughs is fiber-reinforced polymers, or **FRPs**, which can be fabricated for a wide range of tensile, flexural, and impact properties. They're superlight—FRPs deliver more strength per unit of weight than any unreinforced plastic and most metals—and, at \$35 to \$70 per square foot installed, their costs for ornamental applications are comparable to those for glass-fiber-reinforced concrete, or **GFRC**.

Think of it: Design any conceivable shape—and get the strength to support it under any load or condition. Plus, get integral color and building parts that never rust.

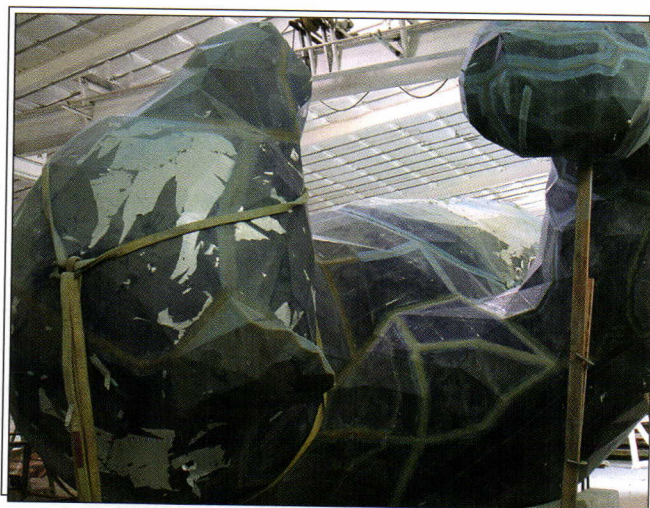
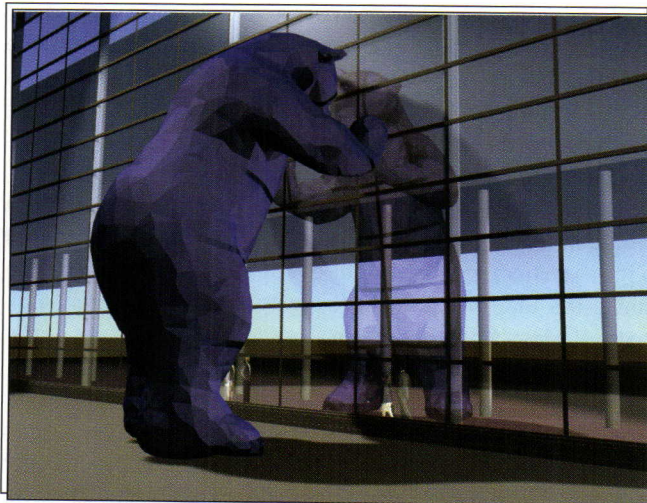
Perhaps that's why the Melbourne-bred artist Lawrence Argent, head of the sculpture department at the University of Denver, worked with FRPs to produce a 40-foot-tall blue bear that will soon be peering inside the expansion of Denver's Colorado Convention Center, a 584,000-square-foot building designed by local firm Fentress Bradburn Architects. Called *I See What You Mean*, this odd commission will at least enliven the rather plain countenance of the building's main entrance on 14th Street when complete next April. Made of blue, faceted composite, the ursine form appears to press its nose and paws against the glass façade. Argent's goal? "To break down the hierarchical environment of what people believe about art."

TECHNOLOGY AND PERCEPTION

This artistic approach is about shock, in a way, while focusing on "how technology affects perception and can also be a tool of abstraction," says Argent, who is now working on another commission, an 8-foot bronze pacifier. "I scan works and manipulate them."

In this case, Argent worked toward condensing the amount of information needed to depict a bear. First, he scanned an original sculpted model using Cyberware (www.cyberware.com) to create a **digital 3-D model**, and by using the animation programs Maya (www.alias.com) and Lightwave 3D (www.newtek.com), adjusted the figure's posture and stance. He then returned the form to Cyberware and "decimated" it—that is, reduced the number of data points describing it, giving the bear a geometry comprising 4,000 discrete elements rather than its original 500,000. This "low-res" version was used to generate a rapid prototype made on a Stratsys **fused-deposition modeler**, or FDM, using a blue ABS plastic that inspired the bear's final hue.

Argent then partnered with West Coast composites guru William Kreysler (www.kreysler.com), whom he had worked



The design for a 40-foot bear structure originated in a 3-D digital model (top) that was later translated into a stereolithographic file to control a CNC miller cutting EPS piecemolds to be covered with foil and gel (middle). The fabricator laid glass fiber and resin over the numerous molds, and assembled them into six final pieces (bottom) for site erection on a foundation.

with previously, to build the FRP structure. The digital file was transferred to a **stereolithography file**—also called STL, a standard format for sharing complicated object shapes—to create a tool path for milling on a large computer-numeric-controlled (CNC) machine. To cut expanded-polystyrene (EPS) foam blocks to be the negative, or male mold, of the form, the program Rhino (www.rhino3d.com) optimized the block sizes for the minimum number of sections and seam lines, as well as to fashion a membrane support system of composite members and **steel I beams** fashioned into an H-frame.

In the shop, Kreysler employs what is essentially fiberglass boatbuilding technology: The EPS piecemolds are covered with aluminum foil and a gel coat (because the FRP's resin melts the EPS on contact), followed by the structural laminate of **glass fiber and resin**, creating the outer skin. After curing, the seams are sharpened with a razor to minimize visibility. (While the composites are extremely durable, says Kreysler, a soluble acrylic finish by Rohm and Haas is often shop-applied to improve resistance to graffiti and soot.) For the bear, six final sections, each made up of about 40 pieces,

were shipped to the jobsite and butted together in situ by means of a **flange system** that limits the seam variations, and then fixed to a foundation designed by the building's structural engineer. The fully self-supporting sculpture is designed to deflect by no more than 6 inches, so that it will not touch the adjacent window walls.

DISPLACED BEHEMOTH

When done, the sculpture might overpower the ubiquitous figures of sculptor Jonathan Borofsky's *Dancers* nearby, but not by mere scale or shock value. Argent's representational public art creates instant connections for viewers. He brings the area's fauna—or, perhaps, a kitschy chainsaw bear—down from the Rocky Mountains and into the realm of human commerce. The displaced behemoth also displaces our perception of what a convention center is, and how a public sculpture should be construed in such a context.

"Part of the prerequisite was piquing someone's interest," Argent explains.

"I wanted to make it accessible, not menacing." ■

THE COLD, HARD FACTS ON COLD-FORMED STEEL

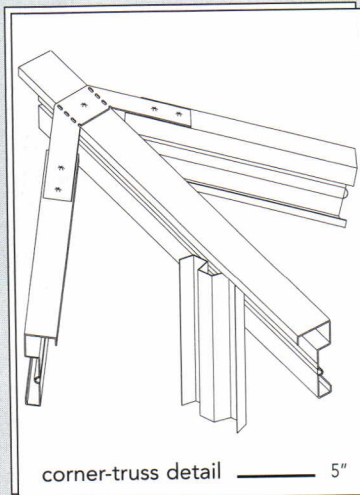
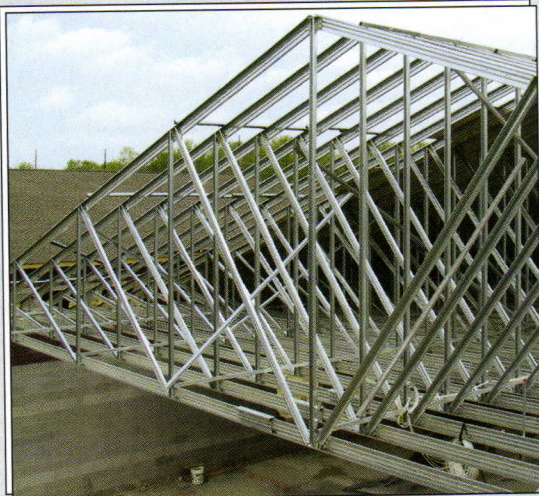
In 1992, a mere 500 houses were built with light-gauge steel frames; this year, as many as 500,000 new homes and additions will stand on steel studs and trusses. That quantum leap relates to more than steel's better **tensile and bending strength** over equivalent timber members, according to Bruce W. Bateman, who teaches construction science at Texas A&M University: This industry has evolved to produce uniform member shapes and sizes, and new construction standards and code adoptions make it easier to design and permit residential and light commercial structures. Finally, one no longer needs an engineer to design a house.

