

ARCHITECTURAL RECORD

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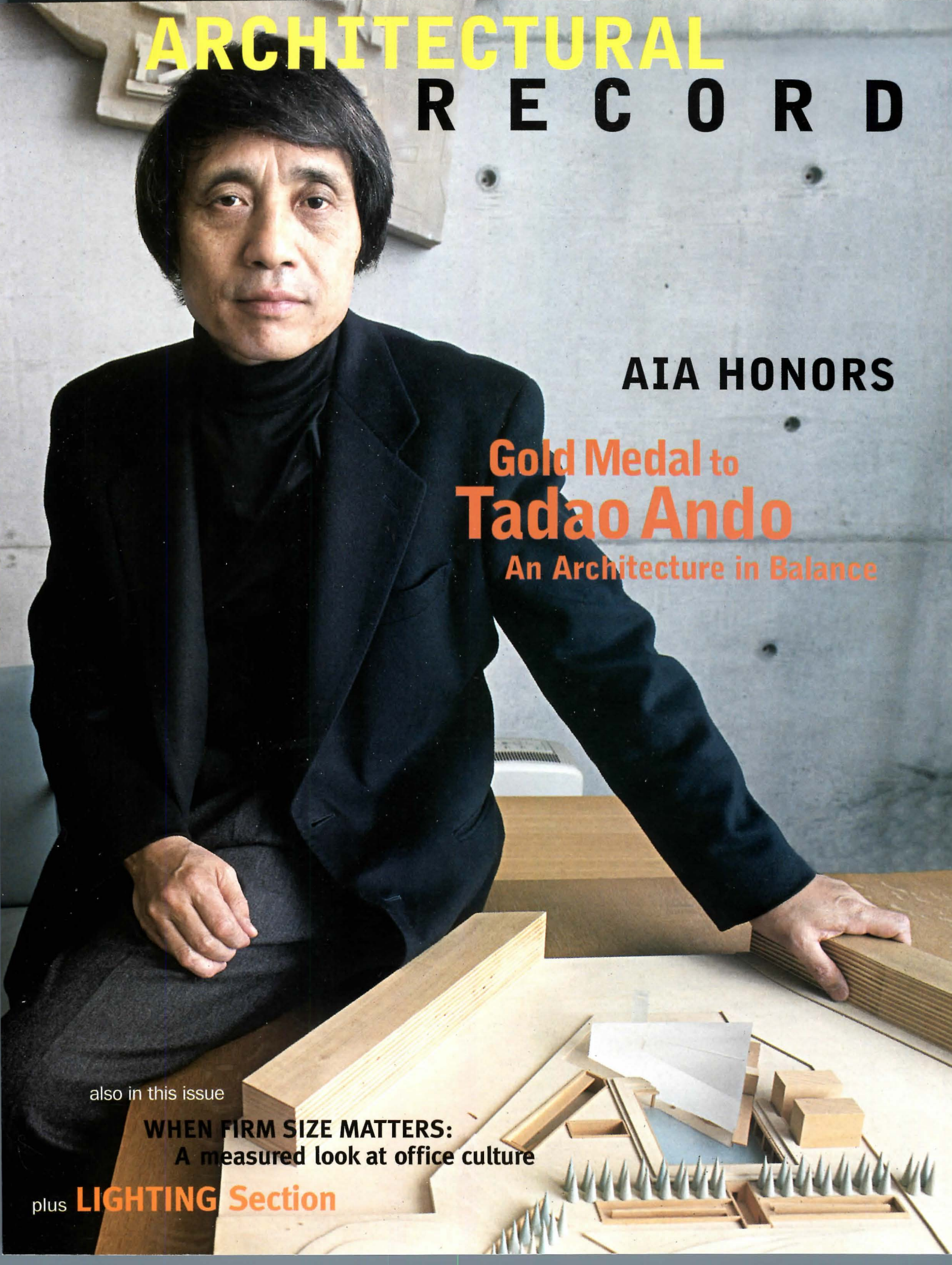
Gold Medal to
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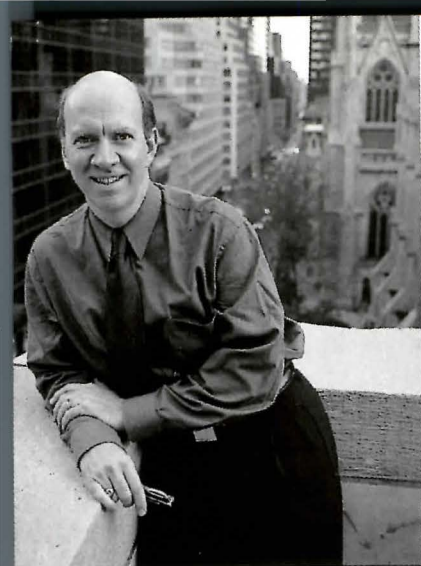
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The Case for a Competition

Editorial

By Robert Ivy, FAIA

Passions and confusion hover over the former World Trade Center site like lingering smoke. An international design competition could help clear the air downtown and produce creative, worthwhile structures that advance our whole culture. Without a competition, economic pressure and cronyism may allow any building done there to devolve toward architectural mediocrity, while the world loses a chance for a new vision. However, competitions are fraught with possibilities, good and bad, and are not panaceas: They require the right framework to succeed.

