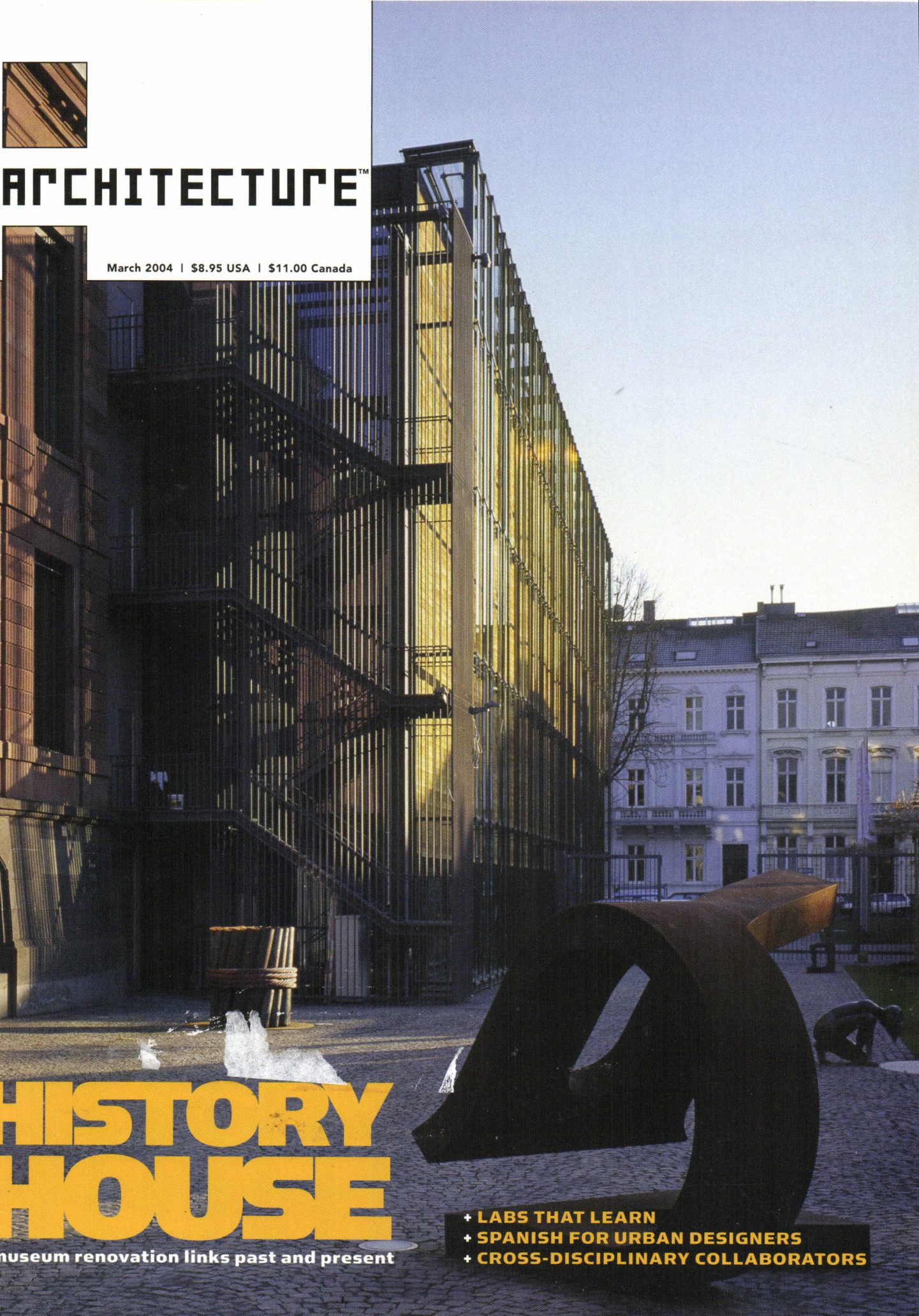

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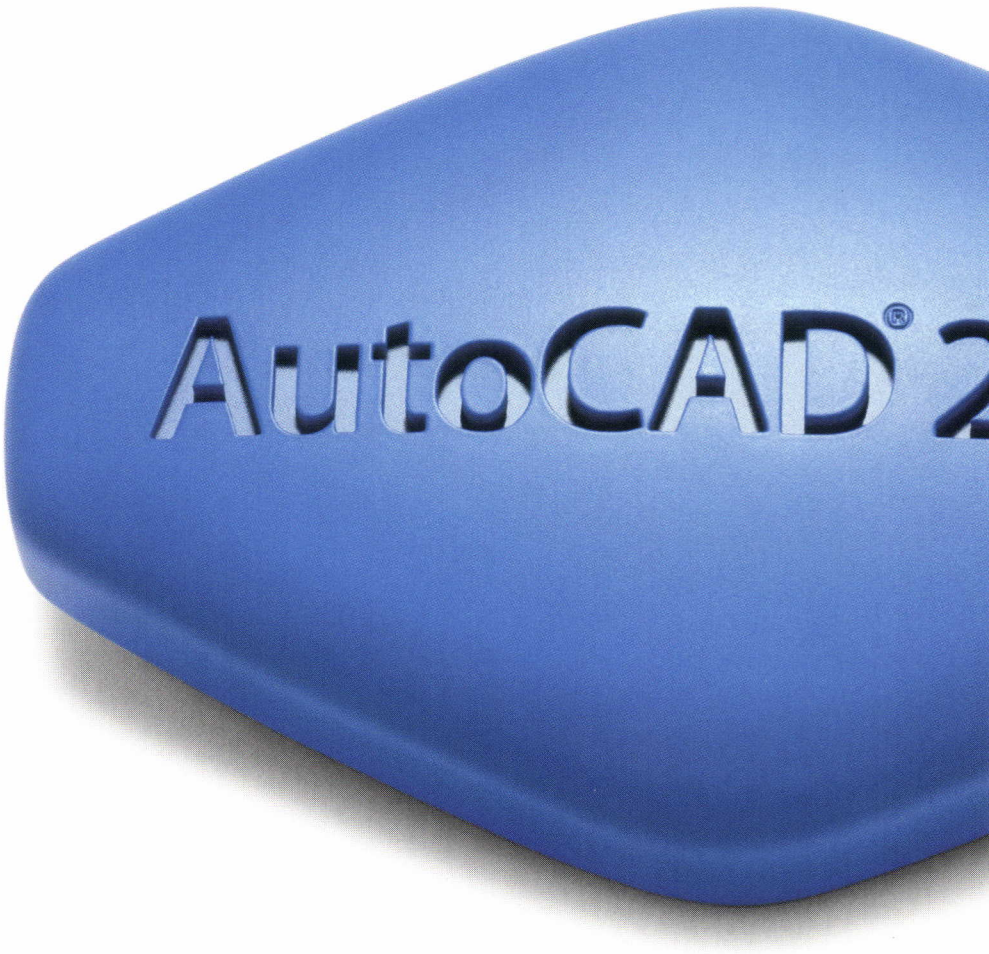

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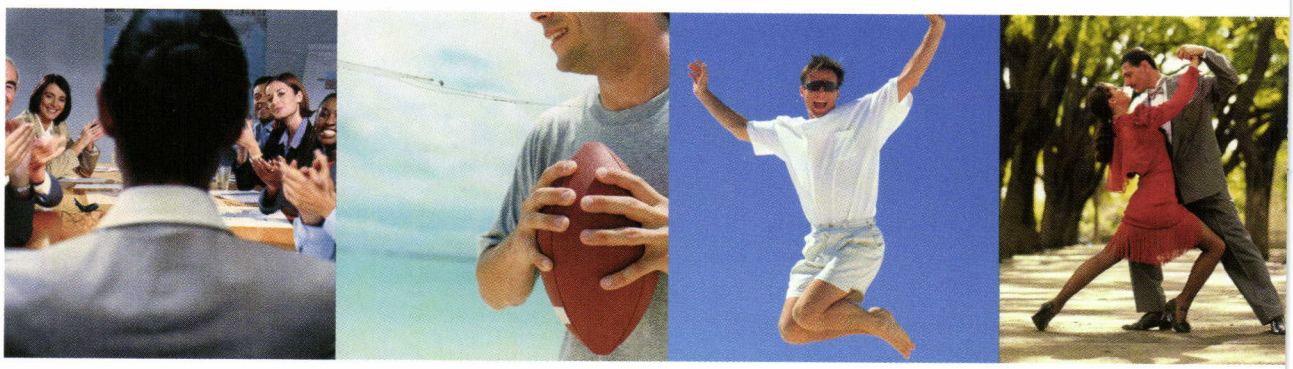

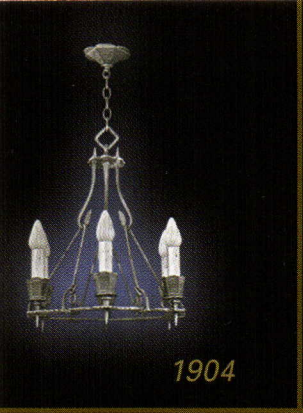

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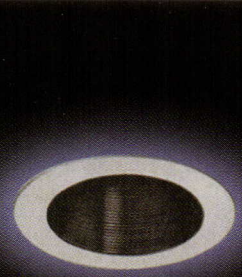

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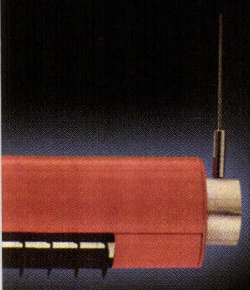

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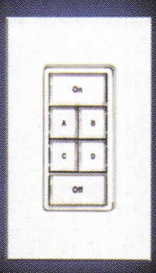

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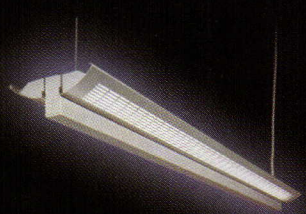

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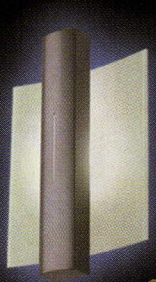

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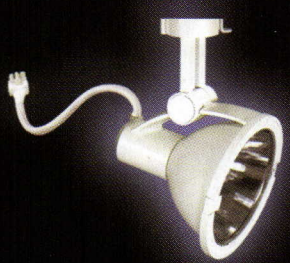

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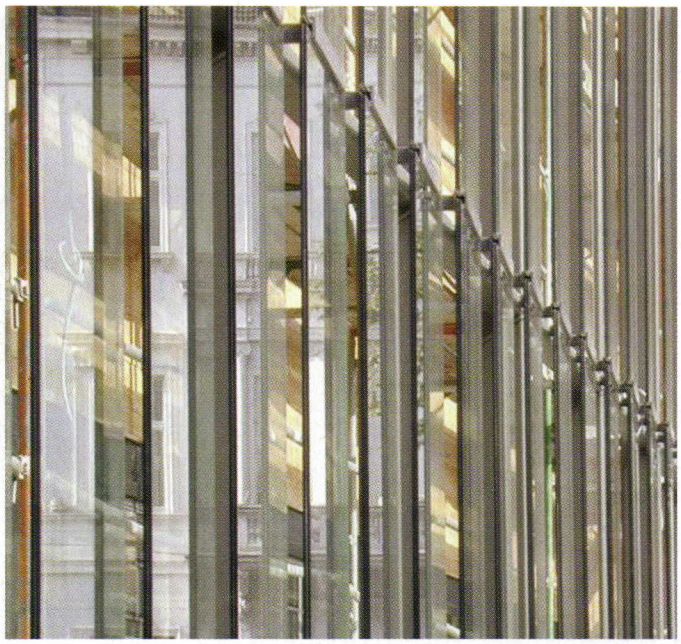


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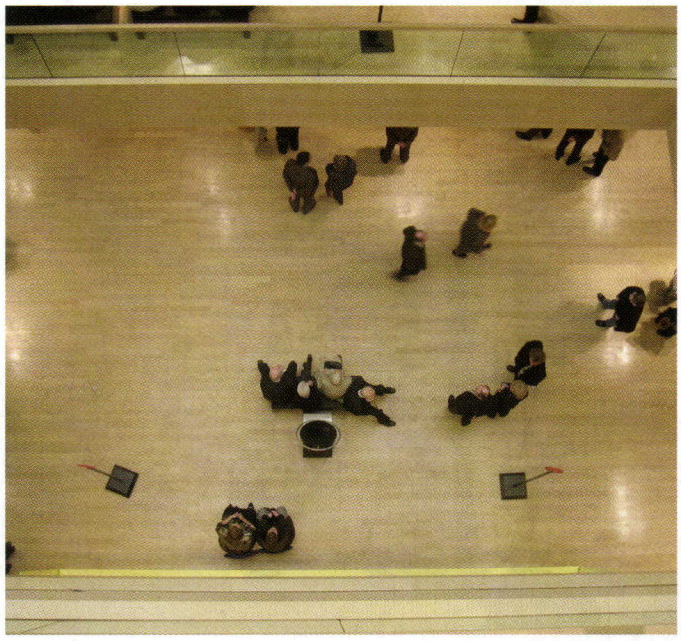
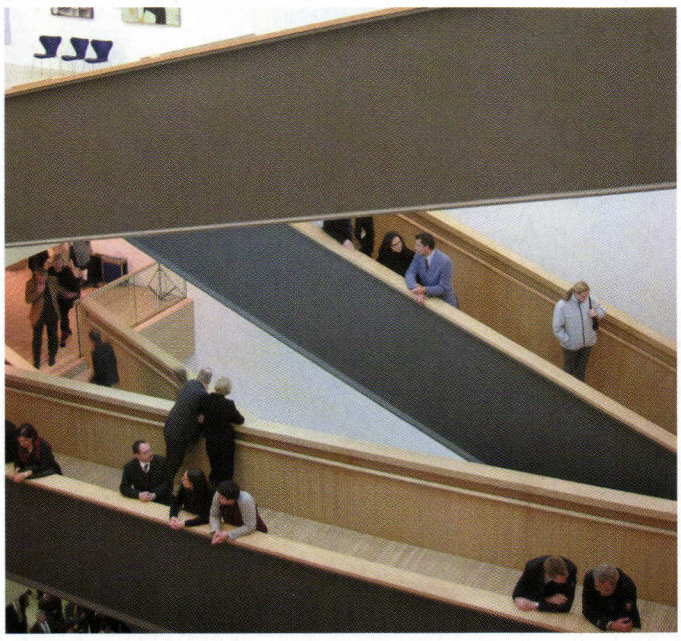
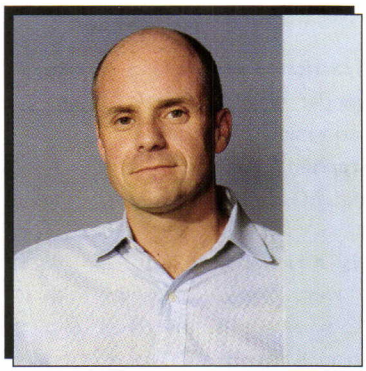






NORFOLK MOXIE

BY C.C. SULLIVAN

In spite of admonitions to the contrary from two U.S. Navy veterans, I found a lot to see and do on a recent trip to Norfolk, Virginia. In fact, the city is bursting with new energy, and its current good fortunes are nothing short of miraculous. Perhaps its planning and development path offers a model for other American cities.

Long a bustling trading port and financial center with one of the world's biggest naval bases, Norfolk resolved to confront its morass of slums and poverty in 1940 by setting up the Norfolk Redevelopment and Housing Authority (NRHA), which was then and remains today a controversial and progressive force. The group focused on housing the city's underclass and booming wartime population by bulldozing hundreds of acres of tenements and relocating thousands of residents. As new communities arose in the 1950s and 1960s—along with tunnels, highways, and more streets—the municipal government penned the first of several forward-thinking master plans for its nascent downtown. (They first focused on expunging the flophouses and taverns catering to off-duty sailors.)

By the 1960s and 1970s, the first real signs of better times emerged: A splashy hotel and restaurant drew conventions downtown. Two local colleges expanded, and a new medical school opened. The skyline started taking shape, first with apartment blocks and bank towers. More redevelopment—and controversy—followed, including urban renewal in historical zones like East Ghent, today an artsy, upscale enclave. And in 1971, the fantastic Scope arena opened, a huge dome with 60-foot, Y-shaped buttresses, designed by Pier Luigi Nervi and local firm Williams & Tazewell. With the Chrysler Center concert hall next door, this ultramodern cultural center became a metaphor for Norfolk's renaissance. Suddenly, the city enjoyed national attention: How did slums and honky-tonks yield a case study in redevelopment?

More hard work came in the 1980s. The city focused on its waterfront, replacing warehouses with cultural venues and a festival marketplace, and then designated landmark areas like the eclectic Freemason district. Hotel and office developers jumped on the momentum. And the 1990s brought a new minor-league ballpark, a community college, new concert halls, nightclubs, cafés, and a large if ungainly downtown mall. "Now we have to sell Norfolk as a good place to live," quipped NRHA's former director David H. Rice.

And that's exactly what happened. Today, the city's 65 restaurants, four performance halls, and never-ending series of waterfront events draw three times more visitors than in 1999 from the Hampton Roads area, which includes such popular destinations as Virginia Beach and Williamsburg. With a thousand new residential units on the boards, young professionals in finance, defense, and creative fields are snapping up market-rate housing as fast as it is built. Downtown residents are caught up in a restoration frenzy, and the city's planning department just opened a storefront "design center" to assist homeowners in renovation efforts.

Six decades after NRHA was established, business is way up and the urban core is dense, diverse, walkable, and livable, with strong connections to the water and the arts—in short, everything that small U.S. cities think they need today to be competitive. Norfolk also has that elusive sense of place that makes cities worth visiting. But it didn't come easily. And it wouldn't have come at all if it weren't for the moxie of the city and its people, who are willing to take gambles and effect difficult, sometimes unpopular change to reap long-term benefits.

SAVE NERVI'S SCOPE ARENA!

A rare modern treasure, the Scope arena stands as a monument to Norfolk's determination and foresight. The latest buzz is that the city, frustrated by the venue's small size and lack of private-sector interest (not to mention the unwelcoming plinth on which it sits), might raze the landmark. Thankfully, city officials have commissioned an architectural report to determine what to do with this gem. And last November, the Virginia AIA gave Scope its prestigious "Test of Time" award.

While Norfolk has shown its mettle in the past by unflinchingly demolishing large swaths of its downtown to make way for better digs, this is one building that should stand—even if only as a shrine to the city's truly modern outlook, and its mid-Atlantic moxie.

HOW DOES YOUR FIRM MAKE CITIES BETTER? If urban design informs your approach to architecture, we'd like to hear about it. Please send your "process brief" to my attention at *Architecture*, 770 Broadway, New York, New York, 10003.

MICHELE ASSELIN

Does P/A stand for "prepublished architecture"?

In the past, the P/A Awards seemed a means of exploiting projects that were innovative yet unknown to the architectural community. Over the past few years, more of the winning projects have been in general circulation for quite some time, as in this latest issue [January 2004, page 33]. Maybe it is just the result of how projects are overpublicized these days. I also feel that this year's program fell prey to the buddy system—or nepotism. Were the submissions weak, or did jurors recognize their contemporaries' projects and feel they deserved awards? It seems way too coincidental that certain names appear over and over again in the awards and in your coverage; I was amazed that there were only three new firm names. Most blatant, isn't it a conflict of interest to bestow three P/A Awards to projects for the U.S. General Services Administration when the agency's head architect is one of the jurors?

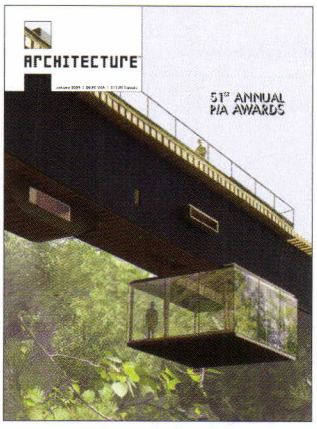
Michael Miller
Los Angeles

From the editors: As is required of all jurors, Edward A. Feiner recused himself from discussion of all projects in which he was involved.

In that case, they'll *never* get it

Regarding Peggy Deamer's Protest, "Developers Just Don't Get It" [January 2004, page 80]: Developers will probably never "get it" if we rely on such archibabble. Deamer opens with a single sentence of more than 90 words, and the article is a chore, if not impossible, for the layperson to comprehend. And we wonder why the public doesn't understand us architects.

Stephen Gegner
Marietta, Ohio



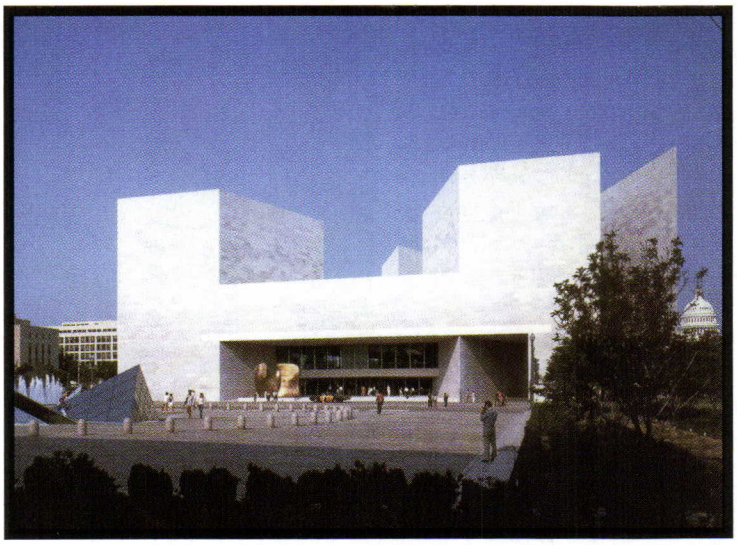
My next big thing

I was very pleased with "Citymaking Is the Next Big Thing" [January 2004, page 9] and your invitation to submit a "process brief" on urban design. Here's one: Known in the 1990s as "the Comeback City," Cleveland is facing a huge deficit and a quiet crisis of lost creative talent. As an architect, I formed the nonprofit ArtSpace/Cleveland, and with a 100-member following, we proceeded to tweak the zoning and building codes to convert abandoned warehouses into affordable mixed-use buildings for artists. One must be an urban pioneer to move back to the old city neighborhoods.

William A. Gould
Cleveland

For more urban-design process briefs, visit www.architecturemag.com.

NATIONAL GALLERY PASSES TEST OF TIME



Drumroll, please. The AIA has selected the winners of its 2004 annual awards. I.M. Pei's East Building of the National Gallery of Art (left) captured the venerable Twenty-five Year Award for architecture of enduring significance. Thirty recipients received Honor Awards recognizing design excellence. In the architecture category, both Olson Sundberg Kundig Allen Architects of Seattle and Thomas Phifer and Partners of New York City won for two projects each. Berkeley, California–based Robert A. Odermatt was chosen for the Edward C. Kemper Award for a lifetime of service to the profession. The Whitney M. Young Jr. Award, given to an architect who exemplifies the profession's responsibility to society, was given to New Mexico–based Terrance J. Brown. The Young Architects Award went to architects who have been licensed for less than ten years: John Burse, St. Louis; David Y. Jameson, Alexandria, Virginia; Donna Kacmar, Houston; Janis LaDouceur, Minneapolis; and Kevin G. Sneed, Washington, D.C. **Bay Brown**

CARNEGIE MELLON GETS RECHARGED

Carnegie Mellon School of Architecture in Pittsburgh, Pennsylvania, will receive $1 million this year from the U.S. Department of Energy for the research and development of high-performance building technologies. The balance of the allocation, $17 million, is expected to be awarded to the school over the next two years pending congressional authorization. The school's "Advanced Building Efficiency Testbed" came about as a result of a D.O.E. program that calls for a reduction of energy use in commercial buildings.

"Improving the efficiency with which our nation uses energy is critical for our country's future economic and environmental well-being, and the energy efficiency of our nation's buildings is a logical place to start," Congressman Michael Doyle, a Pennsylvania Democrat who sponsored the testbed legislation, said in a statement announcing the grant. In addition to conserving energy, the legislation calls for increasing occupant satisfaction and productivity, protecting against biological and chemical attacks, and securing energy sources. Specifically, the program will develop advanced engineering systems, components, and materials.

"Currently, 38 percent of our national primary energies are consumed to heat, light, and ventilate residential and commercial buildings with commensurate nitrogen-oxide and carbon-dioxide emissions. Solutions must be put forth that meet these needs using a fraction of the nonrenewable energies required in present-day approaches," said Volker Hartkopf, director of Carnegie Mellon's Center for Building Performance and Diagnostics, in a statement. **Bay Brown**

MODERNIST LANDSCAPE ARCHITECT DANIEL KILEY, 91

Daniel Urban Kiley, one of the most prominent landscape architects of the 20th century, died on February 21 in Charlotte, Vermont, where he lived. Working with modernist architects from Louis Kahn and Eero Saarinen to Marcel Breuer and Philip Johnson, Kiley sought to reveal the intrinsic beauty of the materials he was shaping, not simply decorate with nature.

The Boston-born Kiley worked for architect Warren Manning, a founder of the American Society of Landscape Architects, before studying landscape architecture at Harvard in the 1930s, where he applied dean Walter Gropius's principles to landscape architecture much to the chagrin of his tradition-minded professors. He went on to work for the U.S. Housing Authority, where he met Saarinen and Kahn, and served with the Army Corps of Engineers from 1942 to 1945, during which time he acted as architect for the Nuremberg Trials Courtroom.

Upon his return to private practice, Kiley set up shop in Vermont, wanting to live closer to nature even though many of his greatest works have been in urban settings. In 1968, he designed the seminal atrium garden in the Ford Foundation building (above) in New York City. Other critical works include the landscape design for the East Building of the National Gallery of Art in Washington, D.C., and the John F. Kennedy Library in Boston. He was also instrumental in the adoption of modernist principles to residential landscape architecture, embodied most famously in his Miller Garden of 1955 in Columbus, Indiana. Widely published and exhibited, Kiley received the National Medal of Arts in 1997 from President Clinton. **Bay Brown**

TOP: EZRA STOLLER/ESTO; BOTTOM: KEVIN ROCHE JOHN DINKELOO AND ASSOCIATES

- Daniel Libeskind has agreed to design a $15.7 million museum in Prague to showcase the works of Spanish Surrealist painter Salvador Dalí. Libeskind is expected to unveil a model of his design in May, and construction is slated to be complete in 2007.