"There are new standards for steel framing, and more are coming out soon" for truss headers, **steel shearwalls**, and lateral load resistance, says Don Allen, executive director of the Light Gauge Steel Engineers Association, Washington, D.C. Engineer Timothy J. Waite, who wrote *Steel Frame House Construction* (Craftsman Book, 2000), adds that entirely new steel-frame approaches are emerging, including R-value-boosting "**slit-web studs**," corrosion-resistant

galvanized members, and **single L-shaped headers**.

In fact, prescriptive methods for designing all-steel buildings are often out of date before they're printed, as manufacturers patent new connection designs and other ways to reduce materials and labor needed for equivalent details. Recent innovations include Ultra-Span Deluxe from St. Louis-based Aegis Metal Framing (www.aegismetalf Framing.com) and an improved TrusSteel by Alpine Engineered Products (www.trussteel.com). Both products reduce the amount of bracing material (and erection time) needed to attach a jack truss to a girder truss on a **hipped roof**—ideal for the growing institutional markets for non-combustible materials and homey, sloped-roof appeal, such as schools and nursing homes (see caption below).

While cold-formed steel is almost entirely **recycled**, it is rarely thought of as a green product. As its growth has shown, it is speed, cost, and versatility—and, in many cases, fire resistance—that have made light-gauge steel framing so attractive. ■

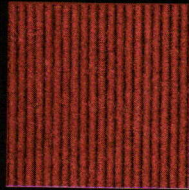


For a new classroom building at United Services, a school for handicapped children near St. Louis, the old-line architecture firm LePique & Orne designed a hybrid structure of split-face concrete masonry and a metal-truss roof (left). Project architect Michael Baalman says a tight construction schedule and the economy and fire rating of steel frames swayed his choice. "And the sloped and peaked roof fits in with its residential neighborhood," he adds.

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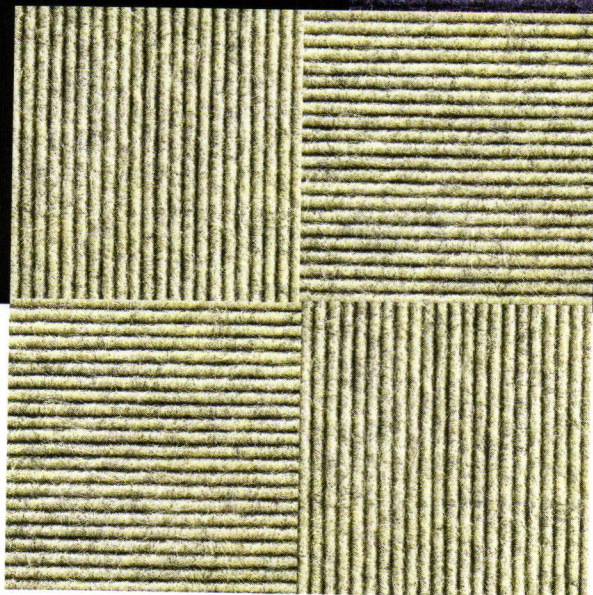
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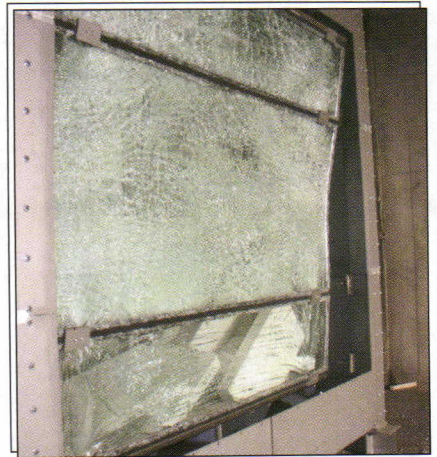
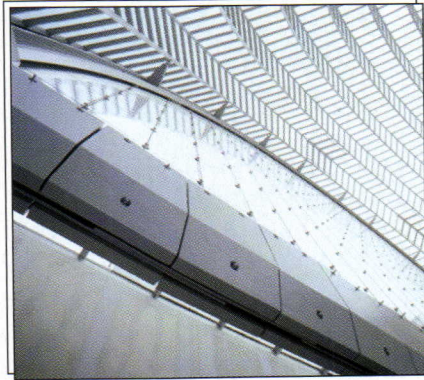
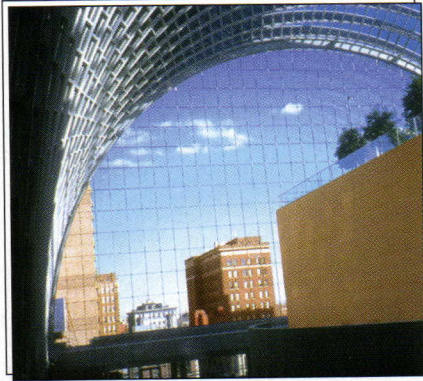
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THE GLASS SHIELD

New technologies and design suggest the use of cable-stayed curtain walls as the ideal building protection against blasts.

by Eileen McMorrow



After extensive blast testing of glazed glass panels (above), engineers have been able to predict the precise loads curtain-stayed walls like those at Philadelphia's Kimmel Center (left) can sustain, while achieving maximum transparency.

While dampers have been used for decades, mostly in seismic restraint, a new application for this technology emerged about two years ago: **blast damper systems** that make glass curtain wall safer. The idea came to Terry Palmer, principal of Seattle structural engineer Magnusson Klemencic, from looking at robust glass frames and deep-mullion systems. "There is limited capacity in those systems because they are too stiff. The glass panels, curtain wall, and mullions would fail in a bomb blast," says Palmer. Until recently, most blast tests performed on windows used 5-foot-by-5-foot samples; results didn't always translate into a robust full-scale curtain wall. Instead, tests have shown a flexible curtain wall performs best.

The answer was to apply friction through blast dampers, like using a raster cable to stop planes landing on aircraft carriers, to absorb blast pressure. Magnusson Klemencic considered the possibility of a glass-absorbing **cable-supported curtain wall**.

READY, WILLING, AND CABLE

Seele, a German curtain wall company, also thought a cable-supported wall would be viable. In spring 2002, Seele conducted blast testing of cable-stayed, laminated glass walls. The company's report on blast-resistant glazed façades showed that, as blast energy subsided, the cable system would return to its original form. All the outer

glass panes fractured, but the inner laminated-glass panes showed very few splinter fragment deposits. Basically, the outer glass deforms, breaks, and absorbs energy while a **glass interlayer** holds back the broken glass.

The test also showed that the friction damper will slip at a predictable point. The result? Architects can design curtain walls that are more visually transparent and yet can absorb a greater blast. And using **computational fluid dynamics**, or CFD, designers can compute wind loads and engineer precise systems that can absorb the forces. "We can design glass façades to deal with the shock waves—actually soak them up," explains Phil Khalil, engineering director of the façade-consulting firm Front, in New York City.

SAFE INSIDE AND OUT

With cable-wall systems, the reflection of the energy wave from an explosion is also contained. In the Oklahoma City bombing, hundreds of people were injured by glass projectiles blocks away. Experts say cable-wall systems benefit their building's occupants and those nearby because of the wall's capacity to absorb concussive shock.

