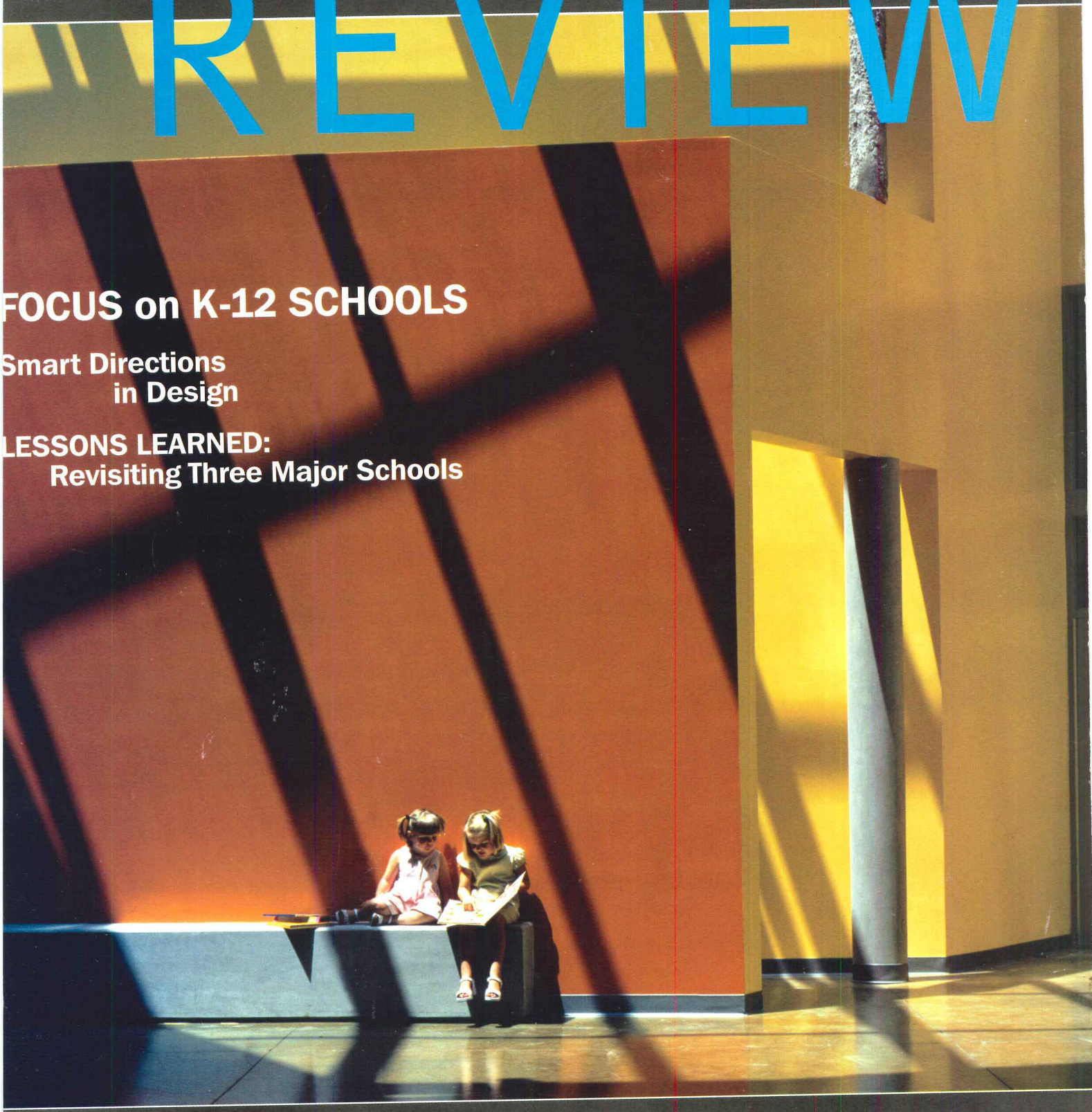
ARCHITECTURAL RECORD REVIEW



FOCUS on K-12 SCHOOLS

Smart Directions in Design

LESSONS LEARNED: Revisiting Three Major Schools

A SUPPLEMENT TO ARCHITECTURAL RECORD

Oceanside High School, C
LR Design Associates

So Much to Do With So Little

DESPITE THE NEED FOR NEW AND REFURBISHED SCHOOLS, SCHOOL CONSTRUCTION BUDGETS REMAIN TIGHT AND ARCHITECTS ARE DOING MORE WITH LESS

by Jayne Merkel

Increasing enrollments and decreasing resources are motivating architects to tailor schools to their sites, house community functions, accommodate diverse student bodies, incorporate new technology, and even invent new kinds of places to learn. And a surprising number of architects are working on schools today. According to the AIA 2000-2002 Firm Survey, billings for K-12 schools, which comprised 11.3 percent of total billings, were second only to those for office buildings (at 14.5 percent). There is more money being spent on schools today than ever before.

According to a recent McGraw-Hill Construction Dodge's "Special Sector Study: The New Heights of Education Construction," by Richard Branch and Kim Kennedy: "Education construction contracts reached an all-time high of $44.4 billion in 2001, and the amount of square footage that broke ground rose to a record-breaking 274 million square feet (msf). Last year, the square footage record remained intact as starts slipped to 255 msf, while the value of contracts dipped slightly to $42.1 billion as costs continued to escalate. Over the next several years, modest declines will transpire as state and local governments recover from the recent recession—but activity will remain quite high by historical standards....The last time education construction saw such strong levels of activity was during the early 1960s when the huge post-war baby boom generation was entering the nation's schools....Due to the lower construction costs of the 1960s, however, the value of construction contracts was just $5.2 billion that year, less than 12 percent of 2001 contract value."

School construction is needed now because the children of the postwar baby boomers are reaching school age, immigration remains high and many immigrants have large families, population has shifted from the northeast and midwest to the south and west, and a lot of growth is taking place in exurban areas where there are no schools. Deferred maintenance and the aging of shoddily built postwar schools also play a part, as do new studies of how people learn and how the places where learning takes place affect performance.

No more one-size-fits-all

Because research has shown that different people learn in different ways, and school communities today are more diverse than they were in the past, and also because communities want their schools to reflect their locations, we've come full circle from the days when plain, functionalist boxes assumed identical form from Maine to California, with the same clean, characterless quarters for all students everywhere.

"We built high schools bigger and bigger for curricula that were thought through by university presidents who wanted to be sure that a consistent product showed up at their doors," explains Thomas Blurock, AIA, of Thomas Blurock Architects in Costa Mesa, California, who is chairman of the AIA Committee on Architecture for Education. Blurock, who like his father before him specializes in school design, believes size—of schools, of classrooms, of learning spaces—is the most significant issue in school design today. Big schools were fine for a mass-produced model of education, Blurock says, school boards loved them, and they were cheaper too—or so people thought; now even that has been called into question.

Recent studies show that size matters, as Mark Schneider documents in a survey of research titled, "Do School Facilities Affect Academic

Skylights and glass-lined "classroom streets" create a sense of community at Pueblo Elementary School in Pomona, California, designed by Thomas Blurock Architects.

Outcome?" published by the National Clearinghouse for Educational Facilities and available at www.edfacilities.org.

"The smaller the better; the more autonomous the better. The more contact the kids have with an adult who knows them, the better an education they get," Blurock explains.

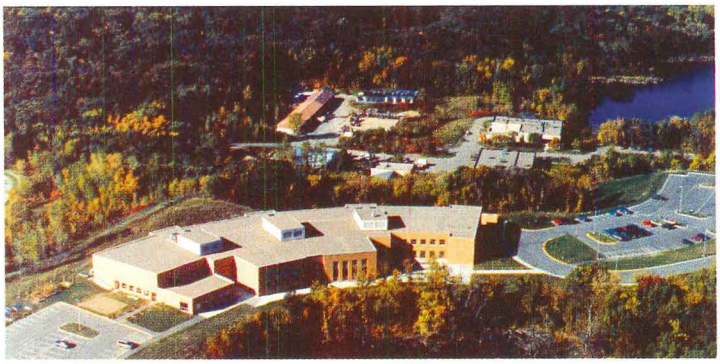
Educators today tend to agree. The benefits of small schools are better documented than those of small classes, yet a reduction in class size, rather than in school size, has been embraced by both the Clinton and Bush administrations. School boards and taxpayers respond to research that shows that air quality, daylight, and acoustics affect student achievement. We know sustainability is also important, but it can be a hard sell. However, Randall Fielding, AIA, the editor of *DesignShare* in Minneapolis (The International Forum for Innovative Schools at www.designshare.com), says that calling environmentally sustainable schools "high-performance buildings" sometimes helps. The term suggests that students will perform better in them, as specialists in the field believe they will, though by "performance" educators usually mean more than simply test scores—they're talking about an environment that stimulates curiosity, encourages social interaction, and provides choices.

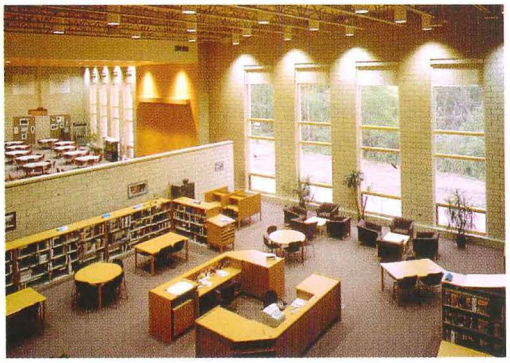
Politics pervades every aspect of school building. No other building type is so directly affected by political decisions made at federal, state, and local levels. And since schools provide so much work for arch tects, the profession (to say nothing of the welfare of the children America) is subject to shifting political winds.

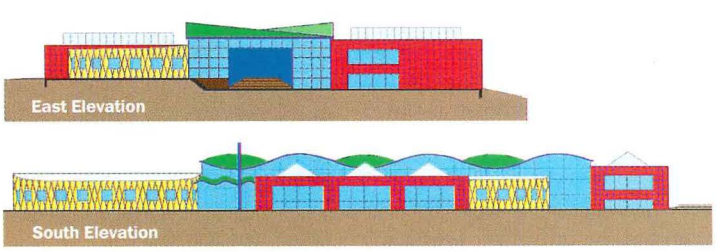
Schools for communities

Schools are designed with the active participation of local elected scho boards, and in many communities, saving money is considered as impo tant as creating good places to learn. School architects tell horror stori about politicians who display shoddy materials with pride. If it doesn look cheap, "taxpayer groups accuse them of building a 'Taj Mahal'," say James E. LaPosta, Jr., AIA, of Jeter, Cook & Jepson Architects in Hartfor Connecticut. "The bar has been lowered over the years from the ear 20th century when they felt, 'Let's build symbols of the community wit the best materials.' Today they usually just do the minimum necessary t accommodate growth."

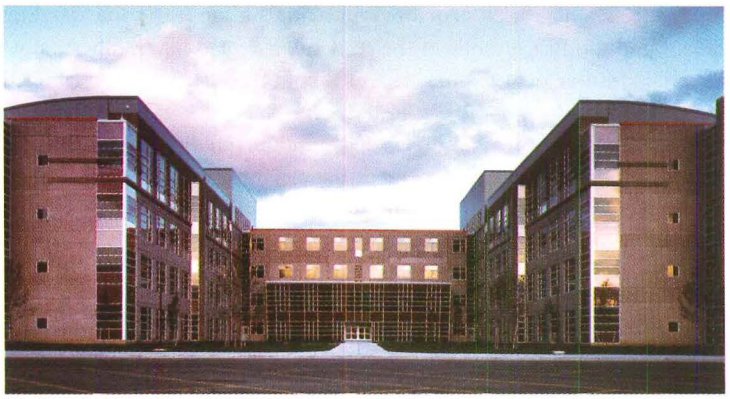
He finds that taking school board members on tours of suc cessful schools, though, can change their minds. When they see a goo school—natural light, solid materials, an uplifting atmosphere—they ar more apt to realize that the cheapest way is not always the best. (They ma not immediately realize that it isn't even cheaper since lowered mainte nance costs can make durable materials a sound investment.)







Bruce A. Jilk has designed several schools in the U.S. and abroad, most of which favor educational concepts focusing on nontraditional, creative, and open classroom environments. Pictured are Hienavaara Elementary in Kiihtelysvaara, Finland (top two); the School of Environmental Studies (called the "Zoo" school) in Apple Valley, Minnesota (middle two); and Ingunnarskoli in Reykjavik, Iceland (bottom two).



lier worked closely with a private financing entity under an innovative lease-rchase arrangemant that provided the new Niagara Falls High School building the district without an increase to local taxes.

The active participation of school boards, city planners, parents, nd other citizens can also be a boon to school builders. Many of today's chools are being designed as integral components of communities, not xactly in the way they were in the early 20th century when school buildings vere likely to be the grandest, proudest structures around, but in various vays that may transform neighborhoods, connect what goes on in the lassroom to the world outside, and even lead to new funding mechanisms.

A well-equipped new high school, designed by the Hillier Group, was recently built in economically depressed Niagara Falls, New York, with money from an unusual public-private partnership. The Honeywell Corporation built the Niagara Falls High School with $83 million raised through J.P. Morgan and then leased the building back to the city with certificates of participation similar to government bonds. Now other communities, especially in New York State where recent legislation facilitates such arrangements, are following suit. And Hillier is doing a study of all the schools and educational programs in Buffalo, where there have been dramatic population shifts, to see how they might best meet the needs of each neighborhood and the system as a whole. The entire local share of the 10-year, $1 billion program of district-wide renewal and restructuring for all 83 schools in the Buffalo school district is to be privately funded.

"We are currently establishing design guidelines for basics such as classroom size, plumbing fixtures, and security systems, but also for responses to Buffalo's architectural heritage, adaptive reuse, materials, scale and massing, neighborhood character, open space, and so on, with specific reference to the work of Olmsted, Wright, Richardson, Sullivan,

WHERE THE LAW ALLOWS, COMMUNITIES AND CORPORATIONS ARE BUILDING SCHOOLS USING PUBLIC-PRIVATE PARTNERSHIPS

and others," explains Hillier's David N. Hingston, AIA. They are even considering turning several of the H. H. Richardson Psychiatric Center's buildings into schools.

Concern for a sense of place is paramount in school building today. All of the projects discussed in the upcoming pages responded directly to their locales. The Jean Parker School in San Francisco replaced a landmark building in the Chinatown neighborhood that was damaged beyond repair by a 1989 earthquake. The architects salvaged the entry arch, columns, and other details, while creating a new building that maximizes the potential of its small urban site. Little Village Academy, an "overflow" school in a Mexican-American Chicago neighborhood, com-

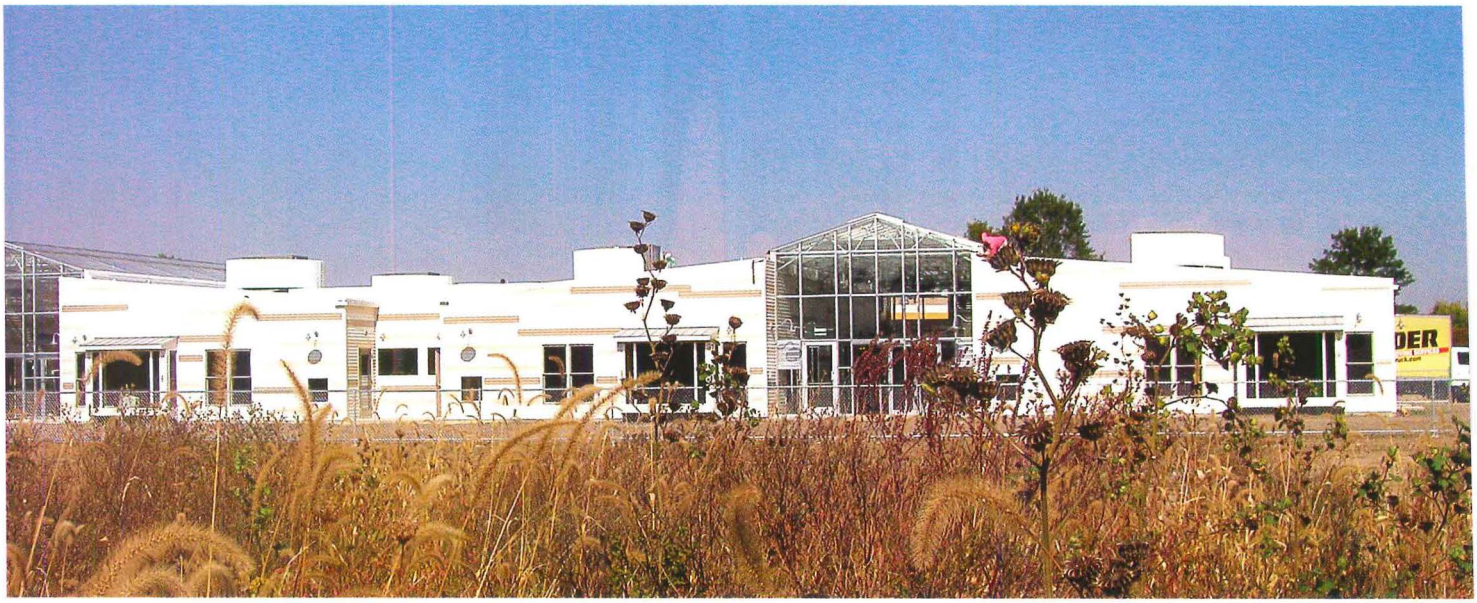
bines a rectangular brick structure typical in Chicago with some dazzling details and motifs symbolic of the students' heritage. The Wilbert Snow School in Middletown, Connecticut, was built with parts of an outmoded 1950s-Modern campus-plan school in a lush city park in a way that preserved the park, brought nature visually into the building, and reused the auditorium, gymnasium, and one of the original classroom pods. In all three cases, members of the communities worked with the architects to help them create indigenous buildings.

Today the trend is to take community involvement to the next level. Tom Blurock has been working with the Pomona Unified School District in East Los Angeles, where they transformed an almost-defunct shopping center into two schools that comprise the Pueblo Educational Village. The district brought in its consolidated child-care services, teacher training programs, a curriculum center for Visual and Performing Arts, and adult education associated with a local community college. There was still a little retail when they began. A movie theater and Sav-On drugstore moved in. Swap meet stalls grew up. And the old big box retail space, which they bought for almost nothing, became a "village" suitable for "project-based education," with children solving real problems in groups. Now the underprivileged, overcrowded district is planning to create two more "villages" around schools in existing buildings, partly to attract development. The district is even planning to build housing help recruit teachers.

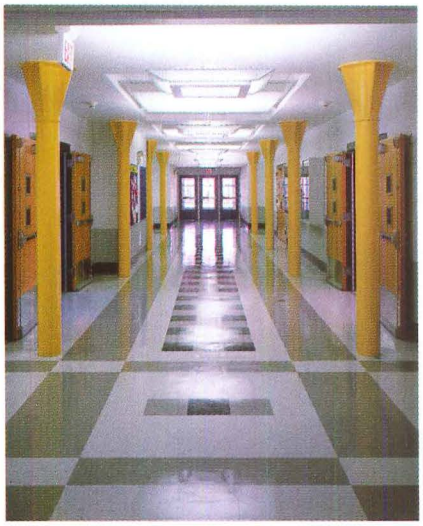
Carol Ross Barney, FAIA, the architect of Little Village Acade just finished a Laboratory School for infants through the third grade Governors State University, 40 miles south of Chicago. It is located on edge of the two-year senior college, where it can mediate between town a gown. Its four "learning pods" are connected by greenhouses, which prov climate control and lessons in environmental science. Jim LaPosta, of Je Cook & Jepson Architects in Hartford, Connecticut, who designed Wilb Snow School, is integrating an intermediate (grades 5 and 6) and mid (grades 7 and 8) school in Killingworth, Connecticut, into a dramatic s that cascades down a hill: "Think Tibetan monastery." And he's designin magnet school around a planetarium in East Hartford on the site of an Pratt and Whitney factory where a new technology park is planned.

More and more, building sites are becoming parts of instru tional programs as well as community assets. Auditoriums hou theater groups and neighborhood meetings. Athletic fields and gymna ums are shared by neighbors and schoolchildren.

Some architects complain that there are too few good sites ava able today. Others make creative use out of "bad" ones. Some think or new buildings can create suitable "flexible learning environments," a



The Governors State University Charter School Child Development Center, by Ross Barney + Jankowski, houses a number of programs for the university and surrounding community, such as an early childhood education training facility, a K-4 charter school, and facilities for a community parenting program.



omas Alcorn Elementary School in Enfield, Connecticut (above), was originally a high school. The town overwhelmingly voted in favor of the adaptive reuse of the ilding. The villagelike atmosphere of West Woods Upper Elementary School (below) mirrors the character of the town. Both by Jeter, Cook & Jepson Architects.

ere are studies that correlate newer buildings with student achievement, pecially for low-income students.

lany ways to learn

chools are the most researched building type. An enormous body of ducational research impacts school design, and today that research vors what is called "individually guided education" or "personalized arning" based on Harvard Education Professor Howard Gardner's con-ept of "multiple intelligences" (discussed in his books *Frames of Mind: he Theory of Multiple Intelligences*, *Multiple Intelligences: The Theory in ractice*, and *Intelligence Reframed*). The idea is that children learn in var-ous ways—some by listening, some by reading or quiet study, others rough music, art, or physical activity.

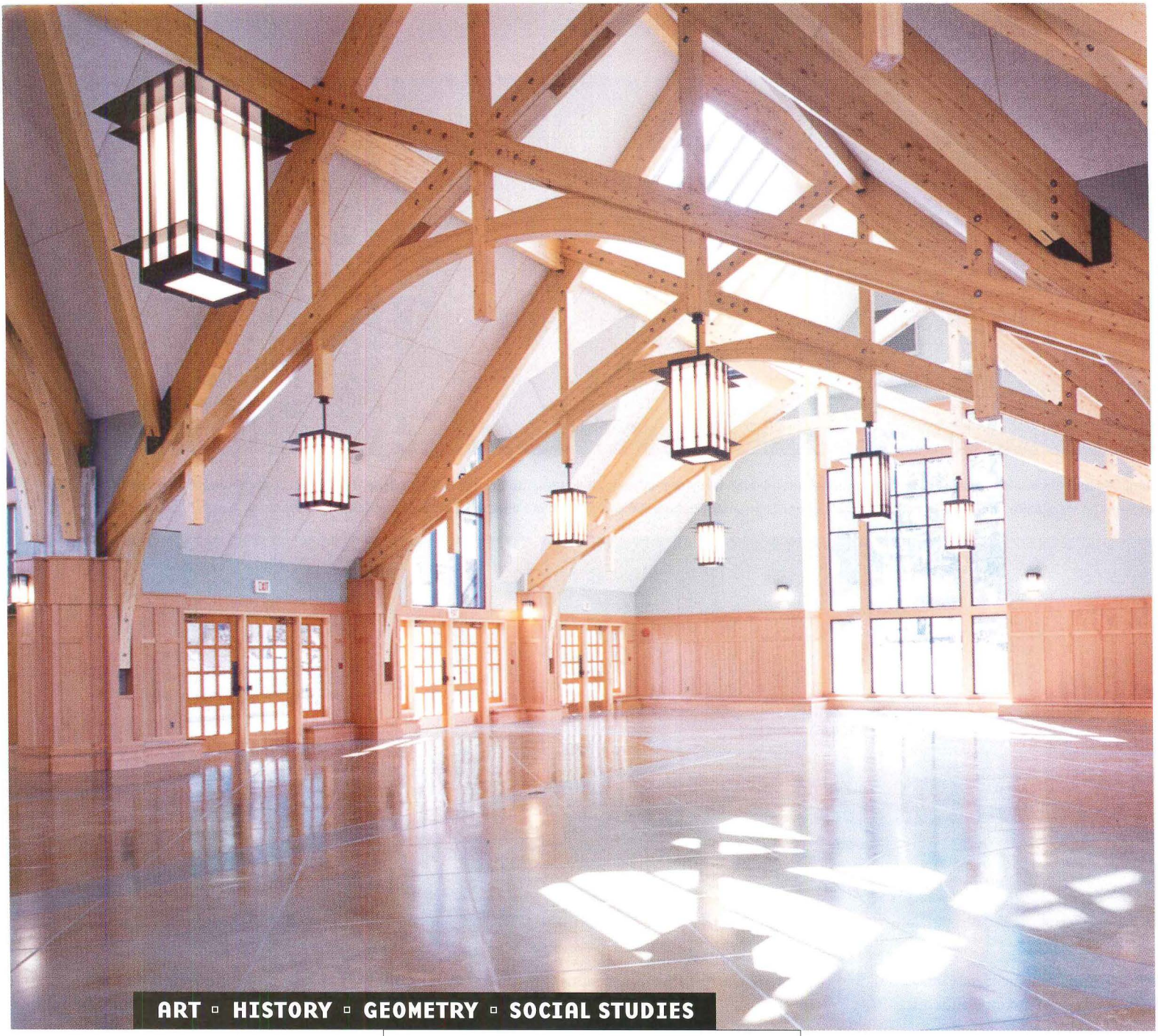
"Just as we have different kinds of intelligence, we have different cles of the day for different kinds of activities: making (learning by oing), collaborative activity (talking over coffee, sharing ideas), and indi-idual focused time," Randall Fielding explains. "For each one you need a ifferent kind of space." It can, of course, be built anew or carved out of xisting buildings, as Fielding himself is doing at the High School for the ecording Arts ("Hip Hop High") in St. Paul.

Some school designers argue that only new school buildings can meet modern needs, because of new educational philosophies, computer technology, accessibility legislation, and contemporary standards of air quality, daylighting, and acoustics. And many new schools are being built in newly developed exurban areas where there isn't anything but open land. But in built-up and urban areas, reuse of existing buildings may make sense. Developing a master plan for the city of New Haven, LaPosta found that people in every neighborhood were suspicious of new schools. They wanted to preserve and remodel existing

IN BUILT-UP AND URBAN AREAS, WHERE LAND IS USUALLY SCARCE, THE REUSE OF BUILDINGS MAKES SENSE

schools that were important neighborhood anchors. He notes that preservation makes more sense in a city with a lot of historic building stock, and research on the subject supports that view.

"Building age is an amorphous concept and should not in itself be used as an indicator of a facility's impact on student performance. Many schools built as civic monuments in the 1920s and 1930s still provide, with some modernization, excellent learning environments; many newer schools, built in the cost-conscious 1960s and 1970s, do not,"



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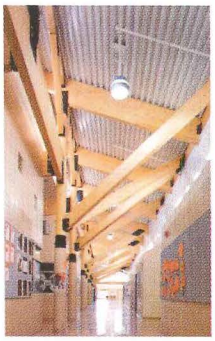
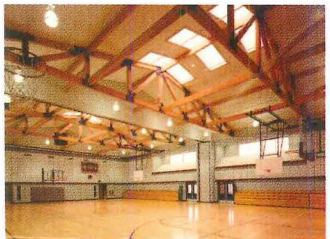
GLULAM ACES FOUR DISCIPLINES





▫ Thanks in large measure to the use of glulam, the architects achieved a perfect grade on this school project – a modern twist on the Old English dining hall. For sheer artistic expression and design flexibility, nothing can match the warmth and beauty of wood. To address the long-span conditions typical of school common areas, the designers chose glulam trusses – modern materials in an historical context. From Old English dining halls, to thoroughly modern gymnasiums, cafeterias and more, glued laminated timbers receive high marks for long spans, style and design flexibility. For more inspiration, see our portfolio of applications in school construction at www.glulambeams.org

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nith Middle School in Glastonbury, Connecticut, by Jeter, Cook & Jepson, was designed to support the creation of small learning communities. Teams of 110 120 students and five teachers share clearly defined classroom clusters. The school's state-of-the-art gymnasium is pictured below.

chneider's survey of educational facilities research concludes.

Sometimes fairly radical changes are made, as in Enfield, onnecticut, where LaPosta transformed a three-story high school into n elementary school. Peter Gisolfi Associates not only upgraded but estored Scarsdale High School in Westchester County, New York, to its ormer grandeur, removing dropped ceilings, partitions, and other nnecessary modern intrusions. Naturally, hazardous materials have to be emoved from old school buildings, additional wiring has to be added for omputers, and new lighting has to be installed, but there is usually a vari- y of spaces possessing high ceilings, natural light, and operable windows nat lend themselves to adaptation for contemporary needs. If dot.com nd biotech employees can work in old lofts, kindergartners with com- uters ought to be able to—when suitable buildings exist in the right ocations. What is most important is flexibility; because both technology nd teaching methods are constantly changing, schools need to have daptable spaces.

he sustainable architecture agenda

eusing old buildings is the ultimate act of sustainability, as it recycles naterials, labor, land, and energy. Designing with concern for the envi- onment is a major goal of many school architects today. The head of the Educational Facilities Consulting Group at Perkins & Will in Chicago, Raymond C. Bordwell, AIA, says, "it's just something that we do," noting that there are "six aspects of sustainable design that we address in every project, many of which have a direct impact on student performance: reductions in energy cost, daylighting, improving indoor air quality, maximizing landscape and site design, conserving natural resources, and using sustainability as a teaching tool." In the last instance, the school itself can be a teaching tool, as is his firm's Bartholomew Central Middle School in Columbus, Indiana. The form and siting of the school was designed to optimize daylighting. Wind towers on the roof exhaust air, and louvers at the base of the tower's spine allow natural air to circulate for cooling and ventilation. And the school is surrounded by a "learning landscape" of tall native prairie grasses irrigated by a riverlike water circulation system that recycles runoff from nearby parking lots.

ARCHITECTS ARE INCORPORATING DAYLIGHT AND NATURAL COOLING AS ENVIRONMENTAL AWARENESS BECOMES A PRIORITY

Fielding, who also makes environmental awareness a priority, notes that "when we daylight a school we save money on electricity. We

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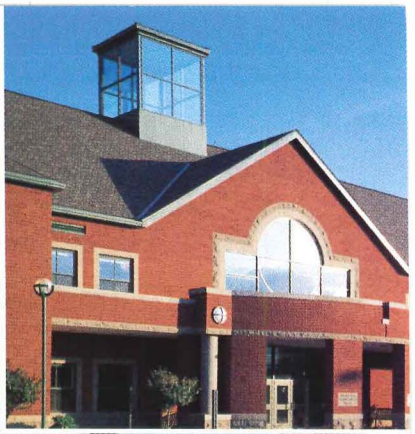

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so use waterless urinals, gray water (from sinks and showers) to water hletic fields, rainwater catchment, subsurface irrigation (hoses with lots little holes underground), and triple-glazed windows (so we don't have bring heat to the edges of a room). Sharing facilities with the community is ecological too—in several senses. If neighbors use the gym as a ealth club, high school students can work there. When a school library ecomes the town library, student employees are good at providing technical support with computers."

Schools today—and in the future—are likely to provide services nknown in the past, such as day care for infants, preschools, after-school ctivities for children of working parents, and more elaborate food and nedical services.

Environmental awareness makes the choice of materials complicated because the architect also has to consider the energy involved in nitially creating a material, building with it, and maintenance costs. uildings where maintenance has been deferred are likely to have short ves, whereas durable, easy-to-maintain materials save both time and noney, though they may be more expensive up-front.

Expenditures are likely to be closely monitored, as today's school uilding boom was fueled by the economic expansion of the 1990s. Many rojects are already underway or fully funded, but "the last three months f 2002 witnessed a precipitous decline in activity as the full scope of the iscal crisis that exists in many states came to light," according to the McGraw-Hill Dodge study, and several architects report that they have projects that are now on hold.

Still, the need is great. Population shifts have left some schools grossly overcrowded and others almost empty. Many existing schools are substandard and unsuitable for self-directed and small group learning. And despite the wealth of research and electronic technology at their disposal, teachers today need all the help they can get from their physical surroundings. In some communities, there are children who speak a dozen different languages and have a variety of special needs. Partly because we are aware of the potential for vastly improved education, the challenge for school architects today is in some ways greater than ever. ■

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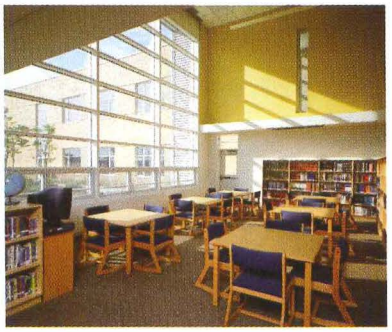
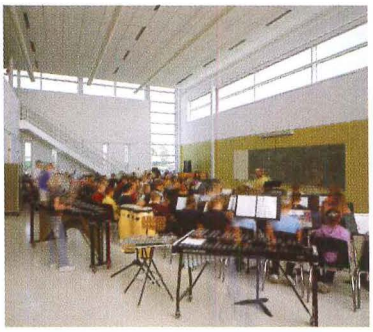
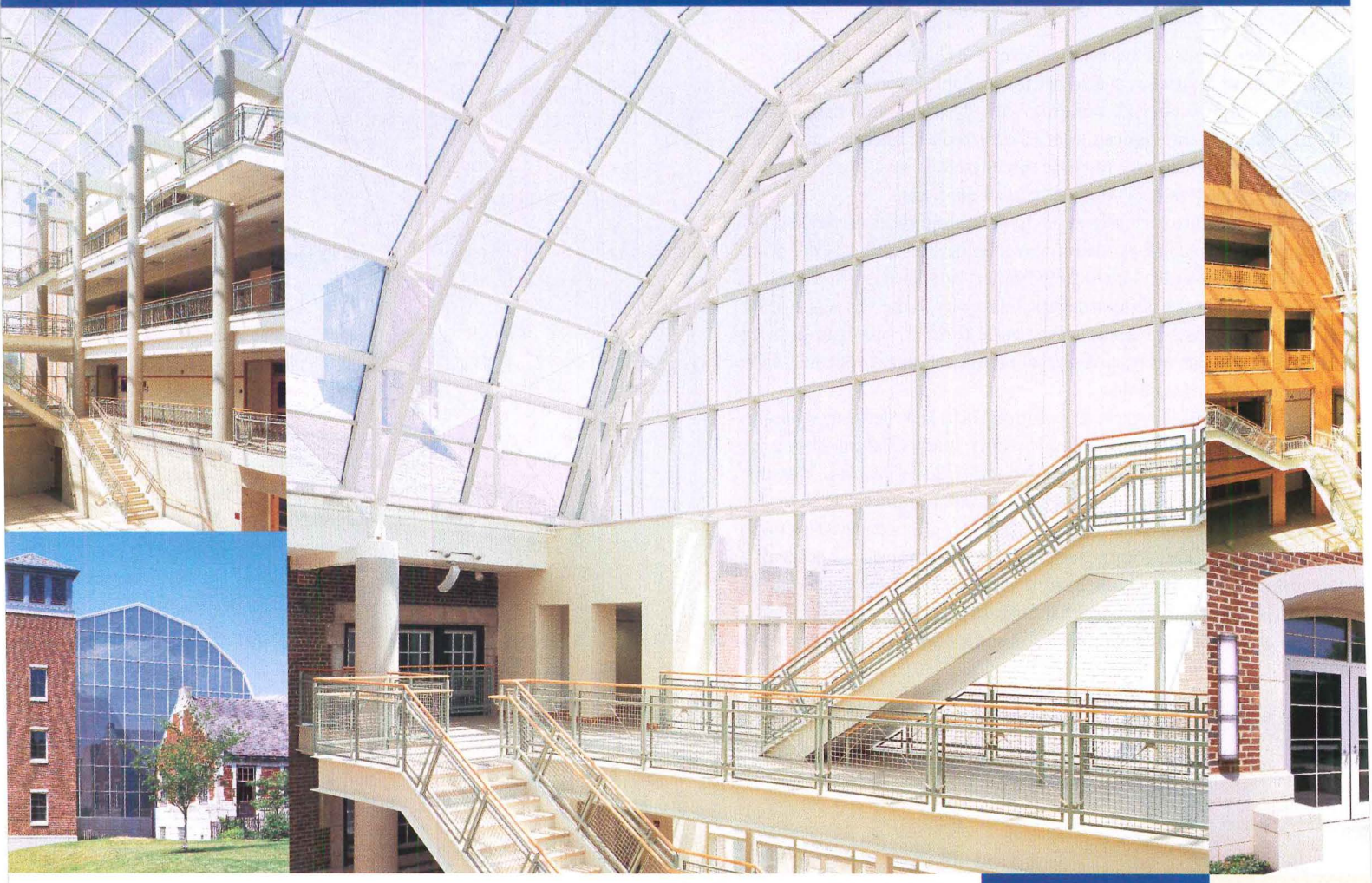




Perkins & Will designed Cary Junior High School, in Cary, Illinois (top three photos), to provide identity to each grade level and break down the student population into smaller, more intimate groups. The firm's design for Bartholemew County Central Middle School, in Columbus, Indiana (renderings), calls for academic wings designed to support team teaching and academic houses, while sharing direct access to dedicated science and technology areas.

In a Class all its Own

How to build a school that's cool



van Dijk Pace Westlake & Partners/Graham Gund Architects

Hathaway Brown School in Shaker Heights, Ohio, is a school that does more than merely house students; it inspires them.

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Learning Curve

TIMES ARE TOUGHER THAN EVER FOR SCHOOLS, KIDS, TEACHERS, AND TAXPAYERS. THE BRIGHT SIDE OF THE SITUATION IS THAT WHEN THE GOING GETS TOUGH, ARCHITECTS ARE AT THEIR CREATIVE BEST.

By Jayne Merkel

1. Little Village Academy, Chicago, Illinois
Ross Barney + Jankowski Architects

Burgeoning numbers of school-age children, along with a backlog of deferred building and maintenance have brought school construction almost to an all time high, while public coffers are nearly depleted. Still, architects are managing to design school buildings geared to new teaching philosophies and technology—and get them built, often with exciting results. Sometimes they are employing funding mechanisms developed with public/private partnerships. At least one school district is even using the need to build new schools as a development strategy. Throughout America schools are being built with increasing levels of community involvement, and in many cases, like the ones reviewed here, schools and their grounds are being used by neighbors as well as students. This *Architectural Record Review*, like its predecessors, revisits three previously published projects—Little Village Academy in Chicago, Wilbert Snow Elementary School in Middletown, Conn., and Jean Parker Elementary School in San Francisco—and reports on how they have affected the people who use them and what we can learn from the lessons they teach. ■

2. Wilbert Snow School, Middletown, Connecticut
Jeter, Cook & Jepson Architects

3. Jean Parker School, San Francisco, California
Kwan Henmi Architecture and Planning

Little Village Academy
Chicago, Illinois

1997

ROSS BARNEY+JANKOWSKI DESIGNED AN ELEMENTARY SCHOOL WITH A CIVIC PROFILE IN A HISPANIC NEIGHBORHOOD AND ON A TIGHT BUDGET.

by Clifford Pearson

Project: *Little Village Academy Chicago, Illinois*
Client: *Public Building Commission of Chicago for the Chicago Public Schools*
Architect: *Ross Barney + Jankowski Architects—Carol Ross Barney, FAIA, principal-in-charge of design; Susan Budinsky, AIA, project manager; Eric Martin, construction observation*
Engineers: *D'Escoto, Inc. (mechanical/electrical); Salse Engineering Associates (structural)*
Contractor: *Paul H. Schwendener, Inc.*

Project Statistics
Size: *68,000 sq ft*
Cost: *$7 million*
Cost per sq ft: *$103*
Number of students: *688 capacity; 570 in attendance now*
Number of teachers and staff: *31/26*
Grades: *K–8*

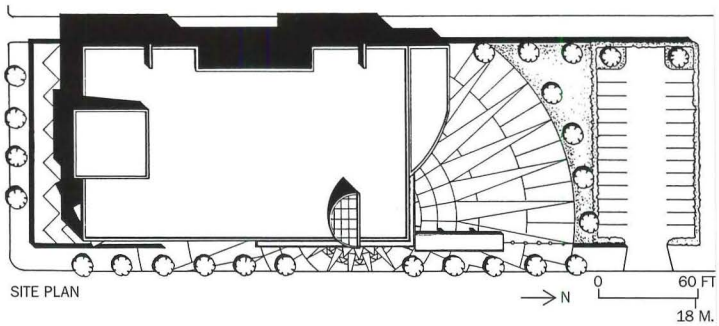
It would be hard to find a public building that packs more architecture onto a constrained urban site than Little Village Academy in Chicago. With a soaring stair tower slicing through its primary elevation, bold forms articulating key spaces such as the cafeteria and library, and a starburst playground, the three-story, 68,000-square-foot public school has become a landmark in the Little Village neighborhood since it opened last year. "When politicians visit this district, they always come to our school," states Fredric Arana, the principal of Little Village Academy. "That's not true of other neighborhoods."

Equally remarkable is that all this architecture costs just $103 per sq ft, about the same as prototype schools being built in Chicago to save time and money, says Carol Ross Barney, FAIA, the principal-in-charge of design for Ross Barney+ Jankowski Architects. Part of a major building program in Chicago that included 14 schools completed at the same time, Little Village stands out for its vibrant design and as an emblem for the mostly immigrant community it serves.

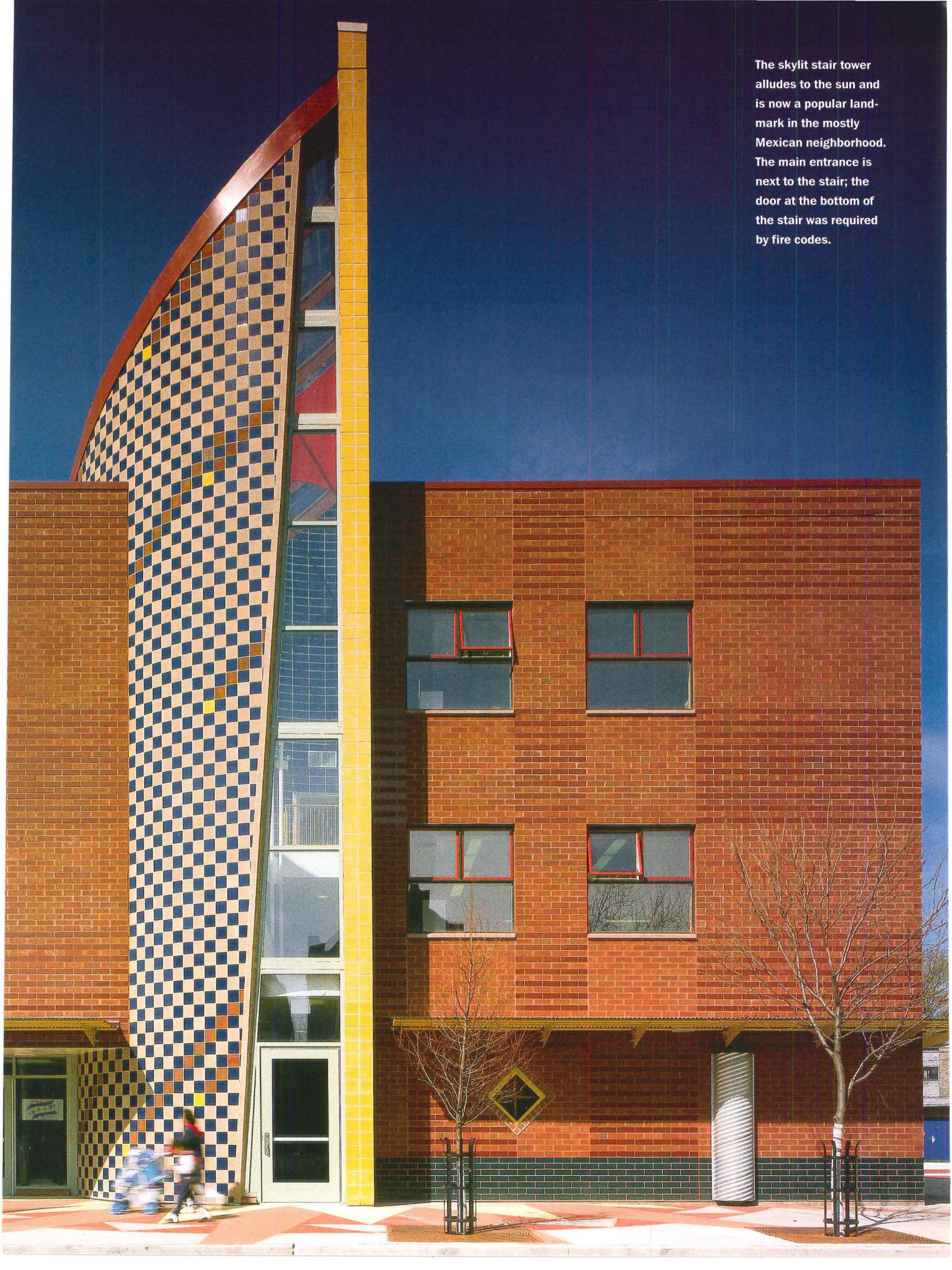
Community roots

Like Cesar Chavez Elementary School, originally called Seward Hedges [RECORD, August 1993, pages 92–95], which Ross Barney+ Jankowski also designed, Little Village is in a Hispanic neighborhood where a school is an important symbol of both assimilation and cultural identity. In predesign meetings, community members told the architects they wanted a building that recognized their Mexican heritage.

The school occupies most of a 400-by-120-foot lot, with room for a small play area behind a blue and yellow fence on the south (above) and a larger playground on the north (plan below).

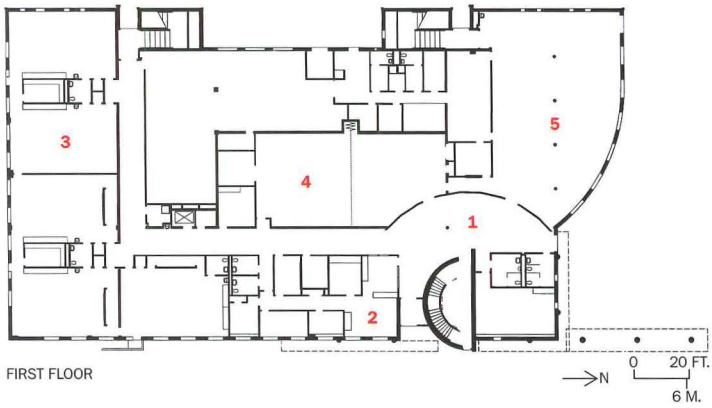


As she did at Chavez, Ross Barney used strong colors arranged in geometric patterns to recall Latin American design at Little Village. But she also introduced a sun mot that explodes on the surface of the playground and entry lobby and is expressed as a skylit, vertical sundial in the main stairwell. "What could be more Mexican than the sun?" asks the architect. "But at the same time, the dial has to be



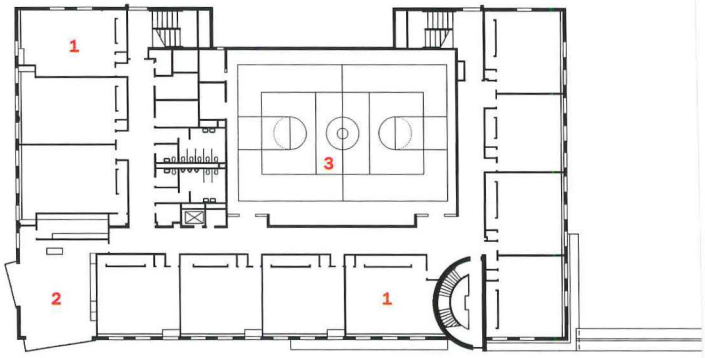
The skylit stair tower alludes to the sun and is now a popular landmark in the mostly Mexican neighborhood. The main entrance is next to the stair; the door at the bottom of the stair was required by fire codes.

1. *Lobby*
2. *Offices*
3. *Kindergarten*
4. *Community room*
5. *Cafeteria*



FIRST FLOOR

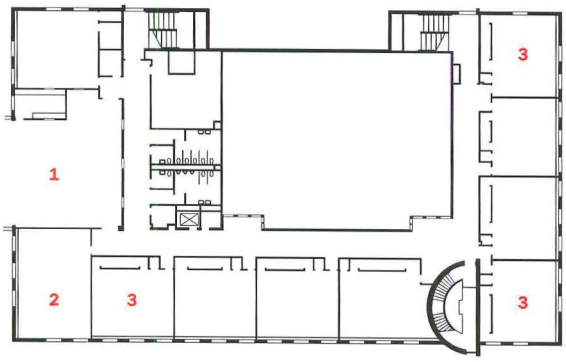
1. *Classroom*
2. *Science*
3. *Gymnasium*



SECOND FLOOR

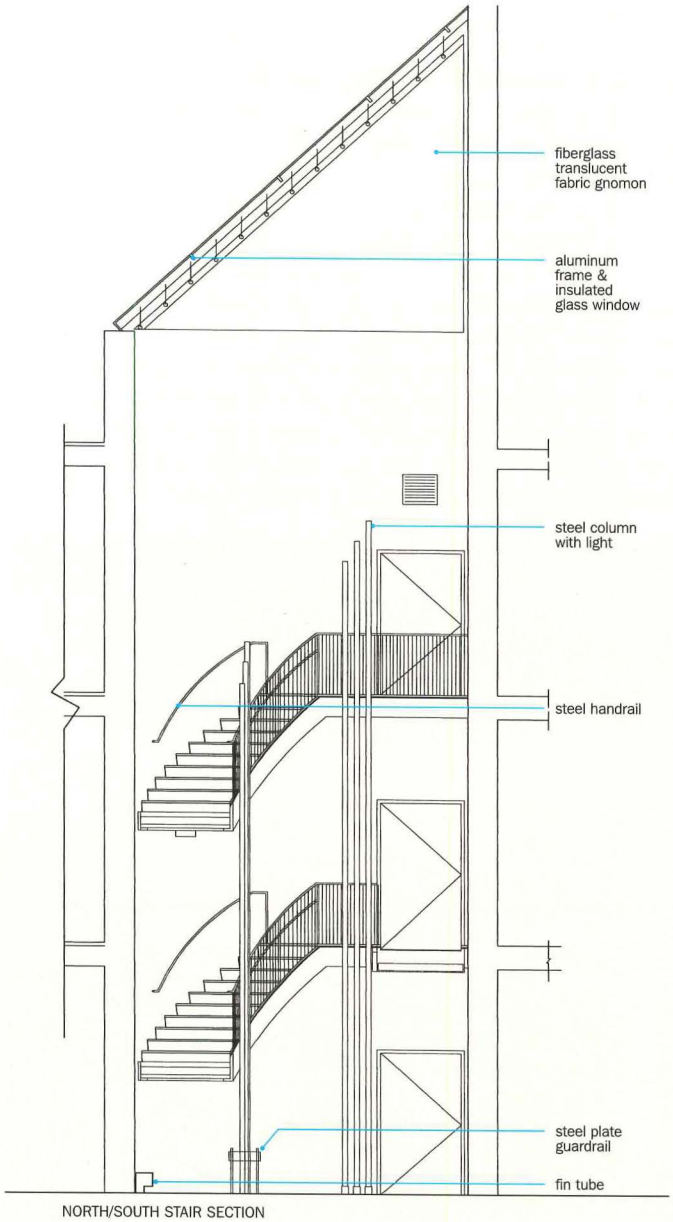
The main playground was designed as an urban plaza, open to views of the street but stamped with its own identity, seen in the sunburst pavement.

1. *Library*
2. *Computer*
3. *Classroom*



THIRD FLOOR

A bus stop and a row of limestone bollards protect the playground from traffic without creating a fortresslike barrier.



NORTH/SOUTH STAIR SECTION

calibrated to the angle of the sun in the school's particular location, so it ties the project to Chicago." At first, Chicago's Public Building Commission, the client for the project, wanted the architects to replicate their award-winning Chavez design in Little Village. "But this is a different neighborhood," explains Ross Barney. Commercial structures lie to the south and east, while residential properties are on the north and west.

Planning strategy

The 400-by-120-foot lot is small for a K–8 school, so the architects brought the building envelope right to the sidewalk on the east and west, leaving room for a large playground on the north and a small play area for kindergarten classes on the south. Since the school fronts on a commercial street, "we designed the main play area as a plaza, rather than a lawn," as had been done at Chavez, says the architect.

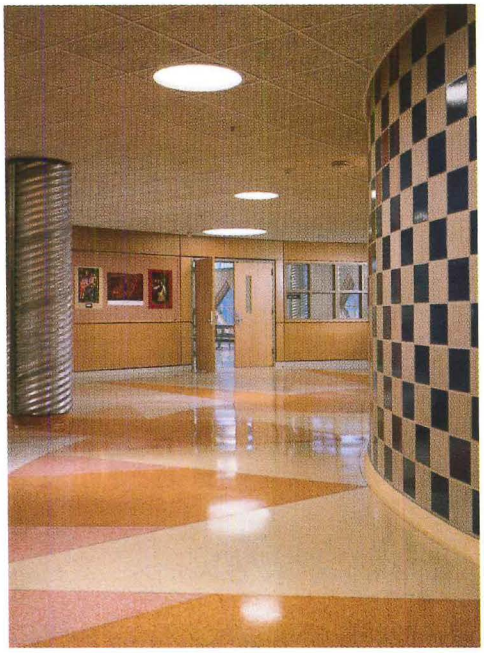
Architectural features

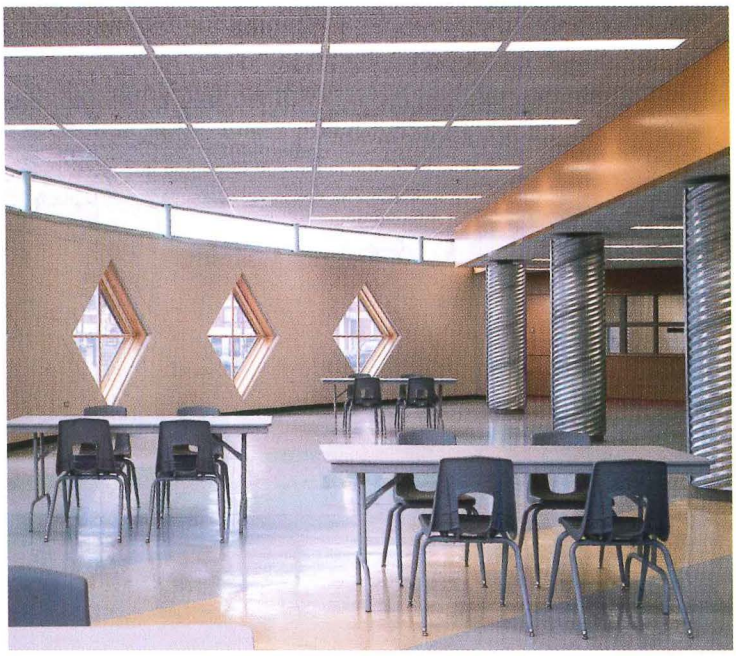
Wanting to give the building a civic presence that could be easily read from the street, the architects added a few dramatic elements to a relatively simple building envelope. The most memorable component of this design strategy is a curving three-story stair tower with an angled skylight at the top. The tower has practically become the school's logo and also serves as its social hub. To meet the fire-code requirements that have made such grand stairs rare these days, the architects enclosed the stair structure so it has a two-hour fire rating and provided a direct exit outside. Three sets of white steel columns support the stair, which is a less expensive solution than cantilevering it, notes Ross Barney.

Pulled out beyond the building's masonry shell and rising above its flat roof, the third-floor library is a porcelain-and-glass box suspended in the larger structure. Clerestory windows on all four sides and vertical shafts of floor-to-ceiling glass at two corners bring plenty of sunlight into the room without resorting to large expanses of glass. In fact, throughout the school, glazing is used sparingly to reduce construction and energy costs and to limit visual distractions.

On the southeast corner, grids of translucent fiberglass panels allow sunlight into a science room without the glare or heat that might interfere with science experiments. Directly above the science room is a computer lab, whose projecting metal sunshades announce the space on the outside of the building while reducing glare on the inside.

On the ground floor, a curving cafeteria breaks free of the school's masonry box, offering views through diamond-shaped windows to the





In the main lobby (far left), terrazzo, brick, and corrugated metal are tough but playful. In the cafeteria (left) and the library (below daylight comes from above, the edges, or diamond windows.

playground beyond. A narrow band of clerestory windows and a couple of extra feet of ceiling height add a sense of spaciousness to this room.

Keeping costs down

To free up money in the budget for the project's architectural highlights, Ross Barney+Jankowski designed the base building as a simple rectangular box with a compact floor plan. Using a load-bearing masonry structure rather than a steel frame saved some dollars as well. "Steel-frame construction is a little faster, but we had enough time on this project and decided that saving the money was more important," explains Ross Barney. To dress up the exterior at low cost, the architects combined rough-faced brick with burnished brick and used bold colors such as blue and yellow in strategic locations.

Efficient floor plan

The school's simple rectangular footprint and standardized classrooms make for efficient floor plans. Wrapped around the building's perimeter on three sides (the fourth side is an alley), the 900-square-foot classrooms can accommodate 30 students each. Kindergarten and preschool classrooms, which are on the first floor, are 1,200 square feet and have access to play areas directly outside. Other public functions, such as a community meeting room, are also on the first floor.

To break down the experience of long hallways, the architects used several strategies, including changing ceiling heights and light fixtures at intersections and traffic nodes, and using color and texture to add visual variety. Angled stripes of color, for example, shoot along some hallway walls. Corridors are all interior spaces, but sunlight seeps in from the main stair hall and from windows at two ends.

Color and materials

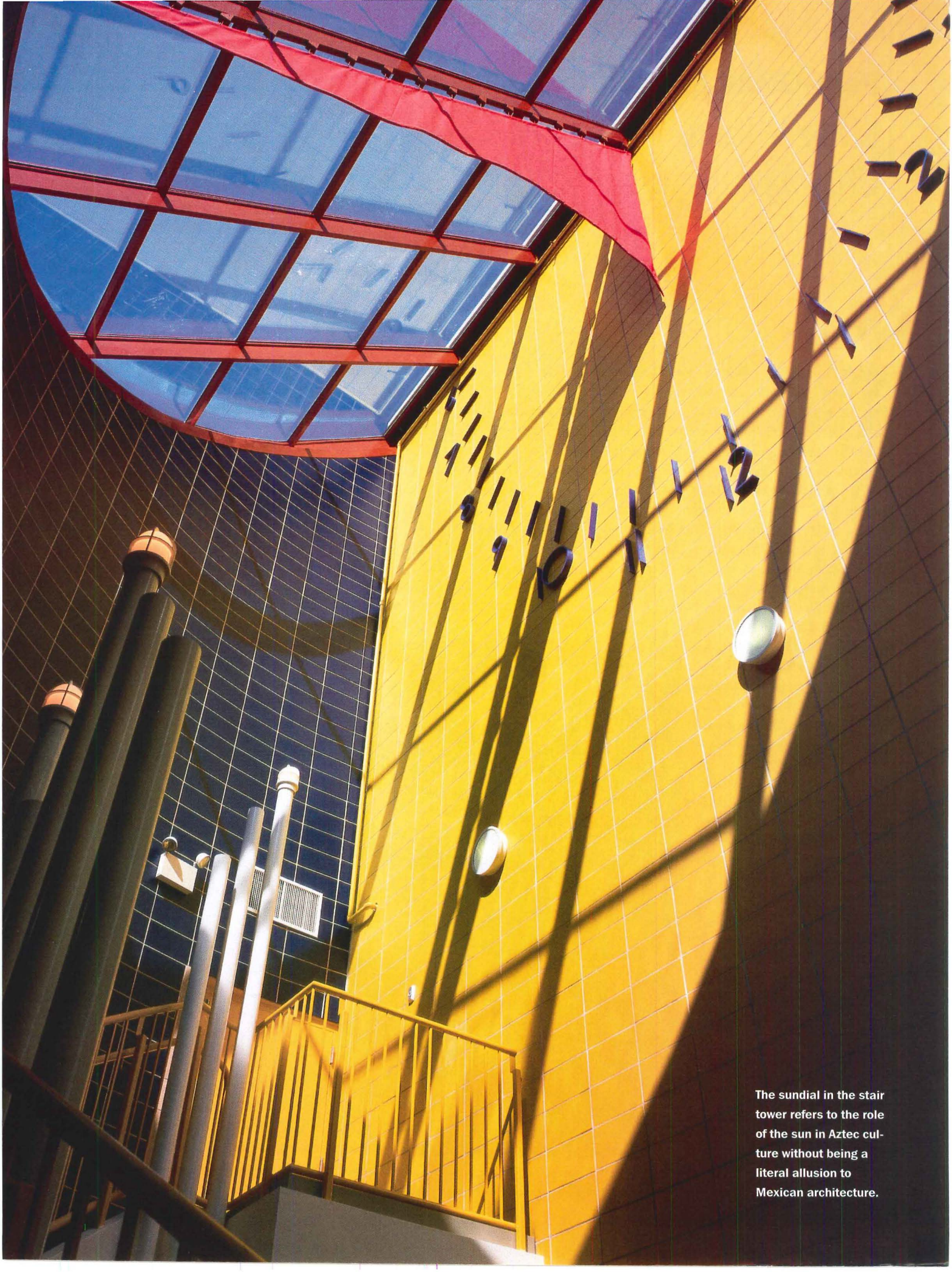
Ross Barney employed splashes of color to enliven the school's interior surfaces, most of which are neutral yellows and off-whites. For example, checkerboards of glazed colored tiles adorn the hallway side of the curved staircase wall and an irregular pattern of colored, glazed, and rough-faced blocks brightens the hallway wall of the gymnasium.

To create a sense of progression from lower grades to upper ones, Ross Barney+Jankowski varied the colors used for trim and elements such as chalkboards and bulletin boards—moving from primary colors on the ground floor to more "adult" colors above. Because the wall of the gym is long, the architects studded it with a few glass blocks and put windows at the two ends so people in the hallway could see inside. On the third story, these windows, affectionately referred to as "skyboxes," offer views down to the gym floor below.

Reaction from users

Principal Arana, who had been the assistant principal at Chavez, says, "I think Little Academy is even better than Chavez. We had more money here and we learned a lot from the first school. As a result, I think this building is more conducive to learning." Arana is also pleased with what he has heard from people in the community. "They tell me it looks Mexican," he says.

One of the challenges for the architects, says Ross Barney, was giving the school a Mexican feeling without making it look foreign to its surroundings. By using local brick and echoing the massing of nearby buildings, Ross Barney made sure that the school "still looked like Chicago." ■



The sundial in the stair tower refers to the role of the sun in Aztec culture without being a literal allusion to Mexican architecture.

Post-Occupancy 2003

Little Village Academy
Chicago, Illinois

By Jayne Merkel

If Little Village Academy looks familiar, it may be because you saw it in the ads that the AIA ran on television a couple of years ago. That endorsement was only one of the many accolades the school building received. One of them, a highly sought-after cash prize, demonstrated what a special school building can really do. The architects donated part of their award money to the school, and when the principal asked eighth grade students to write them thank you notes, half a dozen of the students said they liked the building so much that they wanted to be architects.

"I'd have been just as happy if they said that it made them want to be teachers," Carol Ross Barney, FAIA, explained, though she is delighted that the school's design has made so much of an impact. "It is nice when a place where you go points in a direction for the future." After all, that's what education is all about.

Little Village was a triumph against the odds from the beginning. Built as an "overflow school" to relieve overcrowding in the Burns and Cardenas school districts, it would have become one of the rather uninspired prototype schools that the Chicago School District was building at the time, but its site was too small, so Ross Barney + Jankowski was brought in. Though the school wasn't staffed until it was completed, they did have input from some interested parents in the districts it was being built to relieve. And when it opened, the kids got to suggest names for it. At one point Frida Kahlo was considered. (The population is almost 100 percent Mexican.) In the end they decided to name it after the neighborhood, Little Village, which is largely Mexican now, but has been home to waves of other immigrant groups in the past.

Fred Arana, who had been the assistant principal at the Chavez School, also designed by Ross Barney + Jankowski, became principal. He likes the fact that "it's pleasing to the eye. Its design is unique. It makes you feel special. It's almost churchlike in certain parts.

"And," he added, "it was cost effective. The school system really got a good deal. Oth schools that are just cookie cutters cost mu more. This one was $7 million."

The architects really did do an ama ing job of squeezing every inch out of t budget without making that apparent. T materials look solid, and there are even speci features like the staircase, the sun motifs th recall the students' Mexican heritage, the can levered library on the top, and the science l with a Kalwall bay window.

"I think the reason that a school considered good has to do with a lot of things-

Little Village Academy was built as an overflow school. Still, the school has now become overcrowded itself, despite the fact that the flexible spaces the architects designed have been adapted to serve the larger student population.

types of spaces, the texture. I ask myself, ould I want to go to school here?' " Ross ney said, though she did mention a few spe- c things: "When you come upon it in the

IT'S VERY URBAN, BUT LSO QUITE CELEBRATORY. T SITS COMFORTABLY ON HE STREET."

ighborhood, it fits in, but it has some 'wow' tential. It's very urban, but also quite celebra- ry. It sits comfortably on the street."

She likes the fact that Little Village has full-size gym, "big enough for the eighth grade ys. And the building provides a sense of rival. Each door is important."

She is also pleased with the plan of the hool. "It has good landmarks. It's hard to get st. We were a little reluctant to put the library n the third floor, but we didn't have enough om to put it on grade. And it feels like a loft.

"I also like the quality of the space, ie quality of the light, the way that makes you el," she said. "Today the theory is that differ- nt children learn in different ways, so you hould have irregular shapes. But here the ooms are rectangular because of the site, and you can divide the classrooms up for different types of activities."

The only space that is not as flexible as it might have been is the school's science lab. "It has very traditional permanent work benches, too fixed," Principal Arana said. "And in the computer lab, you can't see what each person is doing (all the screens) from one position."

He also wishes that they had swipe boards instead of chalk boards, which are in every room except the science lab.

The computer areas were advanced for their time, however. When the school was built, the emphasis in education was still on teaching computer skills rather than on using computers for research. But at Little Village there are computers in the library and in individual classrooms, as they are in schools being built today.

Now the trend is to use computers to connect teachers with resources some distance away, said the architect who is designing the high-tech Illinois Mathematics and Science Academy, a residential state-funded school for gifted students. Ross Barney + Jankowski also recently designed a school in Columbus, Indiana, where the whole site will become a learning laboratory.

The main problem at Little Village is that there isn't enough of it. "The one thing I'd change," Arana said, "is to make it bigger. We're overcrowded." Multipurpose rooms are being used as classrooms, as are classrooms by the library. The fact that theses spaces were there did provide space for expansion, however, when the crunch came. ■

LESSONS LEARNED

- Students really appreciate a handsome well-designed school.
- Schools, like people, need to both fit in and stand out.
- Careful design can compensate for a tight budget and a restricted site.
- Flexible spaces that can be adapted serve students and teachers best.
- Flexibility is important, even in labs.
- Landmarks are important. Wayfinding should be part of the design.
- A well-designed school should fit into the neighborhood, as well as reflect the people who live there.
- A few dramatic spaces can make all the difference.

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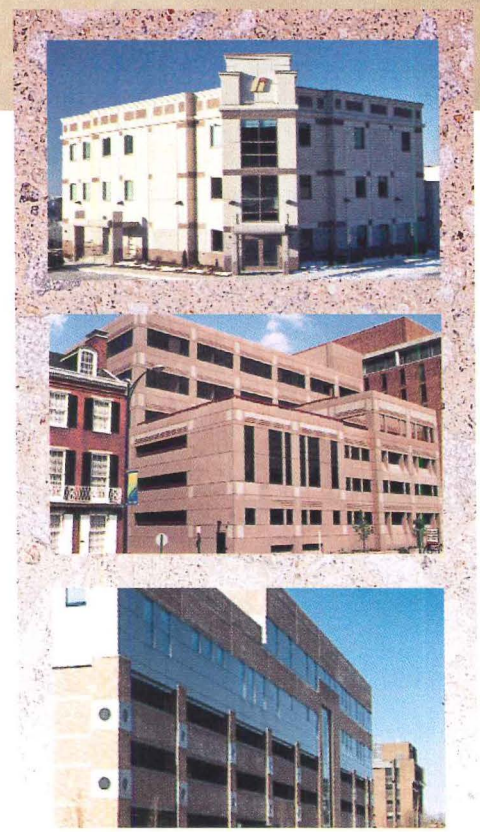

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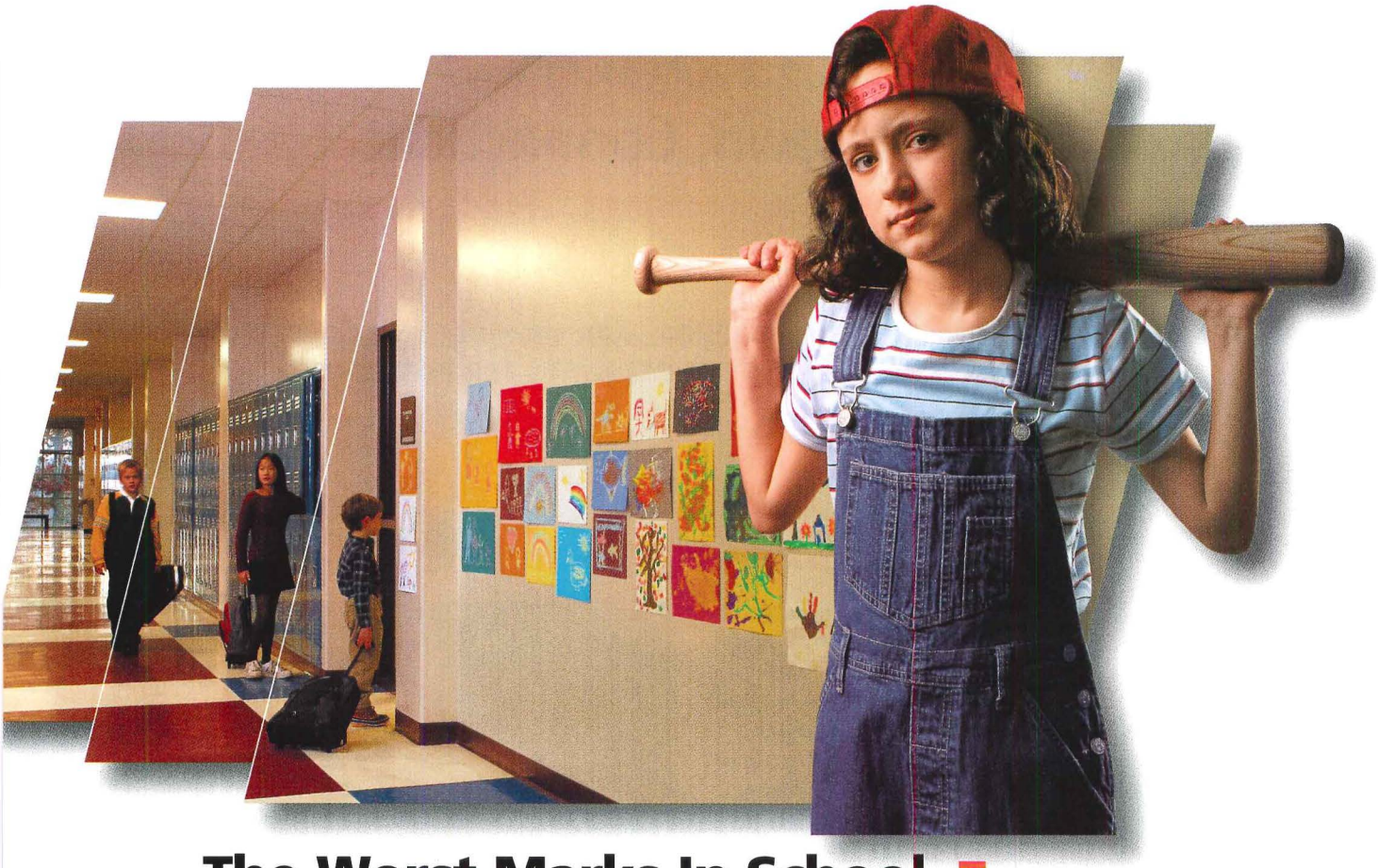

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Wilbert Snow School
Middletown, Connecticut

1999

A BACK-TO-NATURE SCHOOL ADDITION CREATES COHESION AND PRESERVES FOREST PATHWAYS FOR PUBLIC USE.

by William Weathersby Jr.

Project: *Wilbert Snow Elementary School, Middletown, Conn.*
Owner: *City of Middletown*
Architect: *Jeter, Cook & Jepson Architects—James E. LaPosta Jr., AIA, design principal; David G. Jepson, AIA, principal in charge; Peter N. Stevens, principal, community relations; Robert A. Andrade, AIA, project manager; David S. Spencer, AIA, project manager; Lisa G. Kavarnos, AIA, job captain; Barbara Hubbard, graphics and signage; Terrance Connolly, construction administration. Project team: Scott Persing, AIA, David Newman, AIA, Fernando Andrada, Mel Diegor, Grace Fabian, Melissa Merrill, Sherry Ann Oxley, Janis Newell, Steven Therault, Leo Gonzales*
Engineers: *Girard & Company Engineers (structural); Bemis Associates (mechanical, electrical, plumbing, fire protection); A-N Consulting Engineers (civil)*
Consultants: *Ferraro/Hixon Associates (landscape); Robert Celmer, PhD (acoustics); Educational Technology Infrastructure; CCR/Pyramid*
General contractor: *Haynes Construction Company*

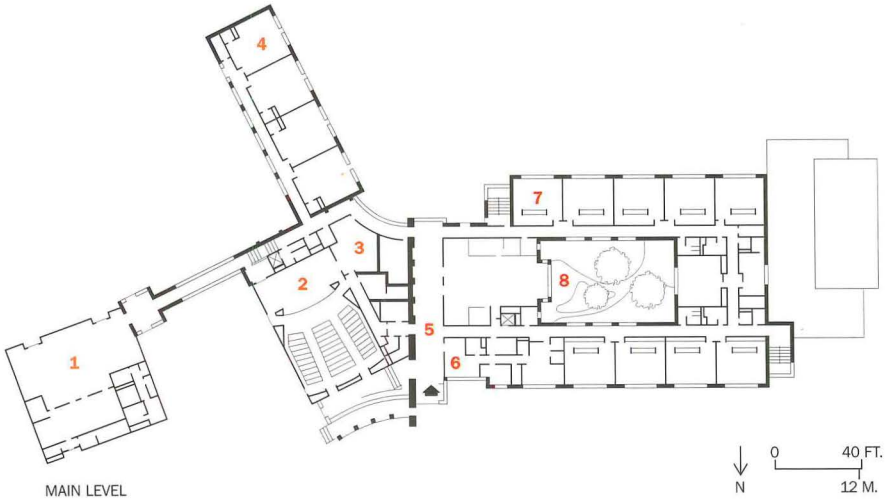
Construction cost: *$8.1 million (building and site construction); $9.8 million (total project cost)*
Size: *71,600 square feet*

When it was built in 1954, the Wilbert Snow Elementary School in Middletown, Connecticut, embodied the era's progressive thinking regarding modern architecture's role in public education. The school, named for a former Connecticut governor and Middletown native and designed by Warren H. Ashley, adhered to a campus plan in a wooded, 14.5-acre setting. In an unusual layout, five free-standing classroom buildings stood in a horseshoe formation behind three main administration buildings. Each flat-roofed, brick-and-glass satellite structure contained four classrooms wrapped around a bathroom-and-utility core; students trekked to the main buildings for lunch, gym, and other activities. By integrating outdoor and indoor learning environments, the architects sought to create a back-to-nature ethos. In practice, however, young students sometimes had to battle the elements during inclement weather.

A recent renovation by Hartford-based Jeter, Cook & Jepson Architects maintained the campus character while integrating the separate buildings into a more efficient, unified whole. "The new building plan and detailing are a direct response to the wooded site," says James LaPosta Jr., AIA, principal design architect. "The community has historically used the school grounds as

William Weathersby Jr. is a freelance writer living in Westport, Connecticut.

new lobby corridor the north-south circulation spine of the hool (below); an elevated bridge connects main building to an isting brick classom structure that the chitects converted to a dining hall (opposite top); a new portico fronting the refurbished gym provides arrival and transition spaces leading to the two classroom-wing additions (opposite bottom).



MAIN LEVEL

1. *Dining hall*
2. *Auditorium*
3. *Music area*
4. *Kindergarten*
5. *Lobby*
6. *Administration*
7. *Classroom*
8. *Inner courtyard*

A music classroom (below), computer workshop (opposite, left), and library/mec center with built-in storage and seating (opposite, top right) are new amenities. A curved corridor connecting the schoc old and new sections offers abundant view and daylight (opposite bottom).

a neighborhood park, so we modeled our forms after a nature center or park recreation building."

A variety of voices

Before construction, the architects held a series of design workshops for parents and members of the community. Presentations before a variety of civic groups further refined the design. Site plans were also coordinated with the adjacent historic property, being developed simultaneously as a public park. LaPosta says he welcomes the advocacy that arises with school projects. "The teachers and administrators were instrumental in developing and then modifying the programming of the spaces," he says. "As clients, experienced educators hone in on the function of each space, as well as its relationship to the whole."

On this project, preschool teachers pushed for integrating their young students with the older classes to eradicate feelings of separation; the architects adapted the former preschool building into a dining hall and relocated the prekindergarten class to a new wing. Likewise, storage outside the classroom was on every teacher's wish list, so a large walk-in closet accommodating instructional materials stands at the end of every classroom corridor. And kitchenettes near the classrooms ease the preparation of snacks and craft ingredients for the youngest students.

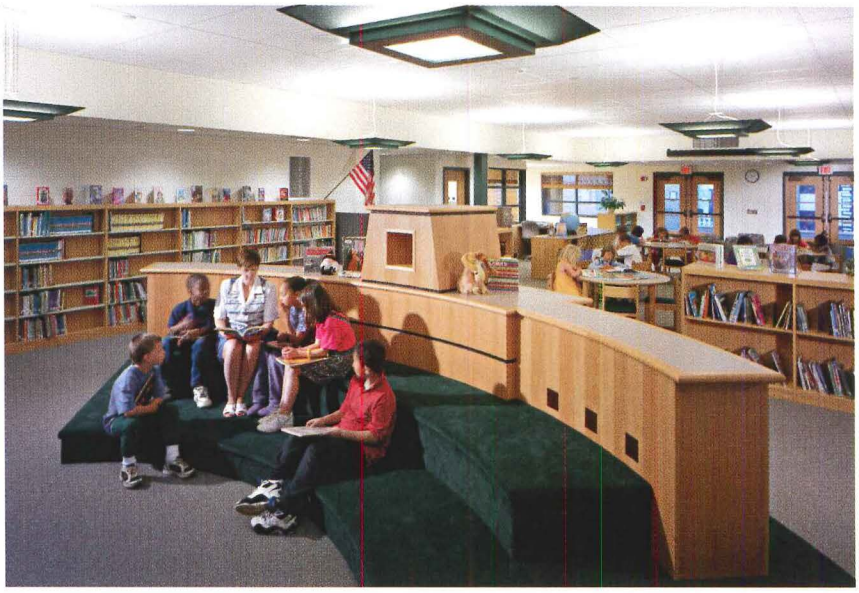
The school's three anchor buildings, which form an east-west axis, were retained and renovated while the outdated satellite classroom pods were razed. A pair of parallel two-story classroom wings now lie perpendicular to the west side of the main administration building, establishing a link to the vaulted gymnasium. On the east side of the administration building, a glass-enclosed bridge passes to the new dining hall. The bridge helps preserve a popular public walking trail that passes beneath.

A playground in front of the building was relocated to the rear to make way for additional parking and to heighten security. A range of learning environments was also created from both natural features and remnants of the razed building footprints. A hillside was tailored as a natural amphitheater, fieldstone walls were rebuilt along an enhanced path leading to an adjacent environmental center, and an old concrete stairway now rises to a plateau of grass.

A new double-height lobby functions as a central axis and circulation hub between wings. Interior walls here and throughout the classroom corridors are stained concrete block scored in an 8-by-8-inch square pattern. Cast-stone medallions at children's-eye level feature reliefs of local plants and animals that aid way-finding. The

lobby also creates a new focal point along the school's facade, via the roof's exposed wooden support members and overhangs. "We wanted to express the school's structural components in a straightforward manner," LaPosta says. "In a way, the school is a three-dimensional textbook on architecture and construction for kids."

The building's levels hew to the existing hilly topography and preserve mature plantings, including the town's oldest oak tree. Since the building was also required to support community activity, its new configuration allows the dining hall, gym, auditorium, and classroom wings to be isolated and opened independently with separate entries and parking. The classroom wings are self-contained, so that children never need to go around a corner without adult



ıpervision. The single-loaded corri-
ɔrs provide varied views of the
ounds, with some classrooms fea-
ring doors that open directly onto
landscaped courtyard enclosed
ɛtween the wings.

The $9.8 million renovation
ıdget combined state and local
nding and monies raised through a
ɔnd referendum. Measures to keep
e project under budget included
ɛfabricated truss roofing over the
assroom blocks and the use of
ıed forms, which reduce framing
ıd roofing costs. Other details lower
ıergy costs for long-term operation.
ıd the campus format enabled the
ɛchitects to easily zone construction
ɣer a year and a half while school
ays continued uninterrupted. ■

ources

urtain wall, aluminum windows, and
ntrance doors: *Kawneer*
uilt-up roofing: *GAF*
lastomeric roofing: *Sarnafil*
ile/shingles: *Celotex*
Vood doors: *Graham*
ocksets and hinges: *Sargent*
coustical ceilings, suspension grid,
esilient flooring: *Armstrong*
Cabinetwork and custom woodwork:
Chandler Lewis
nterior lighting: *Hubbell, Louis*
Poulsen
Plumbing: *Bobrick*
Signage: *ASI Sign Systems*
Office and reception furniture: *HON*

Post-Occupancy 2003

Wilbert Snow School
Middletown, Connecticut

By Jayne Merkel

People who helped plan Wilbert Snow School agree that the secrets of their success were an unusually well-qualified committee, an architect able to translate that committee's desires into form, and a remarkable site in a verdant city park. "The design process for schools is a very public one, and this informed committee was unusual," said the architect, James E. LaPosta, Jr., AIA, of Jeter, Cook & Jepson Architects.

"It was a political committee, appointed by the mayor, but its members worked together and offered expertise from their experience," explained Dr. Gene Nocera, the school's principal, who served on the committee along with a teacher from the school, Christine Salamone. "The chairman was the former fire chief. We had two contractors and another teacher (from a vocational school)—a good mix for an exchange of information. We built the school ahead of schedule by four months and were under budget, so we could add things later." They created a room for autistic children and a room with a two-way mirror for teacher training in what had been storage space.

"We had to address so many individual concerns with parents, environmentalists, people who wanted to maintain the educational program, reduce the time it took to walk between classes, and pay attention to aesthetics, yet maintain the heritage of the school," said Salamone, who teaches fourth grade at Snow.

"There was a lot of political sentiment to save the old school," Nocera added. "Toward the beginning I asked Jim if he would save the gym (a very big, barrel-shaped room) and one of the units. Initially, he said, 'Boy, there's a lot of space between those structures,' but he came up with some concept drawings that were the beginning of it all, emphasizing the woodsy campus in the city, a magnificent site."

LaPosta also converted one of the original academic pods to a lunchroom, and preserved the gymnasium and the auditorium. "I attended the school when I was a child, and I sat in that auditorium and heard Professor Snow read his poetry there. He was a governor and a professor and a poet—a really memorable person," Salamone explained. "But I also taught in the old building, and I remember the mold, and the time it took to bundle the kids up and g them from building to building. Saving that tim I get so much more accomplished now than I d before. I don't think I'll ever forget the day that v first walked into the new school. The children fe important. The teachers felt important."

"When you drive up, you come into a extremely large entranceway—designed to dra your eyes into the school and to the woods, ar boy, does it ever!" Nocera added. "It has the really large wood beams. Some people say looks like a ski lodge. When it was under cor struction, the contractor said, 'What's with th

An extremely large entranceway—designed to draw your eyes into the school and to the woods, is an impressive first look at Wilbert Snow. Jeter, Cook & Jepson Architects designed the building as a direct response to the wooded site.

llway? You could land an airplane in here.' ıen when we brought in the beams, he said, 's really going to be nice.' "

One reason it turned out so well is that ere was constant supervision during construc- ın. "Because it was a $10 million project being ıne in several phases, we needed a full-time site ordinator. We looked at construction manage- ent, but it was too pricey. The architects ggested someone independent of them and the ntractor, T. Connolly, who was there five days a ek for 18 months. I met with him every day. It lped avoid mistakes. When something was ong with a block, he knew at once."

Asked what he would like to change, ocera said, "After four years, we're running out space. We took four classrooms away for a eschool, and though that's a good thing, it akes less room for the grade school. I would ıve liked to have had both."

LaPosta noted that since they had built some specialty classrooms, those that weren't solutely needed could be used for regular class- oms. He also said that teachers like the islands the classrooms, which hide some of the clutter

I'LL NEVER FORGET THE DAY /E WALKED INTO THE CHOOL.WE FELT IMPORTANT."

coats and backpacks and allow for individual struction. The technology infrastructure was so advanced for its time (planning began in 995 when, according to LaPosta, the Internet vas still a baby"). They added lots of wiring and ıble, and instead of an isolated computer lab xcept for 12 stations off the library) computing as distributed to the classrooms.

"Teachers like the single-loaded corri- ors. They're not as efficient as doubles, but so ıuch better. With glass on one side, it feels like green wall of trees," LaPosta said. "And the lay- ıt is a success. Each hallway has all the things a acher needs—storage, a bathroom for teach- s, a bathroom for kids, so they never have to ırn a corner and be out of sight. Everyone likes ıe daylight."

Still, LaPosta wishes there were even ıore windows. A few had to be eliminated for udgetary reasons, as did some of the wall pan- ing. Drivet was used in a few places in the ack, above the height of the children, where it oesn't show.