- The District of Columbia and the states of Pennsylvania, Utah, and New Mexico have all recently adopted portions of the International Codes issued by the Falls Church, Virginia–based International Code Council. The adoptions bring the number of states using the codes to 44, with 32 states using the International Residential Code.

- Japanese architect Fumihiko Maki has won the competition to design a new building at the United Nations in New York City. Maki, who is also designing new office towers at the World Trade Center site, plans a $330 million, 35-story glass structure for the U.N. to be developed in collaboration with Skidmore, Owings & Merrill and completed in 2008.

- Thomas K. Fridstein has been elected chief executive officer of the architecture firm Hillier. Fridstein had previously been managing principal of the company's New York City office and prior to that worked at Tishman Speyer Properties and Skidmore, Owings & Merrill.

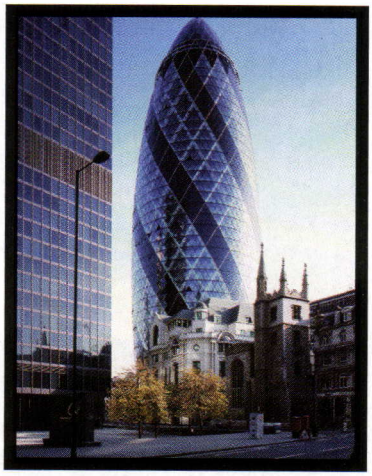
- The Builders Hardware Manufacturers Association recently published the first standard to focus exclusively on revolving doors.

- William B. Tabler, who designed more than 400 hotels in his careers, most notably for the Hilton chain in the 1960s, has died. He was 89. Cordell Webster Ingram, 53, the Atlanta-area architect and former president of National Organization of Minority Architects who worked on the 1996 Olympic Games, has also died.

- The Congress for New Urbanism has moved its headquarters from San Francisco to Chicago. The move coincides with the arrival of the group's new president, John Norquist.

- Melbourne, Vienna, and Vancouver are the best cities for expatriates to live in, at least according to a survey by the London-based Economist Intelligence Unit. The triumvirate of towns ranked well above Paris (28th), London (45th), and New York City (51st).

FOSTER PARTNER DEFECTS



Former Foster and Partners director Ken Shuttleworth has landed his first spate of commissions since splitting with the practice late last year.

The 50-year-old architect announced in November that he was leaving Foster's, where he had spent his entire career. He has been credited with the initial designs for two of the firm's highest profile recent projects, London's City Hall and the Swiss Re tower (right). The latter is central London's second tallest skyscraper.

Shuttleworth has recruited six former Foster employees to his new practice, which is called "make," and is working on three office and housing projects as well as more than 40 inquiries, all from the United Kingdom and continental Europe. "It was time for a change, I had been there for 30 years," he said, "and because of the downturn in the London property market, it was a good time to make a move without being in the middle of a project." **David Blackman**

FENG SHUI FOR CALIFORNIA CODES?

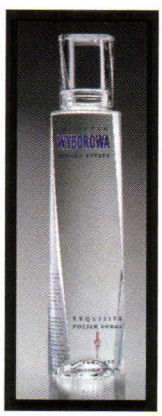
Two alternative approaches to building design—the Chinese practice of *feng shui* and the Indian school of Vedic architecture—have received high-profile endorsements in recent weeks.

In California, state assemblyman Leland Yee has forwarded a resolution recommending that the principles of feng shui be considered in the state's building codes, arguing that the orientation of structural elements and furniture can affect employee productivity. "Most of this is commonsense principles," says Yee's press secretary, Adam Keighwin, such as having windows in offices, which Yee's happen to lack.

Meanwhile, the Maharishi Mahesh Yogi, the spiritual leader who helped popularize transcendental meditation in the 1970s, has appealed to heads of state to apply the tenets of Vedic architecture to government buildings. The pay-off, he claims, will be more successful administrations.

The spiritual leader's spokesman Mario Orsatti claims that the school of thought, named *Sthapatya Veda* in full, is in the tradition of feng shui in that it considers building orientation to affect cosmic energy: "Sthapatya Veda is the original," he says. He added that an entire town in Utah, names Maharishi Vedic City, is being planned on these principles by local architect Jonathan Lipman. **Jamie Reynolds**

GEHRY IN A BOTTLE



In an unusual commission for the creator of such grandly scaled forms as the Disney Music Hall in Los Angeles and the Guggheim Museum in Bilbao, Frank Gehry has crafted a sleek, slightly twisting bottle for Wyborowa (pronounced "vee-bro-vah"), a "super-premium" brand of Polish vodka set to launch Stateside in May. **Jamie Reynolds**

KIDS TODAY!

In its annual poll of 13-to-18-year-old public-school students, the educational organization Junior Achievement found that children rate being an architect as 15th on a list of ideal careers. Though behind businessman (1st place) and mechanic, a potential career in architecture ranks above such entries as marketer and psychologist. The survey of 1,000 students is part of the group's efforts to educate K–12 age children on economics, business, and free markets. **Jamie Reynolds**

TOP: JOE FLETCHER/VIEW; BOTTOM: COURTESY WYBOROWA

CLASSICAL PRIZE TO PORPHYRIOS

On March 20, the University of Notre Dame School of Architecture will bestow its second annual Richard H. Driehaus Prize for Classical Architecture on Demetri Porphyrios, founder of the London-based firm Porphyrios Associates. The architect and theorist is known for traditionalist work in Europe, the United States, and the Middle East, including his design for the Whitman College dorm—set to open in 2006—at Princeton University (his alma mater) and the 1998 urban design for the town of Pitiousa in his native Greece. Porphyrios, the author of several books on classical architecture, has taught at the University of Virginia and at Yale University, and is an advisor to the Prince of Wales.

The Driehaus Prize was established by the Chicago businessman and philanthropist to honor major contributions in the fields of classical architecture and historic preservation. In addition to Driehaus himself, this year's jury comprised architectural designers and historians, including the chair of Notre Dame's architecture program, Michael Lykoudis. **Anna Holtzman**

MIES PROTÉGÉ, FUJIKAWA, 1922–2004

Chicago architect and educator Joseph Y. Fujikawa, 81, died last December, although his family did not announce his death until late January. The California-born Fujikawa began his career as a protégé of Mies van der Rohe, whom he met more than 50 years ago while studying architecture at the Illinois Institute of Technology (IIT). Working in Mies's office, the young modernist contributed to the planning and design of many projects at IIT, including Crown Hall, the 1956 building for the architecture school.

Following partnerships in Mies's successor firms, Fujikawa joined Gerald Johnson to establish Fujikawa Johnson and Associates in 1982. Together they produced a large body of work; notable among the firm's achievements are the Ralph H. Metcalfe Federal Building (1991)—an extension of Mies's Chicago Center—and the Chicago Mercantile Exchange Center (1987). Fujikawa was well respected for his technical expertise, especially in curtain-wall design. Staying close to his architectural roots, Fujikawa's firm completed a restoration study of Crown Hall in 1997. **Abby Bussel**

COURTESY FUJIKAWA JOHNSON AND ASSOCIATES

HUMAN RIGHT TO ERASE HISTORY?

The demolition of one of Britain's few modernist masterpieces could land its owner in prison. Businessman David Beadle sparked outrage when he knocked down Colin Lucas's 1937 concrete and glass Greenside House late last year.

Beadle had not obtained permission from the government department that oversees applications to alter or demolish listed buildings when he carried out the demolition. But he had obtained consent from his local council by arguing that a stop order would infringe upon his "human rights" under recently introduced legislation. Landmarks watchdog English Heritage may press criminal charges. Beadle faces up to two years in prison for breaking strict British planning laws that protect historic buildings. **David Blackman**

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This East Los Angeles home exhibits characteristics that promote compact communities, say proponents of Latino New Urbanism: A decorated front yard and porch animate a residential street, creating highly personalized places for socializing. Skeptics argue that such individualist displays scare off wealthier residents, and that a more uniform street front would encourage mixed-income habitation.

JAMES ROJAS

LATIN INVASION

Do inner-city immigrant neighborhoods offer antisprawl lessons? Some Southern California planners think so. by Anna Holtzman

New Urbanism, the antisprawl movement started in the 1980s, is now a household name. But "Latino New Urbanism" (LNU), the moniker for a new series of public dialogues and educational programs looking at low-income, predominantly Mexican neighborhoods in Southern California, has those who first hear of it scratching their heads. Many associate New Urbanism with neotraditional, upper-middle-class planned developments like Florida's 20-year-old Seaside community, designed by Andres Duany and Elizabeth Plater-Zyberk. So what, if anything, do the tenets of New Urbanism have to do with the barrios of East Los Angeles?

A lot. At least that is the argument being made by the Transportation and Land Use Collaborative of Southern California (TLUC), the Azusa, California–based nonprofit advocacy group that launched the LNU dialogues last October. While skeptics, including New Urbanism godfather Duany, may not advocate the connection, the premise of the fledgling movement is that Hispanic communities adapt their built environments in ways that echo New Urbanist principles, in particular the Latino propensities for compact living, pedestrian-oriented downtowns, communal transportation modes, and active occupation of public space. Spearheaded by urban planner Katherine Perez, executive director of TLUC, the movement aims to educate architects, planners, developers, and policymakers about these urban trends, and to suggest ways of capitalizing on them at a time when the Latino population is skyrocketing in California and elsewhere in the United States. California estimates that the Hispanic sector will grow from one-third of the state's population in 2000 to almost 50 percent by 2040, outnumbering all other ethnic groups. Throughout the country, most live in dense metropolitan areas, though there is a high regional concentration in the West—Latinos made up 12 percent of the United States population in 2000, according to the U.S. Census Bureau, and that figure is predicted to double over the next 50 years.

Perez started the LNU dialogue series in response to a graduate thesis by former Massachusetts Institute of Technology city-planning student Michael Mendez, whose research, in turn, is predicated on that of fellow alumnus James Rojas. "A lot of people don't think about Latinos as being New Urbanists," says Rojas, an East Los Angeles native and a planner with the city's transit authority. "They think they live in barrios or ghettos, and how can that be New Urbanism? But in a sense it is. The whole point to having these conferences is to tell the public, 'Hey, there are urban phenomena going on here, and it's not that bad.'" Among his principal observations: street vendors animating sidewalks in residential zones; lawn furniture creating informal places for congregation in both public and private open spaces; murals displaying and celebrating cultural identity; decorated front yards serving as personal expressions and promoting social activity; and streets being transformed into pedestrian plazas. Mendez, who is currently a consultant to a state assembly member in Sacramento, used statistical data in his thesis to document tendencies toward high-density households and compact commuting modes—pedestrian, bicycle, carpooling, and public

Street vendors, such as the merchant who has turned this truck into a mobile plant store, enliven urban neighborhoods with commerce and support pedestrian activity, but are often out of accordance with zoning rules.

transportation—found in Hispanic communities. All of these characteristics, argue LNU proponents, complement antisprawl, sustainability, and livability agendas, but their benefits are not currently being tapped into by developers or supported by zoning laws in Los Angeles, America's "sprawl capital."

In essence, LNU is a ground-up rather than a top-down approach to some of the principles of antisprawl movements—and according to supporters of the concept, it is not just about Latinos. When asked whether LNU refers to neighborhoods with adobe buildings and red tile roofs, Perez responds with an emphatic no. "It is how people get around and use space; you can think about it as any ethnic group, because Koreans generally do the same thing, and so do Armenians. You start seeing these very similar trends." Perez says that LNU is more about accommodating a greater variety of lifestyle choices, such as multigenerational housing; integrating health agendas into community planning, such as on-site clinics and walkability; and breaking down what she calls "Crayola zoning" patterns, in which parks, schools, homes, commercial buildings, and industrial facilities are separated into isolated districts. Such ideas have a wide appeal: Perez and Mendez have been getting calls from interested cities, nonprofits, and other organizations in states as far flung as Massachusetts, Florida, and North Carolina.

A SKEPTICAL RECEPTION

LNU is not without its precedents—community-based or "ground-up" urban design has been a planning trend in the United States since the 1960s, and nonprofit organizations in heavily Latino regions have reported on immigrants' urban-space usage patterns before. The movement is not without its skeptics either. "I believe that one of the dangers of this whole thing is the aestheticization of this 'barrio urbanism,'" says New York City-based, Venezuelan-born architect Carlos Brillembourg. "You have to consider the horrible social and physical realities that people are living in." Miami-based Duany (whose family has Cuban roots) concurs, and adds, "Don't [LNU proponents] realize that everyone wants to have a car and their own room? You shouldn't romanticize poverty. I mean it's virtuous and ecologically wonderful when people live in high densities and use public transportation. But they can't help it."

Duany contends that the biggest challenge faced by Latino neighborhoods of single-family homes is losing residents to wealthier, less dense suburbs once they have risen economically to the middle class and desire a more visually pleasing environment. He attributes middle-class flight partly to the configuration of the American-style, single-family houses found in low-income neighborhoods, which don't easily accommodate the diverse range of activities that immigrants engage in at home, from commercial auto repair to raising livestock. While the Latin American archetypal house, with its courtyard, interiorizes such activities, he explains, the typical American front-yard configuration publicly displays it.

"The first thing I would do," volunteers Duany, offering his own solution, "is internalize the diversity of behavior. I would allow the variety of behavior, but I wouldn't let them show that in the front, so the street gets more harmonious and predictable." And as far as encouraging the existing Latino trends of dense habitation and

JAMES ROJAS

pedestrian activity through planning, he offers a controversial and perhaps hypocritical option: Cease building inspections. "We have an area of Miami north of the river and west of the hospital that is so densely populated that virtually everything is illegal. And the inspectors by common understanding have ceased to inspect it, essentially understanding that it's working very well, that it is necessary to subdivide rooms and create additions." Adding adapted but still-rigid regulations to such a neighborhood, Duany argues, would stifle necessary growth.

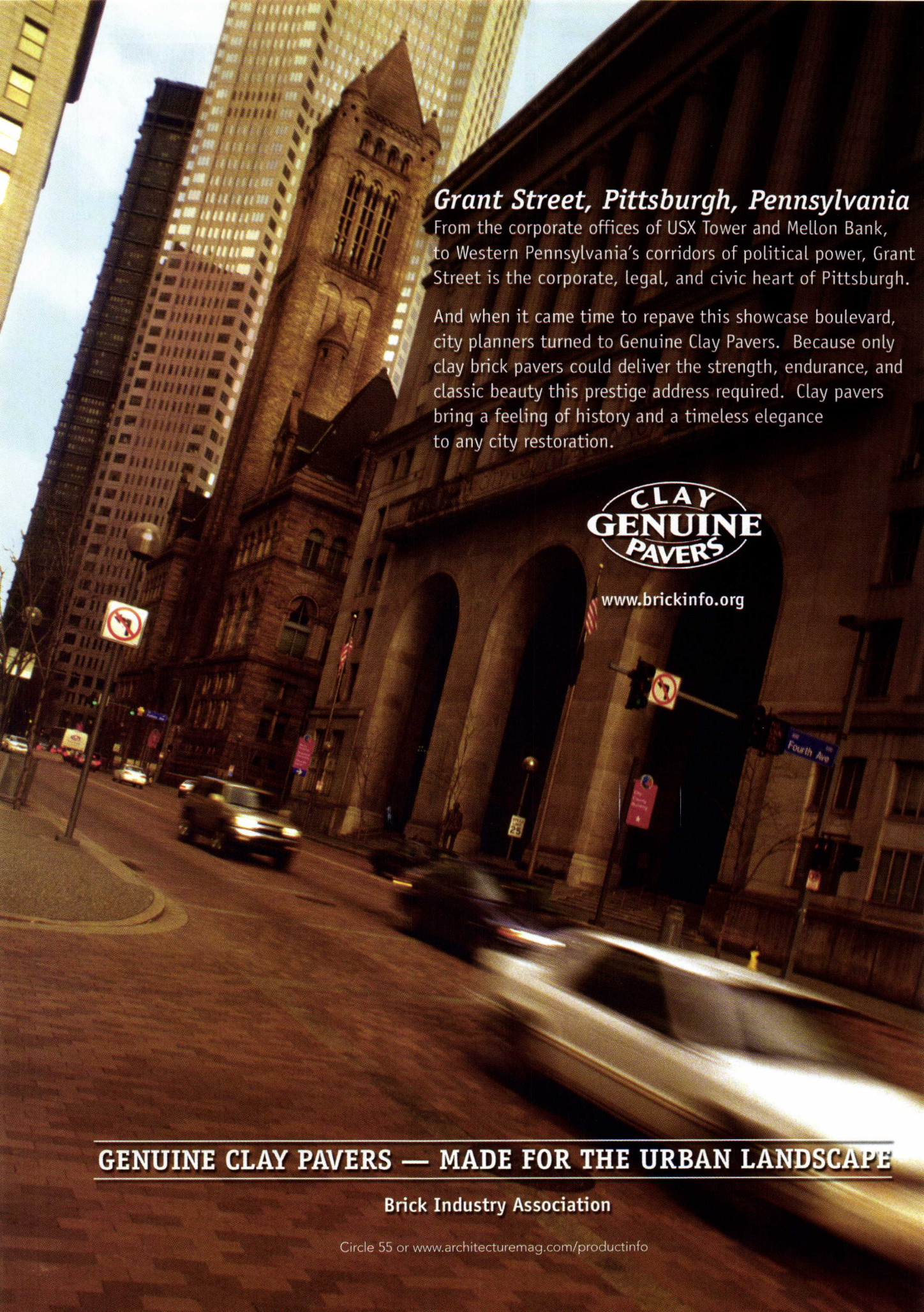
WORKING EXAMPLES

It's difficult to assess the merits of the LNU approach. A few projects are in the works, however, such as a just-completed, mixed-use residential and commercial development in Oakland, California, called Fruitvale Transit Village, designed by local firm Vasquez Emsiek & Partners. The development is adjacent to a public transportation hub and includes pedestrian-oriented plazas and on-site services such as a clinic, a senior day-care center, a public library, and a Head Start facility. Elsewhere, awareness of LNU is growing through Perez's public promotion: In

JAMES ROJAS

Murals on the sides of buildings range from fanciful to practical—such as the hand-painted advertisement on this East Los Angeles grocery store—and display a mixture of popular and local culture.

January, she gave a talk at the Smart Growth Speaker Series at the National Building Museum in Washington, D.C., and in April, TLUC will hold a conference in Los Angeles for architects, builders, planners, and developers titled "LNU and Urban Design and Development: What Does It Look Like and How Do You Build It?" While widespread implementation of LNU principles is still just a dream, shifting demographics are already in full swing—and according to Perez, we can either bury our heads in the sand or intelligently plan for growing populations. ▬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Betting on biotech: One of the largest construction projects underway in Boston, the $650 million University Park, comprises 27 acres of research and office buildings, four housing complexes, restaurants, stores, and a high-tech-sounding hotel called Hotel@MIT.

ALEX S. MACLEAN/LANDSLIDES

FOR THE BIOTECH INDUSTRY, PLACE MATTERS

The biotech field presents "clusters" of growth for enterprising lab designers. by C.C. Sullivan

Architects seeking work in the biotechnology market might find that their business-development efforts are a bit like biological specimens: The closer you get to them, the more complex they appear.

Just two years ago, it was a different story. After the dot-com bubble burst, the fast-growing biotech industry was a savior to investors and real estate developers with high hopes for high-tech. In 2001 and 2002, companies using genetic research to develop everything from drugs to pesticides were investing more than $3 billion annually in laboratories and office space, a figure that was growing by 20 percent a year in some places, according to the U.S. Department of Commerce.

Today, the fast growth is over. "Since 2001, when the industry was peaking, company values and venture-capital sources have tapered off very dramatically," says Joseph Cortright, principal of the Portland, Oregon–based economic consulting firm Impresa. "The firms are mostly very small companies that are losing money, and even the big ones are cutting back on their burn rates to save money, or looking for mergers." And while the U.S. biotech industry numbers about 1,450 establishments employing 190,000 people, almost all of its revenues come from sales of fewer than a dozen products.

Still, many developers and architects are committed to this segment, which some call "the brightest spot" in the economic picture. "Right now the commercial market in general is in a trough, but we have every confidence that it will grow again," says Peter Calkins, an executive in the Boston office of real estate developer Forest City Enterprises. "There's a great deal of activity on the institutional side." Others are even more upbeat. "The market's still more robust than anything else at the moment," says Dan Winny, director of design and planning with Hanover, New Hampshire–based Lyme Properties, a developer specializing in biotech. "That's why everybody has become a lab developer or a lab architect."

BIOTECH: A CLUSTERING ORGANISM

So why is making costly labs for companies with zero sales revenue a good business? Besides our aging populace and high demand for better drugs, the main reason is steady growth in National Institutes of Health (NIH) grants for bioscience research. (Total grants doubled between 1995 to 2001 but are now growing more moderately.) But the key factor for building construction is where you happen to be: As with politics, all biotech is local. "The top nine biotech centers average about $800 million annually, and the bottom 42 get about $100 million" in NIH funds, Cortright explains. "And the disparity is much wider in all measures of commercialization: For example, 47 of the 51 most active venture capitalists, who play very hands-on roles in companies, are in one of the nine leading areas."

Not only are investors very location-sensitive, but so are talented young scientists and PhDs, say biotech experts. They're drawn to locales with lots of opportunities—in particular, San Francisco and Boston, which have dominated biotech since its early days in the 1970s. Top challengers include San Diego, Seattle, and the Research Triangle Park area of North Carolina—the latter has seen the most growth in startups since 1997—and other hot spots include Los Angeles; Washington, D.C.; and the pharmaceutical centers of metropolitan New York City and Philadelphia.

Yet despite the ingrained "clustering" of this quirky industry, state

and local governments are battling fiercely to lure companies away from the centers. At least 40 states have official magnet programs, and 83 percent of municipal development agencies list the biosciences among their top two growth priorities. And recently, a few places have made Herculean and, some would argue, hubristic attempts to create biotech momentum out of thin air: The city of Phoenix, for example—a place Cortright says is "bereft of all biotech"—announced its start-up funding of the ambitious Translational Genomics Research Institute, or TGen, whose first phase is the $46 million Phoenix Bioscience Center at Copper Square designed by the SmithGroup, set to open in November. And the state of Florida recently committed 100 acres in North Palm Beach County and a jaw-dropping $500 million to entice The Scripps Research Institute, based in La Jolla, California, to establish a large new drug-design outpost there. Scripps will occupy temporary lab space while it constructs its 364,000-square-foot facility to open in 2006. (Proposals from architects and project managers are due this month.)

MIGHTY HUBRIS

Such projects outside the main biotech clusters can't gain critical mass without big institutional support—a major medical school, for example—argues Calkins. But even then, the springboard to private-sector activity might be a pipe dream. "It takes a confluence of things for that to happen successfully: NIH funding, access to venture capital," he says. And they'll compete for people, investors, and grants with huge projects adjacent to major institutions in the hottest clusters, such as Catellus Development's Mission Bay project in San Francisco, which is plowing $1.5 billion of University of California and private money into 300 acres of research buildings, housing, and stores. In Cambridge, Massachusetts, Forest City is completing the final phases of University Park, a $650 million research campus next to the Massachusetts Institute of Technology that includes 2.3 million square feet of private-sector labs, offices, residences, stores, and a hotel. (The P/A Award-winning plan is by Koetter Kim.)

In the diffuse biotech world, however, there are many more small projects than massive master plans. Wherever NIH money goes, so too go developers planning new labs or adapting suburban "flex buildings" and urban lofts. But in the last two years, the most robust segments have been large pharmaceutical companies and universities, say developers. "Corporate and institutional buildings are about 80 to 90 percent of the market; then there's the smaller slice of intensive commercial wet-lab research," Winny notes.

Whether commercial or institutional, all segments compete for the same thin talent pool, which explains why biotech firms are seen as design-focused clientele, says Edward T.M. Tsoi, principal of Cambridge-based Tsoi/Kobus & Associates, an architecture firm known for its lab projects. "Their buildings become recruiting tools to attract the best and brightest, and they must have more sex appeal than their competitors' facilities," says Tsoi. "They also have to offer amenities like cafeterias, exercise rooms, daycare—even concierge services." Other design issues include creating comfortable and creative environments, with plenty of meeting places for spontaneous cross-disciplinary collaboration—a vital tool in a field that bridges biology, chemistry, and others. "They want to erase the boundaries of specialties," says Tsoi.

BRUCE T. MARTIN

LABS, UNDER THE MICROSCOPE

USE As with most specialty typologies, the commercial biotech lab building is a well-studied niche. Base buildings for biotech occupants tend to cost about 25 percent more to build than office structures, mainly because of the need for higher floor-to-floor dimensions, stronger floors (a minimum of 100 pounds of load per square foot), double the typical available electrical service, and HVAC systems that can churn out six complete air changes or more per hour. Fortunately for developers, however, their tenants stay longer and renew their leases more frequently than office end-users, mainly because of the time-consuming, costly build-outs that the occupants usually underwrite.

COSTS The cost differentials are surprising. According to the real estate firm Meredith & Grew, the core and shell of a lab building in Boston, for example, might average $200 per square foot, versus $125 for an office building. Tenant improvements might add a mere $25 for the office user, while the biotech firm pays a whopping $150 to $300 per square foot.

CONVERSIONS Another option preferred by many developers is converting existing warehouses or office structures into biotech labs. For example, Lyme Properties of Hanover, New Hampshire, has found success in renovating mill buildings in New England, either brick and heavy-timber structures or the concrete-framed versions that emerged between 1910 and 1920. The structures have high floor-to-floor heights, and ideal column bays of 20 to 25 feet. While Meredith & Grew notes that office structures can be adapted for biotech labs at a cost of about $100 per square foot—mainly to reinforce floors and upgrade M/E/P systems—many developers contend that few office buildings are worth converting, in part due to the costs of M/E/P retrofits and the limitations of the steel structures.

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FROM BIO TO NANO?