"As we reduce the amount of **load-bearing elements**, we have to design and calculate everything differently," says Hans Frey, vice president of Seele's Chicago office. But the payoff is that the wall can absorb ten times

more pressure. "And it's only a 10- to 20-percent premium over a steel-mullion system," says Frey.

"The number-one priority is to make sure the laminated glass stays sufficiently intact to remain within its frame," warns Khalil. That way, "even if the glass has failed, the interlayer holds onto it." A cable-supported wall system needn't be glass: **Kevlar**, fabric, perforated architectural materials, or woven wire screening all work, but, as Khalil cautions, the cable technology is only appropriate for new construction, not retrofits.

PRACTICAL AND PRETTY

"The backlash of 9/11 has settled down, and now a reasonable level of protection is being sought," says Robert Heintges, a principal at New York City curtain-wall consultant R.A. Heintges & Associates. His company is working on projects where the cable within the mullion is acting as a shock absorber or damper.

"You have to introduce relatively high tension into the cables to prevent deflection, but as a result the client gets an architecturally astounding glass façade," says Khalil. He notes that there is growing momentum for this novel approach; curtain-wall blast dampers are being applied in military projects, courthouses, airports, and convention centers, with more commercial usage anticipated. ■

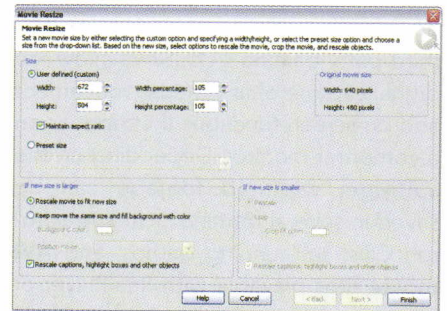
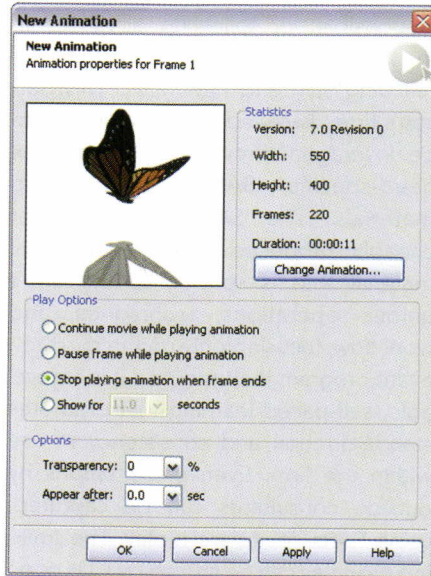
BRIDGING THE DIGITAL TRAINING GAP

Screen-activity recorders (SARs) offer customizable—and home-made—training solutions.

by H. Edward Goldberg

Progress often comes at a price. Keeping pace with constantly changing architectural technology may improve productivity, but it also challenges the resources of firms of every size, requiring constant outlays of cash not only for products but also for training. Software is upgraded about every 12 to 18 months and often has steep learning curves, making staff training among the top two problems facing architecture offices, says Christopher Klein, a principal with the management-consulting and research firm Zweig/White.

Various solutions are available,



Screen-activity recorders such as RoboDemo5 allow users to create in-house video tutorials for software and other applications, saving the time and money of having repeated lessons from an outside consultant or employee.

including free tutorials and manuals supplied by vendors, third-party books and materials, and independent classes. Often, however, these options are time consuming, costly, and inefficient; and they don't always address the specific needs of individual offices. Independent consultants can bridge the "one-size-fits-all" training gap—but again, at a

price. There are, however, alternative solutions that take advantage of in-house resources or maximize the services of outside hires, saving time and money.

AN IN-HOUSE SOLUTION

The key player in each of these scenarios is an inexpensive, easy-to-use genre

BETTER TEACHING THROUGH SAR TECHNOLOGY

A range of screen-activity-recorder (SAR) products, varying in both price and capability from basic shareware to complete editing suites, exists in the marketplace today. Sophisticated features may include the use of text captions, output to CD, automatic web-page building, and exportability to Flash and video formats (including Microsoft's WMV for streaming video). However, for training purposes, a basic package should prove sufficient.

- ☒ product: **CamStudio 2.1**
- ☒ manufacturer: **SoftPedia**
- ☒ web: **softpedia.com**

A nuts-and-bolts shareware product for recording screen activity and audio in AVI and Flash formats. It has no editing or annotation capabilities, but as a free download, you can't beat the price.

- ☒ product: **Camtasia Studio 2**
- ☒ manufacturer: **TechSmith**
- ☒ web: **techsmith.com**

The industry leader, this program is used by major CAD

software manufacturers and training facilities. It contains five modules—an audio editor, video editor, menu maker, player, and a recorder, as well as its own proprietary compression scheme. The cost is about \$300.

- ☒ product: **ScreenCorder 4**
- ☒ manufacturer: **Matchware**
- ☒ web: **matchware.net**

A full-featured product that includes a "Web Builder" for presenting videos online, it outputs to AVI, animated GIF, Flash, and WMV, at \$250 a seat. For extranet or Internet training, WMV allows the viewing of tutorials without downloading a separate program or plug-in.

- ☒ product: **RoboDemo 5**
- ☒ manufacturer: **Macromedia**
- ☒ web: **macromedia.com**

This full-featured SAR from the inventor of Flash seamlessly integrates with the rest of the company's extensive line of web tools. Priced on the high end, each copy runs about \$400. **H. Edward Goldberg**

of software called the **screen-activity recorder (SAR)**. SARs are used to create professional tutorials like the product demos software developers offer as free downloads on their websites, as well as third-party training CDs. SARs allow the digital capture of any mouse movement and on-screen functions that appear on a computer monitor. Depending on the software, captured footage can be saved in several formats including autorun CDs, self-running demos, and **AVI movie files** playable with RealPlayer or Windows Media Player. Other output formats include Flash and QuickTime for Mac and PC.

The most prevalent application of the SAR technology is by software vendors, who use it to create marketing and training materials. Kevin Robinson, a technical marketing specialist at Autodesk, says, "We record demos of new products for our customers, and I record videos to educate the sales force. We also create training videos for the reseller community and bundle tutorials products like AutoCAD 2005, Architectural Desktop 2005, and VIZ."

An emerging, yet still underpublicized and underappreciated use of this

product is the creation of custom, in-house tutorials for use by individual firms. Often there is one "computer guru" or CAD manager in an office, responsible for following advances in the tech field, answering questions, or teaching staff and new hires. This person's time, knowledge, and abilities can be leveraged through the creation of need-specific, SAR-created training materials. The SAR modules offer cheaply produced video educational material that is specific to the firm's unique operations, techniques, and work flow, focusing only on the most relevant program features. And it is repeatable, self-paced learning that promotes standardization and consistency of use within the firm. Even presentations by outside consultants can be captured, using SARs, for future replay. The training modules can be shared by CDs or on office **intranets and extranets**.

ON-DEMAND REFRESHER COURSES

Beau Turner, CAD manager for Hanbury Evans Wright Vlattas & Company, a mid-sized architectural firm in Norfolk, Virginia, that employs roughly 70 CAD users, is directly responsible for training

his colleagues in CAD rendering and visualization. To address recurring software and technology issues with users, he spends a short time creating a video with the SAR application **Camtasia** (techsmith.com) to illustrate the steps required to remedy the problem. Users then have a refresher available when needed.

Recently, when his firm upgraded to the 2005 release of Architectural Desktop, Turner used his screen recorder to document many of the changes and new work flows in a **video-tutorial format**, which he posted on the firm's intranet, that accompanies the firm's electronic CAD manual. After a traditional classroom training session, CAD users accessed the intranet and independently referenced the tutorials as needed. The time required to create video tutorials is minimal when compared to teaching the same material to multiple users who, over time, may not recall certain processes, Turner adds.

H. Edward Goldberg is an architect, industrial designer, and A/E/C industry analyst; he also wrote Autodesk Architectural Desktop 2005: A Comprehensive Tutorial.