"The biggest thing we learned—and ave done a lot since—is to integrate a school ıore with the landscape," he said. "We did it in school that opened last September in armington. It's a cousin of Snow. They hired ıe after seeing it. The site isn't as beautiful, but we took the same approach to creating the sense of being outside and using the outdoors as a learning environment. At the Bedford Middle School in Westport, we created 12 different environmental habitats on a 100-acre parcel that had been a Nike Missile site."

Nature appeals to everybody. "There weren't a lot of teachers requesting transfer to our school before, but there are now," Salamone said. And the principal has been able to establish a teacher-training program with St. Joseph's College in West Hartford. "Twenty to 30 interns and student teachers a year. That's a lot of young people," Nocera added. "It really makes a difference. Now our teachers have to be master teachers." ■

LESSONS LEARNED

- An experienced, cohesive building committee can resolve conflicts creatively.
- An appealing building can attract teachers.
- Corridors can be both inspiring and practical when they provide views and cluster facilities.
- Using the outdoors as a learning environment can be appealing to both students and teachers.
- Natural light is very important. Windows!

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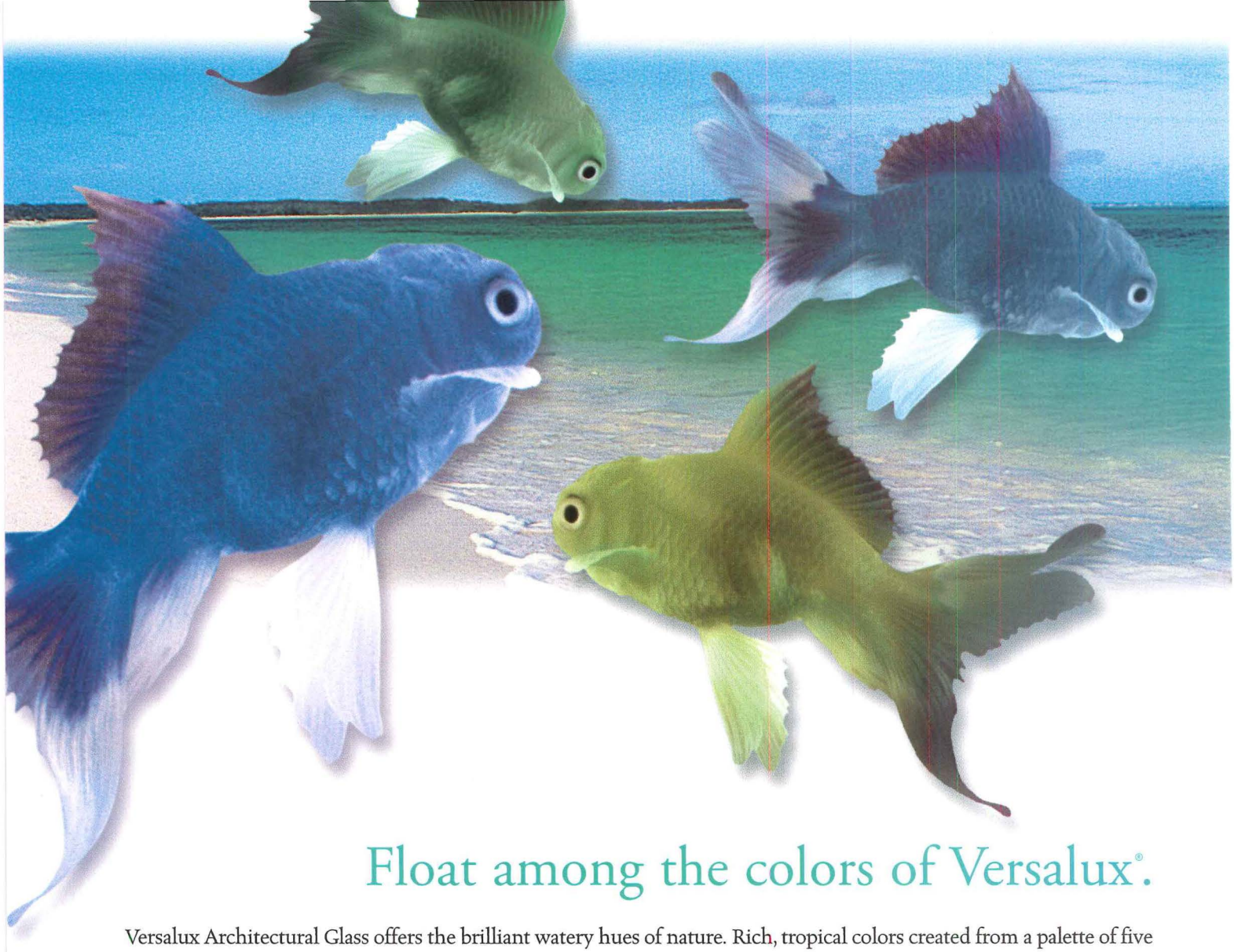

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Jean Parker School
San Francisco, California

1999

CLASSICAL ELEMENTS FROM AN EARTHQUAKE-DAMAGED SCHOOL LEND HISTORICAL DETAIL TO A MODERN REPLACEMENT.

by Soren Larson

Project: *Jean Parker Elementary School, San Francisco*
Owner: *San Francisco Unified School District*
Architect: *Kwan Henmi Architecture and Planning—Sylvia P. Kwan, FAIA, principal-in-charge; Kiyoshi Matsuo, AIA, project manager and architect of record. Reid & Tarics Associates: Nancy Severns, project architect; John Lum, project designer*
Interior designer: *John Lum*
Engineers: *Sandis & Associates (civil); Lok Kwan & Associates (structural); Grant Wong/Gayner Engineers (mechanical and electrical)*
Consultants: *Melvin Lee Associates (landscape); Robert Hodgson (construction costs); Smith Emery Company Testing Laboratory*
Project managers: *Cheryl Gaston, for 3DI (construction management); Nancy Soverns, for Reid and Tarics*
Project designer: *John Lum*
General contractor: *S.J. Amoroso*
Electrical contractor: *Edward W. Scott Electric Co.*
Plumbing: *O'Brien Mechanical*

Total construction cost: *$8.8 million*
Size: *37,200 square feet, plus a 6,500-square-foot garage*

When the Loma Prieta earthquake hit San Francisco in 1989, the students of the Jean Parker School in Chinatown found themselves with no place to attend class. Their unreinforced masonry building—built in 1907 to replace a structure on the same site that was destroyed in the traumatic 1906 earthquake—had been damaged beyond repair.

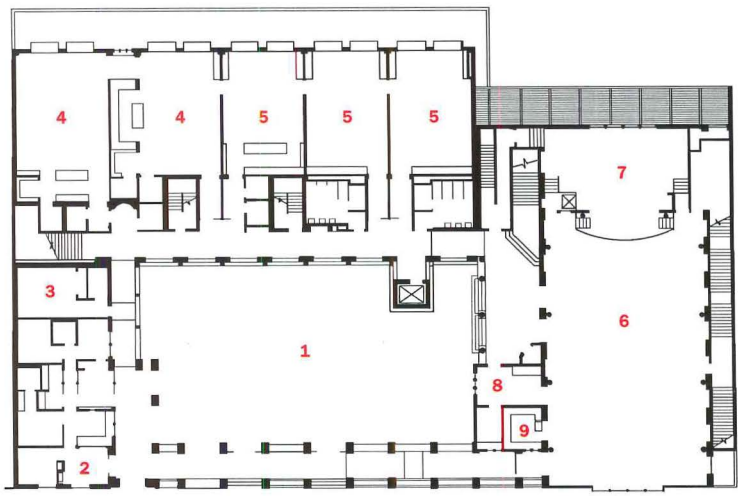
Temporarily, the 500-plus students were bused to makeshift classrooms in an old building in the Marina district, and the San Francisco Unified School District turned its attention to constructing a new building—one that would live through the next earth tremors. But Claudia Jeung, who retired this year after serving as principal of Jean Parker for 14 years, had a wish list that went beyond seismic support. "One of our stipulations was that we wanted some of the old to be incorporated into the new," she says. "The old building had such character, and we thought it would be a shame not to include some of those elements."

A touch of the classical

Jeung expressed her desires to the replacement school's designers, Reid & Tarics (a firm that has since dissolved) and Kwan Henmi, and a strategy was outlined to salvage certain details of the old structure as it was scrapped. The firm then included the saved pieces as counterpoints to the contemporary aesthetic of the remainder of their design. "We're lucky [the school district] had the foresight and sensitivity to allow this," says Sylvia Kwan, FAIA, the firm's partner-in-charge, noting that the procedure was somewhat painstaking. But now classical columns stand in the new school's courtyard and multipurpose room, and a terracotta Winged Victory is the centerpiece of the new library. Marble wainscoting from the old staircase adds dignity to the walls of the administrative offices. the most dramatic gesture, the original arched, terracotta portal was restored and bolted to the new masonry, providing a frame for the new main entrance.

Careful salvaging constituted the first strenuous undertaking before any new construction took place. Making the site earthquake

school is centered
und a courtyard on
natown's busy
adway (opposite); a
ftop playspace
ers superb views of
Transamerica build-
and downtown
ht); the classroom
tion is fronted by
lkways that overlook
courtyard (below).



1. *Play court*
2. *Administration*
3. *Storage*
4. *Kindergarten*
5. *First grade classroom*
6. *Multipurpose room*
7. *Stage/music room*
8. *Facility kitchen*
9. *Community kitchen*

ready was another. "This was a two-year project, but the entire first year was spent fixing the site," says Kiyoshi Matsuo, AIA, the project's architect of record. "Half the cost of the building is under the first floor." The construction team drilled piers into the bedrock, 20 to 30 feet down, and then attached the piers to a steel frame. The school went up from there.

While the previous buildings occupied the center of the small, 0.6-acre site, Kwan Henmi tried a new tactic. The firm placed the classrooms along the north edge, the administration offices and visitors' center in the west, and a multipurpose room on the east, with the three portions surrounding a courtyard/playground that faces busy Broadway. A see-through metal fence topped with wooden slats fronts the playground, opening up views to the street and nearby buildings while maintaining a secure border. "The scale is the same as the surrounding neighborhood," notes Matsuo.

Because of the school's densely populated, noisy location, classroom have no windows on their south side, which faces the street. Instead, large, green-trimmed, modern versions of the area's traditional bay windows—which appear throughout the new structure—are placed on the north side of the classrooms, admitting ample light and a minimum of street sounds. The heating units are disguised neatly as wood window nooks where students can congregate in small groups. Additional playground spaces are provided by a rooftop play terrace above the third-floor classes.

Open arcades along the southern edge of the northern section lead to other classrooms, stairways, bathrooms, and the library, which has a double-height ceiling and a large bay window—using double-glazed, noise-repelling glass, like the others—that makes a relatively small room seem spacious.

The hub of activity is the 5,000-square-foot multipurpose room, which contains a raised stage at one end and a bay window at the other. Small windows along the top of the west wall allow in more light, while special tables can fold up into the walls. The room can be used as a meeting hall or performance space for the student body or neighborhood groups, who use it for meetings and night school. At night, sliding wood panels cover the front window to block out street light.

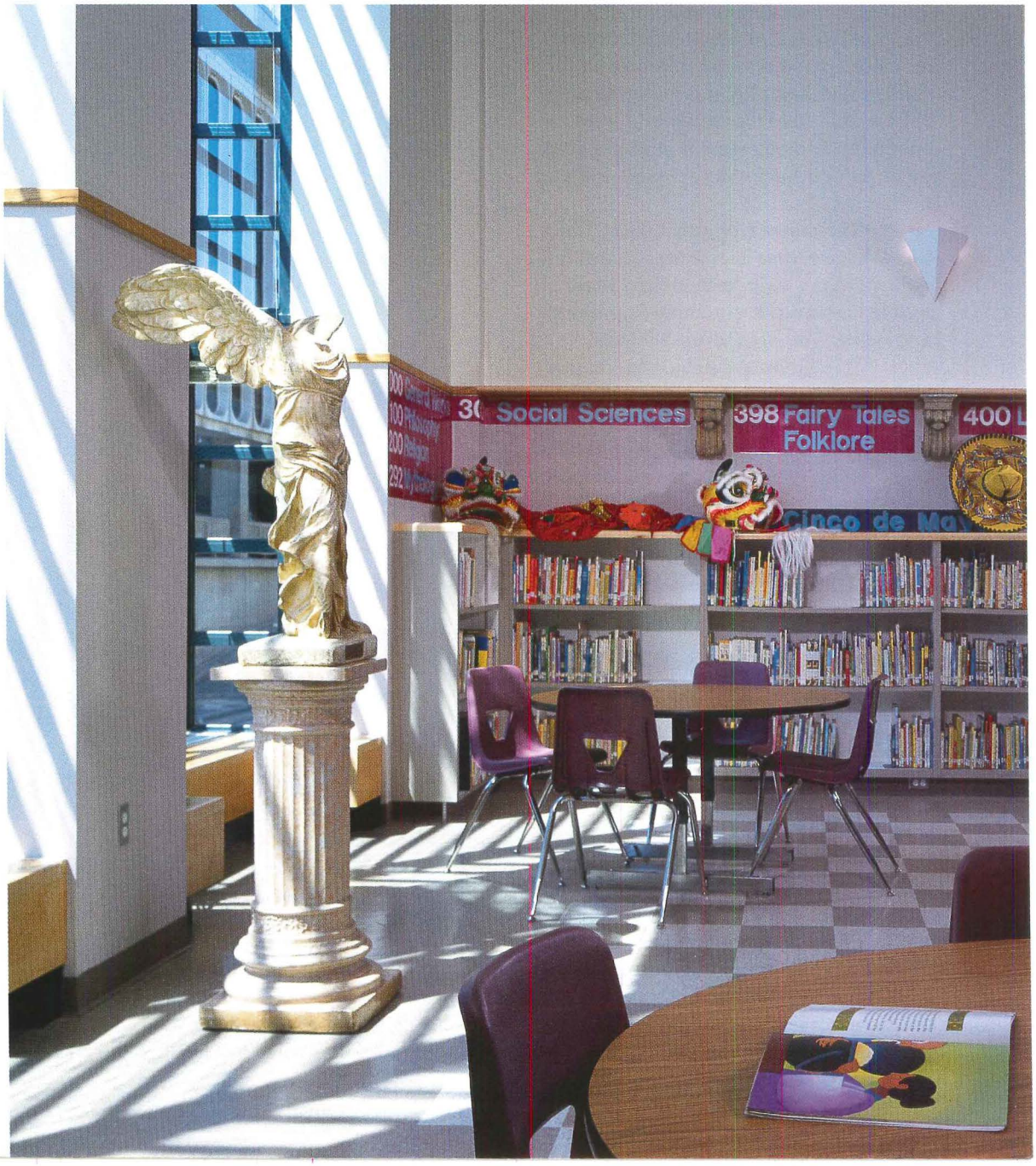
The architects added a community kitchen off the multipurpose room and a separate entrance for the public to use. Jean Parker is "the last school with a separate kitchen for the community that will be built in San Francisco," says Kwan. "Community outreach is such an important part of [inner-city]

lvaged classical umns ring the court- d (opposite); the ge in the multipur- se room has a ssroom behind it ght); large bay win- ws admit an undance of light into library (below).

hools, and this one has a history interacting with the community."

To comply with the district's dget limitations, the architects aced a classroom at the north end the room behind the stage and uipped it with a movable partition at can divide the space. In this y, the multipurpose room could called a classroom and financed der the district's restrictions.

To hear it from the school's cupants, the architects achieved e overall goal: a quiet, light-filled hool that fits its urban context thout being overwhelmed. "It's eat to come in off the street," ys Janet Dong, the school's prin- pal. "There is such a feeling of renity here." ■



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Post-Occupancy 2003

Jean Parker School
San Francisco, California

By Jayne Merkel

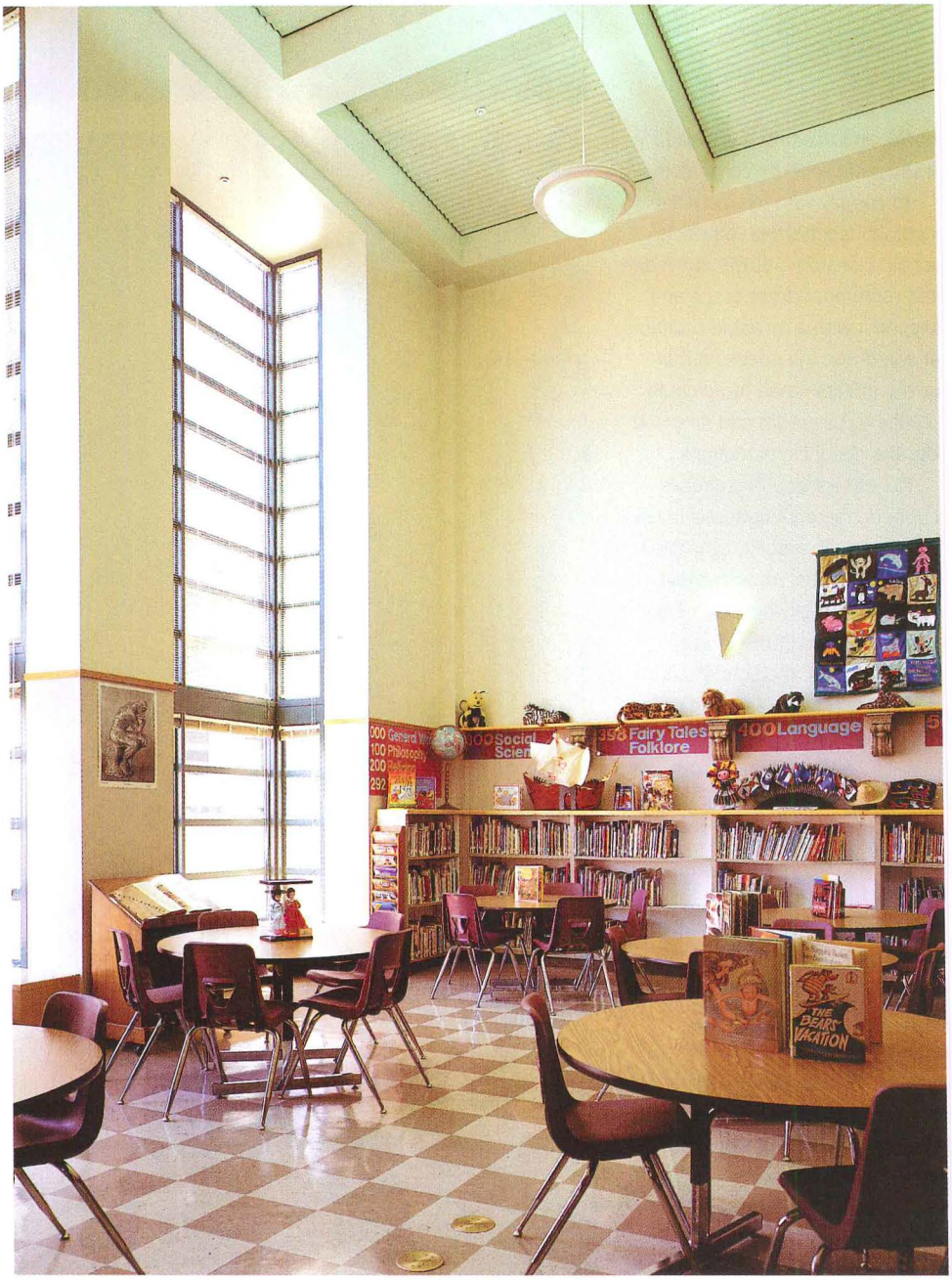
The architect, Sylvia Kwan, FAIA, of Kwan Hemni Architects, thinks "everyone appreciates the Jean Parker school for different reasons. The students feel intimate in their environments, yet it is open and warm. The administration appreciates its compactness, which allows them easy oversight, and the faculty appreciates the happy students. Chinatown is a very densely populated community. To have a sense of openness in the school really helps foster a positive learning environment."

The school's principal, Janet Dong, said, "What everyone likes about it is that it is bright and light—with natural light wherever possible. Our library has beautiful floor-to-ceiling windows. The materials are light too.

"I really love the auditorium/community room. It has a nice backstage area—with a whole wall of windows—that can be used as another space. We use it for physical movement classes," she continued. "The community room is also our cafeteria, but it was so well-designed, with tables that go into the walls, that it doesn't look like a cafeteria when someone is having a meeting. Also, the community can come in without entering the rest of the school—for security reasons."

Most of the classrooms are on the upper floors; the facilities used by the neighbors are on the ground floor. But there are five classrooms on the ground floor, which she worries about since the building gets a lot of use by outsiders. (Jean Parker shares the facility with a community school—the China Beacon School, which operates from 2:40 to 9:00 p.m. year-round.)

Kwan believes that one reason the community room is so successful is that it is quite accessible, being right on the street. She is proud of the fact that "on a very tight urban sight, we were able to create a very beautiful, liveable campus for 500 students. It has become



Kwan Henmi designed most rooms in the Jean Parker School to take maximum advantage of natural light, evident here in the library, which has floor-to-ceiling windows.

eal beacon in the community."

Her biggest disappointment is that the dget limited the quality of materials she uld use. "Ideally, we would have optimized e durability and maintainability of the school create the legacy project that it deserved to . Ironically, we would also have loved to work a bigger site so that the children would have d land to play on rather than rooftops."

Dong couldn't agree more. "The rail-gs were not heavy-duty metal, and they weren't rewed in tightly enough. We had to replace ost of them. You really shouldn't use anything at needs a lot of painting. The trellises need inting; the back deck needs relining. No one in nillion years is going to do that."

She also worries about safety: "Little ads poke over the outside breezeways. There ould be plexiglass guards. Find the tallest fifth ader, figure out how tall he is, and put the exiglass up to that level," Dong suggested. When you build structures, make them vertical, ther than horizontal. When they're horizontal, ds climb on them. If there is a space an adult n't fit in, a child will find it."

Another area of agreement is con-ruction quality. Kwan said, "I would not ange a thing in the design. I would, however, ange the delivery system. The thing I have

F THERE IS A SPACE AN DULT CAN'T FIT IN, CHILD WILL FIND IT.

arned since then is that public school projects n be delivered differently. I would encourage ents to go with alternate delivery methods ch as "construction management at risk" or esign build." The State of California now lows alternate delivery systems. We are doing e Bessie Carmichael School with the con-ruction management at risk model, and erefore expect the construction process to go uch more smoothly."

Dong said, "The architect did a nice job signing, but the contractor and subcontrac-r—the yard is awful. It's been resurfaced and surfaced. It's a roof yard, on the fourth floor. he kids keep falling and slipping. I've been to nderloin School, which has a lovely, colored hool yard. We lost out. The subs can't even wire ocks, so they didn't wire ours."

She also suggested, "To help teachers the future, make the walls in the classrooms orous so you can put pushpins in them, car-t the walls, maybe. Also, never put computer ugs under a chalkboard. Chalk and comput-s don't mix."

Using what they learned at Jean Parker, the architects designed another school in a dense San Francisco neighborhood. Because of the active participation of parents and residents of the South of Market neighborhood, the new school will contain not only an auditorium but also a preschool for community use. And because of a land swap between the city and the school district, the students will be able to remain in the temporary buildings where they have been for years until the new school is completed this summer on an adjacent parcel; then the old school will be demolished and converted to a seven-acre park next door. Classroom windows in the new school will have views of nature, and the community will have the use of the only open space within 10 of the city's 800-foot-long blocks. ■

LESSONS LEARNED

- Natural light is worth its wattage in gold.
- Shoddy construction undermines even the best designs; consider alternate delivery methods.
- Design can make shared spaces work better for schools and neighborhoods.
- Materials that require maintenance may never get it.
- Materials that don't need to be painted will look better, longer.
- When designing for children's spaces, safety should always be key.

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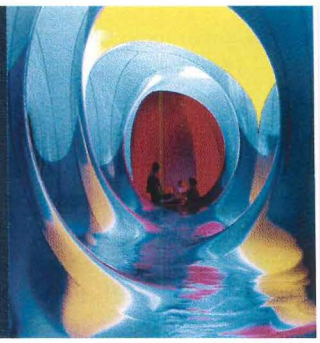

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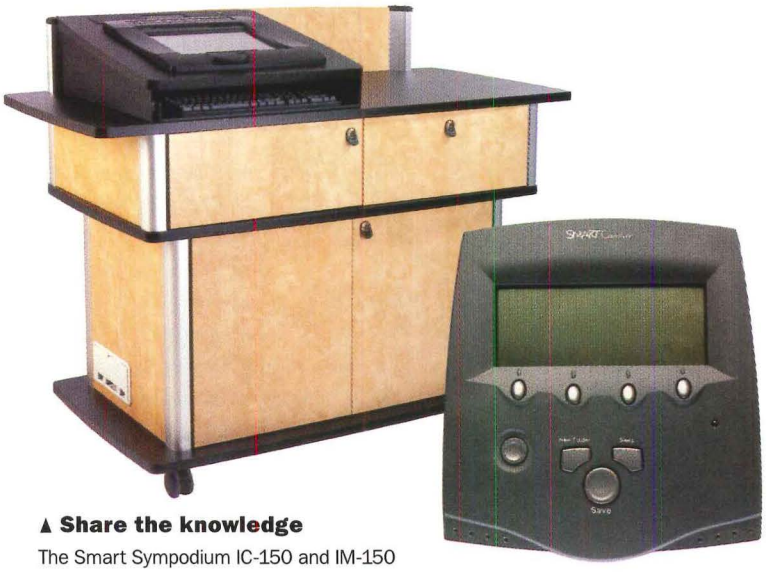

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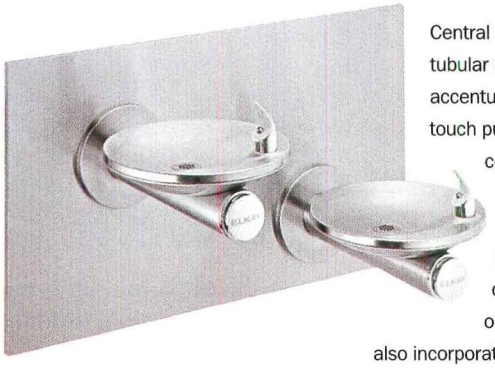
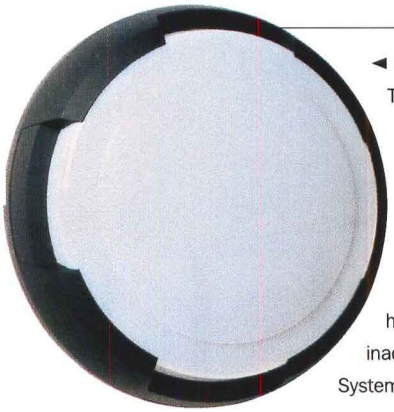


▲ Too cool for school

The Elkay line of SwirlFlo coolers has been redesigned for 2003, substituting curves for the previous linear profile. Central to the redesign is a new tubular arm that supports and accentuates the basin. A light-touch pushbutton disc, compatible with the curved design, replaces the pushbar. Features like a splash-minimizing contoured basin, proven on the previous model, are also incorporated into the new design. Single-level, two-level, refrigerated, and non-refrigerated SwirlFlo models are available. 630/574-8484. Elkay, Oak Brook, Ill. **CIRCLE 103**

Master control

ron's new Spectrum 520 school intercom system can meet the communication d security needs of K-12 or higher educational facilities, including classroom to ministration intercom and class change/warning tone signaling. Spectrum 520 pports multi-line telephone service with full hold and transfer capability and direct nnection of standard single and multi-line telephones, eliminating the need for a parate phone system. The system also allows any telephone to function as an ministrative master station with full LCD display support. 773/275-1900. Jeron ectronic Systems, Chicago. **CIRCLE 104**



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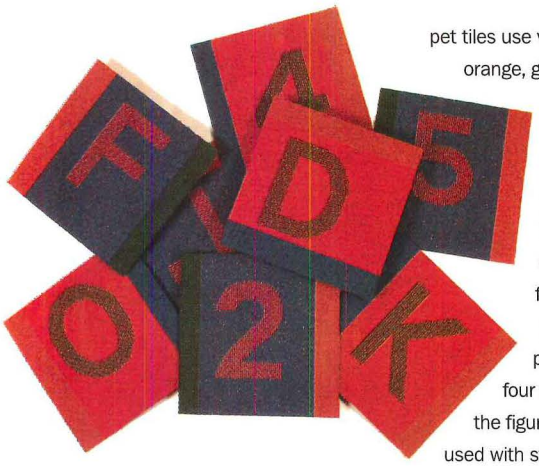
Education Products



▲ Teaching tiles
Ideal for Kindergarten and early learning classes or children's clinics and hospitals, Interface's ABCs and 123s modular carpet tiles use various combinations of red, orange, green, and blue to create its backgrounds, figures, and borders. The slightly textured, 50-centimeter products display either one full letter or number per tile, creating an engaging surface on which to learn and play. The variance in color placement per tile produces four different backgrounds for the figures. The collection can be used with standard products in the Interface line to create checkerboards, accent rugs, or other creative installations. 706/882-1891. Interface Flooring Systems, LaGrange, Ga. **CIRCLE 106**

► Fiberglass wheelchair lift

SpectraLift is the industry's only fiberglass wheelchair lift, according to the manufacturer. SpectraLift features a quiet, sealed hydraulic lift and a fiberglass construction that allows for soft curves and recesses and fewer seam lines. Available in 20 standard colors, the wheelchair lift is adaptable for indoor and outdoor use and is ideal for schools, churches, meeting halls, offices, and homes. 800/343-9007. Inclinator Company of America, Harrisburg, Pa. **CIRCLE 108**

► Designed for educators

Developed with educators' input, the rear projection Smart Board 2000i interactive whiteboard combines the benefits of a large touch-sensitive display with a height-adjustable design. With an easy-to-turn handle, teachers can lower the screen from teaching height to one that is easily accessible for students of all ages and needs. With Smart Board software, teachers can access, control, or write over the top of any computer application and save these notes to a single file. 888/42-SMART. Smart Technologies, Calgary, Canada. **CIRCLE 111**

◄ Quicker cabinets
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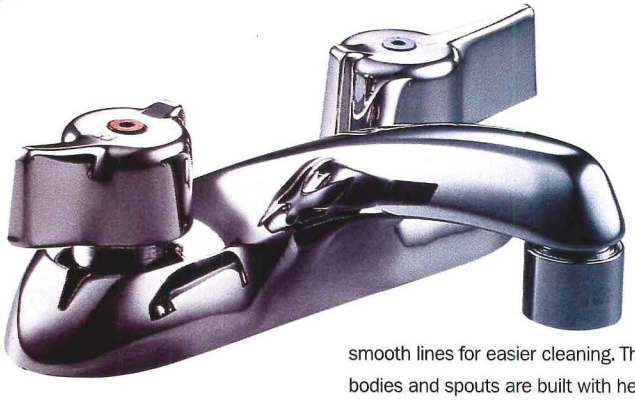
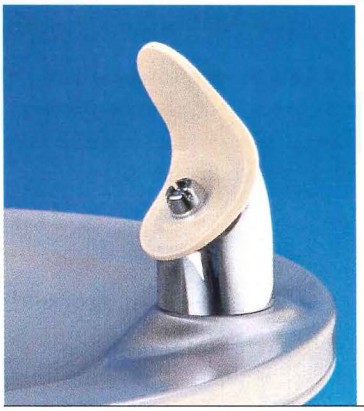


▲ Post-finger-painting faucet
Gerber commercial kitchen and lavatory faucets are vandal-resistant, feature ADA-compliant blade handles, and have smooth lines for easier cleaning. The bodies and spouts are built with heavy cast brass for a range of commercial kitchen and bathroom applications. 847/675-6570. Gerber Plumbing Fixtures, Lincolnwood, Ill. **CIRCLE 109**



◄ A healthy sip of water
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► Fabric duct to keep gym cool

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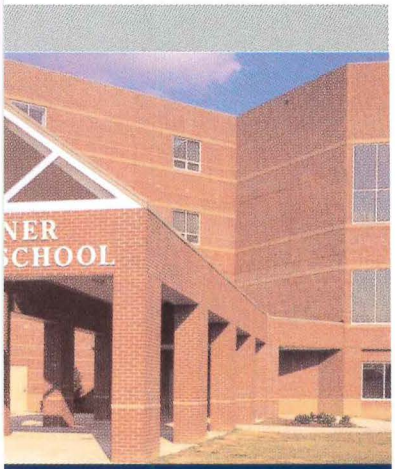

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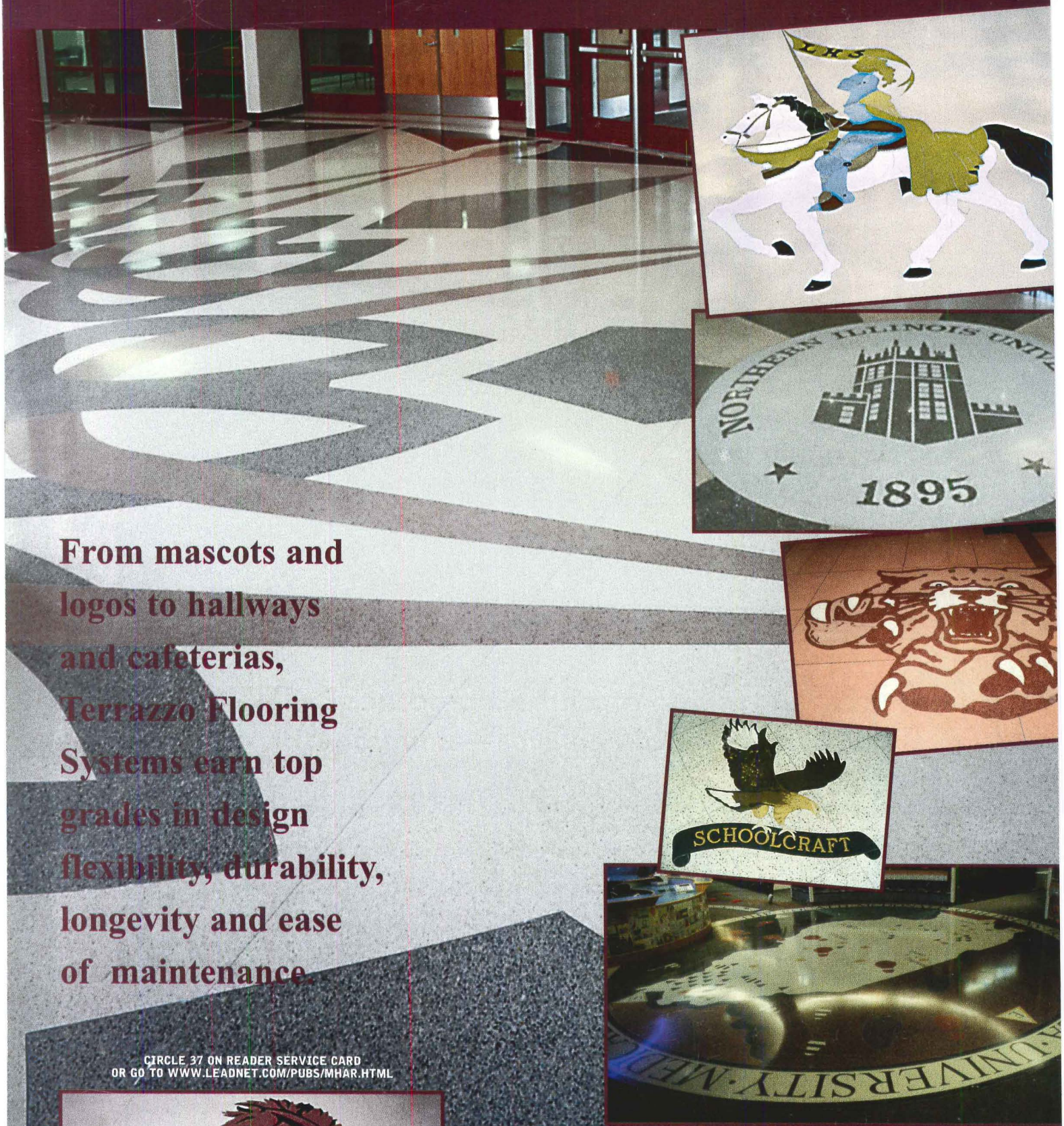

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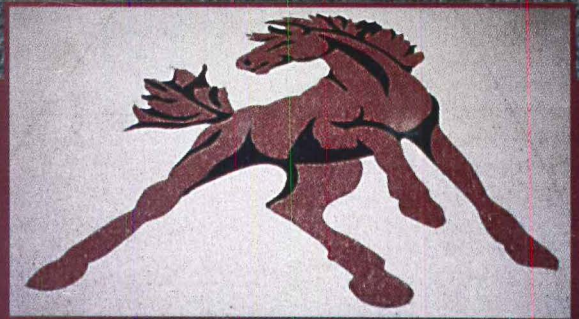

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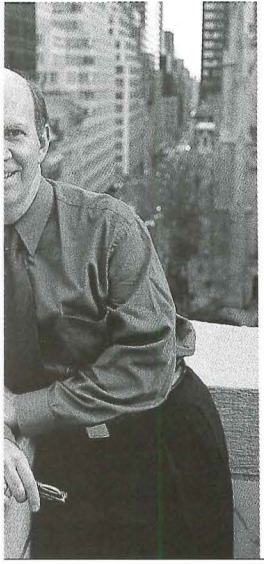


An Open Letter to David Childs and Daniel Libeskind

Editorial

By Robert Ivy, FAIA

Now you've done it—cemented a relationship to design the first tower on the former World Trade Center site. We saw the reluctant look in your eyes as you accepted the inevitable and embraced in e photo-op; we saw the wary resolve and the lingering questions of what lay ıead for you both. We could tell it in your smiles: A forced marriage is never ı easy one.

You need to know that every architect in this country—all 100,000 us—stand behind you. Most architects worldwide join in wishing you two, ıd the groups that you represent, well. However, in the same breath, we're ıited in saying, "Don't mess this up."

You both will face skepticism, including cynicism from architects ıd the general public, that the dynamic forged in the original selection ocess has been subverted. Remember what has already happened: the ours of agonizing conceptual design, the hundreds of thousands of dollars ent by the LMDC and other teams of architects, the white-hot glare of the ieg lights focused on a choice. This choice. Despite the gaffes along the way, ıd the public repudiation of interim plans, Libeskind's plan emerged rela-vely unscathed.

With good reason. Daniel Libeskind captured something beyond ere building in his drawings. His first plans, presented at the Winter arden in December 2002, caught the moment with a vertiginous edge, pre-nting a gritty, angular view of today's New York. Those first renderings, oming up from the Manhattan schist to asymmetrical high-rises, said mething authentic about the people and the place with a dizzy energy. We cognized ourselves in those plans; you got it right.

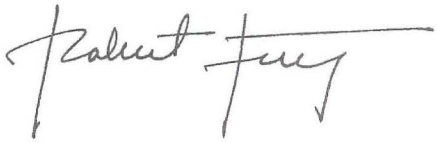
Outside pressure and events have already affected the outcome. No ıe can deny that the PATH station had to return to service, but subsequent quirements have reduced the plaza's depth from approximately 70 to 30 et; the Gardens of the World, which originally seemed more conceptual ıan actual, evolved into an open tower. Further changes will be inevitable ıd may prove beneficial as the plans mature. However, any decisions that smack of expediency and threaten to compromise the force of the original must be rejected. That advice goes for the whole team, for your client, and for each of you individually.

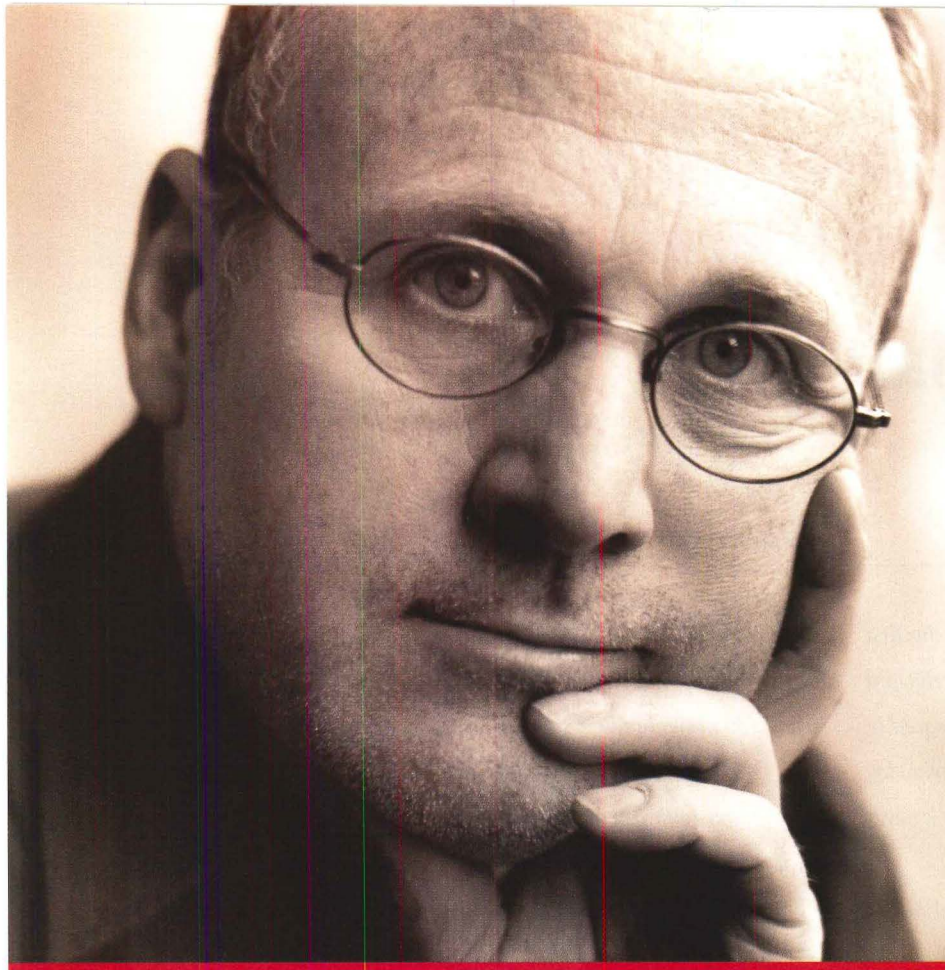
David Childs, you have engaged complex programs before, though never with this critical attention. The stewardship of such a prime site, if managed properly, can gain you immeasurable international admiration, orchestrating the Libeskind scheme through the rough days ahead. Cave in too quickly, allowing this site to become a commodified real estate deal, or lend too heavy a hand to work that has already lodged in the public consciousness, and you will have failed in all our eyes. If you keep the Libeskind vision intact—not allowing the client or political wrangling to blunt the edges—you may find greatness within your grasp.

Daniel Libeskind, do not surrender or weaken the ideas you have already forged. When you have presented your intentions for New York and the WTC site, those present have risen to their feet and applauded. You've been forced into a compromise marriage; keep December's triumph in mind as you proceed through the coming months.

Both of you will be tested. Your client, the developer Larry Silverstein, controls the purse strings. The Port Authority, a relentlessly pragmatic institution, owns the land. The Governor of the State of New York holds the political cards. But make no mistake. Ultimately, your client is the public, bound to this place and this process by an ethical trust that you both share. All of your fellow architects support you in your work as you begin the translation of a strong idea from two to three dimensions.

Here's your charge from all of us: Make it sing.





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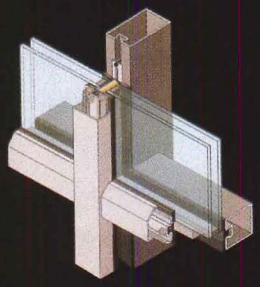

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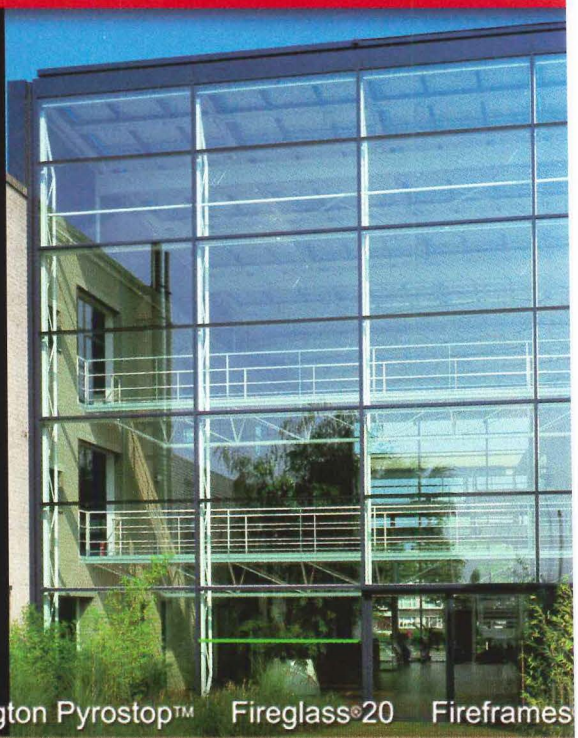

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Letters

ɔn't ignore the students

m writing in response to an arti- about SCIArc written by Joseph ɔvannini [Building Types Study, y, page 136]. Maybe Giovannini nnot find the entrance to the ilding downtown because he is ɔ caught up trying to be critical stead of speaking with the stu- nts who make the school what it The article sounded more like an derhanded personal attack rather an a legitimate and interesting cri- ue. Giovannini also lays out his ɔmmentary" with no regard to the ntext of how the school fits into e downtown area. How many chitecture schools would even tempt this move to downtown Los ıgeles? How can someone who es not go to SCIArc tell me what e "programmatic concerns" are for such a unique school as this one?

By ignoring the students, Giovannini really has no sense about what the school or the building means. Maybe Giovannini should have asked Michael Sorkin what he thinks? His opinion would be much more educated, since he actually lectured at the school and then stayed around for dinner with the students. I invite Giovannini to come do the same. Students alter the building every year for thesis, so maybe Giovannini should come then, when the school and the building shine. My family and I have subscribed to RECORD for a very long time. I very much enjoy the magazine, especially archrecord2, but if you choose to attack SCIArc in your magazine again, please come do it in front of the students of the school. You will get a very educated and harsh response from a community that you should be supporting.

—Gavin Wall
Los Angeles

Geological rumblings

I thank you for the piece on the definitions of architecture in your June issue [Critique, page 61]. Always being on the lookout for new, pithy statements about our profession, your definitions intrigue me. Perhaps more apt than "Architecture is geology" in describing current trends is "Architecture is the appropriate synthesis of contemporary ideas to create space." This definition is applicable to centuries of architectural history, as well.

I am much more partial to Lou Kahn's aphorism "Architecture is the thoughtful making of space." A professor of mine took this in a slightly different direction and said, repeatedly, "Architecture is the thoughtful making of special place."

My own personal definition is in between all of these: "Architecture is the appropriate, thoughtful synthesis of ideas of global (universal) import applied in a(n) (il)logical manner and carried out in agonizing rigor to create space." A little long-winded, but you can probably tell that I haven't been around long enough to have really made up my mind.

Someday I plan on nailing it down, and after that I hope it changes on me many, many times.

—Christopher Hamer
Oak Park, Ill.

In his article "Architecture as geol-

Letters

ogy?" [June, page 61], Robert Campbell invited "other definitions" of architecture. Here is one: "Architecture is the art and science of being neither." It is not quite art and not quite science. It tries to combine drawing, painting, engineering, psychology, politics, economics, construction, and jurisprudence into an amorphous conglomerate, but it has a superficial knowledge of each of these components. Nowadays an architect is not a chief builder anymore but a design manager who coordinates the efforts of other professionals and accommodates various, often belligerent interests. The architectural aesthetics or, as I call it, "the cultural function" of architecture still belongs to the professional elite, which periodically changes its shibboleths like "geological," "holistic," "contextual," "timeless," "sustainable," or "green," or whatever they invent to break the mediocrity of the mainstream design that follows them. Psychologists call this phenomenon "aesthetic fatigue," which is also responsible for changes in other industries, like fashion. But this vacillation is not only inevitable but useful, because we instinctively imitate the great variety of natural species. Every time we remove plants and soil to build our structures, we feel their woeful inadequacy in comparison with the flexible, sustainable, and living structures of Mother Nature. This imitation may vary from a parachute to a rock, but both are necessary. So, for the elite, architecture is the art of inventing new images; for the rest of the profession, it is the art of interpreting them within specific constraints.

—Anatol Zukerman, AIA, BSA, Newton, Mass.

Multicolor malfeasance

I am writing in response to the historically informative article by John Calhoun pertaining to lighting the skyline (MetLife Tower) in the May issue [Lighting, page 316]. As a resident of the Lower East Side with a great view of the assorted collection of illuminated skyscrapers of the city, I would like to pose the question, "Why do we need to make Christmas ornaments out of architecture?" Not wanting to sound attached to the aesthetics of Feininger or Stieglitz, I wonder what is the attraction to the crass cult of disco building. Since when should a skyline be cute?

I am sickened with every incarnation of multicolor, "politically correct" lighting scenario that undermines the majesty of the city at night. There is an appropriateness, if not purity, in the neon color advertising that graces the heart of Times Square—there is an implied sense of festivity to the eclectic mosaic of Broadway—however, I fail to see the need to colorize towers in a way that cheapens, if not demystifies scale. The application of makeup, whether digitally or manually applied, makes big things small, denying them a sense of mystery that one equates with monochrome. Color should be a direct result of light reflecting ma rial, not mascara projected on sandstone and glass for the viewin pleasure of a "feel good" quickie cu

The black and white of the cit is not an exercise in nostalgia. A sensitive use of pure light takes great architecture out of the realm of commonplace and elevates it tc the level of otherworldly.

—Stephen Talasnik
Via e-mail

Corrections

July's review of the Milan Furniture Fair [page 217] should have said tha the desk by Zanotta was introduced this year to commemorate the 30th anniversary of Carlo Mollino's death not the 13th. In the June issue [Building Science, page 185], Andre Prera of Hellmuth + Bicknese Architects should have been credite for the photomontage on page 188.

Send mail to rivy@mcgraw-hill.co

Record News

.ibeskind and Silverstein reach an agreement for WTC site

tudio Daniel Libeskind and Larry ilverstein, the developer who holds ıe lease for commercial space at ıe World Trade Center site, reached ı agreement on July 16 about beskind's role in the design of the 776-foot tower that will anchor the te. According to the agreement, avid M. Childs of Skidmore, Owings Merrill will serve as the design chitect and project manager for ıe office building, which the Lower lanhattan Development Corporation MDC) bills as the world's tallest.

avid Childs, Daniel Libeskind, and Larry ilverstein (from left) joined LMDC and Port uthority officials to affirm their agreement.

Libeskind, whose master plan for the site was selected by the LMDC, will collaborate with Childs during the concept and schematic design processes and will be a full member of the project team.

Critics of Silverstein had worried that the developer would exercise his right to put up a building without regard to Libeskind's design. Others worried about Libeskind's lack of experience in designing tall buildings. *The New York Times* reported that the agreement came under pressure from LMDC officials who have been ordered by Governor George Pataki of New York to adhere to a strict rebuilding time line. Libeskind has placed the skyscraper, known as the Freedom Tower, in the northwest corner of the site, at the end of an ascending spiral of buildings. Silverstein reportedly wants the tower closer to the proposed transit hub at the northeast corner.

Libeskind's renderings also place two of the shorter office buildings in the spiral on land that is not owned by the Port Authority of New York and New Jersey, which owns the site of the World Trade Center. The *Times* reported that the Port Authority is pursuing those sites. One is the former location of a Greek Orthodox church that was destroyed when the towers fell; the Deutsche Bank building, recently declared unsalvageable, occupies the other. The off-site land would be essential to fulfilling the original spiral proposal and would also relieve some of the burden of restoring the 10 million square feet of office space that was lost, as Silverstein has said he intends to do.

Towers (far right) mark the new PATH station.

Meanwhile, the Port Authority has built the first new aboveground structures at the site. Two trusswork towers have risen at the northeast corner of the site, marking the entrance to a temporary station for the PATH train to New Jersey.

The LMDC also announced that 5,200 teams or individuals entered its open competition to design the memorial for the site. A winner will be selected in the fall. *Kevin Lerner*

)ean changes lead to discontent at Columbia and U. of Tennessee

niversity of Tennessee

larleen K. Davis, dean of the School Architecture and Design at the niversity of Tennessee, was asked to ep down in June by the university ıancellor, who pointed to her budg- ary mismanagement and uneven ring practices. But several architects ıd students are protesting the ecision, claiming that the move is ıjustified and that Davis had been oing a superb job.

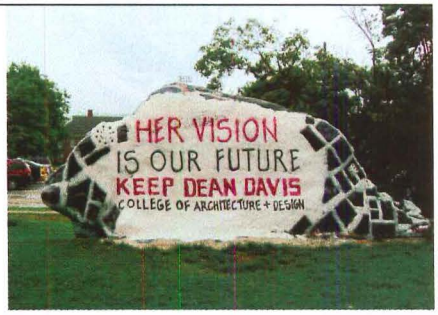
Newly named University of ennessee chancellor Loren Crabtree ays he sought the move, announced ıne 30, because Davis, who has een dean for nine years, ran up xpenditures of more than $677,847 since 1999. Crabtree also claimed that the procedures for hiring, promotion, and tenure under Davis had been "somewhat irregular." Said Crabtree: "The process has had problems. You need to assess the candidates' records without bias."

Several professors and architects, as well as students, at the university are up in arms about the decision. Many say the College of Architecture and Design has flourished under Davis, and that the reasons given for her dismissal aren't fair. A group of students has started a Web site dedicated to Davis's cause; it can be found at www.keepdeandavis.com.

Columbia University

Former Columbia University School of Architecture dean Bernard Tschumi, who stepped down in June, does not appear completely happy with the selection criteria for his replacement. He recently asserted that the new dean's selection committee was putting too much emphasis on the acquisition of a marquee name.

"They looked more for people that had some name recognition, which I think is not a criterion for the job," said Tschumi, who left the post to pursue other career interests full time. "The job demands a fair amount of hard work and not just a signature, figurehead name."



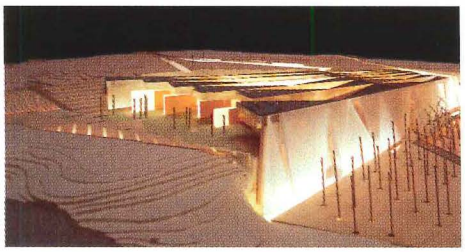
A sign of protest at the University of Tennessee.

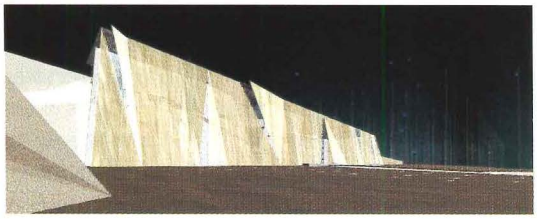
The 11-member committee to select a new dean was headed by former Columbia provost Jonathan Cole, who stepped down on July 1. A new head has not been named. Final dean selection will be made by President Lee Bollinger. *Sam Lubell*

Record News

Grand Museum of Egypt design goes to heneghan.peng.architects

The firm heneghan.peng.architects has won the international architectural competition to design the Grand Museum of Egypt. The museum will be located between the city of Cairo and the outlying ancient pyramids. With a gross total budget of $350 million, the museum complex is expected to attract at least 3 million visitors each year. There is no assigned date of completion.





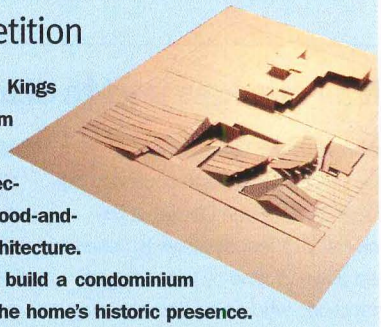
Plan for the Grand Museum of Egypt.

The jury praised the architects' interpretation of the desert's topography and the design's "simple elegance" and "refined expressive qualities." As the architects note in their project description: "The museum traces a new profile for the plateau without competing with the pyramids." Structural folds in the museum's roof extend the line of the site's plateau, while a translucent stone wall opens the museum up to the pyramids. The proposal demonstrates the use of light to sculpt and separate the different elevations of the building into three "bands"—the lower plateau, the museum level, and the upper plateau. A piazza/sculpture court completes the scheme.

In 1992, Egyptian President Hosny Mubarak set aside a plot of land for the museum. An international crew of scholars and experts studied how to develop a museum that would house the world's largest collection of Egyptian artifacts. Two years ago, a group including UNESCO and UIA began work on the competition brief, outlining a complex that would include exhibition galleries, conservatio workshops, and archaeological storage space.

The competition attracted 1,557 entries fro 83 countries. Teams led by Coop Himmelb(l)au and Renato Rizzi won second and third prizes, respectively. Heneghan.peng.architects were established in New York in 1999 and relocated t Dublin two years later after winning the international architectural competition for the Kildare Civic Offices in Ireland. *Diana Lind*

Schindler house dispute spurs a competition



A dispute between R.M. Schindler's famed studio-residence on Kings Road in West Hollywood, California, and a proposed condominium project next door has resulted in a design competition. The single-level, 2,500-square-foot house, built in 1922, is widely recognized as a landmark of early Modern architecture. Today, the wood-and-glass building houses the offices of the MAK Center for Art + Architecture.

When a developer recently purchased the adjacent lot to build a condominium complex, the MAK Center worried that the project could blight the home's historic presence. Unable to raise the $2.8 million needed to buy the 20,000-square-foot property, the MAK Center launched a competition. As such, 20 architects were invited to submit an alternate vision for the adjoining parcel.

Submissions came from Coop Himmelb(l)au, Mark Mack Architects, Eric Owen Moss Architects, Dominique Perrault, Michael Maltzan, and RoTo Architects, among others. In June, a jury led by Frank Gehry, FAIA, selected proposals from Odile Decq + Benoit Cornette, Peter Eisenman (proposed design shown above), and Zaha Hadid Architects as the joint winners.

Although no money exists to build any of the schemes, which range from garden galleries (Eisenman) to a 21-story apartment tower (Hadid), the MAK Center plans to hold an exhibition of the entries in August. A grass-roots effort has since begun to preserve the adjoining property, getting it registered as a historic landmark. Meanwhile, the three-story, 28,000-square-foot condominium complex, designed by Lorcan O'Herlihy, a Schindlerlike stylist himself, is slated to break ground in December. ***Tony Illia***

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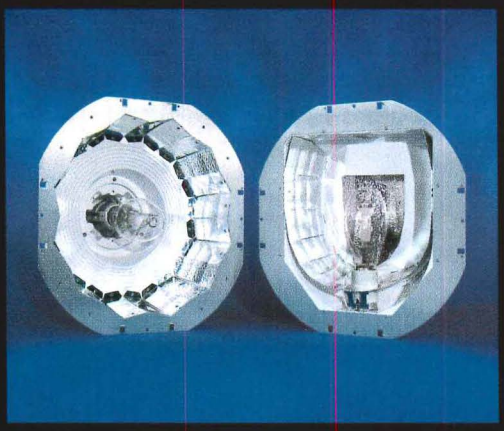

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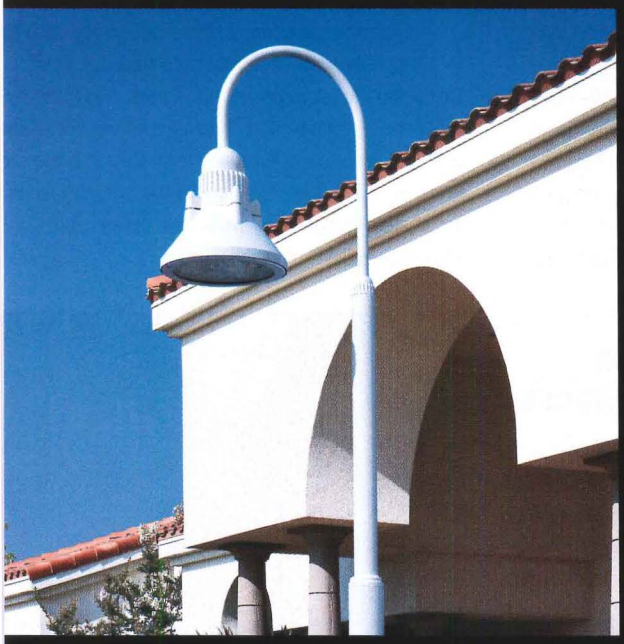
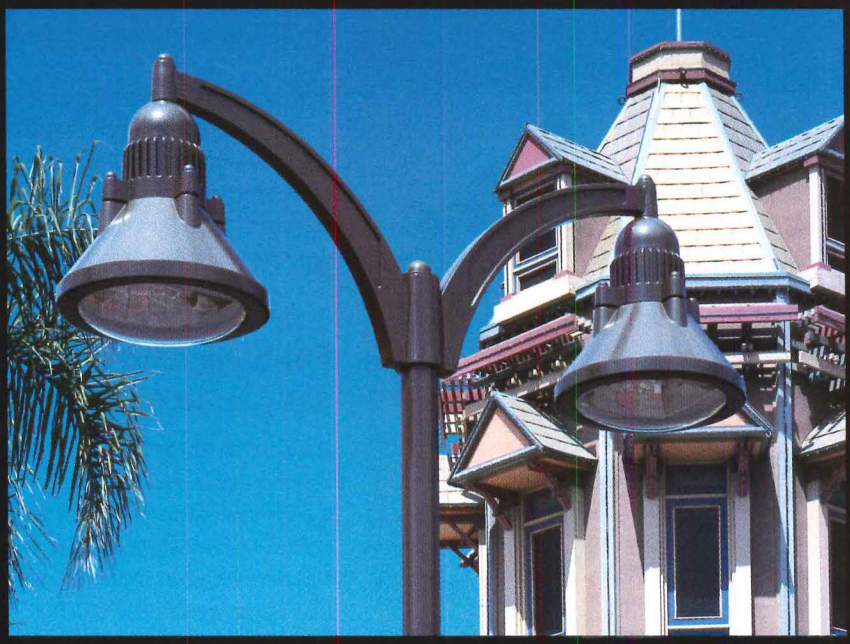
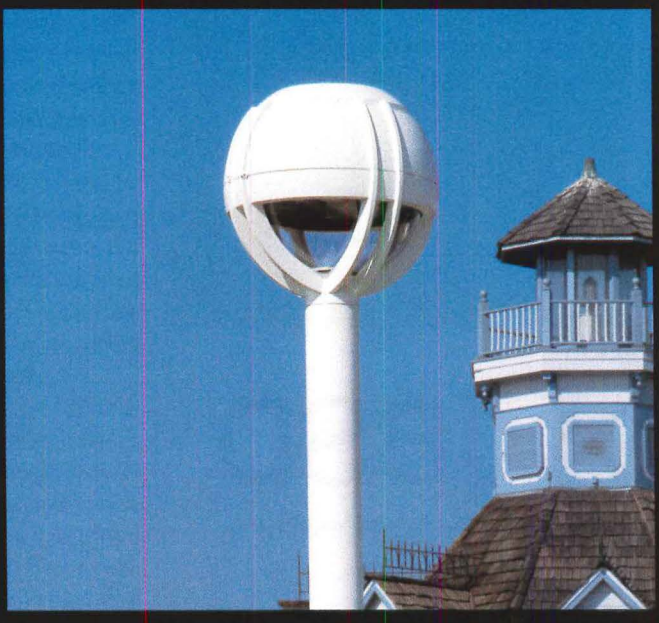






Record News

Controversy ends—Orlando Federal Courthouse back on track

Two years ago, it looked like Congress might pull $60 million in funding from a federal courthouse project in Orlando after a feud broke out between the judges who were to work in the building and the General Services Administration. Now the project is back on track and speeding toward completion.

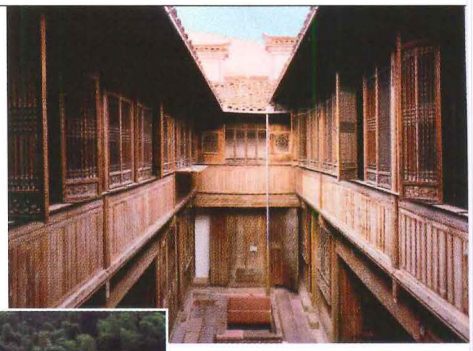
The design for the Orlando Federal Courthouse.

The controversy started in 1998, when two judges objected to the procedures used to select Leers Weinzapfel Associates, Boston, as the project's architect. After much legal wrangling, a second panel again selected the firm. But by then the cooperative spirit essential to getting the court house designed had been broken. The judges, who were now among those acting as clients on the project, and others in the community, vehemently criticized Leers Weinzapfel's original four-story design, objecting to the amount of glass in the proposed building's facade; courtroom size; location; acoustics; and security features. The GSA defended the design.

To save the project, negotiations were held between the building's future users and the GSA. These led to a second design. Leers Weinzapfel reshaped the building so that "it's much more solid and compact." The glass facade disappeared, and a bell tower, said to be inspired by one attached to a U.S. Post Office in Orlando, was added. A park, designed by landscape architect Dan Kiley, a parking deck, and a link to an existing building were added to the program so the entire block where the courthouse is to be sited will one day work as a continuous courts complex. *Charles Linn*

Peabody Essex Museum adopts an old Chinese house

The Peabody Essex Museum (PEM) in Salem, Massachusetts, recently concluded a $150+ million transformation featuring a new wing by Moshe Safdie and the installation of Yin Yu Tang, the only complete Qing Dynasty house outside of China. The total project generated 250,000 square feet of new and renovated space, representing "a fundamental remaking of the institution," says Dan Monroe, executive director of the museum.



The Yin Yu Tang house at the Peabody Essex Museum.

PEM's new 111,000-square-foot wing integrates the museum's 24 historic buildings with other existing structures. Safdie's design features a soaring glass roof covering an indoor street and atrium lined with brick- and sandstone-clad gallery pavilions.

A highlight of the museum's transformation is Yin Yu Tang, a Chinese merchant's house built c. 1800–25 in the Anhui style. Moved from the Huizhou region of southeast China, the 4,500-square-foot structure was the ancestral home of the Huang family. It is constructed of wooden post-and-beam framework surrounded by a stone and brick curtain wall and covered with lime plaster.

By the 1980s, no family members were living in the house, and the Huangs decided they could not keep it. The museum first learned of the house in 1996, and the following year an agreement was reached with the Xiuning County Cultural Administration to dismantle the residence and move it to PEM.

A team of Chinese artisans consulted on the house's reerection, working with project architects John G. Waite Associates and construction managers and general contractors Liberty Street Restoration Company. New materials were integrated with the old, then finished to preserve the building's original character. *Debra Pickrel*

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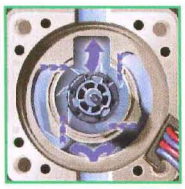

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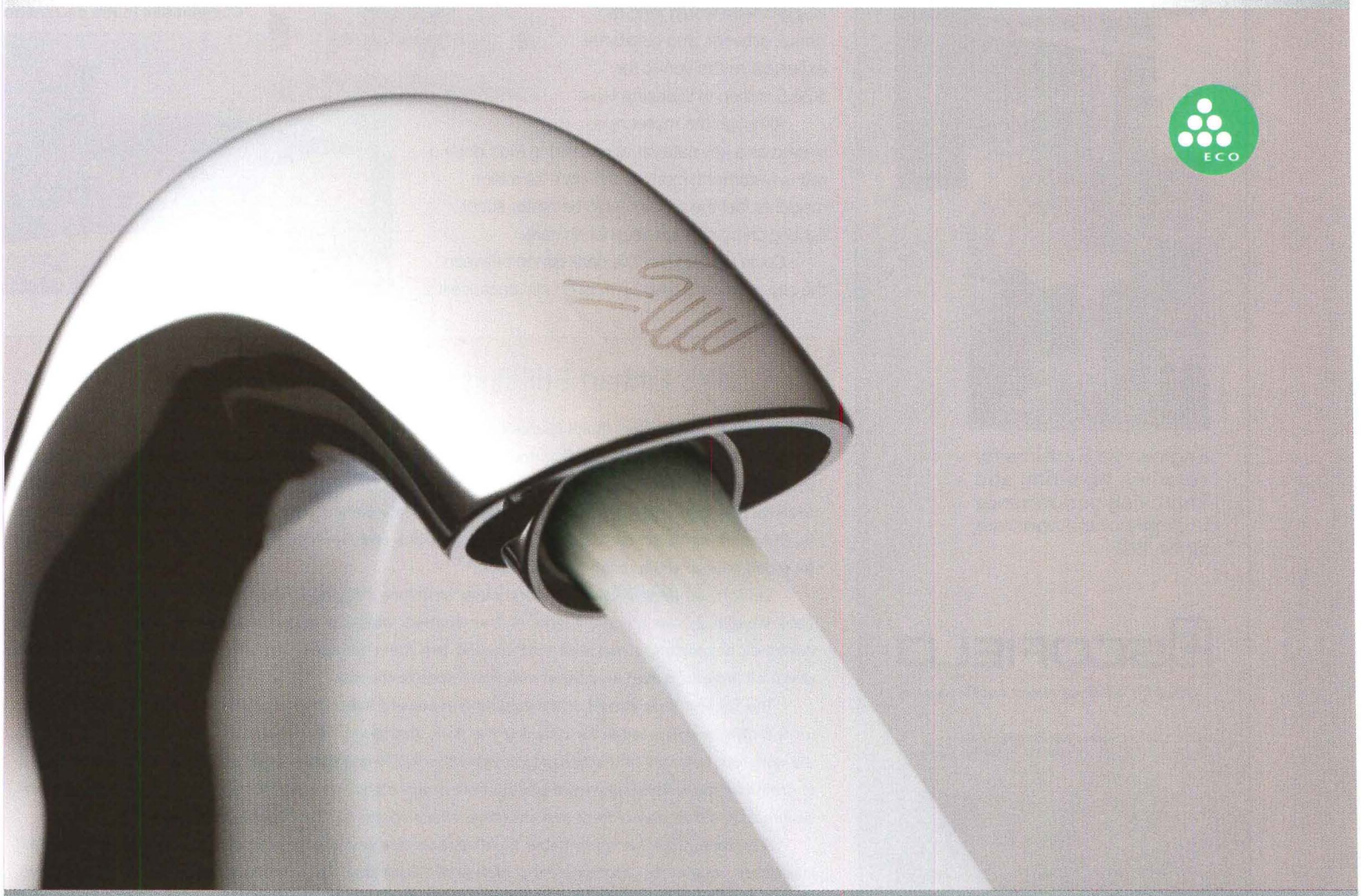

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Record News

Guggenheim Rio's future threatened by public outcry

The planned Guggenheim Museum in Rio de Janeiro, Brazil, faces a court challenge, threatening the project's future. A Brazilian court blocked construction of the 240,000-square-foot building, designed by Parisian architect Jean Nouvel, in late June following a public outcry that the $250 million museum was an unaffordable luxury for a city racked by poverty.

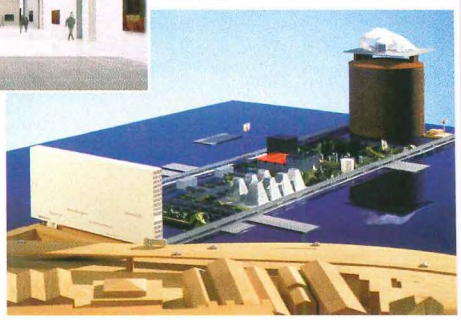
On April 30, the city of Rio de Janeiro penned an agreement with the Solomon R. Guggenheim Foundation, New York, to build a new museum on Maua Pier in Guanabara Bay near Rio's business district. Under the terms of the deal, Rio would finance the museum's construction as well as its operating expenses and exhibitions. In exchange, the Guggenheim would lend its name, artwork, and curatorial expertise to the venue for $28.5 million in licensing fees.

Although the museum is viewed as a key catalyst to revitalizing Rio's deteriorating waterfront, many of the city's 14 million residents feel the money could be better spent fighting crime or improving health care.

Court officials say the deal signed between the city and the Guggenheim isn't valid because it's based on U.S. rather than Brazilian laws and valu in dollars as opposed to reals (Brazil's national c rency). They also said no first payment would be made to Nouvel, who was to receive $12 million.

"It's a very complicated and tense situatio said Nouvel. "But we are still moving forward, because nobody has told us to stop working."

The museum, much of which will be built underwater, calls for theaters, multimedia facilitie galleries, a restaurant, a retail store, and tropical gardens. Scheduled to open in 2006, the Guggenheim in Rio would be the sixth operated by the Guggenheim Foundation, including those in New York, Venice, Bilbao, Berlin, and Las Vegas. *T.I.*



Jean Nouvel's plans for the Guggenheim in Rio de Janeiro

Bunshaft's Emhart Building to be demolished

The Emhart Corporation building designed by Gordon Bunshaft of Skidmore, Owings & Merrill in 1963—a concrete and glass office and research building for a glass manufacturing equipment company, is slated for demolition this year by the CIGNA company. Emhart, part of the 300-acre Connecticut General Insurance company's 1956 suburban corporate campus acclaimed for the Wilde Building, also by Bunshaft—with Isamu Noguchi sculpture gardens and Florence Knoll interiors—will be developed for a golf course and a residential complex.

Emhart, an intriguing and experimental structure marking Bunshaft's initial work with engineer Paul Weidlinger, comprises a grid of tree-shaped, massive concrete columns with four diagonal branches supporting a concrete slab around two main volumes—an enclosed, two-story, black-box research laboratory and an interior courtyard open to the sky.

The second floor glazed office volume is recessed 3 feet from a concrete frame to provide shade for the offices and a ledge for cleaning the dark gray glass windows. A short pipe column rises from the concrete columns of the frame to support the roof beam that is covered with hinge-shaped sheets of stainless steel. This innovative pin element emphasizes the lightness of the roof in contrast to the concrete, in a true play of form and structure, which seems to take flight in the landscape.

It is ironic that this remarkable building, now deemed obsolete, could have provided office and laboratory space for contemporary high-tech industries. As architect Tyler Smith of Hartford, Connecticut, who organized the nonprofit Save Connecticut General in 2000 said, "Emhart could have been incorporated into the new development as a conference center or clubhouse." The Wilde Building, which still houses CIGNA employees, may yet be transformed for a new use. ***Nina Rappaport***

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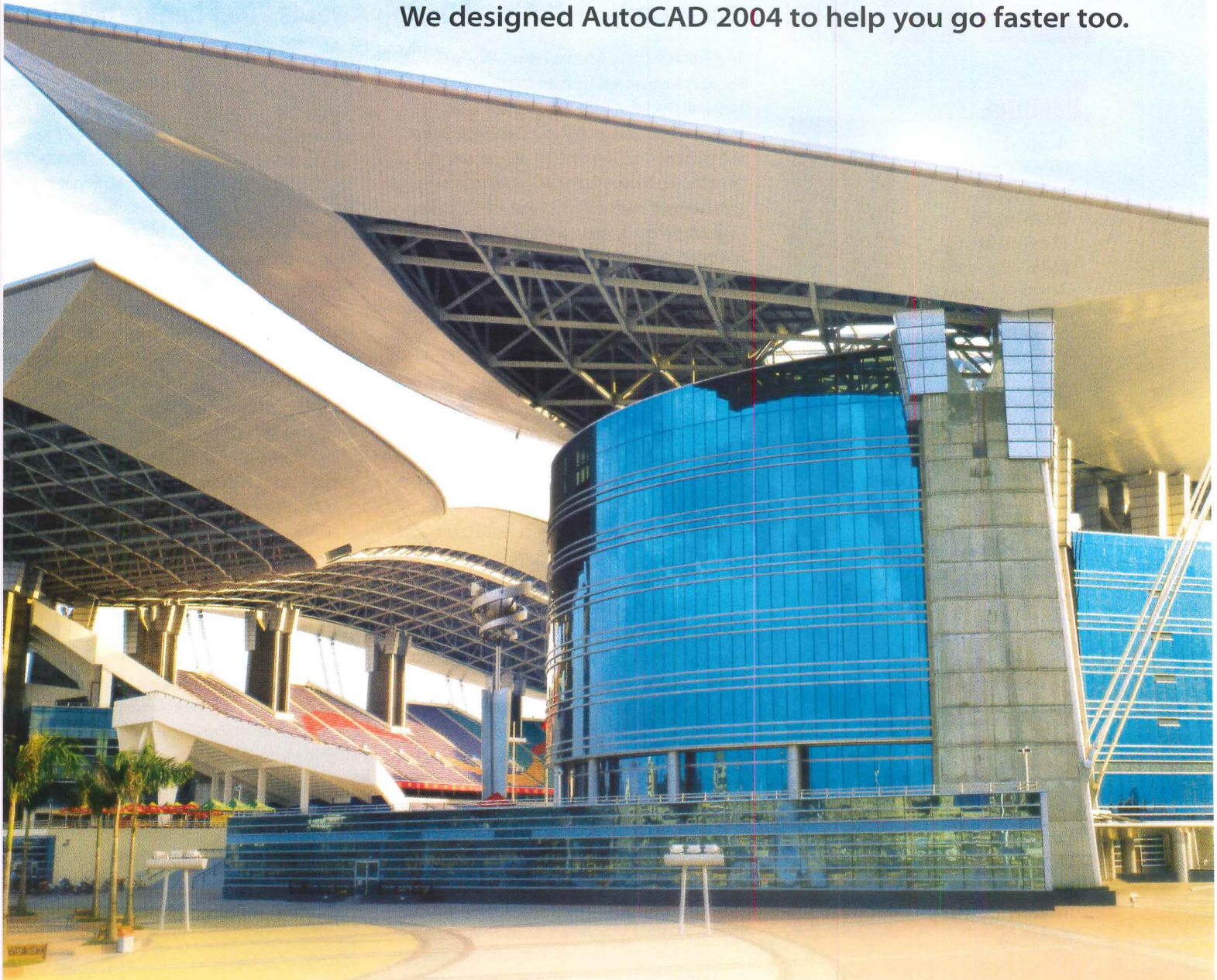

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Record News

Smithsonian's National Design Awards 2003 honors architect

The Smithsonian's Cooper Hewitt, National Design Museum will host its fourth annual National Design Awards on October 22 in the museum's headquarters at 2 East 91st Street in New York City. The $1,000-per-person gala benefits the museum and will feature lifetime achievement awards for I.M. Pei, of Pei, Cobb, Freed & Partners, and Lella and Massimo Vignelli, of Vignelli Associates.

The awards event, expected to draw 550 people, honors the most outstanding contributions in American design. The awards began in 2000 as an official project of the White House Millennium Council, a program established to promote creative and innovative cultural projects in the U.S. Presidential involvement continues, with Laura Bush holding the position of this year's Honorary Patron.


I.M. Pei.

Award categories include lifetime achievement, corporate achievement, architecture, communications, environment, product, and fashion, a new category this year.

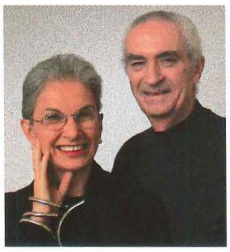
"Without fashion, we were really lacking an important element of design," said awards director Buff Kavelman. "It's a very vibrant aspect of design in the country, and one of the fields that the public thinks about first."

This year's jury is made up of architects and designers such as Rafael Viñoly; John Hoke III, global creative director of footwear design for Nike; Christopher Bangle, director of design at BMW; and interior designer DD Allen.

The selection process was intense: The jury received more than 300 nominations, solicited from a committee of more than 700 leading designers, educators, journalists, cultural figures, and corporate leaders.

Mr. Pei and Lella and Massimo Vignelli were selected by the jury to win lifetime achievement awards for their outstanding service to the design field. Pei won a Pritzker Prize in 1983 and is renowned for such projects as the Bank of China Tower in Hong Kong and the Pyramide du Louvre in Paris, among many others.

Lella and Massimo Vignelli lead Vignelli Associates, a New York design firm whose products include packaging design, interior design, architectural graphics, and corporate identity. The Vignellis have acted as longtime graphic consultants to


Lella and Massimo Vignelli.

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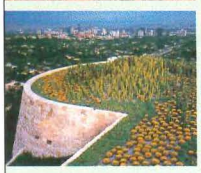
redesigning the maga
zine in 1982 and aga
in 1991.

The finalists for the excellence in arch
tecture award are Architecture Research
Office, which recently designed the Armed Services Recruiting Station in New York City's Times Square; Frederic
Schwartz, architect of the Goldman House in East Hampton, New York; and Billie Tsien and Tod Williams, creators of the Museum of American Fo
Art in New York City.

"There's a great range of talents and specialties," said Kavelman of the architecture finalists. "One strength they all share is that they are all community-minded architects who have done important work for the field and for the communities they are in." *S.L.*

ASLA Awards

The American Society of Landscape Architects (ASLA) has announced the recipients of its 2003 awards programs. A nine-member jury led by Carol Mayer-Reed, FSLA, a principle at Portland, Oregon–based Mayer/Reed, selected only 33 projects out of 436 entries to receive awards. Philadelphia's Olin Partnership garnered four awards, including the landmark prize for New York's Battery Park City's master plan and esplanade, and the J. Paul Getty Center in Los Angeles (left). The Sausalito, California–based SWA Group netted three awards, among them a design excellence nod for Fidelity Investment's Corporate Campus in Westlake, Texas. A formal awards presentation will take place at the ASLA's annual meeting, held October 30 through November 3 in New Orleans. *T.I.*



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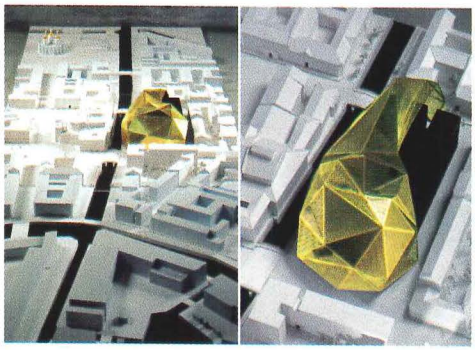
News Briefs



Perrault's design for the Mariinsky Theater.

Perrault in St. Petersburg Dominique Perrault has won an architectural competition to design a new 2,000-seat building for the Mariinsky Theater in St. Petersburg, Russia.

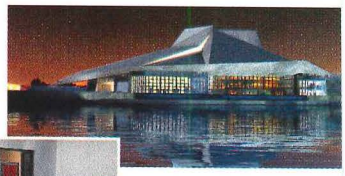
Perrault's design beat 10 other entries, including submissions by Hans Hollein and Mario Botta, among others. The plan calls for covering the new marble building in a veil of glass containing gold-colored anodized aluminum strips "presenting the theater as a beautiful instrument for the Mariinsky's performances, but also to intertwine with the city's historic fabric."

The new building will increase the space available at the Mariinsky by 127,953 square feet. Although final costs haven't been disclosed, the building will receive $100-to-120 million in state funding and could be open by 2008. *T.I.*

Changes at Edinburgh's Royal Botanic Gardens Edward Cullinan Architects has won an architectural competition to design a new visitor facility at the Royal Botanic Gardens in Edinburgh, Scotland. The competition, conducted by the Royal Incorporation of Architects in Scotland, elicited 60 entries from throughout Europe. London-based Edward Cullinan topped a shortlist that included Hopkins Architects, Wilkinson Eyre, and Richard Murphy Architects. The garden, which is the third-most-visited attraction in Edinburgh, occupies more than 72 acres and is home to more than 15,500 plant species. *T.I.*

The garden occupies over 72 acres.

A new arts center for Tempe Barton Myers & Associates of Westwood, California, and Architekton of Tempe, Arizona, have announced a September ground breaking for a new visual and performing arts center, the Tempe Center for the Arts.



Tempe's Center for the Arts will include two theaters, a gallery, and a multipurpose room.

The $63 million complex, slated for completion in spring 2006, is to include a 600-seat main theater, a 200-seat studio theater, a 3,500-square-foot gallery, and a multipurpose room. The design also includes a 24-acre public park to be built and funded by the city of Tempe.