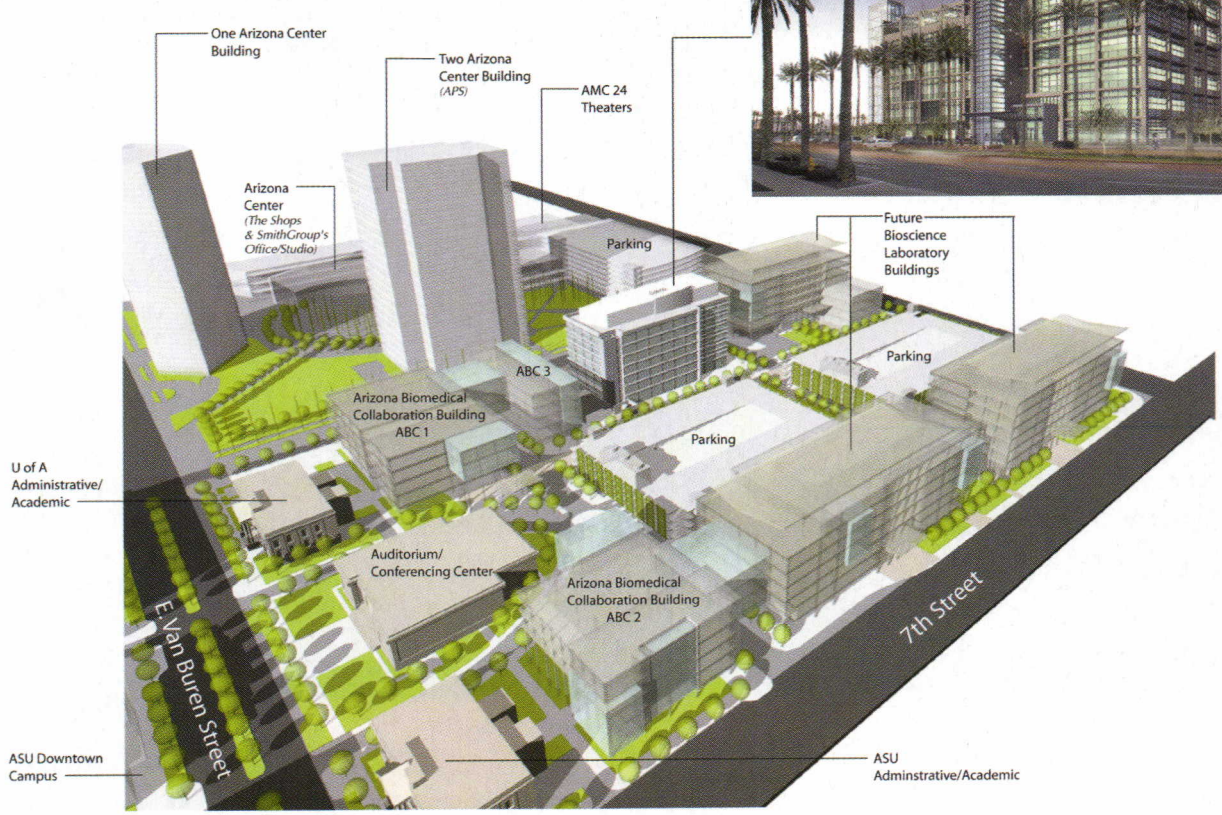
Architects expect demand for such spaces to continue to grow—a study by one design-builder, Rochester, New York–based Sear-Brown, shows that the global biopharmaceutical industry could expand by 60 percent in five years—and many firms are betting their marketing budgets on it. Plus, there's the nanotechnology wild card: This emerging field of microscopic materials and machines has been catapulted by huge research grants and fast-flowing venture capital. (And late last year, the Nanotechnology Research and Development Act earmarked $3.7 billion for research and another $710 million for use across ten federal agencies in 2004 as part of the National Nanotechnology Initiative—an increase of $100 million over 2003.) Not surprisingly, many developers of biotech properties have quietly begun angling for their claim on this market, working with universities and government agencies on their nanotech building needs.

Whether for bio or nano, expensive and highly engineered research laboratories are the focal point of the projects (see "Labs, Under the Microscope," page 26). But the demands on nanotechnology facilities are stricter, with unique requirements for controlling contamination, vibration, and electromagnetic interference, says Michael O'Halloran, director of technology with Portland, Oregon–based Industrial Design & Construction, a unit of CH2M-Hill. The needs of generic biotech lab spaces are a known quantity—mainly robust HVAC and electrical systems—and thus easier for developers to build speculatively. "Still, that's why the choice of engineer is even more important for us than the choice of architect," says Lyme Properties' Winny. "We have a very strong preference for engineers."

Architects active in biotech tend to have tight alliances with M/E/P firms or, in many cases, staff engineers, but they are unlikely to admit that the architecture is secondary. "There's no question that the mechanical engineering is incredibly important, but no one sees the ductwork," says Tsoi. "They see how light comes in, how convenient the equipment layout is, how scientists can interact in halls. We hear that most breakthroughs are the result of specialists that come together and collaboratively attack a challenge." No-nonsense biotech leaders are hard to impress, however, even when the budget is large. "While we're interested in creating beautiful environments; our architecture tends to be relatively utilitarian," says Keith McKeown, a spokesperson for The Scripps Research Institute, which is located a stone's throw from Louis I. Kahn's Salk Institute (1965) and the Neurosciences Institute (1995) by Tod Williams and Billie Tsien, a project funded in part by Scripps.

"We're looking for architects with experience in biotechnology and biomedical research," adds McKeown. "We're not necessarily looking for cutting-edge design."

In some places, the stakes are high for attracting commercial biotech business. The city of Phoenix, which experts say has almost no biotech activity, has pinned its hopes on its recently announced Translational Genomics Research Institute, a huge development that used $150 million in seed money to draw the International Genomics Consortium to the location. The $46 million Phoenix Bioscience Center at Copper Square (inset), designed by SmithGroup, is the first phase of the project known locally as TGen.



AGENTS OF MODERN ARCHITECTURE

Southern California's top ten price tags for architecturally significant homes that sold in the past year:

John Lautner
Elrod House, 1969
PALM SPRINGS
$5.5 million

A. Quincy Jones
Golan House, 1955
BEVERLY HILLS
$5.2 million

Edward R. Niles
Goodson House, 1992
MALIBU
$3.8 million

Edward R. Niles
Wilen House, 1993
MALIBU
$3.5 million

Richard Neutra
Hammerman House, 1954
BRENTWOOD
$2.8 million

Buff & Hensman
Binstock House, 1969
BRENTWOOD
$2.3 million

Steven Ehrlich
Israel House, 1990
SANTA MONICA
$2.1 million

Edward R. Niles
Burnam House, 1986
BEVERLY HILLS
$2.1 million

Raymond Kappe
Gould/Jacobson House, 1969
BRENTWOOD
$2.1 million

Frank O. Gehry
Davis House, 1972
MALIBU
$1.9 million

COMPILED BY MICHAEL HATFIELD

Savvy Los Angeles realtors are on a mission to promote good architecture. by Anna Holtzman

When Richard Neutra's Maslon House in Palm Springs, California, was demolished nearly two years ago by its new owners, architecture enthusiasts near and far were incensed. Yet, with no historic zoning or landmark status to protect the 1962 house, there was nothing they could do: The destruction had been carried legally, without even the need for community approval.

This scenario is not uncommon, as Los Angeles–based, former architect Michael Hatfield attests. He recounts pilgrimages he has made to local Case Study Houses, only to find a demolished Craig Ellwood project or what he calls a "plaster disaster" second-story addition to a Raphael Soriano house. Ten years ago, Hatfield decided to do something about the situation: He joined the ranks of a growing number of Los Angeles–area real estate agents who market architecturally significant, mostly residential properties to design-conscious buyers intent on preserving them. While he is no longer practicing architecture, Hatfield does not feel as though he has abandoned the profession. "I see myself as a preservation architect," he says. In addition to selling properties with AP Real Estate, a small Santa Monica brokerage, he maintains a website, www.realarch.com, that catalogues architecturally significant houses for sale in the Los Angeles area, from Frank Lloyd Wrights to Arata Isozakis—including those represented by other agents—with the goal of educating potential appreciators of design and encouraging preservation.

Agents Brian Linder and Erik Lerner, who share a practice called RealEstateArchitects, also keep a log of notable Los Angeles–area houses for sale at www.realestatearchitects.com. Like Hatfield, the two partners are trained architects. "We are on a mission to promote architecture," Lerner states. And while the duo does not provide conventional architectural services, they often act as

"architectural producers," referring architects and contractors to clients seeking to upgrade homes. On occasion, the pair sells vacant plots together with architectural plans by noted local designers, and then consults with the buyer on the marketability of the new building's design and construction.

Both Hatfield and RealEstateArchitects like to compare their work to that of art dealers. Hatfield says that homebuyers are becoming increasingly aware of the "intellectual-property value" of good design: "There is an intangible value connected with an artist's work," he explains, "and architects are artists."

Linder and Lerner, who estimate that 25 percent of their buyers are architects themselves, aim to promote the financial value of good design to a broader public. To this end, they teach a continuing-education course at the University of Southern California, Los Angeles called "The Value of Architecture." Treating architecture as collectible art has mixed implications, though, as Hatfield readily admits: "I used to be an idealist," he says, "but in the real world, I've found that the one sure way to preserve architecture is to price it so that it is exclusive. Fortunately or unfortunately, that is the way it is."

Jan Horn has also observed this phenomenon. He is executive director of the high-design targeted "architecture division" of the Los Angeles offices of Coldwell Banker, an international real estate firm. Horn says that buyers have become increasingly interested in midcentury modern architecture, including the Case Study Houses, over the last decade.

"These houses were not created as architectural monuments, but as affordable housing," he states. "Today they are being marketed as houses of architectural value, and a home that used to sell in the $200,000 to $300,000 range may now go for $800,000 to $1 million and above."

Horn's architecture division has shown that there is an increasing interest among real estate brokers in gaining knowledge of all architectural styles and eras. Started in 1978, the group runs a rigorous training program for its agents, including architecture seminars and a qualifying exam. And although design-driven real estate marketing seems particularly popular in Los Angeles—Lerner attributes this to the city's extensive inventory of modernist houses and abundance of wealthy potential buyers—realtors further afield are also interested in the potential of design and historic value, as demonstrated by the National Trust for Historic Preservation's popular architecture training course for brokers. Initiated in 1996, the nationwide program now travels to six cities each year and over the last four years has trained more than 650 agents on the ins and outs of preservation legislation and historic-rehabilitation tax credits, as well as how to recognize historically significant building types. The goal, says program manager Theresa McDowell, is to "improve the stewardship of historic properties" across the United States.

By educating those who buy and sell architecture, enlightened real estate firms are hoping to nurture a better-informed generation of owners, although, in the end, it seems that only tough preservation law can prevent the destruction of significant architecture. In the case of the Maslon House, the Sotheby's real estate agent that sold the property was well aware of the building's value and was shocked by the house's destruction as it hit close to home: She's the Maslons' daughter-in-law.

FROM INTEGRATED SPECS, INTEGRATED BUILDING SYSTEMS

firm

While radical changes to the Construction Specifications Institute's **MasterFormat** spec-writing document to be unveiled later this year may cause some anxiety among architects and contractors, the changes will dramatically improve how technology planning is handled in building projects. And not a moment too soon: For the better part of a decade, engineers and industry experts have made a vociferous pitch to list telecommunications and information-technology systems as a separate category under a wished-for Division 17, a proposal that roused heated controversy. During that time, spec writing suffered an inertia-laden stalemate as high-tech systems advanced by leaps and bounds. And architects' experiences and hard research, such as a study conducted by United Way last year, showed that many clients consider technology problems their number-one obstacle to achieving their goals.

Late this fall, the MasterFormat expansion will break with history, accommodating **technology planning** in three new divisions: 26 (Communications), 27 (Electronic Safety and Security), and 28 (Integrated Automation). The new structure will herald an era of integrated planning for not just phones and computer systems, but also for control systems for lighting, fire and life safety, security, building automation, and audio-video components.

The change is especially timely considering the high-tech industry's move toward a new standard for communications systems known as IP—**Internet protocol**—that allows the secure integration of phone, data, and building systems over a common computer network, or backbone infrastructure. The simple, low-cost platform, often called an **integrated building-systems network**, has become the Holy Grail for electronics manufacturers, most of which have developed or are preparing IP solutions for building-technology products.

Ultimately, the systems can save owners a lot of money—and that's really what the MasterFormat changes come down to. Under the current structure, technology infrastructure has been an afterthought, sparingly defined under divisions 15 (Mechanical) and 16 (Electrical) or simply considered a part of **FF&E**, or furniture, fixtures, and equipment. As a result, technology planning has also been neglected—or simply left up to the owner.

With the new CSI format, architects belatedly and sheepishly cross a major milestone in the history of building construction. Technology, long a driver of building projects, will finally be integral to the design phase.

Chip Chapman is president of The Knowledge Group, a technology-planning and design firm based in Columbus, Ohio.

ENGINEER'S DELIGHT: MASTERFORMAT 2004

If anyone will love the impending changes to the Construction Specifications Institute's MasterFormat, it will be engineers. In addition to debuting divisions for fast-advancing building areas—computer networks, building controls, and electronic security—MasterFormat 2004 changes how architects engage the engineering disciplines. Most notably, the new document:

- **Splits plumbing and HVAC into two separate divisions.**
- **Incorporates civil- and process-engineering categories.** A new "Site and Infrastructure" group (divisions 30 to 39) covers specs for transportation, utility, and marine construction, and a "Process Equipment" grouping adds industrial construction.
- **Accommodates pure "engineering projects."** These include power and wastewater plants and pollution controls.

Other changes will please no one but spec writers, who tend toward verbosity and taxonomy. The new edition adds a sixth digit to the spec numbering, increasing its capacity by a hundredfold. Also, eighteen of the new 49 divisions remain blank for now, reserved for "future expansion." **C.C. Sullivan**

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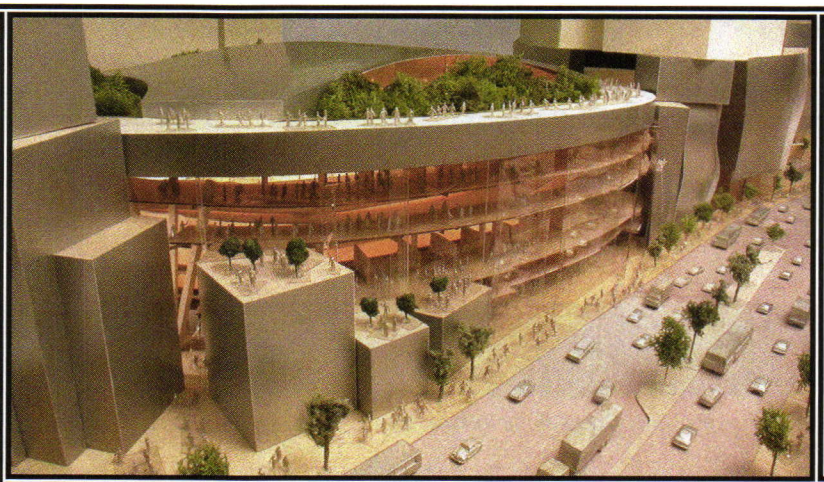
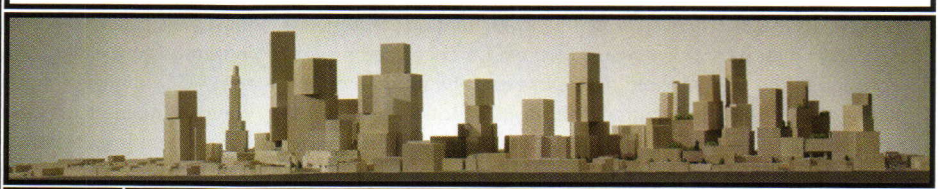
Brooklyn Atlantic Yards, a six-block, $2.5 billion mixed-use project slated to be built over the eponymous active rail terminal, will significantly impact this New York City borough if it goes forward. Designed by Gehry Partners, the masterplan includes a 19,000-seat basketball stadium, 4,500 residential units, 2.1 million square feet of commercial space, 300,000 square feet of retail space, 6 acres of publicly accessible open space (designed by Olin Partnership), and 3,000 below-grade parking spaces.

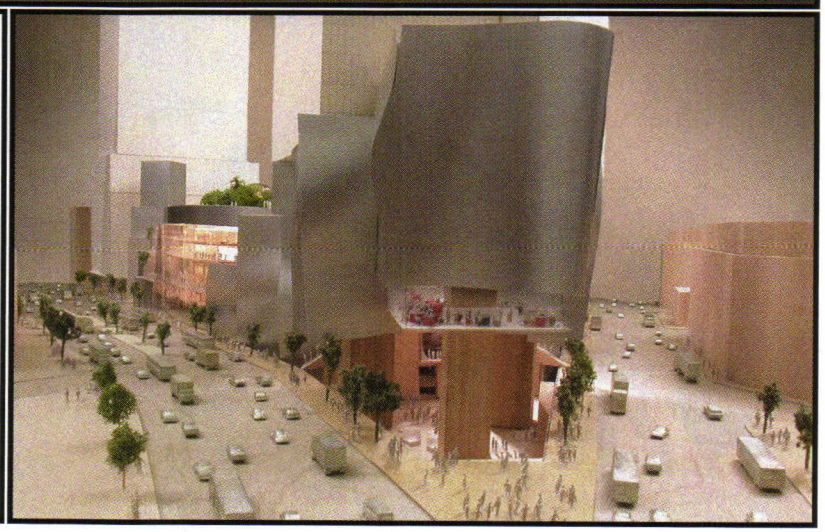
A 620-foot-high tower sits at the most prominent end of the site. The designers create an inviting introduction to the complex by supporting the upper floors of the tower on massive pilotis, creating an "urban room"—a submerged public plaza with entrances to the stadium and the huge existing public transportation hub below. With links to commuter railways and nine subway lines, the 7.7 million-square-foot development is envisaged to be accessed by public transportation, but opponents argue that the development will generate excessive traffic and parking shortages. The controversial plan would displace hundreds of residents by eminent domain and introduce a scale of building unknown to this largely low-lying area, standing even taller than the campanile of a nearby landmark, the Byzantine-Romanesque 1929 Williamsburg Savings Bank by Halsey, McCormick & Helmer.

Grievances aside, the design departs from the usual banal stadium fare with an atypical openness; through the stadium's glass walls, rooftop public park, and the urban room, the designers aim to ingratiate the complex to the neighborhood. The scheme just might have the dynamism to make this site a catalyst for the community. **Bay Brown**



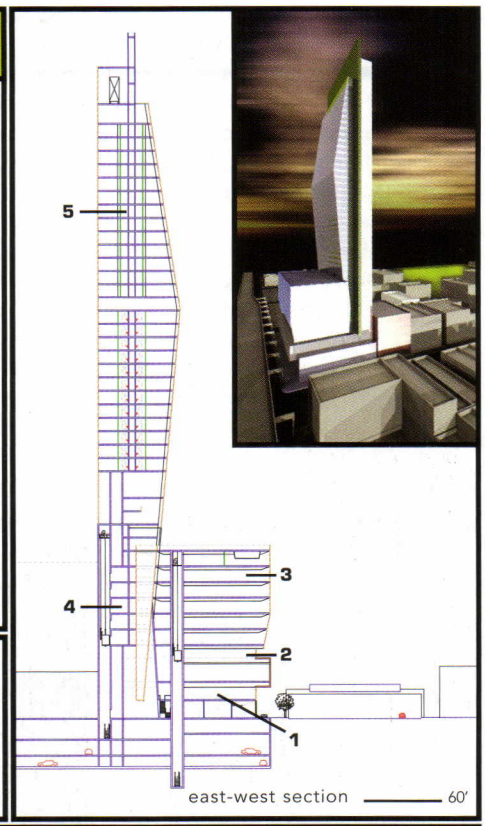
1 stadium
2 commercial building
3 residential building
4 open space





TEN ARQUITECTOS | HARLEM PARK | NEW YORK CITY

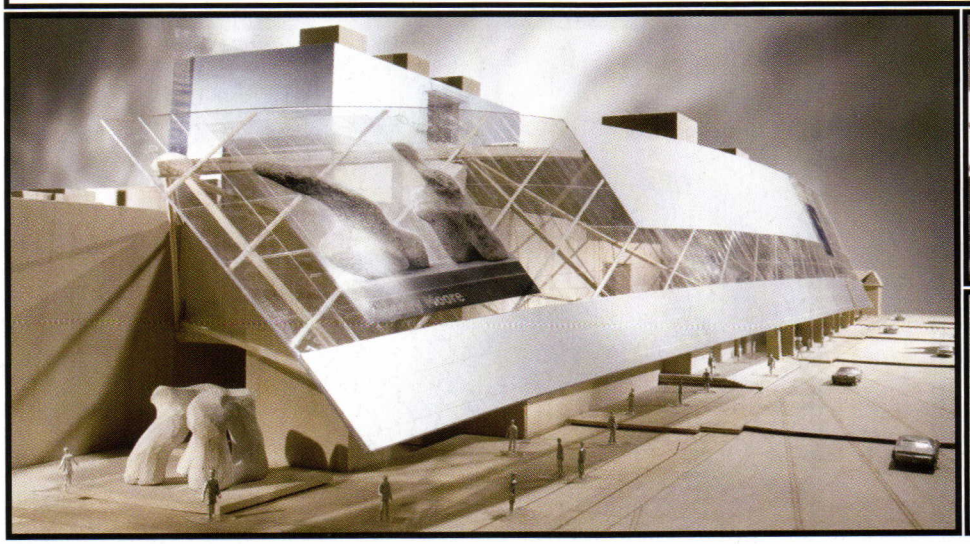
Harlem's main thoroughfare, 125th Street, has seen a major commercial renaissance over the past decade, translated into names such as Starbucks and Staples, H&M and HMV, Citibank and even Clinton (our former president's offices). In 2006, the boulevard is slated to open its doors to the neighborhood's tallest tower at 42 stories and 550 feet. This sleek glass-and-masonry structure is part of the Enrique Norten–designed Harlem Park development, whose investors include Kevin Liles, president of Def Jam/Def Soul Records, and basketball player Steve Francis of the Houston Rockets. The complex is composed of two volumes: A midrise block houses 70,000 square feet of retail space at street level and on the second floor; a 32,000-square-foot conference center and banquet hall on the third level; 110,000 square feet of office space on the fifth through ninth stories; and the roof supports restaurants, spa facilities, and other amenities. The tower features a 230-unit Marriott Courtyard Hotel—a chain aimed at business travelers—and above that, 126,000 square feet of "extended-stay loft units." Sited at the intersection of 125th Street and Park Avenue, the complex is intended as a beacon for this continually evolving neighborhood. The building's soaring aspirations are meant to lift the neighborhood with it, and not merely cast a shadow on residents already wary of the effects that the street's new plethora of chain stores will have on locally owned businesses and on neighborhood rents. **Anna Holtzman**



1 retail
2 conference center
3 office space
4 hotel
5 loft units

GEHRY PARTNERS | ART GALLERY OF ONTARIO | TORONTO

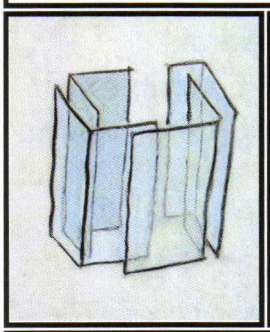
The January release of Toronto-born Frank O. Gehry's scheme for the expansion of the Art Gallery of Ontario (AGO) was met by a lively, if discordant, chorus of reaction, from praise for the design's formal restraint and clarifying circulation strategy to frustration over its lack of CATIA-driven exuberance. The project reorganizes the 104-year-old museum's early-twentieth-century building and its many additions with a 600-foot-long, 70-foot-high glass-and-titanium entrance canopy that one local critic likens to "a skirt pulled down hard to hide any offending body parts." The design increases gallery space by 40 percent and includes a boxy new wing for a contemporary art center—and its 140-foot height is a controversial subject because of its adjacency to a historic park. While he directs uncharacteristically simple, if monumentally scaled, forms to the street, Gehry leaves his calling card inside, where an asymmetrical spiral stair infiltrates an existing orthogonal interior court. Whether or not the AGO marks a significant new direction for the king of curves remains to be seen. Groundbreaking for the $195-million project is expected early next year. **Abby Bussel**

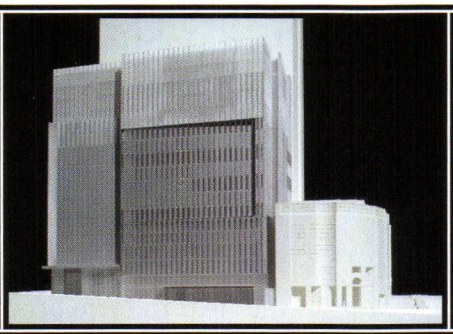


ALLIED WORKS ARCHITECTURE | SEATTLE ART MUSEUM EXPANSION | SEATTLE

When Brad Cloepfil spoke of his new project, he described the "humane character" of its scale, massing, and textured façade, and how the structure's permeability would "engage its surroundings" and cultivate "a dialogue between the interior of the museum and its urban environment." Quoted in the online journal *ArchNewsNow*, Cloepfil described not his recently unveiled design for a 16-story museum tower expanding the Seattle Art Museum (SAM), but instead his competition-winning adaptation of an infamous 1964 Edward Durell Stone building in New York City for the Museum of Arts & Design. Yet the conceptions of both projects are remarkably similar, constituting an out-and-out proclamation of Cloepfil's signature and his overarching beliefs about what urban museums should do.