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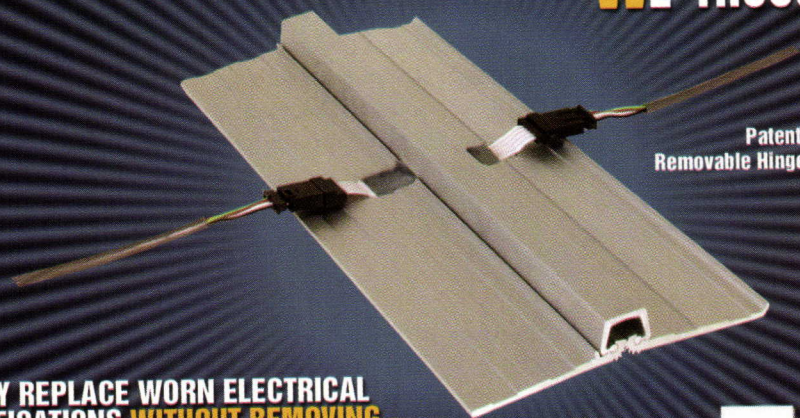
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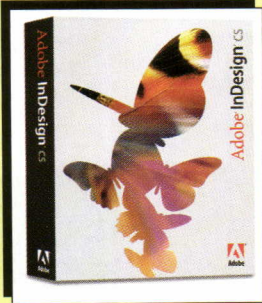
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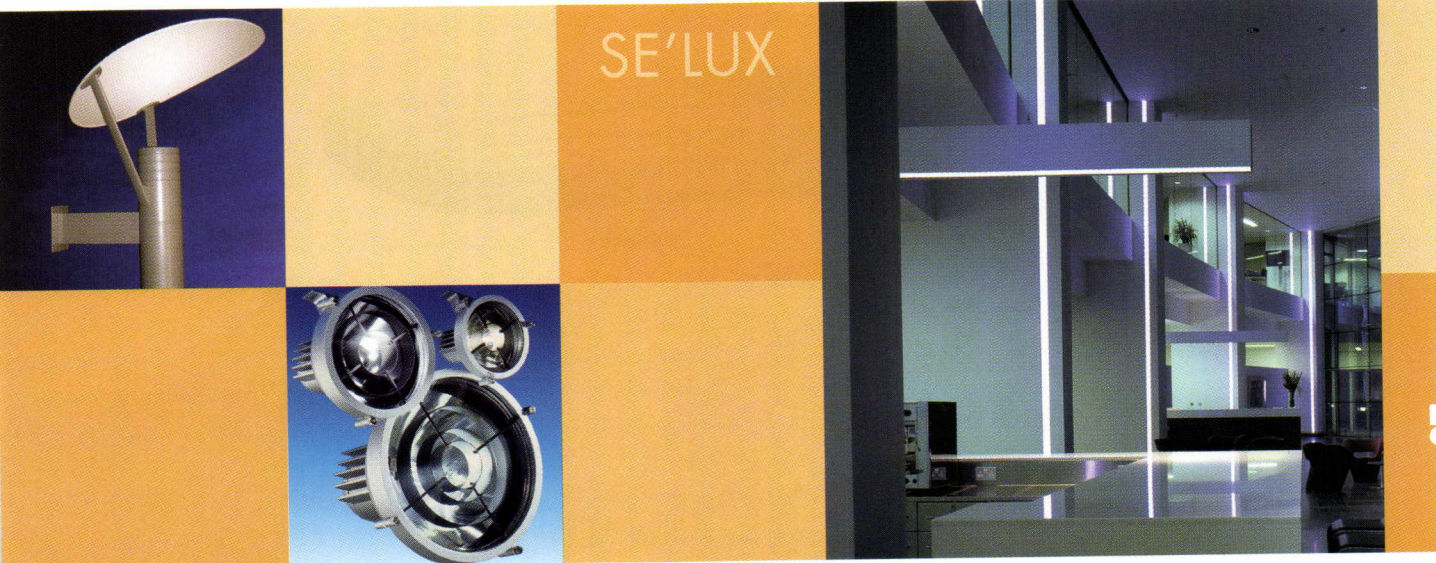
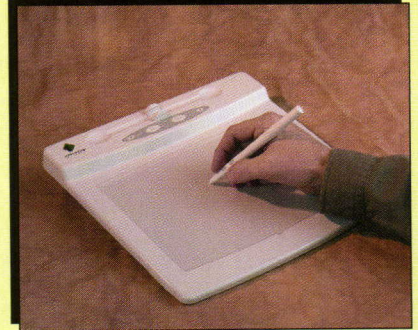
product: **InDesign CS**
manufacturer: **Adobe**
web: **adobe.com**

The new darling of the graphic design world, InDesign is rapidly emerging as the architect's and designer's choice for making project presentations, competition entries, and other materials. Quickly gaining in popularity over Quark and PageMaker, another Adobe product, this program features options and enhancements that allow more creativity in the design process and freedom with layout. Used by design firms, publishers, and more, this product uses the same commands, tools, and palettes as Photoshop and Illustrator, allowing for a quick and efficient transition to the new program. One feature that makes InDesign so user-friendly is the ability to import files from any other Adobe program and maintain fonts, spacing, and other specifications. Files can then be modified and improved with the wider range of tools that InDesign offers.



product: **InterWrite Meeting Suite**
manufacturer: **GTCO CalComp**
web: **gtccalcomp.com**

Comprising a series of interactive meeting products, the InterWrite Meeting Suite allows for a group of people to view and respond to a prepared computer presentation. The MeetingBoard is an electronic white board that displays a computer image onto a flat screen on which users can make and save digital dry-erase notes, allowing for brainstorming and group-editing of digital files. The MeetingPad is a wireless device that gives the user mouse functionality anywhere in the room. Seven of the pads can be used with one computer, allowing every participant in the meeting to make notes and interact with the material. The iPanel is an LCD monitor that allows the presenter to annotate the presentation; and have the changes appear on the screen behind the speaker—letting him or her change the presentation or add notes and suggestions without turning away from the audience. The products all work together to make any meeting a more interactive and collaborative process.



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THE INSTANT GREEN PROFILE

Early-stage engineering studies help make buildings more sustainable. Not enough time? Check your drop-down menus.

by C.C. Sullivan

As green design has become more integral to practice, so has early-stage engineering analysis. As a result, the "plan takeoff," and its tradition of manual data entry, has become a familiar subdiscipline for the design team.

But no more: If CAD industry gurus are right, architects will soon be doing instant calculations of building energy use and code compliance—and even fire-safety costs and sustainability ratings—easily and automatically during schematic design.

The enabling technology, dryly but generically put, is **data transfer**: zapping prepared CAD information directly into analytical tools already created for engineers and other specialists. If the data is tagged and formatted right—using building-information modeling (BIM) software, for example—the

process takes little time and effort. New data-transfer tools are now interoperable with Graphisoft's ArchiCAD and, as of last month, Autodesk's M/E/P engineering program, Autodesk Building Systems. (Rumor has it that Bentley and

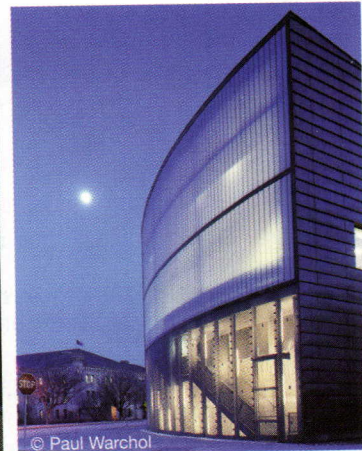
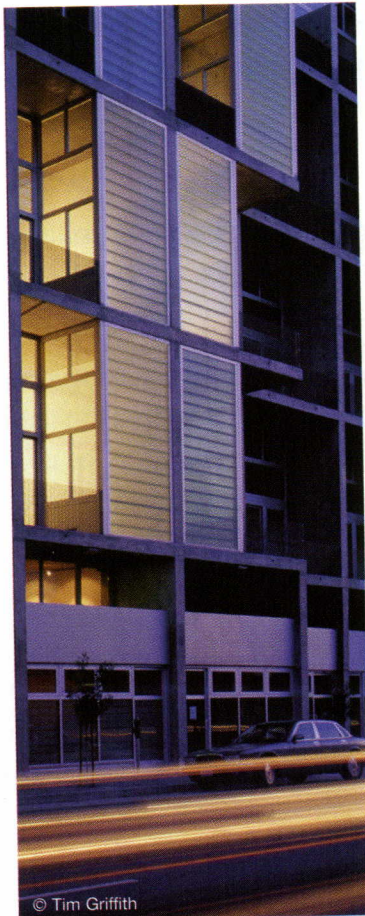
Open file formats such as gbXML and ddXML have helped to take the work out of the early-stage calculations of energy use and sustainability.