The arts center will be sheltered by an extensive concrete roof system intended to eliminate aircraft noise in the interior spaces. The design also incorporates artwork by artists Ned Kahn, Ramona Sakiestewa, Mayme Kratz, and Mark Ryan. *T.I.*

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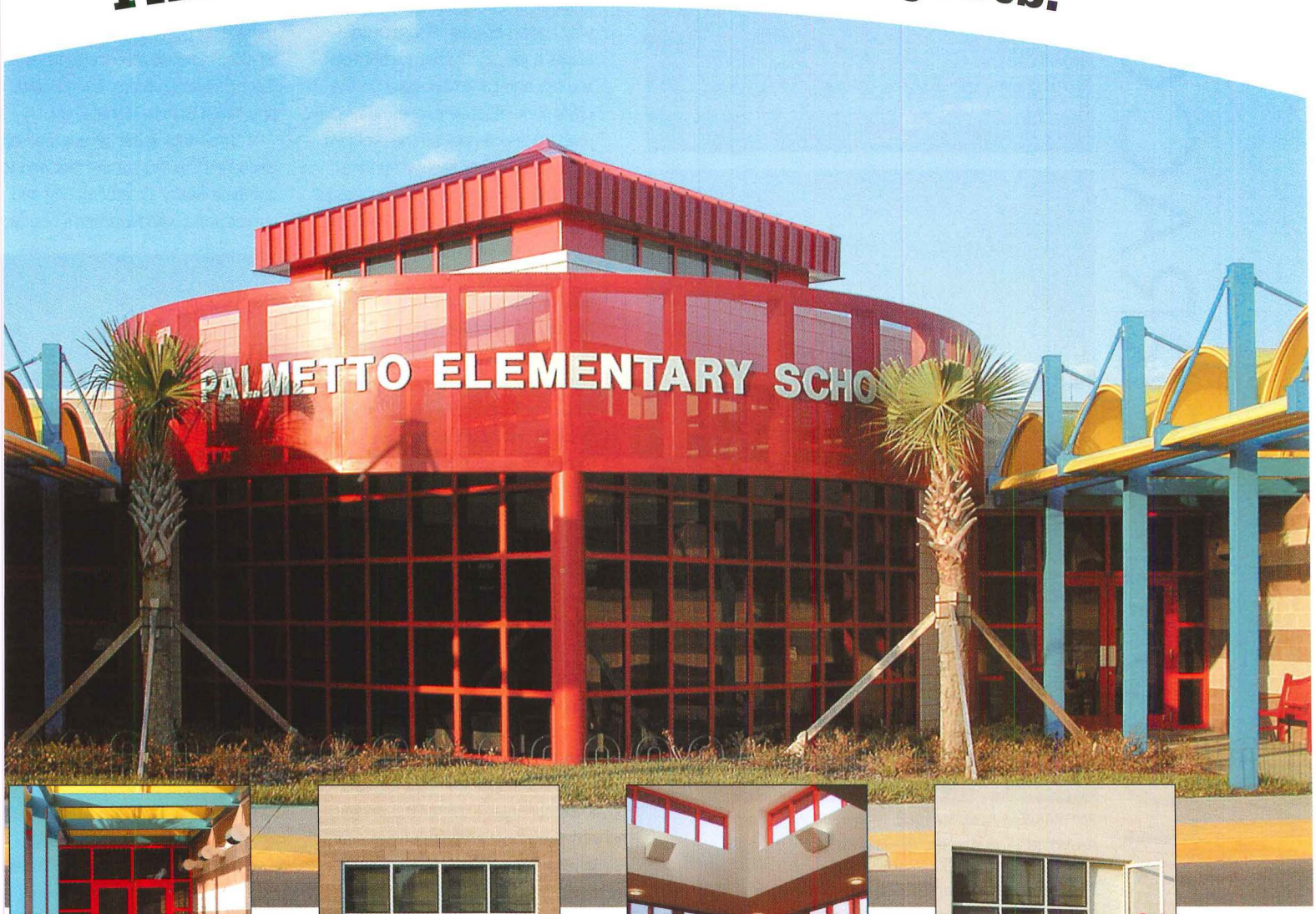

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News Briefs

Five new bridges for Chicago
Chicago is renowned for its 30-mile chain of lakefront parks, but the highway known as Lake Shore Drive raises a formidable barrier between the city and Lake Michigan. On the city's south shoreline, commuter railroad tracks compound the problem, creating a barrier several hundred feet wide. Now, to improve access for pedestrians, cyclists, and people in wheelchairs, Chicago is holding a design competition for five pedestrian bridges on the lakefront.

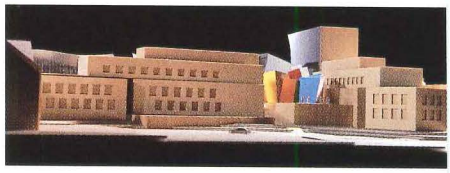
Twenty-three architects have entered, including Murphy/Jahn, the Richard Rogers Partnership, and Wilkinson Eyre Architects. Santiago Calatrava, who met with Mayor Richard M. Daley of Chicago last year and was invited to enter the competition, was the most prominent no-show. Chicago officials previously had shelved one of Calatrava's designs, a pair of pedestrian bridges linking the city's Buckingham Fountain to the lakefront.

The bridges are expected to cost $10 million to $15 million apiece. Construction funding still has to be secured. Three of the bridges are to be built along the city's south lakefront. Another is to replace the aging North Avenue Bridge on the north lakefront, while the last is to be a movable bridge across the Chicago River.

City officials expect to parcel out the work among different architects rather than picking a single winner. The winning firms, which will team with engineers that have been prequalified by the city, are to be named by year's end. *B.K.*

Gehry and Newman at UConn
As part of the $1.3 billion 21st Century UConn program, the University of Connecticut has hired architects Frank Gehry and Herbert S. Newman to design a new building fc its School of Fine Arts. The architectural contest drew proposals from more than 50 architects and was whittled down to three finalists: the Gehry/Newman team, Zaha Hadid, and Mack Scogin Merrill Elam.

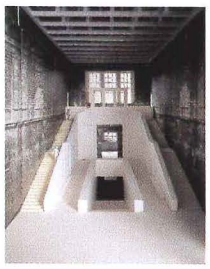
The winning design is expected to cover 185,000 square feet and tc combine Gehry's metal roofing and curved walls with Newman's neotrac



UConn's School of Fine Arts, by Gehry/Newman.

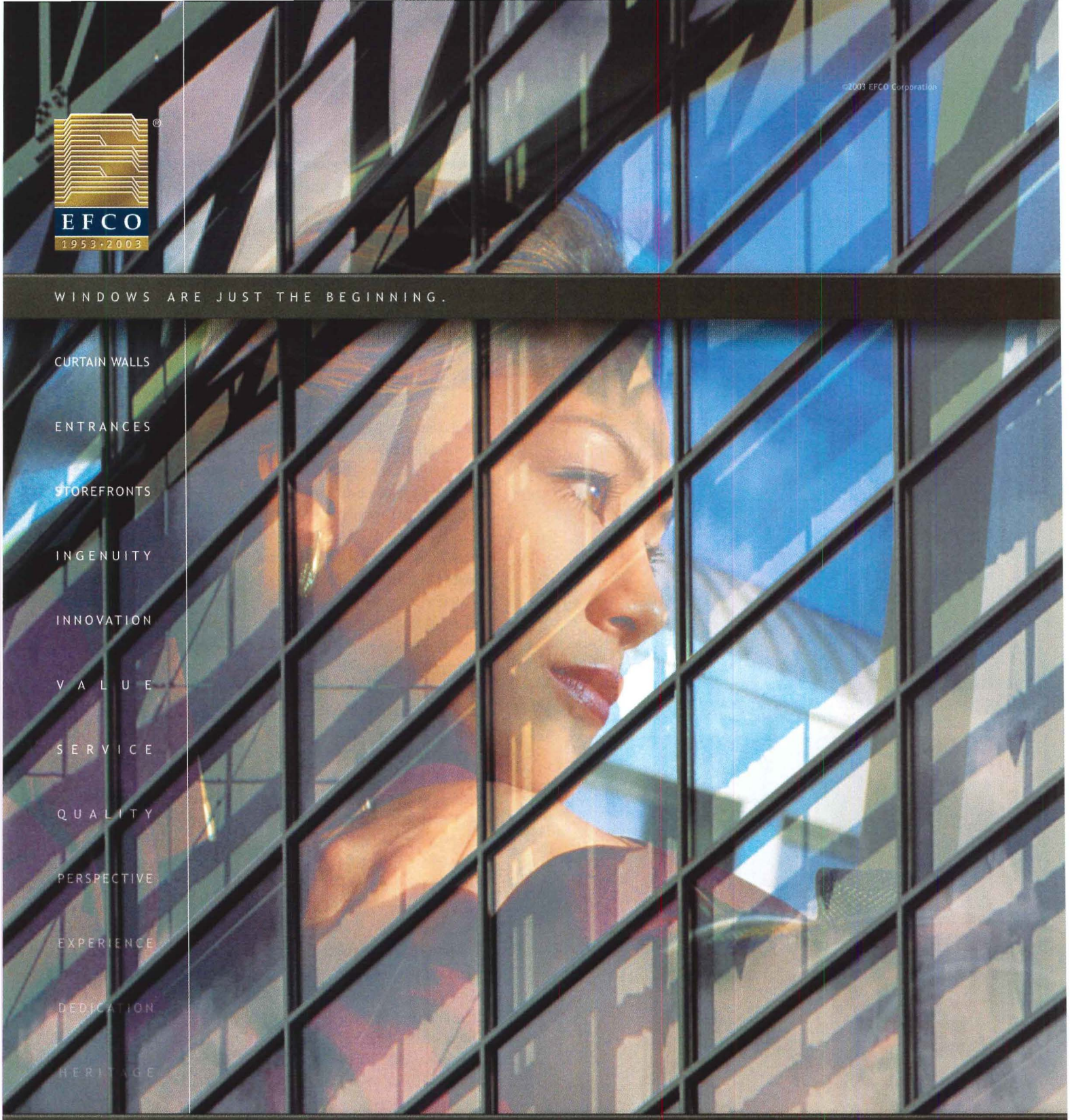
tionalist style. The $70 million projec will house several theaters, a puppetry museum, concert halls, galleries, and dance and art studios. According to David Woods, dean of UConn's School of Fine Arts, the building will be completed by 2006. *D.L.*

Neues Museum restoration
A $270 million restoration of the Neues Museum (New Museum) in Berlin broke ground in late June. London architect David Chipperfielc and restorer Julian Harrap were commissioned to rebuild the famec museum, which was battered in World War I and ignored during the cold war. The British duo reportedly plans tc build upon the existing historic core of the museum, an exhibition hall built by Friedrich August Stüler between 1843 and 1855, preserving the remains of its wall and ceiling frescoes and giving it a modern finish.



The Neues Museum's exhibition hall plan.

Work is expected to be completed by 2008, after which the Neues Museum will house the Egyptian Museum, the Museum for Prehistoric and Early History, and an extensive antiques collection. *T.I.*



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News Briefs

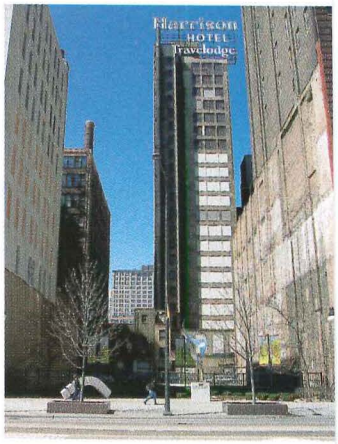
National Building Museum gets a new president The National Building Museum's (NBM) board of trustees appointed Chase W. Rynd as its new president. Rynd's prior positions as executive director of both the Frist Center for Visual Arts in Nashville and the Tacoma Art Museum have made him a nationally recognized leader in the museum profession. As NBM president, Rynd will head planning and development to establish the museum as a leader in the field by increasing its role in the public dialogue about building and architecture. Rynd's post is effective September 2, 2003. *Randi Greenberg*

Krueck to design a new cultural center in Chicago In the first test of whether a contemporary building will be allowed under the design guidelines that govern Chicago's new Michigan Avenue historic district, the Spertus Institute of Jewish Studies has announced that it will build a new cultural center, designed by Chicago architect Ron Krueck, in the district. Many Chicago architects criticized the guidelines, saying they would produce timid buildings in the cliffflike, 11-block ensemble across from Grant Park. City officials maintain, however, that the guidelines will allow for creative solutions.

Krueck, a Modernist, will shape a 10- to 12-story building on a vacant lot just north of Spertus's current home. Scheduled to open in 2006, the $40 million building will seek to create a sense of interaction between Spertus's museum, college, and library. *Blair Kamin*

Doug Michels dead at 59 Doug Michels, architect, artist, and cofounder of the Ant Farm design group, fell to his death on June 12 while climbing alone to a whale observation point in Eden Bay, Australia. He was 59.

Michels, a graduate of the Yale University School of Architecture and recipient of three Progressive Architecture design awards, envisioned an "underground" design method with fellow architect Chip Lord, and appropriately named their design group Ant Farm. The group's most recognizable project, the *Cadillac Ranch* sculpture in Amarillo Texas (1974), consists of 10 Cadillacs in a row jutting out of the ground. *Caroline Mitgang*



Site of new Spertus facility.

Doug Michels.

Libeskind's new house not his own design Daniel Libeskind has contracted Alexander Gorlin Architects to renovate a loft in New York's Tribeca for him and his wife (and business partne Nina, and their daughter. Asked why he didn't want to design his own living accommodations, Libeskind rejoined, "Does a barber cut his own hair?" Although this architectural haircut may be more straightforward than the spiky sort the distinctly avant-garde Libeskind might have come up with, the 2,100-square-foot loft does have a triangular floor plan. And it is within walking distance of the World Trade Center site, which allows Libeskind to keep an eye out for change orders being made by his new best friends in the building process, Larry Silverstein and Skidmore, Owings & Merrill's David Childs. *Suzanne Stephens*

Dates & Events

ew & Upcoming
khibitions

los: SmartWrap
ew York City
gust 5–October 10, 2003
e first show in a new series, *SmartWrap* fea-
es a pavilion by the Philadelphia architecture
n Kieran Timberlake Associates in the Cooper
witt Museum's Arthur Ross Terrace and
rden. SmartWrap is a concept for a customiz-
le building material that would incorporate a
ilding's facade as well as emerging technolo-
s in heating, lighting, and solar energy. At
oper-Hewitt, National Design Museum. Call
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aradise
s Angeles
gust 6–31, 2003
initiating this project, it has been the hope of
e MAK Center to highlight the role context plays
historic preservation. As cities grow up around
me of our most important buildings, can we
aintain the situations in which they were first
perienced? Project proposals for an ideal neigh-
ring plan for the landmark Schindler House have
en selected and will be on view at the house.
ll 323/651-1510 or visit www.makcenter.org.

osence Into Presence
ew York City
eptember 3–October 3, 2003
exhibition showcasing the art, architecture,
d design of remembrance. The exhibition will
ok at works of funerary architecture; demon-
rate how great architects have used the
emorial genre to develop their own talents
d theories; examine the difficulty of memori-
izing an event as complex and unfathomable
the Holocaust; and consider a range of aes-
etic, cultural, and political issues that impact
e process of remembrance. In the Arnold and
heila Aronson Galleries at Parsons School of
esign. Call 212/229-8987 or visit
ww.newschool.edu.

p, Down, Across: Elevators,
scalators, and Moving Sidewalks
ashington, D.C.
eptember 12, 2003–April 18, 2004

The exhibition will explore how these ubiquitous technologies have transformed our buildings, our cities, and our lives. Though these devices are mundane by virtue of our familiarity with their daily uses, *Up, Down, Across* brings to light the enormous impact they have on architecture and movement throughout the world. For further information, call 202/272-2448 or visit www.nbm.org.

Ongoing Exhibitions

Of Our Time: 2002 GSA Design Awards Show
Washington, D.C.
March 27–October 19, 2003
Through models, drawings, and photographs, this exhibition documents the 24 public projects that received the design award honor last

year. The projects demonstrate how regional heritage can be integrated with the latest building technology to create dynamic, functional, and attractive structures, spaces, and artworks for the 21st century. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org for more information.

National Design Triennial 2003: Inside Design Now
New York City
April 22, 2003–January 25, 2004

The Triennial is a review of cutting-edge trends and future horizons in the fields of design practice, from architecture, interiors, and landscape design to product design, graphic design, fashion, and new media. At the Cooper-Hewitt, National Design Museum. Call 212/849-8400 or visit www.si.edu/ndm.

Traces of India: Changing Views of the Monuments of a Subcontinent
Montreal
May 15–September 14, 2003

The exhibition will present more than 200 master photographs taken by travelers, military surveyors, and professional photographers with the context of the British colonial era, exploring some of the greatest architectural sites of the Indian subcontinent. At the Canadian Centre fo Architecture. Call 514/939-7000 or visit www.cca.qc.ca for further information.

Fragile Jewels of India: Preserving an Extraordinary Architectural Heritage
New York City
May 29–September 10, 2003
The show focuses on Jaisalmer, the legendary Golden Fort of the Rajasthan desert, and also features other historic and endangered sites ai cities. Through architectural details, archival and contemporary photographs, textiles, tools, and crafts, the exhibition explores the historic architecture and conservation of many sites. At the World Monuments Fund Gallery. For more information, call 646/424-9594 or visit www.worldmonuments.org.

Katie Grinnan: Adventures in Delusiona Idealism
New York City
July 24, 2003–January 4, 2004
Evoking contained, self-sustaining ecosystems and utopian communities, Grinnan uses moldab plastic and computer-altered images of corporat spaces to create large-scale photo sculptures ar installations that envelop the architecture of the Whitney Museum at the Altria Sculpture Court on 42nd Street. Call 917/663-2453 or visit www.whitney.org.

Celebrating Saint Petersburg
New York City
June 11, 2003–January 25, 2004
Reflecting the splendor and cosmopolitan cultur of the czarist court, the selection of approximately 75 objects, dating from about 1700 to th early 20th century, includes exquisitely crafted furniture, silver, porcelain, jewelry, and other luxury items of Russian, as well as French, English, Swiss, and German manufacture. At the Metropolitan Museum of Art. Visit www.metmuseum.org or call 212/535-7710.

Pere Noguera: Lands
Barcelona
Through August 31, 2003
A poetic reflection on the design of elements of earth used in architecture, in the home, for domestic utensils, for furniture, decoration, the garden, and everything that surrounds us. At the Ceramics Museum, as part of the Year of Design 2003. Visit www.designyear2003.org.

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Dates & Events

Lectures, Conferences, Symposia

Repairing the American Metropolis
Washington, D.C.
August 11, 2003
In a discussion of the economic, social, and architectural costs of sprawl, Douglas Kelbaugh, FAIA, dean of the Taubman College of Architecture and Urban Planning at the University of Michigan, will present alternatives to conventional suburban development and proposals for urban redevelopment. In addition, he will describe the differences and commonalities that can be found among Urbanism, New Urbanism, and Post-Urbanism. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

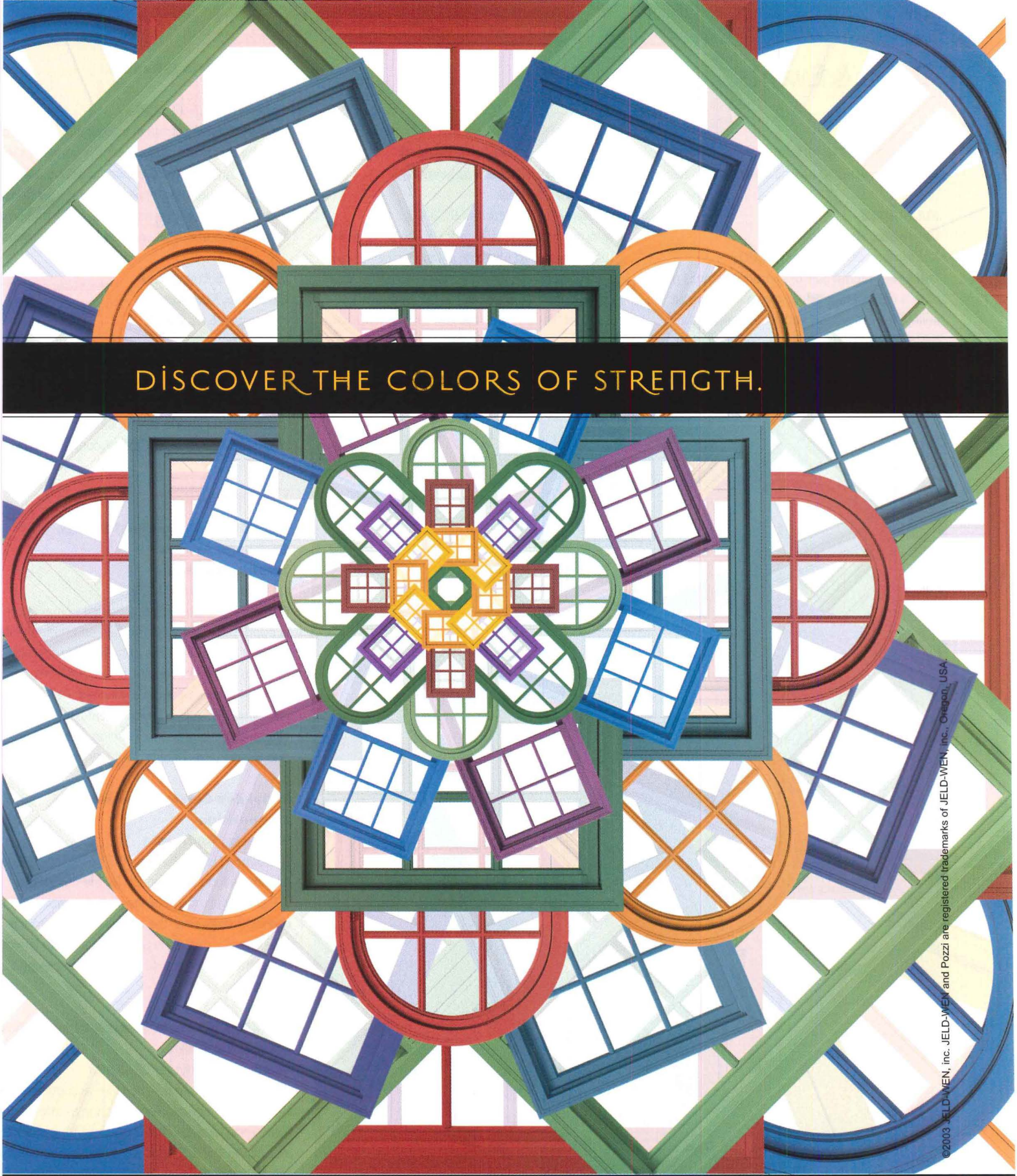
Stanley Saitowitz
Washington, D.C.
August 14, 2003
Principal of the San Francisco–based firm Natoma Architects, Saitowitz will discuss his work, including early projects in his native South Africa. His portfolio includes the Yerba Buena Lofts in San Francisco, Oxbow Art School in Napa, and a new school of architecture for the University of Waterloo in Canada. Saitowitz received the AIA's 1998 Henry Bacon Award fc Memorial Architecture for the New England Holocaust Memorial in Boston, and his Transv House was named a National Monument by th National Monuments Council of South Africa. A the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

D.C. Builds
Washington, D.C.
August 27, 2003
Edgeless cities are a form of sprawling office development that lacks the relative density anc cohesiveness of edge cities. Robert E. Lang, director of the Metropolitan Institute at Virginia Tech in Alexandria, will explore how parts of the Washington, D.C., region, like many other subur ban areas, have become edgeless cities, and w discuss the challenges facing our urban policy-makers as this new suburban condition continu to spread. At the National Building Museum. Ca 202/272-2448 or visit www.nbm.org.

International Design Conference in Aspen (IDCA)
Aspen, Colo.
August 20–23, 2003
Held each summer since 1951, IDCA presents a vital and authoritative forum on design for professional designers, students, critics, and thinkers. This year's program theme is "Safe: Design Takes On Risk." Visit www.idca.org or ca 970/925-2257.

The Ninth Annual 2003 Designer's Fare New York City
September 19–28, 2003
Showcasing the work of outstanding interior anc landscape designers, the ninth annual Designer Fare will be a major fund-raiser for the Mount Vernon Hotel Museum and Garden. Leading inte rior designers will create exciting spaces that focus on all aspects of entertaining, from tradi-tional to trendsetting, while landscape designers present their displays in the museum's garden. At the Mount Vernon Hotel Museum and Garden Call 212/838-1623 for ticket information or visit www.mountvernonhotelmuseum.org.

CERSAIE
Bologna, Italy
September 30–October 5, 2003
The international exhibition of ceramics for the building industry and bathroom furnishings will promote profitable commercial exchange and new ideas for industry specialists, architects,



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and designers. For further information, call 39051/66-46-000 or visit www.cersaie.it.

FIAM 2003
Valencia, Spain
September 29–October 4, 2003
The International Fair of Lighting Fixtures presents a complete product range covering all styles, from Classical to Modern and contemporary. At Feria Valencia. For additional information, call 34/96-386-1100 or visit www.feriavalencia.com.

Different by Design: Modern Architecture and Community
Houston, Texas
September 17–October 8, 2003
A forthcoming lecture series to be presented by the Rice Design Alliance will explore what role architectural design plays in constructing community identity. These talks will address the issue of Modern architecture's representation as well as its reception. At the Museum of Fine Arts. Call 713/348-4876 or visit www.rice.edu.

Density: Myth & Reality
Boston
September 12–14, 2003
Density can play a role in containing sprawl, re ing urban centers, and creating a sense of plac The Boston Society of Architects will host a con ference on the topic, exploring design for densi in settings that range from cities large and sma to older suburbs. Visit www.architects.org/dens

18th IAKS Congress
Cologne, Germany
November 5–7, 2003
The International Congress for the Design, Construction, Modernization, and Management o Sports and Leisure Facilities will cover sports facilities for the Olympics 2006 Soccer World Cup in Germany, and other topics. Visit www.saia.org.za/kznia/18thIAKScongress.html.

Competitions

The 2003 National Post Design Exchange Awards
Toronto, Canada
Deadline: August 31, 2003
Canada's most prestigious design competition is open to design professionals and their clients across Canada. It is the only awards program to judge design by results, balancing function, aesthetics, and economic success. The categories are Products, Environments, Interiors, Visual Communications, Fashion, New Media, and Sustainable Design. Visit www.dx.org.

Palisades Glacier Mountain Hut Competition
Berkeley, California
Deadline: December 5, 2003
An international competition for the design of a 60- to 80-person wilderness-base-camp facility f overnight stays near the trailhead leading to the Palisades Glacier in the Sierra Nevada Mountains of Central California. Visit www.ced.berkeley.edu/competitions.

The 2003 Pinnacle Awards Competition
Cleveland, Ohio
Deadline: September 19, 2003
The Marble Institute of America is accepting entri for its awards competition, honoring excellence in commercial and residential natural-stone projects around the world. Entries will be judged on beauty creativity, ingenuity, and craftsmanship, and will b presented in three categories. Call MIA at 440/25 9222 or visit www.marble-institute.com.

E-mail ingrid_whitehead@mcgraw-hill.com.

For and about the new generation of architects

archrecord2

FOR THE EMERGING ARCHITECT

iis month, even more than usual, archrecord2 celebrates unconventional partnerships. In esign, meet two architects who established their firm at the moment one of them moved away, decision they say energized them creatively. And in Work, meet an intern in Oregon who tarted a business as a developer and convinced his employer to take on the project—and to let m design it. On the Web, as always, you'll find our forum, Talk.

DESIGN

lutual in Omaha and San Francisco

ffrey Day and E.B. Min, the principals of Min|Day, acknowlge that they picked an apparently counterintuitive moment turn their on-and-off collaboration into a formal partnerip. The two had been working on projects together for a few ars, since Min had left her last employer to set out on her vn. Both were living in San Francisco at the time. Then Day as offered a teaching position at the University of Nebraska Lincoln, and moved to Omaha to join his wife.

Thus—with principals living half a country apart—in|Day was born.

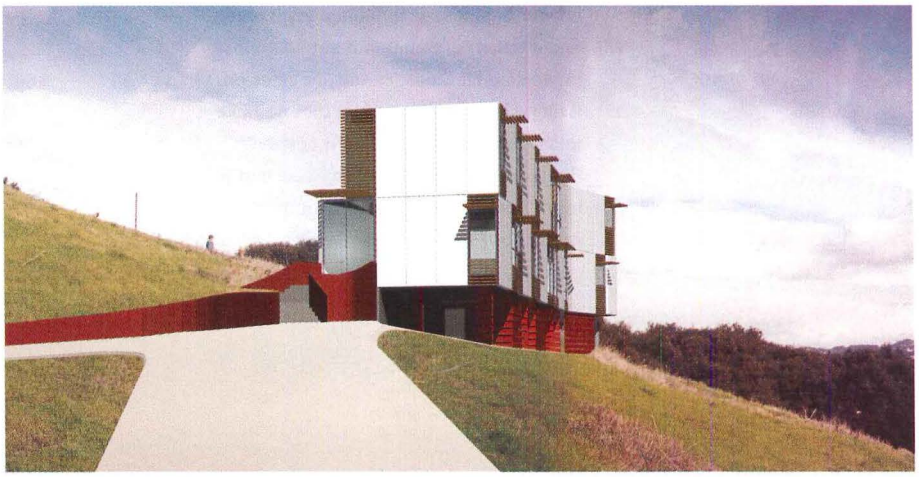
"I think out of all the people we've worked with in our careers, we really ork together the best," Min said, "and that's something you can't replace. So espite the distance, we wanted to continue to pursue the arrangement."

The unusual two-city setup informs the pair's practice in ways that were th expected and unexpected. The mechanical accommodations necessary keeping up a long-distance partnership came as no surprise: phone calls, mail, and occasional flights to one city or another for weeklong charrette essions. Min and Day did not expect, however, that the particular pairing of ties would have a bearing on their work.

"Most of our clients are still in California, because that's where we have e most word of mouth," Day said. "What's interesting about our Nebraska projcts is that we're getting sorts of projects that we wouldn't get on the coast, and e become directly involved in projects in a way that we haven't approached in alifornia, where we have a fairly conventional practice."

"It's something we wouldn't have predicted," Min added, "but our Nebraska ork has turned out to be our experimental work."

One of the major themes that appears in all of in|Day's work, whether experimental or not, is an emphas on landscape. Min worked for landscape architects, and, e says, the experience influenced her appreciation of ndscape as a part of architecture. Day agreed, and said at landscape also influences the firm's architecture in a ore fundamental way: "We think of landscape as a



Castillo House, Richmond, Calif., 2002–present
A leftover lot behind a suburban development becomes a "working landscape" for a client who runs a sitework business. The house will be clad in stressed skin panels and windows designed by the owner.

Palo Alto Poolhouse, Palo Alto, Calif., 2001
The architects conceived this pool house as part of an evolving landscape, rather than as a single focal point for a backyard.

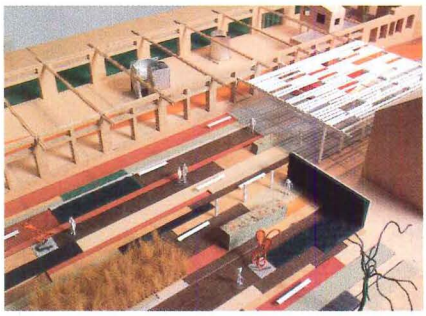
(continued from previous page) process," he said, "as a way of working with projects that have uncertain futures. The work of landscape architects always looks better with time, whereas the work of architects starts to deteriorate as soon as it's built."

Beyond the broad idea of landscape, however, Min|Day's work is difficult to categorize, which is at least in part by design.

"We don't talk about style," Day said. "Even when clients initiate a discussion about style, we try to defer that and work with the program and the client's particular needs. But if there is a stylistic overlay, it's just a by-product of how we work."

They have designed a diverse range of programs: an ADA-accessible suburban residence, an adaptive reuse arts center in downtown Omaha, and a straw-bale house on a wind farm, for example. When they talk about their practice, they often use the word "expansive."

Bemis=Art Landscape, Omaha, 2001–present
This arts center plans a new performance area, interiors, and landscaped courtyards.



"It was great that we solidified our relationship when Jeff left," Min said. "Where he's located and where I'm located, our businesses influence each other, and it helps us maintain a strong curiosity in building methods, clients, and design. It all has to do with the fact that we have this Nebraska office." *Kevin Lerner*

For more of Min|Day's projects, and to learn how to submit your own, go to architecturalrecord.com/archrecord2.

Museum of Art & Design, San José State University, 2003
This proposal suggests a museum that would be a "glowing lighthouse" at the center of campus.

IMAGES: COURTESY MIN|DAY (TOP); © LARRY GAWEL (BOTTOM); GENE FAULKNER (OPPOSITE, TWO)

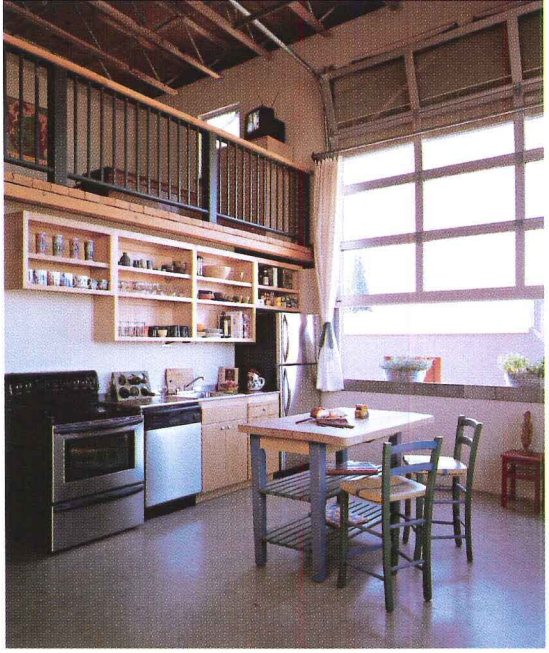
WORK

Seeing what develops

An intern creates a job on the s
Kevin Cavenaugh has a good gig f architecture school graduate. He's intern at Fletcher Farr Ayotte (FFA) busy and established firm in Portl Oregon. As an intern, he can't sign on his own projects, and by his ov admittance, there are "people high on the totem pole."

So, in order to do some more stantial design work, and to satisf nascent developer in him, he scra together $100,000 of "smoke and ror money" and bought a piece of in southeast Portland, which he in ed to develop as a mixed-use com in a neighborhood of single, youn fessionals. But it was his position FFA that allowed the project, know "Box & One," to happen.

"I'm not a licensed architect, a even if I were, I have a wife and tv kids, and I don't want to moonligh do this," Cavenaugh said. "I asked



A wine bar (far left) adds to the neighborhood's street life. The complex also houses a bakery. Upstairs, four lofts (one interior shown at left) and one flat provide new neighborhood housing.

wanted to do a smaller project
ıe as the client, and I held my
, because they had everything to
nd nothing to gain. This wasn't
to be a cash cow for them."
A approved the project, and let
augh choose one of the firm's
ers to oversee his work. He chose
arr, AIA. With himself as client,
augh set out to design the proj-
hich is significantly smaller than FFA's usual work.

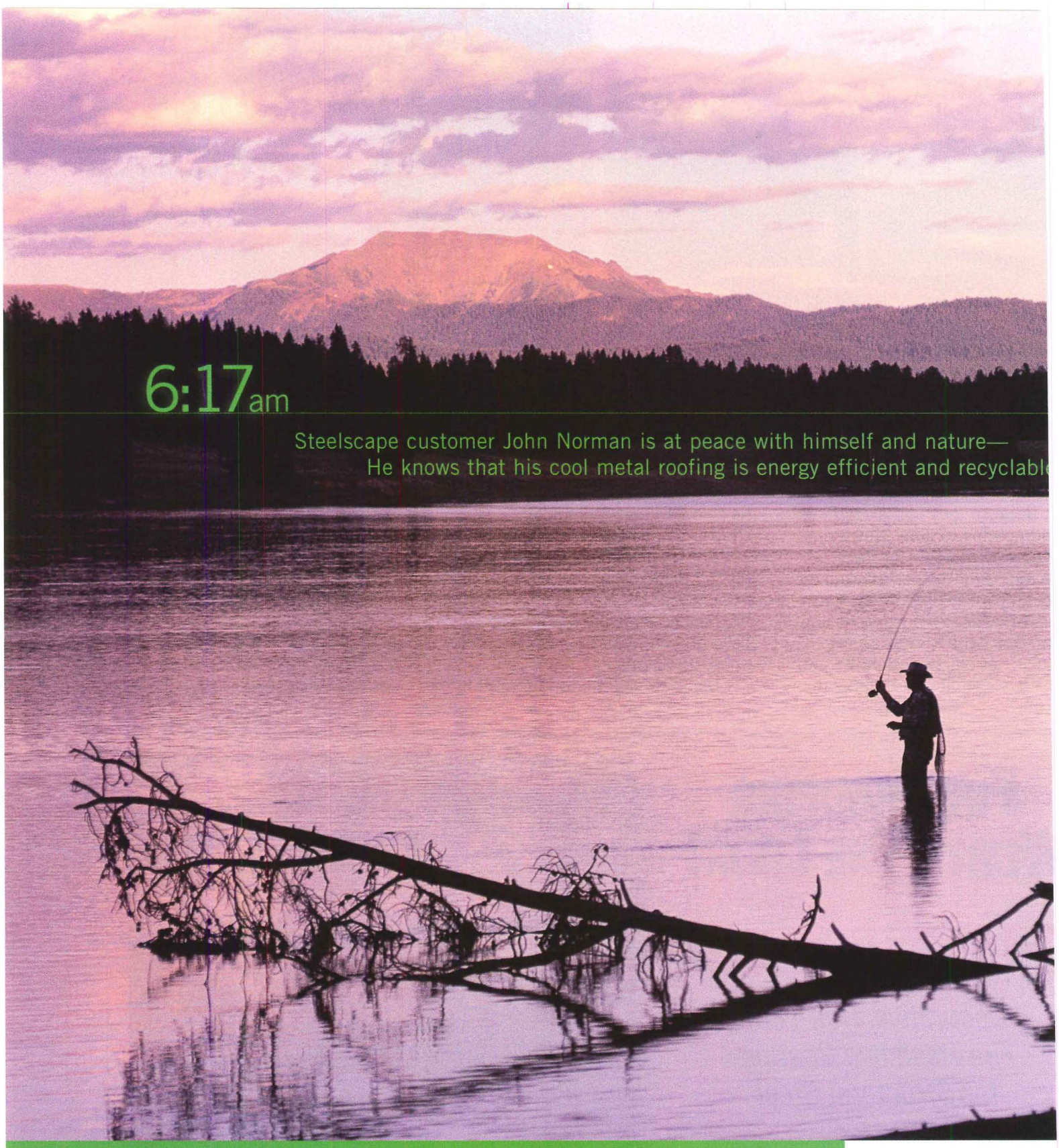
"At the end of each month," he said, "FFA would hand me a paycheck—and a much larger bill."

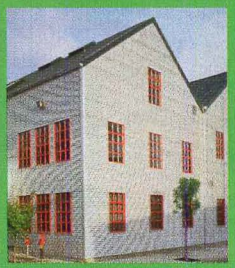
But his investment is beginning to pay off. All five residential units are occupied a year after completion, and the bakery and wine bar downstairs have proved to be popular neighborhood attractions.

Dale Farr said that the project benefited the firm, as well, allowing it to work on a more "cutting-edge" project, which he said was an inspiration to the firm's younger designers.

Cavenaugh also gained design experience: "Since he's the owner," Farr said, "it really was a chance for Kevin to learn from his mistakes and not get fired or sued." *Kevin Lerner*

Go to *architecturalrecord.com/archrecord2* for more career stories about emerging architects.





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Houston focuses on the restoration and development of the Buffalo Bayou, a historic waterway

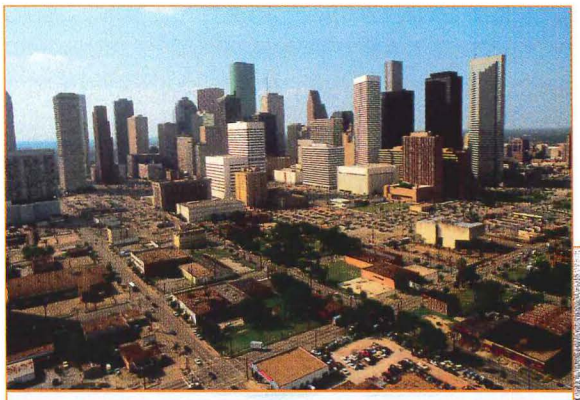
Correspondent's File

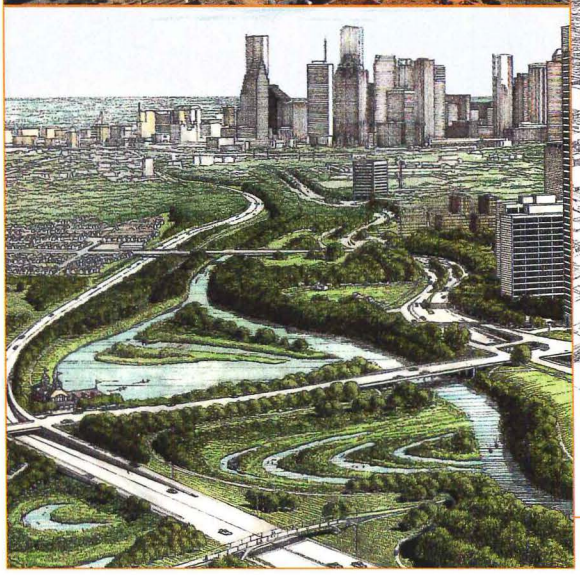
By Mildred F. Schmertz, FAIA

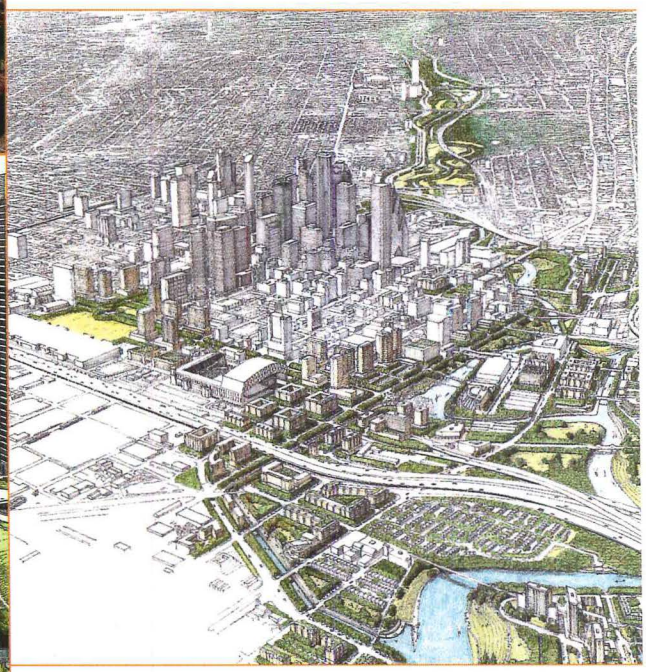
or many decades, the Buffalo ayou, a badly neglected 10-mile aterway corridor that meanders etween Houston's westward nd eastward limits to flow into alveston Bay, has blighted the ty. Unfortunately, not enough ublic attention was paid or support ven to earlier civic efforts to ansform the bayou into an urban menity. A Planning Report of 1913 r the Houston Park Commission oted that "the backbone of a park ystem for Houston will naturally be s bayou or creek valleys ... these alleys intersect the city in such a ay as to furnish opportunities for arks of unusual value within a omparatively short distance of ost residential areas, those of the ture as well as the present." This near park system was never imple- ented, nor were later landscape roposals. Today, the bayou's eco- gical problems are serious—its verbanks are eroded, brownfields re extensive, and most of the ative wildlife is gone.

In 1986, a group of Houston's ost prominent citizens, con- erned about the future of their ity, formed the Buffalo Bayou artnership (BBP), a nonprofit rganization to oversee develop- nent of the historic waterway. In he past six years, the partnership as raised and leveraged more han $40 million in public and pri- ate funds for improvements and urrently is facilitating nearly $50 million in landscape enhance- ments. In 2002, working in partnership with representatives of Harris County, Harris County Flood Control District, and the City of Houston, BBP produced a long-range integrated regional master plan known as "Buffalo Bayou and Beyond" that will direct the rehabilitation of the bayou as an ecologically functional system protected by low-impact develop- ment. The planning and urban design firm Thompson Design Group Inc./EcoPLAN and the land- scape architecture firm Dodson Associates, with support from engineering, transportation, and water-based-activity consultants, directed the 18-month planning process.

In the early 19th century, goods were transported along the bayou, leading to the official birth in 1836 of the city as a trading center. With the growth of railroads a century ago, the waterway became obsolete. The master plan, by refocusing the relationship of the city to the bayou, will make it once more a central feature in urban life, transforming and shap- ing every aspect of Houston's future growth. The proposal calls for the creation of 850 acres of new linear parkland that will trans- form the bayou into a recreational and scenic resource for Houston. Within the park system will be a







The master plan calls for the transformation of the existing city (left) into a place that maintains the bayou as a public resource, offering its banks and waters as a safe, clean, visible, and accessible amenity (bottom left and below).

rchitect and journalist Mildred F. chmertz is a former editor in chief of RCHITECTURAL RECORD.

Correspondent's File

Edges of the waterway will be designed to provide flood protection, as well as areas for outdoor seats, tables, and kiosks.

network of trails and public sites that promote access to the bayou. Existing neighborhoods, reclaimed former industrial sites, key sites chosen for future housing and commercial development, and all areas of downtown will have access to the bayou's views and riverbanks.

The master plan divides Houston into three geographic sectors: West, Downtown, and East. For the west sector, plan elements include a general upgrade of the bayou environment, improved habitat, better access, and expanded waterway for boating. In the downtown sector, a key component of Houston's continued revitalization, the bayou is largely invisible—roadways cover it, access is poor, and few retail and recreational activities exist along its edges. Adjacent parking lots and vacant sites must be replaced with downtown development that is multipurpose and tailored to an urban design vision that perceives a fine waterfront as essential to a new life for Houston. In the east sector, the bayou becomes a large river hidden behind industrial buildings, some functional, others abandoned. The goal is to improve boulevards, enhance existing parks and create new ones, develop new employment opportu nities through new industry, and strengthen neighborhood connec tions to the bayou as well as to the rest of the city.

What are the prospects for th master plan's long-term success? Planner Jane Thompson is countin on the civic leaders' track record to date and on strong community support. She notes, "The plan builds on the substantial achievements of the BBP to improve Buffalo Bayou and change the wa Houstonians see and appreciate this waterway. Hundreds of concerned private citizens, business leaders, and residents of adjacent neighborhoods were heard from and listened to. In a sense, this really is a people's plan, developec by Houstonians with a vision for the bayou and a deep concern for the future of this city." ■

THE BAYOU PLAN WILL BE DIRECTED AS AN ECOLOGICALLY FUNCTIONAL SYSTEM PROTECTED BY LOW-IMPACT DEVELOPMENT

Four short essays comment on the peculiar ways cities do or don't work

Critique

By Robert Campbell, FAIA

he dog that mussed the grid

harleston, South Carolina, is my ıvorite American town plan. (The ıvorite of Colin Rowe, by the way, ıe architectural historian and guru, ras the plan of my home city of uffalo. Buffalo is like maybe one ourth of Washington, D.C., laced vith Olmsted parks and parkways. ut your favorite can never be your wn home town.)

At a conference in Charleston, once invented a myth to explain ıe Charleston plan.

The mayor is trying to deter- ıine what the street plan of Charleston should be. To explain ıis ideas to his staff, he lays a fish- erman's net on the floor of his ffice. The net is a simple, typical ımerican grid. It represents a net- vork of streets, oriented to the ardinal points of the compass, and ll meeting at right angles.

But that night, the mayor is in ı hurry to get away for his annual oar-hunting vacation. He doesn't other to remove the net. Over the ıext few days, a dog comes and ies down on it. Visitors and staffers valk back and forth across it. Gradually, the net becomes a less egular grid. It acquires small bends and jogs, minor irregularities. One day, the mayor returns to his office. He looks at the net and realizes ıe's got his plan.

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic of The Boston Globe *and coauthor of* Cityscapes of Boston *(Mariner Books, 1994) with Peter Vanderwarker.*

The plan of Charleston is what you might call a "distressed grid." There is still enough of a grid so that you know where you are as you walk around the city. You can tell what's north, south, east, and west. You can sense in which direction are the two rivers. The grid, like all grids, orients you in the universe.

But the bends and jogs make places where something special can occur, like the famous jog on Church Street that foregrounds St. Philips Church. You get the best of both worlds: Overall order on the one hand, invention and surprise on the other. A distressed grid is an ideal plan for a city.

I once related this myth of origin to an old friend, Joe Riley, who has been mayor of Charleston since 1975. He's been telling it ever since.

Why the Red Sox don't need an urban space

In the middle of Boston sits a space called City Hall Plaza, a product of the urban renewal era of the 1960s. It is a vast redbrick piazza in front of Boston City Hall. City Hall Plaza is a miserable sunbaked desert in summer, and a frozen windswept expanse of tundra in winter. It is empty of pedestrians nearly all the time.

Since the plaza has no observable purpose, I have always thought someone should provide an explanation, perhaps in the form of a prominent sign in the middle of it that would announce: "Urban Space." Then we would know.

When you ask planners why City Hall Plaza should exist, you are always told that this is the place of civic celebration. The plaza awaits the day when the Red Sox will win their first World Series since 1918. (On that day, if it ever comes, most Bostonians will be on the telephone with their shrinks, their psyches shattered by the realization that the trusted order of the cosmos has been violated. But that's another story.)

What Bostonians forget is that another team, the hated New York Yankees, wins the World Series all the time. Yet the Yankees do not have an urban space in which to celebrate. At night, after the final game of a winning series, Yankee fans simply take over Times Square. It would be difficult to design an urban place less obviously suited to mass assembly than Times Square. But that's exactly why it works so well. The cops close off the side streets, the crowds mob the sidewalks, and an endless parade of honking cars files down Broadway, with guys standing on the car seats and roofs waving their

Set aside for celebration, City Hall Plaza in Boston, above, is deserted most of the time. But Times Square in New York (top) always draws a crowd.

beers and their Yankee caps and shirts. They haven't been given a space of celebration. They've appropriated it.

Times Square is not an empty vessel, peacefully awaiting your arrival. It is not a comfortable bed that planners have made for your urban delight. The public must grab it away from its other uses, must take it over. This act of appropriation is the source of its energy as a public space. And the act of appropriation then becomes a metaphor for the triumph in the ballpark.

Later in a Yankee championship week, there's a more formal parade down lower Broadway in the Wall Street area. That isn't an urban space either.

AS CHARLES MOORE PUT IT, "MODERNIST ARCHITECTS SPOKE IN ESPERANTO." BUT WHO WRITES POETRY IN ESPERANTO?

An anthropologist, a poet, a philosopher, and an architect all saying the same thing

Mary Catherine Bateson, anthropologist, writing about the opinions of her mother, Margaret Mead: "Human beings do not eat nutrients. They eat food. Food with symbolic meanings, flavors, colors, and smells. Food in the form of traditional dishes that fit the days of feast and fast and speak of the relationships of husband and wife, parent and child."

Mark Doty, poet: "A language of ideas is, in itself, a phantom language, lacking in the substance of worldly things, those containers of feeling and experience, memory and time. We are instructed by the objects that come to speak with us, those material presences."

Isaiah Berlin, philosopher: "A universal logic, like a universal language, empties the symbols used of all that accumulated wealth of meaning created by the continuous process of slow precipitation by which the mere passage of time enriches an old language, endowing it with all the fine, mysterious properties of an ancient, enduring institution. To analyze the precise associations and connotations of the words we use is not possible, to throw them away is lunacy."

Berlin and Doty are writing about language. Bateson speaks of food, which—like architecture—is a cultural language. What they say is equally true of architecture. If we strip away the associations and connotations, the redundancies and resemblances, leaving something merely functional or merely invented, architecture disappears.

Or as architect Charles Moore put it: "Modernist architects spoke in Esperanto." He was exaggerating, of course, to make a point. But it's true that no one writes poetry in a wholly invented language.

The city as a mystery novel

One way of reading a book is to ignore the beginning and, instead, dip in here and there, figuring out the story from bits and pieces. The book becomes a mystery and you become the solver. You put together evidence to answer the question: What is this book about? You decompose the book into clues and recompose it into a harmonious whole in your mind. You become not reader but author. It can be a more vivid, more interactive way of reading. It's like the fun of entering a movie a third of the way through and imagining the beginning from the clues in front of you.

This is also the best way to see a city. Not starting with maps and guides, but getting lost in the city. Making it a mystery you need to unravel. Working out a solution for yourself from the evidence before you. Discovering the city, inventing it, rather than learning how someone else has understood it. ■

What's going on here? Looking at design without labels

Exhibitions

By Fred A. Bernstein

ational Design Triennial: side Design Now. *Curated by onald Albrecht, Ellen Lupton, itchell Owens, and Susan lavich, at the Cooper-Hewitt, ational Design Museum, New rk City. April 22, 2003–January , 2004.*

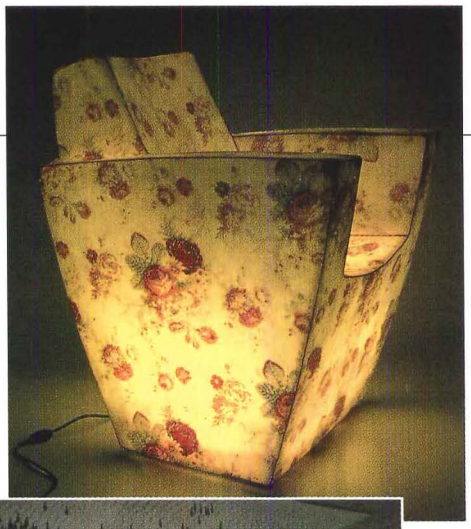
r the curators of the National sign Triennial, organizing hun-eds of works—ranging from ristopher Niemann's (brilliant) agazine illustrations to carved oden decanters to ornate hats to rfume bottles to movie sets—uldn't have been easy. The show's talog, from Princeton Architectural ess, unfolds alphabetically, by the signer's last name. The exhibition eb site is organized around such tegories as "Image and Text" and tage, Screen, and Spectacle." But here it matters, at the museum's rnegie mansion on East 91st reet, the arrangement is entirely sthetic, as if the curators had set t to decorate the imposing house. at they did so, successfully, is no all feat (the ornate rooms have ught with previous installations), t it's also a curiously slight ambi-n for the show, which will be filling most the entire museum through nuary 25, 2004.

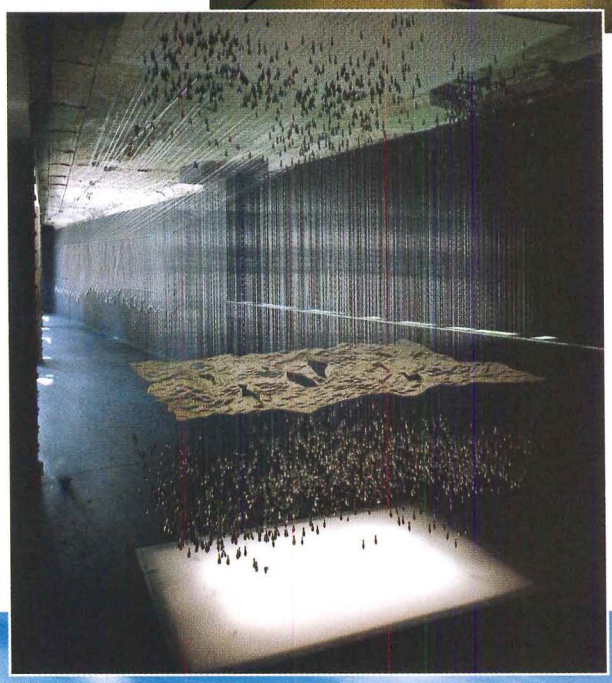
At the first Triennial three ars ago, items were arranged ound such themes as "Minimal," randed," and "Fluid." Those labels lped reviewers (including this e) critique curatorial choices and abled visitors to grasp the con-pts that compel designers. If you ink this exhibition deserved a similar intellectual framework, you'll be disappointed. If you just want to enjoy the pieces on display—many of which are beautiful, and some of which are available in the gift shop—without having to think, you'll be relieved.

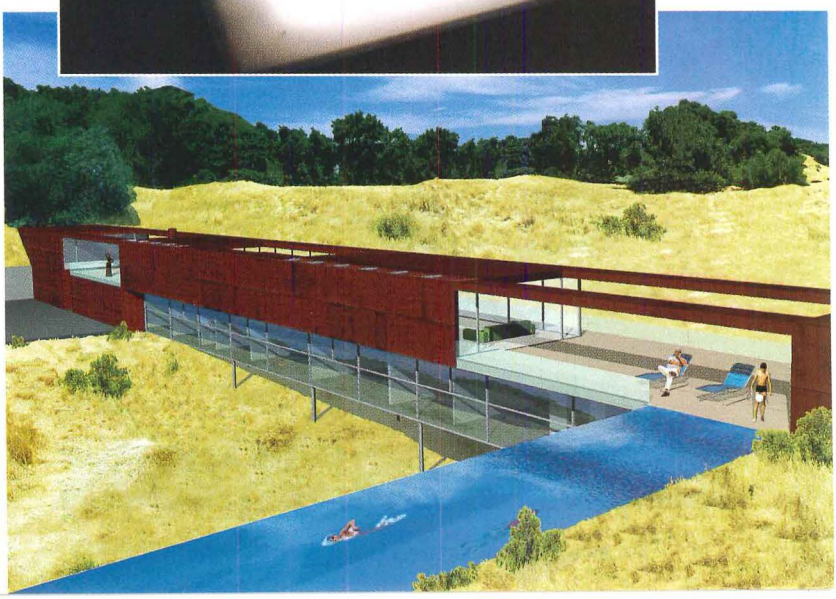
Little here could be called high-tech; there are none of the wearable computers, wristwatch cell phones, and personal transportation devices one has come to expect from design museums. In fact, the most impressive technological feat—by the MIT Media Lab's Cynthia Breazeal—is a bed of flowers whose petals and stems respond to human movements. There are also flowers to sit on (Critz Campbell's witty fiberglass chairs) and flowers to look at (Antenna Design's shower of cherry blossoms over the museum's main staircase). The show seems to be saying that, in a thorny world, design shouldn't be challenging, but reassuring. Everything's coming up roses.

Michele Oka Doner's castings from nature and the bronze light fixtures of Stephen McKay are what the design magazines have dubbed "high touch." Which is to say, these pieces, undeniably lovely, could have been created five or 50 years ago. Not so Yusuke Obuchi's *Wave Garden*, a vast installation that would harness the motion of the ocean to produce electricity, and then, when energy consumption dips on weekends, become a dazzling sculpture garden.

Only a handful of architects made it into the show. Stanley Saitowitz/Natoma Architects has a stunning, unbuilt synagogue in San







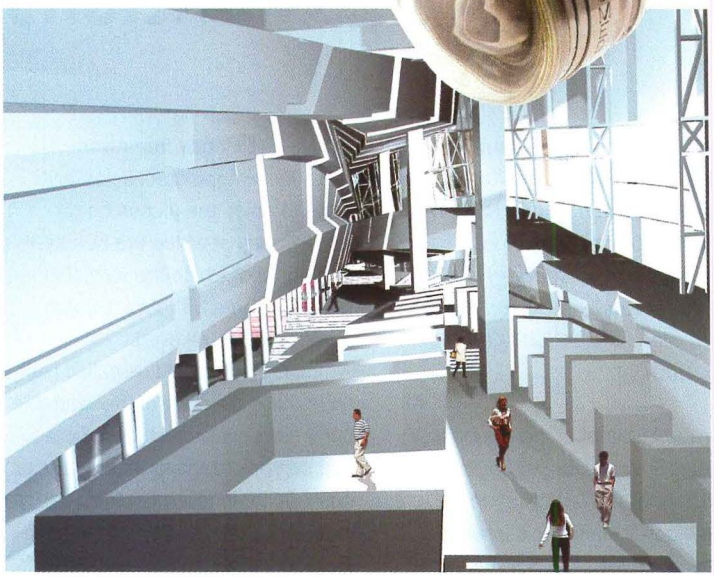
Working with nature: Critz Campbell's floral-patterned fiberglass chair (right), Yusuke Obuchi's *Wave Garden* installation (below), and one of Stanley Saitowitz's bar houses (bottom) that opens up to the land.

Exhibitions

Francisco, a series of "bar" houses, and his Yerba Buena Lofts [RECORD, August 2002, page 116]. New York's Dennis Wedlick has a quartet of beautifully crafted houses. Asymptote's Hani Rashid and Lise Anne Couture get to show off their A3 office furniture system for Knoll and HydraPier [RECORD, November 2002, page 110], while Escher + GuneWardena Architecture presents its three Electric Sun tanning salons in Los Angeles [RECORD, September 2001, page 148]. The show also includes houses by Mark Sofield for Prospect New Town in Colorado and furniture by Gaetano Pesce.

The big surprise is Peter Eisenman, decades older than most of the other "winners." Eisenman's cultural center in Santiago de Compostela, Spain, is jazzy in a way that seems practically Gehry-esque. The other Gehry-esque item is Abiomed's artificial heart, its titanium chambers surprisingly reminiscent of the titanium chambers of the Guggenheim Bilbao.

Many of the items in the show seem dated, despite the curators' insistence that they're cutting-edge. (Andrea Valentini is hardly a "genius," as the catalog calls her, for creating a foam-rubber ottoman that folds back onto a matching foam-rubber chair.) Worse, the few "socially conscious" entries—Greg Vendena's shingles made from recycled tires and Michael Rakowitz's $5 tent for vagrants—come off as tokens, given the lack of idealism in most of the other entries. It's as if the design world, chastened by the bursting of the dot-com bubble, has turned inward. The show's subtitle—*Inside Design Now*—turns out to have a double meaning: These are designs that fit in a curio cabinet. The Cooper-Hewitt, at least for now, seems content to be that cabinet. ■



Frank Gehry, call your office: Peter Eisenman's cultural center in Santiago de Compostela, Spain, has a Gehry-esque jazziness (below), while Abiomed's artificial heart (right) has titanium chambers that recall the Guggenheim in Bilbao.

In the public realm: Does low-tech work better than high design?

Exhibitions

By Fred A. Bernstein

›en: New Designs for Public ›ace. *Curated by Zoe Ryan, at e Van Alen Institute, New York ty, through October 31, 2003.*

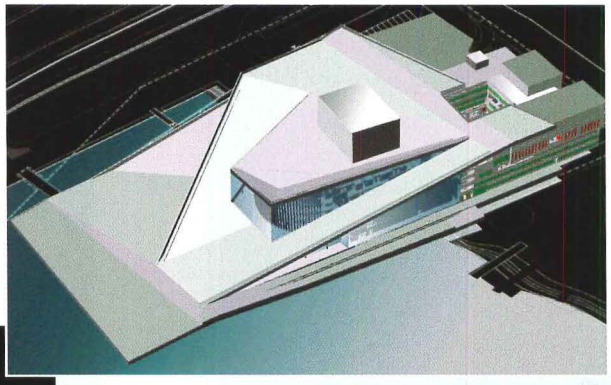
›od documentaries about architec- re are rare, so it's a treat to find one the Van Alen Institute in conjunc- ›n with the current exhibition, *Open*. ade by the Australian Broadcasting ›mpany, the film tells the story of ›deration Square, a recently com- eted cultural complex in Melbourne ECORD, June 2003, page 108]. The ogram is a cautionary tale about ›th process (the architects ended › accusing the builders of "vandal- m") and result (Federation Square oks dreadful, all jagged metal and ›arded glass). In the documentary, ›chitect Peter Davidson (whose ›artner in the project was Daniel beskind protégé Donald Bates) ›ncedes that the two haven't landed any large commissions since the $260 million job was finished in October 2002. He also allows that the pleasure that visitors take in the square—sunning themselves, lounging on the grass—has little to do with the aggressive architecture.

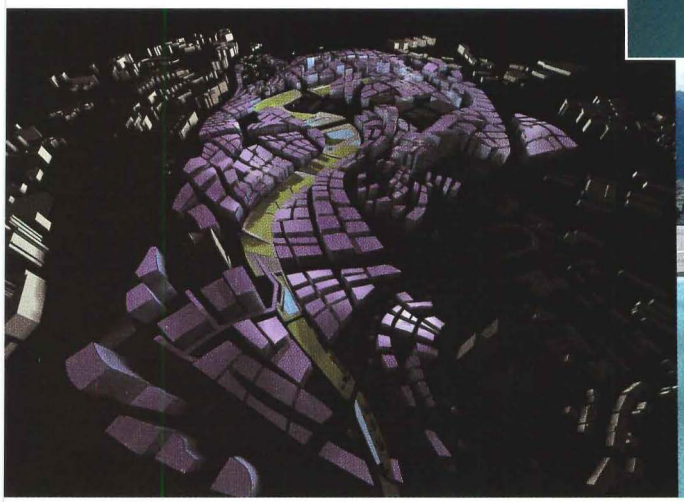
Which raises the question: Do we need "New Designs for Public Space," which is the subtitle of the exhibition? Or do we just need more of the old "designs"—lawns, trees, rocks, benches? Isn't the problem of urban open space mainly political (that is, getting land set aside for public use), rather than architectural?

One of the most successful projects in the show is Alameda el Povenir, a pedestrian and bicycle path that cuts through some of the poorest neighborhoods of Bogota, Colombia. It is essentially an 11-mile-long macadam driveway, and photos show it crowded with grateful users. And Southpoint, at the tip of New York City's Roosevelt Island, has become popular merely by virtue of being open to the public. That is, two of the least-designed open spaces seem (from the evidence in the show) to be more successful than the ones in which star architects strut their stuff.

The show, curated by the Van Alen's Zoe Ryan and designed by Freecell Collective, occupies a space outfitted in blue-green Plexiglas, suggestive of a swimming pool. Ryan didn't have an easy time making the show as lucid as it is; unbuilt landscapes are even more difficult than unbuilt buildings to depict in two dimensions. A few of the projects are underdocumented. Zaha Hadid's One-North, a high-tech office park, is billed as "a new landscape that aims to achieve Singapore's necessary density without its characteristic patterns of interiorization and segregation," but it's impossible to see from the renderings how it would do that. For that reason, the show is best when dealing with completed projects, including Vito Acconci's Island in the Mur, in Graz, Austria, [RECORD, May 2003, page 123], which looks far more inviting surrounded by rushing water than it ever did on paper.

A few proposals show great

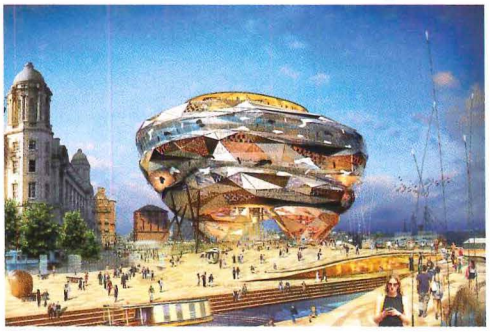




Buildings posing as landscapes: Zaha Hadid's One-North office park in Singapore (bottom left), Snøhetta's National Opera House in Oslo (left), UN Studio's Ponte Parodi plan in Genoa (below).

red A. Bernstein is a regular ›ntributor to Blueprint, letropolitan Home, *and* Oculus.

Will Alsop's Fourth Grace building (below) and Alameda el Povenir (right) both engage the street.



promise. Peter Eisenman's Memorial for the Murdered Jews of Europe, under construction in Berlin, creates a stunning, inflected topography from 2,700 columns. UN Studio's Ponte Parodi plan for Genoa uses folded planes (forming both the surface of a pier and the roof of an outlet mall) to gracefully extend the city seaward. And the Oslo National Opera House, by Snøhetta, looks to be a prime example of what Kenneth Frampton calls a "megaform"—a building that responds to and extends natural features, as much a landscape as an object in a landscape. (The Oslo project is a close cousin of Arthur Erickson's Museum of Glass, which gives Tacoma, Washington, a vibrant new neighborhood on its roof.)

Some of the most successful public spaces in the show are buildings. Norman Foster's London City Hall [RECORD, February 2003, page 110] uses the metaphor of "transparency" in government to brilliant effect. And Gluckman Mayner Architects' Mori Museum, in Tokyo, creates an intriguing series of spaces—both in plan and section—within an office tower. But Will Alsop's Fourth Grace, a building scheduled for construction in Liverpool, looks—no exaggeration—like Foster's City Hall after a bombing. The Van Alen's wall text announces that Alsop's building "will shout that the long-suffering port has left behind its industrial past." But a bulldozer and some grass seed could have done that.

Like any good survey, *Open* is entertaining and instructive. And in New York—where the reuse of the High Line, the reconstruction at the World Trade Center site, and the completion of the Hudson River Park are all progressing—it's a big help. Still, one can't help thinking that London's Serpentine Gallery (Snapshot, page 71), which erects an architectural showpiece in Kensington Gardens each summer, then removes it in the fall, is onto something: Architectural experimentation is fine (at least for a few months), but plain old open space works all the time. ■

Snapshot

e pavilion intimately displays many ements characteristic of Niemeyer's rger structures.

A grand master breaks new ground at the Serpentine

y Diana Lind

pen for just three months during the summer, the Serpentine allery Pavilion, located in London's Kensington Gardens, could be mere blip on the architectural radar. Yet it manages to garner the tention usually reserved for major projects. One can see why. nce its inception four years ago, the Pavilion has showcased work / some of the world's most heralded architects for its annual architectural commission—Zaha Hadid (2000), aniel Libeskind (2001), and Toyo Ito (2002). This year's selection for the project, Oscar Niemeyer, Hon. AIA, is o exception. Ninety-five years old and busy at work, the Pritzker Prize winner continues to engage and excite ie public with his designs.

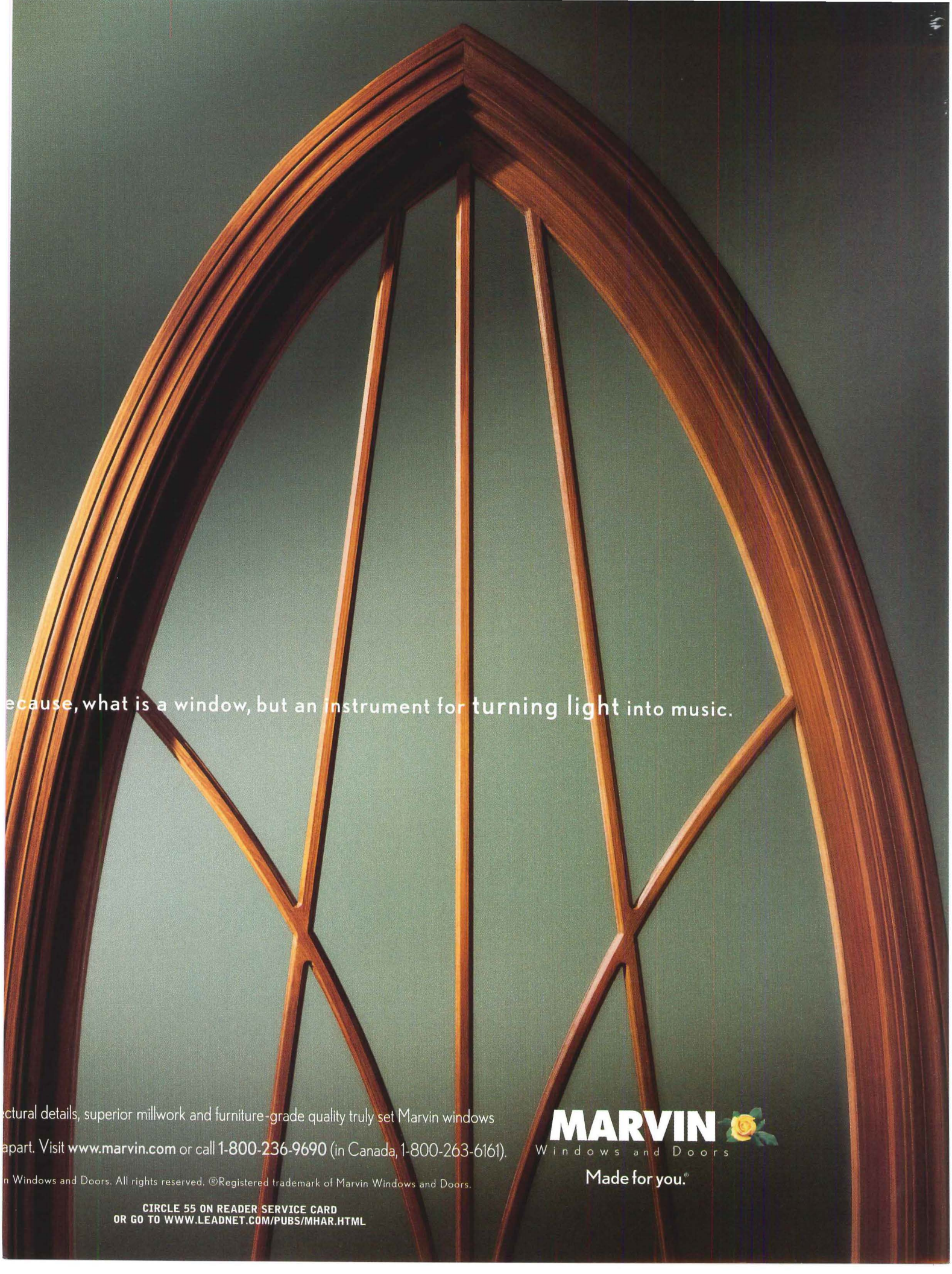
Despite being one of Niemeyer's smallest works, the structure, made of concrete, steel, and aluminum, still corporates the architect's signature style. The Pavilion's location in a royal park limited the size of the project's otprint to 984 square feet (300 square meters), but the space had to be large enough to accommodate events

The Serpentine Gallery Pavilion hosts events, such as fiction readings and informal discussions of architecture, all summer long.

that throughout the course of the summer attract roughly 150,000 visitors. To allow for more room within the footprint, Niemeyer sank the auditorium into the ground while placing a café (with furniture designed by the architect) on the upper level. A glass wall affords transparency and enlarges the space by opening up the pavilion to the park. Sensuous curves and shocks of color recall other examples of Niemeyer's work—in particular, the Niterói Museum of Contemporary Art (1991) in Brazil, with its similarly striking red entry ramp.

Remarkably, the Serpentine's annual miniature masterpieces are completed within six months of the architect's commission. Serpentine Gallery director Julia Peyton-Jones explains that everyone involved uses "the shortage of time to their advantage." Moreover, she describes the process of working with Niemeyer as "extremely collaborative" and the project as "one of the most enjoyable" that she has ever participated in. Collaboration seems to be the key word—Jones stresses that the annual pavilion would not be possible without a multiplicity of sponsors, including Eurex, Arup, and *Time Out*.

The financial and media support for the architectural pavilion suggests that London has wholeheartedly embraced the program as a part of its urban agenda. In mid-September, when the structure is dismantled, it will be sold to recoup part of its cost, but it is hoped that it will remain somewhere in the United Kingdom. While Niemeyer has completed more than 500 projects worldwide, the Serpentine Gallery Pavilion is, in fact, his first project to grace the U.K. ■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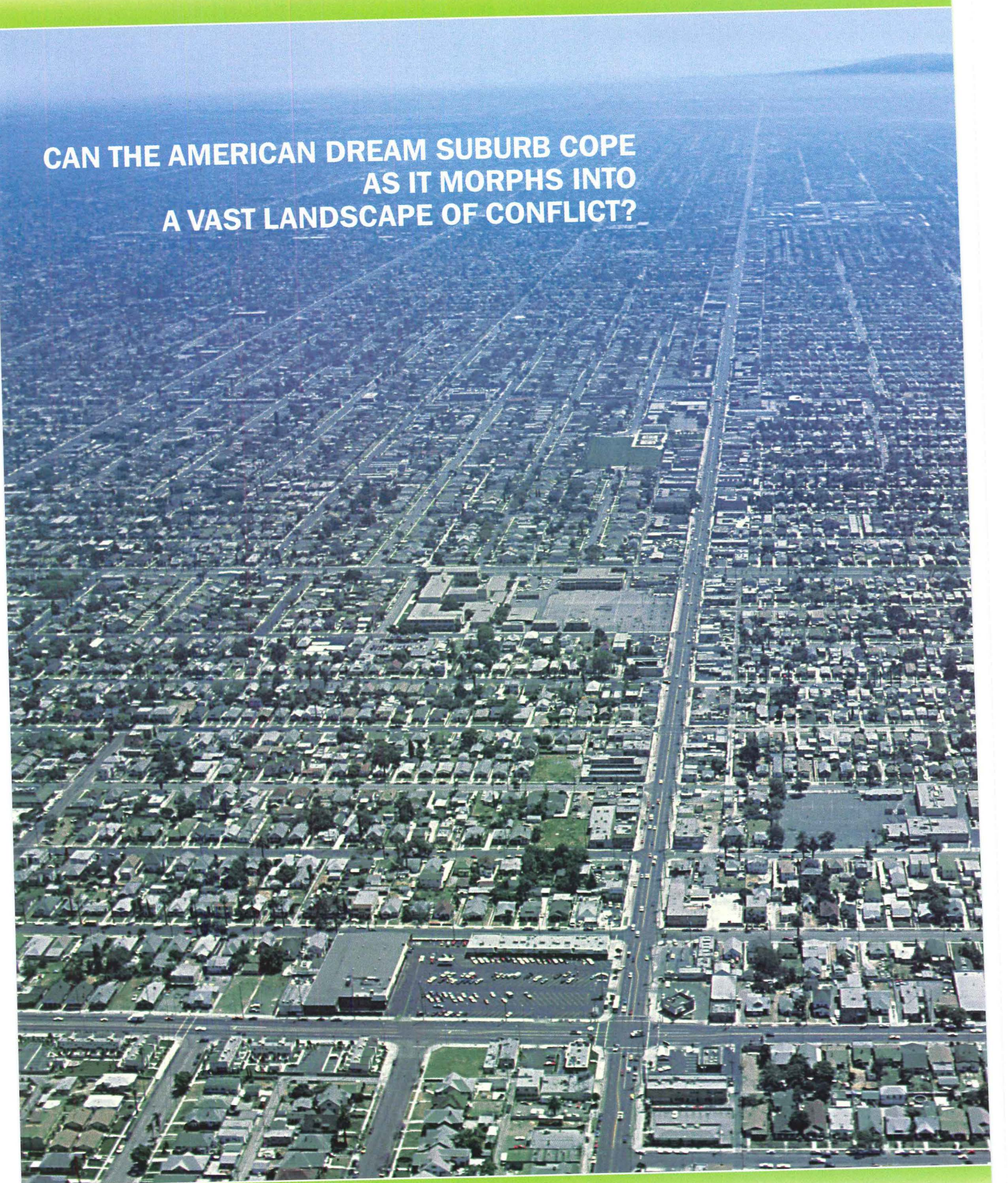
CAN THE AMERICAN DREAM SUBURB COPE AS IT MORPHS INTO A VAST LANDSCAPE OF CONFLICT?



PHOTOGRAPHY: © ALEX MCLEAN/LANDSLIDES

When Suburbs Become Mega-Suburbs

By James S. Russell, AIA

By the early 1970s, the collective population of suburbs equaled that of cities—a triumph of the suburban ideal, it would seem. Wrong, wrote Robert Fishman in his influential book *Bourgeois Utopias*. That's the very decade when the suburban era ended. Fishman, a prominent historian of suburbanization, had not suffered an outburst of academic petulance. He had only recognized that the American suburb had made itself into something quite different from what it had promised to be over the preceding 200 years.

"Suburbness," in Fishman's formulation, meant a place that depended on the central city—as did the commuter-filled bedroom communities in the 1950s and the railroad and streetcar suburbs that preceded them as far back as the 1880s. The suburb had historically acted as a residential refuge from the city, which was the dynamic factory of capitalism, perpetually tearing itself down and building itself up to respond to the market's incessant demand and ever-changing whim. "Pure and unfettered and bathed by sunlight and fresh air," wrote historian Kenneth T. Jackson in *Crabgrass Frontier: The Suburbanization of the United States* (1985), these commuter retreats "offered the exciting prospect that disorder, prostitution, and mayhem could be kept at a distance, far away in the festering metropolis."

In the 1970s, however, American suburbia began to transform itself into a diverse and economically independent urban entity—a city, yes, but one that only looked suburban. "We lack a convenient name for this new city," Fishman wrote in his book, published in 1987—a problem we still have.

Americans have not fully come to terms with the dissonance between the historical suburban dream and what is emerging as a megasuburban reality. But it can hit you—if you consider it—as soon as you pull out of your driveway. Even the leafiest and most tranquil of cul de sacs today tends to be girdled by eight-lane arterials. And they lead to the net of beltways and crosstown expressways. As the congealed traffic of a five-lane side of the freeway, broad as a jet-plane runway, lurches round a curve, and a group of identically anonymous mirror-glass towers shimmers through the windshield haze, you may well ask yourself what happened to the uncomplicated life promised by the American Dream suburb?

The arrival of urban-style employment opportunities transformed the discreet bedroom communities into vast, contiguous low-rise urban landscapes, flowing over villages and

counties. The place names and political boundaries that once defined the small-scale, residential redoubts of the suburban era may remain, but, tied together by freeways and highway strips, they are now components in an economically integrated, wealth-producing and -consuming machine. Call it a megaburb.

It's not a pretty term; it's not meant to be catchy, but to accurately reflect a perceptual divide. Megaburbia is what happens when three quarters of a 282-million-person nation live in what we are used to calling suburbs. Many are places that have grown a hundred- or a thousandfold over the past 30 years. They are the places that have nurtured high technology, research, and advanced manufacturing. Now the beltway burbs and centerless low-rise cities overshadow the central cities in both population and economic activity. Silicon Valley, in California, the pharmaceutical belt in northern New Jersey, and the bistate suburbs of Washington, D.C., have built economies comparable to entire nations.

Aside from schools and libraries, suburbia has not placed much stock in the skills architects offer. But architects can help communities reconcile the innate urbanity attending diverse and expanding economic opportunity with the order and amenity that have always been at the root of the suburban dream. It won't be easy. Conflicting but deeply held values underlie the issues that endlessly rend communities—like land use, traffic, and open space.

Inescapable bigness

As sociologist Robert Parks saw it, "The city is a state of mind." Megaburbia is an economic and physical fact, but it is not a state of mind, which is why it's easy to think of it as something it's not. Most megaburban residents live in a smallish town or city politically, and believe in small-scale governmental and social institutions that are close to the people they serve. But nowadays, people think nothing of the dozens of towns, school districts, utility-service areas, counties—even a state line or two—they cross to run errands or make a journey to work. And yet the decisions made in all those political jurisdictions are what cause megaburbia to so unpleasantly intrude in the form of traffic, large-scale development, and runoff-clogged streams.

The quintessential emblems of megaburbia are the commercial edge cities that Joel Garreau tried to make sense of in his book *Edge City: Life on the New Frontier* (1991). They're the wellsprings of megaburban wealth, but the suburban mindset has not come to terms with the steadily growing scale of American business and its invasion of the garden-city arcadia by the 20-story tower erected astride a parking garage housing 1,500 cars that one finds at Perimeter Center, Atlanta, or hugging I-5 at Costa Mesa, California. Those vehicles don't slip down spacious country byways, but pour onto massive arterials. A modest-size edge city ejects 100,000 autos into the feeder highway system, requiring no less than a 10-lane freeway—more often two or three.

Can the suburban dream (opposite) come to terms with L.A.-style reality (first spread)?

The endless edge

While the edge cities lie along the beltways, the hottest growth in megaburbia, its new edge, is often 15 to 30 miles farther out in what Robert Lang, director of the Metropolitan Institute at Virginia Polytechnic University, calls "edgeless cities" (in his book *Edgeless Cities: Exploring the Elusive Metropolis*, 2003). As the name implies, there's no edge, but there's also little sense of city. While edge cities sprawl over thousands of acres, edgeless cities consume dozens of square miles. "Individual components of Edgeless City often may have an identity (the 'so-and-so office park')," writes Lang, in a recent report for the Brookings Institution, "but collectively these places seldom strike an observer as unified in any meaningful way." Amid the remaining forests and farms, large-lot houses and residential ranchettes, the odd subdivision familiar to more suburbanized precincts, along with low-rise strips and big-box discounters, aimlessly splotch the landscape.

Edgeless city development, Lang argues, now comprises as much as 60 percent of growth in some metro areas, far outpacing that of edge cities, and is implicated in the giant leaps in land consumption that have been documented in fast-growing and slow-growing metro areas alike. This is what makes modern American suburbia even more ambiguous and apparently uncontrollable than it has ever seemed.

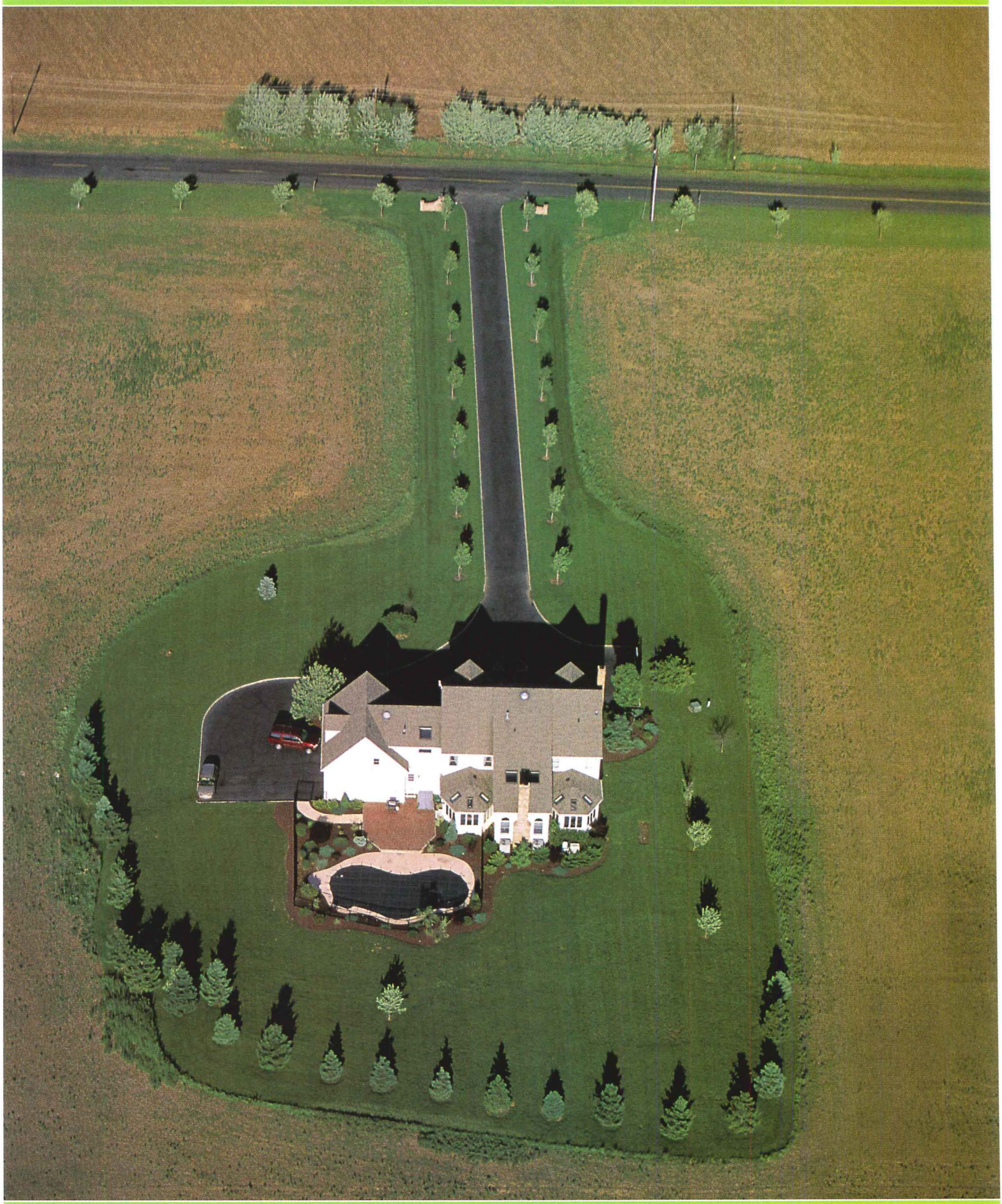
Orlando, for example, has built a megaburban freeway net that stretches well beyond built-up areas in an elongated 30-mile-diameter loop, but the hottest growth zones range much farther out, in what Bruce McClendon, until recently the chief planner of Orange County (which includes Orlando), calls "extreme suburbia." He adds, "It feels rural now, and you don't mind driving 25 miles to the Publix." But to him, this phase is incipiently suburban. "They've set themselves up for unending battles," he concludes. These edgeless developments also dump 100,000 unexpected commuters into the employment centers in Orange County, which McClendon expects to at least double by 2010.