In Seattle, Cloepfil resolves a complex site. The 600-foot-tall art tower simultaneously dwarves SAM's adjacent 1991 home, a flamboyant Venturi Scott Brown affair, and sits in the shadow of a new 42-story office tower designed by NBBJ for Washington Mutual, a partner in the mixed-use project. Cloepfil's shimmering block of layered curtain-wall planes, striated with glass and stainless steel, opens up at street level with clear storefront, a strategy reminiscent of the New York museum's proposed exteriors. But the Seattle façades are more varied and porous, in part to capture the best light: A four-story moveable sunscreen on its west side adjusts for seasonal sun angles, and there are clear window walls on the north exposure and translucent sidelight clerestories on the south. In plan, its four L-shaped walls meet at glazed slots offering views of the city and Elliott Bay. Inside, alternating double-height galleries visually knit together the spaces carved into the vertical volume. To further integrate the museum with the city's street life when its 95,000-square-foot first phase opens in 2007, visitors can take advantage of three major entrances—and no-cost access to ground-floor exhibits. **C.C. Sullivan**



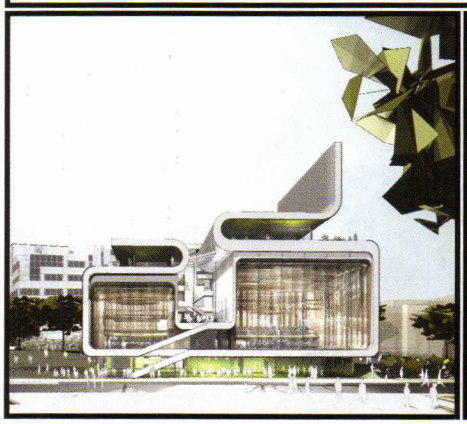


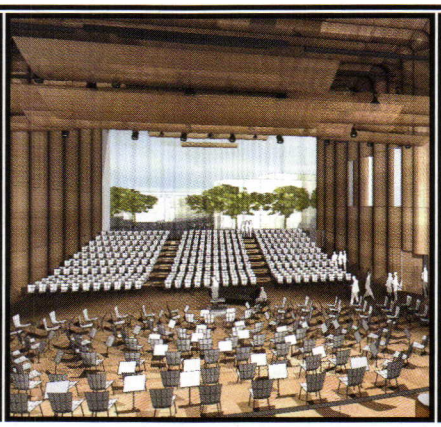
FOREIGN OFFICE ARCHITECTS | MUSIC BOX | LONDON

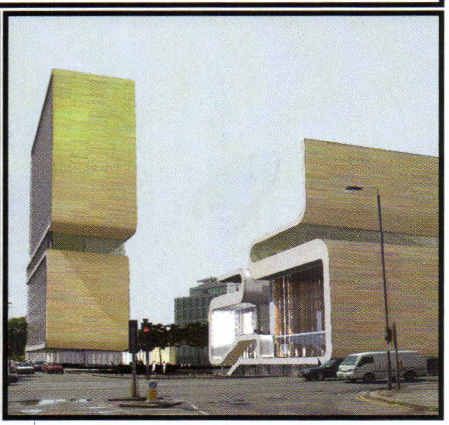
As part of an ongoing effort by the British Broadcasting Corporation (BBC) to move all of its personnel and equipment into new or renovated buildings within the next four years, the Foreign Office Architects–designed Music Box does more than provide a fresh face to a state-run media company. It consolidates much of the live music operations of the "Beeb"—its symphony orchestra and chorus, concert orchestra, and vocal ensemble—for the first time and injects the corporation's White City campus in West London with a boldly futuristic aesthetic.

Viewed from the south, the contours of the building's walls resemble nothing so much as opposing S shapes. Within two of the 75,000-square-foot structure's lower folds are performance and rehearsal studios, each afforded full-height windows at one end. A canyon of public space bisects these two volumes, serving as a gallery and gathering area that feeds into the scissors stairs toward the back of the structure. These in turn lead to a pair of upper-level terraces.

The $41 million Music Box's abundant common areas and transparency may in large part be due to the outreach role it will play in its community: The facility will host regular neighborhood art programs in the depressed district when it opens in 2006. **Jamie Reynolds**







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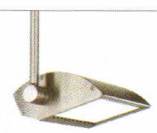
Incandescent	PAR30 Short	PAR30 Long



gamma

Ceramic Metal Halide	CMH T4.5	
Incandescent	T3	

omega

Ceramic Metal Halide	CMH T4.5	CMH PAR20	CMH PAR30 Long
Incandescent	PAR20	PAR30 Short	PAR30 Long

sportster

Ceramic Metal Halide		CMH PAR20		CMH PAR30 Long	
Incandescent	PAR16 GU10	PAR20	PAR30 Short	PAR30 Long	PAR38

spot

Ceramic Metal Halide	CMH PAR20	
Incandescent	PAR20	PAR30 Short

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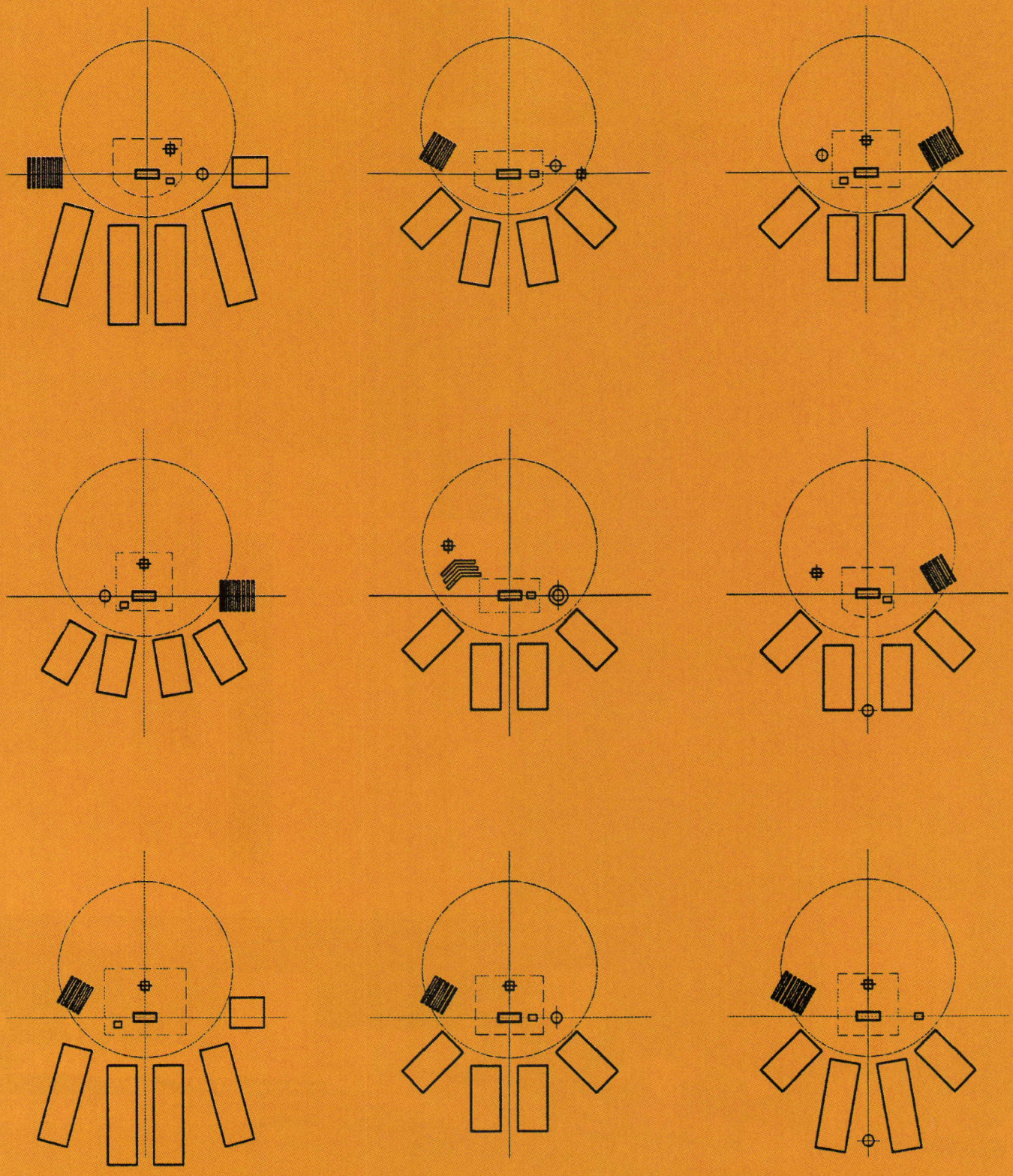


building by committee

Architects tend to apply participatory design processes to projects such as multifamily housing, community centers, and other programs that affect large and diverse constituencies. Houses of worship, on the other hand, are rarely the result of a group enterprise, despite the fact that they are for individuals with shared beliefs. The collaborations are unlikely to go beyond the relationship between the designer and the congregation leader, with board members often the only other decision-makers involved. At St. Martha Roman Catholic Church in Harvey, Louisiana, however, parish members were integral to the conceptual design phase, many of them attending workshops held by Eskew + Dumez + Ripple to establish preferences on everything from siting to pew configuration (the diagrams above show santuary configurations developed in these sessions). Together, architects and clients found a way to fulfill programmatic needs both spiritual and spatial, without being bound by age-old forms or symbols.

MASS CONSENSUS

Through a community design process, Eskew + Dumez + Ripple give a congregation near New Orleans a masterful and modern Catholic church. **BY JULIA MANDELL | PHOTOGRAPHS BY TIMOTHY HURSLEY**

Designing sacred spaces presents a serious challenge for designers, inevitably informed by a long history of influential precedents and the spiritual predilections of the congregation. While places of worship may not carry the same broad cultural significance in contemporary Western societies that they did in earlier times, they still resonate with deep meaning for congregants. "For many people, [building a new church] is almost as personal as, if not more personal than, building their own house," believes Steve Dumez, a principal of Eskew + Dumez + Ripple, which designed a new church for the Roman Catholic parish of St. Martha in Harvey, Louisiana, a small town a few miles from New Orleans, where the firm is based.

Because of the communal nature of such a building, Dumez and his staff approached the project as an exercise in collaborative design, engaging the congregation in the decision-making process. The first step, required by the Archdiocese of New Orleans for any new construction, was a series of public presentations by a liturgical consultant, Deacon Ron Guidry, who was invited by the Archdiocese to give St. Martha's parishioners insight into the relationship between the ritual practices of worship in Catholicism and church design. The architects then directed a series of meetings in which the parishioners, armed with these Guidry's tips, shared their preferences. Out of 250 families, 100 participated in six workshops in which they discussed issues of site, program, and material selection, among others (see "Finding a Congregation's Common Ground," page 44). "It allowed us to both educate them about our process and be educated by them about their parish and how they wanted to worship," says Dumez.

SACRED PASSAGE

One issue resolved in the workshops was the placement of the new church on the site, a deep, wooded lot surrounded by suburban houses with the existing facility at its western edge. The participants wanted to emphasize a direct connection between the sanctuary and its natural surroundings. To do so, they chose to nestle the building in the center of the lot amidst a grove of trees, a position the architects accentuated by visually openeing the worship space with glazed walls behind the altar and on the northeastern corner of the room. The entrance to the church is closer to the western edge of the site and to new parking areas so that the approach from the public areas to the sacred space of the sanctuary becomes a passage into a more natural, secluded setting.

Housing a fan-shaped configuration of pews that was determined by the workshop participants, the sanctuary flanks the lobby, which doubles as a space for receptions and other activities. Congregants enter the church from the west, on axis with the altar, which is oriented to the south. Rather than go straight into the worship space, which would mean entering it from the side, they are led down a corridor to enter the sanctuary from behind the pews.

By nestling the gathering space and sanctuary side by side, the architects were able to place all of the necessary sacramental objects, including the altar, the baptismal font, and the confessional, in close proximity to one another, neatly establishing symbolic and spatial relationships. For example, the baptismal font—the most important liturgical element, according to Guidry, because it signifies acceptance into the church—straddles the glass wall between the sanctuary and the lobby, emphasizing its symbolic role of welcome.

St. Martha's public areas, including the entryway (preceding pages), are clad in brick, while worship spaces are sided in zinc. The two material conditions come together on the bell tower (facing page) where they delineate the form of a cross. The zinc-clad sanctuary looks out on the leafy eastern end of the site to establish a spiritual connection to nature (above).

SPIRITUAL SPACES

North of the baptismal font, the day chapel—where daily mass is held and private worship takes place—interlocks in plan with the sanctuary. The day chapel inhabits the base of the church's bell tower, the architects' nod to a traditional church steeple, which here houses electronic bells and visually asserts the church's public presence from a distance. The natural light from the tower's tall window, the hanging light fixtures, and the soaring interior give the chapel a dramatic spaciousness less present in the low-ceilinged sanctuary.

The thoughtful spatial organization of St. Martha both acknowledges the traditions of Catholic church design and updates them, configuring the numerous liturgical requirements to the specificities of the site and the parish. By including the congregation in the design process the architects were able to build consensus for an unconventional plan and a modern style, an accomplishment when dealing with the Catholic Church, an institution that has had difficulty accepting change in both its policies and its architecture.

"They listened to what the majority of the congregation wanted," says St. Martha's administrative assistant Kathy Richard, who participated in the workshops. "We wanted an intimate space, and the design makes us feel like a close group even though it's a large church."

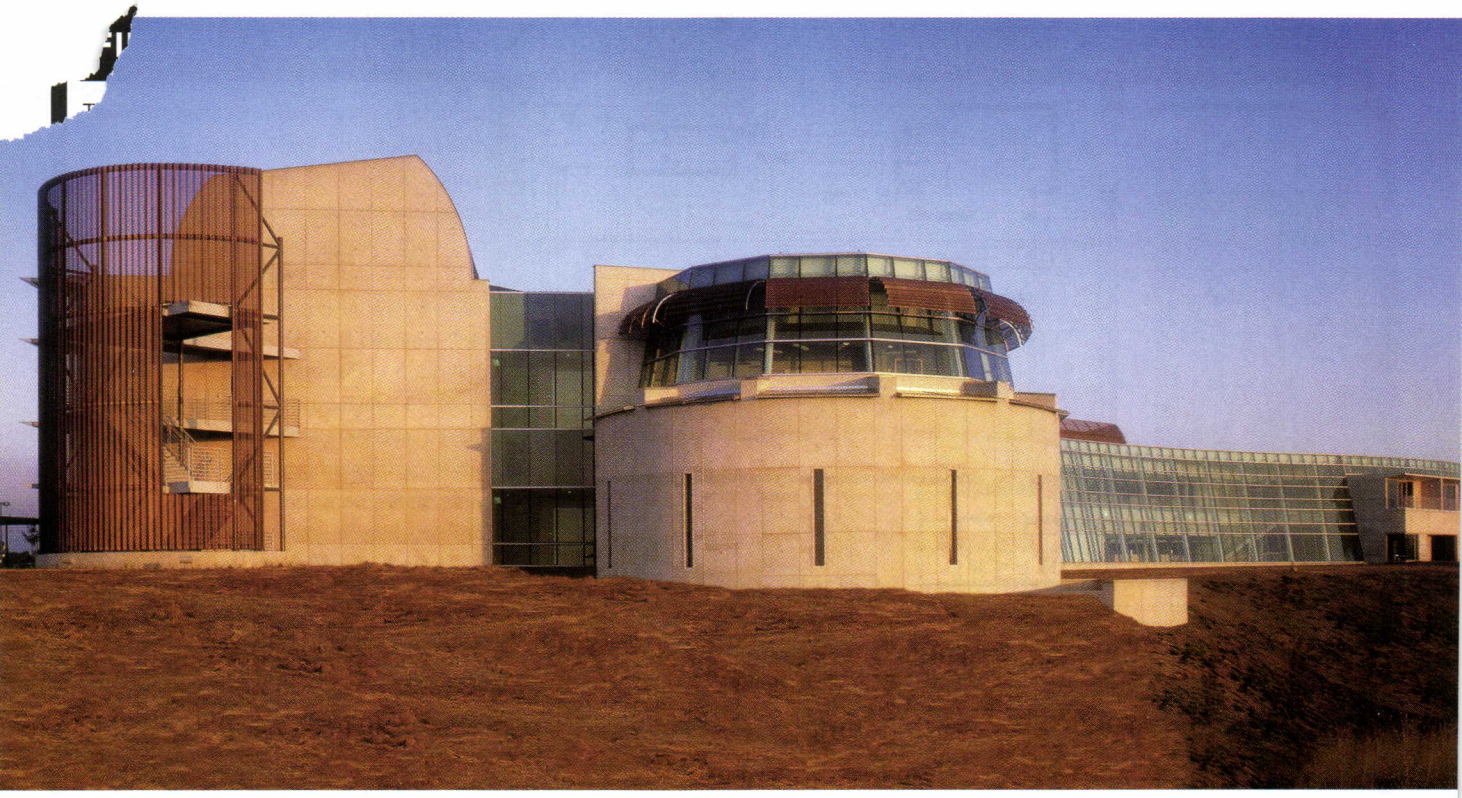
St. Martha Catholic Church, Harvey, Louisiana

client | Archdiocese of New Orleans/Congregation of St. Martha Parish **architect** | Eskew + Dumez + Ripple, New Orleans—Steve Dumez (design principal); Allen Eskew (consulting principal); Chuck Hite (project manager); Byron Mouton (project designer); Shannon Downey, Rick Dupont, Blaise Durio, Bob Klienpeter, Nick Marshall, Vicki Smith (project team) **engineers** | McKee & Deville Consulting Engineers (structural); Smith, Seckman, & Reid (M/E/P); Dufrene Surveying and Engineering (civil) **consultants** | Byron Mouton/Dean Kaegler (liturgical furnishings) **general contractor** | F.H. Meyers Construction **area** | 12,000 square feet **cost** | $2.2 million

Specifications

brick masonry | St. Joe Brick **zinc wall panels** | VM Zinc **stone** | Intrepid Stone **cast stone** | Advance Cast Stone **roofing** | Derbigum **doors** | National Door (metal, wood); Colonial Millwork (sliding doors, specialty entrance doors) **hardware** | Sargent (locksets, closers, exit devices); McKinney, Hager (hinges); Rockwood (pulls) **paint** | ICI **flooring** | Scofield **furnishings** | Axis Construction **lighting** | Luceplan (uplights); Kurt Versen, Lightolier, Prescolite (downlights)

Because the day chapel (facing page) interlocks in plan with the sanctuary (above), the two spaces share liturgical elements and have a flexible relationship. The tall wooden tabernacle, the receptacle for the consecrated host, is accessible to both spaces, sitting to the right of the small altar in the day chapel and to the left of the altar in the sanctuary. A large wooden sliding door connects the chapel to the sanctuary, opening it to the baptismal font for family-attended baptisms.



TEST PASSED

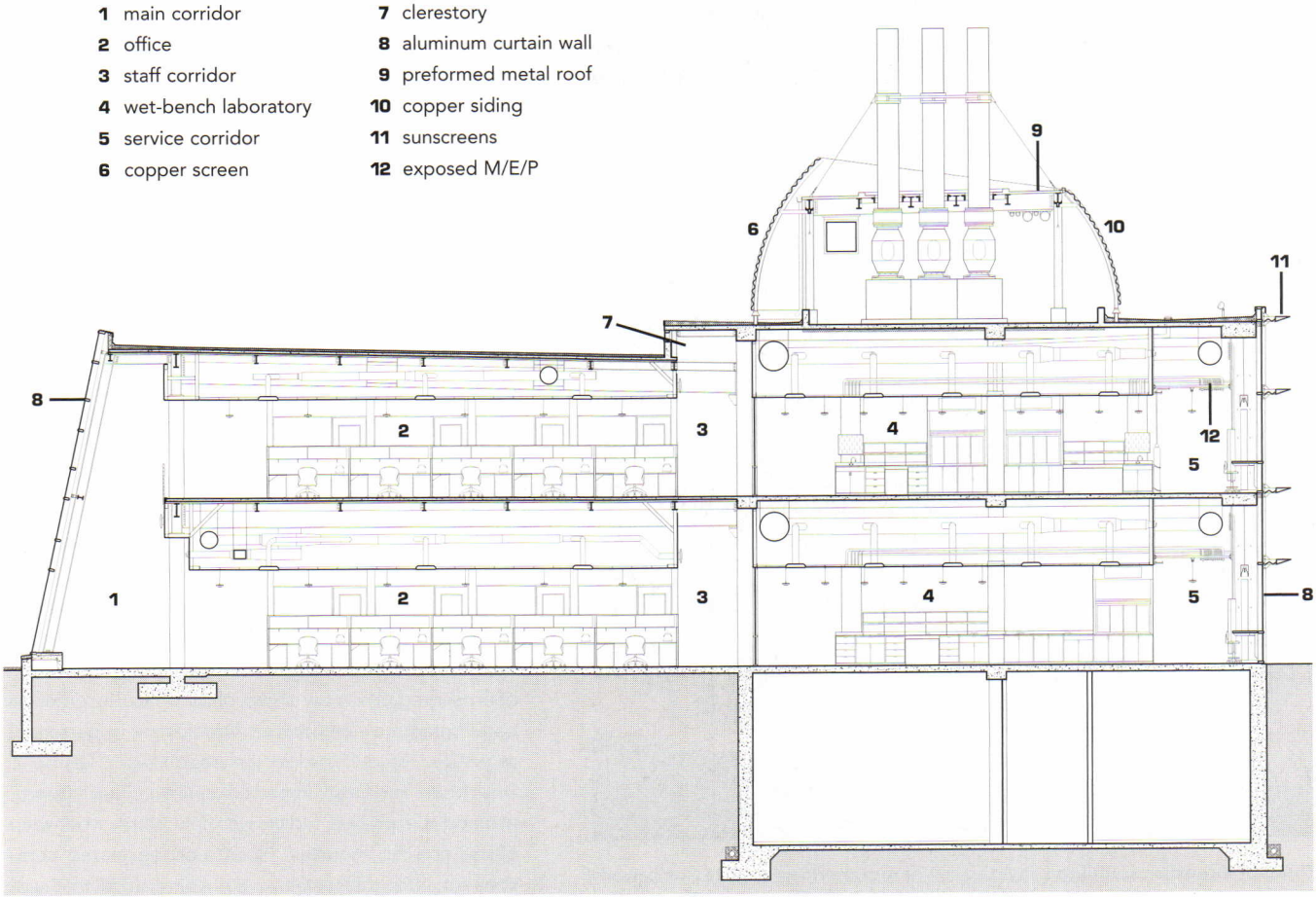
FLEXIBLE AND CRISIS-READY, A NEW LABORATORY BUILDING IS A LIVING METAPHOR FOR ITS OWNER, THE FDA.
BY C.C. SULLIVAN

Most laboratories are tailored to the specifics of scientific research, but the U.S. Food & Drug Administration's new "megalaboratories"—consolidation facilities for each of its nine regions—stand ready for a different function: testing whatever arrives at the door. Unlike typical medical labs, where researchers enjoy rhythmically repetitive workloads and typically have their own workstations and desks, with fixed benchwork and components and dedicated rooms for things like tissue cultures, the FDA's spaces are built for "a crisis-driven agency," says Alonza E. Cruse, director of FDA's western outpost, the Los Angeles district office. An average workweek might bring anything from an exotic foodborne illness and suspected anthrax powder, to a batch of defective condoms and a vitamin supplement advertising dubious health benefits, he explains. "So we have flexibility, such as rolling benches, ventilation controls, and exposed gas lines to deal with this changing environment. Science is moving so fast, so we've tried to build in as much flexibility as possible, short of hiring futurists to tell us what to do," Cruse jokes.

A sense of humor is vital at this federal agency: In addition to its day-to-day onslaught of public-health challenges, the FDA fends off a persistent barrage of political attacks from powerful business lobbies and the government itself. "We're often seen from the outside as some kind of multiheaded monster, and it makes it hard sometimes to get things accomplished," Cruse admits.

Yet the FDA is hardly defensive about its unusual new presence in Irvine, California, a kinetic, sculptural building enclosing 133,000 square feet of laboratory, office, and support space. Physically prominent and formally intriguing, the facility stands as a sort of Rorschach test for America's perception of big government. It looks expensive—something that members of Congress pointed out when reviewing an early study model—but at $255 per square foot, it is the least expensive of comparable new projects. Its floors might have been laid out according to standard FDA lab and office designs, but instead they support the agency's new working model of flexibility and integration. And unlike most federal workplaces, the building is an inspiring place to visit, with its long atrium, inviting terraces,

1 main corridor
2 office
3 staff corridor
4 wet-bench laboratory
5 service corridor
6 copper screen
7 clerestory
8 aluminum curtain wall
9 preformed metal roof
10 copper siding
11 sunscreens
12 exposed M/E/P



east-west section 7'

The lab-and-office building's layered envelope provides degrees of privacy and transparency to occupants, as well as control of heat and light transmission. Copper and stainless-steel sunscreens animate the southwestern exposure (top), while the view to the east is of wetlands and the San Gabriel Mountains (above).

and views of a freshwater marsh and the San Gabriel Mountains. Its image even suggests creativity—Cruse calls it "architecturally funky," and the generally conservative Orange County crowd has dubbed it "sexy," "cool," and "wild." Most important, rather than seeming aloof and impenetrable, the building invites public scrutiny and participation.

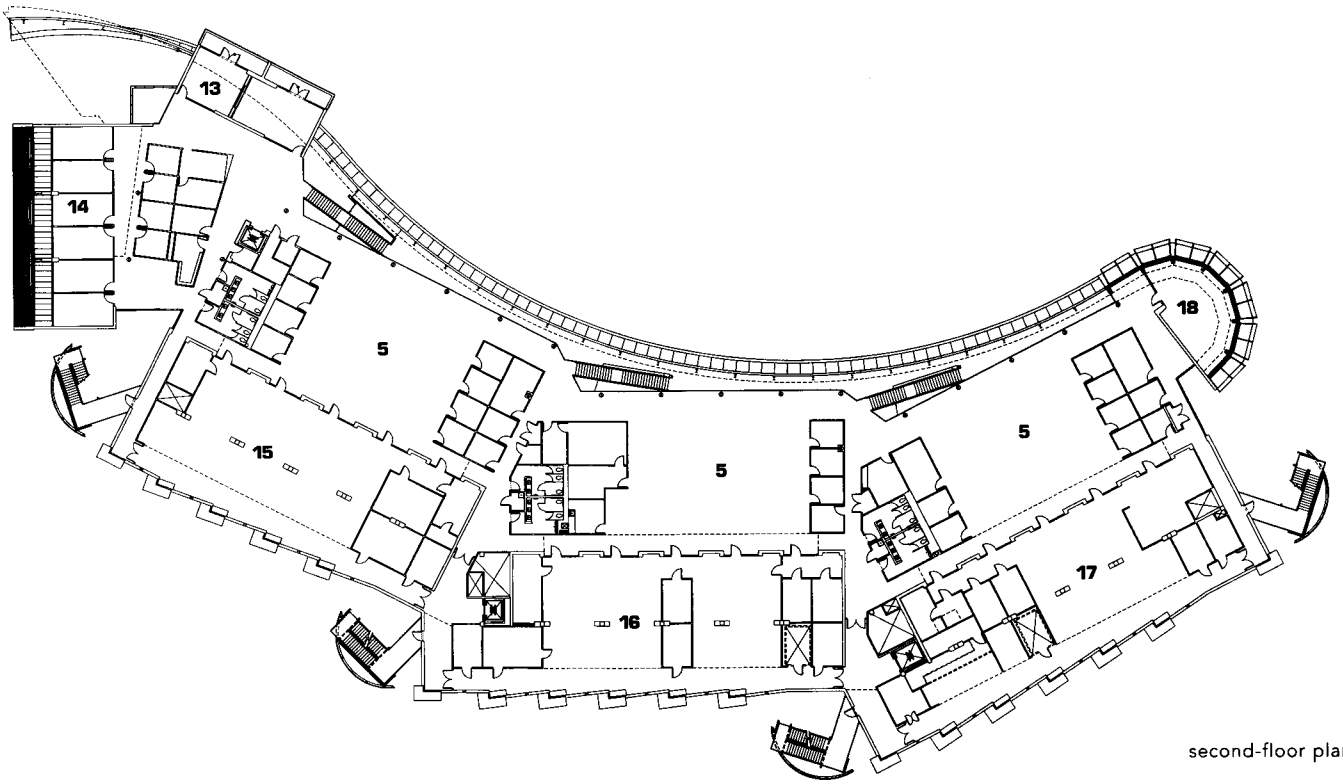
"I hope people look at this building and say, 'Oh, that's the FDA. They're working for me,'" says Cruse.