Nemetschek are also launching similar modules for their architectural software.) The third-party applications enable studies of energy consumption, heating and cooling loads, and duct sizing for fire protection.

Most exciting to designers, however,

is the "instant environmental profile": **Green Building Studio**, a software module introduced last April by Petaluma, California-based GeoPraxis (www.geo-praxis.com), lets architects quickly predict energy usage using DOE-2 eQuest software (www.doe2.com/equest) and automatically score their designs based on the U.S. Green Building Council's LEED rating system.

Underlying the green data-transfer technology is **gbXML**, a nonproprietary file format created in 2000 from GeoPraxis with some funding from the California Energy Commission. (The "gb," by the way, stands for "green building"; other open formats include **ddXML**, which is used for duct designs.) The gbXML tools, such as Green Building Studio, "take cost out of the design process and speed it up significantly," contends James A. McCray, chief operating officer of GeoPraxis. "Architects don't need to send information to engineers to get an early-stage energy analysis, and they don't need to do plan takeoffs anymore. This vastly improves accuracy, because the information flows directly from the design drawings." ■



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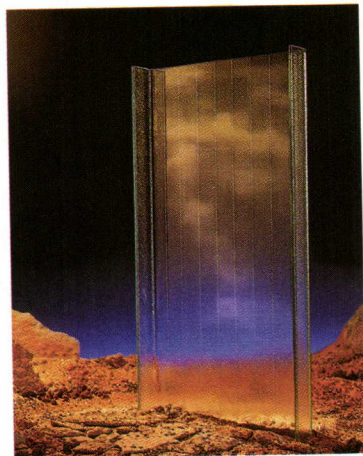
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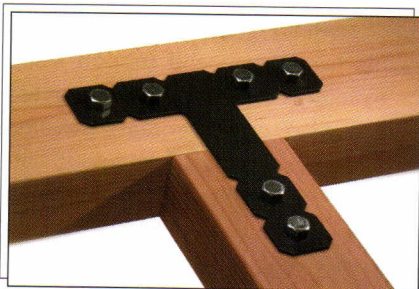
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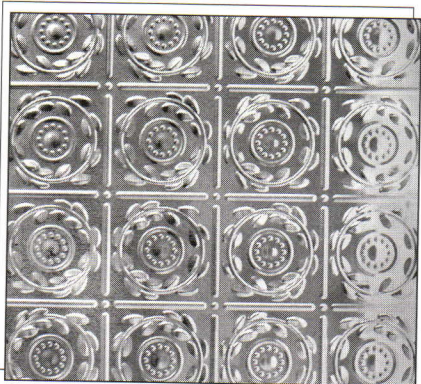
- ☒ product: **The Rustic Collection**
- ☒ manufacturer: **Simpson Strong-Tie**
- ☒ web: **strongtie.com**

Known best for its structural systems, Simpson Strong-Tie makes a power play for the ornamental niche with its "Architectural Products Group," several collections of attractive connectors and joist ties for the fashionable arena of exposed-timber construction. The "Rustic" line features notched articulations and chamfered corners to complement lodge and home interiors. All products—including ties, column caps, angles, and straps—come in a textured black powder coating.



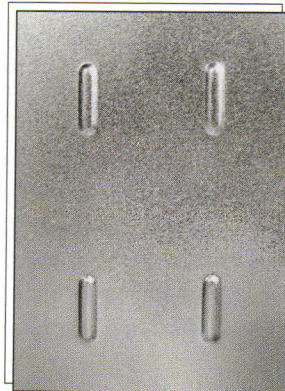
- ☒ product: **Prestplate**
- ☒ maker: **AA-Abbingdon Affiliates**
- ☒ web: **abbingdon.com**

One can't help but exclaim "Classic!" upon viewing AA-Abbingdon's throw-back catalog design and its equally nostalgic line of pressed-metal panels, ideal for flat and coffered ceilings, backsplashes, moldings and cornices, and even trendier, less traditional uses, such as wallcoverings. Classic!



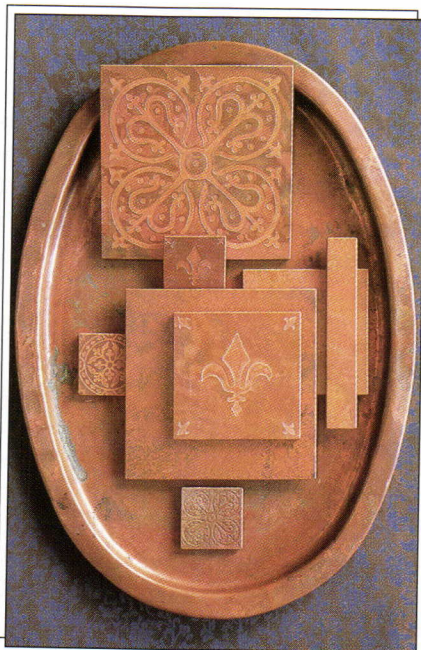
- ☒ product: **Tech**
- ☒ manufacturer: **Forms+Surfaces**
- ☒ web: **forms-surfaces.com**

Customize and design your own embossed pattern with this new sheet-metal line, and apply the result as wall panels, column cladding, elevator interiors and surrounds, door surfaces, planters, and trash bins. Called "Tech," the pattern is available in warm-colored fused metals or chilly stainless steel (shown), in a variety of proprietary finishes. A clean, sculptural embossure to enliven cosmopolitan environments.



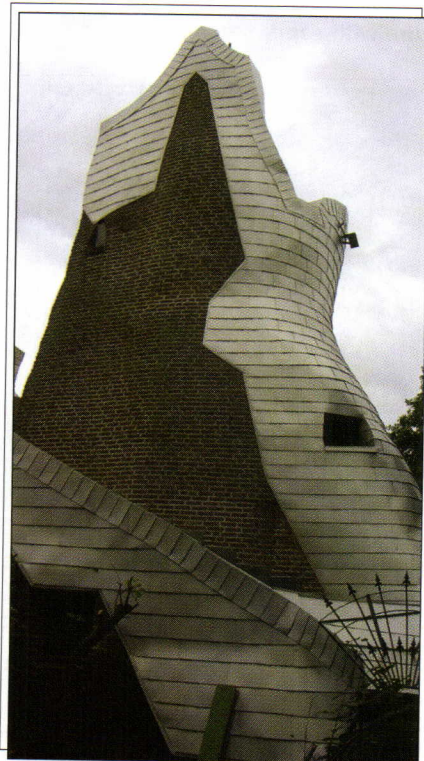
- ☒ product: **Patine**
- ☒ manufacturer: **Walker Zanger**
- ☒ web: **walkerezanger.com**

A new collection of handmade "tarnished copper" tiles brings warm hues and embossed decorative patterns to interior and exterior walls and floors, and seems especially suited to culinary settings. Coated with a durable baked-on lacquer, the metal surface is attached to a cementitious backer board, allowing for any applications and installation methods analogous to those for ceramic tile. Three styles are available in 4-inch and 6-inch dots, decos, runners, and field tiles: Trefoil, Romanesque, and Fleur-de-Lis.