THE NEW MEGABURBAN EDGE—UP TO 60 PERCENT OF GROWTH—CONSUMES SQUARE MILES BY THE DOZEN.

The sprawl imperative

The edgeless city phenomenon makes clear that what academics might call "the megaburban project"—meaning the entire process by which it is created—must sprawl, which puts it on a collision course with the quality of life that has for so long animated the suburban dream. The fast-growing megaburbs like Charlotte, Houston, and Dallas build highways (or promise to build them) as far out as possible, opening as much land to development as possible. This assures a surplus of buildable area (and buyer choice), which keeps real estate costs from skyrocketing. As in Orlando, unfortunately, the edgeless-city newcomers add to the traffic woes in the employment centers of the maturing inner suburbs.

Opening huge territories to development also involves lots of jurisdictions, and they tend to compete for growth—especially commercial growth, because business picks up much of the tab for government services. Businesses benefit from inducements offered by officials: We'll reduce your taxes; we'll build the road you want; we'll acquire the site you want—



Building highways ahead of development adds to inner-suburb traffic woes.

the list of goodies is lengthy. This kind of competition is what keeps fueling the megaburban growth engine.

Should architects take sides?

As suburbanites in mature communities—or should we call them megaburbanites—find the tranquility they sought upended by the dynamic, disorder-inducing forces of urban capitalism (in the form of the new corporate campus or mega-mall planned for the farm fields next door), they have organized an impressive array of means to fight the very kind of wealth-creating growth they have benefited from. Architects often get caught up in these battles. In a given town, some may side with neighbors rallying to stop the newest development. But others have fumed as the latest antisprawl regime stalls a key project. Still others stand passively by; the issues and solutions look political not architectural. But sometimes the political *is* the architectural. First, consider that most of the pitched battles in modern suburbia concern quality of life: the zoning debates, the loss of open space, farmland preservation, design-review dramas, traffic and transit. Architects and other design professionals should have something to say about that.

HOW DOES THE ARCHITECT ENTER THE PITCHED BATTLES OF SUBURBIA—ZONING, OPEN SPACE, TRAFFIC AND TRANSIT?

Growth control: resist it or design it?

There's no clear road map, but considering big-ticket conflicts through a megaburban lens may offer a means to find answers. The business-as-usual process of suburban growth sparks major conflicts in places where quality of life is intrinsic to urban identity. To avoid "becoming L.A.," Portland, Oregon, and its suburbs (most prominently among several major cities) have drawn a line and declared that everything inside can be urban while the area outside it must remain rural. The urban-growth boundary has done exactly what advocates have said it would—preserving close-in open space while driving density and transit use up.

This does not mean it has lacked controversy. It trumps individual property rights, cry libertarians—a potent argument in the independent-minded, live-and-let-live West. Oregon has committed itself unequivocally to the notion that the people, not

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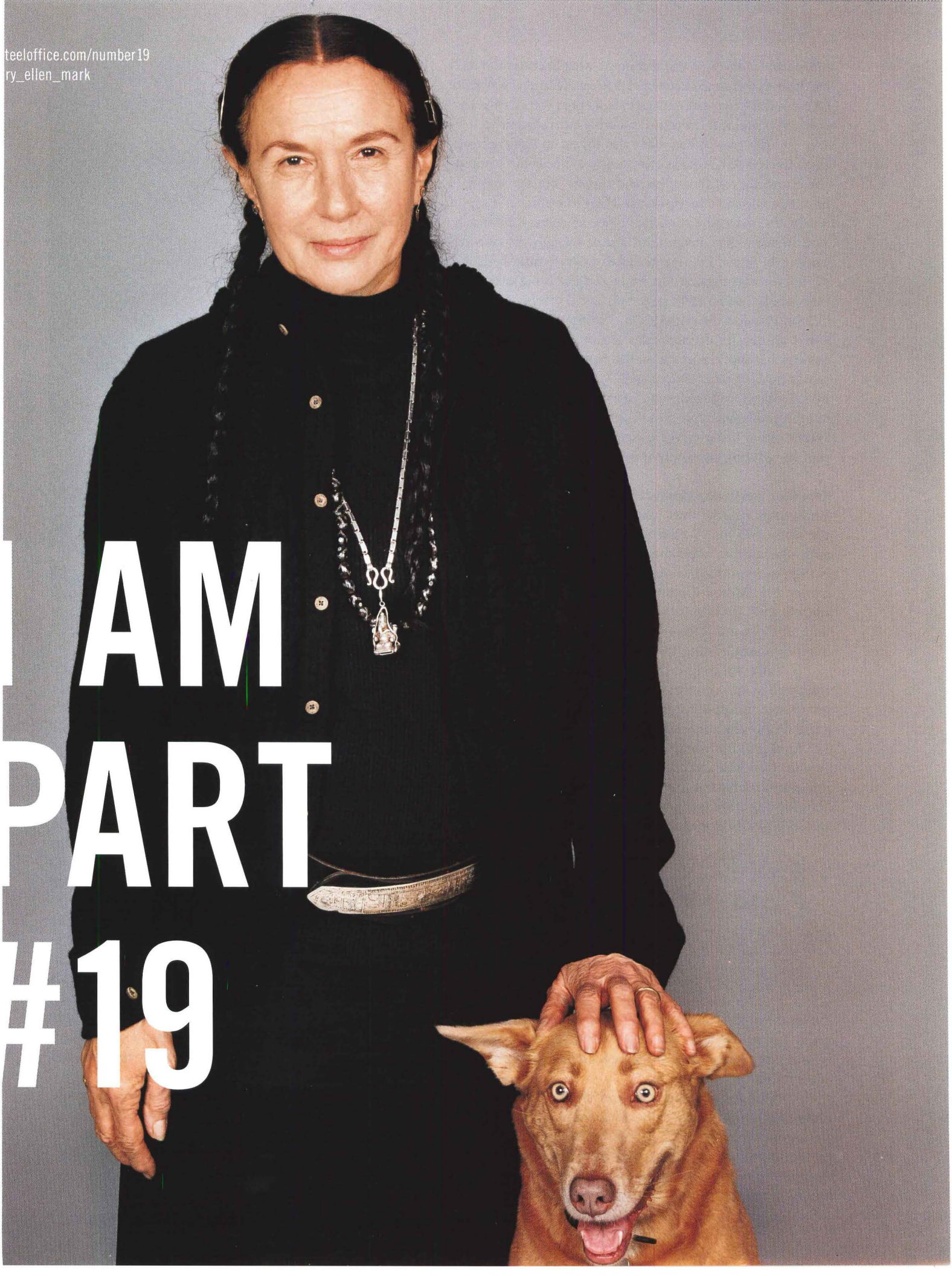


I AM PART #19

individual landowners, will determine what becomes urban. It has declared war on the traditional deference to landowner choice (the idea that everyone's entitled to build pretty much what they want anywhere) that has turned suburbia into megaburbia.

The growth boundary also drives up housing costs, assert free-market critics like the Reason Public Policy Institute, "by artificially restricting the land supply." But the supply of housing could still outstrip demand (key to keeping it cheap) if developers find ways to build at higher densities economically. And architect Gary Reddick, of Sienna Designs, for one, has come to the rescue. He has persuaded owners to make better use of supermarket parking lots by erecting housing over them [RECORD, December 2000, page 148]. Architects in costly cities like San Francisco, Los Angeles, and Boston have built innovative, high-density developments (many for the "affordable" market) that offer exportable models to suburbs growing denser [see RECORD, October 2002, page 227, and February 2002, page 149]. Similarly, if the reduced costs of supplying infrastructure to infill development are passed onto taxpayers in the form of lower taxes or better services, there will not be a "price" to be paid for reducing the supply of developable open land.

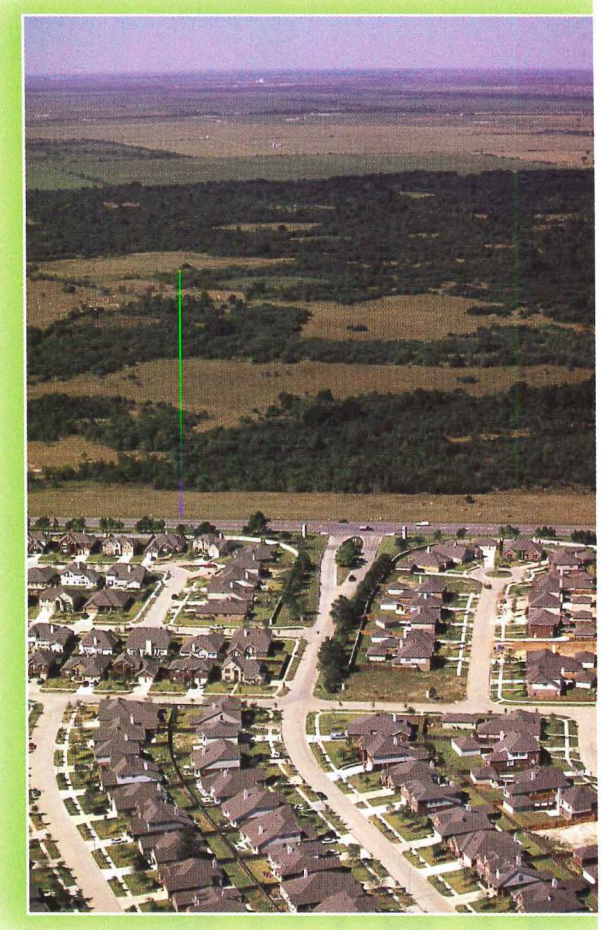
Breaking edge-city gridlock

For most people, the chief suburban evil is traffic, which gets ever worse. Everyone—experts and the traffic-weary commuter alike—knows that megaburbia cannot build traffic lanes fast enough to accommodate travel growth. (Nor is there enough money. See "Missed Connections," page 117). Among urban analysts, there has long been little disagreement about the solution: If land-use decisions cannot be coordinated with transportation planning, there will never be a solution.

Why has so little changed? Orlando's Orange County attempted to focus growth within fiscally and environmentally responsible "urban-service boundaries" (a less comprehensive and therefore less politically volatile solution than Portland's). The developers moved out to the next county, which welcomed growth. One local official summed up surrounding towns' responses to Orlando's attempts to slow scattered development: "The big dog is not going to tell *us* what to do." New Urbanist architects have been in the forefront of the movement to remake the suburban ideal around transit-oriented nodes of development. But no effort in the states compares to Vancouver's vigorous coordination of development, which has spurred high use of its SkyTrain (page 132).

NEW DEVELOPMENT MODELS CAN INCREASE DENSITY OR ENCOURAGE TRANSIT IF THEY ENGAGE SUBURBAN FEARS.

Well-meaning architects and planners have failed to convince towns and cities to link transportation and development as long as anything-goes jurisdictions farther out are prepared to give developers and relocating businesses whatever they want—they're hungry for the tax receipts that development will bring. So tax-and-spending equity must inform the architect's vision.

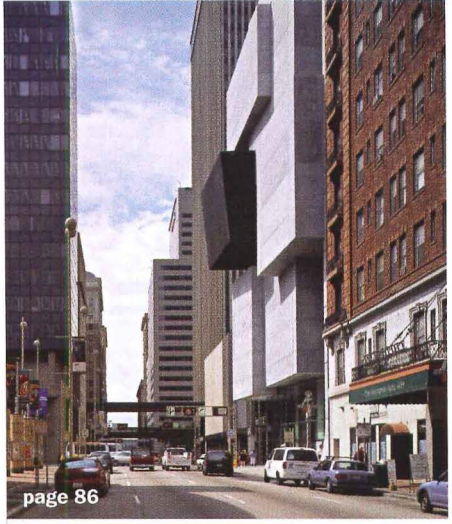


In today's amorphous megaburbia, the rural edge does not remain crisp for long.

New Urbanists have worked with often-reluctant developers, with the result that few such communities have convincingly broken the conventional development mold. The "town center" nearing completion at Avalon Park, outside Orlando, is a pale stage-set imitation of one of Duany and Plater-Zyberk's most ambitious early efforts. Similarly, the second generation of Kentlands, in Maryland, has reverted to the vinyl-sided norm.

Given the aversion to innovation that prevails in the real estate industry [RECORD, June 2003, page 98], it's still tough to create new development models that engage suburban fears while lowering land consumption and encouraging greater use of auto alternatives. It would be nice if the national government—or states, or municipalities—would underwrite innovative demonstration projects, as is the norm in places like Germany—the International Building Exhibitions in Berlin being the most famous, but only one among many [see RECORD, April 2001, page 94, and February 2002, page 156]. It will take a concerted effort by architects and allied activists to create these opportunities.

For suburbs to transcend megaburban dilemmas won't be easy, but the stakes are only getting higher. In an unprecedented way, quality of life is implicated in economic success. Architects are uniquely qualified to unite the too-often-at-odds aspects of the urban and the suburban. It could prove one of the chief challenges of the coming decade. ■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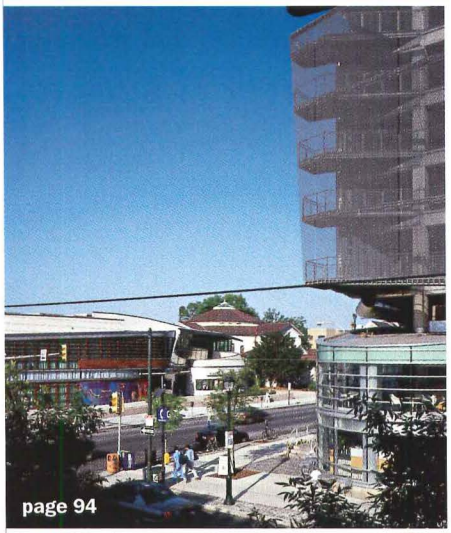
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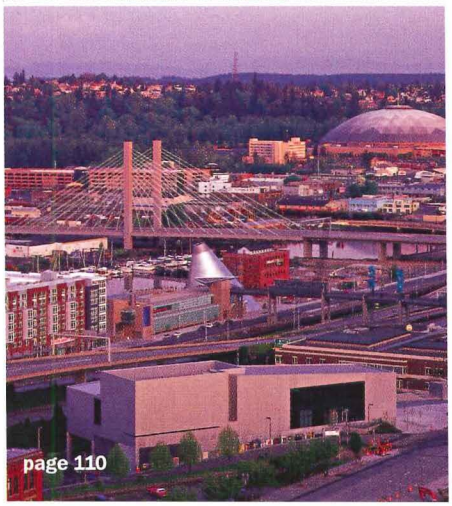
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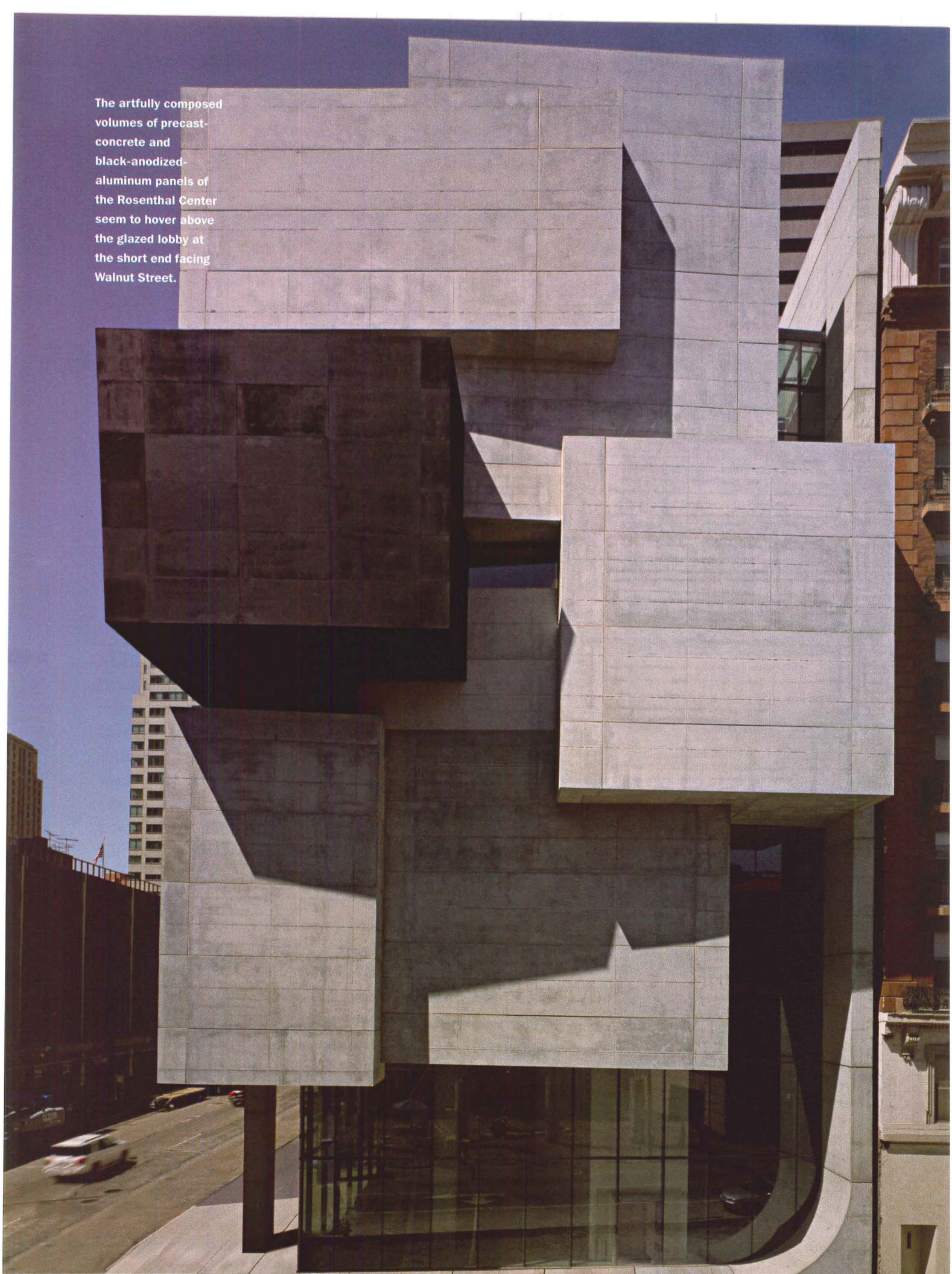
Design of Cities

WITH CITY PLANNING IN ECLIPSE, ARCHITECTS MOLD URBAN IDENTITY ONE PROJECT AT A TIME

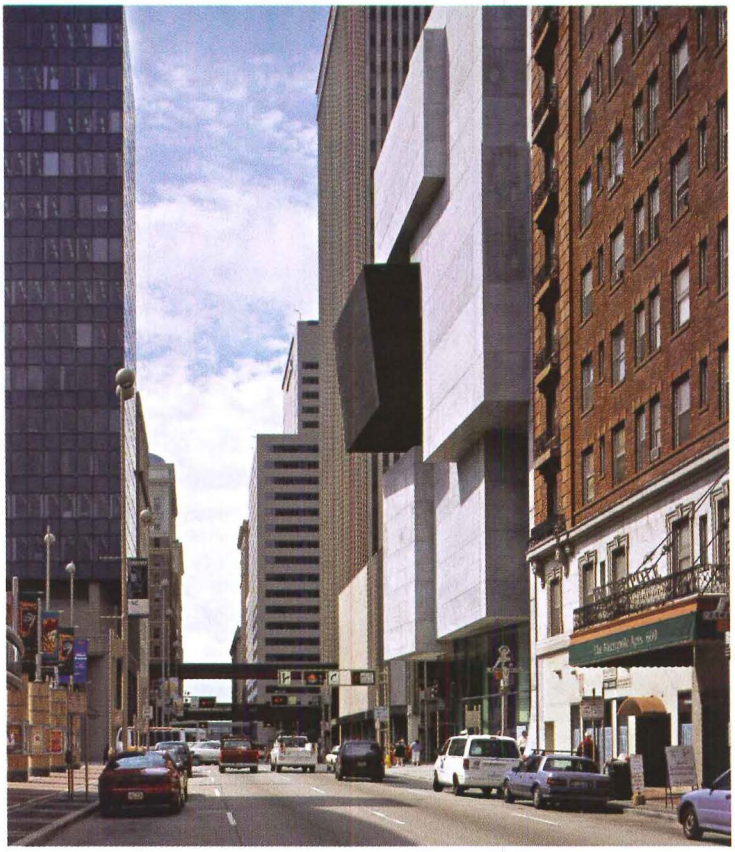
One hundred and 10 years ago, the Chicago World's Fair promised a gleaming Beaux-Arts city—an architect-designed dream in white plaster. Today, firms quietly fill the vacuum left by the eclipse of big-idea planning as they learn that buildings can have an outsize influence on their surroundings. The power of architecture to project urban energy beyond a given site is explicitly recognized in the project coverage this month. Zaha Hadid's Contemporary Arts Center in Cincinnati signals an emerging culture of creativity in a troubled city that didn't seem to want it. In Philadelphia, Wood + Zapata prove that even a parking garage—if artfully designed—helps to renew a scarred relationship between town and gown. The Tacoma Art Museum, Washington, adds critical mass to an emerging cultural district in a town that was down and out only a few years ago. Even as introverted a project as Munich's Five Courtyards energizes a dense urban core. Yet challenges abound. Sclerotic bureaucracies and politicized funding hinder the community focus that adds lasting (and increasingly well-documented) value to transportation projects. Nobody designed the formless megaburbs and the edgeless cities even as they have become landscapes torn by perpetual land-use battles. Such places have much to gain by giving designers a bigger role, but there's no road map to success—yet. *James S. Russell*



The artfully composed volumes of precast-concrete and black-anodized-aluminum panels of the Rosenthal Center seem to hover above the glazed lobby at the short end facing Walnut Street.

'aha **Hadid** revs up a tight site in Cincinnati with the **ROSENTHAL CENTER FOR CONTEMPORARY ART** and draws a crowd

r Suzanne Stephens



As a highly charged cultural statement by Zaha Hadid, a certifiably avant-garde architect, Cincinnati's new contemporary art museum fits almost too discreetly into its conventional urban setting of Modern high-rises and low boxy buildings; small-ale, turn-of-the-last-century brick structures; and an Art Deco hotel. You uld even call it "contextual," anathema these days to the high-design owd and hardly expected as the first new building in the United States by e inventive London-based architect. Named the Lois & Richard senthal Center for Contemporary Art, the museum, which cost a modest 0.5 million to build, hardly seems related to the zoomy foreign objects ndered in Hadid's seductive drawings or previously published projects: ost famously, the extremely angular Vitra Fire Station (1993), and more cently, the sleekly contoured Bergisel Ski Jump at Innsbruck [RECORD, nuary 2003, page 76]. Instead, the Rosenthal Center sits sedately on an ,000-square-foot corner lot downtown. Its main, Sixth Street facade is strained, with horizontal, windowless volumes of precast-concrete and ack-anodized-aluminum panels effortlessly floating over glass voids.

To be sure, the action heats up at the corner of the building, here the cantilevered projections of the blocklike elements in this steel-amed building become more defined. On the center's short end, facing 'alnut Street, the vertically stacked masses hovering above the glass base em more highly charged, almost defying gravity. But in spite of the power this free-floating composition, architectural aficionados looking for the iboom of Gehry's Bilbao Guggenheim may be bewildered. At first glance, e building seems to owe more to Marcel Breuer's later work, say the 'hitney Museum of American Art (1966) in New York City, or the rmstrong Rubber Building (1969) in New Haven, Connecticut, than to itra. Nevertheless, whereas Breuer seemed merely to long for a weight-ssness of opaque masses, Hadid and project architect Markus ochantschi achieve it with a force and elegance that is admirable, if subtle.

Hadid's major move occurs inside. The first clue to the spatial rama that lies within is the expansively glazed corner lobby, with its oured-in-place concrete floor that just keeps going, even after it hits the all, and curves upward like a skate- or snowboarding halfpipe. As the sitor follows this "urban carpet" to the rear of the lobby, he or she dis-overs the coup de théâtre—an attenuated zigzag of painted black steel mp-stairs ("stramps"?) slicing through the space to the top skylight out 100 feet above. The effect is dizzying, especially since the exterior evations hardly prepare you for the internalized vertical void. Indeed, you might have thought that, like Breuer's Whitney Museum, you would find a stack of loftlike gallery levels inside. Wrong.

Circulation is Hadid's forte, particularly the expression of the ramp, as we saw in the *Mind Zone* installation in the Millennium Dome [RECORD, December 1999, page 118], or most recently in the ski jump. This *promenade architecturale,* in Le Corbusier's words, is pushed to the hilt at the Rosenthal Center. As you ascend, you sense the shallowness of the risers (4.5 inches high) and the depth (16 inches) of the clear anodized aluminum treads. In this vertiginous glide upward, you don't seem to be climbing. At each level, the ramp stops so visitors move off on a jagged itinerary through the galleries until the full circuit has been made, and then ascend (or descend) to the next floor. The center has placed the children's "UnMuseum" (with glazing) at the top of the six levels, so that young museumgoers come into contact with the galleries.

Project: *Lois & Richard Rosenthal Center for Contemporary Art, Cincinnati, Ohio*
Design architect: *Zaha Hadid Architects—Zaha Hadid, principal; Markus Dochantschi, project architect; Ed Gaskin , assistant project architect*
Client: *Contemporary Art Center—Charles Desmarais, director*
Architect of record : *KZF Design*
Consultants: *THP (structural); Arup (acoustical); Heapy Engineering (m/e/p)*

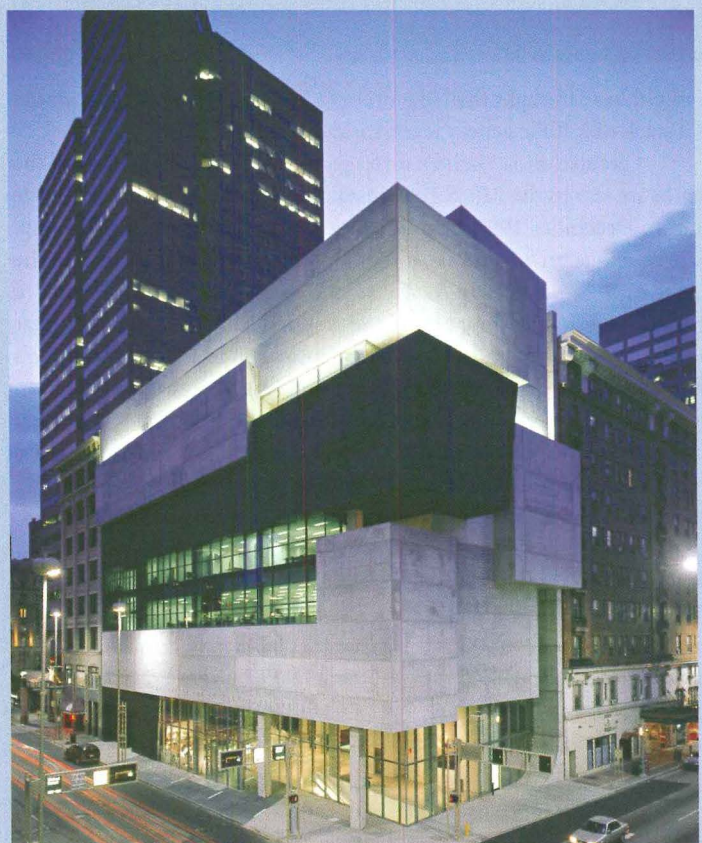
Cincinnati: Cultural Capital

Culture has been Cincinnati's strong suit since its early settlers created an art museum, art academy, symphony orchestra, opera, and zoo that were among the first west of the Alleghenies. The city has buildings by Cass Gilbert; John Russell Pope; Skidmore, Owings & Merrill; Cesar Pelli; and Kohn Pedersen Fox, along with performing arts venues by HHPA and Michael Graves.

The town features a suspension bridge by John Roebling built in 1867, a precursor to his Brooklyn Bridge. And here the first reinforced-concrete skyscraper was erected in 1902 (the Ingalls Building, by Elzner & Anderson).

Although local leaders recently allocated $2.2 million to support capital projects of arts institutions, they had also spent tax dollars on two new football and baseball stadiums to replace a combined one built less than 30 years ago. The stadiums are handsome enough, but they dwarf the downtown and cut it off from the river, which used to be its lifeblood. Twenty years ago, the desire to turn Cincinnati into an upstart boomtown like Atlanta caused the city to expand the convention center across a main artery. Attempts to attract downtown development while the city was losing population led to banal office buildings, and historic buildings were emptied or downgraded. And with office workers separated by several blocks from stores and shops, the downtown retail center died—ironically, during the city's bicentennial in 1988. (Because city planners built a skywalk system linking stores to hotels and office buildings, the closing of one department store set off a chain reaction.)

For the past 15 years, the downtown that survived postwar sprawl languished. Then in 2001 came riots triggered by police brutality, which further exacerbated racial tensions. Many Cincinnatians had not been downtown for two years, but come they did to the new Rosenthal Center for Contemporary Art. A startling 10,870 people showed up for the opening festivities in late May. A few private citizens and some generous donors had done what corporate leaders, planners, and the city council could not. Building courageously—and getting praise for it—has brought self-confidence back to the city.
Jayne Merkel



Circulation and installation space—the two main componer of the museum architecture—were inextricably linked in Frank Llo Wright's Guggenheim Museum in New York to create a unified, kine thetic experience viewing art on a spiraling path around a skylit atriu Hadid's response is more along the lines of Richard Meier's approach the High Museum of Art in Atlanta (1983). In both of these schemes, t atrium circulation is kept distinctly separate from the art installatio although the visitors in both follow a defined trajectory. At the High, t ramps are curved around the rotunda; at the Rosenthal Center, t straight line of the ramps, offset from each other as they cut throu the atrium space, makes the processional experience more direct.

While Hadid's separation of vertical circulation from the displ solves problems encountered with Wright's Guggenheim and seems fast than Meier's approach, the criticism by artists that high-design archite ture competes with the art on display probably will not go away with h solution. The Rosenthal Center does not offer rectilinear loftlike galleri that can be easily partitioned depending on the size of the artwork. I "flexibility" comes from providing a variety of differently shape spaces—from large, 25-foot-high galleries to nichelike ones.

Because the museum has no permanent collection, Hadid didn have to design her galleries around particular works of art. The museu operates as a *Kunsthalle* for temporary exhibitions, as it has since 193

FUTURE SHOWS, GOOD OR BAD, WILL BE CHALLENGED BY HADID'S DRAMATIC ARCHITECTURE.

when it was founded as the Modern Art Society. Yet the curators have t carefully select the art to fit in the defined spaces. As it happens, the cu rent exhibition, *Somewhere Better Than This Place: Alternative Soci Experience in Spaces of Contemporary Art*, organized by senior curat Thom Collins, demonstrates the strengths and weaknesses of a varie nonuniversal space. The most successful installation, bar none, is Inig Manglano-Ovalle's *Cloud Prototype for an Edition of 3*, an aggressive voluminous object clad in titanium that is suspended partially over th atrium at the fourth level. Its curvaceous, shiny shapes offer a dramat counterpoint to the crisscrossing black stair-ramps. On the other han a yurtlike house of recycled material, *El Retiro Roundhouse*, by th Slovenian artist Marjetica Potrc, seems stuck into its cramped locatio on the fifth level, where it blocks sight lines as well as gallery circulatio Other parts of the exhibition, of the installation-art-as-entertainmer genre (hot tub or café, both in use) only distract.

In the struggle between art and architecture, when art win often architecture loses. Since the sound from Jane Cardiff's *Forty-Pa Motet* piece with 40 speakers, installed in a fifth-level gallery directly the top of the stair, would travel too easily into the atrium, the museu installed portieres of felt strips over the entrance and exit to the ramp This unfortunate maneuver (not that there were many possible alternati solutions) adds a klutzy visual note. Future shows, good or bad, arguabl will be challenged by Hadid's architecture.

The question is, should there be a fight between art and architec ture? It is rewarding when both can mutually reinforce each other, as seen i some exemplary museums with permanent collections, where the balance daylight and artificial light is masterfully achieved to stunning effect, such Louis Kahn's Kimbell Art Museum (1972) in Fort Worth, or Renzo Piano Menil Collection (1987) in Houston. Hadid's temporary art galleries aren meant to compete on this level. Nevertheless, the gallery lighting is very con ventional, all the more noticeable because of the unconventional angles the walls. Clearly, Hadid's mission is not to advance the evolution of th

he restraint of the trongly horizontal acade of the 87,500- quare-foot art center n Sixth Street (right) ontrasts dramatically ith the vertical thrust f the interior atrium above). The concrete obby floor merges ith the curved wall at the rear of the lobby, like a snowboarding halfpipe. Called an "urban carpet," it is intended to draw visitors to the stairs. Slots of fiber-optic lighting embedded in the floor and sidewalk outside give the space an eery glow at night.

hough the rear wall
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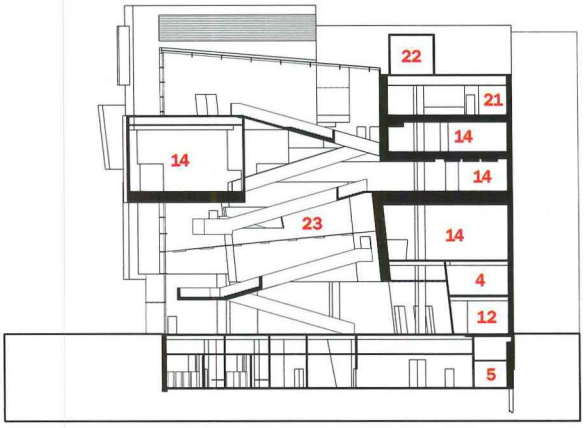

SECTION A-A

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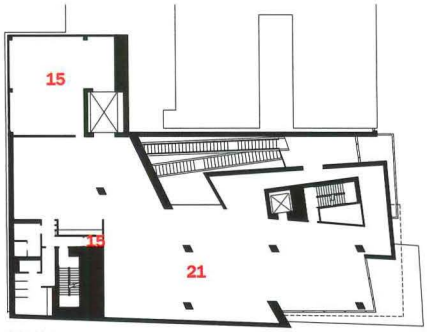
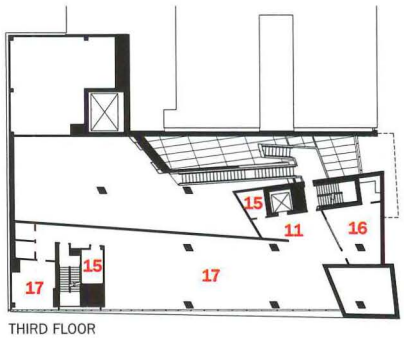
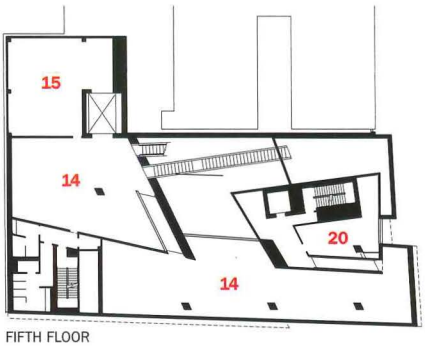


SIXTH FLOOR

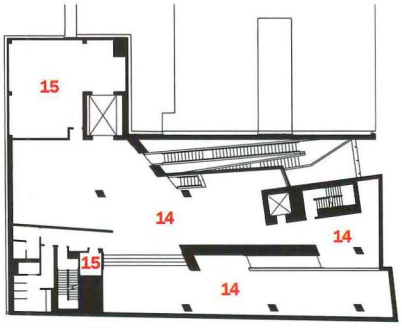
1. *Lower-level lobby*
2. *Performance space*
3. *Electrical equipment*
4. *Mechanical*
5. *Kitchen*
6. *Workshop*
7. *Main entrance*
8. *Lobby*
9. *Museum shop*
10. *Reception*
11. *Coatroom*
12. *Loading*
13. *Receiving*
14. *Gallery*
15. *Storage*
16. *Staff lounge*
17. *Offices*
18. *Boardroom*
19. *Terrace*
20. *Members' lounge*
21. *Children's museum*
22. *Penthouse*
23. *Atrium*



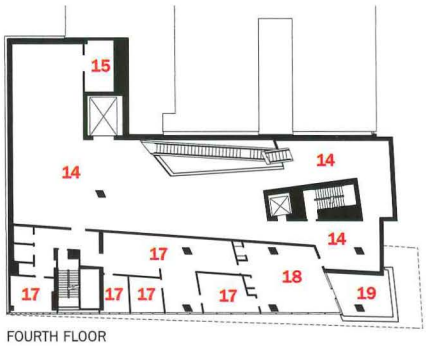
THIRD FLOOR



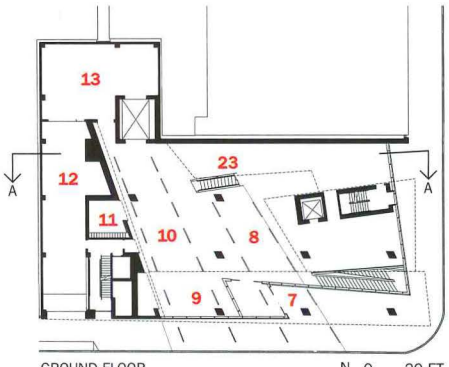
FIFTH FLOOR



SECOND FLOOR



FOURTH FLOOR



GROUND FLOOR

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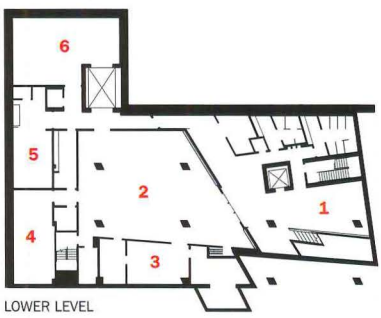
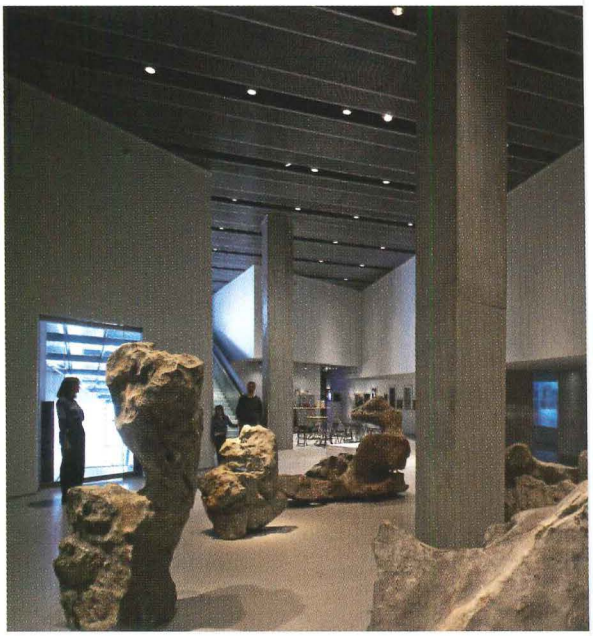


LOWER LEVEL

Galleries offer flexibility through spaces of different heights and sizes, such as the large gallery where an art work by Cai Guo-Qiang is installed (right). Ceilings are covered in drywall, metal grating, or perforated metal panels, depending on acoustical needs for video. Performance pieces can also take place in the black-box theater on the Rosenthal Center's lower level.



e stepped ramps pear to float between e volumes. In most ses, the ramps, with eel-box beams form- g the balustrades, st on the steel floor ges; in one instance, anding is unobtru- ely anchored to a eel beam cantilever- g out of the concrete ar wall.

useum gallery as a sacred space. In other words, the Rosenthal Center ould not be judged as a prototype for gallery design. With changing ows and inconsistent quality of art, it's better to evaluate the museum as touristic magnet introducing people to the experience of "Architecture."

So, is having Hadid design a small, 87,500-square-foot museum a midwestern state just part of the "Bilbao Effect"? Ironically, Ohio was ing after far-out architecture before Gehry's Guggenheim Bilbao ened in 1997: look at Peter Eisenman's Wexner Center, built in 1989 at hio State University, in Columbus. For its part, Cincinnati already had gun to create its architectural *Wunderkammer,* or cabinet of curiosities, fore Hadid arrived. The University of Cincinnati now has Frank ehry's Vontz Center for Molecular Studies [RECORD, February 2000, ge 81] and Peter Eisenman's Aronoff Center for the Design and the Arts 996) added to its campus, with buildings by Thom Mayne and Bernard chumi under way. Hadid's commission for the Rosenthal Center, there- re, was a natural. It resulted from an RFQ sent by Charles Desmarais, rector of the parent institution, the Contemporary Arts Center, who nvinced the city to buy and clear the site if he could raise an initial $5 illion. After the RFQs, the list was whittled to a dozen architects, then to shortlist of Bernard Tschumi, Daniel Libeskind, and Hadid.

In the final analysis, the Rosenthal Center succeeds as both a calm civic gesture and an example of the imaginative possibilities of architecture. It presents an object that provokes, yet also sits comfortably amid its surroundings. As it draws you in and up and through the skylit atrium and labyrinthine galleries, it delivers, as few buildings do, the continuous and exhilarating experience of moving through space in time. Next comes Zaha Hadid's art center for Bartlesville, Oklahoma [RECORD, June 2003, page 30]. Here, adjacent to Frank Lloyd Wright's Price Tower [RECORD, July 2003, page118], Hadid has designed a 58,000-square-foot, two-story art center. The horizontal takes over, and if built as designed, it should generate more heat for the town, and for Hadid's future work in the U.S. ■

Sources

Architectural and structural concrete: *Baker Concrete Construction*
Architectural precast concrete: *Concrete Technology*
Custom metal wall panels: *A. Zahner*
Standard metal panels: *Centria*
Glass curtain-wall system, glazing, skylight: *Harmon*
Structural steel and step/ramp-stair: *Southern Ohio Fabricators*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

The Walnut Stree
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Wood and **Zapata** brings new life to a run-down block in Philadelphia with two buildings, **GARAGE** and a **CINEMA**, that energize the street

Clifford A. Pearson

The multiplex cinema and the parking garage—those icons of 20th-century American mall culture—rarely win much praise from urbanists. More often than not, they're seen as enablers of sprawl or accessories to the crime of homogenizing the built vironment. Less notorious siblings of big-box stores and discount chains, ey nonetheless share the stigma of formulaic design, mindless commerlization, and elephantine scale. The Bridge Cinema and Hamilton Square rage in West Philadelphia, however, show that these architectural beasts n be tamed, even transformed into urban attractions.

Developed by the University of Pennsylvania at the fraying riphery of its campus, the two buildings face each other across Walnut eet, the area's main commercial way, and engage both the academic mmunity and local residents. "This used to be the edge; now it's a gatey," says Omar Blaik, the university's vice president of facilities and real ate services, referring to the buildings' location at the intersection of th Street and Walnut. For much of the past three decades, Penn had ned its back on its poor neighbors, fearing crime and urban decay. Vhat you saw was a university that wasn't comfortable being a part of iladelphia," admits Blaik. In 1993, though, the university hired a new esident, Judith Rodin, who grew up in Philadelphia and committed the hool to improving its relationship with neighboring communities.

The new garage, which replaces a surface parking lot, and the nema, which stands on the site of a former Burger King, are the latest orts by the university to turn a dangerous border zone into a vibrant mmercial district. The projects, which moved forward as a pair, are not ly reviving a particular neighborhood but are redefining their building

ojects: *Hamilton Square Garage d the Bridge Cinema De Lux, iladelphia*
vner: *University of Pennsylvania*
chitect: *Wood and Zapata—rlos Zapata, partner in charge and sign principal; Benjamin T. Wood, A, partner in charge; Ron awford, Victoria Steven, project chitects for garage; Caleb Mulvena, oject architect for cinema; Steven omas, assistant project architect for garage; Helen Ferguson Crawford, Lasse Luetjens, Anthony Montalto, Caleb Mulvena, Sapir Ng, Paul Wang, Delphine Yip, design team for garage; Ron Crawford, Anthony Montalto, Victoria Steven, Steven Thomas, Paul Wang, design team for cinema*
Associate architect (garage): *spg3—Richard Gelber, AIA, Irv Shapiro, AIA, partners in charge*
Architect of record (cinema): *spg3—Richard Gelber, AIA, Irv Shapiro, AIA, partners in charge*
Interior architects (market): *Hugh Boyd, AIA; spg3*
Interior designer (cinema): *Powerstrip Studio—Dayna Lee, partner in charge*
Engineers (garage): *Timothy Haahs & Associates (structural); Marvin Waxman Consulting Engineers (mechanical); Mulhern Consulting Engineers (electrical)*
Engineers (cinema): *Brecher Associates (structural); Waxman (mechanical); DLR Group (electrical)*
Consultants (garage): *Danadjieva & Koenig (landscape); Fisher Marantz Stone (lighting)*
Consultants (cinema): *Olin Partnership (landscape); Lighting Design Collaborative (lighting); Cavanaugh Tocci Assocs. (acoustical)*
General contractors (garage and cinema): *R.M. Shoemaker; INTECH Construction*

University changes its ways by reaching out to its neighbors and acting as developer

Once called McDeath for its fast-food joints and high crime rate, the area around 40th and Walnut Streets in West Philadelphia now stands as an example of urbanism on the upswing. The transformation didn't happen overnight but resulted from a long-term effort by the University of Pennsylvania to invest in the communities neighboring its campus and build projects that would serve students, faculty members, and local residents.

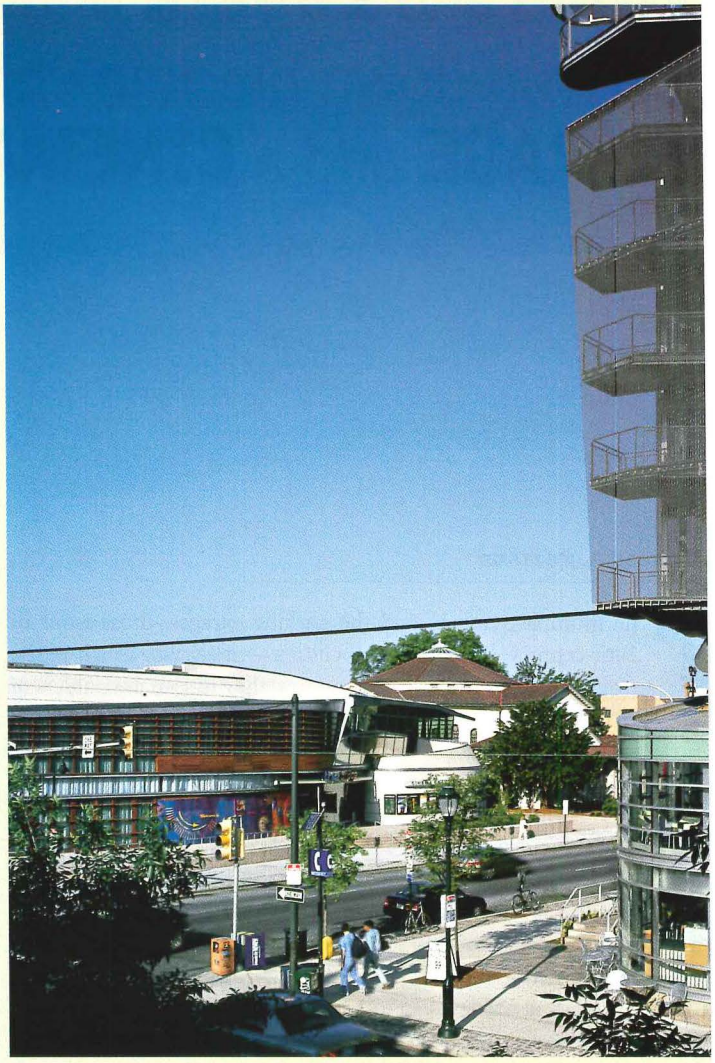
"We realized we couldn't compete with other Ivy League schools if we didn't improve the city around us," says Omar Blaik, vice president of facilities and real estate services for the university. So after years of trying to buffer itself from its inner-city neighbors, Penn started reaching out in the mid-1990s. It renovated campus buildings that turned their backs to Walnut Street by adding new entrances, windows, and street-level shops. It gave them street addresses, a small but significant gesture that said these buildings belong to the city, not just the campus. It turned parking lots into mixed-use developments with stores, offices, restaurants, and sidewalk cafés. And it upgraded open spaces so they function as urban parks, not voids in the city's fabric.

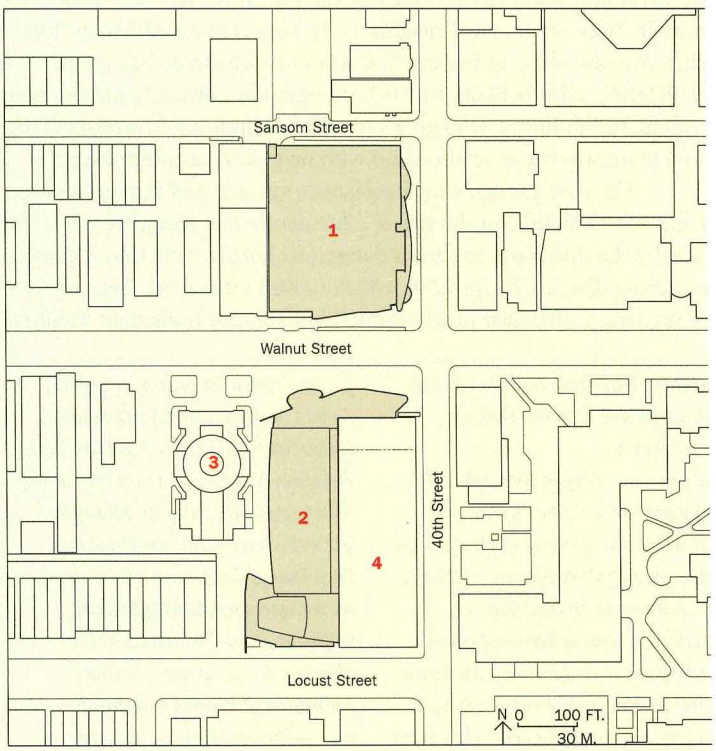
In 1998, the university opened Sansom Common, a 300,000-square-foot complex with a Barnes & Noble superstore, a 260-room hotel, and a variety of retail outlets. Designed by Elkus/Manfredi Architects on a site three blocks east of 40th Street, the project proved the university could be a successful entrepreneur and urban redeveloper.

West on Walnut Street, though, remained dicey until the Hamilton Square Garage opened in May 2001 with its snazzy, 24-hour Fresh Grocer supermarket on the ground floor. In November 2002, the Bridge Cinema opened across the street, solidifying the area's transformation and bringing more people to the neighborhood in the evening.

Although a McDonald's remains at one corner of 40th and Walnut (much to the university's chagrin), the new garage and cinema projects have prompted the city of Philadelphia to start renovating an old public library that had been boarded up for years on one of the other corners. Adjacent to the library, the university has just finished turning a small muddy field into a grassy park open to everyone.

A few people have criticized Penn for being such an eager developer of for-profit properties, but its projects along Walnut Street have clearly acted as urban catalysts and cater to area residents as well as the academic community. "These are truly democratic places where everyone can come," says Anthony Sorrentino, director of external relations for the university and a local resident, walking through a crowded aisle of the Fresh Grocer and checking out the salmon fillets in the fresh-fish counter. *C.A.P.*





Curving elements on the garage and cinema speak to each other across Walnut Street (this page). On 40th Street, glass, metal mesh, and perforated aluminum create a dynamic elevation for the garage (opposite).

1. *Garage*
2. *Cinema*
3. *Former Unitarian church*
4. *Existing retail*

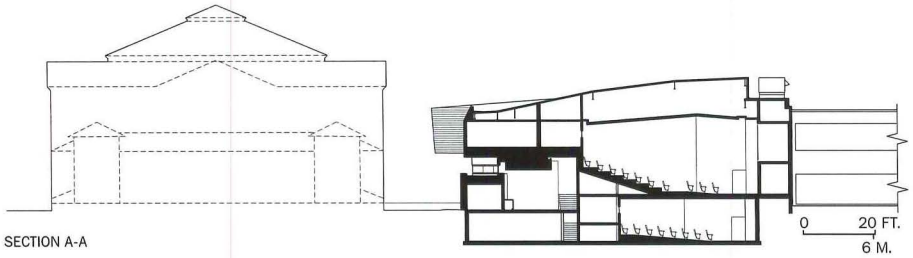
'pes by employing creative combinations of uses and innovative design.

To allay community fears of the university taking over the eighborhood, Penn made it clear from the beginning that these new uildings would not be mistaken for the typical redbrick structures found n campus. "Our intention was to find an architect who could do some- ıing different and exciting here," explains Charles Newman, Penn's niversity architect. Although its business partners differed on the two rojects, Penn selected Wood and Zapata of Boston to design both build- ıgs and give the intersection a strong visual identity. The Philadelphia rm spg3 served as the local architect on both projects, and Powerstrip tudio of Hollywood, California, designed the interiors of the cinema.

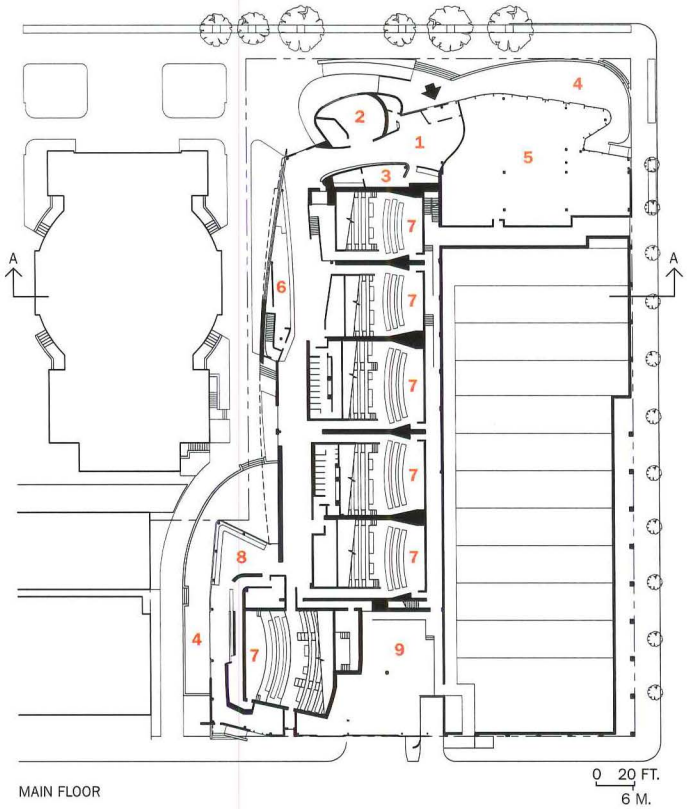
To make the garage work in its urban context, the university ewired the basic program—adding a 24-hour supermarket to the street vel and part of the second floor. Wood and Zapata highlighted the dif- rent functions in plan and materials as a way of breaking down the bulk f the 9-story, 295,000-square-foot building and giving each component s own identity. So the 32,000-square-foot supermarket bulges out ›ward Walnut Street with a sleek curtain wall made of clear and opaque green glass, while the parking floors wrap themselves in bands of stainless-steel woven mesh. On 40th Street, a curving section of curtain wall pushes beyond the envelope of the parking structure, revealing the market's high-ceiling shopping space on the ground floor and a conveyor belt for shopping carts on the second. Although the market has decided not to use the belt, the architects designed it to help customers bring groceries to their cars. The market's operator, Fresh Grocer, has found that much of its business is walk-in traffic and that those who come by car would rather take their carts on the elevator than put them on the conveyor belt.

THE UNIVERSITY REWIRED THE BASIC PROGRAM OF A GARAGE, ADDING A 24-HOUR SUPERMARKET.

At first, the client thought building codes required the garage to be set back 10 feet from its neighbor to the west. But the architects discovered they could push it within 2 feet of the adjacent structure. "This allowed us some room on the east to activate the 40th Street elevation,"



SECTION A-A



MAIN FLOOR

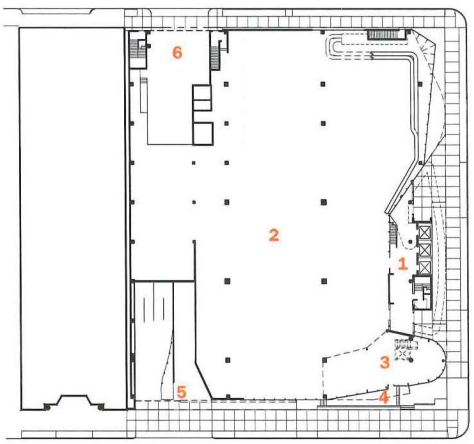
CINEMA

1. *Lobby*
2. *Media bubble*
3. *Box office*
4. *Terrace*
5. *Restaurant*
6. *Concessions*
7. *Theater*
8. *Café/bar*
9. *Loading*

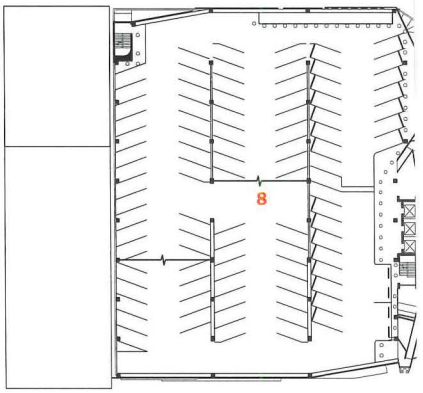
Part of the challenge of designing the two buildings was reconciling the much larger garage structure with the cinema. (The plans here are shown at different scales.) Outdoor spaces on Walnut Street and curving elements on the lower floors help the buildings relate to each other. In addition to commercial theaters on the main floor, the cinema offers space on a lower level for the university's film and video center.

GARAGE

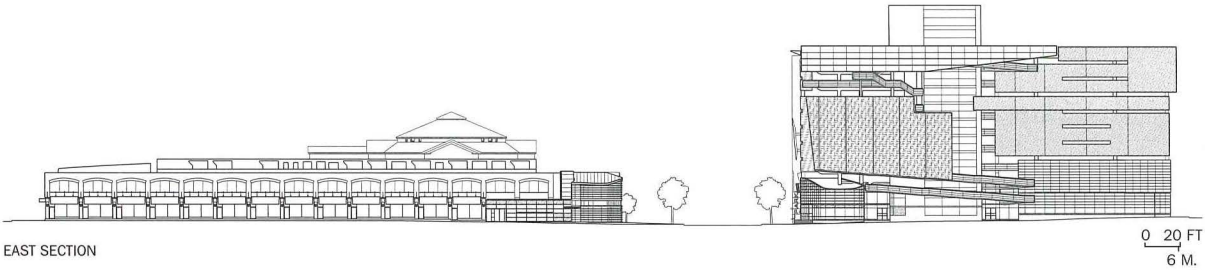
1. *Lobby*
2. *Market*
3. *Café*
4. *Outdoor seating*
5. *Garage entry*
6. *Loading*
7. *Pedestrian ramp*
8. *Parking*



FIRST FLOOR



THIRD FLOOR



EAST SECTION

Stairs and ramps pulled away from the bulk of the 765-car garage work with metal mesh and glass to define a vertical space that can be used for presenting student artwork (above left and right).

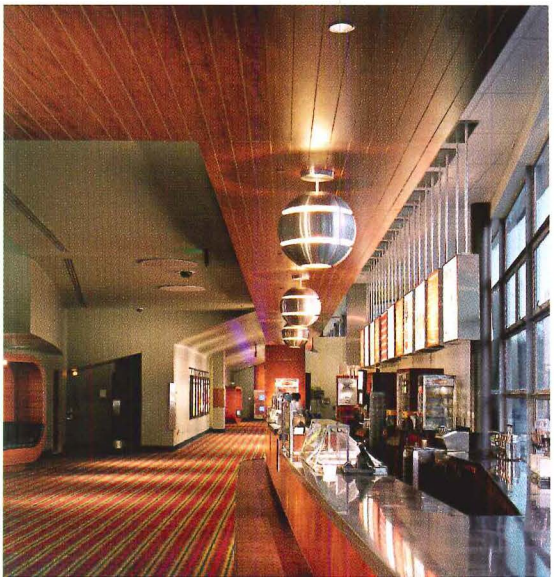
plains Carlos Zapata, the design principal. Pulling a galvanized-steel fire air and ramps away from the posttensioned concrete slab structure ılivened this facade with a play of forms and created a layering of mate-ıls that veil the building's bulk in a series of metal scrims. It also let ıpata carve a vertical slot of space between the bulk of the building and e ramps—a space that heightens the translucency of the metal-mesh in by bringing daylight behind it. On the Walnut Street elevation,

HE ORIGINAL CLIENTS AND DESIGNERS F THE CINEMA ENVISIONED A NEW KIND F FILMGOING EXPERIENCE.

ıpata envisioned a large metal screen on which images could be pro-cted from the cinema across the street. The screen, which would be set ithin the building's bands of metal mesh, has not yet been installed.

Like the garage, the cinema project benefited from an unusual ombination of uses, which in turn created architectural opportunities. riginally planned with Robert Redford's Sundance Films and the eneral Cinemas chain of theaters, the facility was to highlight inde-ndent films and have a film archive, restaurant, and café. A creative am that included The Moderns (a design and branding firm in New York City) and Steven Winter Associates (an architecture and engineering firm with an expertise in green design), in addition to Wood and Zapata, imagined a new kind of filmgoing experience, says Janine James, the president of The Moderns. Instead of waiting in line, seeing a movie, then leaving, people would reserve seats, relax at the café, see a film, then stay on the premises to talk about what they saw while eating at the restaurant or enjoying a drink at the café. But General Cinemas went bankrupt during construction of the building, and the new theater tenant, National Amusements, brought in its own interior designers and modified the original ideas. National Amusements changed some of the finishes and didn't follow through on the project's ambitious environmental agenda (which included specifying recycled materials and reusing gray water), but it didn't alter the basic architectural scheme.

Set between an existing two-story retail block and a building that had once been a Unitarian Church, the cinema could have been tucked almost out of sight, but everyone involved in the project wanted it to have a strong urban presence. So Zapata pulled its front elevation out to the intersection of Walnut and 40th, which required knocking down a piece of the retail building. To connect moviegoers to the outdoors as much as possible, the design team located the corridor to the six theaters on the western edge of the building and glazed this elevation so it offers views of



The architects wante to wrap the curving e ment protruding from the cinema's main entrance in mahogan and glass, but the ne tenant used stucco instead (left and opp site). Daylight and outdoor connections are important elemer in both the cinema lobby (bottom left) ar the café (bottom righ

narrow garden. The designers also created a separate entrance to the café ı Locust Street, so it could attract outside customers, not just filmgoers.

For the main facade on Walnut Street, Zapata designed a sinuıs construction of mahogany and steel without any of the usual ovie-theater signs. "The idea was to draw people in with architecture, ɔt neon," says Zapata. Another draw was to be a bubble-shaped room anned to emerge from the lobby that would have had a mahogany-and-ass skin allowing people on Walnut Street to look inside and see videos aying. While the bubble has been built and serves as a venue for student deos and movie trailers, the new tenant finished it with stucco and no ass. So its role as a roadside attraction has been lost.

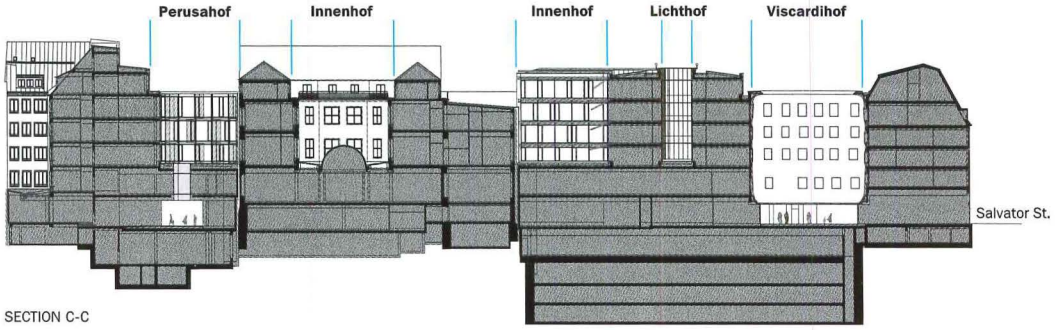
Very few people, though, know anything of what might have ɛen. What they notice is a neighborhood transformed—from seedy to ızzing. Instead of fast food and empty lots, they have snazzy design and tablishments that stay open late at night and invite everyone to linger. ■

Sources (garage)
Steel facade framing and ramps: *RK Metals*
Concrete decks and cast-in-place concrete: *Carson Concrete*
Curtain wall: *APG*
Woven metal mesh: *GKD*
Perforated aluminum: *McNichols*
Aluminum panels: *Alucobond*
Glazing: *PPG*
Aluminum storefront entrances: *Arch Aluminum & Glass*
Aluminum sliding doors: *Stanley*
Sources (cinema)
Curtain wall: *Crittall*
Stainless-steel woven mesh: *GKD*
Roofing: *Siplast Veral Aluminum Roofing*
Wood windows: *Duratherm*
Steel windows: *Crittall*
Glazing: *PPG Solex*
Acoustical ceilings: *Armstrong*
Plastic laminate: *Laminart*
Floor and wall tile: *Daltile*
Resilient flooring: *Amtico; Armstrong*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Leading from hanging gardens to the street, the Perusahof is flanked by the *Kunsthalle* café and shop, for which Herzog & de Meuron designed all the furniture and light fixtures.

Herzog & de MEURON transform a Munich city block, turning traditional street facades into a mask for FÜNF HÖFE'S inner realm



SECTION C-C

Sarah Amelar

We were searching for a European answer to the American mall," says architect Jacques Herzog of his recently completed Fünf Höfe (Five Courtyards) in Munich. "In American shopping malls," he adds, "you're always in a vered place, up on a high level, with no foot on the ground, no conction to the sky, no authenticity. At Fünf Höfe, we tried to establish a odel that would restore the real—bring in the sky, the ground, and a alm of sensory experience." Certainly the project succeeds in sparking e senses—as you pass, say, beneath its exuberant hanging garden or, in other area, along its aluminum-mesh wall, washed with sunlight and wing water. But however innovative or unorthodox the design may seem, owes much, paradoxically, to the constraints of a conservative milieu.

Munich is a German city smitten with its past. While Frankfurt d Stuttgart spiked their skylines with tall, modern buildings (for better or orse) in post–World War II decades, this Bavarian capital, near northern aly, tried to recreate what had been destroyed. Protective of its elegant ilianate traits, the city continues to maintain a 72-foot cap on building ights, with quaintly pitched red roofs appearing nearly everywhere.

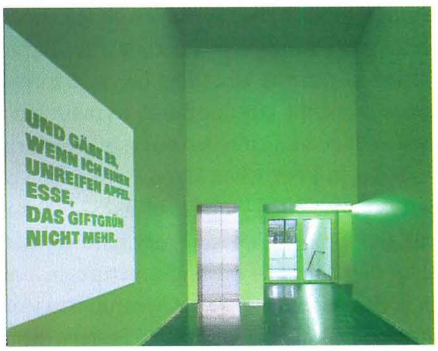
So, in 1993, when Hypo-Bank held a competition to transform a operty it co-owned—much of a 257,000-square-foot block—into an scale shopping complex, it may have seemed surprising that the brief lled for demolition of existing structures in a central neighborhood of old unich. But once Herzog & de Meuron had won the competition (among ch world-class players as Norman Foster), the city's well-entrenched charter reemerged. Political opposition to altering the district's traditional ok—coupled with financial constraints—put the project on hold for sevral years. Then, in 1998, Hypo-Bank merged with Vereinsbank, another ajor landowner on the block, and brought the project back to life. The

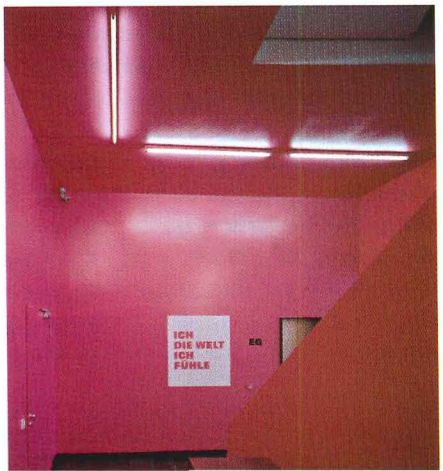
oject: *Fünf Höfe, Munich*
chitects: *Herzog & de Meuron—cques Herzog, Pierre de Meuron, rtners in charge; Robert Hösl, oject team leader; Hilmer & Sattler uildings 3 and 5); Studio Gianola Maffeihof)*

Collaborators/artists: *Rémy Zaugg (colors and texts); Thomas Ruff (photographic floor panels); Tita Giese (hanging gardens)*
Engineers: *Obermeyer Planen + Beraten (structural); Obermeyer (electrical); Kuehn Bauer (HVAC)*

The glassy Perusahof (above) recalls a crystal box. Its rectangular aperture opens to the sky. Bronze-mesh shutters, visible on upper-floor internal facades, echo the Perusahof's street-front elevation. The *Kunsthalle* and its café's upper level overlook the complex's spatial sequence.

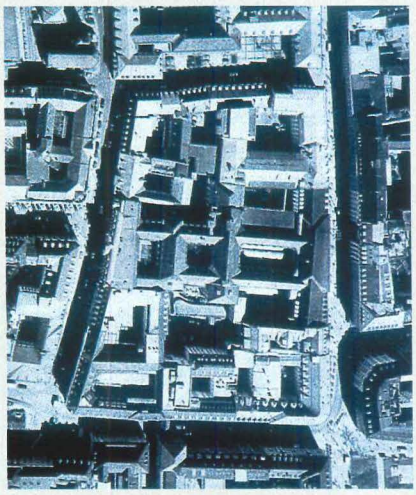
Along Theatinerstrasse, a picturesque pedestrian way, the architects created the project's only modern street facade (left). Here, over the Perusahof entry, electrically controlled bronze-mesh shutters can veil upper-level offices. On the same street, elevator lobbies (right two) bear the intense colors and wall texts of Rémy Zaugg. Herzog & de Meuron designed the *Kunsthalle* café (top), its furnishings, and light fixtures. A bank-run *Kunsthalle* existed on the site but was far smaller than the current one.

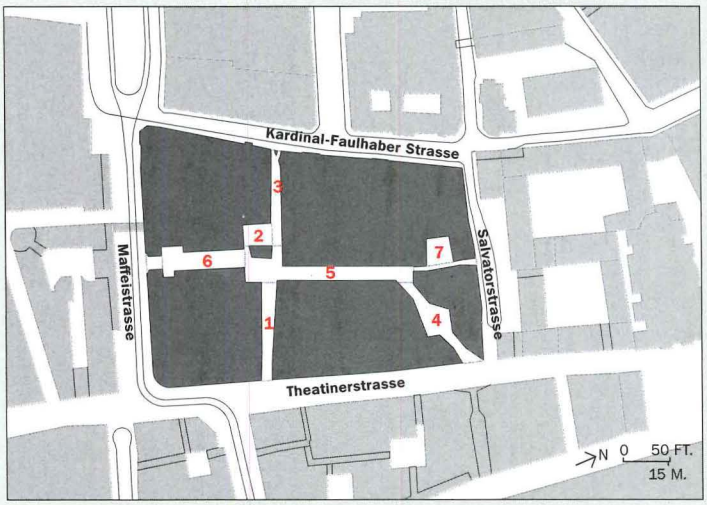




With Tita Giese advising on plant selections and Haering, Bad Birnbach on technical aspects, the architects created a hanging garden interspersed with lights and hidden systems of irrigation, ventilation, and humidity regulation.

An aerial view of the block, before the creation of Fünf Höfe, shows a network of back buildings and internal courtyards, consistent with the local urban fabric. The architects actually filled in much of the block (below), but without giving the impression of density along the path through the complex.





1. *Perusahof*
2. *Portiahof*
3. *Prannerpassage*
4. *Viscardihof*
5. *Salvatorpassage*
6. *Maffeihof*
7. *Amirahof*
8. *Gartenhof*
9. *Promenadehof*
10. *Little Salvatorpassage*

Herzog & de Meuron opens the block, beckoning the public into its inner reaches

Before Five Courtyards existed, a cluster of back buildings and inner courtyards formed a closed world, beyond the reach or gaze of the general public. Two banks—Hypo and Vereinsbank (later to merge into one)—were the block's main property holders, while lesser landowners included, and continue to include, the local bishopric.

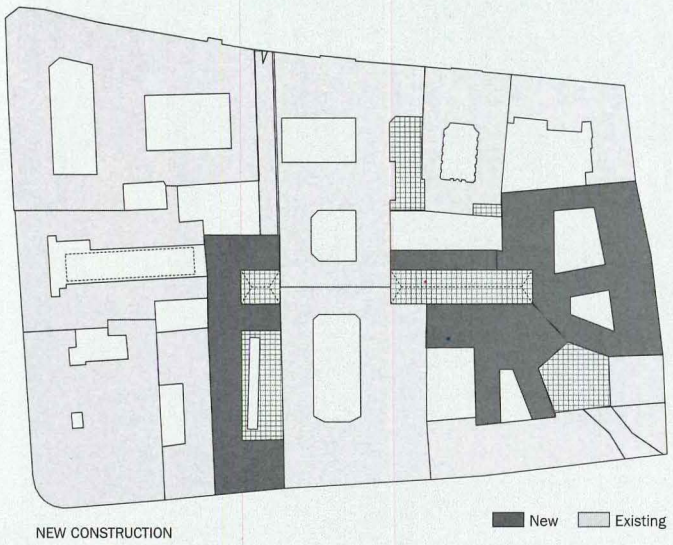
The decision to transform the block was not a matter of neighborhood revitalization or gentrification, but of capitalizing on a top location. As the bank overseers realized before launching the 1993 competition, they were sitting on highly valuable real estate. Full of pedestrian ways with boutiques like Chopard, Armani, Bally, and Ligne Roset, the district was already the domain of stylish clientele. Maximillianstrasse, Munich's most deluxe shopping avenue, is nearby, as are picturesque Baroque churches and a historic royal residence.

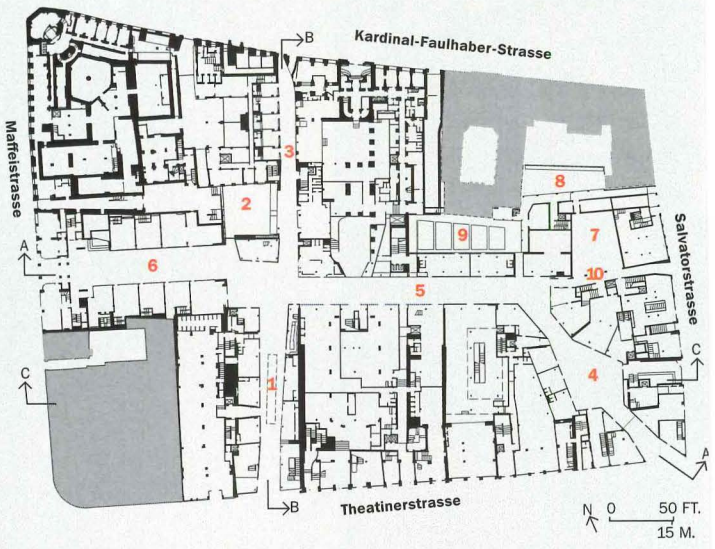
For Fünf Höfe, Herzog & de Meuron drew on disparate influences: cryptic medieval shopping corridors and the royal residence's urban-scale outdoor rooms.

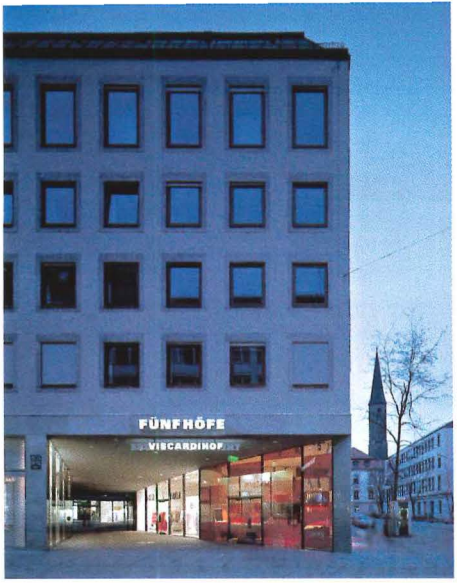
The streets leading to the complex bend in ways typical of old districts. In that spirit, none of Fünf Höfe's entry corridors are continuou with surrounding streets but deflect or jog off of them—distinguishing the block's internal routes from the scale of urban thoroughfares.

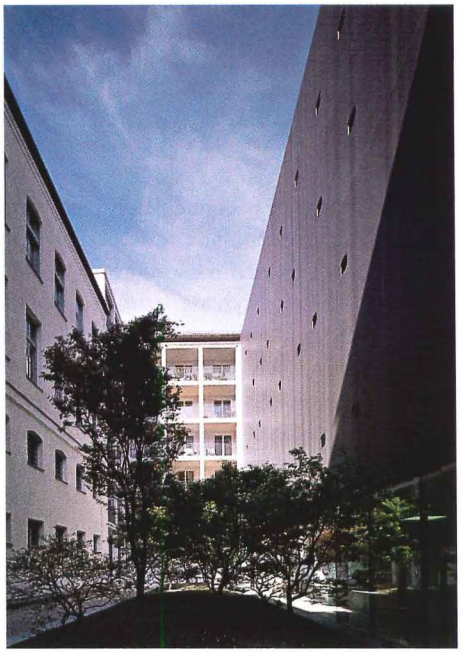
The architects actually filled in many of the existing courtyards—simultaneously increasing the block's overall density, while, remarkably, enhancing the sense of expansive openness. This experiential effect owes much to the variety of new public spaces, the Salvatorpassage's particularly generous proportions, extensive planes of transparency and reflectivity, and the presence of daylight (dappled, filtered, or direct rays) deep within the block.

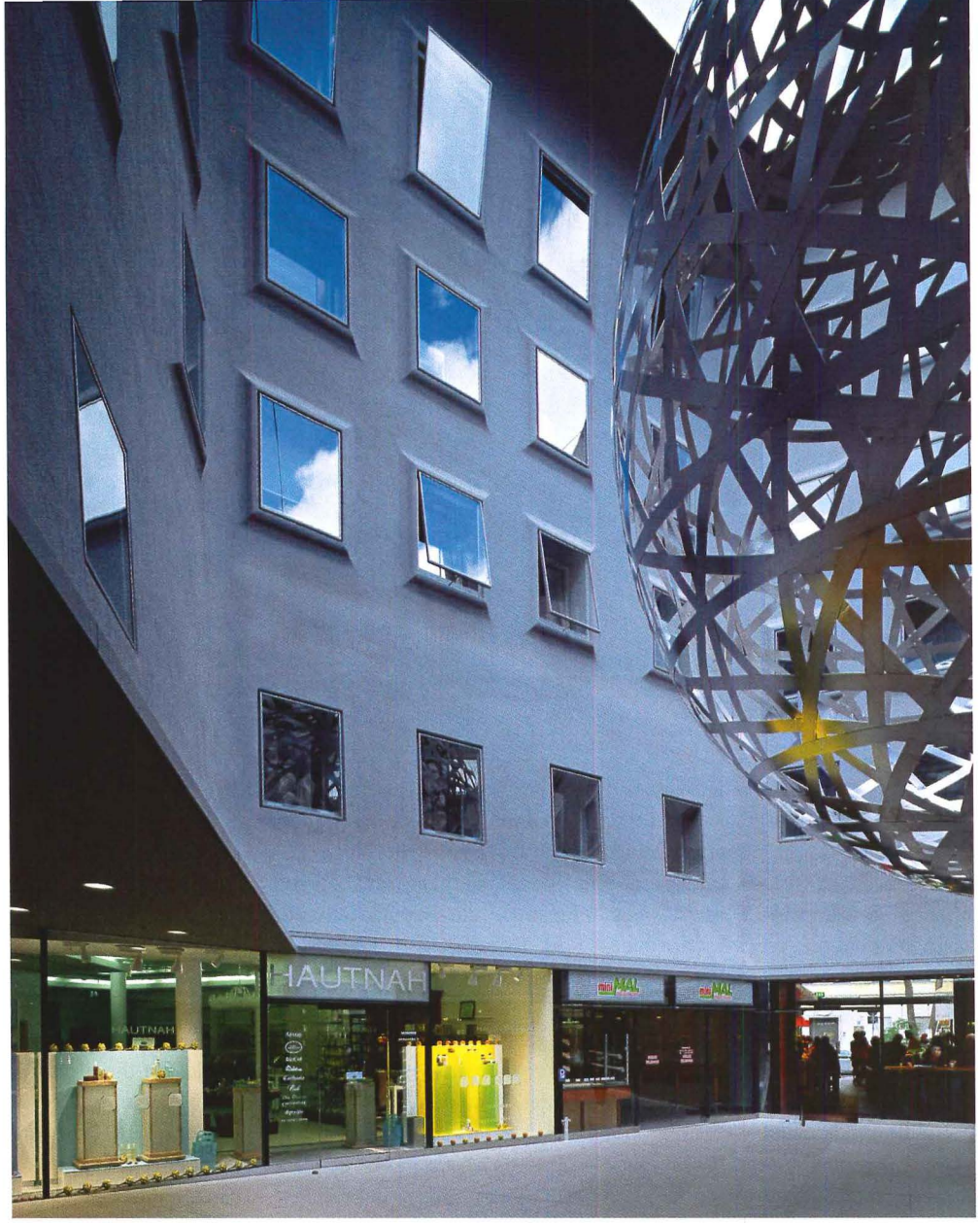
Though many buildings form Fünf Höfe, and scarce demolition was permitted, the block's interior now offers a seamlessly new, rather than piecemeal, quality—due to subtly consistent glass storefronts, an overall graphic vision (under the guidance of artist Rémy Zaugg), and the patently diverse character of the project. *Sarah Amelar*











suspended sphere nlivens the pentago- al Viscardihof (top and ght), with its diagonal ntry route.

program remained mixed-use—with retail, cafés, restaurants, and a banking hall on the ground level, and offices, housing, and a *Kunsthalle*, or art exhibition space, above. But the guidelines had changed, radically reducing what could be demolished—and prompting, ultimately inspiring, the rchitects to develop a whole new strategy.

Now the block's street perimeter—demure 1950s facades, with an 895 and a 1910 structure—had to stay, permitting the architects to change nly the block's interior. And there, only 35 percent could be demolished. 'learly, the winning scheme for six new buildings—each by a different rchitect, including Rem Koolhaas—had to go. But the seemingly restrictive ew terms set the stage for a range of possibilities. "Our approach," says roject leader Robert Hösl, "became one of subversive urbanism."