THE IMAGE OF LAB APPARATUS

Those that do look will see something potent. Following the arc of a ridgeline above a marshy swale two miles from the Pacific coast, the building summons the image of a laboratory apparatus not unlike the autoclaves and spectrometers contained within. Along its northeast side, a sweeping, canted curtain wall visibly connects offices and meeting zones at each end of the double-height atrium, including a semicircular library to the south, and to the north an executive suite protected from the sun by a quarter vault of perforated copper. The southwestern main exposure, made of as-cast concrete with visible form marks, brims with perforated copper and stainless-steel articulations: light shelves over windows, rooftop screen walls, and external stairwells that serve as transitional ligaments tying together three main rectangular building masses. While this façade is a bit overwrought, like a piece of lab equipment its appearance reflects no more than the exigencies of the functions within.

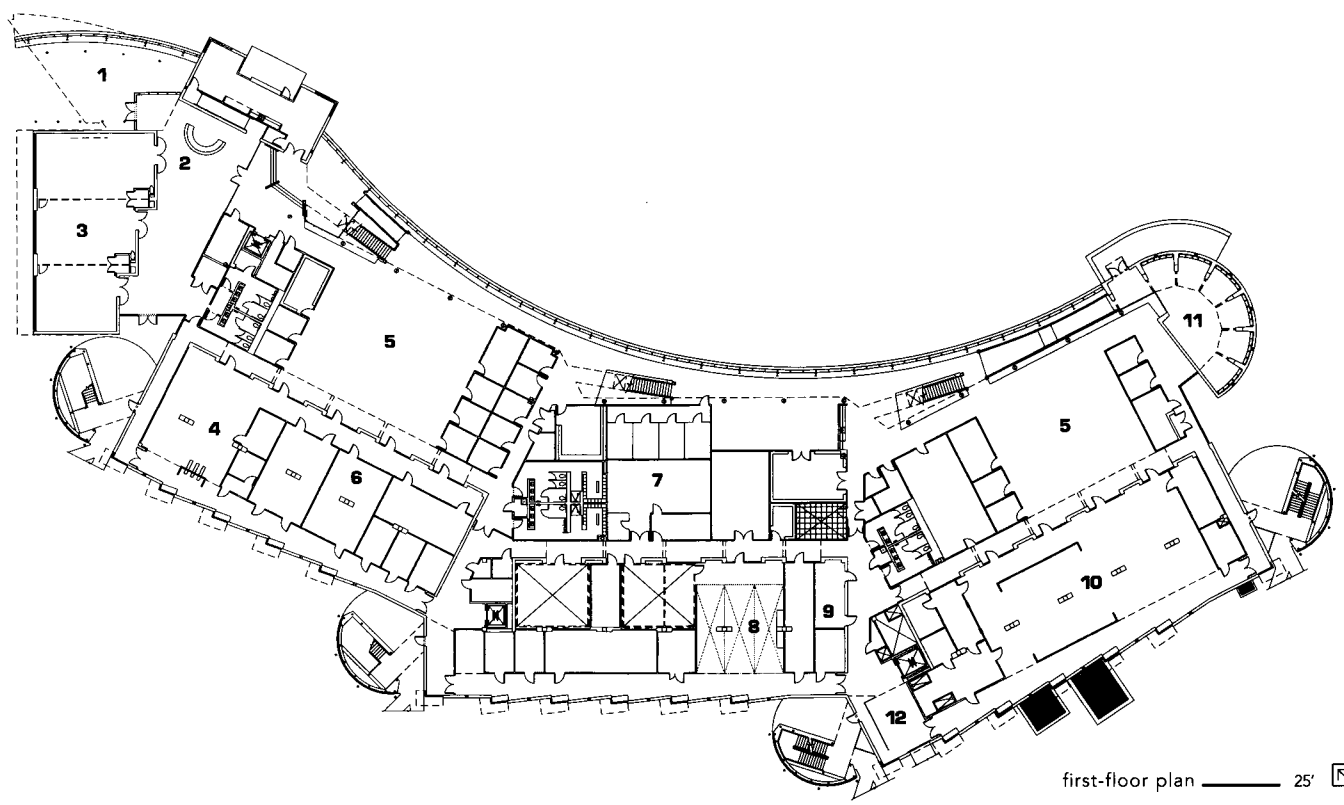
A tall flourish of curving steel trellis at the entrance and an exuberant reception desk inside contrast with the stripped-down aesthetic of common areas. The concrete structure recedes nicely as an interior finish: In the lobby, for example, it acts as an elegant backdrop for black leather Barcelona chairs and a chrome-and-glass coffee table, and elsewhere contrasts with maple ceiling elements and casework. The bright expanse of curtain wall commands attention immediately, however, pulling energy from practically all quarters. Two large staircases and ramps feed the atrium corridors, which lead to shared spaces. At the end opposite the reception and conference room, the inviting library with its vertical slit windows feels almost monastic.

On a purely functional level, the workplace within also represents a departure for the agency. FDA field inspectors and laboratory staff, who for decades have been segregated, now share office space in order to better integrate workflows and deploy swing personnel as needed, says Cruse. So the design team, led by R. Doss Mabe and Dusty Rhoads of Zimmer Gunsul Frasca, planned the phased facility with few barriers between offices and lab modules. Floor-to-ceiling glazed partitions set along the spine of the building are all that separate the labs and open-plan offices. Between the three lab-office masses are circulation routes ending at external stairs and terraces for breaks or informal meetings.

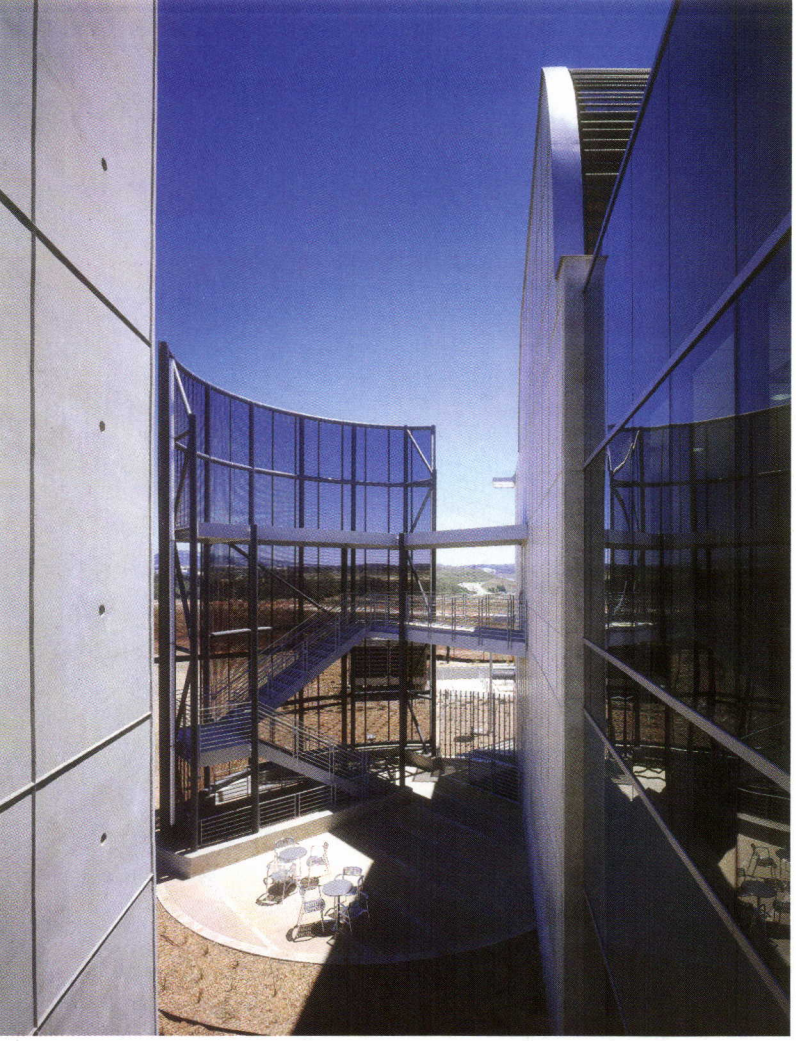


second-floor plan

1 entry
2 reception
3 conference center
4 instrumentation
5 open offices
6 entomology lab
7 sample storage
8 sample-preparation area
9 organoleptic (sensory) testing
10 pesticide lab
11 library
12 loading dock
13 director's suite
14 executive offices
15 drug chemistry lab
16 food chemistry lab
17 microbiology lab
18 computer training



first-floor plan _____ 25'



In the lobby, the ceiling is made of the same corrugated metal as the exterior sunshades, and the as-cast concrete walls and concrete floor contrast with the warmer wood panels and ceiling trim (above). The lobby zone and the circulation lanes between the three laboratory modules terminate in "outdoor interaction rooms" embraced by the egress stairs with protective copper screens (top).

The layout is hardly chimerical: Circulation paths are clearly delineated to leave work zones undisturbed and to segregate the movement of material and equipment between the labs and nonlab areas.

INTEGRATING LAB AND OFFICE

In addition to the need to integrate office and lab functions, major design decisions were also driven by the project's phasing, which required that building sections be constructed and weatherproofed while FDA awaited more funding for subsequent portions. The labs would work best in the environmental isolation of a concrete structure, so the lab side of the building serves as shearwall, thermal mass, and an armature for hanging the lighter steel-framed office portion to the northeast. The two sections, steel and concrete, could thus be contracted and built separately.

The result is a decidedly modern demeanor for a century-old agency that was established in part due to Upton Sinclair's shocking descriptions of the Chicago stockyards in *The Jungle*. But its charge today is much more than guaranteeing the purity of foods and drugs. After a recent push to create collaborative work environments like this Irvine facility to pursue "more efficient risk management," as Cruse explains it, the FDA's new commissioner, Mark McClellan, is focusing on how the FDA can better respond to emergencies such as product tampering, food contamination, and terrorist threats. Fortunately, the modular layout, the mobility of the equipment, and the exposed building systems are ideal for the flexibility of use demanded in crisis situations.

Adaptability, it seems, is a good long-term trait for big federal agencies. And in spite of recent complaints about the FDA's core mandate (a recent legal challenge, for example, contends that product labeling rules violate marketers' rights to free speech), its outpost in Southern California indicates that this is an organization on the move. "They wanted a front door, and if it was to have a special character, it ought to be forward-looking and express the future of the FDA," says Mabe. "It's not a stodgy organization, and they want to make their mission more public."

FDA at Irvine—U.S. FDA Regional Laboratory–Southwest, Irvine, California
client | U.S. Food and Drug Administration **architect/engineer** | Zimmer Gunsul Frasca Partnership + HDR, A Joint Venture **project architect and interior designer** | Zimmer Gunsul Frasca Partnership, Portland, Oregon—R. Doss Mabe, Dusty Rhoads (design partners); Ted A. Hyman (principal in charge); Stuart Baur (project architect); James Woolum, Debbie Munson (interiors) **landscape architect and structural and M/E/P engineer** | HDR, Omaha—Bill Kallmer (landscape); Randy Niehaus (electrical); Chip Warren (mechanical); Dan Hahn (structural); Gino Rapagna (civil) **consultants** | Earl Walls Associates (laboratory planning) **construction manager** | Gilbane **general contractor** | Hensel Phelps **area** | 133,500 square feet **cost** | $34 million

CLEARING A PATH TO LAB FUNCTIONALITY

Laboratories tend to be highly engineered, but they are rarely exercises in high design. M/E/P systems account for about half of typical design and construction budgets, and coordination of the design disciplines and the build-out is a major focus. Going beyond the ordinary, however, tests the resolve of both architect and client.

To deliver the FDA's new district office, the design-focused architects at Zimmer Gunsul Frasca (ZGF) and experts in structural and M/E/P engineering of labs at HDR teamed up in a joint venture to simplify contact with the agency's project managers—and, presumably, to minimize finger-pointing. The partnership also reduced the number of separate consultants the FDA would have to coordinate, but the design team's roster still advertised another prominent name: Earl Walls Associates (EWA) of San Diego, a leading laboratory-design consultant. As on most lab projects, this specialist would be engaged in every phase of the project, designing cabinetwork details with the architect, calculating benchtop exhaust and power loads for the engineers, and reviewing the installation progress with the construction team.

Based on interviews with FDA investigators and technicians, the lab consultant prioritized three design drivers for the Irvine facility: an open-plan layout, free movement of materials and scientific equipment, and—in an age that has seen the word "bioterrorism" added to the popular lexicon—employee safety measures.

"Every lab building today is designed with the lab module as its basic building block," says ZGF principal Ted A. Hyman. "The architect has to design the [building] skeleton so that it is modular and controlled horizontally and vertically." For the FDA, the final lab space plan was organized around three building pods, each fitted with a grid of 12 lab modules sized according to the smallest indivisible work group. To minimize vibration, two lab modules fit in one structural bay; for each module, all M/E/P feeds enter through one central location.

While the base building was straightforward, the labs themselves were more challenging to lay out. "The FDA labs are actually more complicated than typical ones because of the need to understand their work process," says EWA principal Michael R. Somin. "They do testing, but not like a typical medical lab." Two basic workflows define the lab program: occupants moving between offices and laboratories, and materials handling from the back of the labs into the service corridor, a wide path at the southwestern perimeter adjoining all lab areas and a loading dock. Both circulation routes are left as open as codes allow: The service passage is ample, with exposed ducts and piping to facilitate frequent cleaning and occasional M/E/P retrofitting; glass partitions separate lab and office areas, segregating them as ventilation zones but maximizing through-views and natural illumination. A few enclosed specialty rooms are located at the ends of the lab space for analyzing insects or other sensitive materials.

The planning module for the wet-bench laboratories was developed to allow flexibility for unpredictable changes in the amounts and types of materials that are tested on any given day. The lab furnishings and fixtures were specified based on cost, adaptability, and ease of maintenance, and much of the lab apparatus resides on rolling carts for convenience. Visible in the background are glass partitions that run along the center of the building, separating office zones from lab areas.

The installation incorporates a range of basic lab furnishings and a few specialty components, such as moveable lab tables and rolling apparatus carts that enhance technician access. Standard fixtures and benchtop fume hoods serve the benches, which are finished in easy-to-clean epoxy resin and powder-coated steel.

While the labs were built with modularity in mind, they were designed to solve a process riddle. Of utmost importance was safety, such as careful waste disposal, but so was the premise that testing equipment would be available and easily modified for the task at hand. Yet the project also held up to its rigorous budget and the demands of public-sector oversight. Says Hyman: "This is the least expensive lab FDA has made." **C.C. Sullivan**

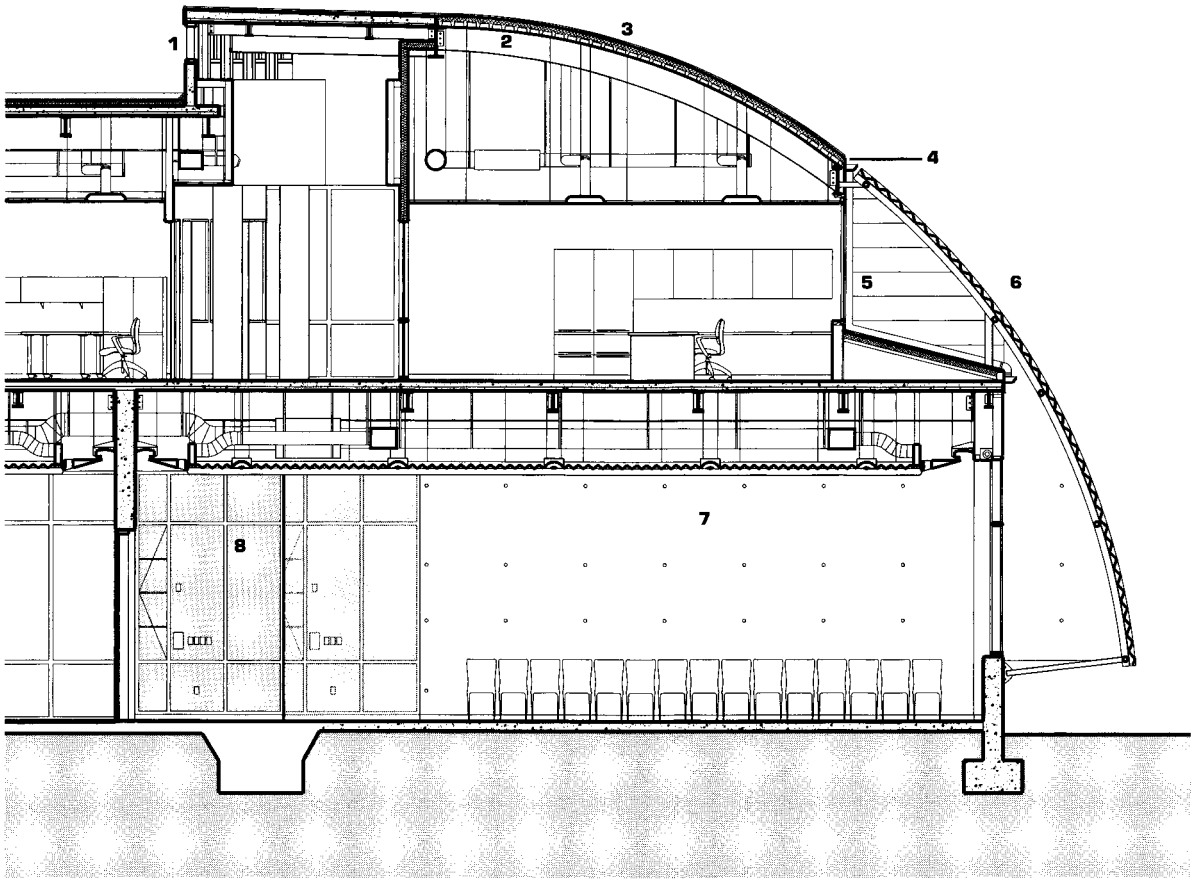
PETER ECKERT/ECKERT & ECKERT

The double-height main circulation corridor, with its ramps and stairs, offers broad views of the surrounding wetlands and mountains through its canted curtain wall (top). At the termination of the corridor is a library, which uses filtered light to convey a sheltering, almost monastic quality (above). The library opens to terraced outdoor study spaces.

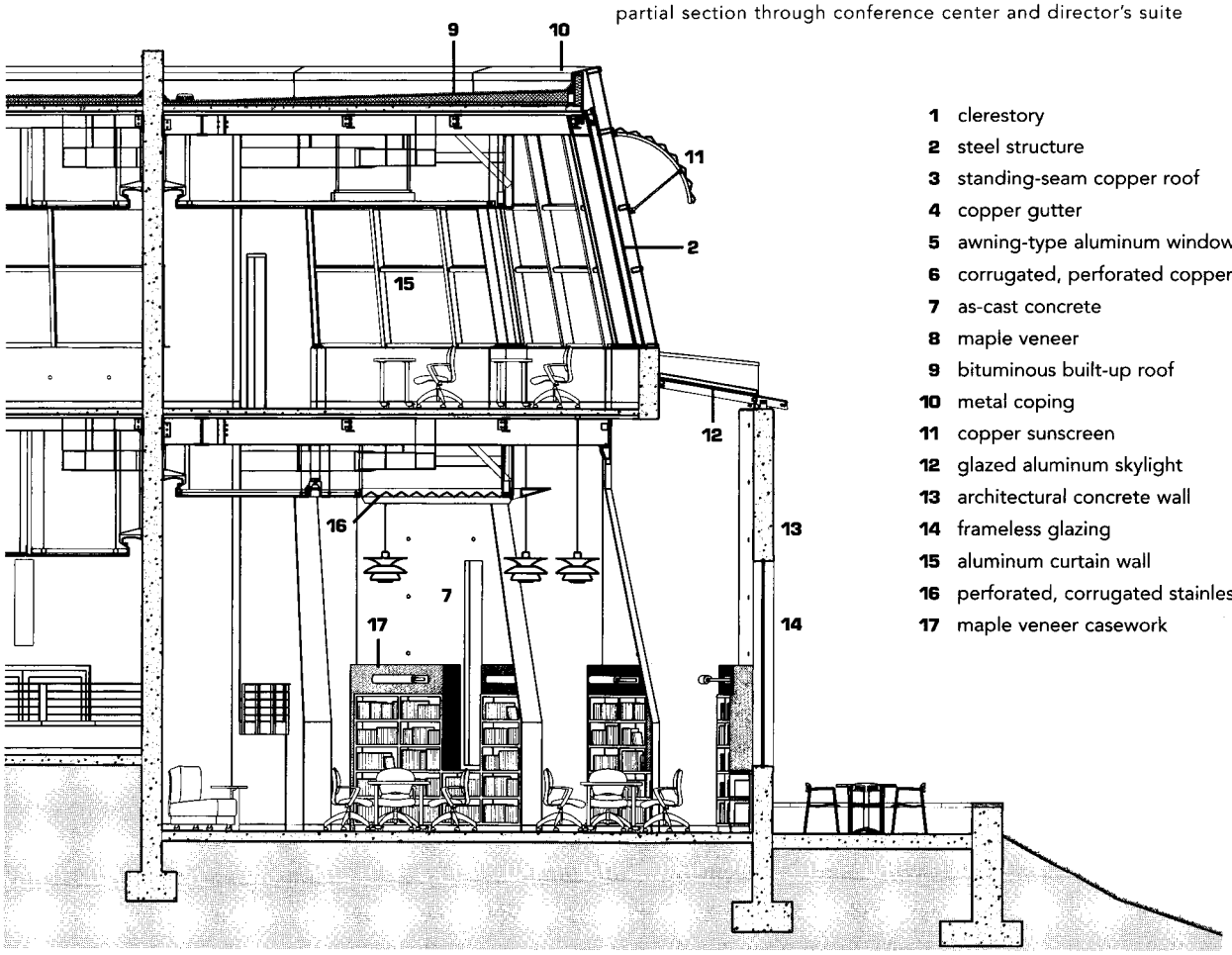
Specifications and suppliers

concrete | Catalina Pacific **formwork** | Sureform **steel fabrication** | W&W Steel **curtain wall** | Werner Systems **glass** | Solex/Northwestern Industries, Woodbridge Glass **metal screens and copper roof** | Custom Metal Fabricators **built-up roofing** | Johns Manville **stone** | Southland Stone **coiling door** | Cookson **locksets** | Schlage **hinges** | Stanley **closers** | LCN **exit devices** | Von Duprin **specialty hardware** | Blumcraft **acoustical-tile ceiling** | U.S. Gypsum **custom woodwork** | Arrowwood **paints and stains** | Benjamin Moore **VCT and sheet-vinyl flooring** | Armstrong **carpet** | Bentley (Docklands) **operable partitions** | Advanced Equipment **open-office systems furniture** | Herman Miller (Ethospace) **ancillary furniture** | Metro Furniture **indoor and outdoor seating areas** | Knoll **training area furniture** | Davis Furniture **interior ambient lighting** | Cooper, Halo Portfolio, Litecontrol, Metalux **downlights** | Zumtobel **exterior poles and bollards** | Bega **cove lighting** | Litecontrol **other exterior lighting** | Hydrel, Kim, Lithonia **specialty lighting** | Louis Poulsen, Zumtobel, Engineered Lighting Products **lighting controls** | Wattstopper, EDI **elevators** | Mitsubishi **plumbing fixtures** | Kohler, Elkay **fittings** | Chicago Faucet **domestic water heaters** | Precision Boiler **vacuum pumps** | Decker **air compressors** | Ingersoll-Rand **water purifier** | Osmonics **mechanical systems** | Bell & Gossett/ITT Industries (pumps); Cleaver Brooks (boilers); Trane (chillers); Baltimore Air Coil (cooling towers) **HVAC** | Logic Aire Custom (air-handling units); Industrial Air (lab exhaust fans); Greenheck (building exhaust fans) **electrical systems** | Siemens (distribution equipment, fire alarms); Detroit Diesel (emergency generator); Leviton (wiring devices) **building controls** | Honeywell