- ☒ product: **Timetal**
- ☒ manufacturer: **Titanium Metals**
- ☒ web: **timet.com**

Better known as Timet, this maker offers "commercially pure" architectural titanium at better price points than ever. (And good corrosion resistance and low thermal expansion allow the company to offer a 100-year warranty.) Recent projects include a residence in Utrecht, the Netherlands (below), in which the architect concealed a failing brick structure with a blobby wrapper.



- ☒ product: **Capsule Light**
- ☒ manufacturer: **Mio Culture**
- ☒ web: **mioculture.com**

Two 100-percent wool shells are joined to produce the Capsule Light. The top shell, which can be specified in a variety of richly muted colors, directs light, while the bottom shell, in white, diffuses light. The pendant fixture, designed to be suspended in groups or as single units, is 1 foot from top to bottom and 8 inches in diameter. Illuminated by 26-watt compact fluorescent lamps, the Capsule is recommended for both public and private spaces.



- ☒ product: **LC-Euro Collection**
- ☒ manufacturer: **Litecontrol**
- ☒ web: **litecontrol.com**

Litecontrol has joined with four European companies (Dark and Waco of Belgium, Fagerhult of Sweden, and Hacer of England) to offer 16 new products for commercial, institutional, and retail lighting applications in the North American market. All of the fixtures are assembled in the United States and conform to UL standards. One example from the collection is Dark's "Ice," a pendant-mounted fixture with semi-direct illumination.

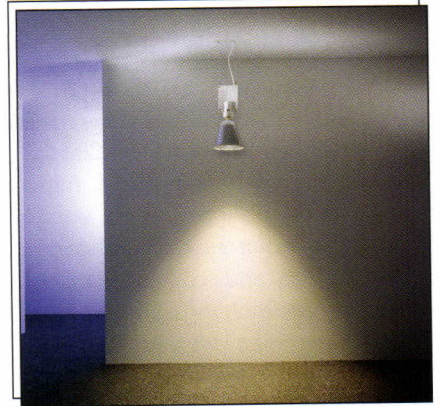


- ☒ product: **Faro**
- ☒ manufacturer: **pallucoluce**
- ☒ web: **modernliving.com**

The Faro floor lamp has a zinc-colored, painted-steel base and support stem. Its aluminum reflector can be pointed vertically (up to 100 degrees), swiveled 360 degrees, and it comes in two versions: 11 inches and 13.8 inches in diameter. Faro takes a 200-watt incandescent lamp.

- ☒ product: **Sino**
- ☒ manufacturer: **Ansorg**
- ☒ web: **ansorg.com**

The Sino luminaire comes in a range of suspension systems (steel cable or rod) and with interchangeable, aluminum reflectors that offer adjustable focus. The wide-beam reflector has an angle range of 80 to 120 degrees, while the narrow beam reflector has a range of 30 to 80 degrees.



- ☒ product: **O-Lite**
- ☒ manufacturer: **Belux**
- ☒ web: **belux.com**

Similar to the illumination effect of an automobile headlight, the O-Lite produces widely dispersed light through small prisms. The fixture can be mounted indoors or out, employs 22-watt T5 fluorescent lamps, and is suitable for use in hallways, staircases, waiting rooms, and bathrooms.

FOR INFORMATION ON LIGHTING, CIRCLE 126 ON PAGE 105.

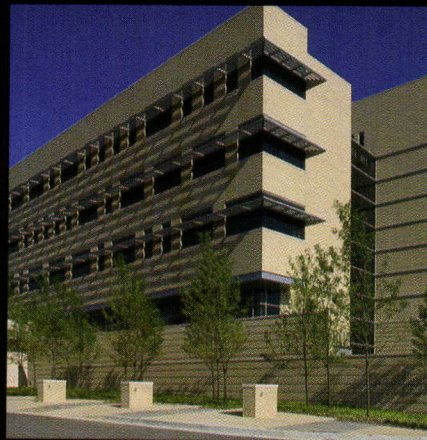
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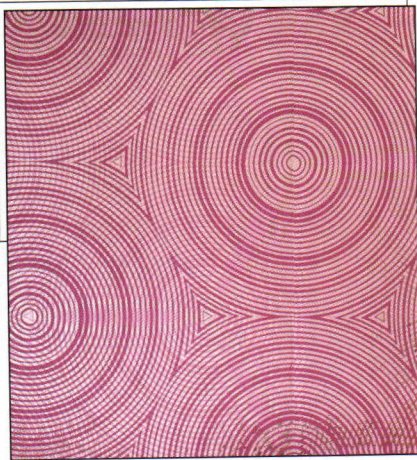
Belden Brick offers thirteen different textures that range from silky smooth finishes to rugged randomly textured styles. Each texture can make its own distinctive contribution to the visual impact you seek.



sources**wall coverings**

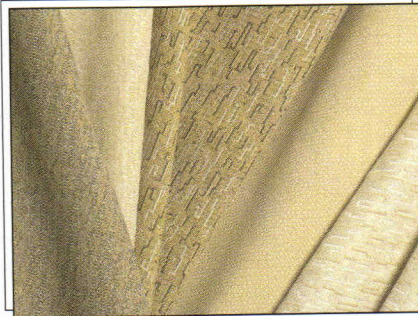
- ☒ product: **hand-screened wallpaper**
- ☒ manufacturer: **Flavor Paper**
- ☒ web: **flavorpaper.com**

Using screens from the 1970s, New Orleans-based Flavor Paper is a new company with a vintage feel. Offering eight stock designs in four colorways each in their inaugural line, the fully customizable, hand-screened wallpaper is available in one-, two-, or three-screen patterns.



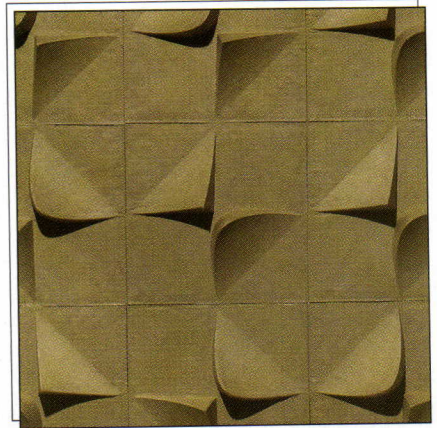
- ☒ product: **Office Attire**
- ☒ manufacturer: **Pallas**
- ☒ web: **pallastextiles.com**

North Carolina-based designer Michael Laessle applies employee dress codes to the office interior. Three patterns—Business Dress, Business Casual, and Casual Friday—in colorways with titles such as Open-Toed Pump and Silk Shirt, offer a touch of whimsy to commercial panel fabrics. Laessle's inspiration comes from his background in men's fashion—each pattern is based on patterns and textures found in the fabrics of its name-sake style of dress.



- ☒ product: **V2**
- ☒ manufacturer: **Mio**
- ☒ web: **mioculture.com**

Perfect for jigsaw-puzzle enthusiasts, V2 is Mio's second collection of 3-D wallpaper. Made completely out of post- and pre-consumer waste paper—and recyclable itself—the V2 line of reconfigurable wallpaper tiles allows for instant and repeated customization of a space. So far, however, brown is the only color available.

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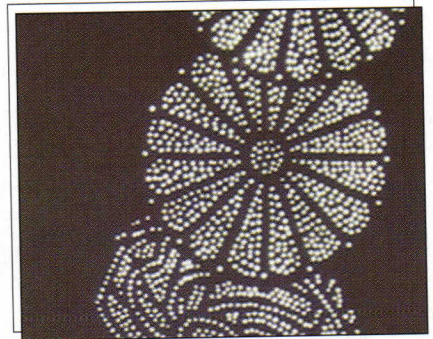


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- ☒ product: **John Mahoney wall murals**
- ☒ supplier: **Mixed Greens**
- ☒ web: **mixedgreens.com**

Conventional wallpaper too boring? Then try matte and metallic hand-painted wall murals by artist John Mahoney. For his first collection of wall murals, Mahoney comes on-site to paint rooms of a minimum 10 feet square. Blending eastern and western influences in six patterns, each mural is available in four color palettes, Mahoney has also designed a series of coordinating rugs in nylon or wool.