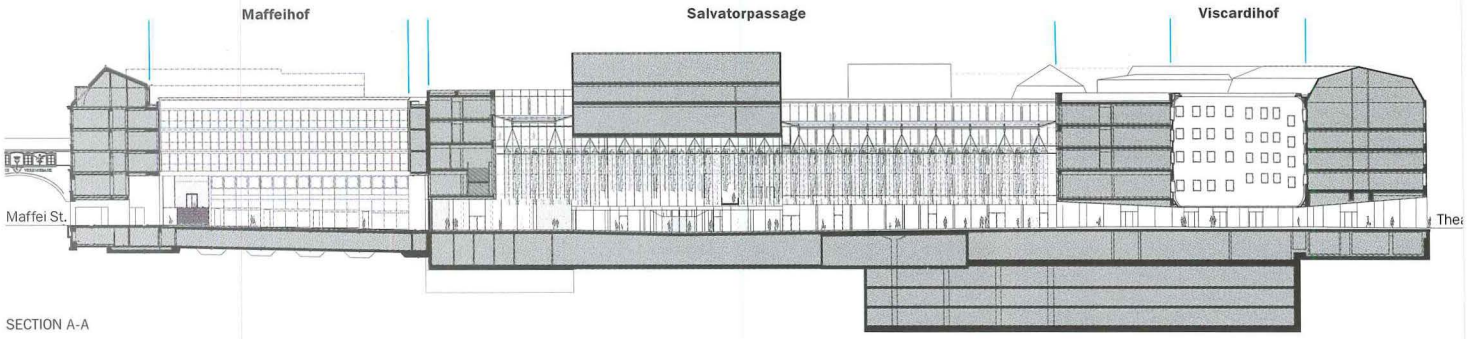
That subversion (a sexy term that carries a shade of exaggera- on) turned the block's unassuming, traditional exterior into a mask for n unexpected domain. Now the journey inward follows passageways and ourtyards, channeled and carved through existing, though transformed, tructures. (An ad agency coined the name"Fünf Höfe," but the complex ıcludes more than five courts or passageways.) Establishing a new order, ıe route passes through disparate zones—from the jungly canopy of vines to a vaulted tunnel glinting with sequinlike glass disks set in plaster.

While Herzog & de Meuron projects typically focus on a very small number of strong ideas, this scheme embraces plurality. Here, the architects formulated the urban concept and designed most of the common areas, but almost none of the retail or restaurant interiors—except for the *Kunsthalle* and its ground-floor café and shop. The complex embodies not only a multiplicity of functions, but also visual and experiential eclecticism, echoing (albeit in an upscale mode) some of the variety of city life.

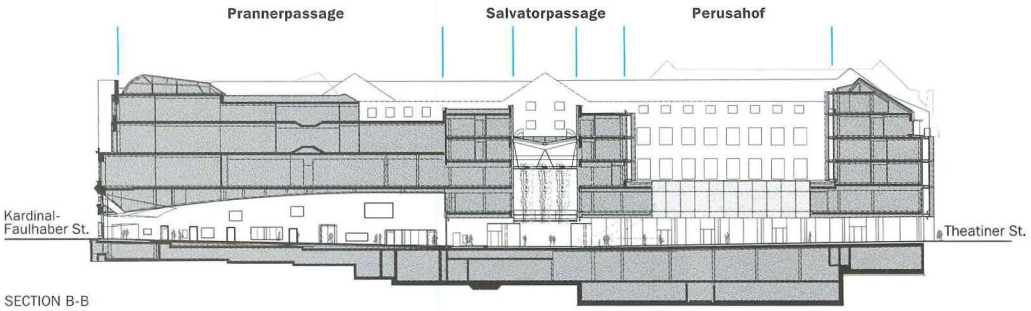
The act of opening the block's interior to the city was literally a revelation: Before Five Courtyards existed, this inner zone had formed a "forbidden city," a network of back buildings and courtyards entirely hidden from the street and inaccessible to the public. This inner sanctum was populated mostly by bank employees, along with lesser landowners on the block. But, sited in an elegant and established shopping district, it occupied valuable real estate that the bank was eager to exploit.

For the scheme, the architects took cues from the urban outdoor "rooms" of the nearby Bavarian royal residence—and, on a more intimate scale, from Europe's introverted labyrinths of medieval shopping corridors. With such contrasting influences, Fünf Höfe plays baroque against Cartesian, curving and meandering against straight and rational.

Entries to the complex occur on all four sides—with (large)



SECTION A-A



SECTION B-B

"mousehole" passages deflecting off of the old district's pedestrian ways. Only for the Perusahof entry did the client ultimately request a modern street facade—which required persuading the architects to deviate from a now strict interior-versus-exterior scheme. The result evokes "a bit of textile poking out from within," says Herzog, referring to the drapelike, bronze-mesh shutters that recall his firm's design for Rue des Suisses housing in Paris. At Five Courtyards, the mesh, with its moiré effect, acts almost as an edge of lacy lingerie that begins to reveal what's beneath the outer garment.

Entering the Perusahof corridor from the street is like suddenly occupying a long crystal box with a rectilinear aperture overhead—open to the sky and oblique views of interior facades, sheathed in more bronze mesh. Rough metal plays against smooth glazing. But in this passageway, with *Kunsthalle* access, glass reigns—blurring distinctions between reflected and real, between surface and opening. The effect is both understated and quite dazzling. Throughout the complex, a taut glass membrane, over simple, rhythmic vertical structure, forms the interface between commercial and public zones. This sleek transparency permits flexibility in placing partitions between shops (important to tenant turnover).

Perpendicular to the Perusahof, the Salvatorpassage, 46 feet high and 62 feet long, is the complex's exotic centerpiece. A wavy grate, under a glazed ceiling, brings daylight midblock while supporting a lush and whimsical array (up to 33 feet deep) of dangling vines and pendant lamps.

Continuing along the Perusahof's axis, the path leads west past the Portiahof, an outdoor court with tables from adjacent restaurants and a waterfall trickling down a perforated-aluminum screen. This cloistered, open-air spot has become a calm and popular refuge. Dappled light, filtered through the aluminum screen's large circular holes, begins a subtle transition from the straight-edged Cartesian realm of the Perusahof and Portiahof into the vaulted, darker, baroque tunnel of the Prannerpassage.

Here, simple rounds of recessed ceiling lights and glass disks, set into the walls and ceiling, echo shadows cast by the Portiahof's aluminum screen. The disks, evoking reflections on water, progress from sparsely spaced glints to a densely sequined cluster at the end of the tunnel, where angled apertures, carved through a deep wall, open toward the sidewalk. Unpredictable from the vaulted corridor, the street side of this thick wall reveals an opulently sculpted 1895 neo-Baroque facade. Hardly reduced to a thin stage set, this relic was inventively embedded into new forms.

After the curvy, glittering Prannerpassage and wildly burgeonir Salvatorpassage, the gray, five-sided Viscardihof, off the northeast end of th hanging jungle, seems sober. But a huge, woven-metal sphere by Olafu Eliasson, suspended overhead, brings this relatively stark courtyard to lif

Many pieces complete the tightly fit puzzle of Fünf Höf Dovetailing with Herzog & de Meuron's urban concept, architects Studi Gianola produced the Maffeihof, and architects Hillmer & Sattler create the Amirhof, as well as two neotraditional street facades for the outer wal

Artists played key roles here, as in much Herzog & de Meuro work. But these artist interventions do not always announce themselve Rémy Zaugg unified Fünf Höfe graphically, overseeing everything fro elevator-panel numbers to exterior signs. His deftly ambiguous wall text inlaid-steel floor messages, and intensely hued elevator lobbies offer gent provocation throughout the project. Thomas Ruff used a serilith metho developed for the firm's Eberswalde Library [RECORD, August 1999, page 84 to apply photos to 12 floor panels here. Some images (e.g., a Manhattan ae ial view) are legible, while others appear as vague stains on concrete paver Occasionally, barely perceptibly, Zaugg's words engage Ruff's images in dia logue. Layers of meaning and visual complexity gradually reveal themselve

In the end, Fünf Höfe succeeds in bringing together an extraor dinarily eclectic array of elements—fitting together the existing and th new seamlessly, but without the lifeless homogeneity of most "designed shopping arenas (often so heavily controlled aesthetically).

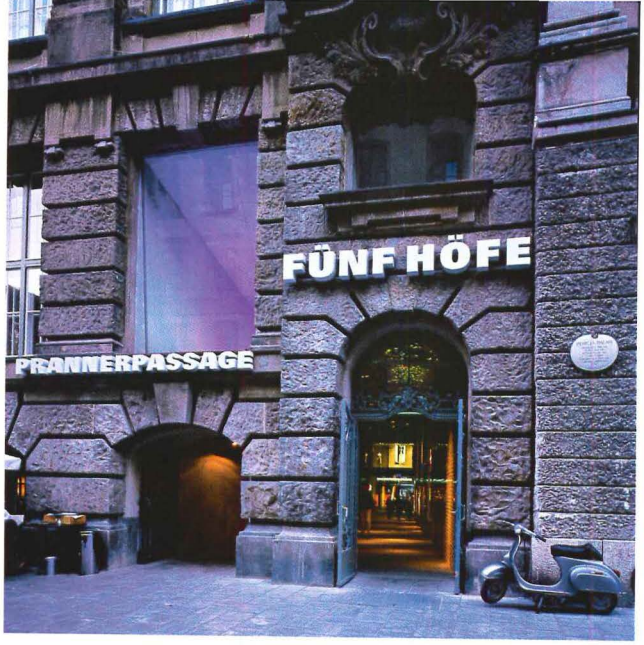
People flock to the place, comfortably strolling along its passage ways, visiting its shops, and relaxing in its courtyards, cafés, and restaurant At its richest, Fünf Höfe's complex inner world evokes a small, hidden quar ter of a city, which the public has willingly discovered.

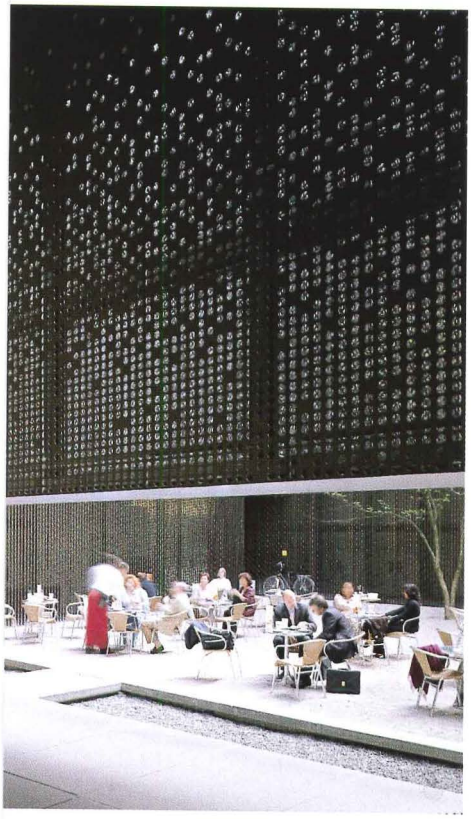
The model for this project seems closer to a European galleri than an American shopping mall, but on a more intimate scale. Grantec Five Courtyards is not so revolutionary as to overturn the very concept c shopping. But with an extremely tactile and authentic material palett and a refreshingly abstract sensibility, it achieves whimsy and variety– without a whiff of theme-park or "theme-mall" tricks. ■

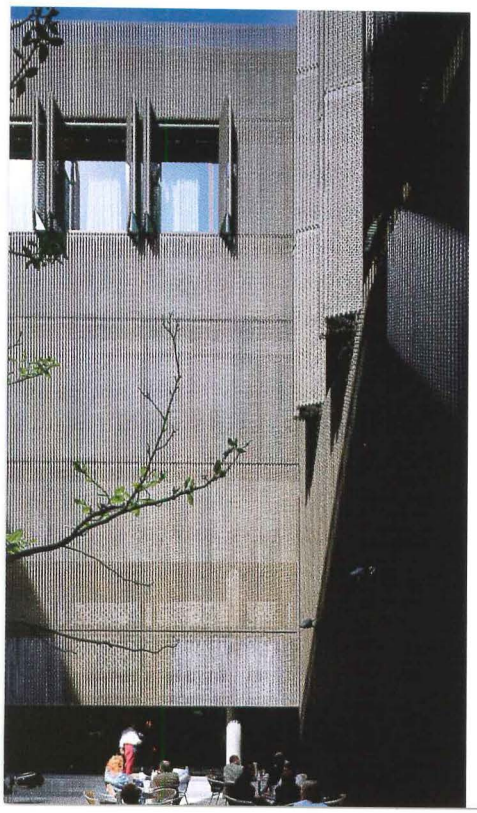
Sources

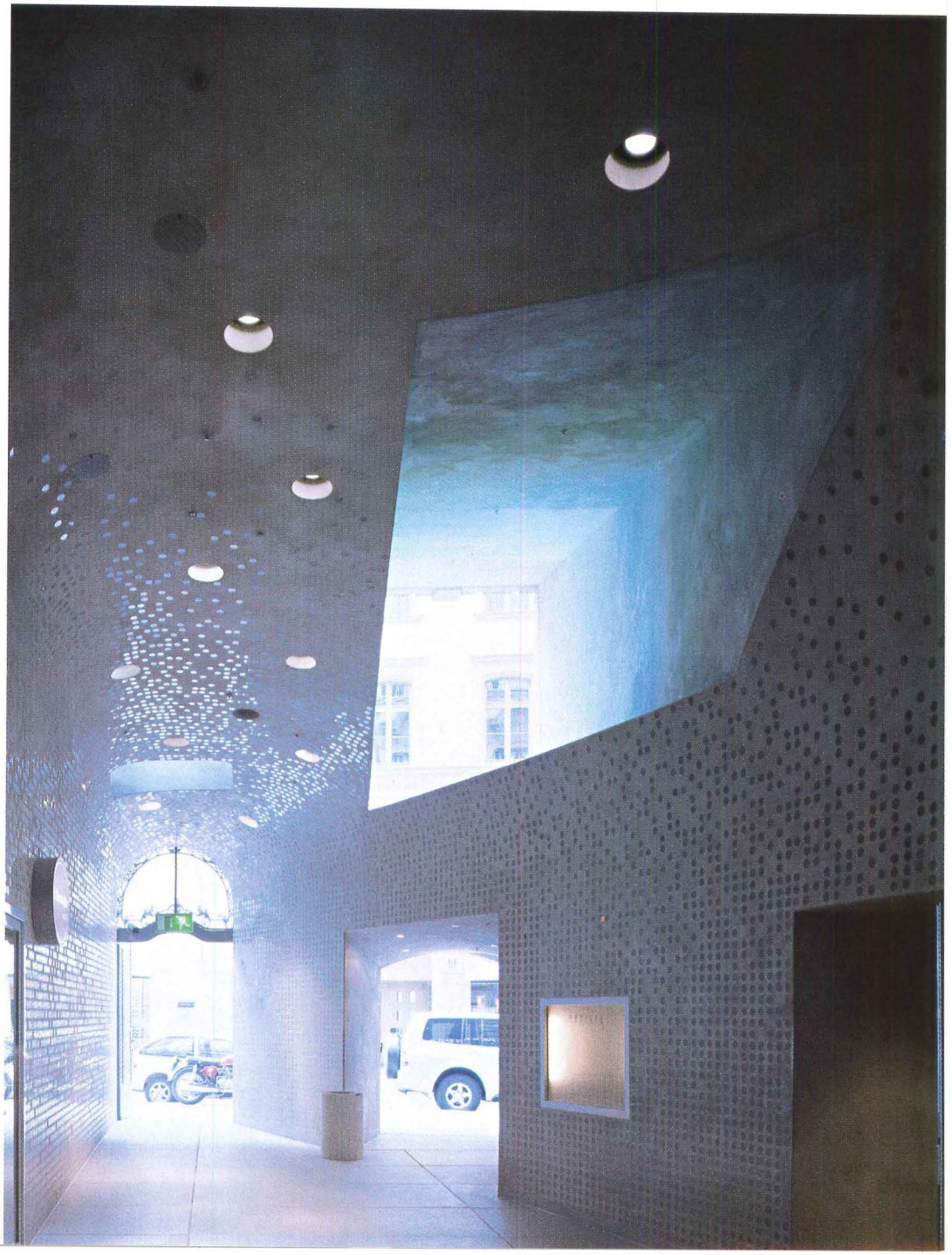
Windows: *Schindler; Ibscher; Frener & Reifer; Gartner; Schöninger; Lösche*

For more information on this project go to Projects at **www.architecturalrecord.com**.



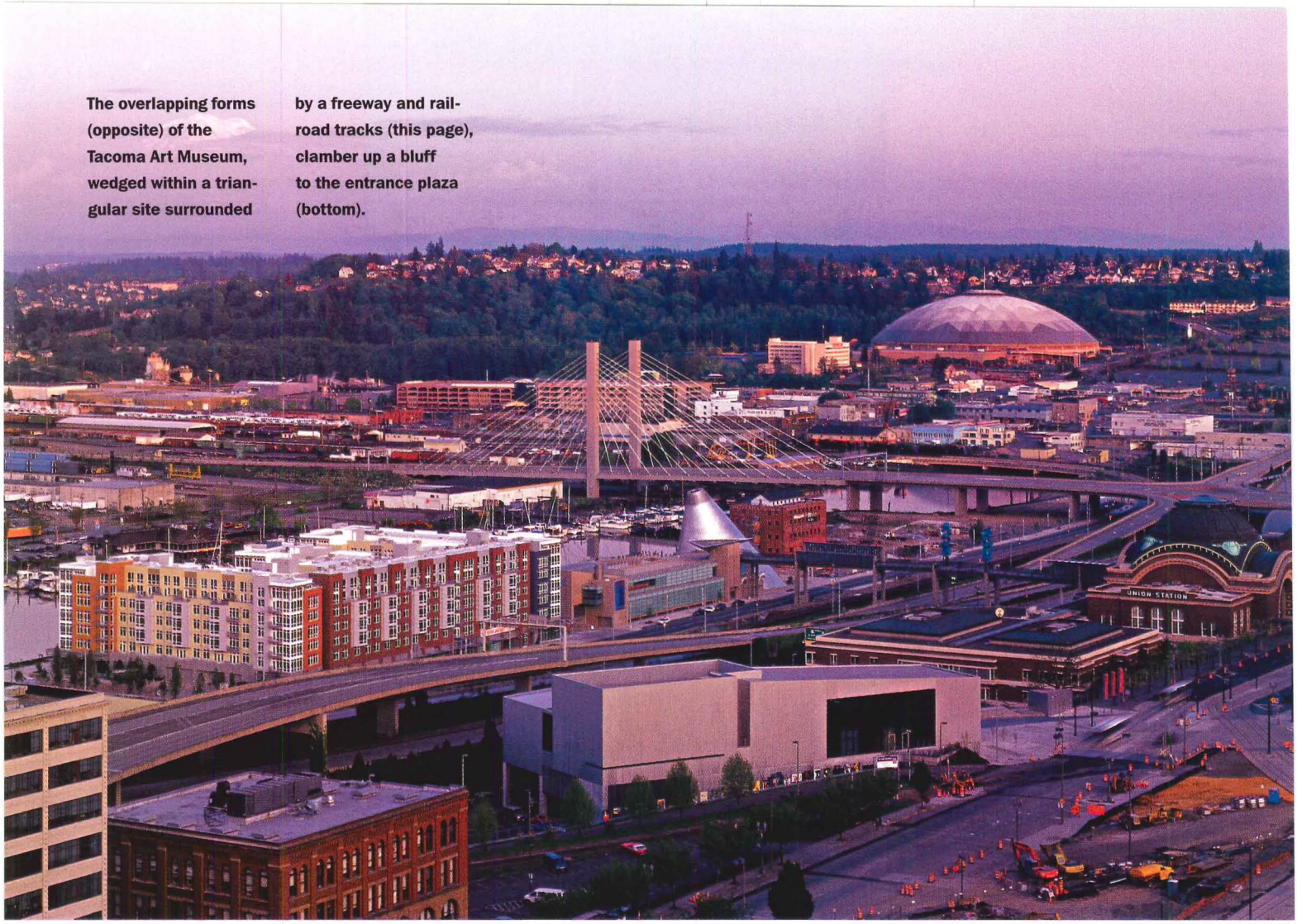






The Portiahof (far left, top and bottom) opens entirely to the sky, with aluminum wall screens casting dappled light. This court lies along the vaulted Prannerpassage (below). At the end of this tunneling corridor, light bounces through deep, angled apertures and off of sequinlike glass disks set in the walls and ceiling. Surprisingly, the passageway ends in an 1895 facade (left).

The overlapping forms (opposite) of the Tacoma Art Museum, wedged within a triangular site surrounded by a freeway and railroad tracks (this page), clamber up a bluff to the entrance plaza (bottom).



Antoine **Predock** makes a landscape abstraction of the **TACOMA ART MUSEUM**, and aids the transformation of a gritty industrial city through culture

/ Sheri Olson, AIA

Squinting through sunglasses at the opening of the Tacoma Art Museum (TAM), Antoine Predock, FAIA, was confounded by sunshine, a generally rare commodity in the damp western de of Washington State. "The Weather Channel must : conspiring against me," the Albuquerque architect id. Having envisioned the museum's stainless-steel in dissolving into the Pacific Northwest's infamous 'ercast skies, in emulation of the usually mist-rouded peak of nearby Mt. Rainer, Predock brooded the museum sparkled beneath the mountain's 14,000-ot-high glory.

Rain or shine, the new museum is a hit, drawing ore than 17,000 visitors its first month, compared to the 2,500 who ured its former home a year earlier. Not all of the museum's support relies ı the public: "Northwest artists have given more than 200 new works of t to the permanent collection because of the excitement generated by the ew building," says Janeanne Upp, the museum's executive director.

The museum provides a crucial link in the efforts of this rappy industrial city to remake itself (page 110). For 30 years TAM ade do in a sober 1919 bank building five blocks north of its new loca-on. With a growing collection of Modern and contemporary art, and a ıthering sense that the revitalizing city could support more suitable ıarters, the museum was able to raise almost all the funds for the new ıilding privately. (The city donated the land.) The collection is largely cused on work of Pacific Northwest artists (who frequently take the amatic surroundings and cool, Pacific light as inspiration), which drew e museum's leaders to Predock's sensitivity to the western landscape. His approach responded to the Pacific Northwest as a place," said Upp.

"The biggest challenge was the site," says Predock, who worked ith executive architect Olson Sundberg Kundig Allen, of Seattle. To hear m describe it, "There was no site." He had to figure out how to perch the 22 million structure on the side of a bluff that drops 30 feet from the ıtrance on Pacific Avenue to what is essentially a pit formed at the base the bluff by a forest of freeway columns. To get the public spaces up to ıe Pacific Avenue level, the architects slung two floors of administrative and storage spaces atop columns and under the two levels of galleries.

In other settings, Predock's public projects can bear a resemblance to the geologic formations of the arid West. "Here the building makes its own topography," says Predock. He's expressed the galleries' spiraling organization through overlapping volumes topped by gently sloping roofs, and he wrapped it all in a taut skin of stainless steel. This exterior appears to be not so much a landscape abstraction as a phenomenon of the sky, as mutable as the northwest light. "After 25 years in the Southwest, I'm used to the sun assaulting architecture," Predock observes. "Here I can welcome it in." In contrast to the earth-bound nature of his work elsewhere, the flush stainless steel buoys this building. In sun, it's as silvery as a fish; on overcast days, it disappears into the mist like Rainier's furtive peak.

The body of the 50,000-square-foot building is tucked into the diagonal of a freeway on-ramp that cuts along the eastern edge of the site. Only the corner of the entrance elevation touches Pacific Avenue, but its presence is made larger by the triangular plaza stretched along the street frontage, visually marked at its apex by an iceberg of stainless steel.

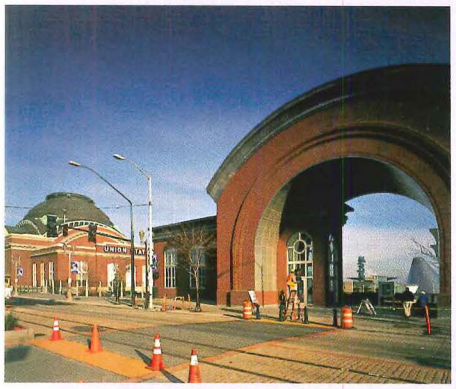
ıeri Olson, AIA, RECORD's Seattle-based contributing editor, is architecture ılumnist for the Seattle Post-Intelligencer.

Design architect: *Antoine Predock Architect—Antoine Predock, director of design; Devendra Contractor, associate in charge; Paul Fehlau, project manager*
Executive architect: *Olson Sundberg Kundig Allen*
Engineers: *Chalker Putman Collins (structural); Abacus Engineering (m/e/p)*
Consultants: *Swift & Company (landscape); Candela (lighting); Lighting Design Lab (daylighting)*
Contractor: *Hoffman Construction*

Culture and college restore lost glitter to a once-struggling mill town

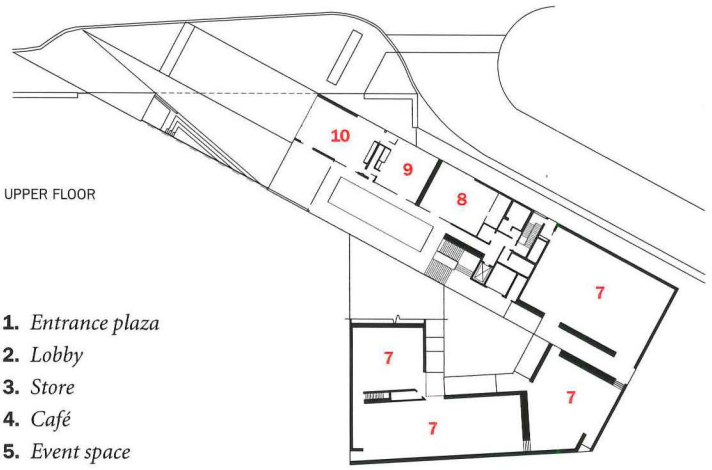
The new Tacoma Art Museum is the latest addition to a cultural district that has been emerging for more than 10 years. Across the street, the University of Washington created a new Tacoma campus (bottom left) by converting once-blighted warehouse buildings. Down Pacific Avenue, a pedestrian bridge festooned with $12 million in blown glass by Tacoma native Dale Chihuly crosses the freeway to the new Arthur Erickson–designed Museum of Glass, on a 1.5-mile-long public esplanade that lines the cleaned-up Thea Foss Waterway.

When the glass museum opened last summer, its staff handed out air fresheners embossed with the project's distinctive metal cone as a tongue-in-cheek play on the city's evolution from odorous mill town to sparkling port city. "Fifteen years ago, the mayor and city council decided to take control of Tacoma's future, including developing the waterfront," says Juli Wilkerson, director of the city's department of economic development. "By adding a cultural component, Tacoma created a synergy between the waterfront, the university, and art," says Josie Emmons Turner, division manager of culture and tourism.

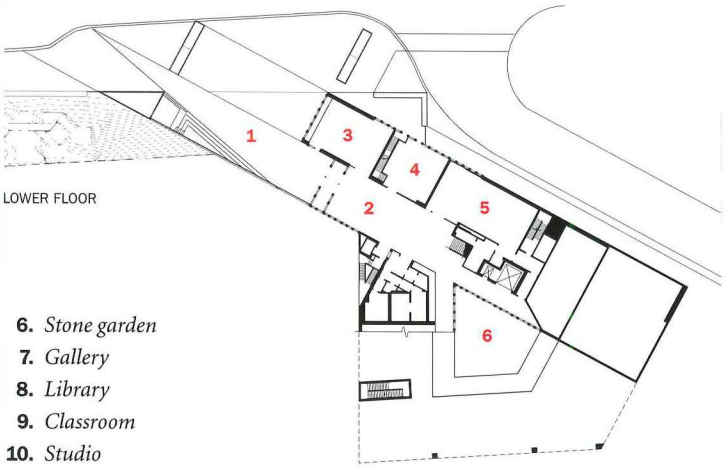


It began in the business core, just a few blocks north of TAM. The 1991 Broadway Center for the Performing Arts was created out of the renovation of two turn-of-the-last-century vaudeville palaces and the construction of a third theater space. Next came the 1992 renovation of the landmark Beaux Arts Union Station (top left) with an added wing housing the Federal Courthouse. Its forms are echoed in the neighboring Washington State History Museum, completed in 1996 by Moore/Andersson [RECORD, October 1996, page 70]. Both share a stop with University of Washington, Tacoma on the new (free) 1.6-mile-long light-rail line that stretches through the theater district to the Tacoma Dome arena on the south side of downtown.

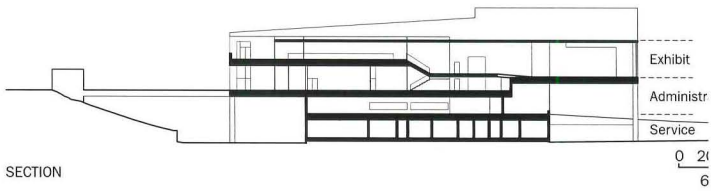
With the opening of the new Tacoma Art Museum, says TAM's Janeanne Upp, "We've reached a critical mass; people can now spend a day here visiting museums." Beyond tourism, Tacoma has succeeded in luring new business: The city recently ranked highest in regional job growth. Tacoma appears at last to be emerging from the long shadow cast by nearby Seattle. *S.O.*



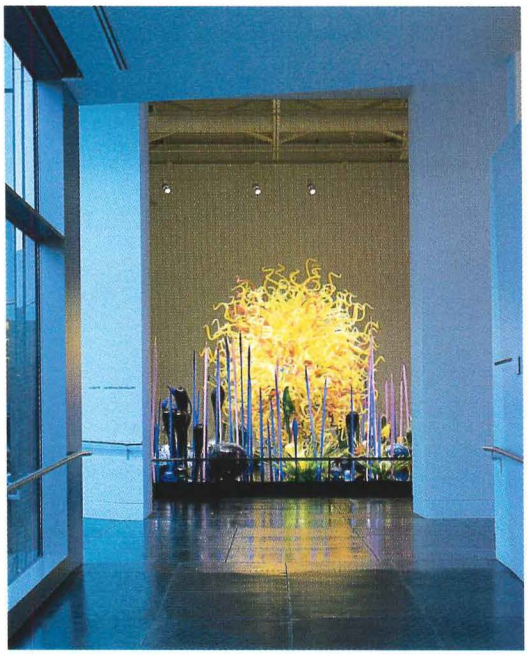
1. *Entrance plaza*
2. *Lobby*
3. *Store*
4. *Café*
5. *Event space*



6. *Stone garden*
7. *Gallery*
8. *Library*
9. *Classroom*
10. *Studio*



TAM faces Pacific Avenue at an angle (opposite, bottom right). Its entrance (this page) leads axially (bottom right) past the stone garden (bottom left).



The entrance atrium (below) leads to a ramp (top left), which winds around the courtyard (visible in photo, opposite). Cas and galleries borrow light from the court (top right) and from a variety of exterior openings. The visitor path ends at the atriu on the upper level.

In contrast to the intimidating opacity of the old bank building, visitors to the new museum enter a long, double-height lobby that offers a view all the way through the museum to a window framing the freeway overpass beyond. The sensual effect of a courtyard, opening to the right of this axis, sums up much of what Predock intends for the museum experience. In this wedge of outdoor space, masonry-design specialist Richard Rhodes has created an installation—a stone garden using 500-year-old granite pavers salvaged from a rural area in China that will be flooded upon the completion of the Three Gorges Dam. The stones take the form of a liquid topography that appears to slosh up against the courtyard walls. Predock faced the court with flush-mounted, mirror-finish glass, which multiplies and diffuses Rhodes's composition (glimpsed above). "Through reflections, the void of the courtyard takes on substance and becomes an object," says Predock. To understand the mysterious, intangible qualities of this space, contrast it with Arthur Erickson's nearby Museum of Glass, which pays all-too-literal tribute to Mt. Rainier with a conical steel roof.

A ramp rises gently around the stone garden and is wrapped by the galleries as it winds up to the second floor. Predock's orchestration of light and views makes their 12,000-square-foot total look larger than it is—and subtly reminds patrons of the world beyond. A partition separating the first gallery from the ramp stops a few feet short of the ceiling, spilling light drawn from the courtyard into the exhibition space. A high, narrow window along the outside wall balances the outside light and offers a glimpse of sky. Windows frame unexpected vignettes of the city, the waterfront, and even the unlovely freeway. "We were all for natural light in the galleries—it enlivens the visitor experience—but we had to be able to manage it," says Upp. She can lower scrims around the courtyard and close hinged doors over window openings to black out the galleries.

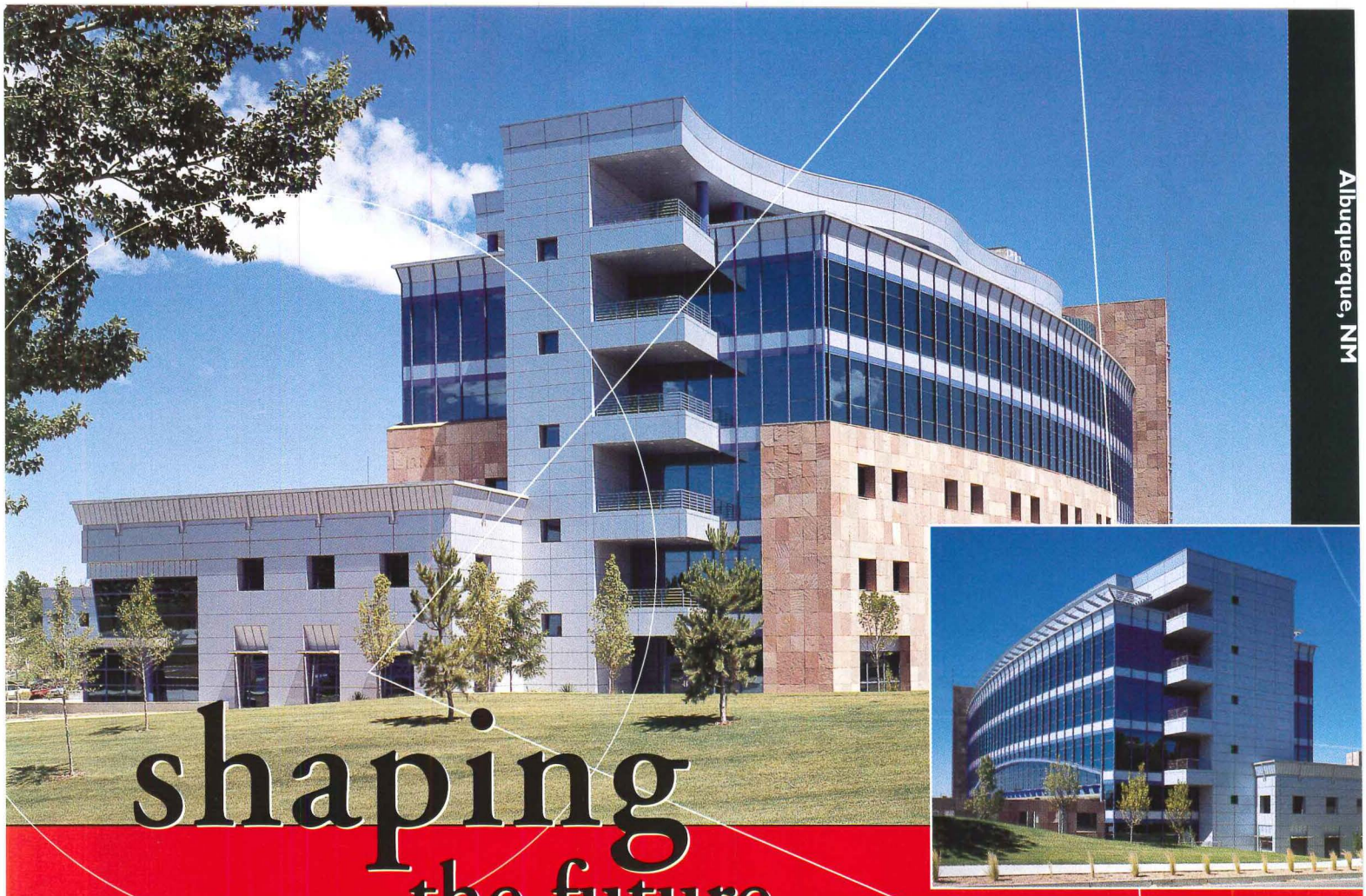
The visitor path culminates in a glass-enclosed atrium on the second floor with views of Union Station, the Washington State History Museum, and elusive Mt. Rainier. Sharing the rooftop views are an art classroom, art studios, and a resource center. Formerly relegated to the basement of the old bank building, visitors using these light-filled spaces are offered a Predock touch: When wet, the metal plane of the roof just beyond becomes a large pool reflecting the changing sky.

Of Puget Sound's three new modest-size museums, including the Museum of Glass by Vancouver-based Erickson, and Northwest-native Steven Holl's Bellevue Art Museum [RECORD, August 2001, page 80], it is the outsider, Predock, who best captures the region's mutable light in the connections he offers to the outdoors and in his choreography of movement. Like a director working with an actor, he captures and amplifies the Northwest's changeable oyster sky. As if on cue, it drizzled on the museum's opening day as celebrants paraded from the old location to the Tacoma Art Museum's shimmering new home. ■

Sources

Metal roofing: *A. Zahner Company*
Inverted-seam stainless-steel cladding: *A. Zahner Company*
Glazing: *Evergreenhouse; Kawneer*

For more information on this project, go to Projects at **www.architecturalrecord.com**.



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Missed Connections

ROADS ARE BACKED UP; AIR TRAVEL IS ANEMIC; RAIL'S GOING NOWHERE; TURF BATTLES KEEP MODES FROM MIXING. IS THERE HOPE FOR TRAVEL-FACILITY INNOVATION? YES.

By James S. Russell, AIA

On the Upper West Side of Manhattan, a highway cuts off access between the city and the river. Unlike the massive concrete conduits filled with hordes of vehicles that cram waterfronts elsewhere in America, the six lanes of the Henry Hudson Parkway exist in a uniquely benign relationship to their surroundings. Though it runs through Riverside Park, the highway's combination of stone-faced walls and elegantly arched bridges dampen the noise and offer frequent inviting access to the river. A two-track rail line runs parallel to the roadway, underneath a promenade of gardens and playgrounds. This masterwork of urban design was completed in the Great Depression, but replicating it in a contemporary fashion can barely be contemplated today.

There is an ever-growing need to unite rail and roads, airports and transit, and to make each mode fit more gracefully into cities. But the political and bureaucratic barriers are formidable. On the one hand, funding for each mode of travel has been placed in a separate pot, defended by separate bureaucracies and constituencies, which have almost no incentive to cooperate with each other. On the other hand, funding formulas all but preclude the participation of architects and related professionals who can stitch such facilities together and connect them to their surroundings.

Is there hope that a better-integrated, community-focused federal transportation strategy might emerge? This year, Congress must make a massive six-year funding commitment for surface transportation. But, in a rare circumstance, bills for aviation facilities and the future of Amtrak are also under consideration. "The time is right to begin building an integrated intercity travel system for the 21st century," said Hank Dittmar, who heads a coalition called Reconnecting America. His new organization's specific focus is to redefine national policies in order to integrate the aviation, passenger-rail, and intercity bus systems.

The bills will be very hard fought (because transportation money is scarce, the economy tough), but the confused transportation-policy landscape and the very direness of today's transportation dilemmas might force an unexpected kind of accommodation.

Community focus pays off

Through most of the interstate era, architects have played only a peripheral role in big-dollar transportation projects. But there is a dawning recognition that strategic transportation investments—especially for transit—pay off when integrated with local planning. Since completion of a rail project that cut commute times to New York City from suburban

1.

Incheon, Korea

Terry Farrell devised biomorphic curves to shape the movements of passengers at the multimodal Incheon Transportation Center.

2.

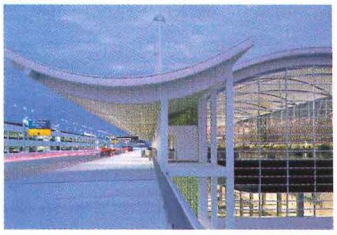
Cologne, Germany

Murhpy/Jahn elegantly engineered a glassy pavilion linking a new terminal (as well as parking and a rail connection) to a landmark original.

3.

Vancouver, Canada

VIA Architecture led five architect teams in the creation of 12 elevated "civic rooms" on the 16-mile SkyTrain Millennium Line.

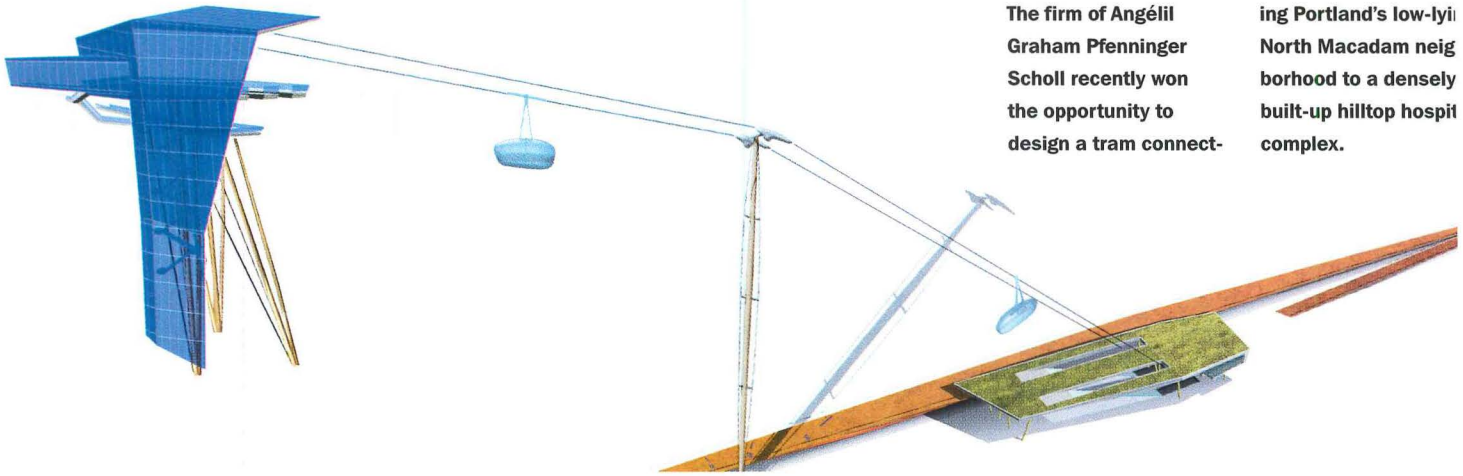


4.

Detroit, Michigan

The SmithGroup has made wayfinding easy for the millions of transferring passengers who use Northwest Airlines' new Detroit hub.

or more information on these projects, go to Projects at ww.architecturalrecord.com.



The firm of Angélil Graham Pfenninger Scholl recently won the opportunity to design a tram connecting Portland's low-lyi North Macadam neighborhood to a densely built-up hilltop hospit complex.

New Jersey, home prices in communities along the line have skyrocketed. AIA cites a University of North Texas study's findings that the new DART light-rail system in the Dallas region has already generated more than $800 million in development, with the full system projected to generate $3.7 billion in economic activity upon build-out. The payback, of course, is not only short-term. Washington's Metro and the Bay Area's BART have attracted increasing investment around stations for decades. Along Riverside Drive, few apartments sell for less than $1 million. Can one imagine this along the average highway? "One of the rationales for rail is that rail and land investment go hand in hand," explains Buz Passwell, director of the Transportation Research Center at New York's City College. "It's very expensive to build, but the investments pay back through greater employment densities and commercial space that takes advantage of the new travel capacity."

The evidence is especially compelling in Vancouver, Canada, where the elevated SkyTrain system pays its way almost entirely through the fare box. It would not have achieved such popularity had not the local government coordinated high-density development near the stations. "There are growth objectives for each community," explains Alan Hart, partner of VIA Architects, the lead architect of the SkyTrain's latest extension (page 132). "Officials must show how to achieve the goals with infrastructure." From these determinations flow the grants to support the initiatives, he says. In the Seattle area, where Hart is working on a monorail system recently approved by voters, "they don't have that regional game plan to react to."

The community focus is a critical one in terms of getting community commitment to transportation projects and reducing mitigation costs, says Ann Canby of the Surface Transportation Policy Project, an advocacy group. "Architects working with communities are key to success." Too often, however, the role that architects can play has been overlooked. The staggeringly expensive Big Dig in Boston was justified in part by the enormous downtown redevelopment opportunity created by the restoration of 30 acres of open land. Unfortunately, the design of the miles of tunnel was never coordinated with the possible uses above. While some appealing parks and playgrounds may be created, Boston appears to have squandered its opportunity to create a Riverside Drive (or a Park Avenue, which was built as a commercial development over a rail yard, and which has paid off its investment incalculably more than the railroad ever did). Instead, there's almost no money and still much squabbling about how to shape the Big Dig's land legacy [RECORD, March 2002, page 84]. Other cities have reaped substantial benefits from tearing highways down—think San Francisco's Embarcadero.

Architects sidelined

The Big Dig blunder is not actually surprising. Surface-transportati funding has carved out a small and highly circumscribed role for arcl tects. Funds from the tiny Transportation Enhancements program pern architects to improve communities (restoring an obsolete train statio typically), but they don't offer a role for architects in the design of maj transportation facilities themselves. It's enormously difficult to bring an architect (or design-savvy engineer) to make that off-the-shelf freew bridge over a key scenic waterway a community enhancing landmark- that's why none of the tens of thousands of bridges constructed in tl interstate era can be regarded as an iconic symbol on the order of tl Golden Gate Bridge. (A long-discussed bridge in Dallas, by Santia Calatrava [opposite, bottom] will get built because private interests ha agreed to underwrite the additional costs of the design.)

Community-enhancing designs can cost more, but shovi crudely designed facilities into unwilling communities isn't cheap. Ro officials argued that any but standard bridge designs would add $200 milli to the price of replacing the earthquake-damaged eastern segment of the S Francisco–Oakland Bay Bridge. The "cheaper" design endured five years delay and finally went into construction last June—at double the price.

Can modes ever meet?

Though the nation spends plenty on transportation ($133 billion highways alone in 2001), there remains little consensus that it spends we Moving traffic to the mode to which it is best suited, and connecti those modes together, for example, is rare. Incheon, Korea's, multimod interchange (page 120) or the high-speed rail connection that will soc serve Cologne's airport (page 126) do not find their logical counterpart the Detroit air hub (page 140). Blame the sclerotic means by which tl federal government funds transportation. As Reconnecting Ameri points out, "Both the aviation and highway systems have institutionaliz financing schemes based on user fees [like gas taxes] imbedded in tru funds that are immune from the appropriations process"—politicia spend what comes in—"while passenger rail must subsist entirely upc passenger tickets and controversial annual appropriations from the ge eral fund. As a result, government subsidies to aviation and highways a largely unrecognized, while those to Amtrak are painfully obvious."

Federal money is supposed to be spent based on local priorities including broad regional planning objectives. This coordination is left designated Metropolitan Planning Organizations (MPOs). Few peop know that MPOs exist or what they do. Politics prevail over performan or rational prioritizing. "We sit at the table until we get what we wan

ɔn we leave," Joseph Rose, at that time New York's director of city plan-ıg, told a group of planning officials a few years ago—proudly.

It's worth considering, says VIA's Hart, whether transportation ɔney would be spent more flexibly and with greater innovation if it was ɹsed locally. The locally funded city-to-hospital tramway complex in rtland (opposite, top) fits no federal mold. Hart says Canada's system cceeds with little federal involvement. On the other hand, funding-plication formulas intended to prove the viability of transit projects tually preclude architecture and community-oriented planning. To get leral funding for major new transit investments, says Hart, "requires at 30 percent of the preliminary engineering be completed. The quirements are onerous; it's heavily engineering-based, and a whole dustry has built up around it to get federal funding. The big engineer-g firms are skilled at this, and they bring on local architects as bconsultants, primarily to appease local communities."

g money; big Capitol Hill battles

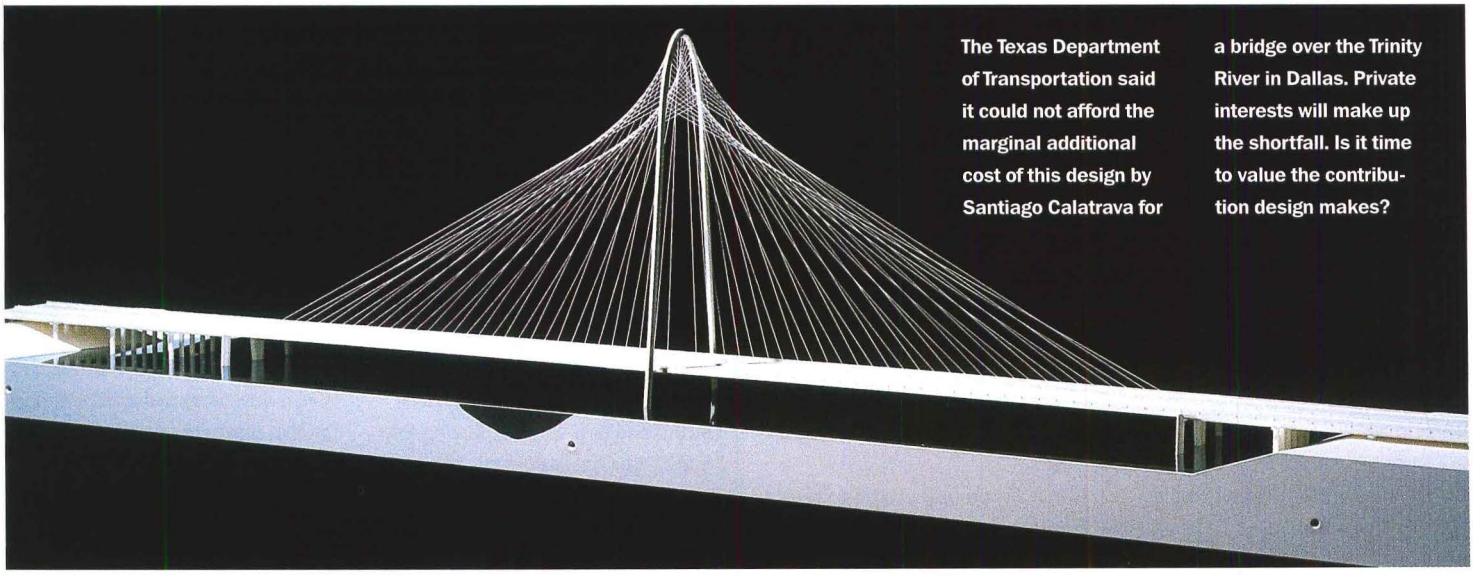
ın such a wasteful and balkanized system be changed? The Bush admin-ration has sent Congress a mammoth six-year surface-transportation bill, lled SAFETEA—for Safe, Accountable, Flexible, and Efficient ansportation Equity of 2003. It's the latest iteration of the "TEA" legisla-ɔn that began with ISTEA in 1991, a reorganization of transportation nding crafted by the late Senator Patrick Moynihan. For the first time it mitted community-oriented, architect-designed "enhancements" into the ınsportation-funding mix. The administration proposes $247 billion for program, with $37.6 billion intended for mass transit. That's a 19 percent crease over the current levels of spending, but this amount will make lit-difference in the ever-growing urban traffic mess, according to the nsensus. Congress would like to push the number higher, but the ques-ɔn is how to pay for it. Increasing the nation's already massive deficits to nd roads and rails will be hard to sell. Thanks to deficits, federal trans-ɔrtation funding in the short term may actually decline.

Architects' pecuniary interests tend to lie with transit because ıtion design is one of the chief means by which architects participate in ınsportation capital investments. The bad news in the administration's ll is that it proposes to reduce the federal contribution for transit projects ɔm 80 percent federal and 20 percent local to a 50/50 split. This "clearly akes public transit investment more of a burden and less attractive to cal communities," notes an AIA briefing paper on the pending legislation.

Then there are airports. The collapse in air travel after 9/11 has cost the federal government $15 billion in bailouts but has failed to prevent layoffs of 80,000 at airlines and many thousands at Boeing. No one knows yet what kind of service structure will emerge from ongoing restructuring. The network contraction, hitting small cities hard, "exposed the underlying fragility of our intercity travel system," Dittmar added, "and in particular the fact that the most vulnerable parts of the aviation system are the short- and medium-distance spokes in the hub-and-spoke system." And that's not all. With scarce capital funds going to security upgrades, and with airlines in retreat, airport construction not already contracted is being deferred. This will prove short-sighted. "When we get to the 'new normal,' whatever that is," says Marilyn Taylor, a principal at Skidmore, Owings & Merrill who has led many of the firm's airline projects, "the capacity problems we had before will return." Passenger growth remains stubbornly anemic, which travel analysts attribute in part to long lines and security hassles. "Security can't be tacked on so that it undermines the passenger experience," adds Taylor. "Airports will have to find new ways to do what they were attempting in the 1990s—to make terminals pleasant to spend time in, with retail choice, natural light, and a predictable way to your destination."

Some airline problems could be allayed if the nation had a viable intercity rail system, one that could connect major cities close to each other and smaller markets to hub airports, thereby eliminating a great number of unprofitable short-haul flights [see "Bullet Train Bailout," RECORD, January 2002, page 111]. But the fixes under discussion for perennially ailing Amtrak will do little to bring that dream to reality. The bottom line, said Dittmar in an interview, "is that you have to convince 60 senators that they won't see a loss of service in their districts." Like so many other observers, he regards Amtrak's current system as "hopelessly outmoded." He adds, "From a demand standpoint, we would have never build interstate highways across Montana," he explains, "but we did, and that's because we needed to for connectivity."

How much can this Congress hope to accomplish? Dittmar thinks it is possible to create an intermodal fund specifically to encourage separate transportation agencies to work together—marrying port facilities to rail and allowing air passengers to move seamlessly to trains. Lots of cities would like to emulate BART, in the Bay Area, which has just opened its $550-million rail-transit spur to San Francisco International Airport. But Dittmar says the process of planning and funding for this "requires a genius or a lifetime of persistence." There does seem to be a gathering consensus, however, that, as Dittmar puts it, "our next challenge for transportation is to make networks of our networks." ■



The Texas Department of Transportation said it could not afford the marginal additional cost of this design by Santiago Calatrava for a bridge over the Trinity River in Dallas. Private interests will make up the shortfall. Is it time to value the contribution design makes?

Transportation Centre, Incheon International Airpc

Incheon, South Korea

1

TERRY FARRELL & PARTNERS AUGMENTS A GROWING ASIAN AIRPORT WITH A SPRAWLING MULTIMODAL TRANSIT CENTER LINKED TO KOREA'S CAPITAL

By Nancy Levinson

Design architect: *Terry Farrell & Partners—Terry Farrell, principal; Aidan Potter, Doug Streeter, design directors; John Campbell, technical director; David Beynon, project director; Mark Shirburne-Davies, project associate*
Architect of record: *Samoo Architects*
Client: *Incheon International Airport Authority*
Engineers: *DMJM (structural, civil); Core Engineers (electrical); Korea Fire Protection Engineers (fire protection)*
Consultants: *Seo-Ahn Landscape Architects (landscape); LDC (lighting); Hyundai Elevator Company (transportation); Oricom Consortium (signage); Samoo Consortium (supervision: foundation, finish, and mechanical)*
Contractor: *Samsung/Hyundai/ Daewoo (joint venture)*

Size: *2,691,000 square feet*
Cost: *$415.6 million*

Sources
Steel structure: *Samsung Heavy Industry*
Exterior panels: *Hanmaek Heavy Industry; Kyungnam Aluminum Company*
Interior panels: *Yoochang; Iljin Aluminium*
Curtain wall: *Iljin Aluminium*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

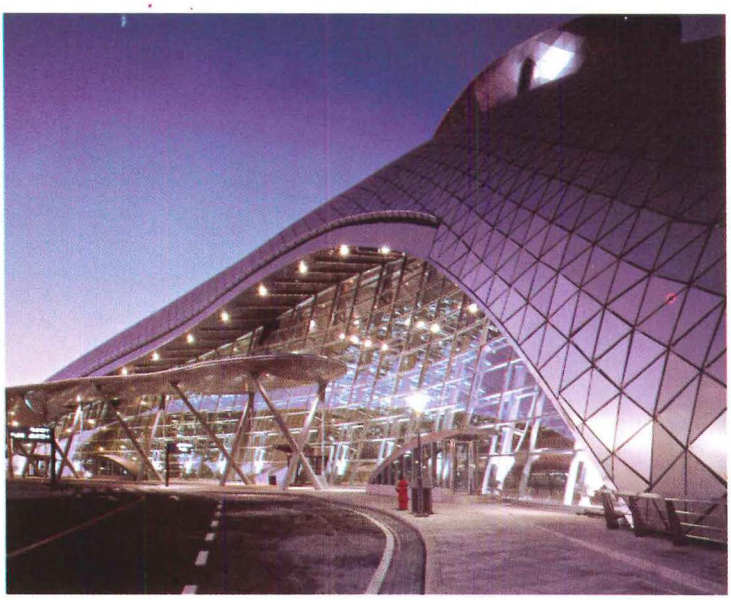
Global presence, regional ambition, national aspiration—all have played a part in the development, over the past decade, of the immense transportation complex built on an island in the Yellow Sea off Incheon, South Korea. First came the 6-million-square-foot Incheon International Airport, which replaced outdated Kimpo Airport. Planned by Bechtel Corporation and designed by Fentress Bradburn Architects, Incheon International is an integral part of the infrastructure that South Korea hopes will make Seoul the premier gateway to northeast Asia. And then, to link the airport to multiple modes of ground transportation to the capital more than 30 miles away, came this new building, the sleek, sprawling, intricately coordinated Transportation Centre, designed by Terry Farrell & Partners (TF&P) of London.

Program

Working in close collaboration with Samoo Architects and DMJM, TF&P was given a distinctly contemporary program—a facility whose purpose is to expedite movement, the quicker the better, from one mode of transport to another—from car or subway or train to plane, and the reverse. TF&P, which has experience with this building type (it designed Kowloon Station, which serves Chek Lap Kok Airport in Hong Kong), understood that the most significant challenge of the Transportation Centre was its scale. How could the 820,000-square-foot, six-level complex be made coherent, with its network of rail lines and stations, its acres of structured and surface parking for 5,000 cars, its people-moving and baggage-handling systems? How could it be given a strong and iconic presence in the still vaster aviation world of Incheon International? And even more, how could it be given identity as a Korean place, so that the frequent-flying traveler will know she has landed in Seoul, not Shanghai or Sydney?

Another familiar challenge, in these days of global practices and project partnerships, was that of process. TF&P is based in London, Samoo in Seoul, and DMJM in Los Angeles. The mix of time zones allowed for an ongoing relay of acti

Nancy Levinson is a RECORD *contributing editor and an acquisitions editor at Princeton Architectural Press.*



Encircled by miles of roadway and acres of parking, accessed by rail and metro lines, and serving an international airport just across the highway to the north, the Transportation Centre is, above all, a powerful organizing presence for hurrying travelers who must negotiate multiple transit modes.

An open-air pedestrian gallery has a view of the airfoil (top). This gallery is actually at level 5 of the center. The Great Hall (below) is located on level 4, along with rail platforms and parking garages. One of the landscaped gardens can be seen through the windows at left.

ity—the sun never sets on the glob business empire—but it also made for what Aidan Potter, design partne at TF&P, recalls as a "significant operational perplexity, regarding the sequencing of information." To solve this problem, he says, "we all needed to establish clear protocols, so that all the designers and consultants were working with the lates documents, and all our computers were talking to each other."

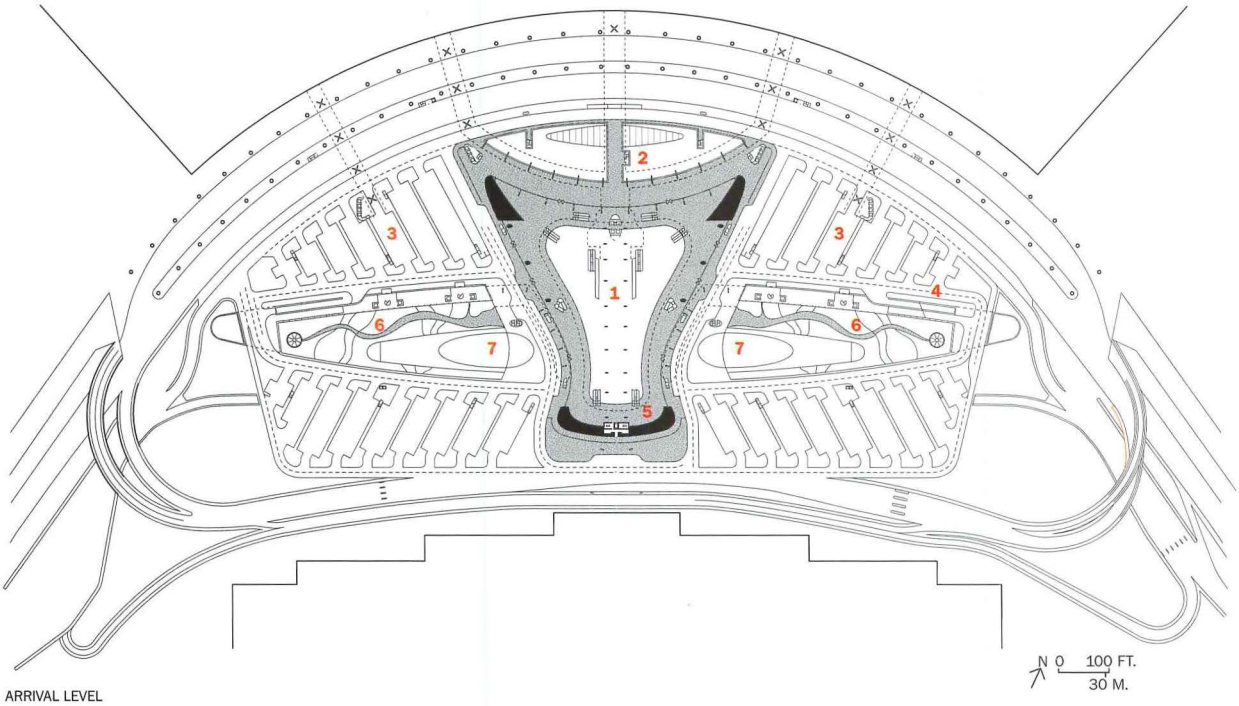
Solution

TF&P's scheme, chosen in a limited competition, responds to both the organizational intricacies and iconographical demands of the program. To accommodate the assorted networks for cars, taxis, vans, buses, trucks, subways, trains, baggage, an pedestrians—the airport will eventually serve 100 million passengers pe year—the architects have created a somewhat free-form structure whos complex curves and outreaching platforms make it seem, in aerial view, almost beastlike. To design the nonorthogonal structure, the architects augmented digital-modeling software with a much older design technique: They hired a hatmaker who used millinery formwork to create a physical model of the building, from which sections were then cut and plotted on the computer.

The diverse transportation net works all converge in a central Grea Hall, a truss-roofed, daylit space that recalls the grand rail terminals of the Victorian Age. Atop the Great Hall is a 130-foot-long, steel-framed airfoil—a birdlike crest for the beastlike building. Not part of the competition-winning design, the airfoil is actually an agile answer to a major programmatic change made midway through the project. The original scheme was crowned with a tall, swan-necked form that was to have housed the air-traffic control tower and was also meant to evoke both images of flight and other buildings that evoke images of flight notably Eero Saarinen's terminals a Kennedy and Dulles Airports. But during design development, the Korean airline authority determined that the control tower was not

ANS

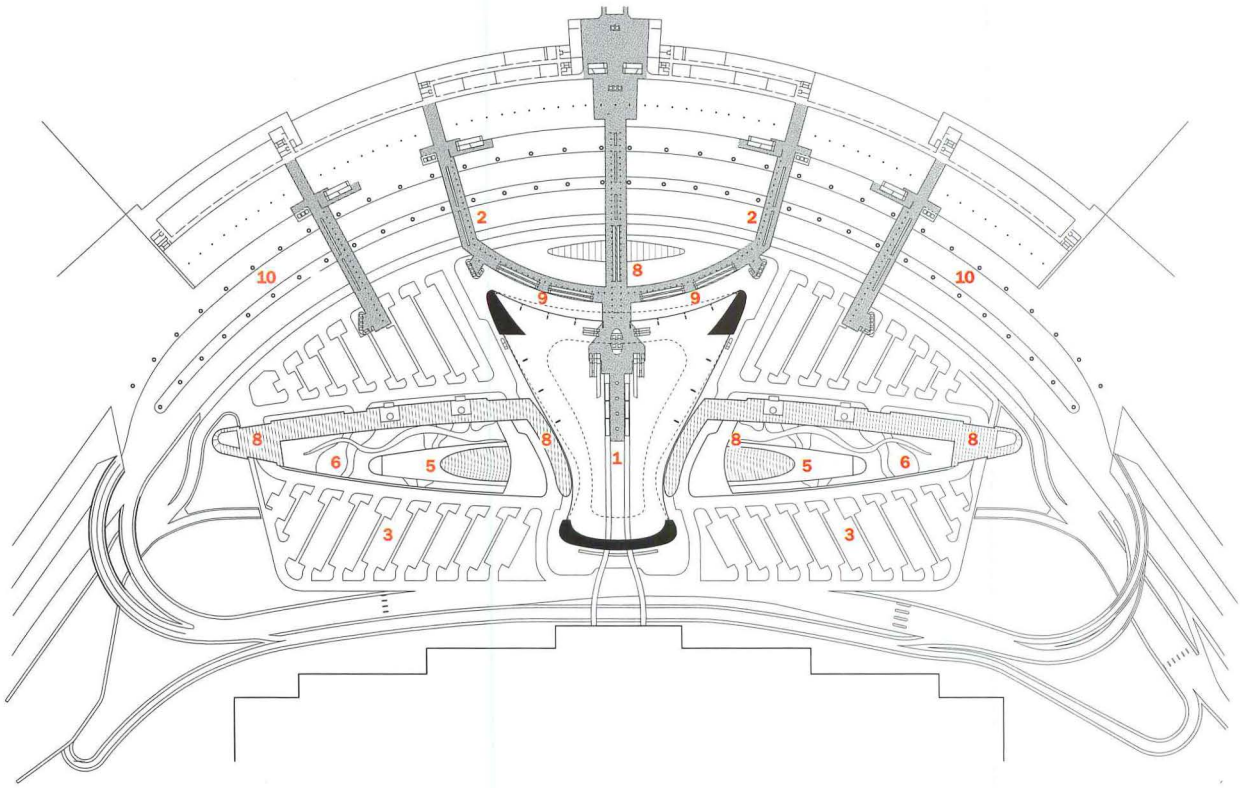
1. *Great Hall*
2. *Pedestrian walkway to terminal*
3. *Parking*
4. *Underground train*
5. *Light rail*
6. *Sunken garden*
7. *Railway station roof*
8. *Roof light over shops*
9. *Moving walkway*
10. *Lower access road*



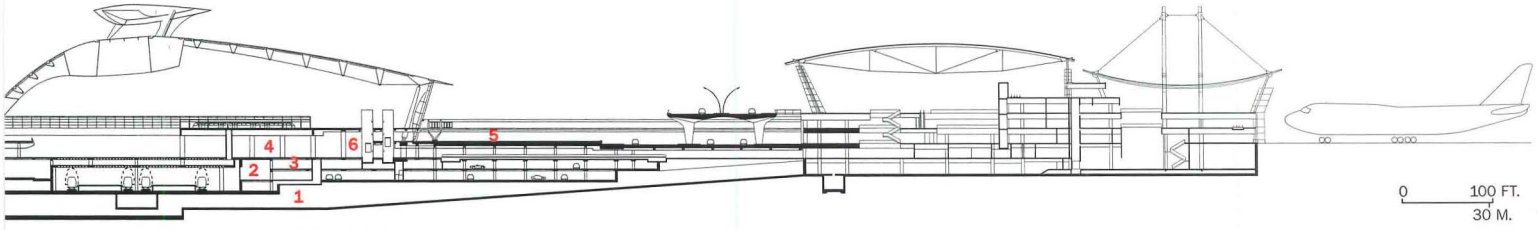
ARRIVAL LEVEL

ECTION

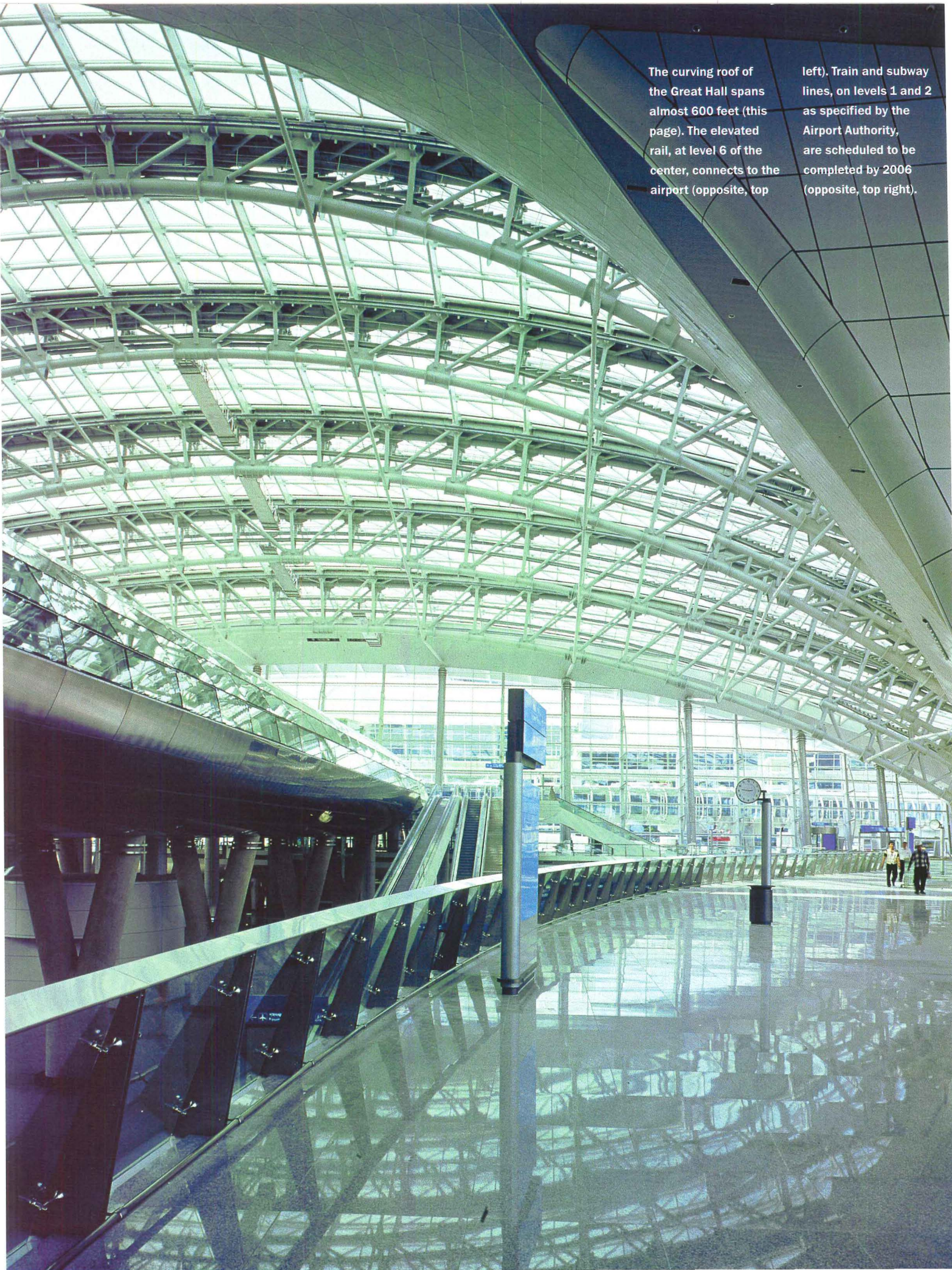
1. *Baggage handling*
2. *Platform and garage level 1*
3. *Garage level 2*
4. *Great Hall concourse and arrivals*
5. *Link to ground transportation*
6. *Link to light rail*



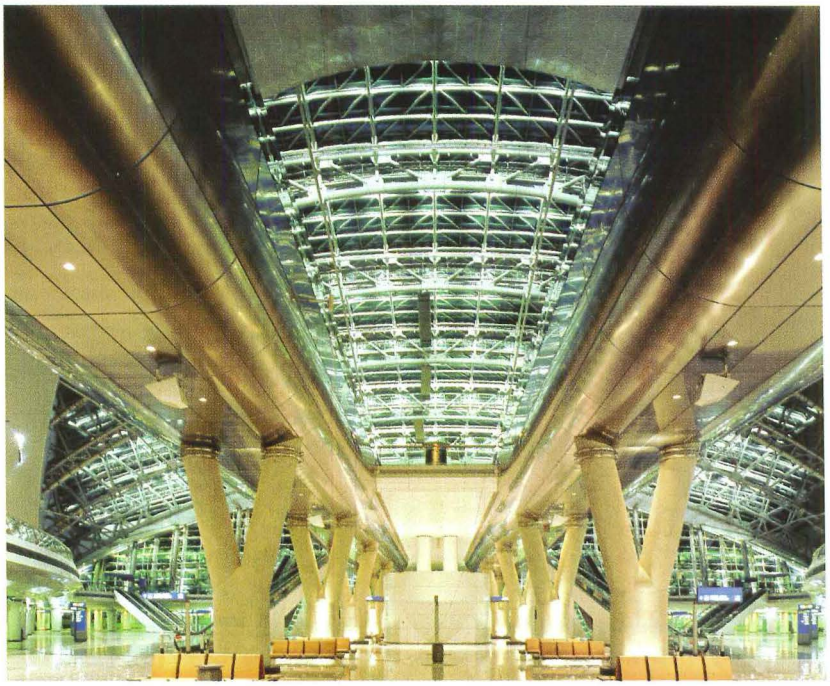
PROPOSED TERMINAL TWO



NORTH-SOUTH SECTION



The curving roof of the Great Hall spans almost 600 feet (this page). The elevated rail, at level 6 of the center, connects to the airport (opposite, top left). Train and subway lines, on levels 1 and 2 as specified by the Airport Authority, are scheduled to be completed by 2006 (opposite, top right).



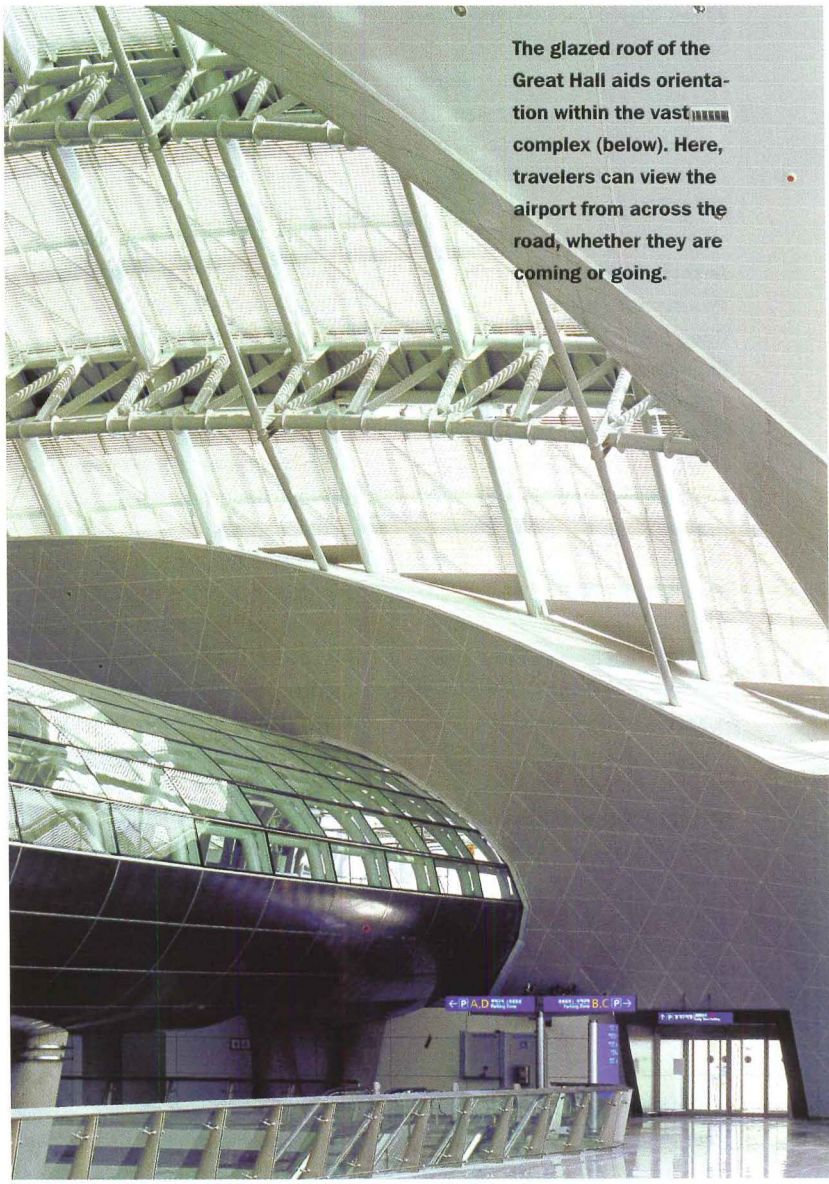
eeded logistically and, just as nportant, was perhaps too obvious, oo long-necked a target in the vent of conflict between North and outh Korea. But the airfoil, as otter notes, generated new opportunities. "It started as an effort to nd a new compositional focus," he otes, "but we wanted it to be more nan picturesque." Supported on nree strutlike, steel-clad legs, the irfoil hovers above a 50-foot-diameter oculus that can be opened and losed; oriented to prevailing winds, draws warm air upward and educes the building's cooling load.

Clad in aluminum tiles and ncircled by miles of roadway, ne Transportation Centre is a ophisticated and extensive envionment—a building elongated out o the scale of a landscape. In the nidst of this shiny and efficient lace, then, it is delightful to find nat the architects have inserted, n the open spaces between rail latforms and roadbeds, gardens andscaped in indigenous style, vith meandering paths and clusers of rocks and plants. Amid he hustle and bustle of collecting uggage and transferring to ground ransport, travelers who have anded at Incheon International an enjoy a glimpse of Korean cenery—a patch of local serenity n the global transit zone.

Commentary

The realization of the Transportation Centre is premised, at least in part, on the goal of multimodal access to the airport. This raises the inevitable question: how "multi" are the modes? At least for now, at Incheon—as at so many international terminals—the easiest way to travel to and from the airport is by automobile. There is even an eight-lane expressway connecting Seoul and Incheon that is dedicated to airport traffic. Those who want to take mass transit today can take a bus, but those who want to ride a train to a plane will have to wait. According to Hwan Kim, project manager for Samoo, subway and rail lines connecting Incheon to Seoul are now under construction and scheduled to begin operation in 2006. At that point, according to Hyung-Uk Jeon, a project manager at the Incheon International Airport Authority, the center's multimodal potential will begin to be fulfilled: The authority anticipates that at least 30 percent of travelers will eventually use mass transit to get to the airport.

Incheon International Airport and the Transportation Centre are, then, works in progress—gigantic assemblages of 21st-century infrastructure that will need to keep pace with ever-changing developments in travel technology. ■



The glazed roof of the Great Hall aids orientation within the vast complex (below). Here, travelers can view the airport from across the road, whether they are coming or going.

Terminal Two, Cologne/Bonn Airport

Cologne, Germany

2

MURPHY/JAHN ADDS A SLEEK, GLEAMING TERMINAL TO AN AIRPORT THAT IS STRIVING TO ATTRACT PASSENGERS FOR BOTH AIR AND RAIL TRANSIT.

By Jan Otakar Fischer

Architect: *Murphy/Jahn—Helmut Jahn, Bo Nielsen, Mark Frisch, Sam Scaccia, Tony Pelipada, Christina Klages, Steven Cook, Hannes Zabel, Stephen Cavanaugh, Thomas Chambers, Wolfgang Bauer, Barbara Thiel-Fettes, Sanford Gorshow, Michael Bender, T.J. McLeish, Yorgo Lykourgiotis, Brian O'Connor, Katrin Klingenberg, Dan Cubric, Martin Wolf, Chuck Wittleder, project team*
Associate architect: *Heinle, Wischer und Partner*
Client: *Flughafen Köln/Bonn*
Engineers: *IGH Ingenieurgemeinschaft Höpfner (concrete); Werner Sobek Ingenieure (facade, special structures); Arup and Partners (steel, energy); Zimmermann + Schrage KG (mechanical)*
Consultants: *Institüt für Fassadentechnik (facade); Jürgen Schubert (landscape); Peter Andres (lighting); Prof. Karlsch (fire safety); ICM Airport Technics, Klaus Ramacher (baggage)*

Size: *753,500 square feet*
Cost: *Withheld at owner's request*

Sources
Terrazzo floor: *Gustav Popp*
Glass floor: *Fischer*
Seating: *"Nomad" by Jahn Lykouria*

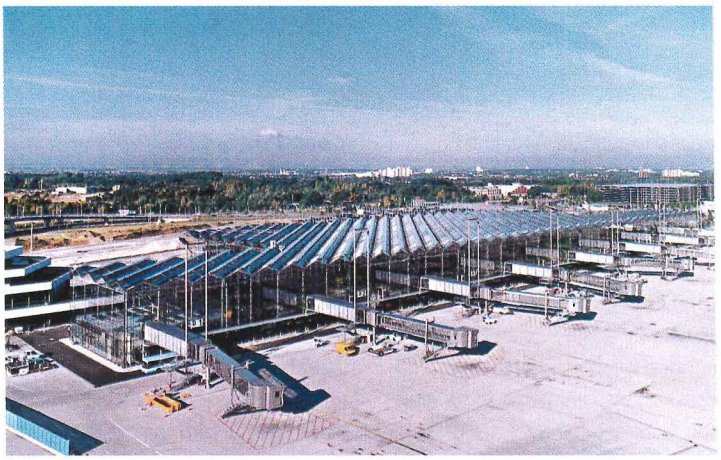
For more information on this project, go to Projects at **www.architecturalrecord.com**.

In the late 1960s, the German *Wirtschaftswunder* (economic miracle) allowed investment in infrastructure projects like the airport in Cologne/Bonn, which served both the important western city of Cologne and the the government center at Bonn. A reinforced-concrete terminal (known as Terminal One), designed by Paul Schneider-Esleben, replaced the old airstrip in 1970. Terraced and bunkerlike from the outside, Terminal One revealed an elegant structural system within; it was a "drive-in" airport, with two star-shaped concourses stretching out to meet the planes. It set the standard for German airport design for nearly two decades.

Since that time, requirements for modern airports have evolved dramatically to include provisions for security and multiple transport modes, among other things. Yet, as a functioning landmark building, the existing terminal couldn't be eliminated. Designs for an extension were solicited in an invited competition held in 1992, and the winner was Murphy/Jahn of Chicago.

Program

Terminal One had been conceived during an era of unimpeded mobility and freedom that no longer exists. "It represents the old corporate philosophy, one still blissfully unaware of the needs of security or flexibility," says Steven Cook, Murphy/Jahn's project architect for the new terminal. Decentralized check-in and circulation, in which passengers and guests could penetrate deep into the airport at multiple points, is now impracticable. Today, airports are designed with progressive zones that limit access according to need and intent. Distinct spaces must be provided for arrival, departure, waiting, commerce, and security. Modern airports must also accommodate more planes with more passengers and offer easy, comprehensible connections to a variety of options for ground transportation, including trains, buses, and automobiles. The challenge for the architect was to provide all these services as an addition to the historic terminal, such that the overall capacity would rise from 4.5 to 7.5 million passengers per year.