Photographs by Nick Merrick/Hedrich-Blessing, except as noted

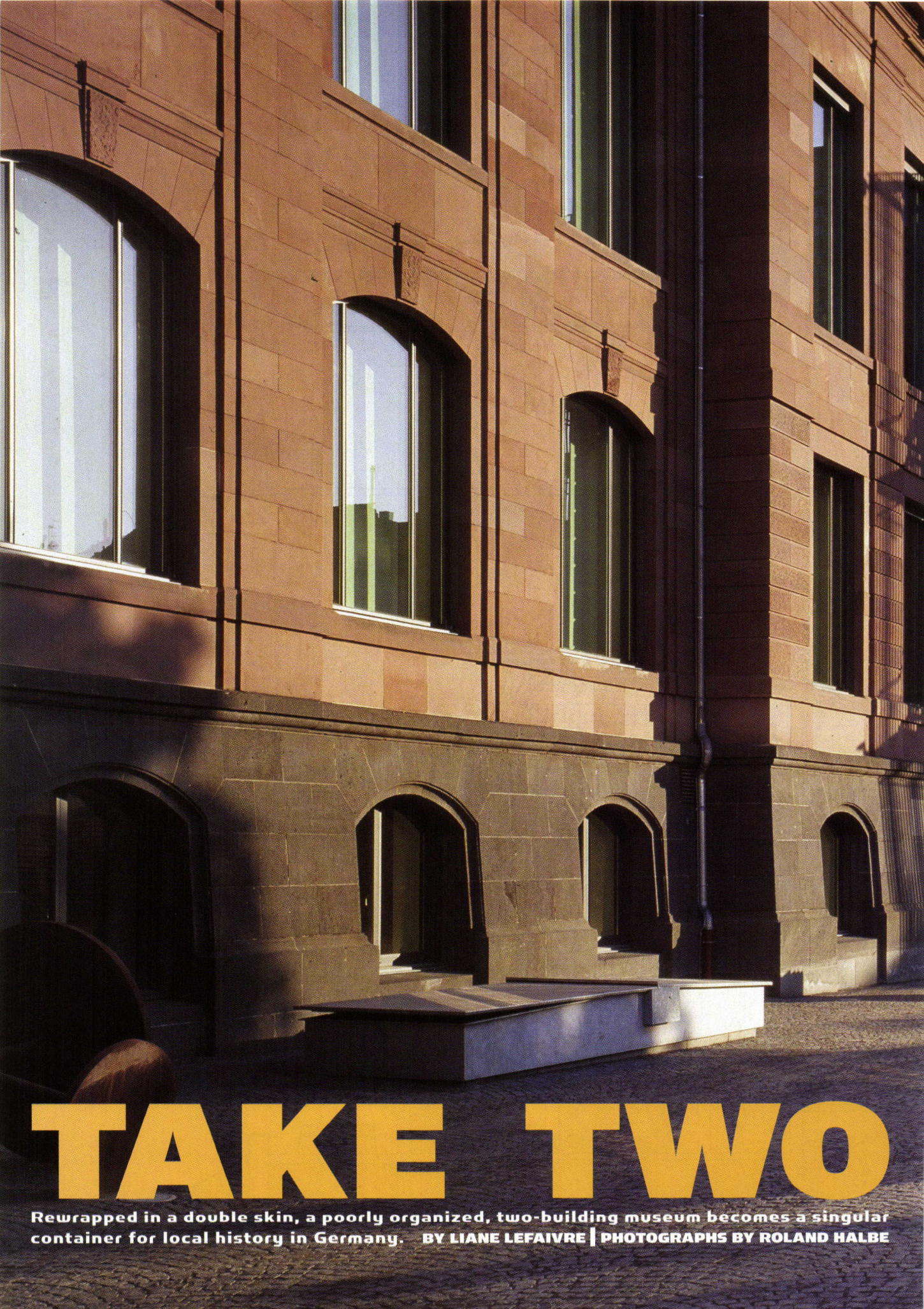


partial section through conference center and director's suite



1 clerestory
2 steel structure
3 standing-seam copper roof
4 copper gutter
5 awning-type aluminum window
6 corrugated, perforated copper screen
7 as-cast concrete
8 maple veneer
9 bituminous built-up roof
10 metal coping
11 copper sunscreen
12 glazed aluminum skylight
13 architectural concrete wall
14 frameless glazing
15 aluminum curtain wall
16 perforated, corrugated stainless steel
17 maple veneer casework

partial section through library and computer-training room 4'



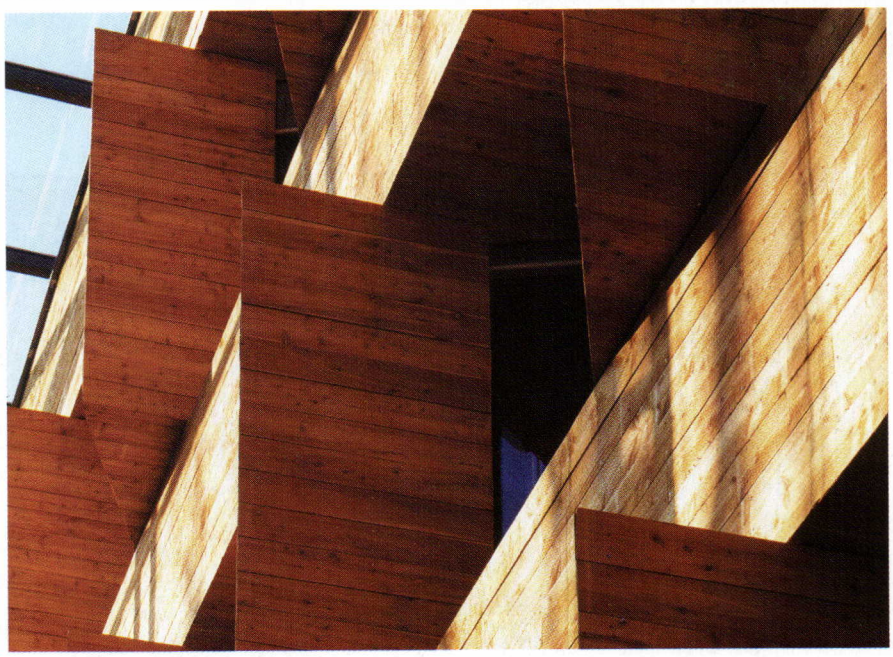
TAKE TWO

Rewrapped in a double skin, a poorly organized, two-building museum becomes a singular container for local history in Germany. BY LIANE LEFAIVRE | PHOTOGRAPHS BY ROLAND HALBE

Almost everyone who is designing museums seems hell-bent on out-Bilbaoing Bilbao. Bombast, astronomical expenditure, and lousy exhibition spaces that have curators climbing the walls are the order of the day. There are exceptions, however. The Rheinische Landesmuseum is one of them. In fact, it is discreet, economical, super exhibition-friendly, and—even on my Sunday morning visit—bustling with visitors.

The museum in Bonn, Germany, by Architektengruppe Stuttgart belongs to a special category of museum that is found in each one of the 17 *länder*, or provinces, of the confederation. As opposed to the monumental national museums such as the Pinakotek and the Glyptotek in Munich or the Altes Museum in Berlin, which present treasures from the grand Western classical tradition, the landesmuseums focus their attention on local history. This one, in the north of Germany, covers everything from Neanderthal man to recent work by local artists. Its aim, like that of its counterparts in other provinces, has traditionally been to connect wide-ranging periods as a means of expressing regional identity.

In Bonn, an adaptive-reuse project is carried out on a mismatched pair of buildings that were united into a single museum: One building was an ungainly and overly ornamented pastiche of historicist styles typical of the early years of the nineteenth century; the other, an expansion of the first, was a truly clunky contraption constructed in the technocratic style of the late 1960s. In addition to being ugly, the two buildings—thanks to grungy-looking side sheds used for storage—had managed to hog the entire site, which is in the middle of a very pretty, leafy residential block.



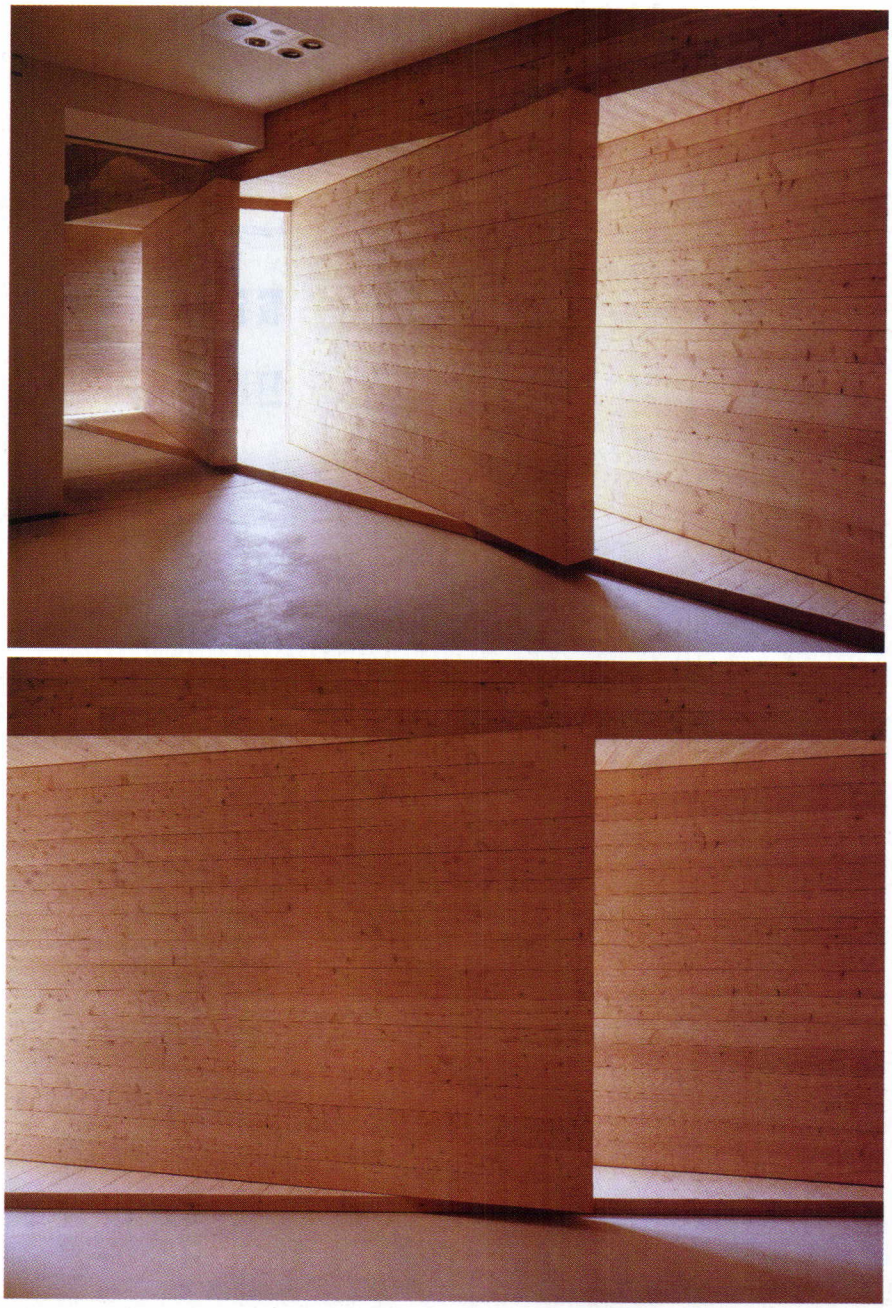
Shingled glass protects the larch-wood façade of the remodeled regional history museum in Bonn. The angled windows are meant to evoke an archeologist's specimen box.

A THREE-PRONGED PROCESS

The design strategy the architects chose was a tripartite exercise in uncluttering and reconnecting. First, they scrapped the sad-looking concrete sheds on either side of the buildings and turned the liberated space that resulted into a sculpture garden. A garden path links the two streets situated at the front and back of the building, making the museum accessible from both sides and creating a very pleasant public space in the middle of the residential block.

Second, they gutted the two main museum buildings, stripped them of all ornament, and connected the structures by demolishing the wall that had separated them, opening up the interior in such a way as to create huge, airy spaces. The trouble is that this overhaul deprived the floors of their support. The main device they used to secure the new connection was a circulation system made up of stepped ramps and bridges that span the gap between the two buildings. These spans, comprising welded steel and whitewashed oak, act not only as circulation paths, carrying people across the new divide, but also as support braces keeping the floors of the two parts of the reunited buildings structurally sound. Moreover, in addition to tying the two parts of the new museum together programmatically and structurally, the ramps also serve as big lamps, with strips of neon on their undersides.

Nothing is wasted in this museum. No trace of superfluity. Everything is stripped down to its barest functional elements. In fact, the elements typically serve two or three functions—structural, programmatic, aesthetic—simultaneously. The floors, made of exposed concrete or oak, conceal mechanical systems at the bases of the walls. As firm principal Gerhard Bosch points out, multitasking elements such as



Natural light and summer heat are limited by the oblique angles of the south-facing façade. Unlike their exterior counterpart, here the larch panels have a smooth finish.

the HVAC systems have reduced operating costs by 20 percent.

As for the walls in the entrance hall, they are not only enclosures but gigantic lamps, clad entirely in electrical lights covered with frosted glass that make them glow. The effect created is very pleasurable. As for the gallery walls, they are cooling systems in addition to structural supports. Behind the surface of exposed concrete they conceal cooling devices designed to keep the exhibition rooms at a temperature that will preserve the works of art.

The galleries—conceived in collaboration with the museum's director and curatorial staff for permanent exhibition but also for visiting shows—are an exemplar in the genre, with special lighting conditions for medieval Rhine Valley paintings and bright open spaces for the more didactic objects on display.

For the third prong in the process, the architects stripped bare the building's older façades, reducing both the early 1909 skin and the clunky anonymous 1967 one to their structural components and remaking them into a welcoming surface of European larch-wood paneling encased, in turn, in a shingled glass box. The wood façades look like they are purely decorative, but they are not. Each one conceals a structural column that had supported the façade of the 1960s building. The rough wood and the protective outer layer of glass serve several functions. To provide indirect natural light into the galleries, which is optimal for the paintings hung on the walls, the window openings are angled. And what seems to be a glass box in the daytime becomes an illusionistic wooden one at night, thanks to lighting effects that make the glass wall disappear. In addition, the combination of the rustic, roughly hewn wood and the high-tech glass that protects it is another connection the architects have carried off with understated felicitousness. Neanderthal man, meet Mies van der Rohe.

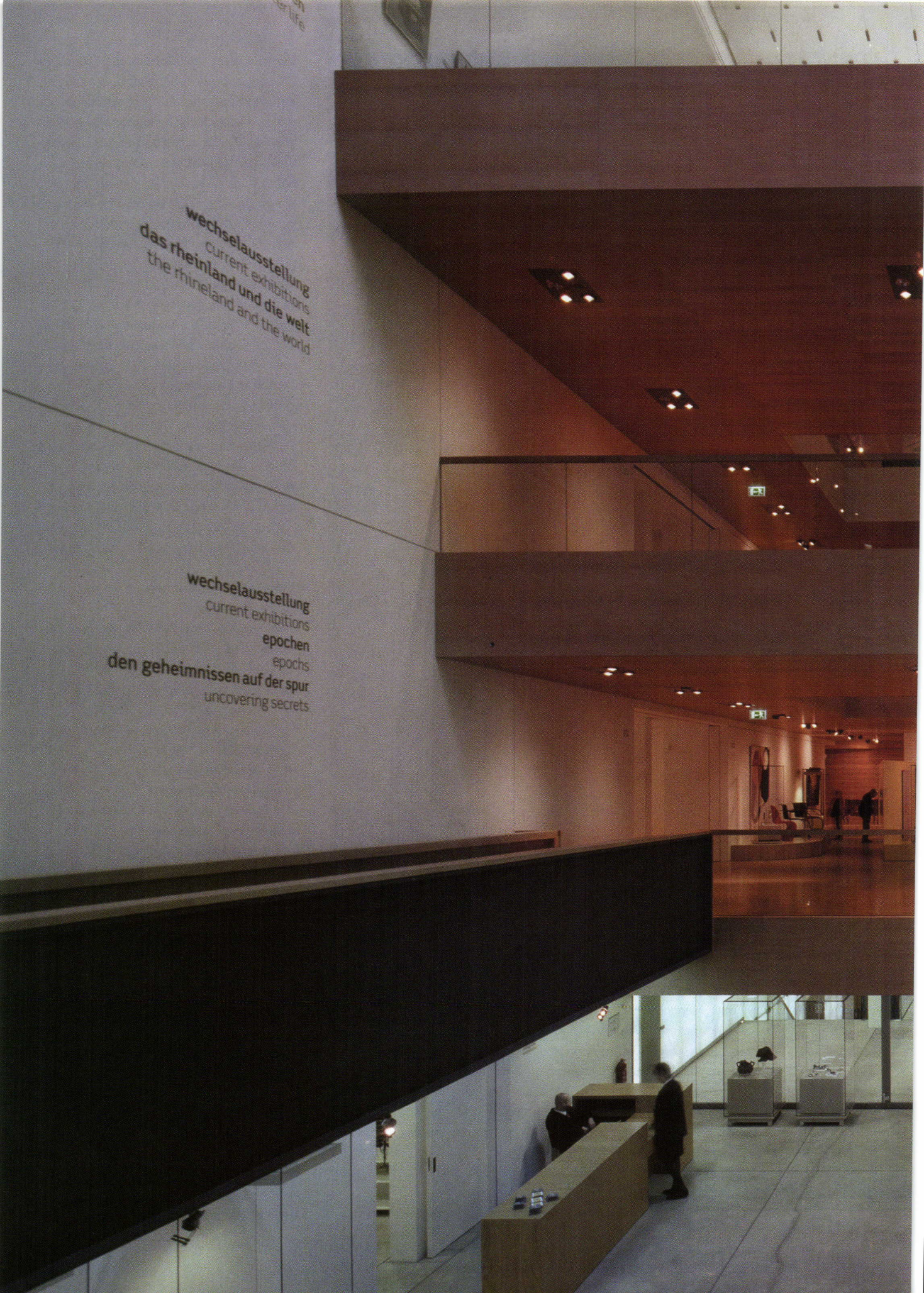
Waste not, want not. Is this a formula for a successful museum? For a certain kind of one, the answer would be yes. Architektengruppe Stuttgart has managed to come up with a solution that is elegant instead of whiz-bang, and it works.

Rheinische Landesmuseum Bonn, Bonn, Germany

client | LVR Landschaftsverband Rheinland **architect** | Architektengruppe Stuttgart, Stuttgart, Germany—Knut Lohrer, Uli Pfeil, Dieter Herrmann, Gerhard Bosch, Dieter K. Keck (principals); Cathrin Dietz, Ulrich Hanselmann, Achim Buhse, Karin Koschmieder, Monika Krönke, Fabian Lohrer, Isolde Oesterlein, Jörg Wenzel, Andrea Wiedmaier (project team) **engineers** | Architektengruppe Stuttgart with Rentschler-Riedesser (M/E/P) **consultants** | Gesswein, Henkel + Partner (landscape architect); Conceptlicht (lighting); Creamuse (exhibition) **construction manager** | Architektengruppe Stuttgart (Verena Wortelkamp, Bernd Krumwiede, Christian Motz, Karmal Naber, Bernd Remili, Nicola Sibiller, Walter Ulrich **area** | 71,000 square feet **cost** | $98 million

Specifications

structural steel | Stahlbau Illingen **wood cladding** | Bald **roofing** | Alusuisse; Bemo **glazing** | Frieß; Glasbau Marte **metal doors** | Teckentrup **wood doors** | Schoerghuber **security doors** | Schueco **acoustic ceiling** | Lindner **flooring** | DLW-Armstrong **carpet** | Ruckstuhl **interior ambient lighting, uplights, downlights** | Erco **light ceiling** | Zumtobel Staff **elevators** | Loedige **hinges** | Vieler **closers** | Dorma **exit devices** | Inotec


wechselausstellung
das rheinland und die welt
current exhibitions
the rhineland and the world
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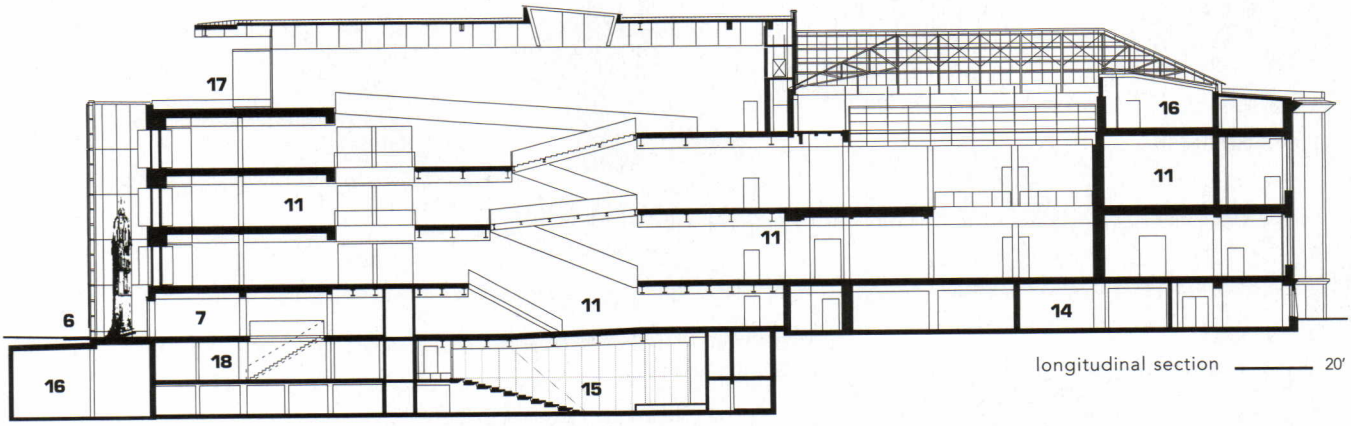
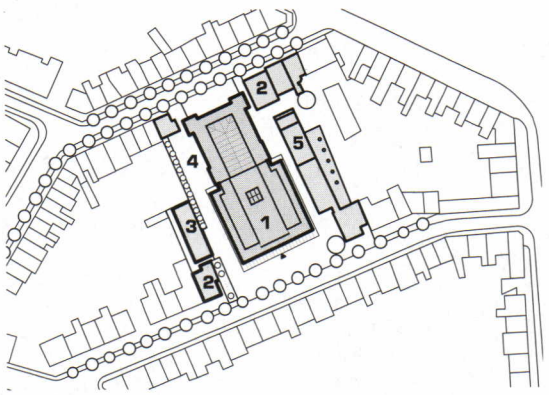
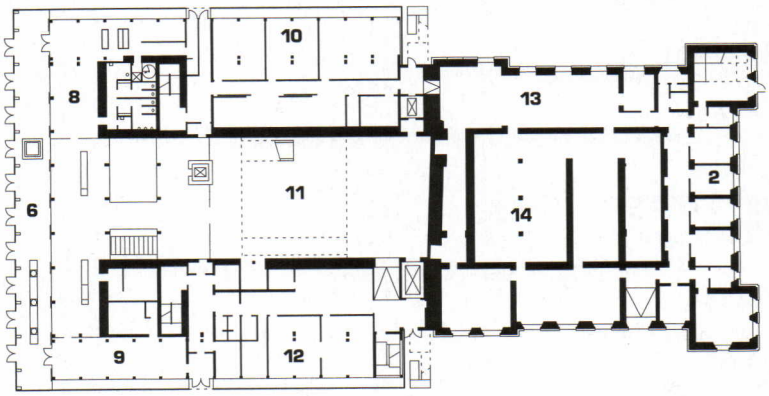
uncovering secrets



longitudinal section ——— 20'

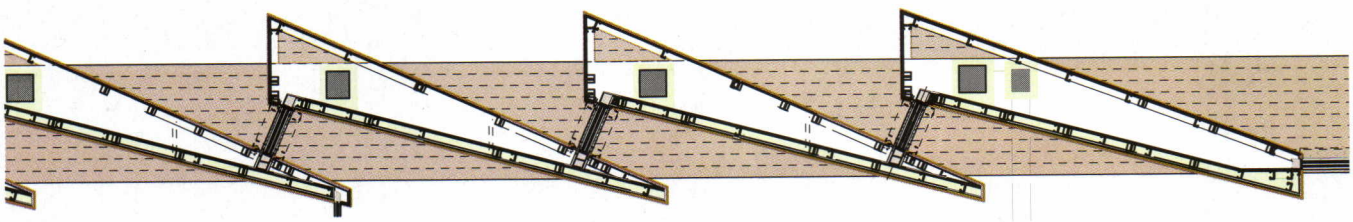


site plan ——— 206'



ground-floor plan ——— 33'

1 museum
2 administration
3 underground parking
4 sculpture garden
5 workshops
6 entry
7 lobby
8 restaurant
9 shop
10 education
11 exhibition hall
12 school lunchroom
13 reading room
14 library
15 auditorium
16 services
17 terrace
18 restrooms



wood façade partial detail ——— 4'

The construction of the double façade realizes the architects' concept for a museum building that is both object and vitrine. For the outer layer, a steel structure holds a shingled glass wall, which is not thermally sealed. The inner layer is more robust, comprising unfinished European larch wood over two layers of plasterboard with a vapor barrier, steel substructure, and reinforced concrete columns. Inside, the larch-wood walls are given a smooth finish.

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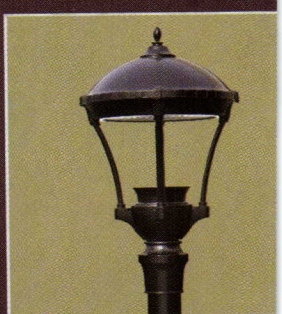

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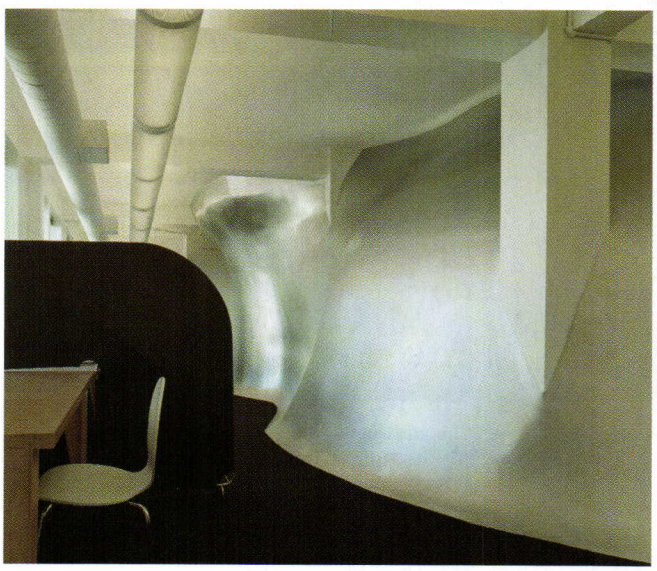
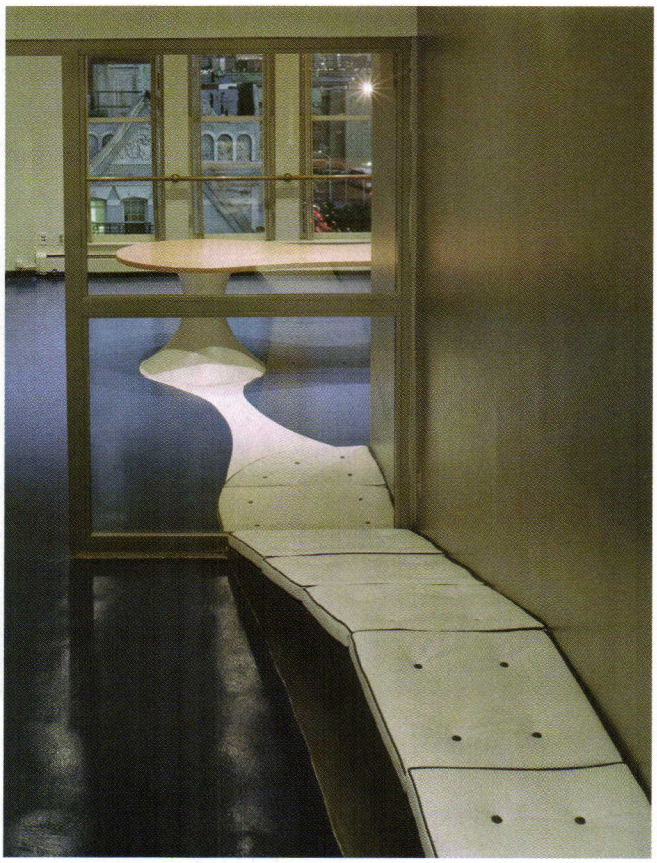
RAVING BULL

The maker of a popular soft drink puts on a high-energy face.

by Bay Brown





The "igloo" at the center of the offices (left) and the reception area (right) take their undulating forms from skatepark ramps and their color from the blue and silver of Red Bull's aluminum can.