FOR INFORMATION ON WALL COVERINGS, CIRCLE 127 ON PAGE 105.



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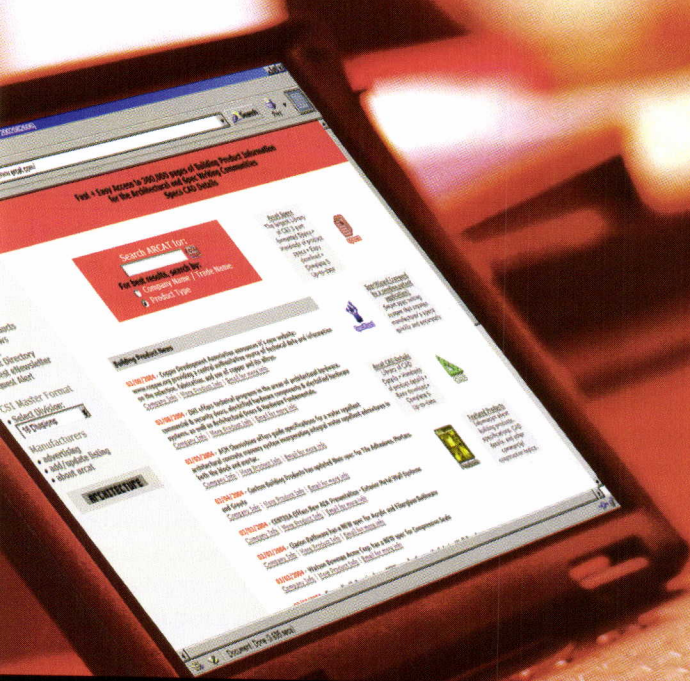
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MUSEUM

The Noguchi Museum | Long Island City, New York The borough of Queens is as rich in cultural treasures as any other part of New York City, if less centrally located. While The Museum of Modern Art's temporary headquarters and the P.S.1 Contemporary Art Center garner far more attention, another Queens institution, the Noguchi Museum, has just reopened following a 30-month-long renovation. Housing the late Isamu Noguchi's art and archives, the museum occupies a 1928 two-story industrial building (a former photo-engraving plant) that was converted and expanded by the artist and Shoji Sadao of Fuller Sadao Architects in 1982. The latest renovation by Sage and Coombe Architects focused on relatively invisible upgrades, including structural and façade repairs and the renovation of offices and galleries; the institution and its architects left Noguchi's muscular, open-air concrete-block addition unscathed and its lush, if tiny, garden in pristine condition. The reopening marks the centennial of Noguchi's birth and launches expanded programming, including, for the first time, temporary exhibitions and year-round visiting hours. The inaugural installation, curated by Robert Wilson and on view through October 3, is "Isamu Noguchi: Sculptural Design," which looks at the artist's sculpture, architectural designs, stage sets, playgrounds, landscapes, furniture, and light fixtures. **Abby Bussel**



INSTALLATION

Son-O-House | Nox/Lars Spuybroek | Eindhoven, The Netherlands

Gently humming, *Son-O-House* lies in wait for passersby. As visitors approach it through mounds of dirt that seem pushed aside by a great explosion, its slithering stainless-steel mesh forms come alive with undulating tones, their pitch rising to a crescendo as one enters its curving rooms. This "space where sound lives" by Dutch digi-architect Lars Spuybroek is meant to be a place for meditation and gathering, a public art piece in an IT office park near Eindhoven. Using computer programs of his own devising, Spuybroek designed *Son-O-House* in collaboration



with acoustical artist Edwin van der Heide. The architect claims the work is a translation of life's daily activities into a nest of curves extruded into a "home." As with much architecture that seeks to transform aspects of reality into novel forms, the relationship to *Son-O-House's* origins are obscure. The form's novelty also leads to some clunky construction, with light mesh cladding on heavy steel ribs. Regardless, its effect is mesmerizing: Half-beast, half-building, its forms and sonorous breathing offer an alternative to the mute forms of the nearby office buildings, hinting at the shape the technology developed in those offices might look like if it were free to float through our lives without function, context, or material concerns. **Aaron Betsky**

WEBSITE

Architecture Radio | www.architectureradio.org San Francisco-based architects Davis Marques and Nikki Chen

hatched the idea for *Architecture Radio* after Chen tried in vain to get to a design lecture 10 hours away in Los Angeles. Due to the frustrating experience, says Marques, "we realized that it would be a great resource to have lectures available on the Internet so everyone could listen to them."

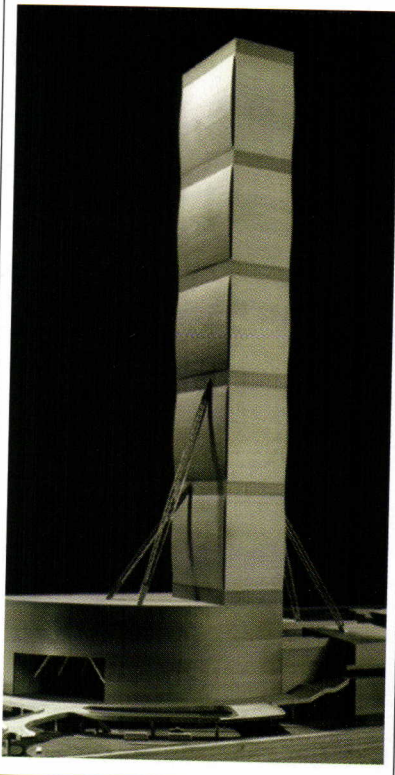
Two and a half years later, www.architecture-radio.org was launched, making its debut last April. The well-designed site offers an array of educational audio segments, from recorded AIA lectures on topics such as green design to a BBC radio broadcast on the London Architecture Biennale. "We want to present material that speaks to the 'how' and 'why' of architecture," says Marques, the nonprofit's president, explaining that the website's content addresses the nuts and bolts of designing and building as well as issues that place the practice in a greater context. In addition to providing links to existing online audio material, the *Architecture Radio* staff records and uploads public lectures put on by organizations such as the AIA; they plan to provide continuing-education credits soon. Because the operation is small, many of the lectures are based in the San Francisco area; however, with more resources, Marques hopes to go nationwide in the future. "It's all about trying to figure out a way that people can keep working together and learning from each other," he states. It's an idea that makes sense, and with a wider geographic range of coverage, it will be an invaluable resource. **Anna Holtzman**

EXHIBITION

**Tall Buildings | MoMA
QNS | Queens, New**

York | Through September 27 The decimation of the World Trade Center prompted architects to consider anew the skyscraper. While the complex was a city unto itself, the towers were, in fact, divorced from the rest of the metropolis. The need for urban connections is just one topic covered in the exhibition *Tall Buildings* at the Museum of Modern Art (MoMA) in Queens. Cocurated by Terence Riley, architecture curator, and engineer Guy Nordenson, the show is one of the last before MoMA moves to its redesigned Manhattan quarters on November 20.