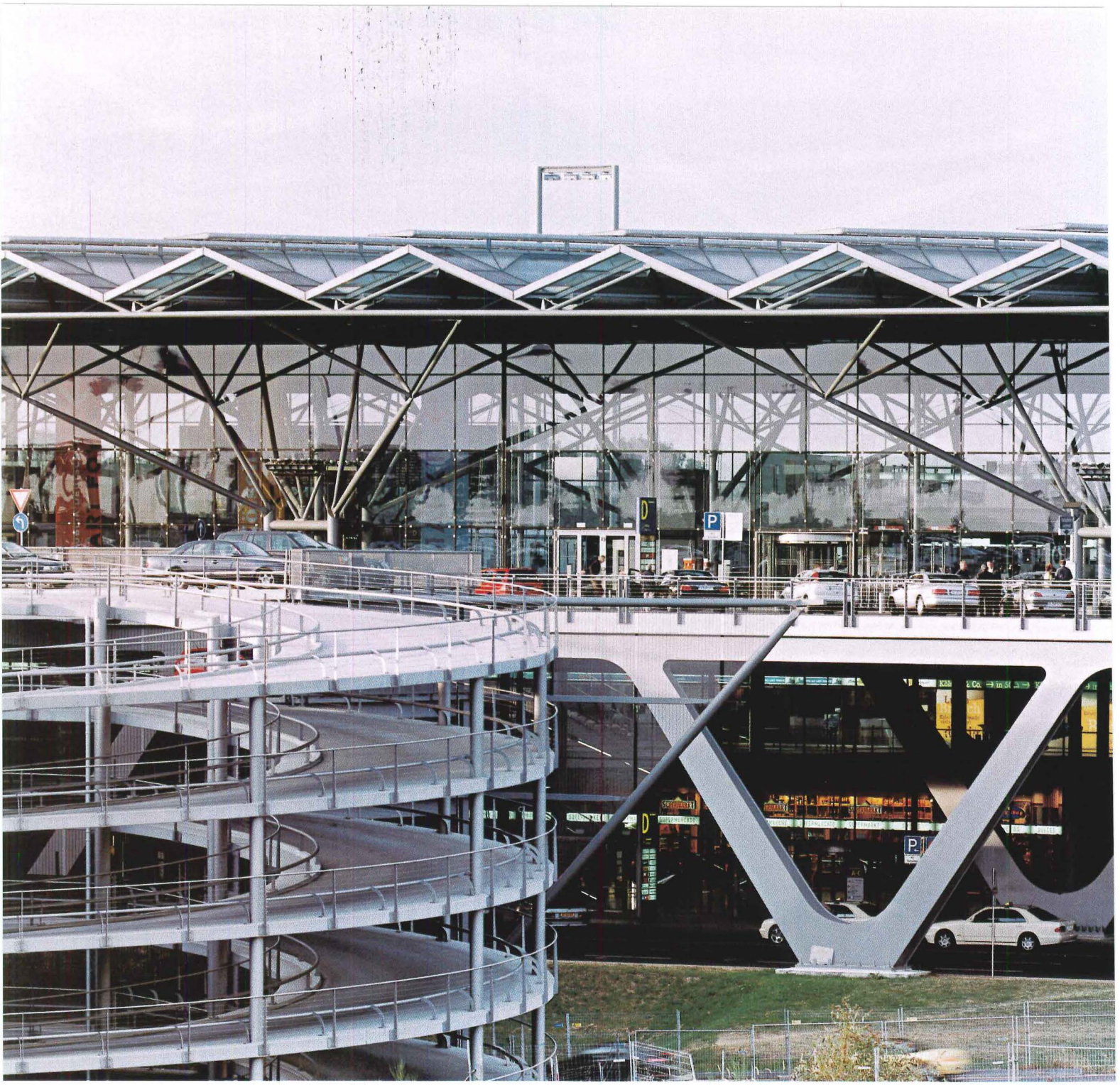
Solution

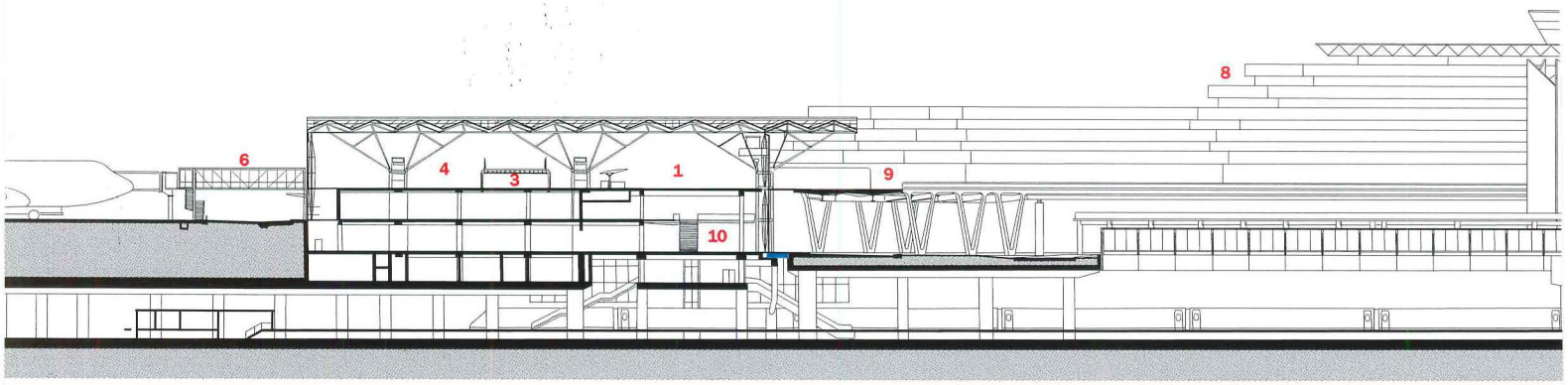
Murphy/Jahn's design calls for a set of new additions to be completed in several phases. Terminal Two, positioned closely alongside Terminal One, was finished in summer 2002, along with two large parking structures. An elevated roadway, extending and altering the old traffic loop, was built to serve both terminals and the garages opposite. An underground high-speed rail station at the heart of the complex is currently under construction, and renovations to Terminal One are under way.

Terminal Two is the signature building in the ensemble, countering the massiveness of Terminal One's concrete with an entirely different tectonic of steel and glass. The desire for openness and transparency is manifest in a 70-foot-high curtain wall that wraps the building's perimeter, right up to the jagged edge of the complex, folded

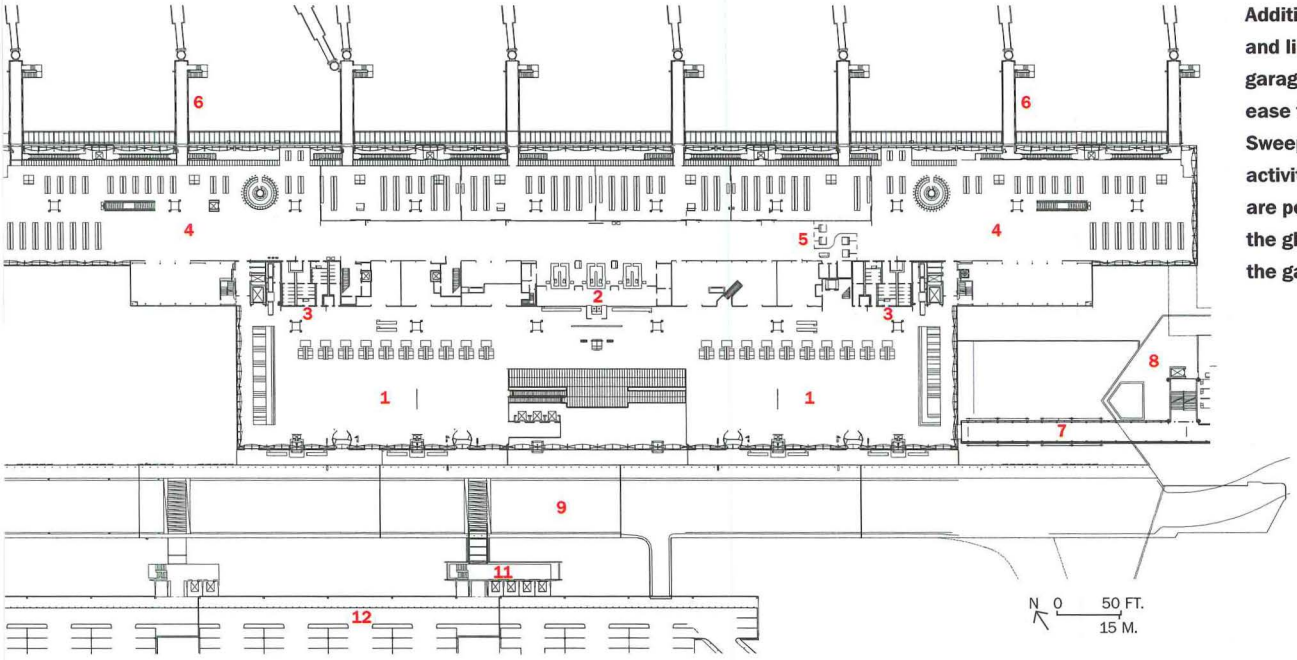
Jan Otakar Fischer is an architect and critic living in Berlin, Germany.

Glazed jet bridges extend out onto the apron where planes land (opposite). The curtain wall (this page) is a system of point-fixed, cable-stayed glazing supported on tapered masts extending from floor to ceiling, creating a pure expanse of glass.

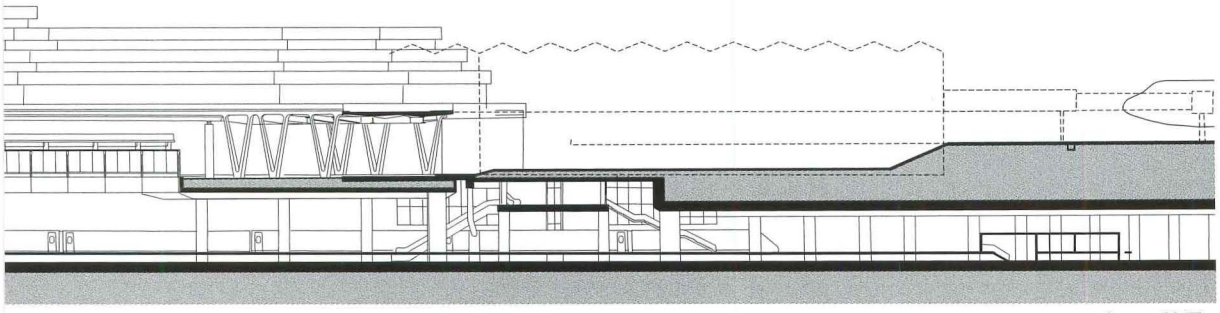




NORTH-SOUTH SECTION



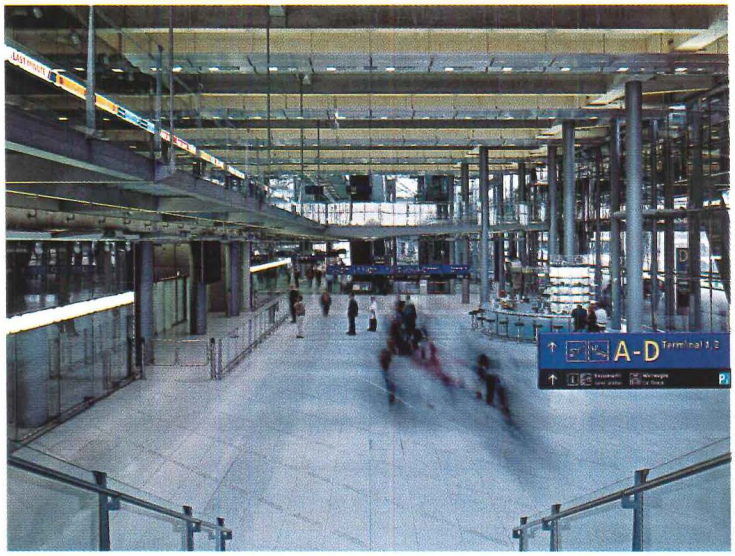
EPARTURE LEVEL



Additional roadways and links to parking garages (opposite) ease the traffic burden. Sweeping views of the activity on the apron are possible through the glass walls near the gates (above).

1. *Check-in/departure*
2. *Security*
3. *Services*
4. *Passenger waiting area*
5. *Passport control*
6. *Jet walkway*
7. *Connection to existing terminal*
8. *Existing terminal*
9. *Elevated roadway*
10. *Arrivals*
11. *Connection to parking*
12. *Parking*

A busy security checkpoint (above) is relieved by natural light and generous surrounding space. The interior of Terminal Two is characterized by the ample use of sleek, shiny materials (below left and right), including transparent and opaque colored glass, metals, and mirrored surfaces. The "trees" supporting the roof (opposite) have integrated ventilation columns that project light onto the ceiling.



of plate. Terminal Two can be derstood as a simple glass shed, it also as a laterally expandable ar, 985 feet long and 246 feet ep, built with prefabricated, mod- ar parts. The physical connection tween the two terminals, with ch disparate structural systems, smartly limited to a two-level ass-and-steel bridge.

When passengers emerge from planes into the arrival hall, their oices of exit by bus, car, taxi, or ain are immediately and clearly ailable. Escalators and glass ele- tors transport travelers down to e railway station, up to an array of avel agencies on a narrow mezza- ne, or up another level to the main ncourse, where departures are ocessed. On this uppermost level, now-familiar sequence of transi- tions is defined—check-in, shop- ping, security, waiting—beneath a vast, skylit ceiling.

Helmut Jahn and Werner Sobeck, the Stuttgart-based engi- neer who has worked with Jahn for nearly 10 years, coined the term "Archi-Neering" to define what they do in projects like this one, where form and technical prowess are thoroughly enmeshed. Sobeck designed the terminal's glass cur- tain wall, as well as the rail station's glass roof and the cladding on the parking garages. Arup and Partners and IGH collaborated with Jahn on the roof, whose steel "trees" march along a 99-by-99-foot module. Skylights pierce the north side of each roof fold.

More than 10,000 parking spaces were added to the airport. The six-level exposed-steel decks of the garages are punctured by light courts and clad in stainless-steel- mesh panels or ivy trellises. A twin garage is planned on the south side of the loop.

Commentary

Murphy/Jahn has achieved its goal of providing a new terminal of seamless efficiency and conven- ience. Terminal Two proves that short routes and rational progress are still possible within contempo- rary airports. It teems with activity but does not seem crowded or overburdened.

Jahn and Sobeck have shown that their "Archi-Neering" process continues to produce innovative solutions to complex design prob- lems, even if, in some instances here, the profusion of elaborate detail works against the simplicity of the programmatic or tectonic concepts. The material and techni- cal ideas explored throughout the project are impressive for their con- sistent ingenuity, from the high-tech curtain wall and roof system to the automated baggage-sorting appa- ratus and the electronic guidance system in the parking garages.

When completed, the high- speed rail system (including the government-owned Deutsche Bahn, which competes with low- cost airlines) should not only reduce vehicular traffic, but also the need for short flights at the air- port itself, making Terminal Two truly multimodal in nature. Even now, approaching completion, it is undeniably a pleasure to use. ■

Millennium Rail Line
Vancouver, Canada

3 **VIA ARCHITECTS GUIDED FIVE ARCHITECT TEAMS IN THE CREATION OF 12 INVITING CIVIC ROOMS FOR VANCOUVER'S SKYTRAIN TRANSIT NETWORK.**

By Randy Gragg

Project: *Gilmore Station*
Architect: *Busby + Associates Architects*
Consultants: *Fast & Epp Partners (structural); Agra Simons, Robert Freundlich & Associates (electrical); Klohn Crippen Consultants (mechanical)*
Contractor: *Dominion Construction*
Sources
Composite panels: *Structure Craft*
Uplighting: *Elliptipar*

Project: *Lake City and Braid Stations*
Architect: *Architectura (now Stantec Architecture), with Walter Francl Architect*
Consultants: *C.Y. Loh Associates (structural); Earth Tech Canada (mechanical/electrical); Phillips Farevaag Smallenberg (landscape)*
Contractor: *Westpro Constructors Group*
Sources
Roofing: *Galvalume; Carlisle*
Storefront: *Kawneer*
Stair-tread grating: *Fisholow*

Project: *Holdom, Production Way, and Sperling Stations*
Architect: *Hotson Bakker Architects*
Consultants: *C.Y. Loh Associates (structural); Earth Tech Canada (mechanical/electrical/civil); Durante Kreuk (landscape)*
Contractor: *Westpro Constructors Group (Production Way and Sperling Stations); Dominion Construction Company (Holdom Station)*

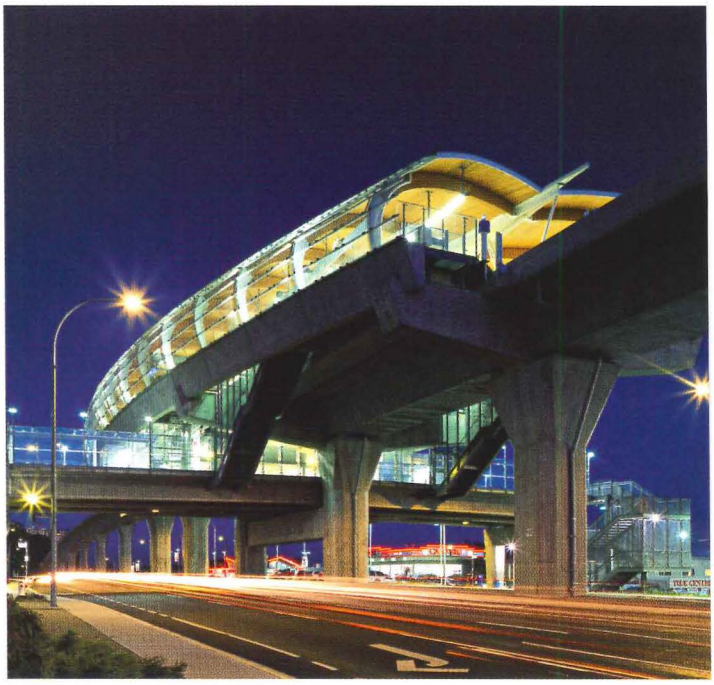
For more information on this project, go to Projects at **www.architecturalrecord.com**.

Sources
Roofing: *Soprema/Flynn Canada*
Concrete block: *Shouldice Stone*

Project: *Lougheed Town Center Station*
Architect: *Merrick Architecture*
Consultants: *Earth Tech Canada (structural); Klohn Crippen Consultants (mechanical/electrical); Robert Freundlich & Associates (lighting)*
Contractor: *Dominion Construction*
Sources
Galvanized roofing: *IMSA*

Project: *Sapperton Station*
Architect: *Hancock Brückner Eng + Wright Architects*
Consultants: *Glotman Simpson (structural); Earth Tech Canada (mechanical/electrical/civil); Phillips Farevaag Smallenberg (landscape)*
Contractor: *Dominion Construction*
Sources
Wall cladding: *Reynobond*
Storefront: *Kawneer*

Project: *Commercial, Renfre, and Rupert Stations*
Architect: *VIA Architecture*
Consultants: *Glotman Simpson (structural for Commercial), Fast & Epp (structural for Renfre, Rupert); Keen Engineering (mechanical); Sandwell Engineering (electrical)*
Contractor: *Smith Brothers & Wilson (Commercial); PCL Constructors (Renfrew, Rupert)*
Sources
Glulam timbers: *Western Archrib*
Lighting: *Ledalite; Kim*



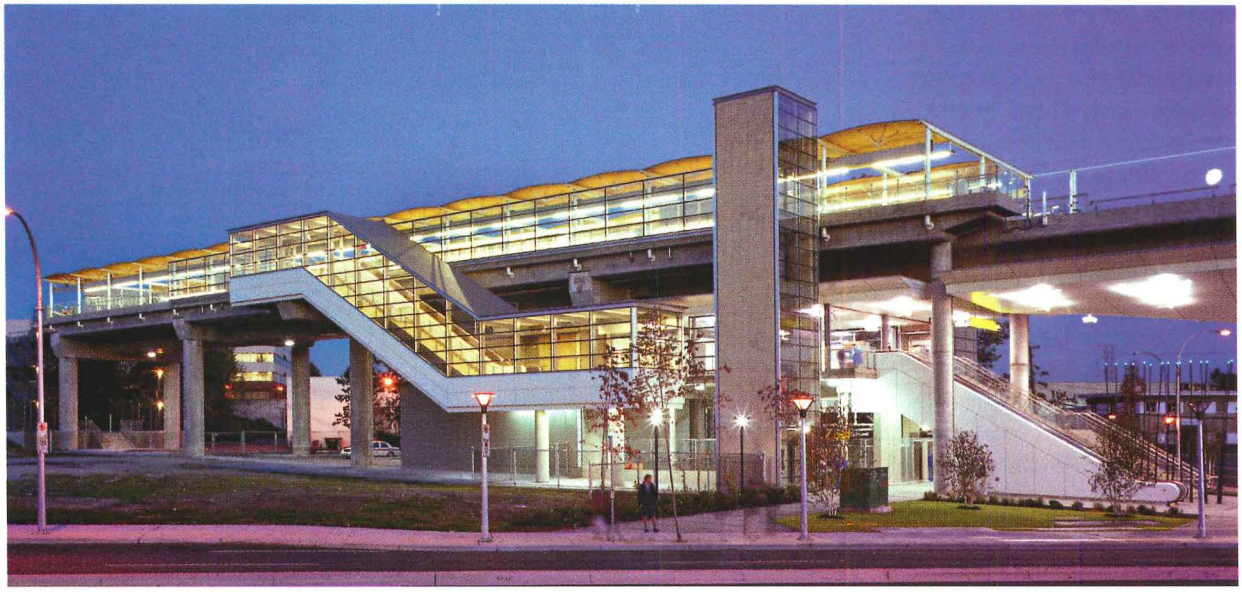
Major North American transit projects typically are engineered for movement alone, with stations looking about as glorious as roadside rests. Vancouver's new Millennium Line, by contrast, puts an important new emphasis on designing destinations.

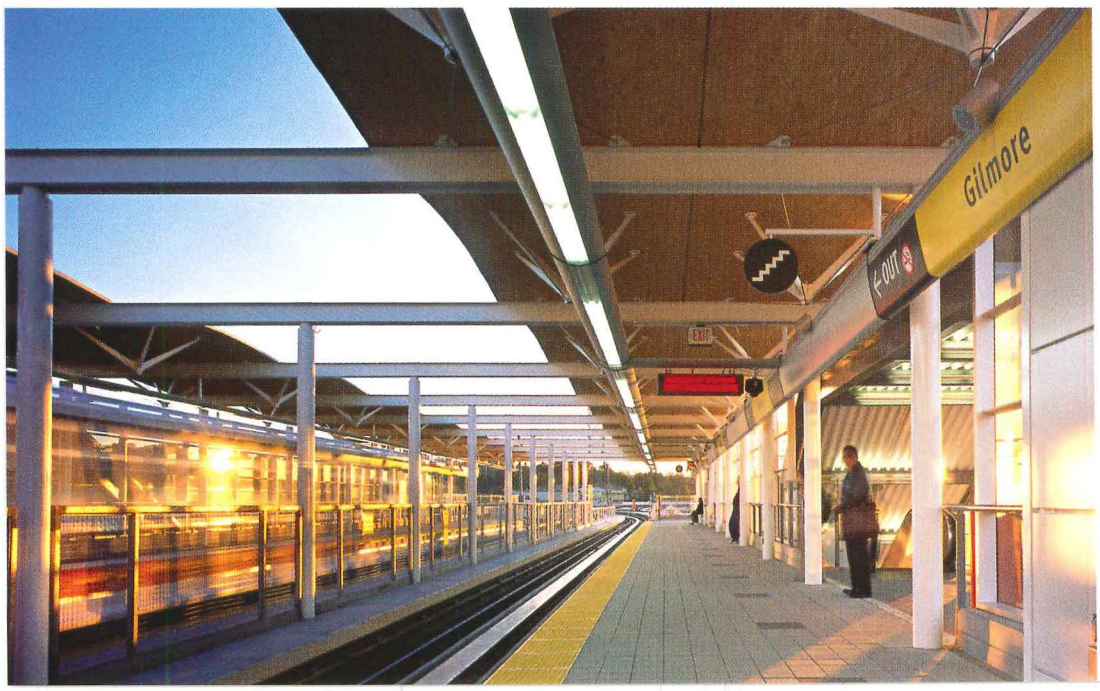
The line's guiding force was Lecia Stewart, who served as president of Rail Transit Project 2000 (RTP), the company formed by the provincial government of British Columbia to build the $715 million (U.S.; $1.1 billion Canadian) line. To her, mass transit has made a historic shift from "being about social equity through mobility" to being "a key amenity for livability." She modeled the project on London's Jubilee Line [RECORD, March 2000, page 129], creating a team and process that emphasized each station's urban design, urban development, and architectural opportunities.

First built for the Expo 86 world's fair, the Millennium Line added 16 miles to a SkyTrain system that had grown to 20 miles with 20 stations. The frequent gridlock (caused in part, by Vancouver's absence of interior freeways), combined with the 50 mph panoramas of the city's spectacular natural setting, has

Randy Gragg is architecture critic of Portland's The Oregonian.

e sensuous curve of entwood (opposite) is arly spectacular. By ntrast, the delicacy of e roof module Busby Associates developed r the far less costly lmore (this page), with clearly delineated rim of window wall, s satisfyingly atop e utilitarian guideway.





Busby + Associates

Peter Busby's firm designed what quickly became the Millennium Line's icon, the **Brentwood** Station (opposite) [RECORD, January 2003, page 104]. Busby bought some of the sumptuousness of Brentwood by transferring $500,000 from the firm's other station, **Gilmore** (this page). With economy, Busby still produced exuberance, creating a delicately jaunty roof from 5-by-10-foot waferboard panels. Sealed with a roofing membrane, their vaulted shape is held in place by steel quadrapods designed and fabricated by the firm's in-house fixture company. Aircraft wire tensions the assembly.

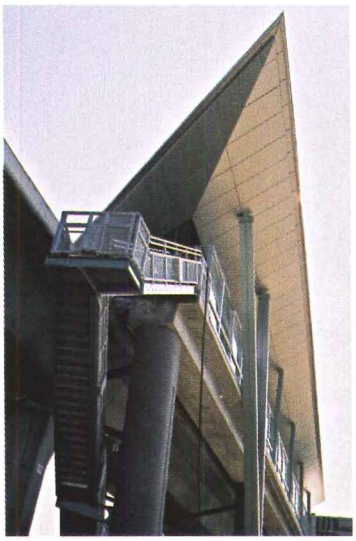
made the first phases of the fast, efficient, high-flying, and wide-windowed SkyTrain popular enough to cover operating costs from the fare box alone. Meantime, during Vancouver's double-digit growth of the 1990s, an impressive spine of transit-oriented, high-rise development has grown, with municipal encouragement, along the line.

The standardized station designs of the earlier SkyTrain segments established the line as a brand with commuters, according to Stewart, who describes herself as a "frustrated architect with a general business background." But with this line serving a primarily suburban population—not to mention being a provincial-government-initiated project slamming through dozens of neighborhoods—Stewart believed the new line needed a more malleable identity for the communities to feel ownership. "The whole station-architecture program," Stewart says, "became critical to building public support."

Program

With a breakneck schedule geared to finishing the project before an important provincial election, time and budget became equal to function in the program. The line's guideway was placed on an independent, fast-track, design/build construction contract for a 13-month completion. The stations, therefore, not only had to be designed quickly, but literally around the concrete viaduct the trains would travel over. According to Alan Hart of VIA Architecture, hired by RTP to lead the architectural side of the line, the most important programmatic demand became the creation of a smooth community-focused process. "That isn't sexy," he notes, "but it's what made the line successful."

Except for minor involvement in selecting the guideway's route, VIA concentrated solely on the stations. Working with the IBI Group, an architectural planning firm, Hart set out to create a wide community-involvement process with a particular focus on strong storyboarding as a jargon-free way to lead people through the issues that *(continued on page 137)*



Architectura (now Stantec), with Walter Francl

For an anticipated high-tech office park, Francl and Peter Buchanan (of Architectura, which has since changed its name to Stantec) created the futuristic **Lake City** Station (this page). Appropriately, it seems poised for takeoff. The roof, folded like an eccentric paper airplane, protects waiting commuters from prevailing winds while rising as if to catch the upward turbulence, a dynamism further enhanced by the trusses reaching diagonally across the platform. Artist Katherine Kerr offers a subtler version of the same sense of motion with etched-glass panels that ethereally flash words a images of plant forms (not shown).

For **Braid** (opposite), a static serving the picturesque and once powerful timber industry center and government seat of New Westminster, the architects chose a simple shed roof supported by hefty glulam beams. Platform wal and roof are articulated as separate, hovering planes. The entry is one of the line's most gracious, welcoming commuters into a foye large enough to satisfy the town's desire to evoke the grandeur of a 19th-century railroad station.

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ıe line had been
›mpleted, Lake City
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looking as if it had
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ıd canted legs that
ugment the guideway
ylons (opposite, top).
s winged theme
›pposite, middle)
egins at the entrance
›pposite, bottom). The
rchitects made iconic
se of glulam beams at
raid (this page), from
ıe entrance roof (right)
› the platform (top).
ırning beam-end
rotection into indus-
ial-grade ornament,
ead designer
uchanan prototyped
ıe oversize flashing in
is home shop out of
ıe same standard mill-
nished aluminum used
n fishing boats.

Hotson Bakker Architects

Using three different project architects, Hotson + Bakker designed a trio of dramatically different stations (this page, from top). The least expensive, **Holdom**, is also the line's most functional, according to both riders and maintenance crews: a simple, easy-to-clean, open-ended box that, among the stations, offers the only full protection from the elements. The weather, however, is welcomed in as art through open light chimneys fitted with vertical sheets of striped glass by artist Graham Scott.

By contrast, a metal-clad wing tops **Production Way**. Sloped against the prevailing winds and the adjacent highway, it rises to welcome in both views of the nearby hills and the students descending in buses from Simon Fraser University. Though somewhat plumply proportioned, the roof is dynamically cantilevered, with the triangular voids of the angled tiebacks filled with glass, by artist Lutz Haufschild, that flashes a rainbow spectrum of color.

Sperling is the Millennium Line's most prosaic station, distinguished only by a V-shaped shed roof and a separate elevator tower connected to the platform by a dull bridge.

Artist-designed light chimneys at the Holdom Station (left animate the building with shafts of rain and snow or stripes of shadow and light. The tilted canopy of Production Way (below) opens to views. Glass clads a simple, sheltering truss at Sperling (bottom).

continued from page 134) affected he stations' impact and to "keep he ideas in the lead." By first involv- ng the public in an exercise of edesigning two older stations, he team created a list of require- nents and aspirations for all the tations, among them visibility for afety, wood for a sense of regional varmth, and lots of ambient night- ime lighting so the stations would unction as secure, neighborhood- dentifying beacons.

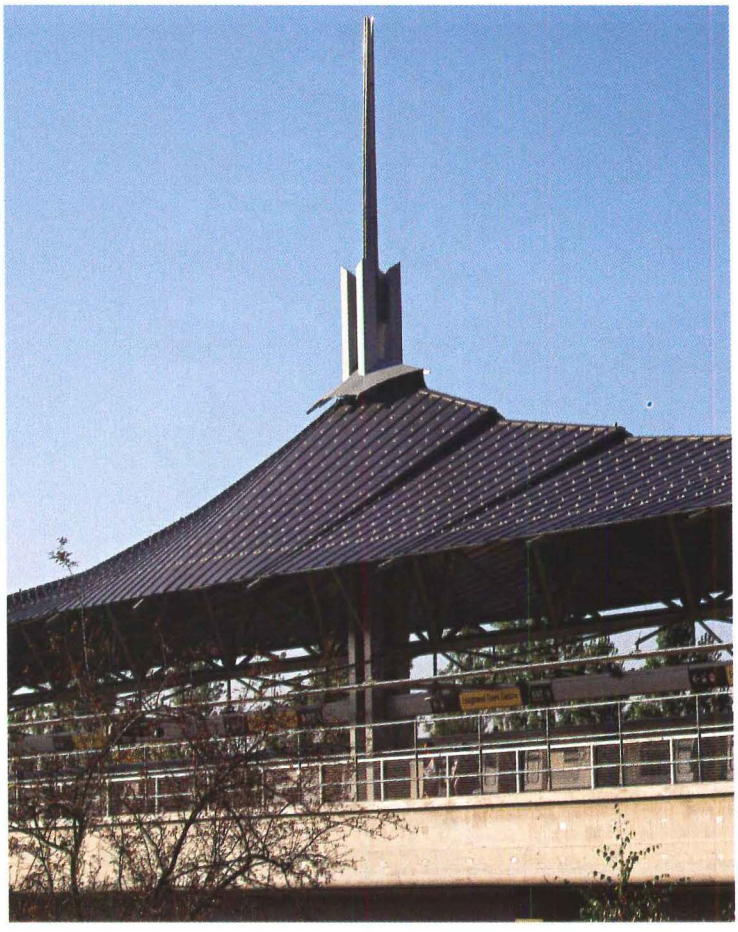
Hart developed a three-tier cat- egorization for the stations, helping to assign budgets ranging from $4 mil- ion to $7 million. "Landmark" stations such as Brentwood and Lake City) were targeted for major redevelop- nent sites or else were in high isibility locations. "Transitional" sta- ions (Commercial and Lougheed) would link the line with future or exist- ng transit lines. "Neighborhood" tations (like Renfrew and Rupert) were intended to be modest, finer- grained responses to community context and history.

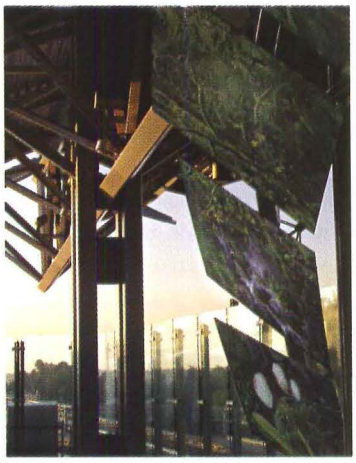
The overriding goal, according o Hart, was "to create civic rooms, all different, but all of the Millennium Line." Stewart and Hart set up an RFQ process, out of which they drew up a roster of 14 firms to design nine stations not already assigned o VIA. For each station, they invited three of the firms to compete for the design contract by forming teams rom a similar roster of preapproved artists and structural engineers.

Solutions

A design/build consortium called SAR Transit won the guideway contract with a lowball bid and a take-it-or- eave-it design: a dual-track guideway built from 8-foot-deep, precast box girders on octagonal columns. In most cases, the stations sit atop either a wider section of guideway or a split version for center loading, both reinforced by shorter column spans.

VIA achieved the public's desire for security and nighttime appeal with plenty of glass—around entrances, stairways, elevators, platforms—in short, where people move and where they wait. The necessity of placing wood out of





Merrick Architecture
At 240 meters, the **Lougheed** Station (this page) is the Millennium Line's longest. Partner Roger Bayley, a structural engineer, evoked the indigenous rain-forest canopy, held aloft by the longest spans of any station. Three-dimensional trusses stretch as much as 80 meters between clustered columns that—like Gothic spires—unite to pierce the gently curving, metal-shingled roof. Art by Danny Singer (above) evokes a sea-to-mountains journey.

Hancock Brückner Eng + Wright Architects

Wedged between two transnational rail lines with topography requiring all its passengers to enter from a hillside above the platform, the **Sapperton** Station (this page) presented the line's most challenging site. Within view of a trio of high train bridges from three different eras, it also offered splendid inspiration. Architects James Hancock and Thomas Anielski designed an allée of treelike, tubular-steel columns running between the train tracks. As the first station to be designed, contract drawings were done on speculative budgets, necessitating a late-hour switch to a brutal, weathering-steel substructure and a disappointing, box-truss pedestrian bridge. Artist Alan Storey's pedal-operated zoetrope, between the tracks, offers a winning distraction.

Columns branch into cantilevers to support twin, arching canopies (above). A second, higher canopy echoes the lower with inverted arches that cover the upper entry (top).

easy reach of vandals resulted in a number of hybrid structural systems that became what Hart describes as "dialogs of steel and wood."

Commentary

Project chief John Eastman estimates that the additional cost devoted to the individualized station architecture was about 2 percent of the total. Too bad the company didn't apply a similar formula to the 16-mile-long flub that is the guideway. It is built with all the elegance of the freeway flyovers for which it was developed—a sad step backward from the comparatively elegant guideway of SkyTrain's earlier segments.

For the passenger on top, though, the system blends function and pleasure. VIA's integrated system of signage, lighting, and conduit nicely coordinates station wiring along with passengers' needs. Unfortunately, because specifications were delivered late, not all the station architects were able to incorporate the armatures gracefully. In several of the more finely detailed stations, they appear to have wandered in from a different transit line.

The provincial government's obsession to complete the line under budget—motivated by the simultaneous government boondoggle on a "fast ferry" project—took its worst toll on the stations' urban design. As RTP proudly turned back an estimated $50 million, the architects cut back entrance canopies and saw their detailing of adjacent passenger drop-offs and landscaping suddenly evaporate. In the end, the stations vary in how well they function. Problems ranging from heat gain to weather invasion have already required sometimes clumsy modifications. Yet, as an ensemble, the group achieves Stewart's goal of diversity and contextual responsiveness.

With its relative absence of any large, dominating firms, Vancouver has built a rich history of collaborative performances on large projects, among them the University of British Columbia, Simon Fraser University, and Expo 86. With its "civic rooms," the Millennium Line adds an important new chapter to this text. ■

VIA Architecture

Besides master planning the Millennium Line, VIA Architecture designed a trio of stations, under the leadership of partner Graham McGarva. At **Commercial Drive** (below), the designers successfully smoothed a potentially awkward connection between the old and new SkyTrain lines. A procession of bridges and softly curving canopies nicely leads riders by means of sight lines rather than signage over a busy thoroughfare and through a retail center that has become a lively piazza.

Two other VIA-designed stations bookend a future shopping district. Playfully nicknamed "Romulus and Remus" by the firm, the **Renfrew** (bottom) and **Rupert** (top) Stations offer gently arced metal platform roofs undergirded with glulams (in one cantilevered, in the other as beams) on subtly varied tubular-steel supports.

The VIA team also designed what Hart calls "elements of continuity," deployed at all the stations: signage, lighting, tiled waiting areas, stairway handrails and treads. The idea was to deliver essential information predictably and make wayfinding easy within the highly varied station designs.

The Commercial Drive Station navigates a vertical separation of 50 feet (near right). A system common to all the stations, also designed by VIA, integrates platform signage and lighting (far right). The inviting night lighting at the Rupert Station (above) conveys an image of security. Cantilevered beams subtly distinguish Renfrew (below) from its sister station.

McNamara Terminal
Detroit Metro Airport, Romulus, Mich.

4

SMITHGROUP TRANSFORMED AN OLD AIRPORT INTO A HUGE NEW TERMINAL THAT SERVES AS A WORLD GATEWAY FOR A RESURGENT DETROIT.

By John Gallagher

Project: *McNamara Terminal/Northwest World Gateway, Detroit Metropolitan Airport*
Architect: *SmithGroup—David R.H. King, FAIA, lead design architect; Wayne Bills, AIA, project manager; Jim Luckey, AIA, design architect; Mark Pipas, AIA, project architect; Tom McCarthy, aviation planner; Paul Culpepper, Ravi Dhyani, David Hoffman, Maureen Greenway, Paul Johnson, Frank Muehlenbein, Richard Skowron, Frank Weber, design team*
Owner: *Wayne County*
Developer: *Northwest Airlines*
Consultants: *Geiger & Hamme (acoustical); Mills/James Productions (passenger tunnel systems integrator)*
General contractor: *Hunt Construction Group*

Size: *2 million square feet*
Cost: *$650 million*
Completion date: *February 2002*

Sources
Metal curtain-wall panels: *Centria (installed by Crown Corr)*
Glass curtain wall: *American Glass & Metals*
Aluminum windows: *Moduline Vistawall*
Glass in tunnel: *Viracon Foxfire*
Resilient flooring: *Armstrong*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

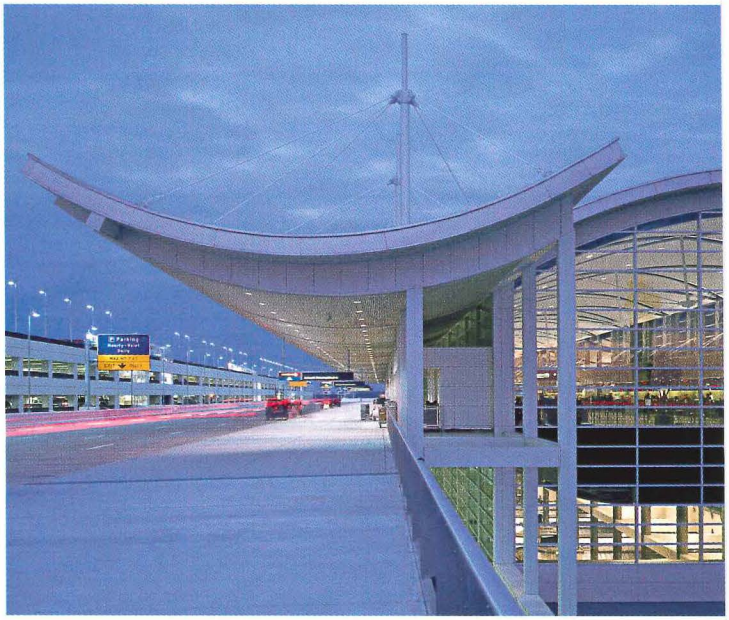
Back in the high-flying 1990s, U.S. airlines saw no end to their growth. Since then, recession, terrorism, and SARS-related travel fears have grounded their soaring expectations, at least for now. But not before Northwest Airlines, the nation's fourth-largest carrier, completed a new terminal at its biggest hub, Detroit Metropolitan Airport.

When Detroit Metro's old Davey Terminal was shiny new in 1966, the airport handled 4 million travelers a year. By 2000, annual passenger traffic had swelled to 35 million, and Northwest was carrying 75 percent of the load. For many years, the airport, run by the local Wayne County government, coped with growth by building one concourse after another off of the existing terminals. Those snaking concourses created long walks and lengthy connection times. By the mid-90s, enough was enough. Cramped, inefficient, and woefully overcrowded, Northwest's biggest hub needed a complete overhaul.

Program

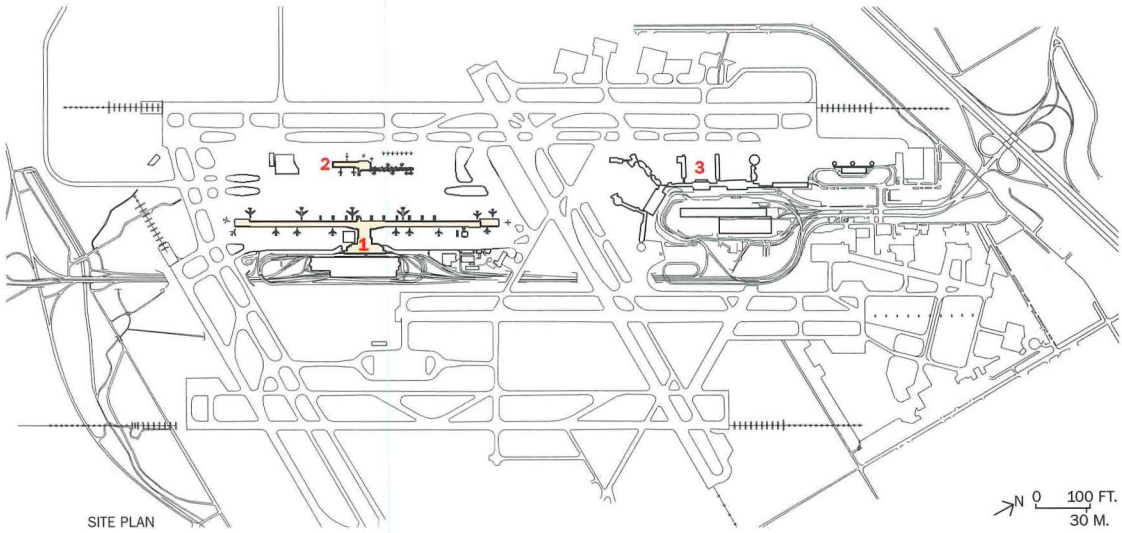
Not just another concourse, the new terminal had to serve as a connecting hub, a place where close to two thirds of all passengers flying in and out merely changed planes, never leaving the building. Many connecting airports send passengers

John Gallagher is the architecture critic for the Detroit Free Press.



he east concourse (left
ı photo opposite, top)
xtends for nearly a mile
nd has 64 gates, while
he shorter west con-
ourse (right in photo
pposite, top) has 33
ates. The drop-off
anopy (opposite, bot-
om) and curving ceilings
below) evoke images of
vings and flight.

1. *East concourse*
2. *West concourse*
3. *Existing concourses*



SITE PLAN

With ceilings rising as high as 70 feet and a diagonal king-post truss system that allows structural spans of up to 87 feet, the terminal's interiors (this page) feel spacious and offer long views that help passengers orient themselves. An overhead tram runs in the terminal itself (opposite), rather than between terminals, making connections between gates faster.

scurrying from one concourse to th next, as Detroit Metro used to do. Northwest wanted the connections to be as seamless as possible.

Moreover, the airport needed to be built on a grand scale. As the leading U.S. carrier to Asia and a big presence in Europe, Northwest required gates to service jumbo jets overseas, as well as ones to handle its millions of domestic passengers.

Northwest also wanted the new terminal to showcase the airline as a major player and likely survivor in an industry that, even before 9/11, was facing brutal competition and consolidation.

Finally, the terminal had to function as a gateway to Detroit, a proud city emerging from a long economic night with a number of major building projects.

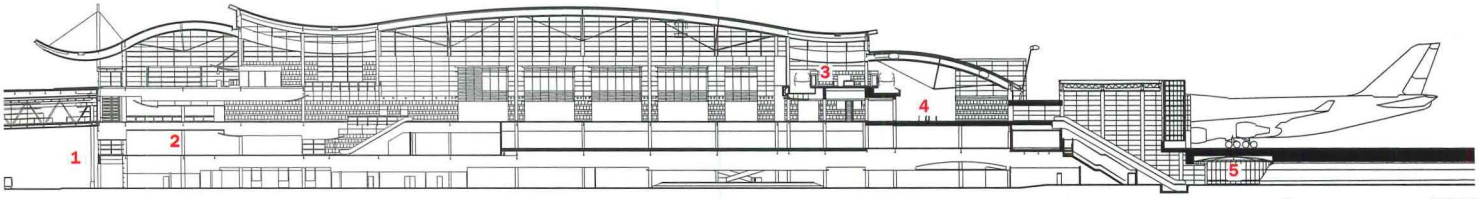
Solution

Detroit-based SmithGroup created a mile-long main building and a shorte parallel concourse connected by an underground pedestrian tunnel. With nearly 100 new shops and restaurants, high ceilings, and expansive sight lines, the design creates the sort of dramatic space that both Northwest and Detroit sought. SmithGroup centered its design on simplicity and restraint, using neutral colors, great expanses of 18-foot-tall windows, and wing-shaped ceilings that rise as high as 70 feet. A diagonal king-post truss system allows structural spans up to 87 feet, resulting in a column-free space that offers long views through the building and helps passengers orient themselves.

Combined with a new entry road and garage, the new terminal transforms Detroit Metro Airport. The older terminals now provide more room for other carriers and will be renovated over time.

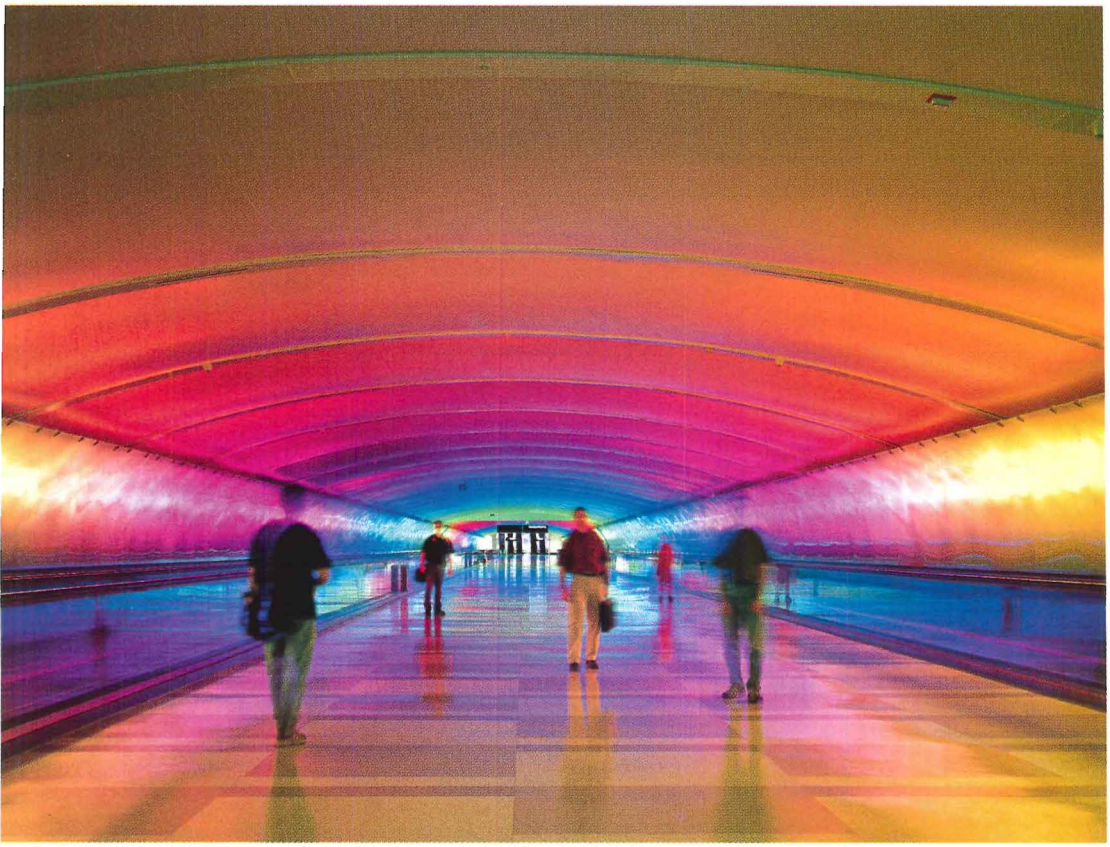
Set in the airport's midfield area with runways on either side, the new terminal with the adjoining entry has 64 gates, 106 ticketing positions, nearly 100 e-ticket machines, and a three-stop overhead tram to speed passengers between connections. The smaller west concourse has 33 gates. An

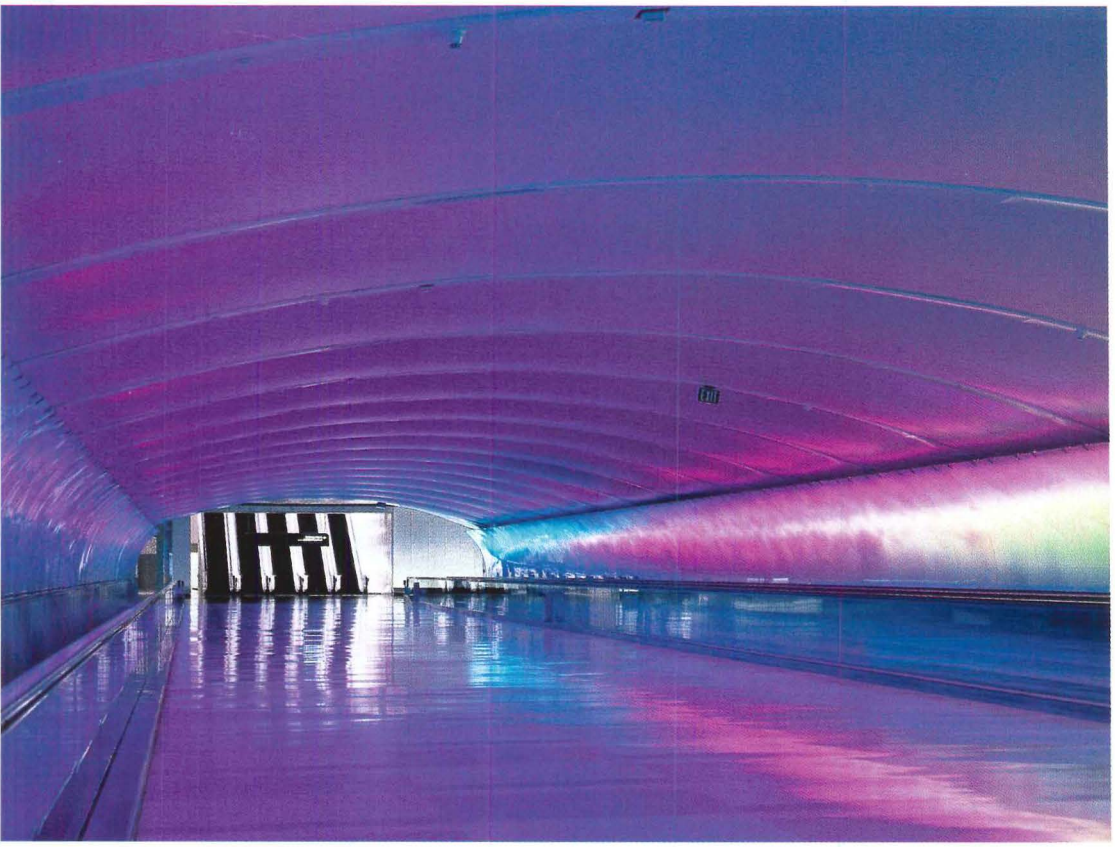
1. *Landside entry/drop-off*
2. *Ticketing/check-in*
3. *Tramway*
4. *East concourse*
5. *Tunnel between concourses*



Γ SECTION

An 800-foot-long pedestrian tunnel runs underground between the two new concourses and comes alive with a colorful, continually changing sound-and-light experience (below and bottom).





800-foot-long tunnel connecting th east and west wings offers a chang ing sound-and-light experience.

The new terminal includes some 9,000 Eames-designed seat with polished aluminum frames an vinyl sling seats and backs. It also has more than double the number of security checkpoints of the old terminal, a measure that has proved more important since 9/11.

Operationally, dual taxiways allow aircraft to move more effi- ciently on the ground, and gate flexibility provides for 10 wide-body 62 domestic, and 25 commuter ai craft. Northwest's old hub operatic had just four luggage carousels; th new terminal includes 11 domestic and 7 international carousels. In th main concourse is a 39-foot-wide, black-granite water feature with choreographed jets of arcing water designed by WET Design.

The 2-million-square-foot terminal complex cost $1.2 billion overall, including $650 million in construction costs, and took four years to complete.

Commentary

SmithGroup has produced the first airport of the aviation industry's second century. Connecting passer gers face an easy walk or tram ride from gate to gate and enjoy plenty of visual stimulation along the way. The terminal's enormous capacity should prove adequate for years, even after passenger totals start trending upward again.

With so many passengers never leaving the building, SmithGroup made little pretense of creating a fancy wrapping for the terminal, facing it in nondescript off white panels. Then, too, those pas- sengers who begin and end their travel in Detroit face a somewhat cumbersome walk down to baggage claim, back up to the ground trans- portation area, and into a truly mammoth parking garage.

Quibbles aside, one can only hope Northwest rides out the indus try's current economic woes. It would be a shame to create such a state-of-the-art building and then not be around to enjoy it. ■

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LOOKS ARE STILL EVERYTHING.

Straddling a near-vertical hillside, the Petersen Events Center brings order to its setting with a beautifully sweeping five-story asymmetrical lobby. Designs like this require all of an architect's ability to handle space and mass. This time, it also required a call to a member of the *PPG Certified Fabricator*℠ Program.

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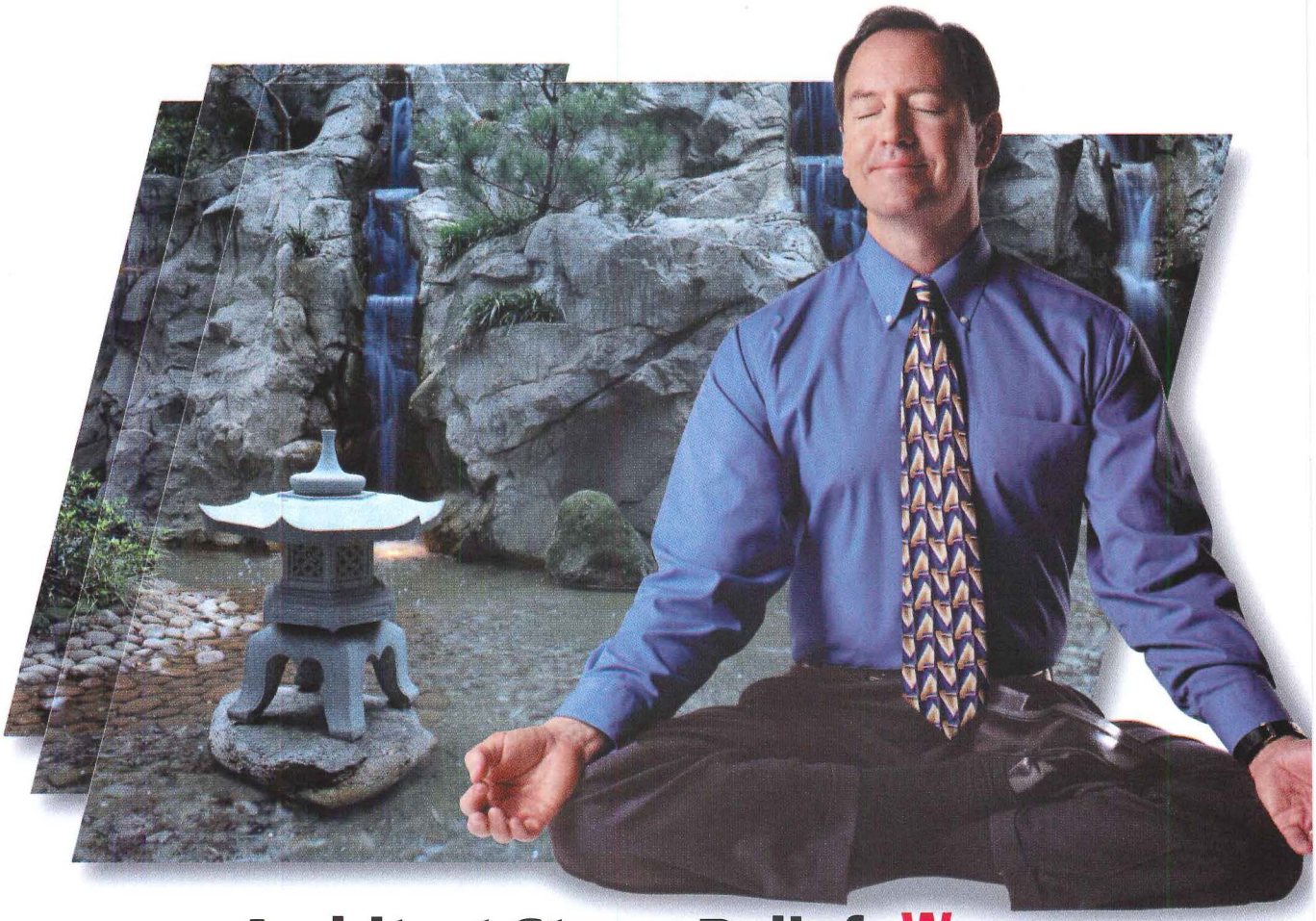

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New Directions for an Old Building Type

THE DESIGN OF LABORATORIES AND TESTING FACILITIES HAS EVOLVED SINCE THE DAYS OF THE MAD SCIENTISTS AND THE BUBBLING BEAKERS. NOW THEY LOOK AND FEEL MORE LIKE BUSINESSES

Barbara Knecht

Certain specialized building types in the 20th century tended to follow a programmatic formula, with form strictly following function. This was particularly true of scientific laboratories and testing facilities. The 21st-century lab, however, demands ore flexibility, as its functions constantly change and new technologies ake its design less prescriptive. The following projects show just how ried and complex the laboratory building type has become. Each archi- :t was confronted with a different challenge, ranging from officelike xibility (SmithGroup's Genentech Hall) to energy conservation and stainability (Kiss + Cathcart's Smithsonian Tropical Laboratory) to new rthquake-testing technology (Simpson Strong-Tie's testing facility).

ıb as office building

:nentech Hall is the flagship research facility (434,000 square feet) of the ıiversity of California, San Francisco's (UCSF) new campus. It is also e first building to go up at Mission Bay, a 303-acre development site on e edge of San Francisco Bay south of downtown. With well-tested plan- ng concepts and the advantages of new construction, the San Francisco fice of the national firm SmithGroup has designed a highly flexible ilding. "We used a planning concept that we came up with 10 years ago r a renovation of UCSF's old building. Other architects have improved in subsequent renovations, and we have updated and improved it again this new building," explained SmithGroup's senior vice president, illiam L. Diefenbach.

Until recently, lab floor plans were fixed by the location of lab nches with a power, water, and compressed-gas infrastructure servicing em. Reconfiguring them was costly and time-consuming and not ıdertaken lightly. Now, of course, scientific research evolves at such a lightning pace that change must take place often and quickly. The composition and work content of the research teams fluctuates regularly. As Diefenbach observed, "When we began planning this project five years ago, no one knew exactly which scientists would move in, or what proportion of rooms would be needed." With flexibility an imperative, the key to flexibility became repetition of the module, the infrastructure, and the casework.

In other words, it needs to resemble more closely an office building, with easily recognizable open-plan areas and a few fixed elements. Of course, it isn't that simple. The interdisciplinary and specialized nature of the biomedical work in Genentech Hall still calls for substantial equipment and heavy infrastructure. Requirements for water, power, compressed gasses, data, and telecommunications vary widely. Minor changes are a routine occurrence; reconfigurations are frequent.

An open stair in the light-filled atrium at Genentech Hall is meant to encourage social interaction.

rbara Knecht is an architect and writer based in New York City and Boston.

CONTINUING EDUCATION

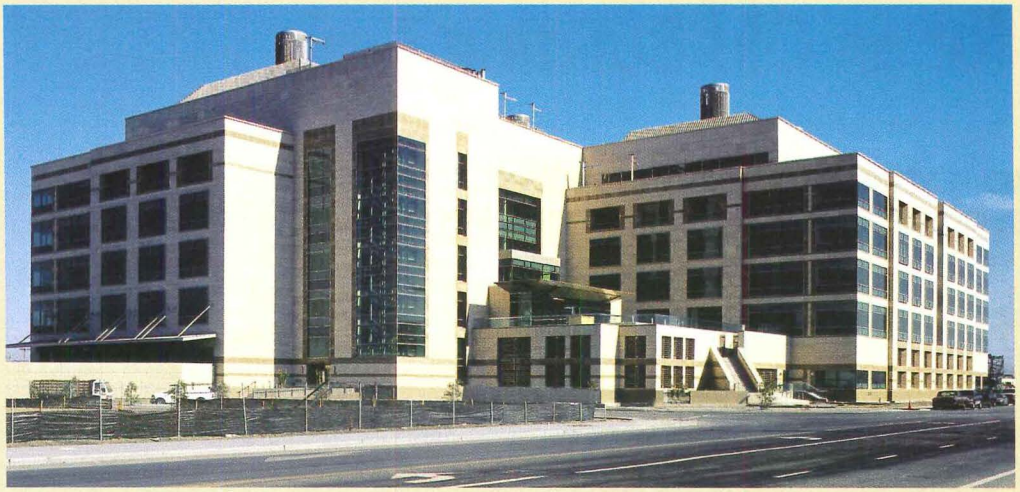
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 152 and follow the instructions.

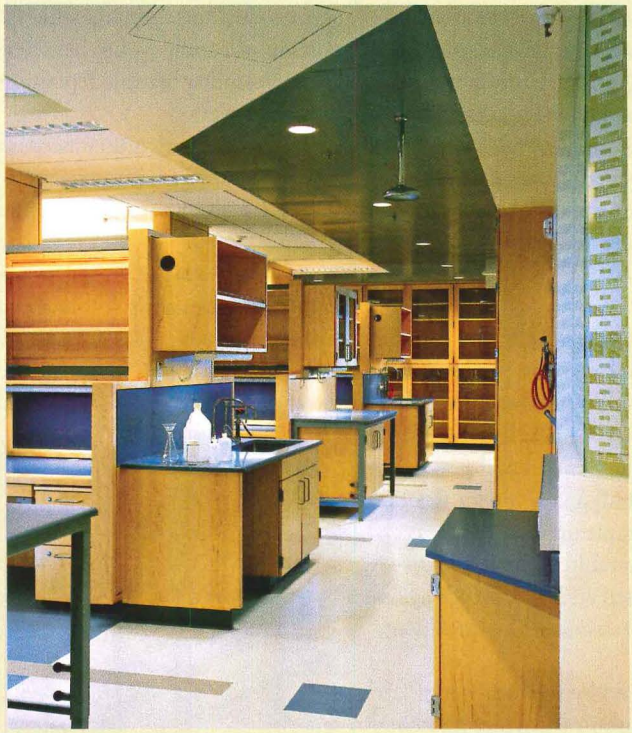
LEARNING OBJECTIVES

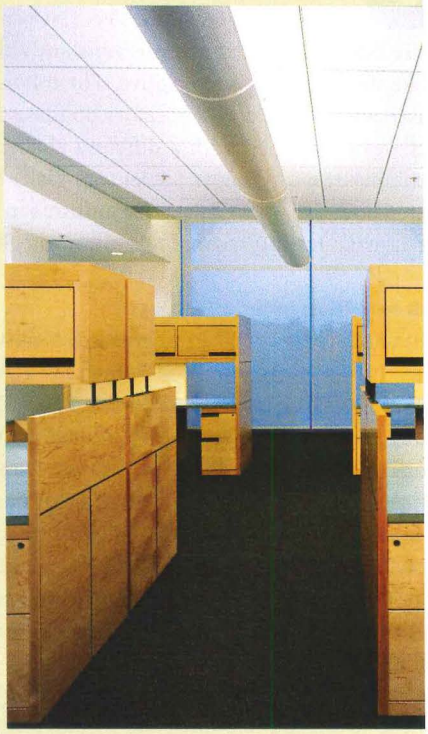
After reading this article, you should be able to:

1. *Discuss what is necessary to make laboratory layouts flexible.*
2. *Explain how to make use of passive environmental controls in a tropical climate.*
3. *Describe how earthquake testing is being done for wood structures.*

r this story and more continuing education, as well as links to sources, ıite papers, and products, go to **www.architecturalrecord.com**.







Genentech Hall, San Francisco, California
This biomedical research facility (left) is organized around a 12-foot-wide circulation corridor, which separates two wings, each housing two suites (see plan, opposite). Closed support labs (bottom left and right) lin the U-shaped cor and can easily be reconfigured to a modate a variety functions. Utilitie in the ceilings, wi umbilical connec to the lab benche skylight (opposite floods the entran atrium with light.

At Genentech Hall, there are more fixed elements, to be sure, than in an office building, but conceptually the organization is similar. The basic lab planning module is 10 feet 6 inches, with modular work benches and frequent infrastructure connections. The organizational module is a lab suite 110 by 110 feet, containing open and closed labs, an office suite, and an open space for informal interaction. "That module is the footprint of the old building, but it works so well for the university that it became the planning unit of the new building," says Diefenbach. That 110-by-110-foot module is flipped, rotated, and/or stretched to form all the lab work areas in the new building.

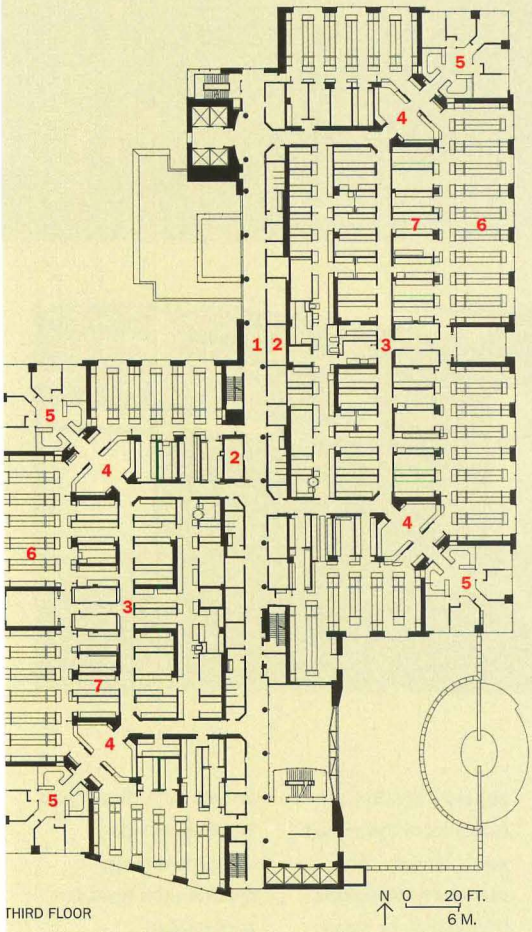
The building is organized along a generous 12-foot-wide, east-west circulation spine anchored by public spaces on either end that link to the surrounding street and campus. Lining the spine on both sides are similarly dimensioned zones of building support that carry all the vertical chases, risers, exhaust, toilet rooms, janitor closets, and bike storage. The first floor and half the second floor are special functions. Lab wings fill the rest of the building to the north and south of the spine. Each lab wing is divided into two lab suites roughly equal to that original 110-by-110-foot module.

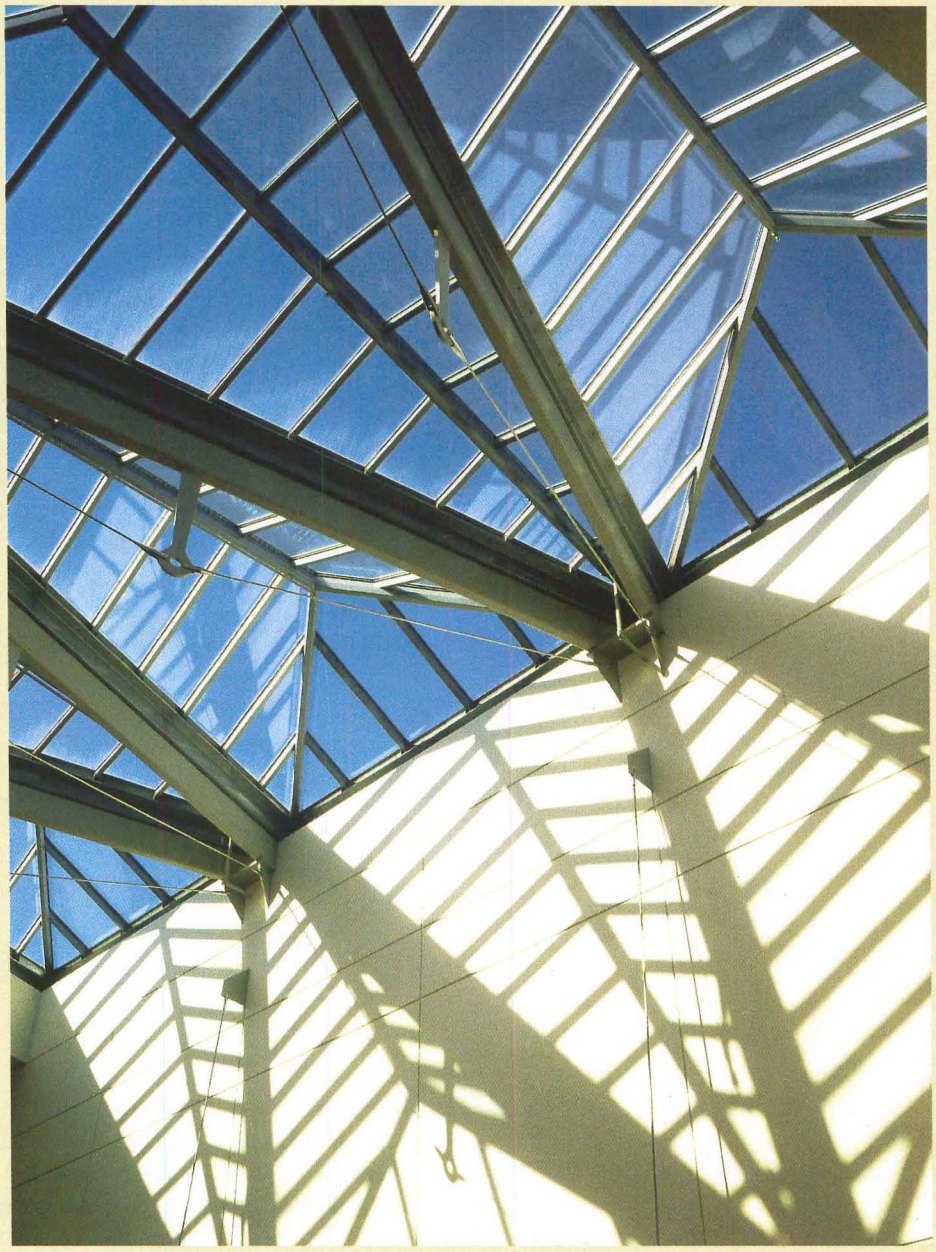
Each suite is entered at the corner of a U-shaped corrid connected to the spine. The entrance leads through an inform library/meeting/lunch space across a corridor, which leads to labs a into the office suite that occupies the corner of the building. Open la line the exterior walls on either side of the office suite; closed suppo labs line the interior U-shaped corridor. The organization of the mo ules, with lots of socializing spaces, wide corridors, and varieties public spaces, support the lively interactive nature of the research a teaching environment.

Utilities run in the ceiling, with umbilical connections every feet 6 inches to the lab benches. The custom-designed modular l benches are 15 feet long with an office workspace at either end. The offi space is separated from the lab bench by a vertical support that isola spills, carries the utility connections, and supports the shelves over t benches. The utilities run horizontally through the lowest shelf, behi the task lighting. Every other bench is left completely free to be mov around or to be removed and replaced by floor-mounted equipment.

These open-plan lab spaces can often be reorganized by t

12-foot-wide spine
Building utility zone
Lab wing comprising two equal lab suites
Meeting/lunch/library space
Office
Open labs
Closed labs





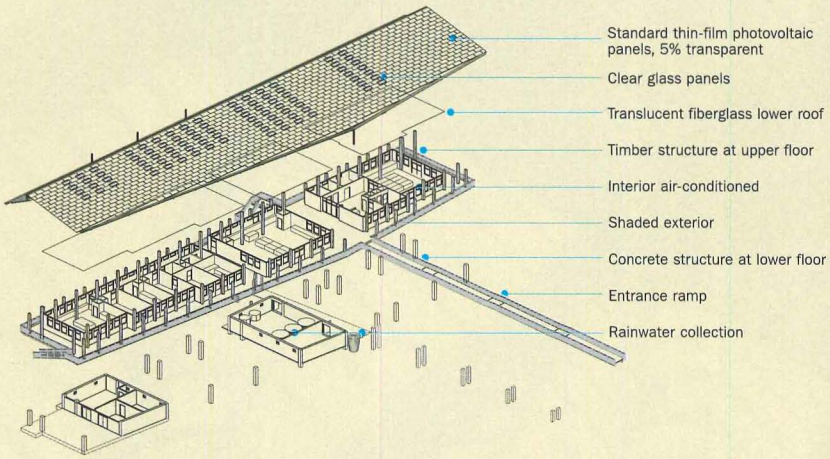
ientists themselves. They move the lab benches and replace them with quipment. Every other lab bench has a clerestory window from the top the bench to the underside of the ceiling to provide separation between orking teams. These groupings can be expanded or contracted easily, the windows are simply attached into a frame with four pins. More tensive reworking of the space might require tradesmen, but this too is sily and economically accomplished because valves and stubs make nnections and shutoffs of small sections of the building possible. ltimately, if needs change so significantly, entire floors could be com-etely gutted back to the spine corridor and reconfigured.

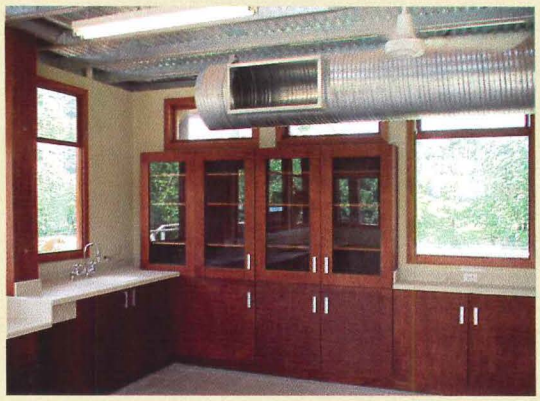
The success of the planning concept was tested when it came me for move-in during the spring of 2003. The underlying scheme was le to accommodate an infrastructure-dense biochemistry lab and an frastructure-light computational lab with very low modification costs d time. Support labs are similarly flexible. In one case, all the cabinet-ork was removed and a "freezer farm" was installed. "The trick to exibility like this is to figure out how to balance the least up-front cost ith the most flexibility," says Diefenbach. "There is some increased cost of using more valves instead of a stub and cap. Similarly, there is some incremental cost to the movable lab benches. But the advantages in flexibility and in renovation costs compared to these first costs is significant."

A passive and aggressive solution

The Smithsonian Tropical Research Institute's (STRI) Bocas del Toro field lab, designed by New York City firm Kiss + Cathcart Architects, sits as close to the water as Genentech Hall. But there is no similarity between the tropical environment of western Panama and the urban San Francisco Bay Area. At 10,000 square feet of indoor space and an equal amount of outdoor space, it is a fraction of the size. Like Genentech, however, it accommodates a lively mix of students and scientists. Bocas del Toro is one of number of Smithsonian field stations where visiting researchers come to study marine and terrestrial life from the mangrove swamps, the ocean, and the freshwater pond that surround the building. In this complicated environment, this project took on the challenge to construct an environmentally sustainable building.

"Bocas is one of those magical places that is on the edge of





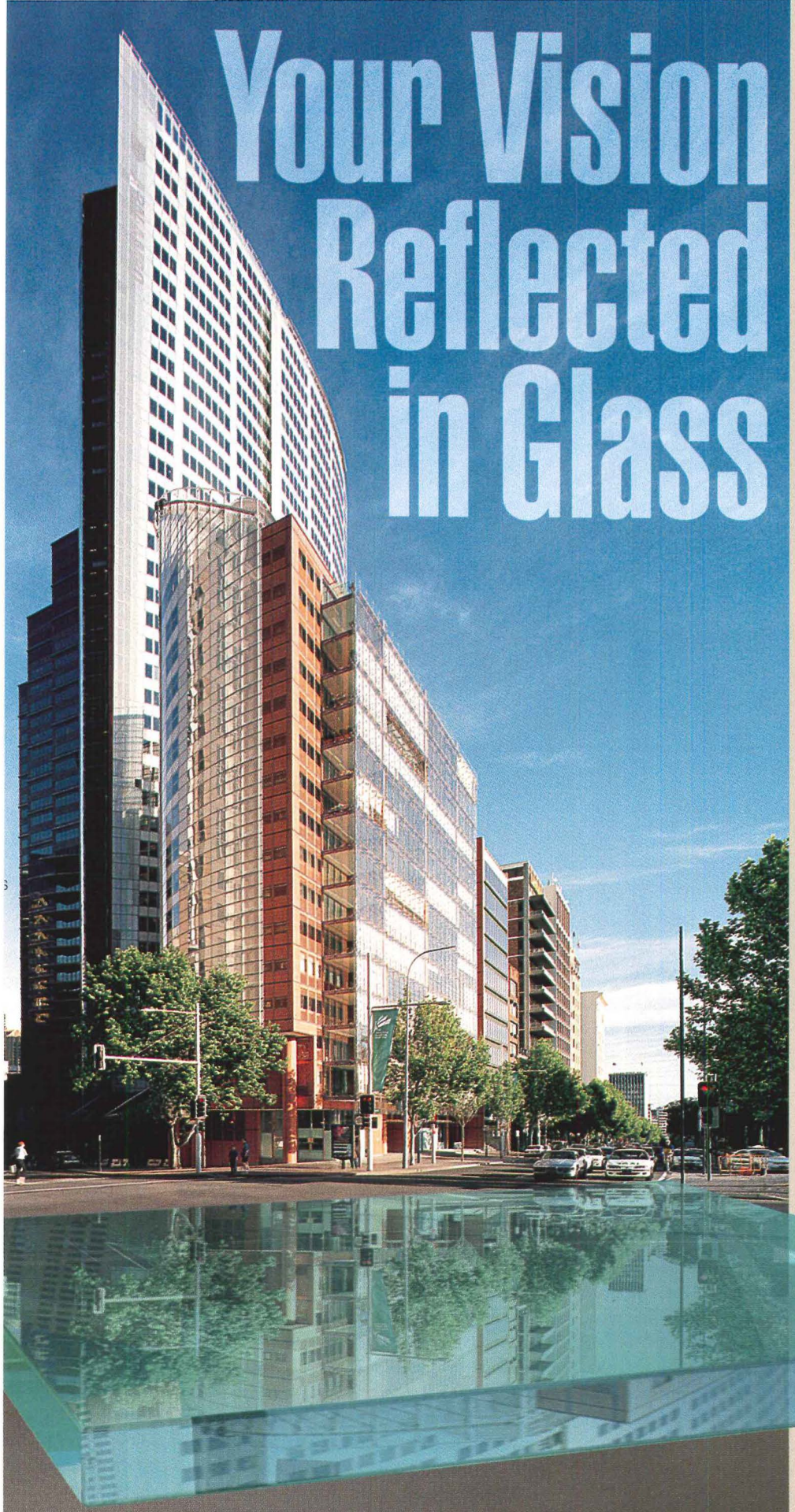
Smithsonian Tropical Research Institute, Bocas del Toro, Panama At this field station (above), visiting researchers study marine and terrestrial life. The double roof consists of a flat translucent lower roof and a pitched roof made of photovoltaic (PV) and clear glass panels for natural light. The PVs provide enough power to preclude the need for a generator.

accessibility. There's really no infrastructure, and we really do have a responsibility to demonstrate a more sustainable way to build in the landscape and the climate," explained Sheryl Kolasinski, AIA, director of the Office of Project Management at the Smithsonian Institution. "We have been working with the Department of Energy to take advantage of funds they provide for photovoltaics (PV) and other sustainable things that are considered 'extras' for government agencies. That, advocacy from our own design department, and interest from the management of STRI to move beyond the concrete box structures that have been the common denominator of our buildings in Panama led to a set of design principles for sustainability to guide the design of this building."

"We have a commitment to work toward buildings that will have zero impact on the environment," says Greg Kiss, "and this building is the closest we have been able to come so far." The site, at 9 degrees from the equator—adjacent to a mangrove swamp and an alligator pond—is warm, rainy, humid, and remote from utility infrastructure. The challenge was to make as much use as possible of passive environmental controls in a climate and building type where air-conditioning is the usual means of preventing things from molding and equipment from malfunctioning. The respons include natural cooling, water recycling, and power generation.

In a nod to local traditions, to minimize impact on the site, ar to take advantage of naturally cooling breezes, the building is raised o the ground. It is long and narrow with substantial overhangs for cro ventilation and to shade the windows. Of course, these would be usele benefits even if this were a typically air-conditioned facility. But th building has multiple zones, operable windows, and ceiling fans. Tl well-shaded verandas surrounding the building and individually co trolled zones give scientists the option of working inside and outsid which is desirable for specimen collection and study.

The Smithsonian hasn't been able to implement all the "off t grid" energy solutions. The budget was extremely tight, and first costs a still higher than conventional solutions; therefore, some features will l phased in as funds become available. But the concepts are exemplary, ar it will be environmentally and financially valuable when completed. Tw parts of the water-management system that will be delayed are the rai water storage tanks and composting toilets. It rains some 225 inches



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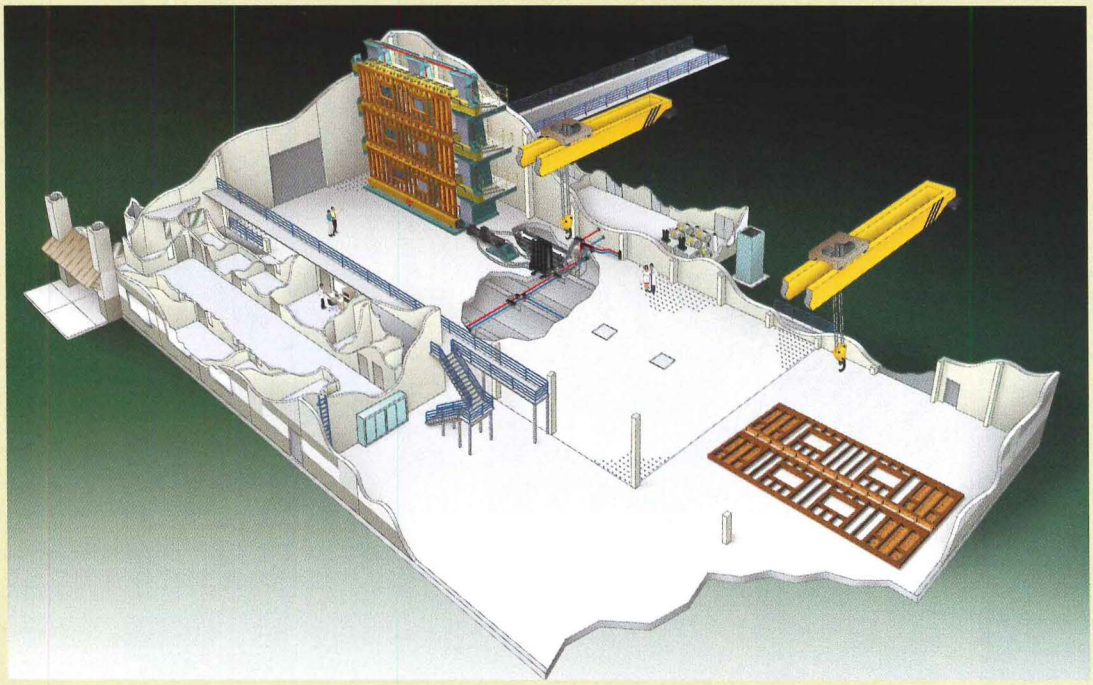


Tyrell Gilb Research Lab, Stockton, California

Full-scale sections of wood-frame construction are studied using a shake table (above). The section is bolted to the table, and mass is provided by an adjacent tower structure. Each platform in the tower has carts, or boxes, which are attached to the wall section by horizontally mounted, triangular plates. Called "A arms," the plates simulate the dead load of the structure without increasing its stiffness.

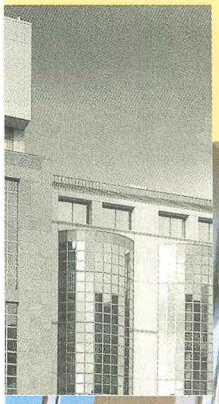
year, and the water is purer than municipal supplies, so it will be easily treated and recirculated. Composting toilets will distribute waste to an engineered wetlands that uses plants, animals, insects, and bacteria to digest the nutrients in the waste. The fact that the lab doesn't permit the use of any toxic chemicals makes this alternative particularly attractive, as there is no need for a secondary chemical drainage system.

The roof is a particular success story. It combines active and passive systems to reduce cooling loads, provide natural light, and produce electricity. As a double roof composed of a flat translucent fiberglass roof that encloses the air-conditioned space and an upper pitched roof of PV and clear glass panels, it minimizes direct solar gain. "Photovoltaics are the best energy source there is," says Kiss. "There are no negatives except cost. The trick is to make the cost of the PV roof approach the cost of a conventional roof." The key to reducing the costs is Building Integrated Photovoltaics (BIPV), that is, where the photovoltaics are the watertight roof instead of an addition to the roof.

"This roof uses the lowest cost (thin film amorphous silicon) cells in a standard product that we adapted so that it would need no significant additional framing or structure in order to function as a wate tight roof," explains Kiss. "We worked with TerraSolar, a Brookly manufacturer, to develop a panel with a custom aluminum extrusion. functions as a shingle that is screwed directly to the structure, and subs quent panels fit into the extrusion of the one above." The power generate by this roof saved the cost (and noise and pollution) of supplying pow by a freestanding generator.