The first requirement may be the hardest—an agreed-on program for the whole parcel. While cleanup efforts accelerate and leadership becomes more apparent, the simplest outlines of a consensus are emerging from the chaos. Conversations and roundtables mention a memorial to anchor the hallowed 16 acres, surrounded by housing as well as commercial and office space, with a cultural or educational component included for the long-term, civic weal. Mayor Bloomberg has informally endorsed similar programmatic goals. The ensuing months should promote debate, community discussions, and planning, resulting in a hard-nosed, realistic program for development.

The commissioning authority (yet to be defined, but bearing the stamp of governmental authority and fiscal responsibility) should approve a detailed plan, outlining infrastructure, urban, and development requirements before anything is built. Then we should refocus our gaze upward.

An international competition of architects, conducted at the highest level of oversight and participation, committed to the unvarnished, uncompromised execution of the designs for the entire site, would remove the ensuing commission from the political arena and give the city a shot at evolving greatness. The memorial, for example, calls for an emotional resonance that great artists and architects can provide if given a framework removed from cronyism or political pressure.

Wedding poetic building to utilitarian purposes may sound contradictory, but great examples already exist abroad—in Japan, for example,

in the work of 2002 AIA Gold Medalist Tadao Ando, who routinely weds nature and simple materials to powerful effect. A competition could unleash an unprecedented worldwide design response and encourage an allusive, powerful work, as did the competition for the Chicago Tribune tower earlier in the 20th century (which catapulted nonwinner Eliel Saarinen into prominence) or the Vietnam Memorial in Washington, D.C.

Competitions can produce mixed results, particularly when finalists' plans are allowed to be amalgamated. Political maneuvering mired the competition for the Reichstag, Germany's parliament building in Berlin, in controversy, despite the fact that the finalists' schemes promoted the technologically advanced, stunning revitalization of a formerly reviled building. Competitions can provoke critical attacks. Earlier, the United Nations Headquarters, a Modernist icon along the East River, wedded international luminaries, including the French architect Le Corbusier and New Yorker Wallace Harrison, but provoked divided opinion on its unveiling.

No one wants the status quo. Embedded in the requirements for all structures on the site should be ideas that propel the project into this new century. Symbolically, new structures will project our image globally: The world is watching what we will build.

An international competition would reflect New York's continued preeminence among global cities. The intent would not be to subvert the excellent current planning for lower Manhattan by New York architects and engineers, much of which they have performed voluntarily; indeed, many of them would participate, either as individual finalists or as partners in larger groups executing the ultimate solutions. Instead, a competition would impel the entire design community, New Yorkers included, toward greatness. May the best ideas win.



Recreation Center, University of Idaho

Letters

Well done, Mr. Murcutt

The awarding of the Pritzker Prize to Glenn Murcutt is a wonderful moment for world architecture. It signifies a long overdue recognition of truly responsible, correct, humble, and, above all, human architecture and design philosophy.

In a world where such values are so frequently forgotten in the shadows of overhyped individuals and buildings that are accorded, often inappropriately, "superstar" status by our profession and popular culture, it is tremendously gratifying to see this award happen.

Anyone who really cares about great architecture should be delighted. Well done, and so very well deserved, Mr Murcutt.

—James C. Kelly
Via e-mail

All in the same boat

With due respect for, but in response to, Craig Purcell's letter [Letters, April 2002, page 18], I would like to suggest that his comments need not be confined to design activities. I do take some issue with his remark about those "relegated to the spec department or to doing details in the back room." Surely, he is not prescribing a set of second-class citizens in the profession, who are hidden away but ever so vital to getting the design on the streets properly!

That aside (yes, I do feel better), Mr. Purcell's views are also fully applicable to the detailing process and the production of quality working drawings. I would suggest that to upgrade design drafting skills, but to let detailing skills go as they are, is counterproductive. The best way to bring good design to fruition is to produce good, comprehensive, informative, and eminently clear detailing, within equally well executed working drawings. While one may possess high skill in designing but

have poor drafting skills, the detailer, in all too many instances now, is suffering from marginal drafting skills and a drastic lack of technical knowledge, both of which are essential to the detailing process.

Seems we're all in the same canoe—maybe we should all paddle in the same direction! But maybe we all should check our "paddles" to see their flaws. Maybe this is all controlled by one Muse; if not, then several of them are being muted.

—Ralph W. Liebing
Cincinnati, Ohio

Home is where the cavern is

After seeing the houses in the last issue of RECORD, I wondered if there had ever been a study done to see just how happy the people were who had to live in them: the big cavernous spaces, cantilevered slabs, sheets of cold glass, and formally arranged showroom furniture.

What do the people do in these museumlike structures? Do they wander aimlessly around from room to room in lonely isolation, or do they lie all day on one of those odd looking beach chairs, dreaming of the busy streets of New York City or Paris?