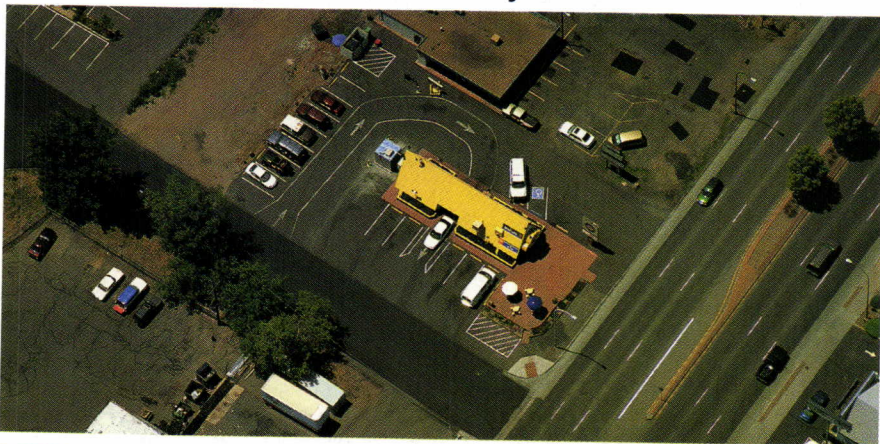
Featuring skyscrapers designed over the past 10 years, the show looks at how computer modeling has influenced technical advances and led to an unprecedented diversity in form. The exhibit depicts 25 projects in drawings, photographs, and large-scale models that make the gallery look more like a sculpture exhibition. An elegant wood model, for example, represents the JR Ueno Railway Station (below) in Tokyo by architect Arata Isosaki and engineer Tochihiro Kimura. A Web site accompanies the exhibit.

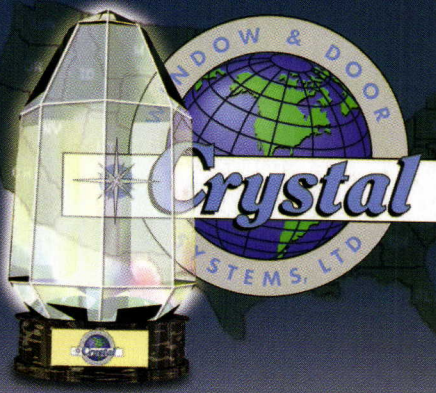
Bay Brown

BOOK

A Field Guide to Sprawl | Dolores Hayden | W.W. Norton & Company

Dolores Hayden, an urban historian, author, and architect who has long trained her eyes on the built environment, has produced a smart, entertaining critique of the political and commercial forces behind our sprawling presence on the land. Paired with aerial photographs by Jim Wark, Hayden's 51 definitions of the vocabulary of sprawl range from "alligator," which describes a subdivision that languishes for years without a house in sight, to "privatopia," where homeowners associations dictate the sights and sounds of the streetscape, to "zoomurb," which, like a "boomburb," is a fast-growing suburban place much like Sun City, Arizona (below). An essay by Hayden reminds us of how we've managed to fuel so much unsustainable growth—federal tax breaks, state and local subsidies for development, highway-building programs—suggesting that we "do not have to tolerate sprawl. Decades of accepting the ugly as inevitable have taken their toll, but American cities, small towns, and rural areas have much to offer besides examples of careless development." We do not, she concludes, have to succumb to "mindless growth machines." **Abby Bussel**






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BOTTOM: YASUHIRO ISHIMOTO/COURTESY MUSEUM OF MODERN ART; TOP: JIM WARK/ARPHOTO

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George Nakashima:
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 an evolving ecosystem.
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Pepón Osorio
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 seen by the artist.
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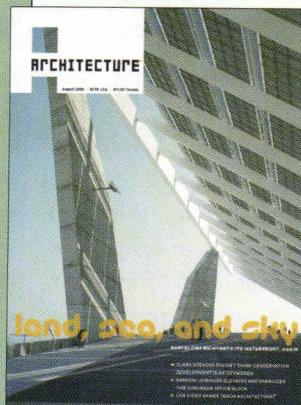
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REDESIGNING IRAQ'S INFAMOUS ABU GHRAIB PRISON CALLS FOR MORE THAN ARCHITECTURE ALONE CAN ACCOMPLISH. BY JUSTIN CLARK

Following the high-profile prisoner-abuse scandal at the Coalition-operated Abu Ghraib prison this spring, President Bush promised to provide "a fitting symbol of Iraq's new beginning" by replacing the Baghdad facility with "a modern, maximum-security prison." Few Iraqis cheered. Some wanted Abu Ghraib preserved as a memorial to both the horrors committed there under Saddam Hussein's regime and abuses under the United States-led occupation, while others maintained that the 34-year-old American-designed facility remains serviceable. "We must not be sentimental," contends Ghazi Mashal Ajil al-Yawer, head of Iraq's Governing Council, calling the idea "a waste of resources."

In apparent disregard of the negative Iraqi reaction, the Bush administration has quietly pressed ahead with plans for a new facility—plans that existed before the war even began, says International Corrections and Prisons Association board member Stephen Carter. The planned prison was approved at a cost of \$400 million as part of the \$87 billion emergency war-spending request approved by Congress last September.

According to Carter, a design-build team chosen by the Iraqi Governing Council and the State Department-controlled Iraq Reconstruction Management Office will produce two 4,000-bed facilities. Although no start date or locations have been set, it is known that the facilities will employ the so-called "podular" model of prison design, with groups of cells organized around a day room, exercise area, or visitation room.

The \$50,000-per-bed price tag has raised some eyebrows in Congress, as has the \$10 million allocated for contractor consultant fees. Architect Randall Atlas, president of the Miami-based security firm Counter Terror Design, says that Washington's "beltway bandits"—contractors with connections in the capital—will likely oversee the project, but that domestic corrections experts who are not on the government's usual shortlist could do the job cheaper and better. "They should contact the American Correctional Association," Atlas suggests.

Given that the facility will be constructed using no-bid design-build contracts (an arrangement outlawed in most of the United States), one might wonder if the procurement process will be any better supervised than the corridors of Abu Ghraib were. And an even more difficult question remains: Does Iraq need a new prison?

Corrections experts agree that the abuses at Abu Ghraib owed more to poor supervision than poor design. From a security standpoint, the existing facility is as adequate for

incarcerating enemies of the new interim government as for enemies of the last one, says Atlas. But there are dissenters. For one, architect Jim Kessler, director of criminal-justice facilities for Hellmuth, Obata + Kassabaum's Washington, D.C. office, speculates that the podular model could help to reduce the likelihood of more prisoner abuse. By arranging cellblocks around dayrooms and placing guards in direct contact with prisoners, Iraq's new prison can break with a regional tradition of "warehousing" prisoners.

By contrast, Abu Ghraib was built on a "telephone-pole" design, a variation of the linear, Auburn-style prison model, with cellblocks running perpendicular to a central corridor. The infamous "seventh cell block," where most of the abuses at Abu Ghraib were committed, consists of an uninterrupted hallway of 103 cells, each measuring 6 feet by 10 feet, which can only be monitored by guards on foot, providing merely intermittent supervision. Unfortunately, this also meant only intermittent supervision of guards by their superiors.

But the new facility may be no better. The designers of Abu Ghraib's replacement must accommodate the thousands of security detainees that have been transferred from Abu Ghraib to temporary tent-and-razor-wire camps. Bush's "maximum-security facility" needs to discourage recruitment of militants (a widespread problem in Middle Eastern prisons) yet respect local customs, such as allowing the incarcerated to receive family visits within their housing units, while juggling a potentially volatile mixture of Sunni, Shiite, and Kurdish inmate groups.

A leading expert in prison architectural history, professor emeritus Norman Johnston of Arcadia University in Glenside, Pennsylvania, views Bush's proposition as a distraction from these problems, not a solution. "It would take no time at all for the wrong administration to make the new prison become as horrific a symbol as Abu Ghraib was under Saddam Hussein," Johnston argues. "The building can only do so much."

Both pragmatically and symbolically, the reconstruction of Iraq should begin with hospitals and education facilities—only one new elementary school was included in the \$87 billion spending bill—not prisons. No politician should be permitted to insinuate, through an expedient offer, that faulty architecture is to blame for the Abu Ghraib scandal. Or, as Johnston puts it: "They tore down the Bastille. But it's still very much alive."

Los Angeles-based writer Justin Clark is an editor of the online magazine inthe fray.com.



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