The Hoboken, New Jersey, offices of Red Bull—the cocktail of sugar, caffeine, and the energy-boosting amino acid taurine enjoyed straight-up by jocks and as a vodka mixer by club kids—takes its cues from the skateparks and discos frequented by the drink's consumers. Designed by New York City–based Design Laboratories, the regional headquarters opened last summer on the sixth floor of a nondescript seven-story concrete building dating from the 1950s.

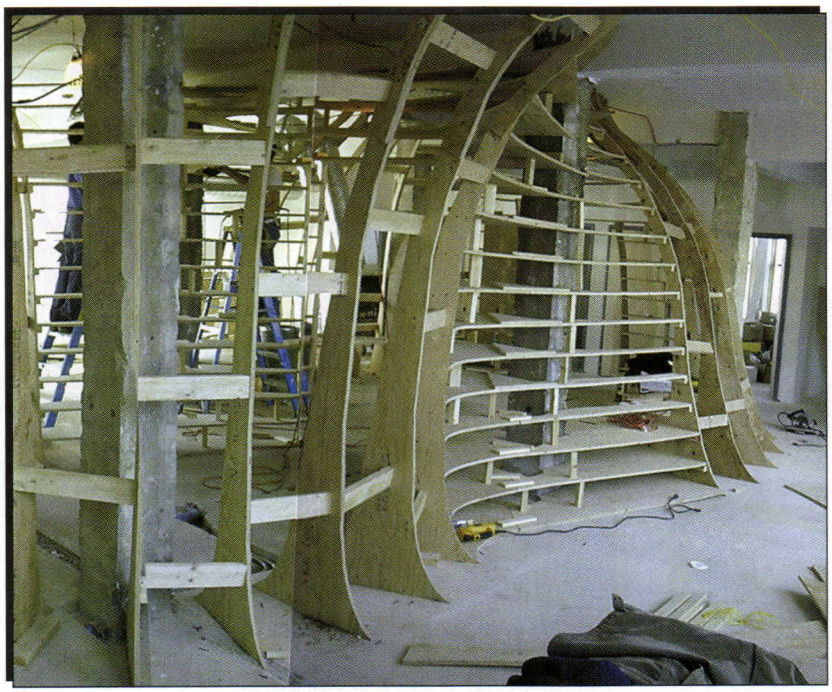
Starting at the office entrance, a white stripe swerves through the bright-blue epoxy floor. This line demarcates public areas, but also draws visitors to the nearly full-length windows with commanding views of Hoboken. Enclosed offices for permanent employees are located on the northern and southern ends of the floor with an open area in between, a flexible space where two rows of desks used by roving sales people can be removed to accommodate promotional parties.

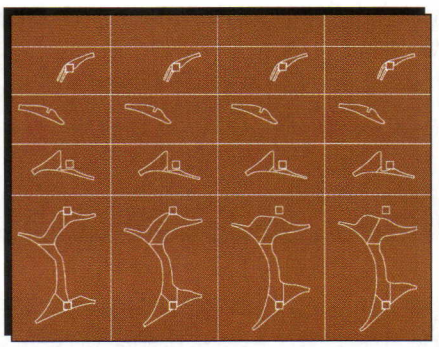
The highlight of the project is a pair of conjoined silver blobs that separate the two rows: one a "think tank"—a convex-shaped casual meeting room—and the other a concave-shaped interview room where athletes considering endorsements might stop by to chat. Dubbed collectively "the igloo" because of their appearance during construction, the rooms create a Gehryesque blobitecture writ small. The "wonky shapes," as firm principal David Ruff calls them, were inspired by the curved ramps of skateparks. The designers didn't go so far as to duplicate the concrete of the parks—that would have been structural overkill—but instead built a wooden frame out of horizontal and vertical 3/4-inch plywood ribs. The interior of the frame was finished in a waxed plaster and the exterior was wrapped in two layers of wet, pliable gypsum board, and covered with plaster. "It is basically papier-mâché on a large scale," says fellow principal Karen Frome. Finally, the blobs were covered with a silver plaster-like Marbelux paint which—together with the blue floors—gives the space a playful, club-like look while using the Red Bull color scheme to reinforce the brand.

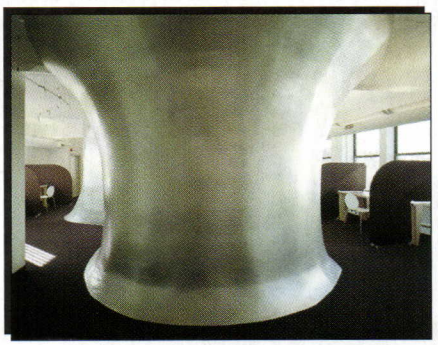
While the project wasn't delivered as a design-build, the architectural and construction processes were unusually intimate. "We didn't hammer nails," says Ruff, "but we did make full-scale templates." The designers plotted the forms and the contractor cut the shapes out of 4-foot-by-8-foot sheets of plywood. "It was like making a set of Lego instructions," he explains. "And like building a full-scale model," added Frome.

This system made the project feasible, because the designers didn't feel they could just produce construction documents and leave the complex framing to the contractor. Ruff and Frome credit the ease of the process, in part, to the software they used. First the designers sketched the shapes on trace with colored pencils and then modeled the sketches in Rhino. They were impressed by the incredible precision with which the program translated their sketches into templates. They had used the software previously for presentations, but not on the construction-document side.

Despite the fact that many Red Bull consumers probably consider the designers over the hill—both Ruff and Frome are thirty-something—Design Laboratories has infused the space with a youthful exuberance.

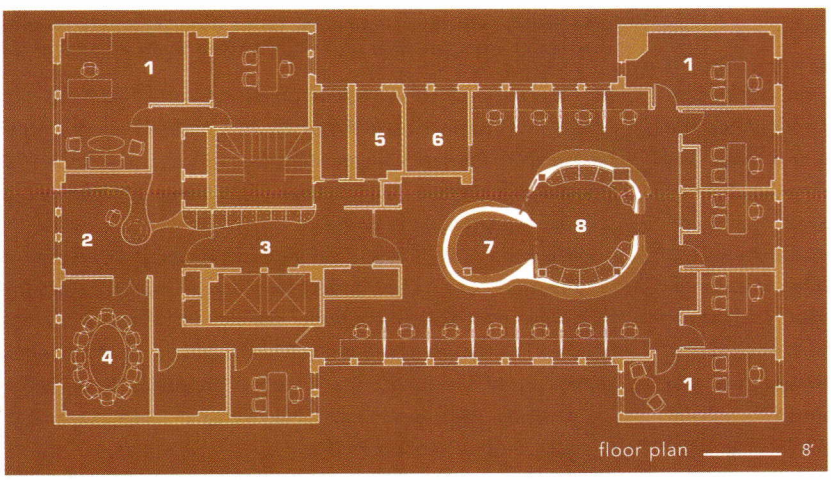


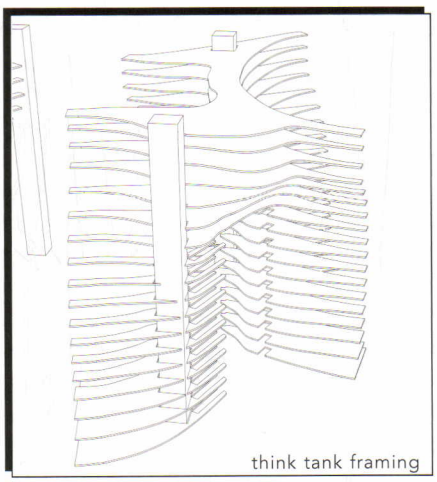




1 office
2 reception
3 entry hall
4 conference room
5 bathroom
6 kitchen
7 interview room
8 think tank

The designers plotted full-scale templates for the "igloo" framing (top right). The contractor built the framing out of 3/4" plywood (above left) and covered it in two-sheets of wet gypsum board, which was plastered and coated with a metallic silver Marbelux paint (above).





Red Bull Regional Headquarters, Hoboken, New Jersey

client | Red Bull **architect, construction manager, lighting designer** | Design Laboratories, New York City—Karen Frome, David Ruff (principals); Tamar Loeb, Geoff Ross, Dan Ruhland, Gary Stolz, Jason Tsay, Takamichi Yoshida (project team) **general contractors** | AJS Construction and Project Management, Diversified Builders Group **area** | 4,800 square feet **cost** | withheld

Photographs by David Joseph

Specifications

divider fabric | Rich-Tone Interiors **divider rods** | Gratz Industries **paints and stains** | Marbelux, Benjamin Moore **epoxy flooring** | Crossfield Products **carpet** | Mohawk Carpeting **vinyl cushions** | Especially 4U custom **desks** | Encore Retail Systems **chairs** | Davis Furniture Industries **interior ambient lighting** | Neo-Ray, Cooper **pendant lighting fixtures** | Artemide

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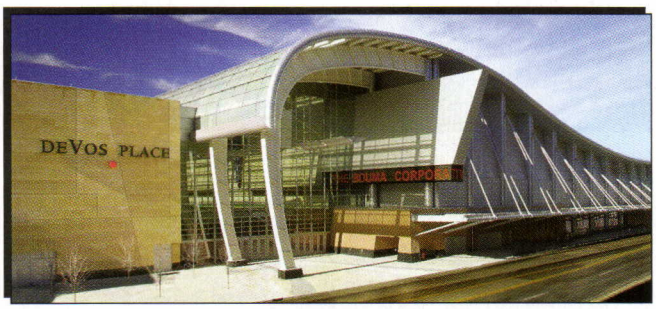
NEXT-WAVE COLLABORATION

A cross-disciplinary alliance (and finite-element analysis) make a splash in Grand Rapids.

by C.C. Sullivan



The convention center's "grand gallery" connects major downtown streets to a riverwalk, and affords occupants views of the waterfront and a historic museum on the opposite bank (above). The huge arches over the gallery create an energy and dynamism along this critical waterfront connector (facing page).

Architects at integrated A/E studios can turn the proximity of allied disciplines into innovative structures—but only if the firms' leaders cultivate a code of mutual appreciation between structural engineers and architects. Critical to success are designers steeped in the cutting edge of each other's fields—and a set of work tools that exploit their collaborative setting. "It's especially important when you're developing **long spans** and working with structural expression," says Scott Jordan-Denny, the design director with Ellerbe Becket on DeVos Place, a sleek convention center with a clean, undulating roof that just opened in Grand Rapids, Michigan. "After sketching to develop the basic idea, you go to the structural engineer and say, 'Can you build this thing? We have this crazy idea.' Those discussions start very early in the process."

His structural partner, Jon B. Iverson, is an ideal sounding board. "I like his openness and willingness to explore more than typical engineers might," says Jordan-Denny, who recently left the firm to join the retailer Target. "He's one of the few who are up on design trends, and he studies the work of [Santiago] Calatrava and others. Jon understands how architecture and engineering can work hand in glove."

Based on the results of "**design-matrix workshops**" conducted by the architect of record for DeVos Place, Grand Rapids–based Progressive AE, the architects sought to create a memorable venue firmly anchored in the local consciousness by emulating the flow of the adjacent Grand River, with its curling waves and eddies that form over geometric steps built into the riverbed. "We knew that it had to reflect the name, with energy and movement," as well as the curve of Alexander Calder's *La Grande Vitesse*, which has embellished city hall since 1969, says Philip Lundwall, director of design for Progressive AE. "So we looked for ways to translate that into sketches and models."

Even more challenging was translating the concept into a cost-effective structural scheme. As conceived, the main entry features a "grand gallery" of 17 swooping ribs—a sort of Calderesque stabile—connecting seamlessly to three long, waving spans over the exhibit hall. To keep the form pure and attractive, **mechanical systems** are tucked inside two massive **box trusses** spanning 360 feet and supporting the entire roof assembly. Between the grand gallery and the exhibition area resides a damlike wall supporting the ribs—an overly literal gesture that ultimately becomes the million-square-foot building's least convincing design element.

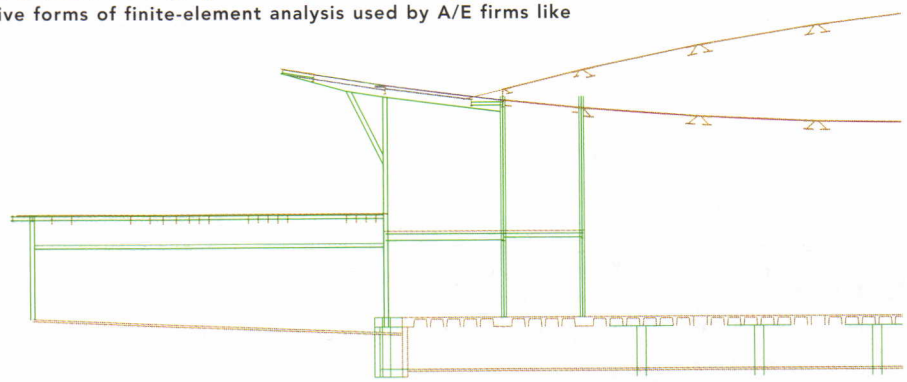
WILLIAM J. HEBERT

VISUALIZING STRUCTURE

According to project leaders at Ellerbe Becket, RISA-3D or similar software is needed on most projects to be competitive from a time standpoint. The program allows designers to quickly and precisely predict the behavior of unusual or complex geometries, which are impractical to model using hand methods. Many of the programs are user-friendly enough for architects to quickly learn and use to size members or determine the buildability of a given scheme. Such an approach could also hasten the handoff between an architect and a consulting structural engineer, say some designers.

While RISA-3D has been used for over a decade, 2-D programs for structural analysis have an even longer history. Before those, primitive forms of finite-element analysis used by A/E firms like Ellerbe Becket in the 1970s relied on million-dollar mainframe computers that were fed data on punch cards.

The latest generation of engineering software allows designers to build what are essentially digital Tinkertoys in 3-D, connecting plates and sticks at nodes to define the proposed structure. The model can then be tested with external loads and conditions to study resulting stresses and determine approximate sizes of individual members.



For more project information and specs, visit www.architecturemag.com.

Using the popular RISA-3D structural-visualization software (see "Visualizing Structure" below), Iverson's team quickly conducted a crude finite-element analysis of four of the **curved steel beam-columns** where they supported the biggest loads. The plate-and-stick models, like digital Tinkertoys, were analyzed under hypothetical wind loads and other stresses to both size the steel members and optimize desired shapes, such as the sleekly tapering lower portions of the ribs. The final scheme connects a bottom chord of curved 10-inch-diameter steel tubes to a top chord of 2-inch-by-24-inch plates with a long, curving 1-inch-thick web plate. The steel supplier used **computer-aided fabrication** to build the four-story-tall, complex radiused web shape in only two sections. Between the ribs run steel tubes at the top that serve as lateral support for the whole system and carry numerous skylights that bathe the gallery with a genial light.

To support the huge, undulating roof that extends to the south from the curved ribs and bearing wall without going over budget, "the curve was located in the top chord of the supertrusses or along varied bearing points in the side of the supertruss," says Progressive AE principal Brian K. Craig. "That way, the east-west members were straight, which kept the majority of elements simple." Still, the trusses run along three different planes, and many of the connections were one-offs, such as the 3-inch-thick **gusset plates** that connect truss "sticks" and the huge pin assemblies at supporting concrete piers. The design team found the 50-foot-tall long-span box trusses to be the project's major challenge, not only because of their structural complexity but also due to their coordination with M/E/P systems and exhibit-hall infrastructure.

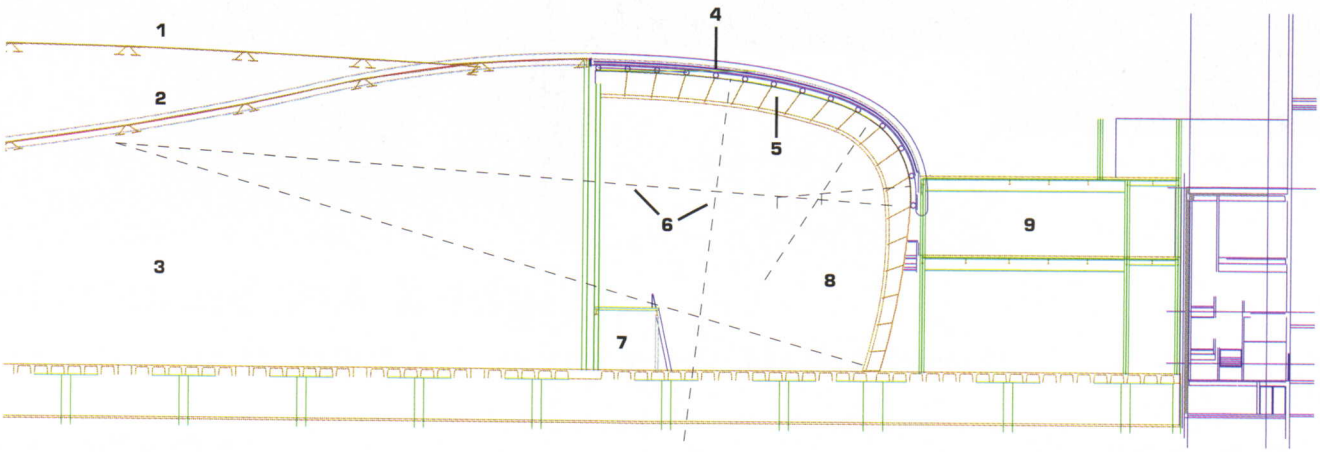
But the box trusses were smoothly resolved, thanks to an Ellerbe Becket veteran drafter with 40 years of very hands-on field experience, Dan Kroening. His pivotal role, say the designers, was the linchpin for effectively and simultaneously communicating architectural intent, structural solution, and multidisciplinary integration.

BRIAN KELLY

DeVos Place, Grand Rapids, Michigan

client | Grand Rapids–Kent County Convention/Arena Authority **prime architect, landscape architect, interior designer, and mechanical engineer** | Progressive AE, Grand Rapids, Michigan—Brian K. Craig, Phillip E. Lundwall, and others (project team) **associate architect, structural engineer, lighting designer** | Ellerbe Becket, Minneapolis—Scott Jordan-Denny, Jon B. Iverson, Mark Ostrom, and others (project team) **consultants** | Kirkegaard & Associates (acoustics); McGuire Associates (ADA); Steelcase (meeting spaces) **construction manager** | Erhardt–Hunt, A Joint Venture **area** | 1 million square feet **cost** | $170 million

1 roofline beyond
2 roof deck with TPO single-ply
3 exhibition hall
4 16-inch steel tubes and skylights
5 curved steel beam-columns
6 radius lines describing curvature
7 skyway
8 grand gallery
9 meeting rooms

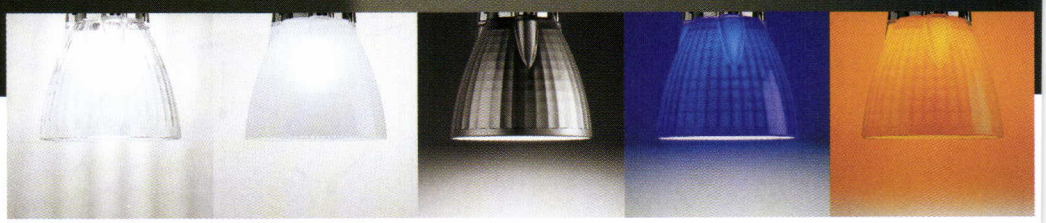


north-south section 18'

[opta]

c UL us LISTED

designer Roberto Fiorato



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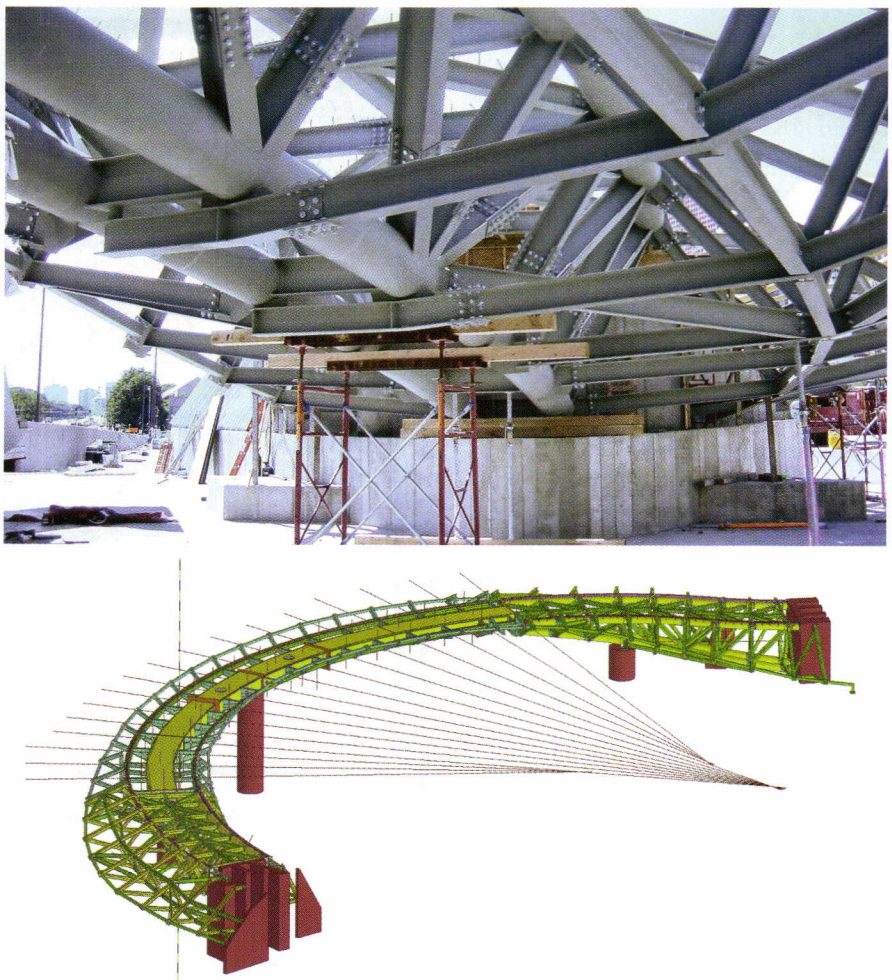
ENGINEERING CHANGE

The industry-wide push for an integrated digital process is yielding results in the world of structural engineering, with more innovation on the horizon.

by Julia Mandell



Mountain Enterprises, a structural-steel detailing and engineering company, used Xsteel to detail the unusual steel structure for Frank Gehry's BP Pedestrian Bridge at the Millenium Park in Chicago, currently under construction (top). Because Xsteel produces a 3-D model (above), the engineers were able to import the architect's CATIA 3-D model into the program as a dxf file and then put the steel members in place on top of the wireframe reference lines. Xsteel's drafting capabilities then allowed the engineers to produce cutting diagrams for CNC files and assembly drawings to be used on site.

CHRIS ROCKEY

As A/E/C software becomes increasingly sophisticated and interoperable, there is more and more discussion among architects about the potential for a streamlined digital-design and construction process. Recently, this vision has advanced in the form of building-information models (BIM), 3-D computer models embedded with information that can be used by all project participants. Architects who are involved in exploring such processes often focus on the transfer of information from architectural models to construction drawings, and the digitization of fabrication and assembly. But what about the integration of engineering information? Some software programs already allow engineers to import 3-D models in and out of architectural CAD software, or to produce detail drawings that can go straight to fabricators.

"The overall cost of the project can be brought down [by these programs], and potential disasters in the field can be avoided," believes Andrew Coates, a structural engineer with Buro Happold's New York City office. Coates and his colleagues use **RAM Structural System**, a suite of structural-design-and-analysis programs that are customized for standard building construction, allowing engineers to build a 3-D model of the entire structure, analyze it, and optimize material choices and structural members. The 3-D design model can then be transferred to **AutoCAD** as dwg files to become the basis for architectural drawings.

Another program, **Xsteel**, does not perform finite-element analysis, but can take a project from concept to shop drawings. "Engineers can use it to do their frame analysis and connection design, and then the contractor can carry on with the connection design and produce shop drawings," explains André Chaszar, another New York City-based structural engineer. Xsteel is one of the most widely used in a group of programs that automate material optimization and detailing. Others include **ProSteel 3D** and **Allplan**, a program for precast concrete.

PARTIAL AUTOMATION

Software programs that automate the entire design and construction process are not yet prevalent, however. For example, RAM works out material sizes and schedules, and includes a finite-element-analysis component, but does not produce construction drawings; Xsteel does not offer any analyses but produces drawings and documentation that can go straight to contractors and fabricators. Just last month the maker of Xsteel, Finnish software developer Tekla, introduced **Structures**, a new program that combines the detailing capabilities of Xsteel with structural design and analysis in an attempt to integrate the entire design and construction process. Structures capitalizes on the localized building-code and standard information for steel construction already embedded in Xsteel and it will soon include similar information for precast concrete. This component is being developed in the United States with the Precast Concrete Software Consortium, a group of 23 precast concrete producers who are working on defining materials specifications for the software.

One issue with the current crop of automated process programs, however—Tekla

Structures included—is that they rely on standard building codes and typical beam and column sizes to simplify the entire process. This means that if you are working on a project that is structurally unconventional, these programs may not be as agile as the design requires. "For things that are pushing the limits in terms of looks or structural integrity, these programs don't work," says Barry Christenson, product manager for **ANSYS**, a maker of a more general structural analysis software that is often used for detailed exploration of experimental structural concepts. Coates agrees: "The software may know what the smallest member needed is, but doesn't necessarily know whether that is the most practical option."