Building with the shakes

The Tyrell Gilb Research Lab in Stockton, California, is intriguing not f its response to functional, spatial, aesthetic, or environmental requir ments, but for its pure solutions to engineering dilemmas. And th includes what goes on in the building, as well as the building itse Simpson Strong-Tie, a company that designs and manufactures structur connectors and related products, has created a structural-engineering ar research lab to test the performance of large-scale, wood-frame structur in response to high winds and strong earthquakes. Opened in July 2003, features large, heavy equipment and a massive foundation to support



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In January 1994, the 6.7 Northridge earthquake struck in the heavily populated San Fernando Valley near Los Angeles. The $20 billion damage to multistory, light-wood frame construction was staggering, outstripping by far the losses of any other single type of construction. The enormity of the loss highlighted a need for more testing of how wood and light-frame structures perform. "Earthquake testing exists primarily in university settings, but it usually focuses on concrete and steel, not wood and light frame," explained Steve Pryor, Simpson's building systems research and development manager. "Northridge provided the impetus for the Federal Emergency Management Agency (FEMA) to invest $7 million through the state of California over four years to study wood-frame construction." The new Simpson Research Lab grew out of Pryor's observations about testing methods and the company's expectation of product improvements. "We will use this facility to develop better products. We will be able to study how things currently work, to better understand the weak points and how to address them cost-effectively to mitigate damage in a building," says Pryor.

There are large pieces of equipment that perform two kinds of tests. A wall section is bolted to a support frame and a computer-controlled hydraulic actuator tests the strength characteristics of the wall by pushing and pulling it to failure. Sensors allow the computer to record measurements 1,000 times per second.

The most realistic test of how a structure will react to ground motion is shake-table testing. Pryor explains that usually a full-scale structure is constructed for shake-table testing. However, in order to measure cause and effect, the table moves the structure in only one direction at a time. "One-directional testing is done for research; three-directional testing is done for 'proof of concept.' We developed a unique shake table that will simulate a full-building response with only a wall section, which can be built much more quickly. By reducing the overall experiment preparation time, we can learn at an accelerated rate."

What kind of a foundation can resist all that weight and motion? Pryor explains, "The structures we are testing may weigh 60,000 pounds and the equipment is 40,000 pounds. The rule of thumb says that mass wants to push against something with 100 times its weight, or 10 million pounds! The 'strong floor' to support the equipment is 60-feet long supported at the edges and three interior points with walls 1 foot thick that are supported by a 2-foot-thick mat foundation. The floor itself is 3 feet thick. Together they provide 10 million pounds of resisting mass and can handle a 300,000-pound point load. In comparison, the largest shake table in the world, under construction near Kobe, Japan, is slicing off the top of a granite mountain and using the remaining mass for its foundation."

These projects are excellent examples of how thoughtful design refinements improve the performance of highly specialized structures, from carving modular lab suites out of office space to applying new technology to ancient environmental concepts. Rather than reinventing the building type, these projects show that architects can negotiate the right design solution through integration, modification, innovation, and finesse. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "New Directions for an Old Building Type" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 208).**
- **Fill out and submit the AIA/CES education reporting form (page 208) or download the form at www.architecturalrecord.com to receive one AIA learning unit.**

QUESTIONS

1. Laboratory floor plans are usually fixed by the location of all except which?
- **a.** benches
- **b.** power
- **c.** lighting
- **d.** compressed gas

2. Why do lab layouts need to be changeable?
- **a.** research evolves at a fast pace
- **b.** research teams are unreliable
- **c.** fast-track building leaves many unknowns
- **d.** researchers want to individualize their space

3. The key to flexibility includes all except which?
- **a.** casework
- **b.** infrastructure
- **c.** single-story buildings
- **d.** repetition of the module

4. For a laboratory to resemble an office building, which is necessary?
- **a.** substantial equipment
- **b.** heavy infrastructure
- **c.** open plan
- **d.** many fixed elements

5. How were the labs at Genentech designed to be flexible?
- **a.** utilities run in the ceiling with connection every 10 feet 6 inches
- **b.** vertical chases line each side of the building spine
- **c.** every other lab bench is movable
- **d.** all of the above

6. How did the Smithsonian Lab use passive controls in its hot, humid climate?
- **a.** they recycled air-conditioning
- **b.** they worked at night
- **c.** they used overhangs and raised the building off the ground
- **d.** they made it airtight to keep hot air out

7. The Smithsonian Lab roof combines active and passive systems to do all except which?
- **a.** produce electricity
- **b.** provide heat
- **c.** provide natural light
- **d.** reduce heating loads

8. Which is described as Building Integrated Photovoltaics?
- **a.** photovoltaic panels are screwed to the roof covering
- **b.** photovoltaic panels form the watertight roof
- **c.** photovoltaics are added to the roof covering
- **d.** photovoltaics are substituted for clear glass panels

9. Why is one-directional testing done for earthquake research?
- **a.** to measure cause and effect
- **b.** to prove the concept
- **c.** to simulate a full-building response
- **d.** to reduce the overall experiment time

10. Why was a research lab created to test the performance of wood-frame structures?
- **a.** because the damage to wood-frame construction from earthquakes was staggering
- **b.** because most earthquake testing focuses on concrete and steel
- **c.** to better understand the weak points of wood-frame structures
- **d.** all of these, and to mitigate damage in a building

Digital Architect

Participatory design with the Internet

By Jonathan Cohen, AIA

The Internet is maturing, and as it does, so too are the ways that architects use it. In the mid and late 1990s, firms scrambled to set up Web sites and e-mail systems for their practices. Since then, architects have come to rely heavily on the Internet to communicate with clients near and far, to thumb through virtual product catalogs, to present their projects to the general public, and to perform myriad other tasks, including the very one envisioned by the Internet's pioneers: building virtual communities.

In these days of far-flung project teams and interested parties spanning the gamut from clients to community activists, gaining consent on projects as they move forward could mean the difference between a lukewarm and an enthusiastic reception. For many practitioners, the Web is proving to be an excellent platform for communication of this sort. Architects and planners say that providing Web sites that solicit comments on proposed projects has enabled them to create interested communities where none existed before. "More and more, citizens expect to have a say in public and private investment decisions that impact the public domain," observes Berkeley-based urban designer Bruce Race, FAIA.

California-based Jonathan Cohen, AIA, is chair of the AIA Technology in Architectural Practice advisory group.

For more information on technology for architects, including reviews, vendor lists, and links, go to Digital Architect at **www.architecturalrecord.com**.

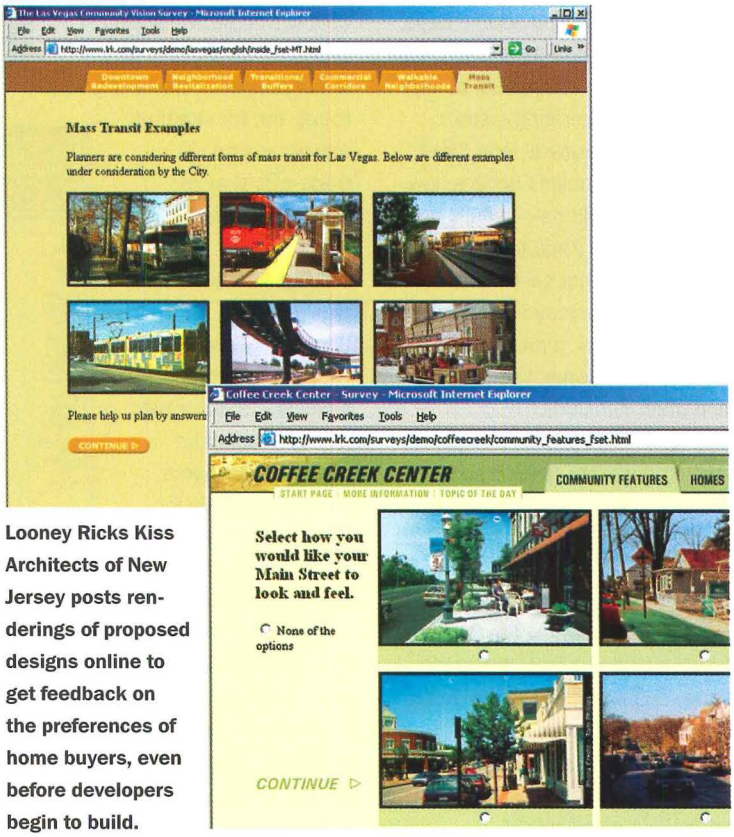
A university weighs in online

Projects for colleges and universities tend be particularly stakeholder-driven, with faculty, students, administrators, alumni, and highly articulate neighbors who are more than willing to make their opinions known. In such cases, the Web is indispensible for consolidating disparate and numerous opinions. In 1999, Simon Ruffle, an architect and researcher with the Martin Centre at the Cambridge University department of architecture in England, worked with colleagues Michael Trinder and the Martin Centre's director Paul Richens to develop a Web-based bulletin board for collecting comments on the design of a new computer-science building. The impetus for creating it came from the faculty at Cambridge, who were loath to attend meetings but insisted on having a way to communicate with the architect.

Once the Web site went live, vigorous debate ensued over everything from bicycle parking to energy-efficiency. Researchers noted that the "finger plan" organization for the building proposed by the architects made circulation among the various labs difficult and suggested a courtyard plan instead. They also thought the private offices were too narrow, at 6.5 feet by 16.5 feet. A computer room originally located along a sunny southern facade was moved to the north to avoid problems with heat buildup.

The success of that experiment persuaded university administrators to take on a more ambitious project: creating an information and consultation Web portal for Cambridge's entire $750 million capital building program, comprising 60 projects spread across four areas of the campus. In developing the portal, Ruffle's first task was to evaluate other participatory Web sites for large-scale urban planning projects. The best sites, he found, had common characteristics: punchy, colorful graphics for conveying broad-stroke planning principles; links to related information, such as transportation and development plans, and local planning agencies and advocacy groups; and tools for interacting with the public, including a systematic method for authenticating and recording public comments.

The Cambridge University site went live in July 2000 and serves about 10,000 pages of content per month. Ruffle used relatively low-tech media for the site, including isometric views constructed by combining CAD files, photographs, and line drawings. He also devised a procedure for converting layered CAD drawings to simple image files viewable in a Web browser without plug-ins; visitors can turn layers of the images on or off to see how the elements of the campus's master plan will be put in place over time. Interactive panoramas of the campus, along with roof-mounted Web cameras, add a sense of presence and immediacy for the online viewer.

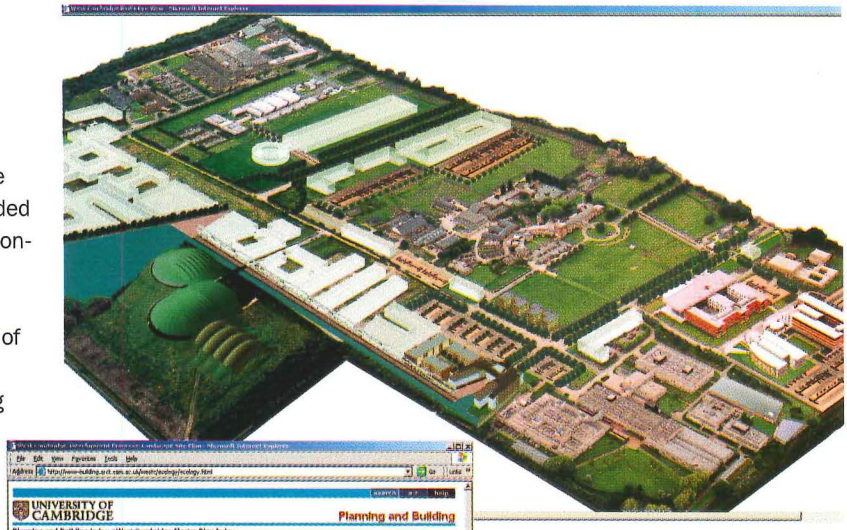


Looney Ricks Kiss Architects of New Jersey posts renderings of proposed designs online to get feedback on the preferences of home buyers, even before developers begin to build.

Creating a custom portal

San Francisco–based McCall Design Group's bread-and-butter work is high-end retail and hotel interiors for national chains, and they needed a Web-based tool for

Digital Architect



A Web site at Cambridge University in England provides the community with interactive access to detailed information about the campus's master plan and building activities.

communicating with their far-flung clients and consultants. After trying several subscription-based extranet solutions, which they found sluggish and feature-bloated, they turned to a free management portal software package called open-source Zope, which runs on both Windows-based and Macintosh computers, as well as the Linux operating system. Senior vice president John Chan, AIA, said he "couldn't believe how powerful it could be—and it's free." He customized Zope to create a design portal that centralizes all project communications, including an issue tracker, management and markup of drawings and sketches, and other functions.

Chan says you have to be "a little bit geeky" to develop such a system in-house, but once completed, it runs at no cost and shares the same server (and some of its content) with the firm's external Web site. Most importantly, the Zope-based portal preserves the firm's image and brand with its distinctive aesthetic. Compared to other extranet solutions, Chan says their homegrown system "allows us to control our own destiny."

What look do you like?

James Constantine, an urban planner and principal with Looney Ricks Kiss (LRK) of Princeton, New Jersey, uses the Web to conduct visual preference surveys for communities as diverse as Las Vegas and Denton, Texas. Building on the pioneering participatory design work of Anton Nelessen, who devised a system for citizens to choose between paired images of urban scenes, these surveys let residents indicate preferences for streetscape and open-space design, and even architectural style. In an intriguing synergy between the firm's planning and architecture practices, LRK leveraged the same technology to assist its housing-developer clients to identify style and feature preferences of potential home buyers, even before preliminary design begins. Such online "focus groups" have provided valuable insight into location-specific market demands. Constantine says, "We're able to find out what kind of [environmentally friendly] features people are willing to pay for, for example, and what kind of trade-offs they're willing to make."

Taking the pulse of the public

Uncertainty about public reaction to proposed projects is a major risk for developers, but the Web has been a promising vehicle for increasing the transparency and efficacy of public consultation in such matters. A truly interactive Web site can help build trust among stakeholders and offers developers a way to anticipate community objections early in the design process.

One such planning tool is Neighborhood America, founded by veteran land-use attorney Kim Kobza. This Web-based system integrates the internal communications of the project team on a development proposal with the public process of stakeholder consultation. As an active participant in many a heated late-night public hearing about proposed development, Kobza was often witness to chaotic planning processes that left developers, activists, and planning agencies equally frustrated. "I knew there had to be a better way to manage communication at a public level," he says.

Neighborhood America provides the Web infrastructure for groups such as Imagine New York, an advocacy effort of the Municipal Art Society to engage the public in sharing ideas and visions for rebuilding Lower Manhattan following 9/11. The Web site records the history of this once-in-a-lifetime process and has become an online gallery for comments and sketches from thousands of participants. When workshops for public comment on nine proposed designs were held in January 2003, about 300 people attended the live sessions at St. John's University, but more than 6,000 others participated and gave feedback through the Web site. Comments and images are fed to a database that can be sorted and viewed online.

Information is power

The Web's ability to offer access to planning tools such as geographic information systems (GIS) and virtual-reality techniques offers a tantalizing vision of an informed and democratic urban-planning process. In England, the Slaithwaite virtual decision-making system, a project of the University of Leeds School of Geography, gave residents of this West Yorkshire village the chance to access and interact with a wide array of social, physical, and environmental information mapped to the familiar terrain of their neighborhood. Users can zoom and pan the colorful maps, ask questions about specific buildings, and then leave comments for the planners.

Like CAD, GIS works with layers called "themes"—data sets that are tagged with information about geographic components, such as census tracts, neighborhood association boundaries, or property-tax assessments. One of the most ambitious online GIS projects is Neighborhood Knowledge California, a project of UCLA's Advanced Policy Institute. Users can map an area by drawing its boundaries online and can even upload their own data into NKCA's mapping system, as when a Koreatown parents group entered the location of child-care facilities in that Los Angeles neighborhood and could see where such facilities were lacking. Tools like this help small businesses and underserved communities bridge the digital divide—one of the highest hopes of Internet visionaries. Professor and NKCA director Neal Richman says, "I'm excited about using this technology to share information, and therefore share power." ■

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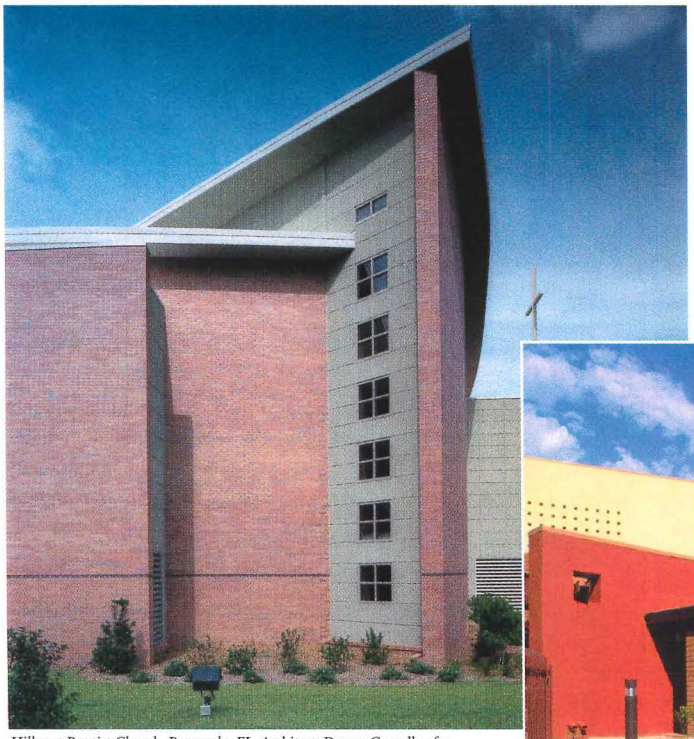
Portland Cement Association



Hillcrest Baptist Church. Pensacola, FL. Architect: Danny Grundhoefer — Quina, Grundhoefer, Royal Architects. Photo by Chris J. Roberts.

La Cascada II. Phoenix, AZ. Architects: Todd & Associates. Photo by Richard Abrams Photography.

RTLAND CEMENT ASSOCIATION PRESENTS

Masonry Mortars: Developing a Quality Assurance Program

Planning produces beautiful structures that last for generations

By Jennifer Grover Prokopy

ITINUING EDUCATION

CATION Use the learning objectives below to focus study as you read Masonry Mortars: Developing a Quality Assurance Program. arn one AIA/CES Learning Unit, including one r of health safety welfare credit, answer the tions on page 165, then follow the reporting uctions on page 214 or go to the Continuing cation section on *archrecord.construction.com* follow the reporting instructions.

RNING OBJECTIVES

r reading this article, you should be able to:

- *ssess an increased knowledge of the properties and es of various types of masonry mortars.*
- *cognize the prescribed standards used to measure the ıality and performance of masonry mortars.*
- *se your new knowledge to develop a masonry mortar ıality assurance program that can be applied to your ture projects.*

Modern Masonry Means More Choices

Masonry is the material of choice for many architects when it comes to building an enduring public image. With masonry units and mortars available in a variety of shapes and a rainbow of colors, architects are limited only by their imaginations. The strength and security offered by modern masonry are attractive to developers of civic structures, creating schools and institutions that are fire-resistant and protect occupants from extreme weather and natural disasters. Solid mass and sound absorption properties make masonry an attractive material for building libraries, museums, theaters and auditoriums. Masonry's aesthetic beauty, longevity and low maintenance make it ideal for nearly any building.

The variety of masonry options means architects must choose their materials wisely, from mortar mix and color to masonry unit shape, size and design. Some of these decisions are made during the specification phase, and others are made in the field during construction. Along with the artistic expression afforded by the wide variety of masonry choices comes the responsibility to address materials, systems, construction requirements and quality assurance.

This continuing education unit will show you how to make informed decisions about masonry mortars. We begin by offering some background on mortars and their properties, and then address the necessary steps in developing a quality assurance program that will ensure your masonry projects are successful. We also examine the role of quality control in the construction process, and clear up some common misconceptions about ASTM testing.

Properties of Masonry Mortars

Masonry mortars perform more than just the obvious function of joining masonry units to form a lasting structure. They create tight seals between the units to protect against air and moisture entry; bond with any steel reinforcement, ties or anchor bolts; provide a desirable aesthetic quality through color contrasts or shadow lines; and compensate for size variations in the masonry units.

Masonry mortars are comprised of three key ingredients: one or more cementitious materials; clean, well-graded masonry sand; and sufficient water to produce a plastic, workable mixture. Until the late 19th century, lime was the primary cementitious material used. Sand-lime mortars took months or years to harden, but were acceptable for the massive projects and slow-paced construction schedules of those times. Mortars began to evolve with the addition of a small amount of portland cement to "sweeten" the lime; by the later 19th century, lime was being used to "sweeten" the portland cement, creating a mortar that hardened faster and stronger.

Today, the most common cementitious materials used to make masonry mortar are:

- Masonry cement
- Mortar cement
- Portland cement and lime

Masonry cement is a factory-prepared hydraulic cement. It enhances properties like board life, workability, water retention, and durability. White and colored masonry cements are widely available, and provide a full palette for architects. Compared to portland cement and lime, masonry cements simplify jobsite production of mortar because the cementitious materials are preblended into a single product.

For more demanding structural applications and in high seismic areas, project planners sometimes specify mortar cement. Like masonry cement, mortar cement is a factory-prepared hydraulic cement, but it is the only masonry material with ASTM-specified bond performance criteria.

No matter what cementitious material is chosen—masonry cement, mortar cement, portland cement and lime, or combinations of portland cement with masonry cement or mortar cement—acceptable results are easily achievable, allowing applicable specifications to be met when appropriate design procedures are followed. Under the proportion specification of ASTM C270, the cementitious material is blended with damp, loose mortar sand at a ratio of 1 to between 2 1/4 and 3 parts (see Table 1).

Desirable Mortar Properties

To ensure good workmanship and proper structural performance of a building, masonry mortars must embody a variety of properties:

Workability. Experienced masons agree that workability is perhaps the most important property of masonry mortar. Mortar should spread easily, cling to vertical surfaces, extrude readily from joints, remain workable for sufficient time, and permit easy positioning of masonry units without subsequent shifting.

	PARTS BY VOLUME				
Mortar Type	Portland Cement or Blended Cement	Masonry Cement or Mortar Cement Type			Hydrated Lime or Lime Putty	Aggregate
		M	S	N		
M	1	—	—	1	—	4 1/2 – 6
	—	1	—	—	—	2 1/4 – 3
	1	—	—	—	1/4	2 13/16 – 3 3/4
S	1/2	—	—	1	—	3 3/8 – 4 1/2
	—	—	1	—	—	2 1/4 – 3
	1	—	—	—	Over 1/4 – 1/2	*
N	—	—	—	1	—	2 1/4 – 3
	1	—	—	—	Over 1/2 – 1 1/4	*
O	—	—	—	1	—	2 1/4 – 3
	1	—	—	—	Over 1 1/4 – 2 1/2	*

Table 1. Proportion Specification for Mortar**

* *The total aggregate shall be equal to not less than 2 1/4 and not more than 3 times the sum of the volumes of the cement and lime used.*

** *Adapted from ASTM C270.*

Notes: 1. Under ASTM C270, Standard Specification for Mortar for Unit Masonry, aggregate is measured in a damp, loose condition and 1 cu ft of masonry sand by damp, loose volume is considered equal to 80 lb of dry sand (in SI units 1 cu m of damp, loose sand is considered equal to 1280 kg of dry sand). 2. Mortar should not contain more than one air-entraining material.

Location	Building Segment	MORTAR TYPE	
		Recommended	Alternative
Exterior, above grade	Load-bearing walls	N	S or M
	Non-load-bearing walls	O**	N or S
	Parapet walls	N	S
Exterior, at or below grade	Foundation walls, retaining walls, manholes, sewers, pavements, walks, and patios	S†	M or N†
Interior	Load-bearing walls	N	S or M
	Non-load-bearing partitions	O	N

Table 2. Guide for the Selection of Masonry Mortars (United States)*

* *Adapted from ASTM C270. This table does not provide for specialized mortar uses, such as chimney, reinforced masonry, and acid-resistant mortars.*

** *Type O mortar is recommended for use where the masonry is unlikely to be frozen when satura or unlikely to be subjected to high winds or other significant lateral loads. Type N or S mortar should be used in other cases.*

† *Masonry exposed to weather in a nominally horizontal surface is extremely vulnerable to weathering. Mortar for such masonry should be selected with due caution.*

Board life. This is the amount of time that freshly mixed mortar retains its desired workability. Board life should be acceptable in both hot and cold weather.

Water retention. Mortar with good water retention not only resists rapid loss of mixing water, but also is more workable and remains so for a longer perio of time. Poor retention often results in rapid stiffening, making weather-tight joints nearly impossible to achieve.

Absorption. The less absorbent the hardened mortar is, the more able it is to resist chemical attack, freeze-thaw damage, and staining.

Consistent rate of hardening. Rapid hardening makes masonry placement mor difficult; slow hardening can impede the overall work progress. A consistent ra of hardening not only allows the mason to work at an optimal pace, but also contributes to greater color consistency.

Durability. A good mortar joint will stand up well to repeated exposure to adverse conditions over the long term, including freeze-thaw cycles or aggressi chemical environments.

Compressive strength. The type and quantity of cementitious material plays a large role in determining compressive strengt increases with an increase in cement content, and decreases with an increase i air entrainment, lime or water. However, higher compressive strength does no necessarily improve the overall performance of the mortar.

Permeability. Related primarily to workmanship and design, permeability is kep to a minimum through care in construction, including proper tooling technique

Bond. Measured by *extent* (degree of contact between mortar and masonry units) and *strength* (the amount of force required to separate units), bond quality is influenced by a number of factors, most importantly workmanship.

Volume change. All masonry mortars experience very small amounts of drying shrinkage as they harden. Good mortar design minimizes shrinkage. Control joi are used to reduce cracking caused by drying shrinkage.

Appearance. The overall appearance of a masonry structure is affected by uniformity of color and shade of mortar joints. Careful measurement of materials, thorough mixing, and proper tooling of joints ensures uniform mortar color.

Choose Your Mortar

The four mortar types—M, S, N and O—are designed to perform optimal in a variety of construction situations. As a general rule, Type N mortar is used for above-grade exterior walls under normal loads, and for interior load-bearing and nonload-bearing walls. Type S is recommended for exterior work at or below grade, specifically on foundation walls, retainin walls, manholes, sewers, pavements, walks and patios. Types S and M are recommended for masonry under heavy loads (such as seismic loads)

r exposed to severe saturated freezing. Type O is applicable for some
:pointing applications. Building codes may contain restrictions on mortar
'pes for different applications.

Use governing standards—ASTM C270 or CSA Standard A179—to specify
ıe mortar that will best fit your application. Indiscriminate use of high-strength
ıortar (Type M) should be avoided; lower-strength mortar such as Type N
ill bring its own advantages in many cases. As a rule of thumb, use Type N
nless there is a structural, mortar-unit compatibility or other reason to
ɔnsider the use of a higher- or lower-strength mortar.

eveloping a Quality Assurance Program for Masonry Mortar

comprehensive quality assurance (QA) program prescribes policies and
:quirements that ensure a project's success for the architect, building team,
ıd owner. While most project contracts clearly spell out strategies for QA,
rategies for specific narrowscope components such as masonry mortar are
ften ill-defined or excluded. In situations where a large number of
rganizations and products are involved in a single project, the importance
f individual components like mortar can be overlooked—with detrimental
:sults—if a QA program is not spelled out explicitly.

When developing a QA program for masonry mortar, expectations of the
wner (both explicit and implicit), as well as general project parameters,
ıcluding the structure's function, environment, budget constraints and life-
/cle considerations, must be taken into account. The establishment of general
uality objectives at the outset of project development is the foundation for
ɔund QA for the overall project and individual components.

reconstruction Planning

ffective building teams count on a good flow of communication. Architects and
ther specifiers should play an active role in the planning process. Preconstruction
lanning should include a full review of all plans by the mason contractor,
ho will submit any changes or corrections in writing to the appropriate
ıember of the building team. Later in the process will come submittals and
ıockups, which confirm the correct choice of materials and the capability
f the mason to produce the desired quality and aesthetics. Finally, scheduling
ıould take into account all components of each phase of construction,
ıd any schedule changes should be communicated throughout the project.

ey Components of a QA Program

/hile QA programs are unique from project to project, there are a number of
;sential elements common to all successful QA efforts. Some of the key elements
:e typically presented in the general provisions of contract documents, while
thers—especially those specific to masonry mortar—must be defined explicitly.

As part of any QA program, quality policies set forth minimum standards
ɔr all materials in the project. Administrative responsibilities and procedures
:e established to ensure a smooth flow of information, and records retention
rocedures keep stored information consistent and easy to manage and locate.
rocedures are established for identifying and implementing corrective action
; part of quality control.

'etting Specific: QA and Masonry Mortars

ı a QA program that monitors use of masonry mortars, procedures for review
ıd approval of submittals must be established.

Submittals (and their subsequent approval) ensure that the specifier's
:quirements are met regarding construction materials and procedures.
lortar submittals should confirm that mortar contains the specified materials,
of the proper mortar type, and conforms to project-specific requirements
ke color, climate considerations, etc. Each project will require a different
vel of documentation, testing and sampling. In general, letters from the
ıanufacturer certifying materials, and from the contractor pledging to
roportion the materials as specified, are sufficient.

Also key to masonry-specific QA is the establishment of quality control
:quirements for masonry mortars, as well as responsibility for evaluation of test
ıd inspection reports. (More information on testing is included later in this unit.)

Quality Control as Part of a Quality Assurance Program

While QA is the overall process that helps ensure a successful project, quality control (QC) is a valuable component of that process, one that compares the quality of work with established standards and dictates appropriate action. There are four key components of QC: inspection, testing, evaluation and corrective action.

A "closed loop" approach forms the basis for effective QC. In a closed loop approach, accountability and reporting ensure that every time a project component is inspected or tested, the results are evaluated and, if necessary, corrective action is taken. Plans are modified and the resulting changes in the construction process are carried out, once again evaluating the results to determine if further action is necessary. The same is true for the construction process itself: the QC continues, with communication about each inspected or tested component traveling in a loop until the evaluated results are acceptable.

Inspection

As the saying goes, "don't expect what you don't inspect." This applies directly to masonry inspections, which are governed by the *Building Code Requirements for Masonry* (ACI 530/ASCE-5/TMS 402). The Code requires different levels of minimum inspection depending on the building use and design procedures. Any agency providing testing and inspection services must be accredited under ASTM C1093, the *Standard Practice for Accreditation of Testing Agencies for Unit Masonry.*

Inspections of volume proportion in masonry mortars provide instant results, so contractors can make changes to the mix on-site and avoid costly problems down the road. An inspector should monitor the proportions of sand to the cementitious material, whether it is mortar cement, masonry cement or a portland cement-lime mixture. Water monitoring will be supervised by the mason, who will adjust water levels to produce the desired level of workability. It is neither necessary nor desirable to limit water content of mortars by specification or inspection as with concrete. A more flowable mortar with higher water content typically provides improved bond and performance over a stiffer mortar with lower water content (made with the same materials). Inspectors also should be familiar with hot and cold weather requirements for masonry.

Testing

Masonry mortar QA programs require testing to perform two functions: to qualify mortar materials, and to perform quality control of mortar. Understanding the difference between these two functions, and the variety of tests performed to achieve each function, will reduce mistakes commonly made in the field.

Qualification of masonry mortar materials must be established prior to construction. Two different aproaches are allowed by the *Standard Specification for Mortar for Unit Masonry* (ASTM C270). One qualifies the materials under property specifications; the other qualifies the materials under proportion specifications. If the property specification method is not chosen, the proportion specification method applies.

For field QC of mortar, inspection is typically the most timely and effective quality control procedure. Observation of batching and mixing procedures provides real time information and immediate corrective action. Requiring use of a volumetric measuring device can improve accuracy of sand proportioning. If desired, field testing as outlined by the *Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry* (ASTM C780) can be used. Some of the prescribed tests measure properties of plastic mortar, but the most effective and reliable tests measure the aggregate ratio and water content of mixed mortar, providing an accurate evaluation of site-proportioned mortar materials.

Misconceptions about the appropriate use and value of ASTM C270 and ASTM C780 cause the most common errors in field testing of mortars, as explained below in greater detail.

Evaluation and Corrective Action

Following the "closed loop" QC process, each inspection and test report should be evaluated, and appropriate (sometimes corrective) action should be taken. Even when results indicate that no corrective action is needed, the reports should be filed according to records retention policies outlined in the QA program.

Corrective action will not always mean a change in materials or procedures; it may at times mean the original criteria is incorrect, and the standards of measurement or the testing procedures must be changed. Working with the building team from the outset of a project, and keeping lines of communication open in all directions, will help reduce situations where major changes are needed.

ASTM Specifications: Their Role in a QA Program and in Quality Control Procedures

Clearly, testing is an important part of quality assurance, and of quality control measures performed on-site during construction. Some common misconceptions about field testing include designating an incorrect test to be performed, or improperly executing a correctly specified test. Properly conducted field testing must be preceded by the correct specifications and preparations, and care should be taken to perform the most appropriate test.

ASTM C270: Standard Specification for Mortar for Unit Masonry

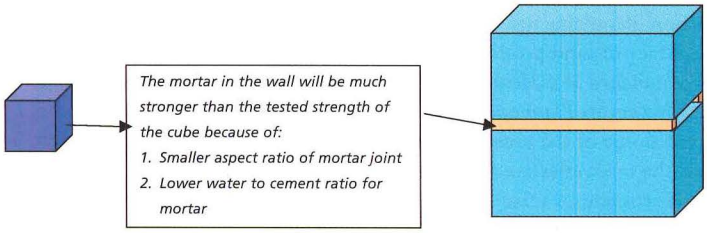
Architects and other specifiers must be familiar with ASTM C270, *Standard Specification for Mortar for Unit Masonry*, the standard that governs masonry mortars. The specification addresses mortars for reinforced and non-reinforced unit masonry structures, and covers the four mortar types: M, S, N and O. (For more information on choosing a mortar type, see Table 2 on page 198.) The specification sets out acceptance criteria for mortars, whether they are mixed using masonry cement, mortar cement, or a portland cement-lime combination.

The standard also addresses two methods of specifying mortars, proportion or property specification requirements. Specifiers must choose one or the other method, never both. If neither is chosen, the proportion specifications apply. If proportion specification requirements are used, no mortar tests are required. The mortar must consist of a mixture of materials meeting proportion specifications outlined in ASTM C270 (see Table 1 on page 198).

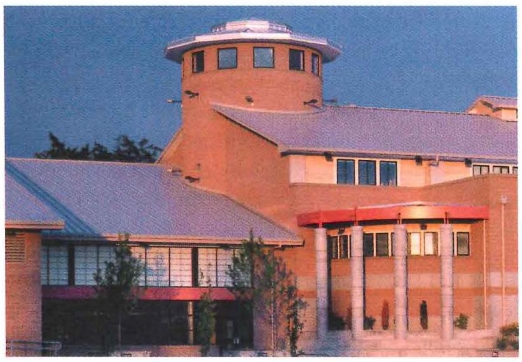
If property specifications are used, mortar compressive strength testing (as well as testing of other properties) will be performed to determine whether the laboratory-prepared mortar meets the compressive strength as outlined in ASTM C270. The mortar is mixed and tested under laboratory conditions with specific mixing procedures, dry sand, exact water proportions, and ideal curing conditions to determine whether the "recipe" that will be used for the field mortar has all the required properties (see Additional Required Reading).

ASTM C780: Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry

A second standard that architects and other specifiers should be familiar with is ASTM C780, *Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry*. The standard provides test methods to ensure that the field mortar meets the recipe that was either selected from ASTM C270 proportion specifications, or determined in the laboratory to conform with ASTM C270 property specifications.



Contrary to popular belief, mortar cube test results do not equal in-place mortar strengths.



Masonry is often the sen choice for schools, offerin versatility, performance, affordability and easy maintenance—not to mention sytle. At North Whidbey Middle School Oak Harbor, Wash., sun plays off the school exter enhancing its rich colors Architects: DLR Group. Photo by Chris J. Robert

Preconstruction evaluation of mortars establishes expected test values for site-produced mortars. Construction-site testing for QC provides a means of evaluating the mortar's conformance with specified proportions or proportio established by laboratory property specifications. When construction-site test is desired, specifiers should use ASTM C780.

Recommended Test Methods

The recommended test methods for field quality control are outlined in AST C780: the mortar aggregate ratio test (Annex A4) and the mortar water conte test (Annex A5). The mortar aggregate ratio test provides a means to "identi measure, evaluate, and control differences which may be expected to exist between laboratory and jobsite mortars." When used together, the two tests provide a powerful QC measure of field mortars, providing an accurate comparison to preconstruction laboratory proportions.

Avoid the Most Common Testing Mistake

One of the most common mistakes made is to test the compressive strength c field mortars (defined by ASTM C780) as a quality control measure and expe conformance with the property requirements set forth in ASTM C270. This i done even though ASTM C780 clearly dictates against the practice:

> This test method [compression testing] establishes testing procedures for determining compressive strength of preconstruction and construction [field] mortars. Strength values for mortars obtained through these testi procedures are not required, nor expected, to meet strength requirements of laboratory specification C270 mortars.

A number of conditions cause compressive strength of field mortar to differ from compressive strength measured in the laboratory under ASTM C270 specifications.

First, mortar mixed in the field will not contain the same amount of wate as the laboratory specimen; standard practices (and ASTM specifications) all masons to adjust water levels on-site to achieve optimum workability. A varie of situations, including environmental conditions that vary from lab to site a from day to day, can result in a difference in water level large enough to skew test results. Second, these environmental (weather) differences can affect the compressive strength of test specimens. Third, the sizes and proportions of t specimens vary greatly from mortar joints in the field, making a fair comparis difficult. Finally, laboratory specimens also include mechanical effects that low their perceived compressive strength. These factors combine to make it nearly impossible to achieve accurate compressive strength comparisons from field to l

Conclusion

Solid testing procedures are an essential part of quality control, and good qual control procedures are a critical part of quality assurance. Use the tools offer in this unit to assist in creating a quality assurance program for mortars. ■

Resources and Technical Assistance

The Portland Cement Association offers a wide variety of resources on masonry mortars, including case studies, technical reviews, specification guides—even personal consultation. For more resources or technical assistance with masonry mortars, contact PCA at 847.966.6200 or visit www.cement.org/masonry.

Click for Additional Required Reading

As part of this learning activity, you are required to read additional materials. To access the material online, go to ***archrecord.construction.com/resources/conteduc/.*** To obtain a faxed copy, contact PCA's masonry team at 847.966.6200.

LEARNING OBJECTIVES

- *Possess an increased knowledge of the properties and uses of various types of masonry mortars.*
- *Recognize the prescribed standards used to measure the quality and performance of masonry mortars.*
- *Use your new knowledge to develop a masonry mortar quality assurance program that can be applied to your future projects.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 214. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

Q: 1. Cementitious materials for masonry do not include:
A: a. masonry cement
b. portland cement and lime
c. mortar cement
d. plastic cement

Q: 2. Bond performance criteria is included in the standard specification for which of the following cementitious materials:
A: a. masonry cement
b. portland cement and lime
c. mortar cement
d. plastic cement

Q: 3. Usually, after a mortar has hardened it will:
A: a. grow in volume
b. experience a slight shrinkage
c. stay exactly the same size
d. shrink first, then expand

Q: 4. Which of the following item(s) have little or no impact on mortar color:
A: a. careful measurement of materials and thorough mixing
b. color of cement and sand
c. compressive strength and permeability
d. tooling at like degrees of setting

Q: 5. Type N mortar can be made from which cementitious material(s):
A: a. only portland cement and lime
b. only masonry cement
c. only mortar cement
d. any of the above

Q: 6. Under ASTM C270, Standard Specification for Mortar for Unit Masonry, mortars are specified by the following approach(es):
A: a. only the property specification is allowed by this standard
b. only the proportion specification is allowed by this standard
c. the property and performance specification must be used together
d. either the property or performance specification can be used, but not both

Q: 7. The least effective quality control procedure for masonry mortars on the job is to conduct:
A: a. mortar aggregate-ratio tests
b. inspection of batching procedures
c. compressive strength tests
d. all of the above are equally effective

Q: 8. ASTM C270, Standard Specification for Mortar for Unit Masonry, should not be used:
A: a. to prepare for construction prior to starting the project
b. in the lab
c. for compressive strength testing
d. during construction to test mortars at the job site (field QC)

Q: 9. Proportion specifications in ASTM C270, Standard Specification for Mortar for Unit Masonry, do not provide the following:
A: a. limits for how much cementitious material to use by volume
b. limits for how much cementitious material to use by weight
c. appropriate cementitious material or combinations thereof to use for each mortar type
d. limits for how much aggregate to use

Q: 10. Choose the one true statement that shows why the compressive strength of lab-mixed mortar (the "recipe") should not be compared with compressive strength of jobsite mortar:
A: a. the two mortars have the exact same water content
b. lab test specimens and joints are the same size and shape
c. lab-mixed mortar will not have the same strength as mortar on the job
d. curing conditions are the same

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ip Johnson's Glass House. Photograph © Richard Payne, FAIA

DERSEN WINDOWS PRESENTS

Architects' Widening View of Windows: Technical Advances Elevate the Role of Fenestration

"The history of architecture is the history of the struggle for the window," Le Corbusier, the master of modernism, said in 1929. If Le Corbusier were alive today, he would find that struggle rages on, with the design and performance of the contemporary window reaching far beyond his imagination. Now instead of considering a window as an opening in a wall for light or ventilation or view, an architect is driven to consider the use of glazing as a defining factor in building design and performance. It's a much more daunting and complicated task — but ultimately a more challenging and rewarding one.

A recent exhibition entitled "Picture This" at the National Building Museum in Washington, D.C., put it this way: "Windows now go well beyond being simple devices that let in light and air. Today they function as integral components of complex building envelopes, selectively filtering aspects of the larger environment. As manufacturers have developed new technologies to improve visibility, security, and comfort, windows have become elements of sophisticated systems that control light, ventilation, moisture, dust, sound, and even infrared and ultraviolet light."

Most architects are familiar with the state-of-the-art contemporary window. What needs to be pondered is that no other building component has had such a significant impact on design — exterior form, perception of space, relation to exterior space, building performance, exterior and interior detail. The most obvious may be appearance. "The shape, character, and construction of the window have an enormous effect not only on how our buildings work and how it is to live in them, but also how they look," said Howard Decker, curator at the National Building Museum. "Technological development has been a very significant factor in the 20th century dialogue between the window and architecture and now we can make a window look like anything. The question is: what should a window look like?"

Manufacturers today offer architects more options for window design than ever before to address what a window may look like as well as what it can do — infinite degrees of transparency, dozens of framing and opening choices, insulating alternatives, and security features. Thermally, windows compete with insulated walls in terms of the ability to reduce heating and cooling loads. So, in essence, the window has been dissolved into the wall and visa versa.

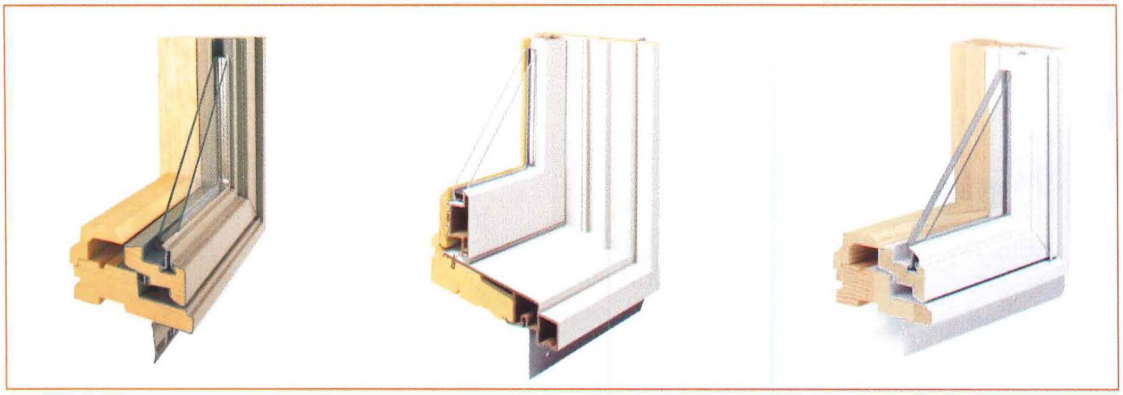
NTINUING EDUCATION

UCATION Use the learning objectives below to focus your study as you read **Architects' Widening View of Windows: Technical Advances vate the Role of Fenestration.** To earn one /CES Learning Unit, including one hour of lth safety welfare credit, answer the questions on e 171, then follow the reporting instructions on e 216 or go to the Continuing Education section *archrecord.construction.com* and follow the orting instructions.

RNING OBJECTIVES

r reading this article, you should be able to:

- *race the evolution of windows and design and how ur culture is shaped and reflected by the use and design windows.*
- *nderstand the importance of taking a holistic approach fenestration design to consider the historical, social, nd cultural context.*
- *nderstand how technological advancements redefine hat is possible in design and integration of the indow components.*



Window cross-sections show today's advanced window technology and design. (Left — right) Vinyl clad-wood casement window provides all-weather protection and energy efficiency; double-hung window features wood interior/composite material exterior for beauty, design and performance; new impact-resistant, energy-efficient glass provides comfort and protection in harsh conditions.

This new high-performance contribution of the window isn't a given, however, but must be integrated with the total building performance. Climate, site, building orientation, glazing area, and location are considered extremely important. In other words, only a holistic approach to building design promotes energy efficiency. The fenestration design must also consider HVAC system type and efficiency, utility type and rates, internal loads, window area and orientation, and shading. Determining realistic building performance values requires use of valid performance values of window assemblies for modeling studies. The emphasis on performance-based design, as well as appropriate material and manufacturing processes, may ultimately promote the realities of sustainable architecture.

But back to window technology. To understand where we are, it's important to see where we've come from and how rapidly technology has progressed, particularly in the 20th century. It's also intriguing to try to sort out the chicken-and-egg question about social needs and technology — do our needs push technological development or does technology often precede our mass cultural yearnings? The glass and window industry offers some fascinating insights into social and cultural as well as architectural history.

Manufacturing Glass, First

Since the earth was formed, glass has been made naturally — by high-temperature conditions cooling and solidifying rapidly, like volcanic eruptions, lightning strikes, or the impact of meteorites. Stone-age man used cutting tools of natural glass called obsidian. Glass was first "discovered" by Phoenician merchants around 5000 B.C. While transporting stones of nitrate, the merchants rested cooking pots upon the stones, which eventually mixed with sand on the beach and formed an opaque liquid. The earliest man-made nontransparent glass fragments date back to the 16 century BC and were found in Mesopotamia. A major breakthrough in glassmaking was the discovery of glassblowing some time between 27 BC and AD 14, attributed to Syrian craftsmen.

The Ancient Romans were the first to use glass for architectural purposes, with the discovery of clear glass (through the introduction of manganese oxide) in Alexandria about AD 100. Although of poor quality, cast glass windows appeared in the most important buildings in Rome and the luxury villas of Herculaneum and Pompeii. With the decline of the Roman Empire, progress in the field of glassmaking techniques slowed, however, without any major improvements made until the Middle Ages.

In the 11th century, Germany produced the first glass sheets by a technique that was further developed in the 13th century by Venetian craftsmen. By blowing a hollow glass sphere and swinging it vertically, gravity would pull the glass into a cylindrical "pod." While still hot, the ends of the pod were cut off and the resulting cylinder cut lengthways and laid flat. Panes of sheet glass, known as crown glass, would be joined with lead strips and pieced together to create windows. At that time glazing was a great luxury, mostly reserved for palaces and churches. Most buildings had small windows and dark and dank interiors. It was more typical for the openings to be shuttered and covered with oil and paper. Large-scale production of sheet glass — enough to bring the development of the manufactured windows industry — didn't occur until the mid 1700s, and even then only the wealthy could afford them.

Innovative Glassmaking Techniques

The Industrial Revolution came and in the span of just two centuries window technology traveled through light years, so to speak, with major implications for architecture. The production of flat glass by breaking and spinning a blown globe gave way to the glass cylinder, blown by using compressed air, which could be sl lengthwise, reheated, and allowed to flatten on an iron table under its own weight. Although the natural fire finish was destroyed on one surface the final product, still far from being truly flat, was flatter than crown glass. Output increased dramatically. By mid 1800s the world was astonished by the design of the Crystal Palace in London, made with 300,000 sheets of cylinder-blown glass set on a lightweight iron framework, a building that is often considered a precursor of the modern movement.

Fundamental to the great increase in glass output was the introduction of the regenerative furnace. Higher temperatures sped up melting times. The conversion of the old siege floor into a vast tank into which the material directly flowed allowed the continuous production of molten glass. Windows an window frames were still crafted by hand, but with increased glass production, they became available to a much broader segment of the population.

The late 1800s marked a time of rapid change in domestic architectural styles — some regionally based, some revivalist styles borrowed from Europe, and others more esoteric American inventions. It's fair to say, however, that the window was not a major determining influence in the design of a house. Whether articulated in the language of Beaux Arts, Queen Ann, Tudor or Craftsman, punched openings in the masonry or timber-framed facades provided minimal visual exposure or ventilation from exterior to the inside and were primarily part of the artistic language. In certain areas, there was a tendency to employ regionally appropriate designs, tall windows that encourages natural ventilation in the south (the French Colonial) and thick walls of adobe, flat roofs, and minor window fenestration in the southwest (the Spanish Colonial) to protect from the intense sun.

Window fenestration on commercial buildings followed that of residential structures, with relatively small punched holes conforming to the overall stylisti architectural expression. Windows were operable, providing natural ventilation and often set deep in the façade and separated by thick piers, a style which characterizes Richardsonian buildings of that era. In the mid to late 19th centur commercial buildings with cast-iron facades presaged curtain-wall construction and also much of the theory of skyscraper design. While still containing separat window units, these facades whet the appetite for a continuous glassy surface.

Curtain-wall construction, however, wasn't possible until after 1905, when a Belgian named Fourcault managed to vertically draw a continuous sheet of gla of a consistent width from the tank. Commercial production of sheet glass usi this method commenced in 1914. Colburn refined this process, with the suppo of Libbey-Owens in 1917. The Pittsburgh Plate Glass Company (now PPG) updated the process's main features and it was used from 1928 until the company changed to the float glass manufacturing process decades later.

In 1909, the world saw the first example of steel mullioned, strip-windows and uninterrupted steel spandrel façade in the Boley Building in Kansas City. Designed by Louis S. Curtiss, its walls were enclosed by continuous bands of glass, accented slightly by glazed doors, above painted steel spandrel strips. One other remarkably advanced buildings of its time still stands in San Francisc as a monument to the use of boldly scaled glass. The seven-story Hallidie Building (1917-1918), designed by Willis Polk, is all glass with the exception of four fanciful bands of superimposed cast-iron decoration and fire escapes.

The vanguard of the International Style was emboldened by these advances in window technology. Ludwig Mies van der Rohe, Philip Johnson, Richard Neutra, and others gained prominence in their commercial work by using great expanses of glass to announce that a building's structure no longer needed to be displayed in the building's exterior facade. Then they seized the opportunity to test their modernist theories at the residential scale, creating three-dimensional tributes to the invention of plate glass. In 1938, Richard Neutra designed the "windshield" house for a wealthy family on Fishers Island, New York. Huge sheets of plate glass in metal frames gave the owners sweeping panoramic views.

The Modernist aesthetic of immense slick glass architectural surfaces could filter into the public domain most rapidly with new technology. It was the float process developed after the Second World War by Britain's Pilkington Brothers Ltd. and introduced in 1959 that combined the brilliant finish of sheet glass with the optical qualities of plate glass. Molten glass, when poured across the surface of a bath of molten tin, spreads and flattens before being drawn horizontally in a continuous ribbon into the annealing lehr. The post-war residential building boom brought a newfound consumer interest in the picture window." Homeowners not only liked the modern style, but also the views and daylight the large windows afforded.

The Hermetically Sealed Building

It's hard to talk in generalities, yet trends can be identified in mid to late 20th century growth: suburbanization, increased density, conformity and standardization of design for middle-class home, glassy and tightly sealed boxes for offices and business. The picture window and the great sheets of plate glass in residential, commercial, and public buildings provided fabulous views and daylight but closed up the buildings to natural ventilation. Advances in heating, air conditioning and ventilation systems followed, ironically leading to the loss of design skill in the use of windows for daylight and ventilation. The technological advances produced a "higher standard of living," but in the process the building occupant's relationship with the natural environment was cut off. The building became a machine for living, but the interior and exterior spaces were isolated one from the other. Again, we're talking cultural attitudes here, in the 1950s and 1960s, when energy sources were plentiful and cheap. Environmental issues revolving around the orientation, size, and shape of windows in a building in relationship to its site and climate sunk deep in many architect's consciousness. The environmental behavior of windows was recognized and studied, but not as an urgent priority.

Then came the energy crises of the 1970s when prices skyrocketed. The net cost of a window unit was, in effect, increased because its performance in many designs added to the operating expense of the building. Architects and engineers responded and energy-conscious design gained momentum. Of interest were innovative schemes for day lighting, solar heating and shading in buildings, natural ventilation, and active energy-generating systems such as photovoltaics. Percolation of these design theories into the construction industry, however, proved an ambitious task. When energy prices evened out, smooth skinned glass and steel boxes without operable windows or external sunshades and endless housing tracts developed without regard to site and climate once again became economical and passive solar solutions were nearly abandoned. Only now, with renewed emphasis on sustainable architecture are some of these theories once again seeing the light of day. Yet, the seeds of a different design method were planted. Even the federal government got involved, and in the 1980s promoted the Building Energy Performance Standards, which promoted a performance-based evaluation of a building's design rather than a prescriptive basis.

At the same time, manufacturers of building components remained concerned with environmental issues, anticipating further world energy resource complications in the future. Window manufacturers offered product solutions. "Thirty years ago, windows were the weakest link in the wall or in the building in terms of thermal energy," says Steve Selkowitz, of Lawrence Berkeley Laboratories, a government agency that has long studied energy use in buildings. "The idea was don't use them or make them as small as possible."

Advances came quickly — single-glazed; double-glazed; triple-glazed; gas-filled insulating glass; quantified heat gain and loss, through conduction as well as infiltration and solar heat gain, using advanced modeling of building performance.

"Now," Selkowitz says, "windows compete with insulated walls in terms of reducing heat and cooling loads."

High performance today is dependent on the entire window assembly, not just the glazing. Since frame and sash materials account for 10 to 30 percent of the total window area, materials have a significant effect on overall performance. Window frames have evolved dramatically from the lead strips that held panes in primitive wood frames. Now they are generally made of wood, vinyl, aluminum, and composites. Materials are now being combined to increase weathering capability, improve structural performance, and reduce maintenance. The material choice has significant performance implications as well as a dramatic impact on the fenestration aesthetic.

A lot of guesswork has been removed from window design and specification in areas of the country vulnerable to extreme forces of nature. Coastal states have been hammered in recent years by more extensive and severe damage from hurricanes and tropical storms, prompting local governments and insurance companies to require protection in the form of shutters, screens, or impact-resistant glazing and frames. After Hurricane Andrew pounded Southern Florida in 1992, the state implemented stringent codes, requiring many new homes within varying proximity to the coast to have impact-resistant window systems. In response, manufacturers have developed a broad portfolio of products with impact-resistant laminated glazing and components to withstand higher design pressures. Social and cultural security concerns also demand sensitive design solutions to physical security requirements. Manufacturers are responding with window systems to withstand varying levels of physical force.

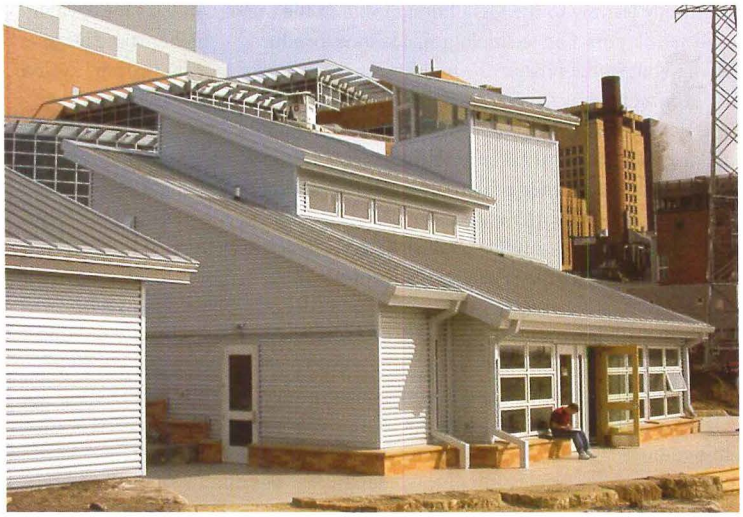
PICTURE THIS: Windows on the American Home

THE NATIONAL BUILDING MUSEUM
WASHINGTON, D.C.

Picture This: Windows on the American Home explores 200 years of the cultural, aesthetic, and technical accomplishments of windows at the National Building Museum in Washington, D.C. (through August 11th). This exceptionally informative, yet accessible, exhibition was conceived and sponsored by Andersen Corporation in celebration of its 100th anniversary.

Picture This explores several themes, each of which elucidates the defining role windows have played in the design and culture of the American home. History meets theory, and invention meets critique, in a robust multimedia presentation — including film and video clips, models, photographs, advertisements, historic artifacts, and a lucid and graphic timeline. The exhibition examines the extent to which technological invention has determined architectural form — before the Industrial Revolution made the dependence transparent — has not often been analyzed outside of academia without being arcane.

For more information contact The National Building Museum www.nbm.org or The Minnesota History Center www.mnhs.org.



The Environmental Experiment Center (EEC) at the Science Museum of Minnesota in St. Paul followed a sustainable-design strategy and incorporates integrated energy-conserving technologies.

Clerestory windows help provide balanced day lighting. Environmental Experiment Center (EEC) at the Science Museum of Minnesota in St. Paul.

At the same time, window design aesthetics remain a critical part of the package. "The windows are not an eyesore," says Steven Winter, architect and director of Steven Winter Associates. "Not a necessary evil. They are something we use for their technical performance as well as their psychological and visual performance...." In fact, Winter refers to decorative windows as "jewelry."

Can the window industry go further? Yes, says Winter, but it's a cost issue. "It used to be that double-glazing was an expensive option. Then it used to be that low-e coatings were luxury options. More and more I see the expensive higher-performance options becoming part of the mainstream. I think that will continue. These days, triple and quadruple glazing is that expensive option. Thermal breaks at the perimeter of glass are an expensive option. They will become the norm."

Selkowitz goes a step further. "Windows are going to be better than the walls that house them. And then that becomes the end of the cycle. The window is no longer the poor cousin, but the rich cousin in the relationship between the fenestration and the opaque part of the wall."

The Search for Sustainability

As architects search for sustainability in design, it demands a clear understanding of the basic principles of energy conservation. Designers must consider the appropriate use of glazing for the specific environmental challenges of each climate, site, and building design program. Appropriate material selection and sensitive manufacturing processes are considered in product selection. The iterative design process challenges the balance of design aesthetic, building form, window system, opaque envelope, internal loads, building operation, and climate to work in harmony with minimal impact on the environment.

The tenets of sustainable architecture are to integrate environmental technology, resource conservation, and aesthetic design. The ultimate goal, says James Wines in his book *Green Architecture* will be that a work of architecture "cannot be removed from a particular location without sacrificing its essential meaning.... Environmental thinking means that walls, facades, interior spaces, and the general materiality of a building — outside of their obvious contributions to architectural function — can be seen as much more than physical components in the manipulation of form and space. They become vehicles for the absorption and communication of contextual information. Within this revised perspective, the new environmentalism is as much a social and psychological condition as it is p of an ecological initiative."

It's probable that in the near future, windows will be generating energy fo the building in which they are placed. These architectural components will be part of a larger conceptual framework of intelligent buildings. Efforts in this direction are already surfacing.

For the Environmental Experiment Center (EEC) at the Science Museum of Minnesota in St. Paul, the client requested a sustainable-design strategy based on many factors, not the least of which was fenestration. Located a short distance from the Mississippi River, the design is an excellent example of an integrated design methodology. Minneapolis-based Barbour/LaDouce Design Group bundled several energy-conserving technologies with the careful selection of environmentally friendly products to make the center a model of sustainability.

The client wanted a building "that produced more electricity than it used.' Barbour/LaDouceur enlisted the help of "energy allies" — experts in different areas of energy efficiency. The allies include a major Minnesota window manufacturer and The Weidt Group, a Minnesota-based consulting firm that provides sustainable-design assistance for high-performance buildings "We believe this building had the potential to actually generate more energy th it required throughout the course of a year," explains Kurt Gough, project architect. The team produced a working model of sustainability, which address issues of site, heating and cooling, day lighting and ventilation.

Photovoltaics (PV) on the south-facing roof and a ground-source heat pum system both contribute to reduce the annual energy consumption by 60 percent code requirements. Double-hung windows balance conduction, solar loss and gain, and day lighting. Photo-sensors dim lights when natural light is available. addition to the smart use of advanced technology, manually operated windows proved to be an excellent way to control indoor air quality.

Principal Janis LaDouceur explains the critical role that the windows playe in the design of the 1,000-square-foot facility. "Operable windows connect people to the outside and encourage sensitivity of the environment," she says. "Double-hung windows where both sash operate are the best. Air flows in anc out of the rooms and through the top and bottom of the units."

This design also invites inspection. It causes the visitor to stop and consid how the building is put together. For the center, the architects, working with a manufacturer, took custom window design far beyond the task of typical specifying. The majority of the window frames and sash are made of a proprietary product — a composite material of pine fibers saved from milling operations and a thermoplastic polymer. In a creative move, the architects als clad the ceiling within the building and the deck surrounding it with the sam material. The result is a consistency of finish and material that further integra interior and exterior space.

This leads back to our original question: What should a window look like? The word window itself derives from "wind-holes," as early openings in buildings served primarily to supply draft, and emit smoke, from eternal fires. Metaphorica the word windows represent ways to see the world. Television sets have been compared to windows, and we all are familiar with the popular computer progra carrying that name. We anticipate a certain type of window in our home and at the office, for view, light, and, at least in the domestic setting, ventilation.

The design discussion needs to be expanded to include doors and roof windows as well as the traditional window. Merging technologies allow glass and other building components to perform multiple functions. Universal desi principles suggest improved ways to interact with the glazed openings and the definition of the window evolves with our culture.

The challenge to contemporary designers of the built environment is to question the status quo and seek a greater interpretation of this ubiquitous architectural element. New construction and renovation each have unique challenges and opportunities for creativity, to define or recognize the design potential in the fenestration system. The window can continue to play a leadi role in a dramatically changed architectural vocabulary, recognizing social, cultural, aesthetic, and environmental design determinants in their own right

Click for Additional Required Reading

As part of this learning activity, you are required to read additional materials. To access the material online, go to ***archrecord.construction.com/resources/conteduc/***. To request a faxed copy of the material, contact Robert J. Saxler, AIA at 651-264-5110 or email bsaxler@andersencorp.com.

LEARNING OBJECTIVES

- *Trace the evolution of windows and design and how our culture is shaped and reflected by the use and design of windows.*
- *Understand the importance of taking a holistic approach to fenestration design to consider the historical, social, and cultural context.*
- *Understand how technological advancements redefine what is possible in design and integration of the window components.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 216. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website — *archrecord.construction.com* — to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

Q: 1. Who designed the "Windshield" House on Fishers Island, New York in 1938?
A: a. Ludwig Mies van der Rohe
b. Philip Johnson
c. Richard Neutra

Q: 2. Curtain-wall construction was not possible until who was able to vertically draw a continuous sheet of glass of a consistent width?
A: a. Fourcault
b. Curtiss
c. Libby-Owens

Q: 3. The modern style of the "picture-window" was popularized with the production of glass using:
A: a. Double glazing
b. Crown glass
c. The float process

Q: 4. When did the federal government promote the Building Energy Performance Standards?
A: a. 1960's
b. 1970's
c. 1980's
d. 1990's

Q: 5. High performance is dependent on the entire window assembly, not just the glazing.
A: a. True
b. False

Q: 6. Which feature at the Environmental Experiment Center in Minnesota balance conduction, solar loss and gain, and day lighting?
A: a. Photovoltaics (PV)
b. Double-hung windows
c. Photo-sensors in the light fixtures
d. Operable windows

Q: 7. The frame and sash account for how much of the total window area?
A: a. 5 to 15 percent
b. 15 to 25 percent
c. 10 to 30 percent

Q: 8. Early man used cutting tools made of a natural glass called:
A: a. Quartz
b. Manganese oxide
c. Obsidian

Q: 9. The early discovery of glass blowing is attributed to the:
A: a. Phoenicians
b. Syrians
c. Venetians

Q: 10. At the Environmental Experiment Center in Minnesota, which feature in addition to a ground-source heat system, contributes to reducing the annual energy consumption by 60% of code requirements?
A: a. Photovoltaics (PV)
b. Double-Hung Windows
c. Photo-sensors in the light fixtures
d. Operable windows

About Andersen Windows

Andersen Windows is a wholly owned subsidiary of Andersen Corporation. Andersen Corporation, the world's largest manufacturer of wood windows, patio doors, and storm doors, celebrates its 100th anniversary in 2003. The company is privately owned and has a strong history of commitment to its business partners, employees, community and environmental stewardship.

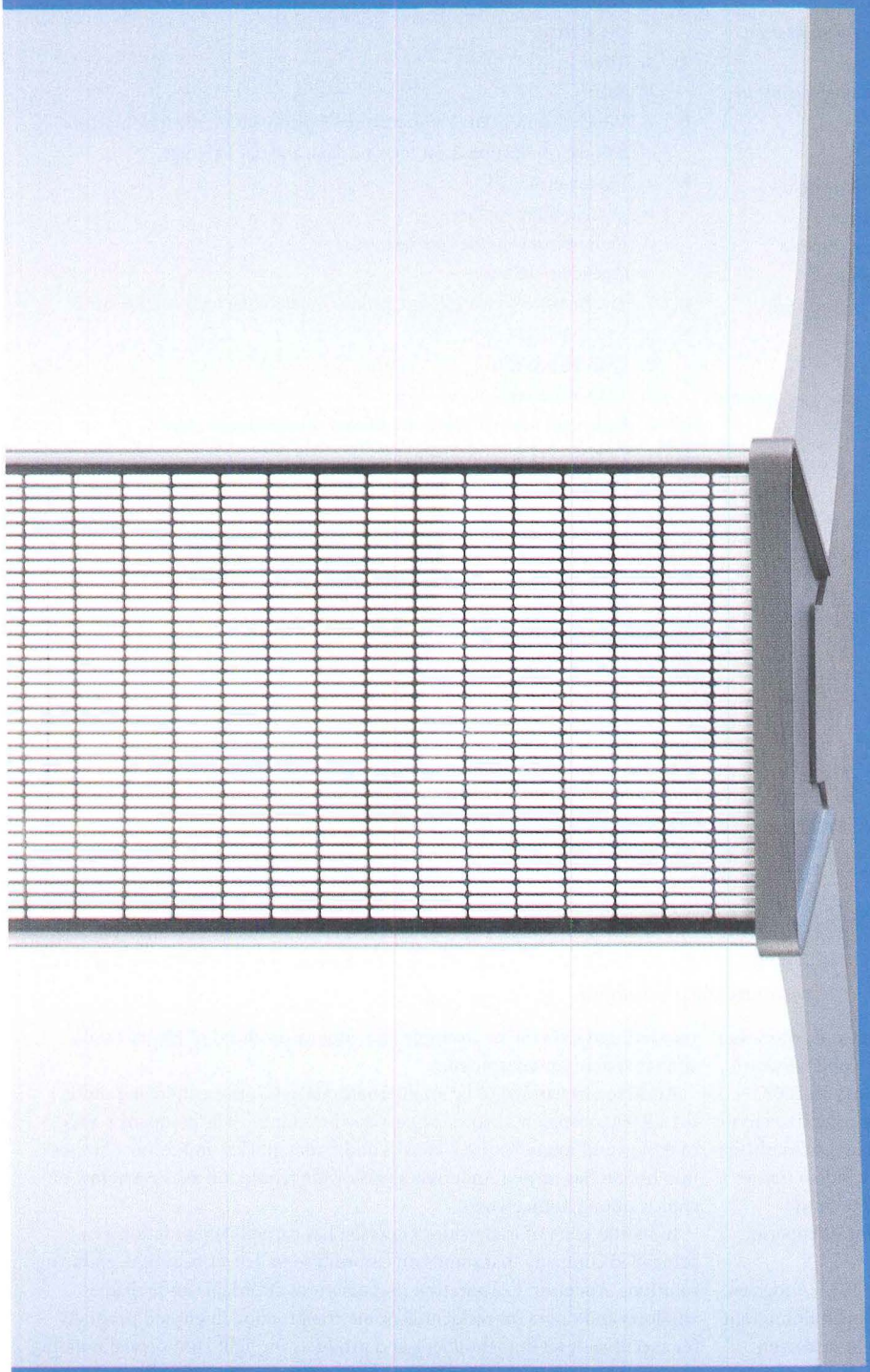
Andersen introduced the nation's first factory-produced window frames 100 years ago. In the ensuing years, the company has built one of the strongest brands in the window and door industry known for its superior performance, reliability, and integrity.

Located along the St. Croix River in Bayport, Minn. since 1913, Andersen was founded in 1903 across the river in Hudson, Wis., by Danish immigrant Hans Andersen and his family, who named the new business Andersen Lumber Company. The name was changed to Andersen Corporation in 1937. In 1904, the company began mass-producing window frames in standardized sizes on an assembly line, nine years ahead of Henry Ford's similar system for automobiles.

Andersen has grown to be an international enterprise employing more than 8,000 people in 32 locations across the country. The company's ability to design and manufacture windows and doors quickly and to turn houses into homes has earned Andersen a worldwide reputation as the window of choice among homeowners.

In its 100 years of leadership, Andersen has earned its reputation as a principled company that stands on its promise to deliver beautiful, enduring solutions. Andersen Corporation manufactures affordable and reliable windows and doors for residential home construction, high-end products for executive-level homebuilders, and products for light commercial building construction. For more information call 1-800-426-4261 (reference #3018) or go to www.andersenwindows.com.

Sky Light.



The sky can determine our mo
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alertness throughout the working
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options put your interior design i
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ZUMTOBEL STA
THE LIGHT

Lighting

Designers with an interdisciplinary approach embrace lighting as a linchpin of dynamic interiors

BRIEFS

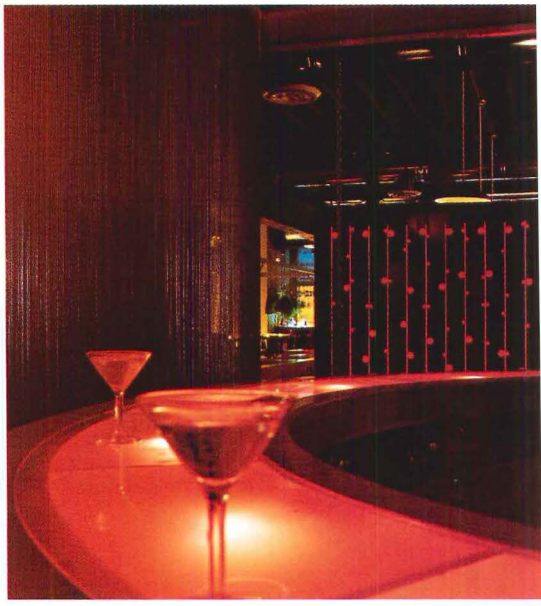
The winner of the Radiance Award from the International Association of Lighting Designers in May was the lighting of the Massachusetts Institute of Technology Building 7 renovation by lighting designers Steven Rosen and Kathy Abernathy, with architect EYP. The installation led a roster of 16 award-winning projects. For details and photos of all the winners, go to www.iald.org.

In recognition of the growing importance of sustainable design within the profession of architectural lighting, in 2004 the IALD will institute its first awards for sustainability, in addition to bestowing honors in seven categories. The entry deadline for the 21st annual awards competition is December 1, 2003.

CONTENTS

Designer Charoonkit "Kit" Thahong has built a career shuttling between the virtual and architectural worlds. After training in industrial design in his native Thailand, he worked as a graphic designer for advertising and packaging clients in Bangkok. In 1997, he emigrated to the U.S. to attend graduate school at Parsons School of Design in New York City, where his studies in environmental design took a turn toward multimedia graphics at the height of the Internet boom. In 1999, Thahong joined digital powerhouse R/GA as a programmer, where he continues to develop Web sites for clients, including Ericsson and Nike.

Thahong's passion for the cuisine of his Thai culture and his background in multiple design disciplines, landed him the assignment to create Spice, a restaurant on Manhattan's Upper East Side, several years ago. From its logo to lighting, the restaurant reflected Thahong's top-to-bottom approach to integrated design. Recently, Thahong also made the leap to the entrepreneurial side of the restaurant business, as the owner—and designer—of the Manhattan eatery United Noodles.



The landscape of light that Thahong created for the restaurant SEA in Williamsburg, Brooklyn (right), employs zones of colored illumination to define the cavernous space. A fan of "reclaimed" fixtures, he punctuated the restaurant with offbeat luminaires that include a retro, swing-arm lamp that once held sway in a hospital operating room.

The two-year-old London firm Jump Studios brings together a team with similarly diverse backgrounds. Employees who have worked as graphic, furniture, and industrial designers join colleagues who have tackled projects at leading architectural firms, including Michael Hopkins. Complemented by a sister branch in Brescia, Italy, the studio has completed projects as diverse as interiors and lighting for a London hair salon and new packaging for an ice cream brand. For Nike's London headquarters, the team used industrial resin and sports-rubber surfaces to evoke the client's technological approach to its own product design. For the lighting effects and fixture profiles it was seeking, the studio worked with a major lighting manufacturer to customize fixtures already in its line. Such tweaking of lighting as an essential element of interior architecture helped the Jump Studios think—and leap—outside the box. *William Weathersby, Jr.*

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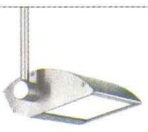
Incandescent	PAR30 Short	PAR30 Long



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

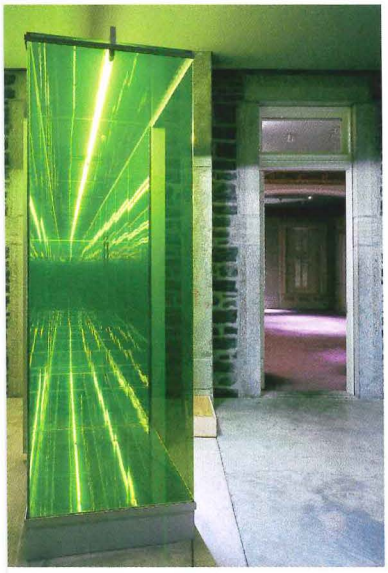
TECH Light

CIRCLE 69 ON READER SERVICE CARD OR GO TO WWW.LEADNET.COM/PUBS/MHAR.HTML

Creative Uses

A Canadian architect explores perception with an installation called *Artificial Light*

ighting, perception, and architec-ural transparency are special areas f investigation for Montreal archi-ect Hal Ingberg. Recently, he was he latest of 12 young architects who have been invited by the anadian Centre for Architecture in lontreal to create an installation xploring current ideas in architec-ure by entering into a dialogue with he interior of the center's historic



haughnessy House. Ingberg's stallation, *Artificial Light*, which as presented from October 2002 rough June 2003, was a work of onceptual simplicity and destabiliz-g perceptual effect.

Artificial Light built upon gberg's longstanding research into he nature of material and spatial eamlessness, and his interest in he perceptual potential of glass. It xplored how the surfaces of floors, alls, and ceilings can be demateri-lized by an orchestrated play of pace, electric light, and colored, emireflective glass surfaces.

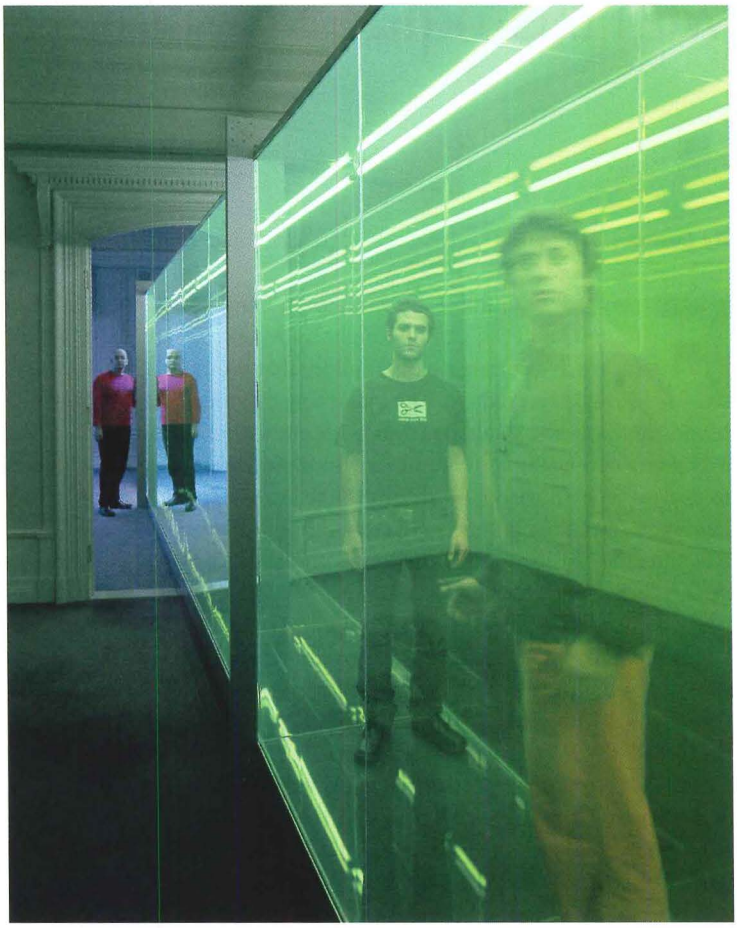
Set amid the traditional archi-ectural details of the center's paces, Ingberg's work presented a 8-foot-long tunnel constructed of ellow-green reflective glass on all sides. Measuring approximately 6 feet tall by 3 feet wide and running through two doorways of three adjacent rooms, the enclosed tunnel invited patrons to pass through and around it as changes in lighting altered their perception of the enclosure and its surroundings.

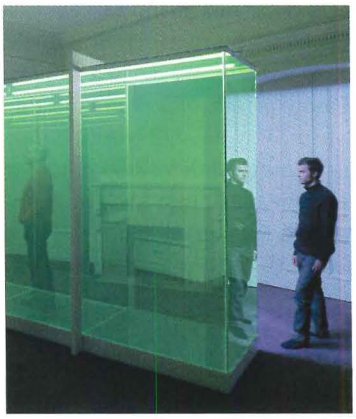
The juxtaposition of the glass installation, which was lit from inside by exposed linear fluorescents, and the darkened rooms within which it sat established dual optical impressions when viewed from outside the glass tunnel. At times, the installation appeared to glow like a lantern. The apparent thickness or opacity of the semireflective glass as experienced within the enclosure appeared to have perceptually metamorphosed into a thin, diaphanous membrane once viewers passed outside it.

For the installation, Ingberg specified six 4,100K fluorescent lamps with programmed electronic ballasts along the overhead glass surface. The ballasts were visually separated from the lamps by placing them above the glass ceiling inside custom aluminum cases. The ballast cases then connected to a 1.5-inch-diameter aluminum electrical wire way, which ran the length of the tunnel and then connected to a single ceiling outlet via discreet wiring. "The intention was for the lamps themselves to have a sculptural quality, emitting a bright white light," Ingberg says. The fluorescents gave the yellow-green glass an otherworldly glow.

The lighting was placed on timers. Every 2 minutes, the lighting within the tunnel was turned off for 20 seconds and the standard lighting outside the tunnel in the gallery space was turned on.

Like a house of mirrors, the installation created a social spectacle. Patrons within the tunnel became unwitting performers for those standing in the darkened space outside. When the lighting within the tunnel was turned off, the roles were reversed.





The site-specific installation incorporated six linear fluorescents within a glass tunnel traversing the gallery.

"The installation explored the nature of enclosure and the experience of feeling inside or out—and how quickly that can change," Inberg says. "It was about manipulating the narrative quality of architecture."

The *Artificial Light* design assistants were Bechara Helal and Nabi Neda for computer drawings and Jean-Pascal Beaudoin for graphics and translations. The project was funded by a grant from the Council of Arts and Letters of Quebec, with sponsors including Viterie April, Solutia, Vitreco, Visionwall, and Novus. Lighting sources included Sylvania, Leviton, and Advance Transformer. *William Weathersby, Jr.*

Jump Studios scores for **Nike** with a London office and showroom equipped with customized lighting

By Leanne B. French

From Nike's humble beginnings in Portland, Oregon—when founder and C.E.O. Phil Knight sold sneakers out of the back of his truck—sprang a global culture that promotes the "just do it" lifestyle everywhere. The marketing machine that propelled the brand continues to expand its reach, with international offices, including a dynamic new headquarters and showroom in London. Looking inward to express its own corporate culture, Nike has taken a quieter approach here than in the design of its Niketown shopping destinations. But like Nike's iconic "swoosh" logo, the location embodies the brand ethos in design abstractions that speak volumes.

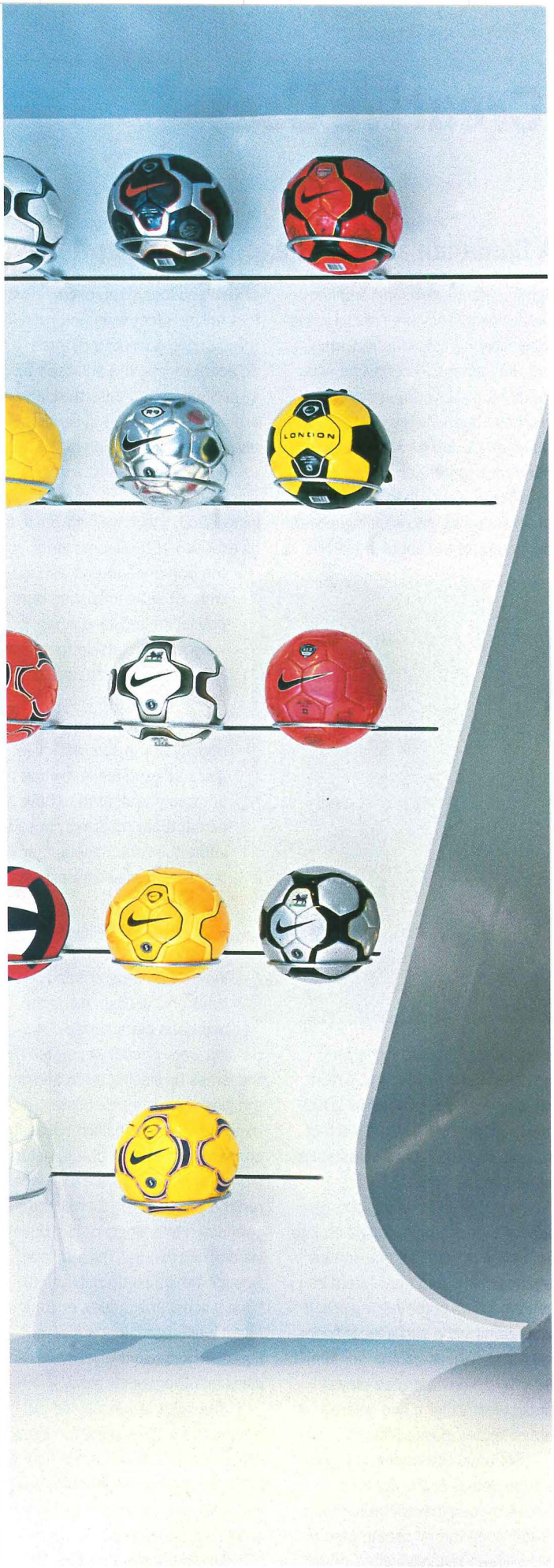
Centrally situated off London's famed Carnaby Street just behind Oxford Circus, the new offices occupy three levels of a typical five-story Soho building. Nike U.K. marketing director Rod Connor drafted the two-year-old design firm Jump Studios to envision a work environment where the company could develop new products, market footwear and clothing lines to buyers, and court sport stars to jump aboard its endorsement bandwagon. Although Nike originally called for an open-plan space, the design firm quickly realized the company's collaborative work style and mobile culture required a variation on that theme.

"The London employees are based in the office, but they also travel throughout Europe and the United States," says Shaun Fernandes, a Jump director. "They use it as a centralized hub for meetings. Internally, there are frequent informal brainstorming sessions. We devised a modified open plan into which we dropped more private offices and meeting spaces to define zones and accommodate the way the staff works."

The entry is purposefully unassuming until visitors cross the threshold into a reception area designed for maximum impact. High-gloss industrial resin flooring and lacquered walls in gradations of blue create a volumetric perspective and offer a high-tech counterpoint to soft leather seating.

Customized lighting complements materials and forms to support the staff's esprit de corps. In the reception area, ceiling-recessed linear fluorescents alternate in length to create a sense of movement, "like lines blurring past on a highway," explains Fernandes.