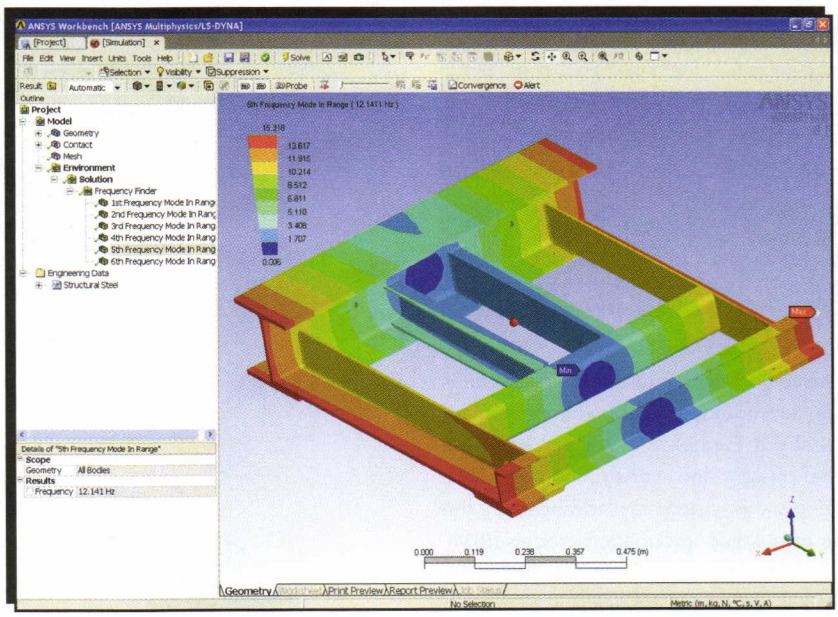
SEARCHING FOR INTEGRATION

But what if a project demands complete integration? What are the possibilities for a digital process that integrates consultant inputs and architectural information early on, but still allows for design and detailing flexibility? ANSYS has recently teamed with **CivilFEM**, a Spanish developer of an application that provides the code and standardized details that ANSYS lacks. The two programs operate together or separately. CivilFEM adds toolbars and options to ANSYS's interface, allowing the user to either employ CivilFEM and rely on automated code checking and detailing or operate ANSYS alone and explore unconventional structural solutions without conforming to CivilFEMs standardization.

A different approach is being tested by Bentley. The parametric 3-D modeling program called **Generative Components** maintains a user-established set of parameters throughout the life of a project. Chaszar is working with Bentley's Robert Aish to explore how to include engineering information in the parameter sets of the program. "That way you can understand the limitations imposed by structural possibilities early on," explains Chaszar.

A complete BIM is still down the road, but the full integration of structural-engineering processes into a single software platform is already available in various guises. While none of them satisfy all requirements, they do make the work of architects and engineers much easier. Which is, after all, what tools are meant to do.

Streamlined Structures



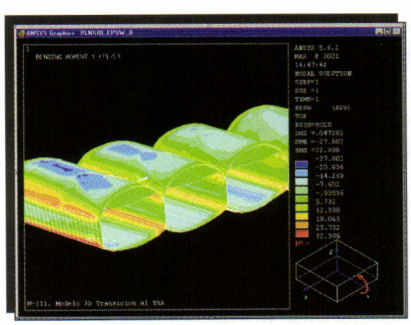
- product: **ANSYS Structural 8.0**
- manufacturer: **ANSYS**
- web: **ansys.com**

This structural simulation software performs a variety of mathematical analyses, and its generalized interface makes it suitable for structures of all kinds, from automobile frames to bridges. This means it works well for unusual building structures, but doesn't have very many architecture-specific attributes. Version 8.0 is part of the ANSYS Simulation Suite that includes ANSYS Mechanical and ANSYS Multiphysics, for combined structural, thermal, CFD, acoustic, and electromagnetic simulation.

- product: **Tekla Structures**
- manufacturer: **Tekla**
- web: **tekla.com**

This suite of engineering softwares integrates structural design, analysis, and the detailing process in a single digital model. The line is broken down into Engineering for design and analysis, Concrete Detailing for precast concrete construction, and Steel Detailing, formerly Xsteel, for steel. The Steel Detailing and Concrete Detailing modules allow engineers to construct 3-D models of structures and then compute the optimal steel and concrete details, respectively. Once members have been chosen and connections detailed, the programs can produce detail drawings, CNC plans, and construction drawings.

- product: **CivilFEM**
- manufacturer: **CivilFEM**
- web: **civilFEM.com**



This finite-element-method software is an "add-on" program to ANSYS, customizing any ANSYS system with industry-specific tools to facilitate material optimization and project drafting.

mineral variations

product: **Nuovi Marmi High-Tech**
manufacturer: **Ariostea**
web: **ariostea.it**

Now that humans have nearly depleted many popular mineral resources, engineered-stone manufacturers are bringing them back to life, sort of. High-tech Cremo Delicato replicates the color and texture of a rare cream-colored Italian marble. Its companion product, Travertine Dorato, mimics a rich, golden-yellow travertine that is also now difficult to find. Both products are available with either a bright polished or prepolished finish, and come in 2-foot-by-1-foot, 1-foot-square, and 16-inch-square panels.

product: **Belgian Java Limestone**
manufacturer: **Ann Sacks**
web: **annsacks.com**

Also capitalizing on the market for ancient and rare stone finishes, this tile is made from antique limestone originally quarried in the 19th century and salvaged from homes along the northeast coast of Java. Available in 20-inch and 24-inch squares, the well-worn stone is embedded with fossils and has a smooth texture and rich patina.

product: **RETRO**
manufacturer: **Innovative Stone**
web: **imtstones.com**

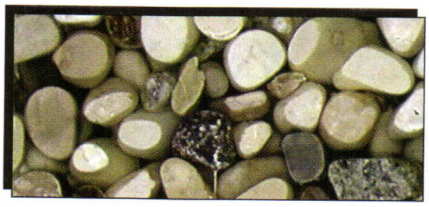
Another "neo-stone," this quartz-based engineered stone comes in 58 colors and is appropriate for a wide range of applications, both commercial and residential, interior and exterior. Available in 4-foot-by-10-foot slabs and 12-inch-, 16-inch-, and 24-inch-square tiles, its density makes it suitable for high-traffic areas.

product: **Zodiaq**
manufacturer: **Dupont**
web: **zodiaq.com**

This engineered quartz-surface line from the makers of Corian can be machined, sand-blasted, and combined with other materials. Like its venerable sister product, it is scratch-, stain-, and heat-resistant, but offers a crystalline luster and the appearance of stone. Available in 14 colors and a variety of shapes and sizes.

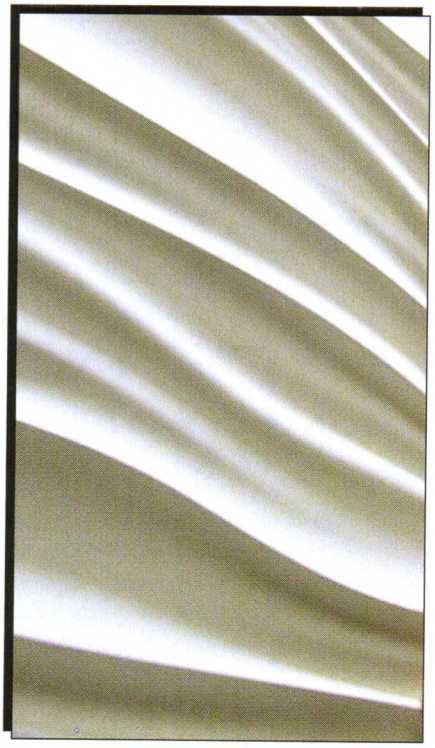
product: **Riverstone**
manufacturer: **Riverstone**
web: **robin-reigi.com**

Made of small marble stones set in resin, this finish material is said to have the same application and maintenance characteristics as Carrera marble. It is available in a range of colors, with white stones in colored resin or colored pebbles in clear resin, and comes in 12-inch-square tiles and 32-by-72-inch slabs.



product: **Fiber-reinforced gypsum**
manufacturer: **Modular Arts**
web: **modulararts.com**

For a surprising variation on a stone finish, consider these fireproof, lightweight panels. Made from the mineral gypsum, the cast panels feel like ceramic but can be cut, drilled, and sanded like wood. Paint adheres well, and they are nontoxic. Available in 14 relief patterns in 32-inch-square panels and for custom installation.

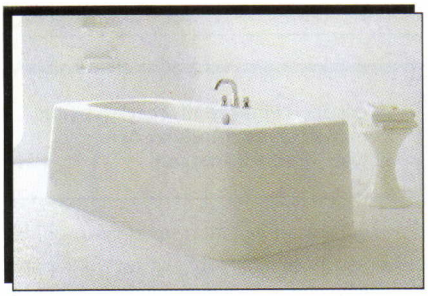


FOR INFORMATION ON MASONRY, CIRCLE 120 ON PAGE 89.

wash and dry

- product: **Marc Newson Collection**
- manufacturer: **Porcher**
- web: **porcher-us.com**

The Marc Newson Collection for Porcher evokes the look of children's Duplo blocks: bricklike but soft. The collection features brilliant white fixtures in simple shapes with rounded corners, and includes a free-standing 6-foot bathtub made from acrylis with fiber-glass reinforcement.



- product: **Purist shower**
- manufacturer: **Kohler**
- web: **kohler.com**

The Purist shower from Kohler is a standard cast-iron receptor with a Burmese teak grill. The waterproof grill elevates the user above the draining water and can be removed from the basin and used as a drying platform. The unit can also be installed outdoors.

- product: **WellCome**
- manufacturer: **Rapsel**
- web: **rapsel.it**

Designed by Matteo Thun, the WellCome toilet and bidet are made of ceramic and are available in white or black. Though simple in appearance, their more unique features are hidden: An optional built-in fragrance dispenser and cassette music player are located in the tank.

FOR INFORMATION ON WASHROOM FIXTURES, CIRCLE 121 ON PAGE 89.

sustainable coatings approach total coverage

There are now literally hundreds of paints, coatings, and sealants that are low in volatile organic compounds, or VOCs, and so claim the mantle of environmental friendliness. The PaintInfo website (www.paintinfo.com), published by the **Master Painters Institute**, rates coatings in three VOC categories: E1 is low, E2 is lower, and E3 is the lowest. (E2 and E3 meet the requirements of many green standards, including the U.S. Green Building Council's LEED rating system.) Yet a low VOC level is not enough to make a coating sustainable: One must also consider the arithmetic of application and durability. For example, a two-coat varnish with 200 grams per liter of VOCs contributes less VOC material than the three-coat varnish with only 150 grams per liter of VOCs. And if the two-coat product lasts longer, it's even better.

The key to coating specifications is to look beyond mere VOC contribution and consider total performance. So here's step one: a sampling of low-VOC products that have earned the E3 rating.

EPOXY Only a few epoxy coatings, all waterborne, rate E3. Hydropox No. 2 from **Griggs Paint** (www.griggspaint.com) is one, as is **Color Wheel**'s Contractor's Choice Clean-Coat Aqua Epoxy (www.colorwheel.com).

ACRYLIC The Old Masters H_2O acrylic varnish from Diamond Vogel (www.vogelpaint.com) and **Spectra-Tone**'s Insl-X Envirocare polyurethane (www.spectra-tone.com) are two alternatives with good gloss and low VOC ratings. A similar formula is offered by **Para Paints** (www.para.com).

LACQUER Low-VOC, water-based lacquers include environmental-sounding names such as EcoLogic from **Cloverdale Paint** (www.cloverdalepaint.com), Enviro+Plus from **Parker Paint** (www.parkerpaint.com), and Aqua-Lac from **Rodda Paint** (www.roddapaint.com).

FLOOR PAINT There are more choices available for high-traffic areas today, including Morwear Floor & Patio from **Smiland Paint** (www.smiland.com), Hydropox No. 2 epoxy from Griggs Paint, and Sierra Performance enamel for concrete from **Columbia Paint** (www.columbiapaint.com).

LATEX For semigloss latex, low-odor formulations include Pristine Eco Spec from **Benjamin Moore** (www.benjaminmoore.com), Columbia Paint's Purecoat Lo Odor, Lifemaster 2000 from **ICI Paints** (www.icipaints.com), and **Sherwin-Williams**'s Harmony line (www.sherwin.com). Competitive offerings include **Duron**'s Genesis Odor-Free (www.duron.com), Diamond Vogel's Health-Kote, and the Signature Low-Odor products from **Hallman Lindsay** (www.hallmanlindsay.com).

Eggshell and satin finishes are available from Cloverdale Paint's Perfor-mance Plus, Enviro-Coat from **Kelly-Moore** (www.kelly-moore.com), Horizon Satin from Rodda, and Z-Coat from **General Paint** (www. generalpaint.com). Flat wall paints include Envirokote from **Frazee Paint** (www.frazeepaint.com), **Miller Paint**'s Acro (www.millerpaint.com), and **PPG**'s Pure Performance (www.ppg.com).

FOR INFORMATION ON PAINTS AND COATINGS, CIRCLE 122 ON PAGE 89.

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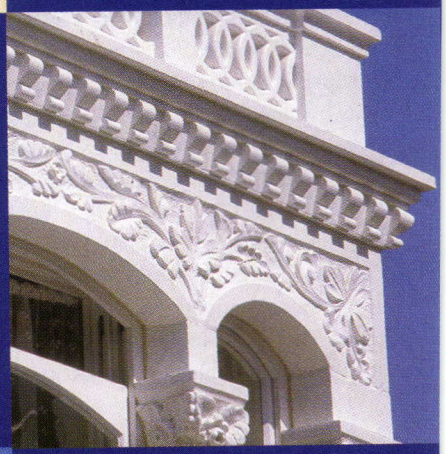

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EXHIBITION

***Jean Prouvé: Three Nomadic Structures* | Arthur Ross Gallery, Columbia University | New York City | Through April 23** *Three Nomadic Structures* pays homage to the French designer and architect who pioneered the use of industrial materials and methods through projects such as prefabricated housing and mass-produced furniture made of sheet metal. The show includes artifacts from three buildings—the Glassmaking School at Croismare (1948), the Tropical House in Niamey (1949), and the Aluminum Centenary Pavilion in Paris (1954)—that have been recently transplanted or will soon be moved, evidencing a current flurry of preservation interest.

While the reverence that curators Robert Rubin and Evan Douglis have for Prouvé is strongly expressed in the exhibition's accompanying text, they wind up overpowering the master's work with the custom display armature in which they have lovingly enshrined it. The construction, made of identical modular panels, is a robin's-egg blue, digitally designed, Dr. Seussian affair and is intended to embody a tectonic logic reflective of Prouvé's—ostensibly applying his ethic of mass production and modular construction to the means of modern technology. Unfortunately, the panels' obtrusive aesthetic, while playful and engaging, distracts viewers from Prouvé's work rather than enhancing it.

Nevertheless, the show provides a rare trove of memorabilia—unrestored furniture, modular architectural elements and building fragments, and mid-century and recent photographs—making it an enticing display for any Prouvé admirer. **Anna Holtzman**

EXHIBITION

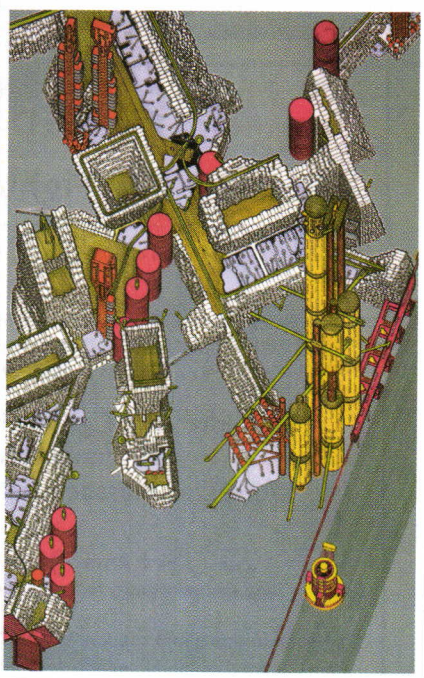
***Harlemworld: Metropolis as Metaphor* | The Studio Museum in Harlem | New York City | Through April 4** *Harlemworld* promises 18 up-and-coming African-American architects' visions of Harlem's past, present, and future. Unfortunately, many of the issues addressed in the show are obscured by overly abstract installations and unintelligible video projections. The most compelling presentation, architect Ronald Norsworthy's theoretical luxury condominium, "Reparation Tower Harlem," comments on the sometimes dubious effects of the neighborhood's gentrification. To get a sense of these, a walk to the Studio Museum along 125th Street speaks for itself: Bodegas and mom-and-pop shops along the district's main thoroughfare gasp for breath between recent arrivals such as Starbucks, Citibank, and a giant, Skidmore, Owings & Merrill-designed shopping complex called "Harlem USA." **Anna Holtzman**

EXHIBITION

***Inhabiting Infrastructure* | Harvard Design School | Cambridge, Massachusetts | Through March 21** A range of international projects from Asia, Africa, Europe, and South America demonstrates the potential of infrastructure to go beyond single functions such as transportation, power generation, or waste management, and to also serve as an integral and occupiable part of the public landscape. **Anna Holtzman**

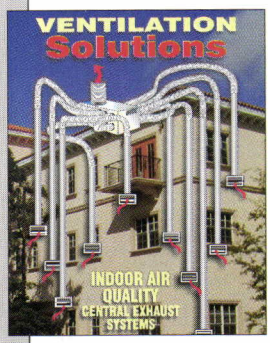
BOOK

***The City, Seen as a Garden of Ideas* | Peter Cook | Monacelli** This is a love letter to the city from Peter Cook, one of the Archigram gang of British architects who in the 1960s and 1970s imagined a world of temporary, moveable, malleable urbanity expressed with a visual and intellectual exuberance not since matched. Cook muses on the characteristics that make cities such appealing laboratories for life's most creative and mundane endeavors, architecture included; he mixes photographic snapshots with many of Archigram's greatest, exquisitely hand-rendered hits such as "Plug-In City," as well as some of his own recent projects. **Abby Bussel**



ARCHITECTURE PRODUCT REVIEW

AMERICAN ALDES VENTILATION CORP.



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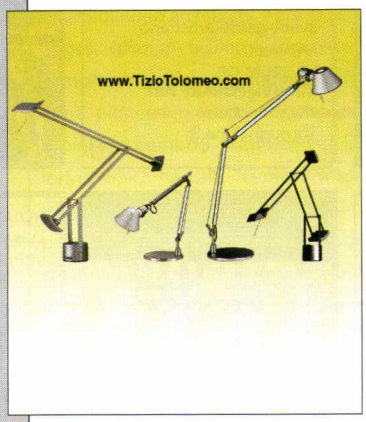
TIZIO AND TOLOMEO



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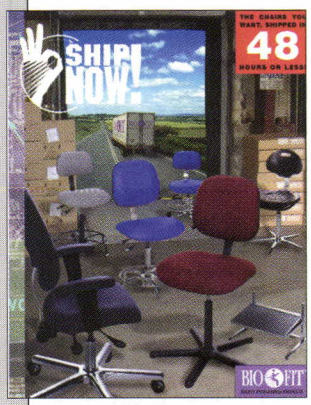

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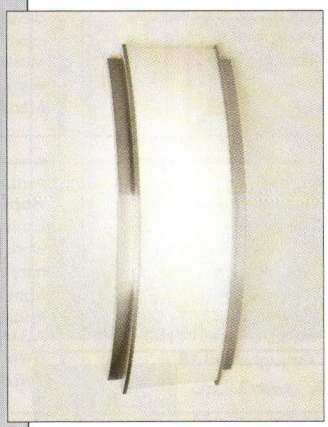
BOYD LIGHTING



The Horizon Wall Sconce, by Do Crosby, mimics the curvature of earth. Utilizing heavy metal st and German lighting glass, resilient and flexible wall sco provides comfortable lighting formance within BOYD'S consis theme: SIMPLY ELEGANT. **Circle 104**

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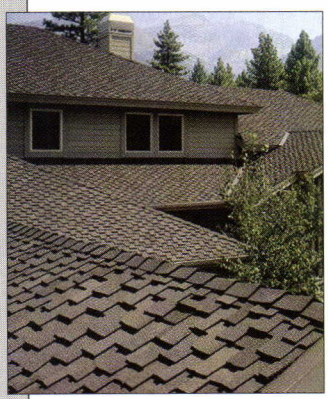

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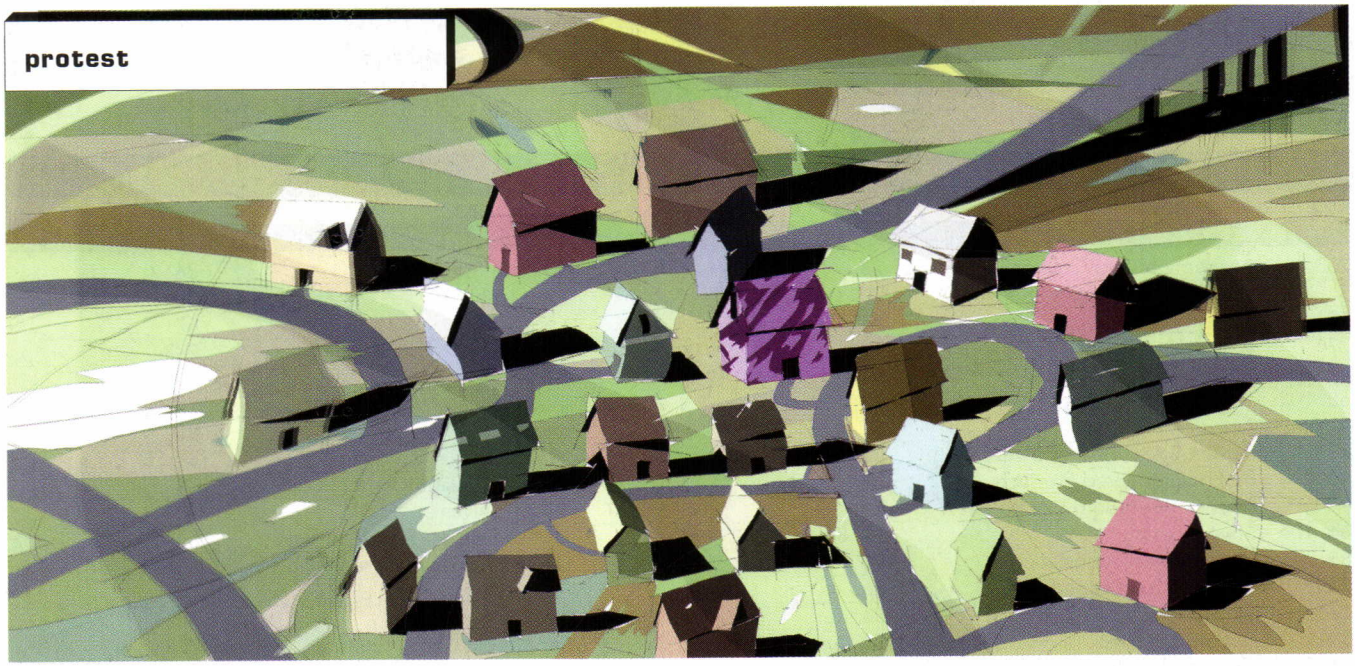

HOMEOWNERS ASSOCIATIONS—ALL 249,000 OF THEM—ARE OUT OF CONTROL. THEIR DESIGN GUIDELINES NEEDLESSLY HOMOGENIZE OUR NEIGHBORHOODS—AND OUR NEIGHBORS.

by Lawrence W. Cheek

I live in a vast and meticulously planned community east of downtown Seattle that purports to be an Eden for kids. The public schools in the neighborhood have a good enough reputation to have ballooned our property values beyond all logic. Our streets are crime-free, aside from the occasional petty vandalism. There are ample swatches of forest to provide a facsimile of wilderness. And there is enough ethnic diversity for at least a taste of the American cultural bouillabaisse.

What's missing? Treehouses. A postmodern pergola to poke some fun at the halfhearted neo-Victorian pose of the houses. A joker face painted on a garage door. A riot of ornamentation, colors, additions, and outdoor art that would not only jazz up the neighborhood but also exhibit the individuality and imagination that supposedly distinguishes us as Americans.

None of these, however, would be allowed. As in most developer-driven neighborhoods, we are governed by a homeowners association—or more specifically, its architectural control committee—that approves or denies new construction, remodeling projects, and exterior colors. Although the palette was liberalized two years ago to include more hues, not many homeowners have taken advantage. We're still awaiting the first flamingo-and-eggplant paint job and the first expression of any architectural eccentricity.

The obvious effect of such controls is a numbing blandness and conformity: 3,000 anonymous housing units with negligible variations in style and mood. Among the more insidious and far-reaching consequences is the message sent to children growing up in this environment. Philip Langdon articulated it in his 1995 *A Better Place To Live*, an incisive critique of suburbia: "Children learn by watching adults. When they see the adults being told what color to paint their house, which tones of basketball backboards to buy, and where not to plant a garden, children can hardly avoid concluding that the scope of individual action in contemporary America is narrow indeed."

COMMAND AND CONTROL

Why are we granting powers to homeowners associations that we wouldn't dream of ceding to a city council, state legislature, or Congress? The cliché is that people vote with their pocketbooks, and associations insist that their rules preserve property values. This may be true as far as maintenance issues are concerned; the whole community suffers if someone's house starts to resemble Dogpatch.

But almost invariably the associations also fold in provisions governing style, materials, colors, and site use. (Celebration, Disney's eight-year-old New Urbanist development near Orlando, Florida, even dictates the colors of residents' drapes.) Homeowners associations vigorously enforce design guidelines because their lawyers warn that if they let minor offenses pass, the code becomes legally unenforceable. Besides, there's always a retired colonel in the neighborhood itching to keep everybody in line. Lawsuits abound, frequently over absurd violations such as flagpoles. Backlashes erupt, and then sputter. One Seattle-area man spent $68,000 in lawyers' fees fighting his neighborhood association over his house's paint job, and lost.

Most people, however, tolerate the restrictions, because while they say they cherish the ideal of untrammeled individuality, they're also frightened by it. Visual conformity conveniently masks the eccentricities that might dwell behind the drapes. Insofar as environment shapes character, neighborhoods like mine tend to dull the sharp edges of contrarian personalities. I suspect that's why nobody is pushing the envelope of exterior color: An implied social contract of conformity lingers even in the wake of relaxed rules.

In the forest of thorny problems entangling the country, boring suburban neighborhoods rank nowhere near the top—particularly since many can be shown, by measurable indicators such as school test scores and property values, to be working rather well. But 80 percent of new housing in America is being built with homeowners associations; there are now more than 249,000 of these quasigovernmental groups. A substantial percentage of the next generation of architects will have grown up in these neighborhoods. They may be able to change some attitudes from the inside; let us hope they're mad enough to try.

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