The designers collaborated with a lighting manufacturer and



PHOTOGRAPHY: © MARK YORK

Leanne B. French is a freelance writer and editor based in New York City. She is a frequent contributor to the RECORD *lighting section.*

Project: *Nike Showroom, London*
Architect, lighting designer: *Jump Studios—Shaun Fernandes, Sean Pearson, Sarah Williams, project team*
Electrical engineer, contractor: *Peak Projects*

A zinc-coated steel-cage wall provides an introduction to showrooms, which are illuminated by automated dichroic halogens.

Showroom and office enclosures abstractly evoke the curves of the Nike "swoosh" logo (left). Staggered linear fluorescents and graphics create a sense of movement (below). The office and showroom circulation routes are illuminated by custom pendants (left and bottom).

local dealer to customize fixtures for different work environments. Round pendants and ceiling-mounted fixtures illuminate circulation areas, while workspaces are lit with suspended task lights.

Surrounded by windows, the loftlike offices receive abundant daylight, a quality the architects mimicked by mixing light levels to maintain a seamless feeling in the space when daylight wanes. From the warmly lit workspaces featuring basketball-court-style wood flooring, thematic blue walls lead into podlike meeting rooms in configurations ranging from informal huddle spaces to café-type areas and conference rooms, all wired for mobile technology. Furniture ranges from custom pieces to classics like Eames chairs. Backlit wall-length transparencies of Nike's star athletes, such as Tiger Woods and Michael Jordan, are integrated into the envelope to create graphic impact and visual privacy.

A wall-length, zinc-coated steel cage is a striking preview for the product showrooms. Part display shelf, part interactive art piece, the cage can be adapted to coincide with recent Nike promotions and advertising. Displays frequently change within the showrooms, so a lighting system anchored by automated, low-voltage halogens supports flexibility. Lighting puts the final sheen on this high-gloss take on the Nike brand. ■

Sources

Custom lighting: *Artemide*

Dimmers, audiovisual: *Newland Electronics*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Descending from above to change the world of site lighting, Circa is an inspired design, a perfect symmetry subtly sculpted to appeal at every viewing angle. Now, there is also the exciting option of electrifying color by way of an illuminated LED halo. Circa is the latest and surely most stunning series of high performance luminaires from Gardco. Integrated pole top luminares that subtly eliminate mounting arms, an elegant post top and a building mounted sconce, all feature legendary Gardco glare-free, sharp cutoff illumination. Circa. Bold. Elegant. Inspiring. And entirely new.

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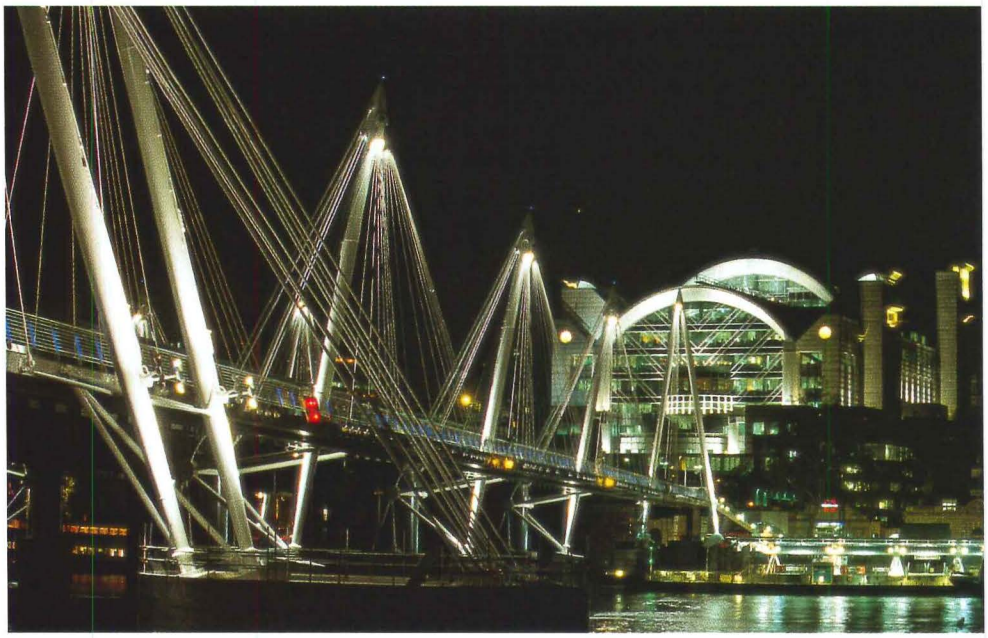
After 160 years, the **Hungerford Bridge** in London gains new life as an illuminated pedestrian crossing

By Leanne B. French

In the 1840s, London engineer Isambard Kingdom Brunel had the inspired idea to connect the north and south banks of the Thames with a pedestrian suspension bridge. Brunel was ahead of his time; his bridge was an engineering marvel but was underused by the public, in part because sewage in the river at the time made the promenade less than appealing. Two decades later, the structure was dismantled and replaced by a railway bridge that led to Charing Cross Station, which had supplanted the old Hungerford Market. Later the railway was widened, eliminating one of the bridge's two parallel walkways. For the balance of the 20th century, a single narrow, congested bridge path was the only direct pedestrian connection between the banks here.

As part of London's Millennium Project, the Hungerford Bridge was recently resuscitated with a redesign by the architecture firm Lifschutz Davidson. Spectacular illumination by Speirs and Major Associates restores the luster of the structure's role as a pedestrian route, creating a tourist loop that helps to connect sites, including Trafalgar Square, Big Ben, and Covent Garden.

The millennial reconstruction consists of two new suspension footbridges that echo Brunel's original design and are attached to the sides of the existing, utilitarian railway bridge. An arresting procession of tilted white suspension masts now bracket broad decks supported by fans of steel cables.



A chief mandate of the lighting project was to create a safe passageway over the Thames after dark, explains Speirs and Major director/designer in charge Mark Major. "The former pedestrian crossing at Hungerford Bridge was relatively obscure and narrow and felt dangerous after dark," he says. "The new lighting aims to attract more people to the bridge—7 million a year by some estimates—and help them make their crossing safely and pleasantly."

Aesthetically, lighting also supports the structure's newfound prominence as a landmark in the cityscape. To establish a distinctive visual presence, the lighting of the bridge had to make an impact within the context of surrounding historic and tourist sites. Big Ben, the Houses of Parliament, and the Savoy Hotel on the north bank are lit conservatively, Major notes, primarily with high-pressure sodium lamps. On the south bank, the National Theatre, Royal Festival Hall, and the London Eye observation wheel are illuminated in a range of styles. "The bridge required its own distinct scheme—not too overt, but with a visual identity that was fitting as a neighbor to some great works of architecture," Major says. "Yet we also wanted to make the bridge festive enough to establish a link to the cultural sector of the south bank."

The lighting team also wanted to provide views up and down the river from the bridge decks, unobscured by the structure's own illumination. To accomplish this balancing act, Speirs and Major lit the deck and staircases with high-output, long-life cold cathode lamps fitted into specially developed details within the balustrades. The lamps throw functional white light onto the bridge deck, while requiring little maintenance for up to 10 years. The fixtures are installed on the guard system of the bridge below eye level to maintain the impressive views.

Medium-beam spotlights housing 150-watt lamps and fitted with spread lenses provide downlighting along the inner faces of the cable stays. The downlighting also supplements the deck lighting below. The system allows for lighting to be dimmed to 50 percent after midnight.

To highlight the bridge structure, pylons are subtly backlit using 70-watt, narrow-angle spotlights focused in an upward direction and 35-watt lamps downward. The fixtures are installed on custom outriggers fitted to the main structure. Blue decorative beacons fitted with LEDs punctuate the tops of the pylons and complement soft decorative accent

Project: *Hungerford Bridge, London*
Architect: *Lifschutz Davidson Architects*
Lighting designer: *Speirs and Major Associates—Jonathan Speirs, Mark Major, principals; Laura Jones, Greg Lomas, Steven Power, Henrietta Lynch, project team*
Engineer: *WSP Consulting Engineers (structural, electrical)*
Electrical contractor: *Gifford and Partners*
General contractor: *Costain-Norwest Holst*

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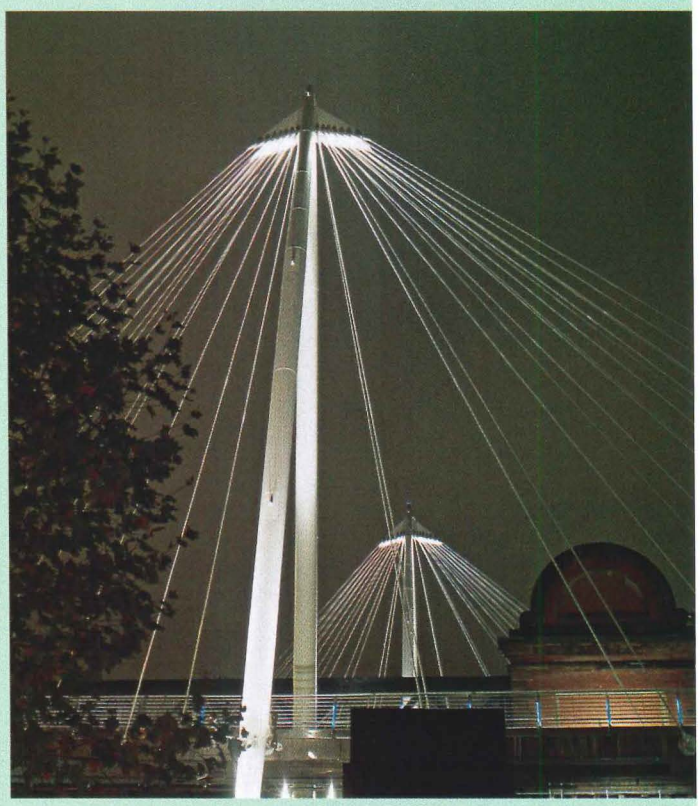
Pylons are backlit by narrow-angle spotlights, 70-watt fixtures focused upward and 30-watt fixtures grazing downward (left). Spotlights with spread lenses and 150-watt lamps illuminate the cable stays (below).

from blue diffusers on the riverside balustrades that light the deck. The original brick piers from which the new bridge decks hang are also illuminated with 70-watt asymmetric floodlights fixed to the deck.

All fixture choices and placements were specified not only for maximum visual impact, but to be "highly sustainable and kind to the night sky," according to Major. "Great care was taken to limit light pollution," he says. "All lighting is directed downward except for the spotlight to the tops of the pylons, which are carefully adjusted to ensure that the peak of the beam hits the structure, not the sky."

Although the Hungerford Bridge lighting design was originally conceived between 1997 and 1999, government funding delays derailed the installation until the bridge was opened and eventually illuminated last year. The bridge lighting is part of a series of projects that Major confirms is one of the largest orchestrated exterior lighting upgrades in London's history. The firm is currently designing a new lighting plan for the area around Trafalgar Square and its connection to a bridge via Northumberland Avenue. Major sees the symmetry between the two bridge projects as an opportunity to provide "a continuity of lighting quality, quantity, and character, as well as a seamless connection" between London's newly revitalized public works. ■



Sources

Mast, cable-stay, floodlighting: *Meyer*
Deck, staircase lighting: *Prodigy*
LED beacon lighting: *LEC Lyon*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

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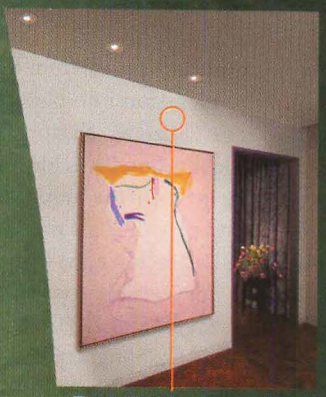

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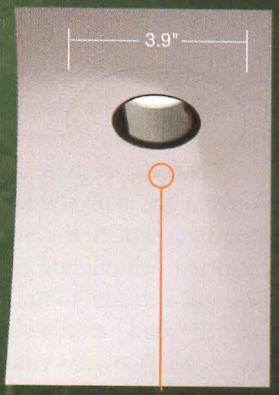

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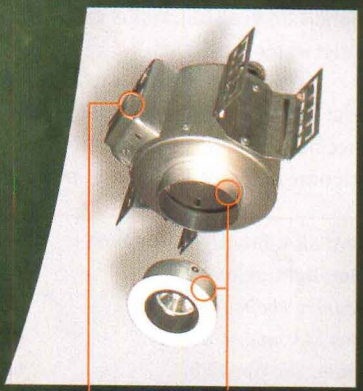

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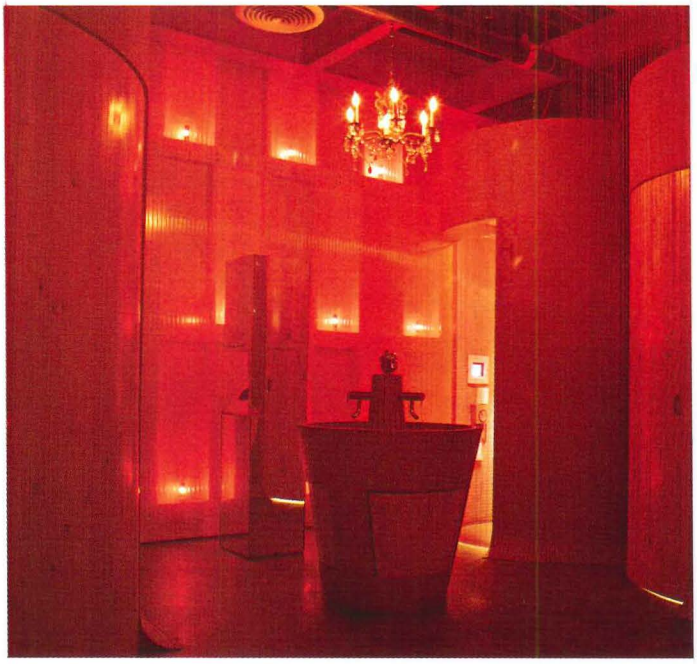
Created by a multimedia designer, **SEA** is a bistro afloat with eclectic lighting and interior details



By Leanne B. French

A short subway ride from Manhattan to Brooklyn is the city's latest excursion into bohemian chic. Originally an outpost for artists seeking cheaper apartment rents, the Williamsburg neighborhood has blossomed with an active nightlife scene encompassing art galleries, music venues, and restaurants. With a stellar Thai menu and playful "East meets West" interiors, the new SEA bistro has established a beachhead as one of the "Burg's" primary hotspots.

The 7,500-square-foot restaurant, a former meatpacking warehouse, is the sixth SEA Thai Restaurant Group venue designed by Charoonkit "Kit" Thahong. Trained as an industrial designer in his native Thailand, Thahong received a multimedia degree at Parsons School of Design. He works full-time as a computer programmer for an interactive agency but pursues a passion for restaurant design as a parallel career.

The concept for SEA was "to create an urban destination that was casually hip like the neighborhood," Thahong says. Vintage lighting fixtures and chairs are combined with tables and benches built from wood salvaged on-site. Other tables are Noguchi-inspired.

Thahong devised a colored-lighting scheme to distinguish zones—red in the lounge, green in the dining area, and yellow at a second bar toward the back. At the entry, the 70s-inspired lounge and bar area is bathed in red lighting and features a hanging bubble chair, swinging benches, and a deejay booth mimicking the style of a lifeguard stand. Internally lit wood partitions separate dining spaces. Saucerlike hanging fixtures rescued from midcentury diners illuminate the main dining area. A custom iron chandelier, articulated with exposed lamps, hovers above communal seating. In the center of the room, a reflecting pool inspired by Thailand's floating markets is presided over by a standing Buddha grazed by underwater spotlights.

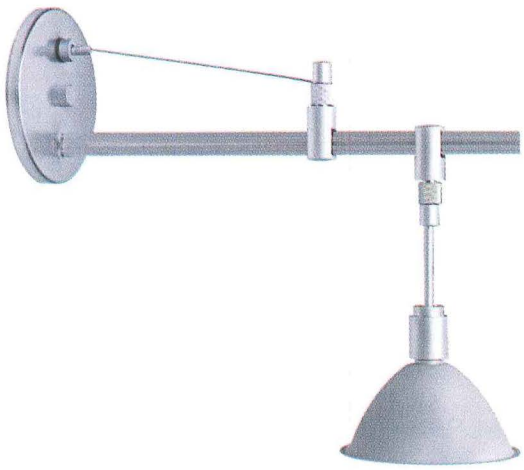
This summer, SEA made a cameo appearance on television's *Sex and the City* as a restaurant called RAW. As an eclectic space that strikes a balance between polished and edgy, SEA creatively employs illumination to welcome all patrons into the multilayered limelight. ■

Project: *SEA, Brooklyn, New York*
Interior, lighting designer: *Charoonkit Thahong, principal; Teerayu Meesupaya, assistant*
Engineer: *Jor Wor Chin*
Electrical engineer: *Fu Shan*
General contractor: *Kitlen Management*
Consultant: *Chotima Photjanuwat (lighting)*

Sources
Track halogens: *WAC Lighting*
Vintage fixtures: *Lot 76 NYC*
Underwater incandescents: *Hydrel*
Lamps: *Philips Lighting; General Electric; Satco; Secton*

For more information on this project, go to Projects at **www.architecturalrecord.com**.

Vintage incandescent pendants and underwater halogens highlight the reflecting pool area (above). Linear fluorescents illuminate a bar top (left), with bottles backlit by PAR lamps fitted with yellow filters. Opposite, top to bottom: Zoned dining areas feature different colors of light. The restroom entry glows red beneath a chandelier. Boxes internally lit by incandescents punctuate pine-clad walls.



Wall Spotlight 200

The Wall Spotlight 200 is one example of several unique wall fixture designs from MP Lighting. This cantilevered wall mounted fixture was designed to adjust the beam spread down the surface of a wall using an adjutable aluminum reflector and a 50W low-pressure halogen bi pin light source. It is available in plated finishes of Chrome, Matte Chrome and Brushed Nickel.

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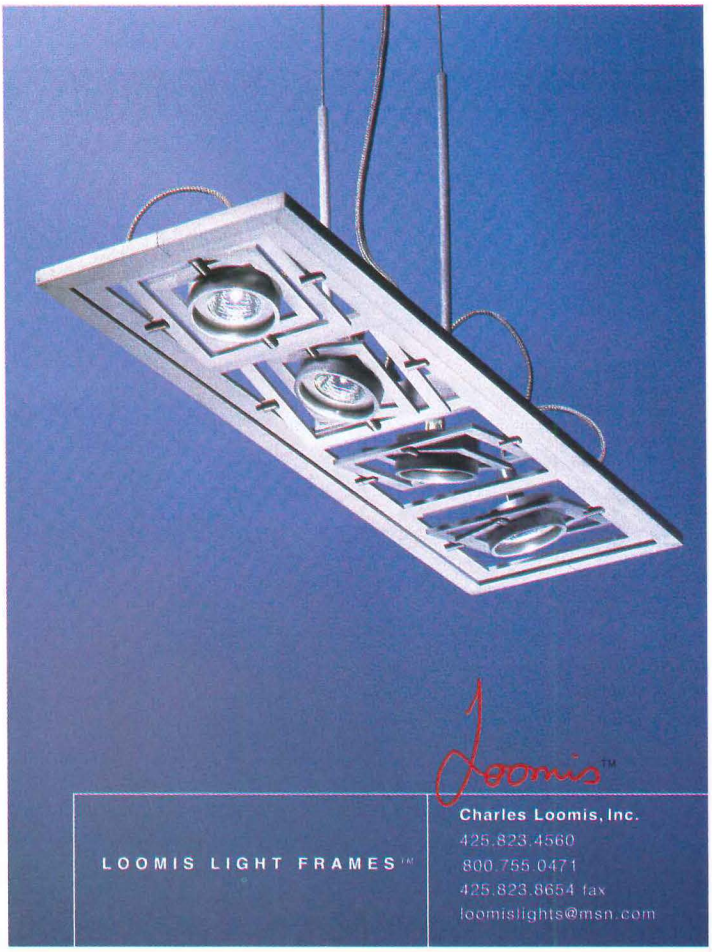

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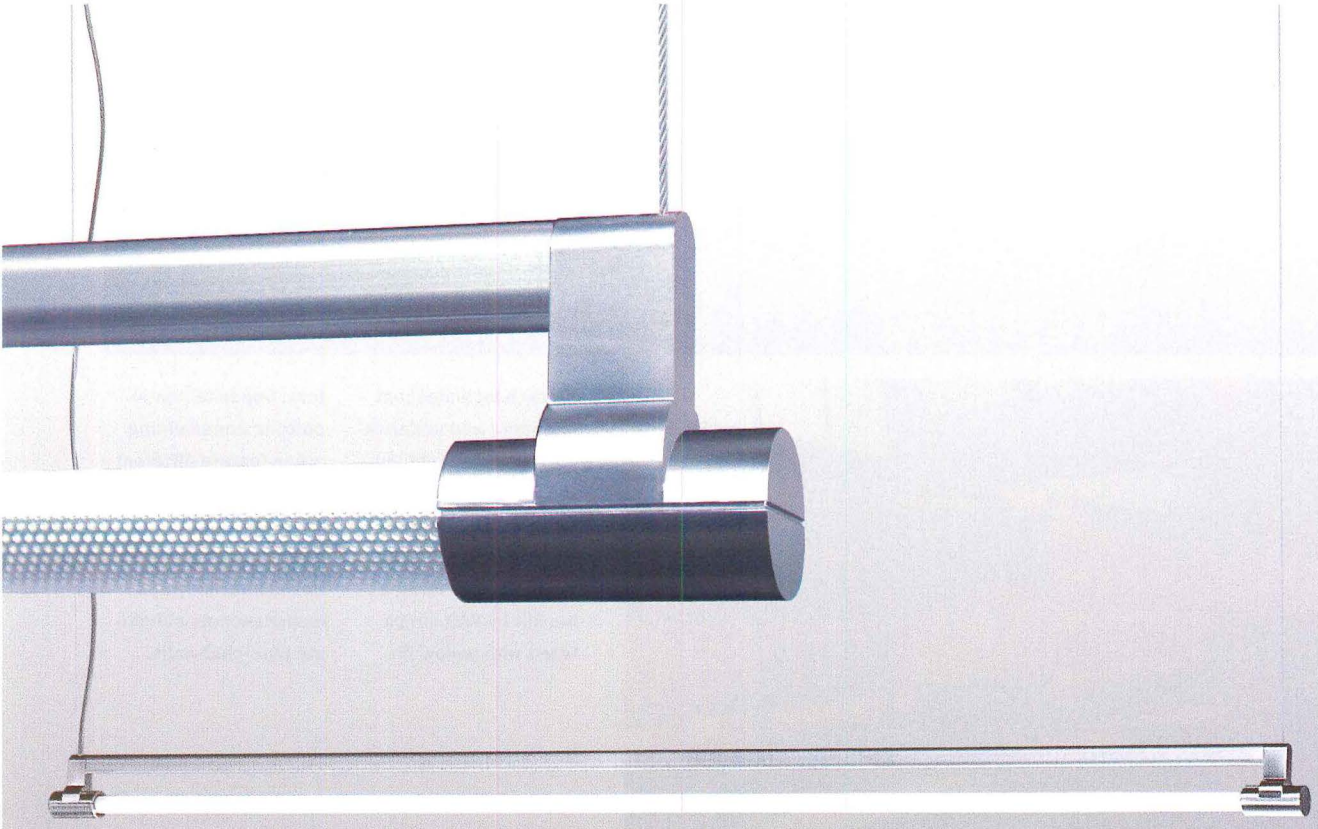

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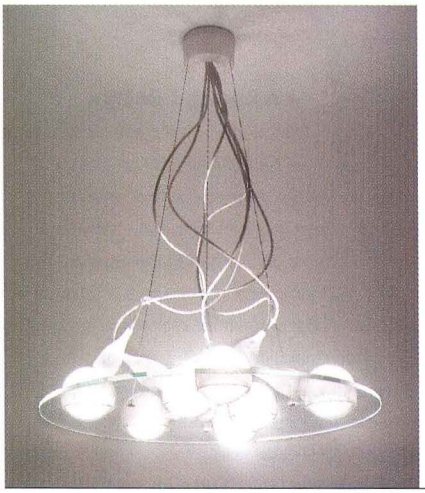
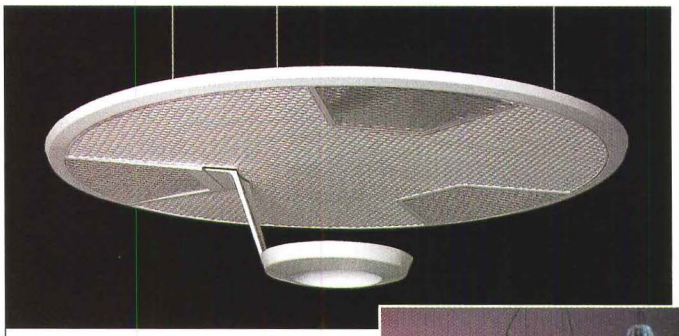
Lighting Briefs

Euroluce, the biennial European lighting exhibition, shared the spotlight with the Milan Furniture Fair this past April. Over 500 exhibitors featured lighting ranging from minimal to sculptural to otherworldly. *Josephine Minutillo*

' See through

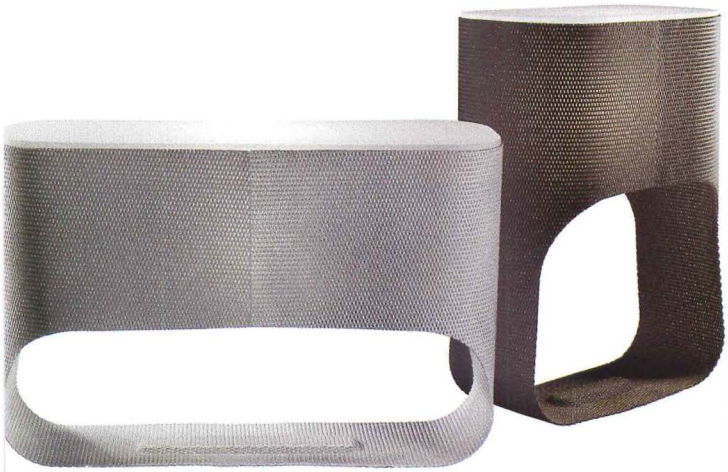
mong Artemide's extensive introductions this year was a new suspension lamp by ndrea Anastasio fittingly called T(h)rou(gh). A mix of poetry and sculpture, T(h)rou(gh) features seven globes of light that rest on cutouts in a transparent, circular slab of glass, allowing a portion of the spheres to pass through the slab to give the impression that they are floating in midair. Each of the globes is 4.7" in diameter and contains 100-watt bulbs. The lamp is connected to the ceiling by three thin steel cables intertwined among the individual wires. 631/694-9292. Artemide, Farmingdale, N.Y. **CIRCLE 200**





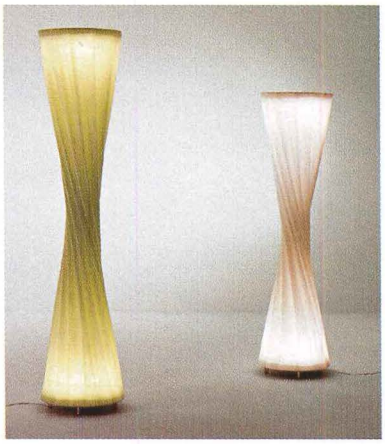
► Beam me up, Scotty

Luceplan introduced more than a dozen new fixtures by a team of young designers this year. The futuristic-looking Agave (right) and Zeno (top), both by Raffaele Tedesco and Diego Rossi, feature unusual materials and shapes that combine transparency, reflection, refraction, and diffusion while reducing energy consumption. Agave's methacrylate ribs come in elliptical, parabolic, and spherical shapes. Zeno's circular reflector contains hexagonal micro-optics that produce different intensities and chromaticities of light to suit the needs of the space in which it is used. 212/989-6265. Luceplan USA, New York City. **CIRCLE 201**



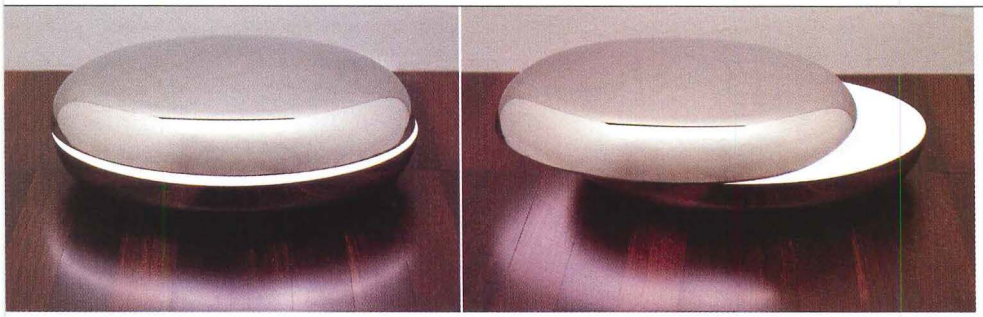
. Ring of light

o further its goal of producing fixtures that are truly light sculptures, Foscarini enlisted esigners Patricia Urquiola and Eliana Gerotto to create Bague, a table lamp whose erforated metal net acts as a support base and diffuser. The metal is covered with a ilicon resin, rendering it soft to the touch while retaining its structural stability. Bague available in two shapes, as shown, and uses an incandescent bulb. 203/791-0348. lorth American Light Spectrum, Danbury, Conn. **CIRCLE 202**



◄ Dancing shades

The Valzer floor lamp, by Pallucco Italia, is covered by a fine fabric that is twisted 90 degrees on the central axis, giving the appearance of motion. Available in two heights, 71" or 82½", the internal metal structure features a white epoxy powder finish. The lamp's cylindrical shade is a removable, flame-retardant fabric that conceals six 75-watt incandescent bulbs. 617/451-2212. Adesso, Boston. **CIRCLE 203**

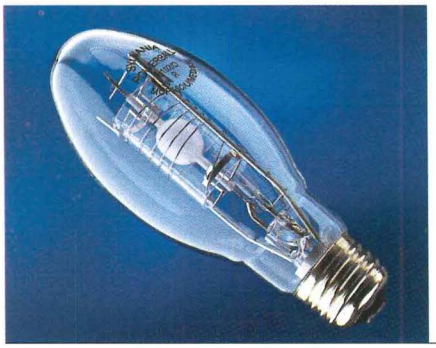


◄ In the loop

Introduced at Euroluce and awarded Best Lighting at this year's International Contemporary Furniture Fair in New York City, Loop is a table lamp whose light diffusion is made possible by rotating the upper portion of the fixture. Designed by Voon Wong, the structure is available in stainless steel or painted nickel. Dimensions are 20" wide x 7" high. 310/247-9933. FontanaArte USA, Los Angeles. **CIRCLE 204**

Lighting Briefs

Last May, the annual Lightfair International trade show was held in New York City (next year's show is in Las Vegas). Here are a few of the innovative designs and technologies that were on display at the show. *Rita F. Catinella*

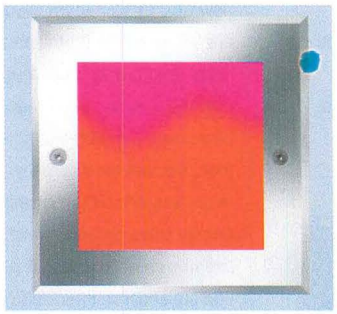


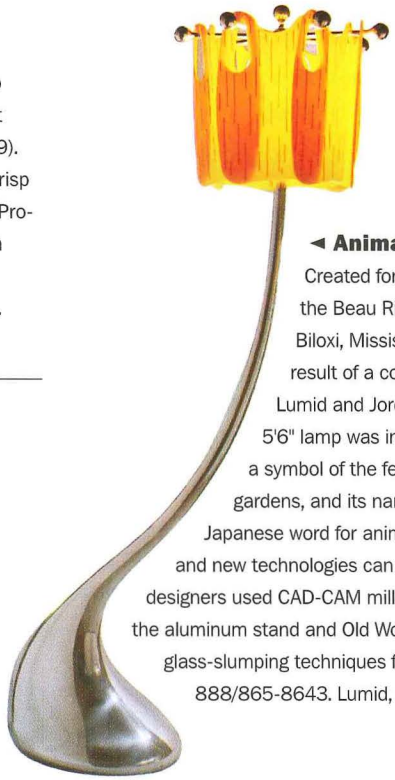
◄ Powerful lamp

The Metalarc Powerball Ceramic 150-watt lamp combines conventional metal-halide pulse-start characteristics with high color rendering (CRI 89). Ideal for retail and other applications where a crisp white light is necessary, the lamp incorporates Pro-Tech and pulse-start technology for use in open fixtures and for improved lumen maintenance. 978/777-1900. Osram Sylvania, Danvers, Mass. **CIRCLE 205**

► For a colorful change

The Ledos RGB luminaires use integrated color-changing-control technology to create high-impact color-changing effects. The die-cast aluminum or stainless-steel housings come in a round or square shape and may be used inside or out in floor, ceiling, and wall applications. The fixtures are compatible with all DMX512 control systems or can be operated with Zumtobel's ChromaSelector. 800/932-0633. Zumtobel Staff, Highland, N.Y. **CIRCLE 206**





◄ Animated design

Created for a Japanese restaurant at the Beau Rivage Resort Hotel in Biloxi, Mississippi, Anna-Mae is the result of a collaboration between Lumid and Jordan Mozer Studios. The 5'6" lamp was inspired by the willow tree, a symbol of the female life force in Japanese gardens, and its name is a play on the Japanese word for animation. Proving that old and new technologies can work side by side, the designers used CAD-CAM milling technology to create the aluminum stand and Old World glass-fusing and glass-slumping techniques for the colorful shade. 888/865-8643. Lumid, Montreal. **CIRCLE 207**

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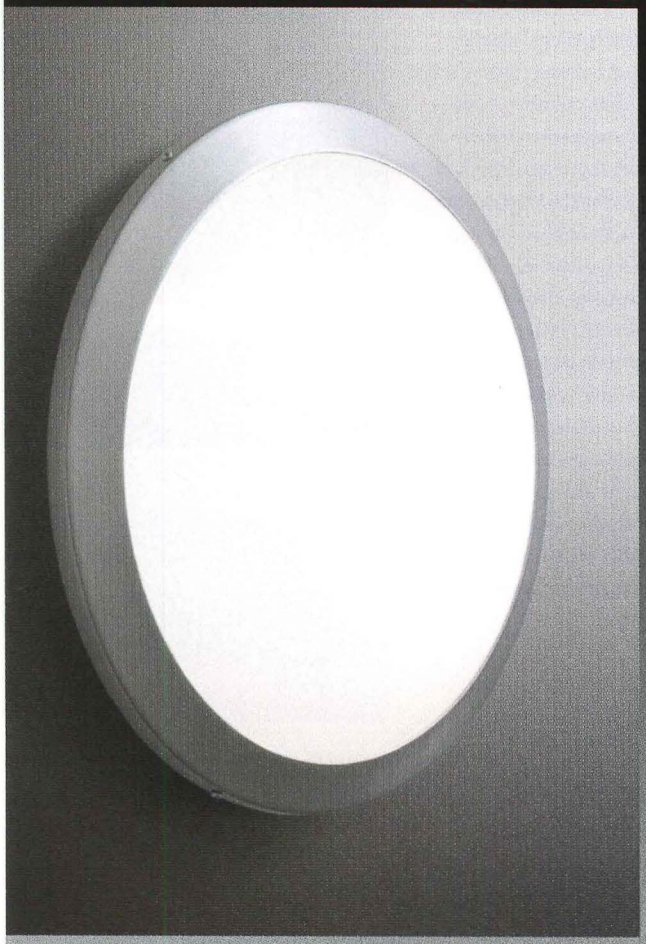

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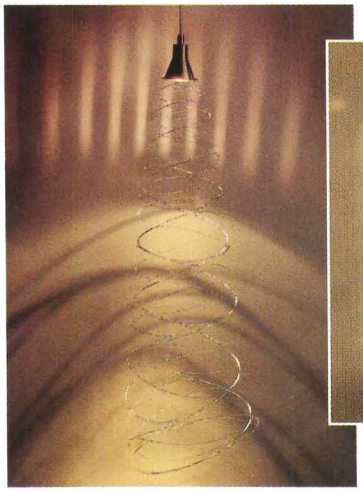
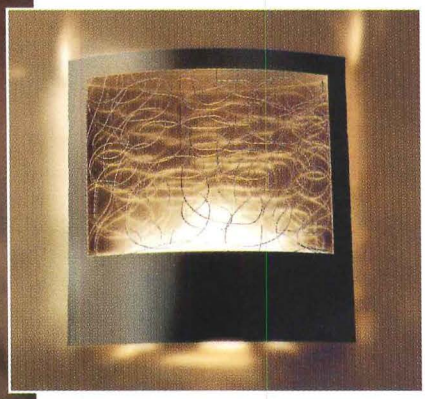
Lighting Briefs

Lightfair International



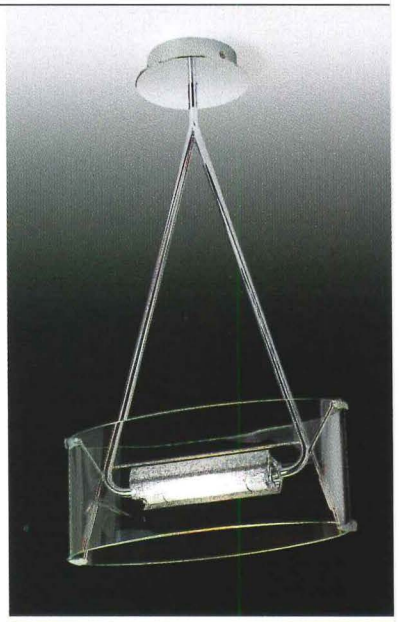


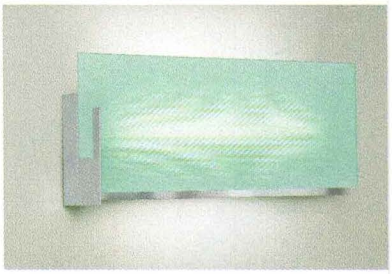
▲ Israeli industrial design

Since launching the Michael Graves lighting line in 1986, Baldinger has developed a tradition of introducing designs by internationally acclaimed designers, as well as up-and-coming talents such as Liat Poysner. Born in Zirchon Ya'akov, Poysner became enamored of the photochemical etching process while working at a machining plant. Using this etching technology, stainless-steel sheets, and light, she produces shades that can be assembled manually in an origami-paper-folding technique that requires no screws or welding. 718/204-5700. Baldinger Architectural Lighting, Astoria, N.Y. **CIRCLE 208**

► Metal and glass collaborations

The restyled Vittoria collection (top right) features a sparkling, clear glass diffuser and a new antiglare screen that is finished in polished chrome. The floor-lamp version features a restyled base and stem details. The multiple facets of the Manhattan luminaire (bottom right) allow you to view the design from four different perspectives. Reminiscent of the Constructivist period, the Manhattan wall- and table-lamp series features a satin white or multistriped glass diffuser and a metal framing structure in a polished chrome or titanium painted finish. 732/225-0010. Leucos USA, Edison, N.J. **CIRCLE 209**





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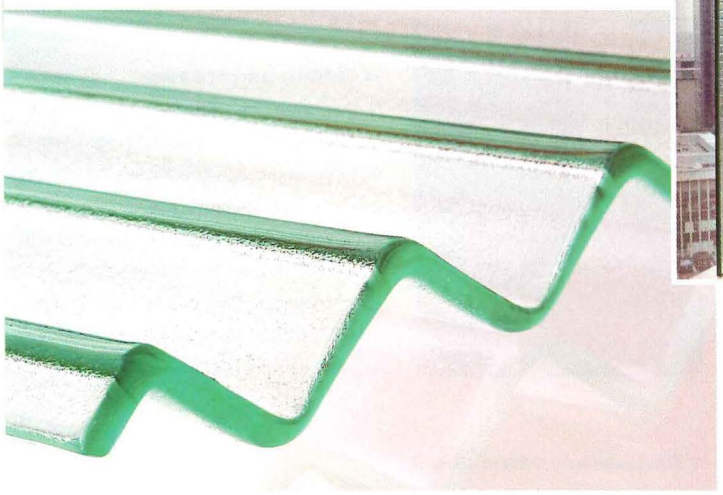
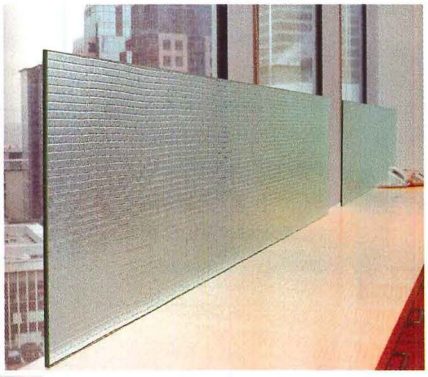
New Products

The following **glass and glazing** products have been cast, sandblasted, glazed, and transformed by various other forms of artistry and engineering to create the right design or function required by specifiers. Many of these products are a response to economic, energy-efficiency, and/or **building-code issues** that concern today's architects and designers. *Rita F. Catinella*

New textures, processing techniques, and ventures for a Canadian glass studio





Trio corrugated cast glass (left). Echo Editions privacy screen (above).

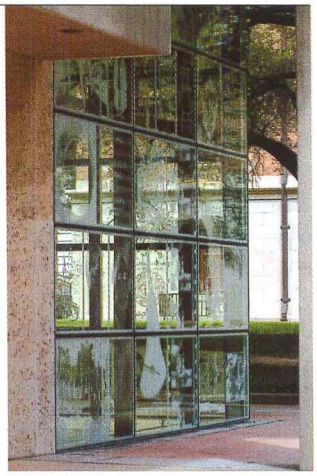
The latest addition to Joel Berman's palette of cast-glass designs is Trio, named for its triangular corrugated motif. Launched at the AIA's convention held last May in San Diego, Trio is the third texture of Berman's 3D Studio Line, following a curved corrugated design, known as Corrugated, and an abstract pattern inspired by crumpled paper, called Arrigado. Trio was inspired by Berman's work with pyramid structures in glass in the 1980s, created with glass designer Ludwig Schaffrath, one of the founders of the contemporary architectural glass movement. The Trio texture is available in ¼" and ⅜" thicknesses and in panel sizes up to 5' x 12'.

At the AIA show, Berman also introduced Echo Editions, a new line of competitively priced textured glass products. Developed using a modern processing technique, Berman's pressure-formed glass is available in large quantities for immediate delivery. Although Berman kiln-cast glass products remain an option for high-traffic prestige locations such as reception areas, the new Echo Editions line allows architects and designers the possibility of extending Berman glass into areas such as partition walls, door panels, and windows throughout the office. Popular textures and designs such as the linear Grande Rake and organic Pietra will now be available in the new format.

In addition, the company recently acquired the North American rights for a process to produce the first commercial transparent glass paint, and it announced that DuPont Corian will be creating a line of Joel Berman's designs as part of its collection of solid surfacing patterns. 888/505-GLASS. Joel Berman Glass Studios, Vancouver, Canada. CIRCLE 210

Ransom Center's treasures captured on sandblasted glass walls

The Harry Ransom Humanities Research Center at the University of Texas at Austin houses 30 million literary manuscripts, one million rare books, five million photographs, and more than 100,000 works of art. For the center's recently completed renovation, San Antonio-based Lake/Flato Architects transposed some of the collection's instantly recognizable images onto a three-sided glass wall entrance. This accomplished two goals—to help bring natural light into what had previously been a dark and uninviting interior, and to further promote Harry Ransom's goal to make the collection available to the public for research. Lake/Flato worked with Austin graphic design firm fd2s Inc. and Chicago-based glass fabricators Skyline Design to transform the center's digital collection of photos, text, and film images into a 12,000-square-foot glass display. For the project, Skyline used Photo Glass, a proprietary process that pixelates an image that can be sandblasted onto any thickness of glass—in this case a ¼" piece of tempered glass on the inside of a 1" insulated-glass unit.



Skyline overcame several challenges to transpose digital images onto glass.

Skyline quickly discovered that for this particular application a pure sandblasted finish would be too translucent to see. The firm solved the problem by adding a natural pigment to the halftone images that would obscure the sandblasting but remain subtle enough to allow light into the space. Another issue that arose during fabrication was determining how to treat images such as watercolors or charcoal sketches that fell somewhere between line art and photography. In a trial-and-error process, the Skyline team discovered a way to correctly replicate even those trickier images that were not purely positive or negative. 773/278-4660. Skyline Design, Chicago. CIRCLE 211

New Products

▼ Flexible window wall

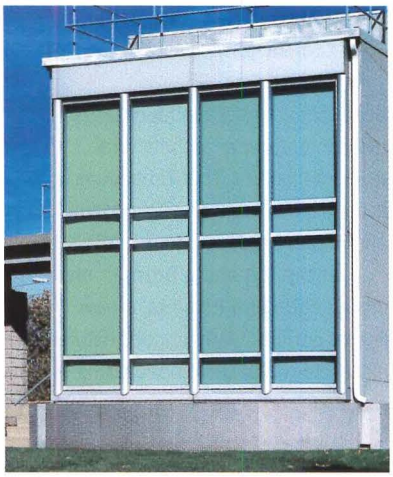
Wausau's new RX Series window wall can be used for almost any punched opening; a continuous, vertical strip of windows; a horizontal ribbon of windows; or a low-rise curtain wall. The RX Series meets rigorous performance standards for water-resistance, air-infiltration, and thermal-efficiency, as well as accommodating seismic and inter-story differential movement. 877/678-2983. Wausau Window and Wall Systems, Wausau, Wis. **CIRCLE 212**

◄ Tables and treads

Nathan Allan Glass Studios now offers stair treads and landings in clear, crystal clear, textured, and colored cast glass, all with an exclusive nonskid protective surface. Also new from Nathan Allan are tables produced with ⅜"-, ½"-, or ¾"-thick textures in square, rectangular, triangular, oval, and circular shapes. 604/277-8533. Nathan Allan Glass Studios, Richmond, British Columbia. **CIRCLE 213**

► Cooling effect

The Oceans of Color collection from PPG is engineered to provide more color options along with industry-leading ratings for high visible light transmittance, reduced infrared transmittance, and low solar-heat-gain coefficient. The four spectrally selective tinted glasses, available in aqua green, emerald green, aqua blue, and light green, are intended to significantly reduce the demand on a building's artificial light and cooling systems. 800/377-5267. PPG Industries, Pittsburgh. **CIRCLE 214**



▼ Code-ready wired glass

In the 2003 edition of the International Building Code and the NFPA 5000 building code, there are certain applications where wired glass is traditionally used that will need to meet the impact requirements of CPSC's Cat. 1 impact-safety requirements

Pyroshield Plus, a special laminated glass variant of Pilkington's Pyroshield products, is an economical response to those code changes that is readily available in stock sizes up to 9 square feet. 800/431-2042. General Glass International, Secaucus, N.J. **CIRCLE 216**

▼ New plastic glazing products available in the U.S.

While Gallina has been designing and manufacturing plastic glazing products throughout Europe for nearly half a century, its products have not been available in North America until now. Gallina's polycarbonate sheets have built-in tongue-and-groove connectors that eliminate the need for separate profiles, saving time on installation. Gallina also offers modular panel systems for roofing, insulated windows, and side-window systems, including accessories. 608/868-4215. Gallina USA, Milton, Wis. **CIRCLE 215**

► 60-minute-rated glazed wall system

A part of InterEdge Technologies growing Vision Series of doors, windows, and transparent wall systems, the Vision 60 System is a fully glazed, 60-minute-rated wall system that requires no framing other than on the outside perimeter. Vision 60 can be used in airports, retail centers, commercial office buildings, hospitals, schools, and other locations that require uninterrupted viewing. A Pyrobel 60 glazing is available for the system in maximum panels of 48" x 96", which can be glazed horizontally or vertically but not stacked. 877/376-3343. InterEdge Technologies, Sausalito, Calif. **CIRCLE 217**

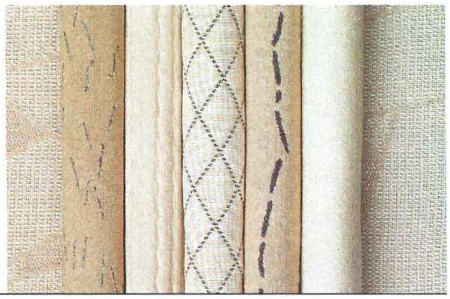
Product Briefs

Joining the workforce

tra's newest office concept, Joyn, is a work platform from which individual zones are efined with accessories that either drop in the middle or slide onto the edge without ols. Designed by the Bouroullec brothers, Ronan and Erwan, Joyn's workstations are efined by lightweight, fabric-covered lateral screens or walls that slip over the table dge at any point. The system also includes three pieces of "micro architecture"—anopy, Bay, and Talkpoint—that define space or create private areas for phone calls one-on-one meetings. 212/929-3626. Vitra, New York City. **CIRCLE 218**

It's a wrap

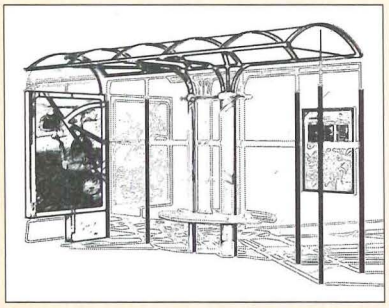
spired by the textures of protective materials such as bubble wrap, corrugated cardoard, and ace bandages, *in-a-bind* is a new collection of textiles designed by Laura uido-Clark in collaboration with Metropolitan Furniture Corporation for Designtex. The collection includes five upholstery brics in a cotton/polyester end (Ace, Blanket Wrap, orrugated, Staple, Stitch), a ck-panel fabric (Bubble rap), and a 100 percent ool fabric (Yarn). 800/221-540. Designtex Group, New ork City. **CIRCLE 219**



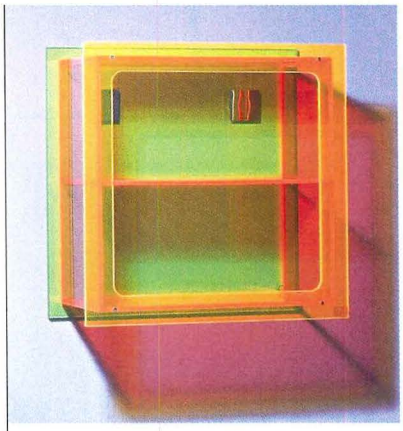
Organic coverings

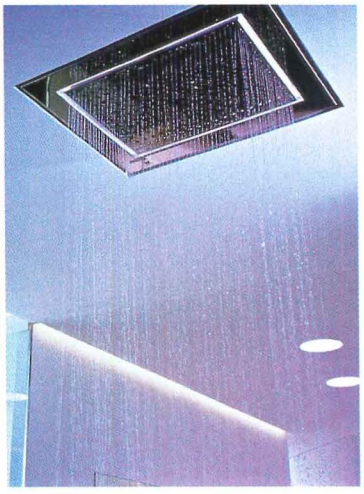
degard's new floral rug collection, Botanica, is made by child-free labor in an ancient epalese weave tradition. Created with vegetable dyes, each design in the collection atures botanical details that range from blossoms to furled leaves to vines that eep along the carpet's edge. The Botanica Collection's floral elements are often eated as cutout shapes and silhouettes and set in relief by additional graphic details, ich as stripes and open windows. 212/545-0069. Odegard, New York City. **CIRCLE 221**

Product of the Month
Street Furniture



Cemusa, headquartered in Madrid, has designed, manufactured, installed, and currently maintains more than 100,000 units of street furniture in more than 110 cities around the world. Working with city councils and acclaimed architects and designers, such as Richard Rogers, Nicholas Grimshaw, and Oscar Niemeyer (designer Jean Piantanida's bus-shelter drawing and final product are shown here), the firm develops bus shelters, clocks, public-information panels and stands, press kiosks, automatic toilets, and special trash containers for the needs of various urban environments. In the U.S., for example, Cemusa has recently been awarded a project for 3,000 hurricane-proof and solar-powered bus shelters in Miami-Dade County. However, cities such as Miami do not foot the bill for the products or their maintenance throughout the years. Instead, those costs are covered by revenue from the advertising displayed on the furnishings—therefore making it possible to work within even the most strapped city budgets. Cemusa's "green" initiatives involve studying the life cycle of their components as well as using local manufacturing facilities to help the city's environment and economy. 312/867-5425. Cemusa, Chicago. CIRCLE 220





▲ Technical to natural

Meta Plasma is a new series of wall storage, fittings, and accessories developed by Sieger Design for Dornbracht that are fabricated from an acrylic material that interacts with natural lighting in such a way that corners and edges appear to be magically illuminated. The furnishings collection is composed of basic cubes, rectangular storage modules that create an expanse of shelf, and framed mirrors. Also from Sieger for Dornbracht is the MEM collection of faucets and fittings that are designed without an aerator to recapture water's original force. The Rain Sky overhead rain-shower spray system resembles an integrated ceiling vent, but in place of vanes is a panel that allows the water to spray down like a natural rainfall. 800/774-1181. Dornbracht USA, Duluth, Ga. **CIRCLE 222**

Introducing Walker® FloorPort™ Series.

The new Walker FloorPort series of service fittings gives you the flexibility to specify according to style, not just the application. FloorPort activations work interchangeably with many infloor systems, so your covers can be consistent throughout buildings with more than one wire management system. They feature 25% more cable egress capacity, are stronger than ever before, and are available in a variety of coated finishes: textured aluminum, brass and black. Plus, the activations provide TopGuard™ protection against water, dust and debris, exceeding the new UL® scrub water standards for carpet and tile floor surfaces. With the FloorPort Series, the choice is easy. Call 1-800-621-0049 or visit www.wiremold.com for more information.

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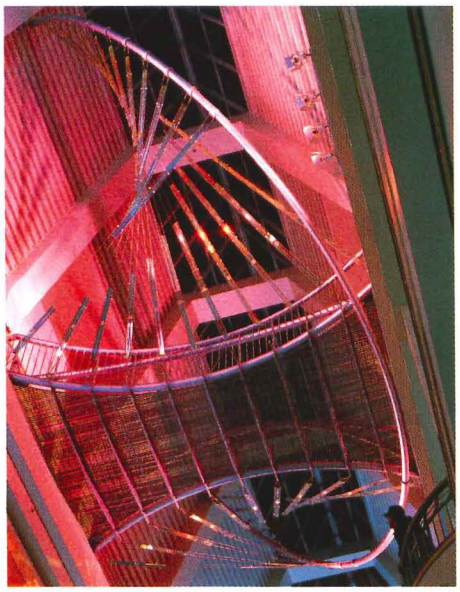
WIREMOLD®

Product Briefs

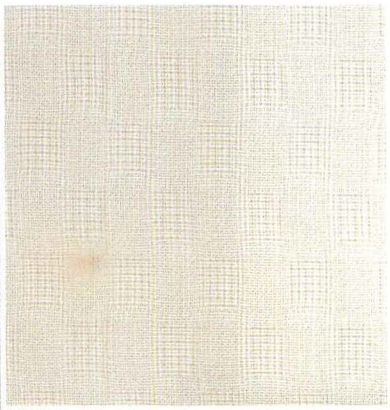
► Pipe dreamers



By mastering hot and cold bending techniques over the past six decades, Albina Pipe Bending Company has the capabilities to bend pipe and tubing ranging in size from ⅛" to more than 26" in diameter. In addition to pipe and tubing, Albina works with all forms of structural steel (e.g., angle, wide flange and I-beams, channels, square and rectangular tubing, and bars), as well as virtually any other ferrous and nonferrous metal. Albina has fabricated several structures designed by artist Ed Carpenter, including pieces for 510 North Atrium in Chicago, Safeco Insurance Building in Seattle, and the Central Washington University Bridge in Ellensburg, Washington (shown). 866/ALBINA8. Albina Pipe Bending, Tualatin, Ore. **CIRCLE 223**

▼ A partnership of flooring and windows

According to Sandy Chilewich, one of the inventors of the Plynyl woven vinyl floor covering, her company has wanted to create textiles for windows and room dividers for a long time but was held back because of the design limitations they saw in the available hardware. The company has now found the right partner in Silent Gliss USA, a supplier of roller shades, blinds, and panels, which will manufacture and distribute a collection of roller shades and panel glides utilizing WindowLace, a finely woven vinyl in a variety of patterns designed by Chilewich. 212/679-9204. Chilewich, New York City. **CIRCLE 224**



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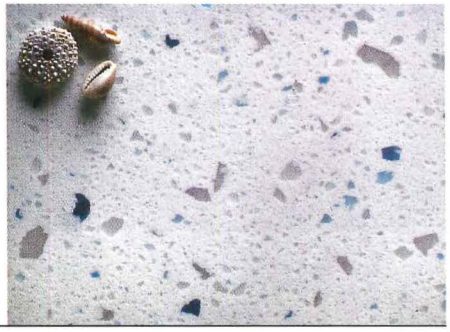
Product Briefs

▲ Natural separation

The Woven Trellis System from Heltzer can divide and define space for gardens, decks, terraces, hotels, restaurants, and pools. Offered in both mobile and stationary versions for indoor or outdoor areas, the system provides a physical wall while supporting various accessories by means of a specially designed universal attachment. A series of four planters sit on the base, allowing plants and shrubs to grow up the slats of the trellis. 877/561-5612. Heltzer, Chicago. **CIRCLE 225**

▼ Sea glass

Avonite's recycled program was initiated in 1997 in response to a corporate directive to strive for manufacturing facilities with zero waste-material discharge. Cozumel, the company's latest recycled product, features colored particulate produced from reclaimed Avonite Glass Series materials that previously would have been shipped to a landfill. Cozumel can be fabricated into special edges, backsplashes, inlays, accents, or sinks for kitchen, bathroom, hospitality, and commercial applications. 800/428-6648. Avonite, Belen, N.M. **CIRCLE 226**



◄ Royal flush

The Crown II is Sloan's latest addition to its piston Flushometer line. The product features a Bak Check control stop with a vandal-resistant spin cap and an ADA-compliant, triple-seal handle that is designed to ensure a fixed flush volume and eliminate overflowing. Crown II's outside cover is offered with accent rings in brushed nickel, lustre gold, polished brass, and satin finishes. 800/9-VALVE-9. Sloan Valve Company, Franklin Park, Ill. **CIRCLE 227**

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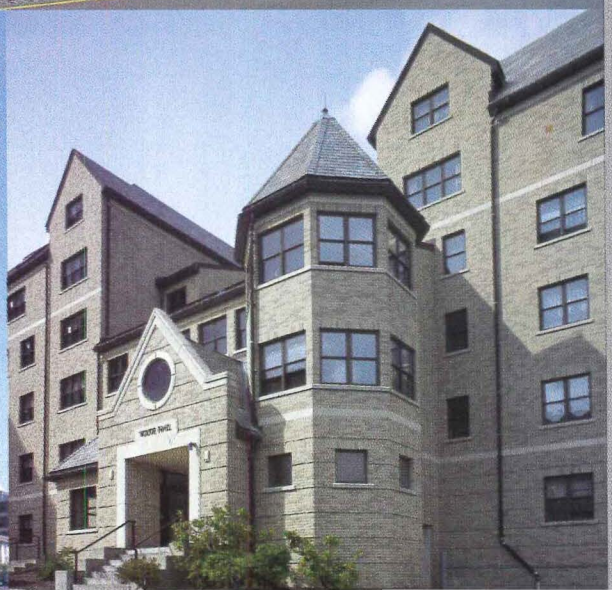
Landmarks in Brick



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buffs and dusty tans, delicate
cinnamon reds, chocolate brow
grays and coal blacks. With so m
to choose from your options are tr
Here is a small sample of over
ranges.

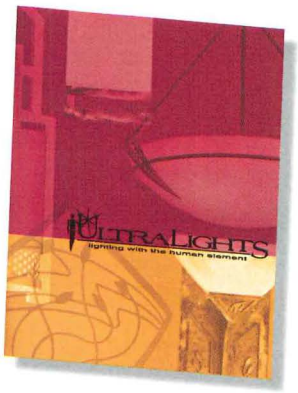
Textures

Belden Brick offers thirteen differe
that range from silky smooth
rugged randomly textured sty
texture can make its own
contribution to the visual impact

Sizes & Sha

More sizes mean lower wall cos
many as sixteen different sizes
from Belden has the size you
Belden has made thousands
shapes to provide special
individual projects. Need an "i
shape for your project? Then
Brick and learn how the impo
become reality.

Product Literature



Kitchen showcase

SieMatic's *American Landscape* brochure series includes the *Modern Classics* and *International Style* titles. The brochures feature actual customer kitchens that showcase the wide range of interpretation available with SieMatic products. 215/244-6813. SieMatic, Bensalem, Pa. **CIRCLE 228**

Marketing a new concept

Whirlpool has created a *Family Studio Planning Guide* portfolio of materials, including an interactive CD-ROM, designed to help architects and designers familiarize themselves and introduce clients to the Family Studio concept. 800/253-3977. Whirlpool, Benton Harbor, Mich. **CIRCLE 229**

Color lighting catalog

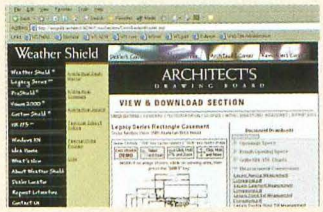
In conjunction with its new collection of architectural lighting designs, Ultralights has introduced a new catalog of the company's entire product line. Together with an improved layout of options and specifications, Ultralights now offers color photography. 520/623-9829. Ultralights, Tuscon. **CIRCLE 230**

Range of table/floor lamps

Nova Lighting has introduced a new 24-page catalog featuring a complete line of contemporary and transitional table lamps, as well as torchères and other floor lamps. The Nova line features more than 300 different styles in a range of profiles and bases. 323/277-6266. Nova Lighting, Huntington Park, Calif. **CIRCLE 231**

NEW SITES FOR CYBERSURFING

Weather Shield now offers online Architectural Design Manuals **www.weathershield.com**



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These AIA fall events are just around the corner.

Exciting conferences and education sessions from the Professional Interest Areas (PIAs)

SEPTEMBER

Justice for the Homeland: Security in Architecture
September 11–13, 2003; Washington, D.C.
Provider: Committee on Architecture for Justice
Questions to *caj@aia.org*

Density: Myth and Reality
September 12–14, 2003; Boston
Providers: Boston Society of Architects, Regional and Urban Design Committee, Housing Committee, and Center for Livable Communities
Questions to *tdavis@aia.org*

Restoration and Renovation Conference and Exhibition
September 18–21, 2003; Chicago
Provider: Restore Media, LLC
Selected education sessions provided by the Historic Resources Committee
Questions to *hrc@aia.org*

OCTOBER

Strategically Leverage Your Prime Asset: Your Future Depends On It!
October 8–10, 2003; Savannah
Provider: Practice Management PIA
Sponsor: Graphisoft
Questions to *practicemanagement@aia.org*

Urban and Innovative Schools: The Cultural and Social Role of Educational Architecture
October 9–11, 2003; Minneapolis
Provider: Committee on Architecture for Education
Questions to *cae@aia.org*

Cleveland: The Treasures Within
October 16–18, 2000; Cleveland
Provider: Interfaith Forum on Religion, Art, and Architecture
Questions to *ifraa@aia.org*

Connecting the Dots: Understanding the Emerging Digital Building Process
October 16–19, 2003; San Francisco
Provider: Technology in Architectural Practice I
Sponsors: Autodesk Revit, Bentley Systems, Ir and Graphisoft
Questions to *tap@aia.org*

IFMA World Workplace 2003
October 19–21, 2003; Dallas
Provider: International Facilities Management Association
Education session (design/collaboration track) provided by Facility Management PIA
Questions to *facilitymanagement@aia.org*

NOVEMBER

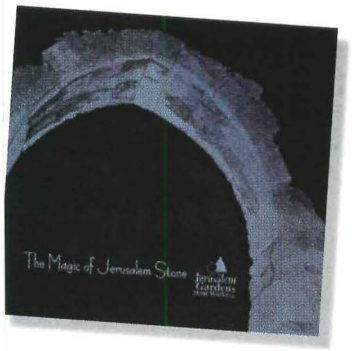
Mold in the Built Environment: Perspectives for Architects
November 8, 2003; San Antonio
Providers: Building Performance PIA, Specifica and Building Technology, Committee on the Environment, and Housing PIA
Questions to *plukas@aia.org*

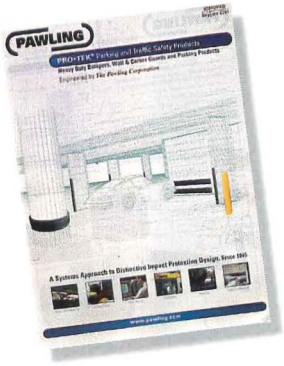
Historic American Buildings Survey 70th Anniversary Symposium: Technology and Architectural Documentation
November 14–16, 2003; Washington, D.C.
Provider: Historic American Buildings Survey, National Park Service; Library of Congress; Historic Resources Committee
Questions to *hrc@aia.org*

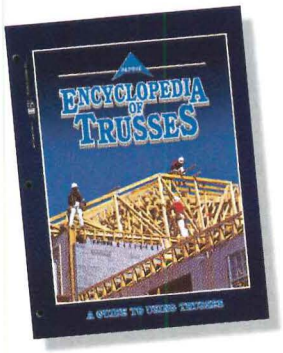
Women, Children, and Healthcare: Designing Facilities for Distinctive Needs
November 19–22, 2003; Denver
Provider: Academy of Architecture for Health
Questions to *jbarry@aia.org*

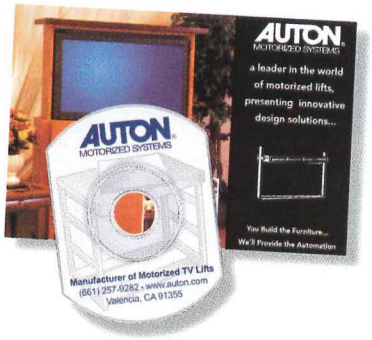
Visit the AIA's Web site, *www.aia.org*, for information on registration and hotel accommoda

Product Literature









Motorized lift system CD

Since 1955, Auton Motorized Systems has been providing motorized lift systems for homes, offices, hotels, yachts, and aircraft. Auton now offers a business card CD that contains current information on Auton's products along with CAD drawings. 661/257-9282. Auton Motorized Systems, Valencia, Calif. **CIRCLE 232**

Trusses from A to Z

The *Encyclopedia of Trusses* has been completely updated and redesigned in full color. More than 250 color photographs and illustrations show typical framing systems, variations and options, truss shapes and configurations, and temporary and permanent bracing examples. 954/781-3333. Alpine Engineered Products, Pompano Beach, Fla. **CIRCLE 233**

Impact-resistant products

Pawling Corporation's Architectural Products Division offers a catalog illustrating the 2003 PRO•TEK line of impact-resistant parking and safety products. The products include heavy-duty corner and wall guards, extruded bumpers, speed bumps, parking blocks, and bollard covers. 800/431-3456. Pawling, Wassaic, N.Y. **CIRCLE 234**

Jerusalem stone book

Jerusalem Garden Stone's *New Architectural Book* shows completed projects for clients around the world who have specified the company's various stones and finishes. 972 2 9922113. Jerusalem Gardens Stone Works, Beit Shemesh, Israel. **CIRCLE 235**

Technical bulletin on stucco

The Stucco Manufacturers Association offers technical information on efflorescence in Portland cement plaster finishes, or 3-coat stucco. Efflorescence is the crystalline deposit, usually white, that may develop on the surface of integrally colored exterior Portland cement plaster finishes. The technical bulletin includes information on causes, prevention, and remedies. 949/640-9902. Stucco Manufacturers Association, Newport Beach, Calif. **CIRCLE 236**

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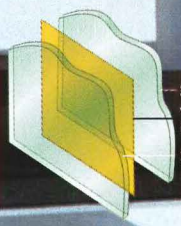

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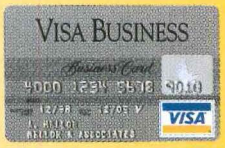

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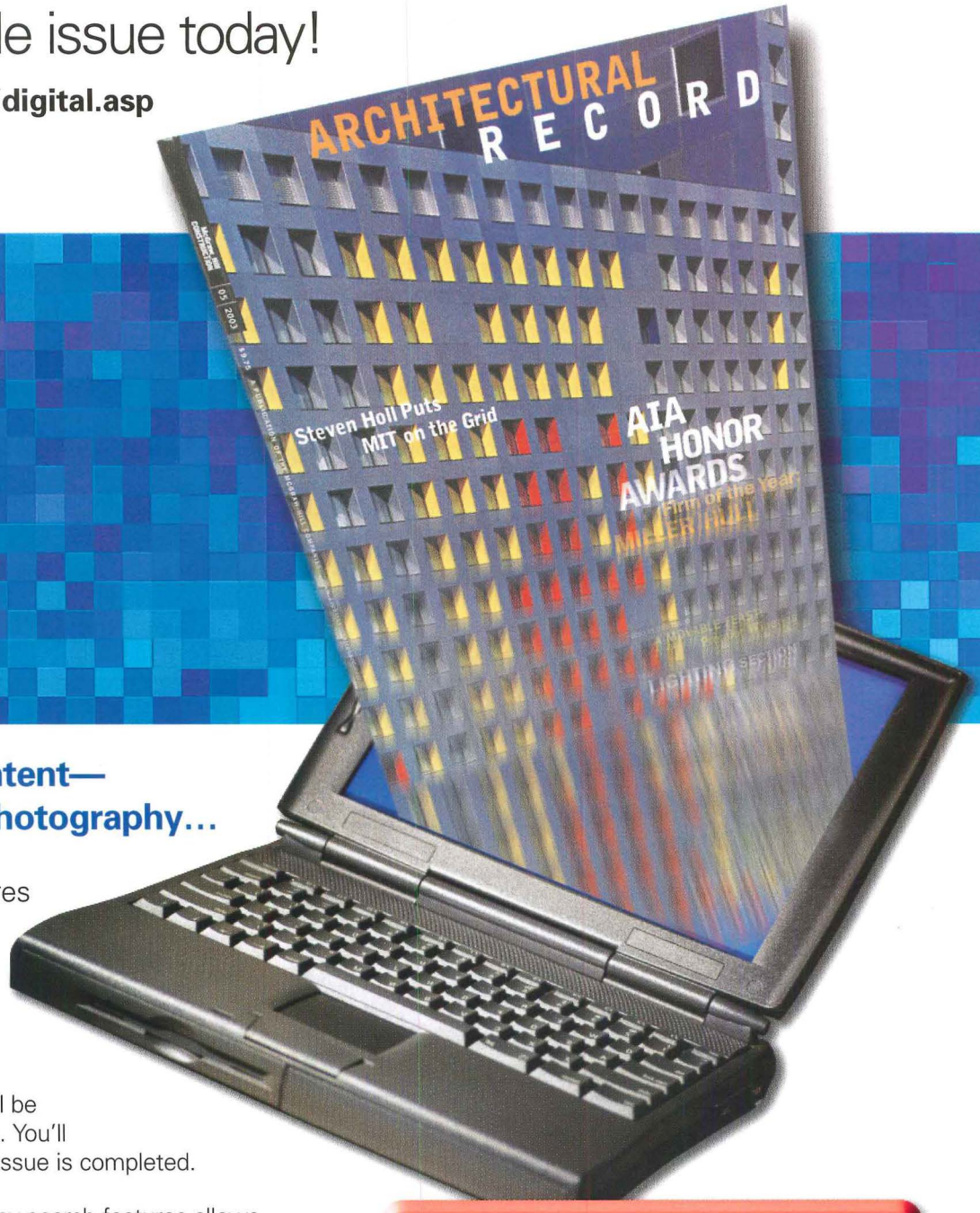

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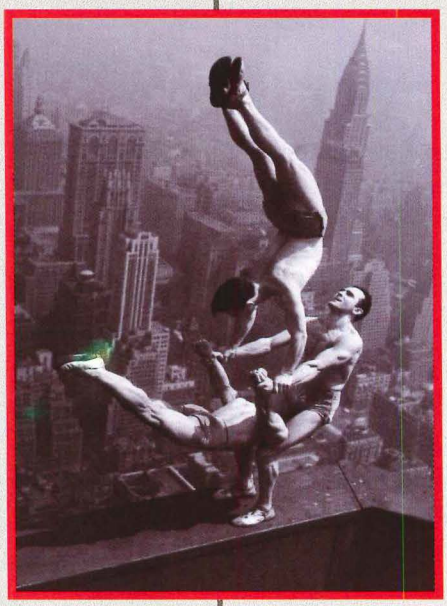

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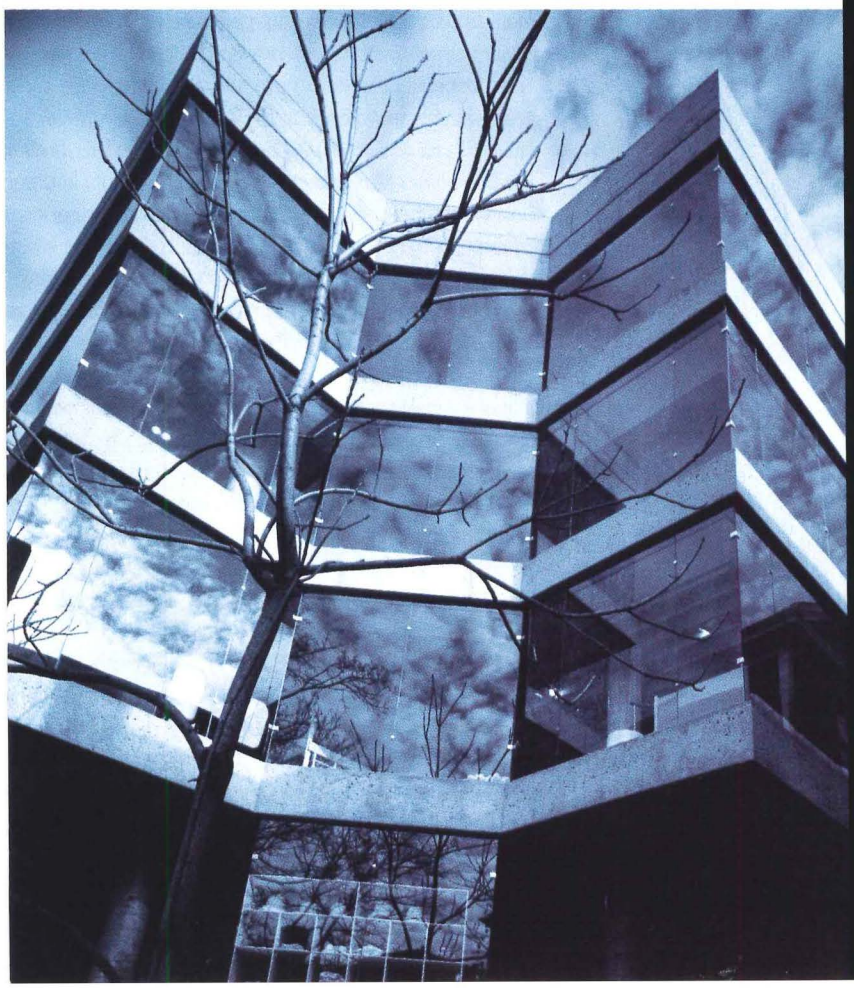

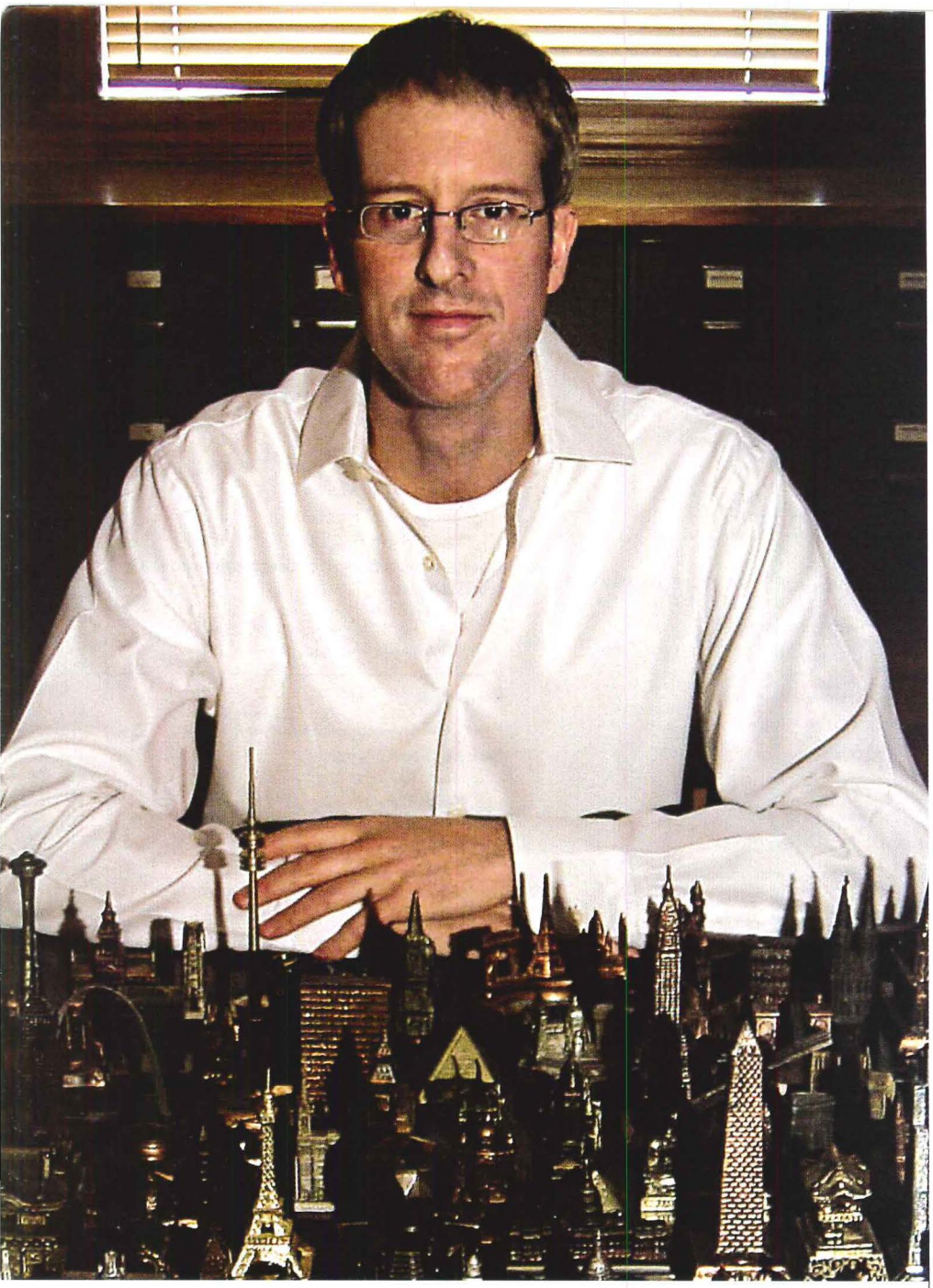

Jeff Speck: A New Urbanist finds a new purpose at the NEA

Interviewed by Ingrid Whitehead

Jeff Speck, the 39-year-old director of town planning at the Miami firm of Duany Plater-Zyberk (DPZ), wasn't looking for a new job, especially one as director of design at the NEA. In fact, he was happily ensconced at the New Urbanist firm, fighting sprawl and urban disinvestment and directing and managing projects worldwide. Still, once he was in the running and had the blessings of his employers, it seemed the perfect match. After 10 years with DPZ, and having coauthored the so-called "New Urbanist bible," Suburban Nation: The Rise of Sprawl and the Decline of the American Dream, *Speck may have just the right amount of experience, enthusiasm, and ideas to give American design a shot in the arm.*

Q: *Why were you chosen?* The chairman is a poet, not a bureaucrat. I think it was important to him to have a practicing designer, and someone who approached design in terms of its relationship to quality of life. While I have a tremendous interest in aesthetic and theoretical issues, my work as a city planner requires that I make every design decision in light of its possible benefit or detriment to the community. Will it bring people together or isolate them? Will it create more pedestrians or couch potatoes? Will it reduce or increase our energy use and pollution?

How will your theories about architecture, and New Urbanism, affect your role at the NEA? My main role is to identify the experts who will serve on our grant-giving panels and beg these very busy people to read dozens of applications when they could otherwise be catching up on their sleep. I was not hired to impose a New Urban agenda. But if you read the Charter of the New Urbanism, there is little in there that any socially responsible designer would dispute. It is not antimodern, and nor am I. Just as the New Urbanism is not about style, I don't see it as my role to promote either traditional or avant-garde architecture. However, it is important to distinguish between Modernist architecture and Modernist urbanism, the latter of which replaced social goals with aesthetic ones at too large a scale.

How will you do this job differently than the previous director, Mark Robbins? Mark directed the Mayors Institute in Urban Design and the University/Community Design Partnerships Program, both of which I hope to continue. Once I get a better sense of my resources, I will propose other initiatives. I share with Mark a deep concern about what he refers to as the gulf between professional discourse and popular culture. There is an incredible amount of good design in America, yet little of it finds its way to the American people. This becomes more the case as one increases scale, such that product design, housewares, and furniture have been doing pretty darn well—think about the iMac and the Beetle—but mass-market architecture, landscapes, suburbs, and regions do not reflect the best that we have to offer. The saddest thing is that the larger the scale, the greater the effect on quality of life. So, the gap I now see is not about taste, but about access.

How will you ensure results? I don't see how we can fail. Designers are problem solvers. The only question is how many designers we can introduce to how many problems. I have a lot of ideas I'm excited about, but all I can say right now is Watch This Space. The NEA is an organization that I am just beginning to understand. Once I have a better grasp of its orientation and capacities, I will begin to edit my far-flung collection of ideas into something that can be accomplished.

Photograph by Carlos Morales

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How one firm switched to VectorWorks and hasn't looked back

Dr. Peter Centre

Neale Staniszkis Doll Adams

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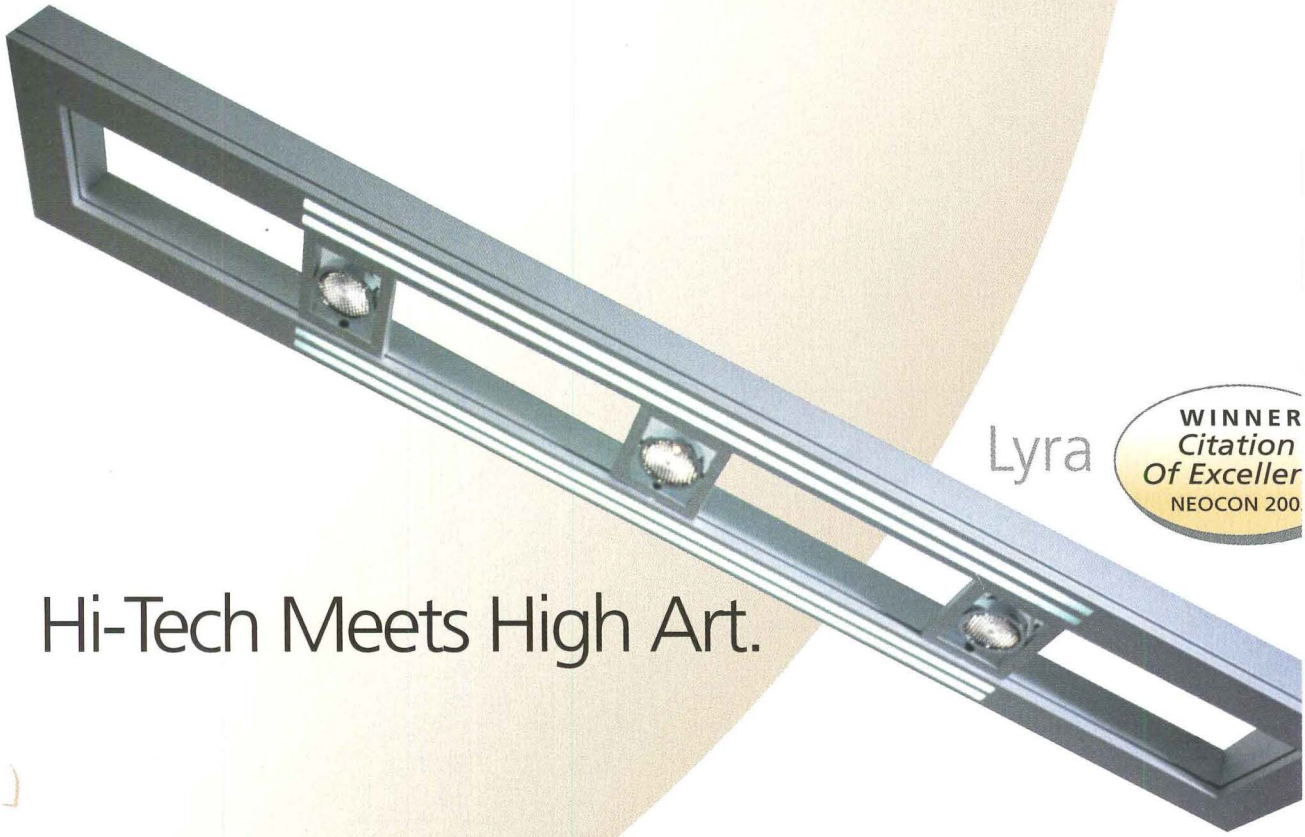

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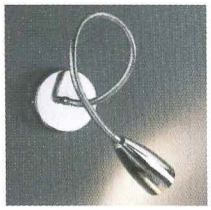

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