The dream of every architect is to design one of these palaces, but would they really want to live in one?

—Roy Euker, AIA
New York City

A sense of hope

The theme of the March issue, "Design and the City," was also about hope after the events of September 11. The Milwaukee Art Museum illustrates beautifully that new ideas are possible and can help lift us up. The community-oriented work felt open, welcoming. The Practice Matters essay [page 55] reminds us once again that it will take an architect's strong communication skills to convince a client that

architecture should be shaped by hope. Charles Linn raises an important issue about how the architect communicates security in a world that feels increasingly unsafe. Provocative essays are still as important as stunning photographs—maybe more so right now.

—Kenneth Caldwell
Oakland, Calif.

Seconding the motion

The article that impressed me most in the March issue of RECORD was the Practice Matters column, "Fear and Form" [page 55]. As a marketing and practice consultant to architects, I'm constantly bombarded with ideas about new marketing opportunities, many of which substitute current trends for good design. One of the most disconcerting of these marketing "opportunities" has surfaced since 9/11 and is the exact subject of your article.

While many firms have resisted the temptation to jump on the bandwagon of fear, some have indeed attempted to differentiate themselves in the eyes of prospective clients by raising the specter of terrorism and destruction, then pacifying their clients by proposing design programs that emphasize "resistance to attack" above all else. It's as if a building that appears safe will indeed be safe—a proposition that we know to be incorrect and counterproductive.

Thank you for bringing this highly negative and disturbing trend to the pages of RECORD. Hopefully, author Charles Linn's clear statement of the problem will reach much of the professional readership. If not, the vividly depressing picture he paints of Stalin-era buildings probably will.

—Guy Esberg, principal,
Guy Esberg & Co.
San Anselmo, Calif.

Digging in

The comments made by Robert Campbell at the end of "The Big Dig, What's Up Under Boston?" [March 2002, page 84] bring up important points of what should happen to the space below the Central Artery. The whole notion of creating "a place that reconnects the city to its harbor" is a valid one, but the way in which it is carried out is critical. With so much emphasis put on urban redevelopment and planning now, it would only seem suitable that the new design show some inventiveness. Of the proposals, not one solution seems to singularly solve the problem.

The proposal for one continuous greenway is a romantic but impractical one. With the expansion and density of this city, it would be advantageous to reactivate the area. I am not proposing building over the entire site, but rather finding the balance between green and the city. This cannot be done unless there is a deregulation of the zoning laws and plots of land are divided. Parts of the required 75 percent of "public open space" could be seen as unused areas. Infrastructure could be integrated with this park landscape to create jobs and attractions. These things would activate this public space and give it new meaning.

The city is driven by commerce, and this Artery project is presenting an opportunity to do something new. You can't create open space and expect it to gain meaning. The old ideas of the park and city as two opposing entities are dead. In keeping with the character of the city, its use dictates meaning. The area could be an integration of languages between open public space and the city. Now, when presented with this opportunity, Boston has to take the resolution one step further.

—Andrew Sarna
Bristol, R.I.

Letters

Shifting perceptions

I was struck by the insights Robert Campbell expressed in the December 2001 and February 2002 Critiques [page 37 and page 53, respectively]. Perhaps I should not be surprised that events of the magnitude of 9/11 should give rise to writing as thoughtful as these two pieces. However, I found Campbell's analysis to be unique among post-9/11 commentary in their recognition of a dramatic shift within our own perceptions and the impact of this on architectural discourse. Time, I suspect, will confirm his view.
—Alexander Seidel, FAIA
San Francisco, Calif.

Ups and downs of a new Berlin

"The New Berlin" featured in the March issue [page 76] recalled my own experience when I visited Berlin in 1999. I can attest to the proliferation of cranes dominating the

skyline and the feverish pace of ongoing construction whose scope was gigantic. I was visiting Berlin because I wished to see, firsthand, the rebuilding and reshaping of Berlin once again into the capital city of Germany. The number of famous contemporary architects who were responsible for most of the major new projects was icing on the cake!

What I found was both exhilarating and disappointing. The sheer size and modernity of the new construction, with its emphasis on steel structure and glass facades, was impressive but hardly expressive of what I had hoped might constitute the beginnings of a unique and beautiful capital of a transformed Germany; and the juxtaposition of so many of the new buildings without any apparent overriding concept seemed to diminish the quality of the individual buildings themselves.

The building I was most anxious to see was David Libeskind's Jewish Museum because I recalled a *New Yorker* article describing it as the finest new building in Berlin. In "The New Berlin," author James Russell quotes Michael Blumenthal as saying, "It has surpassed my expectations." While I toured the building before its exhibitions had been installed, my own response to the museum was one of disappointment. Its exterior was not impressive as pure form and even less so due to its imperfect thin steel skin; but I still held out hope that the interior spaces might be powerful and perhaps beautiful. They were not. As a building meant to convey the "Jewish experience in Europe," for me, the richness, tragedy, and essential uniqueness of Jewish history was largely marginalized. Its most successful aspect was the dramatic experience of entering underground from the adjoining museum; but this brief but lovely journey only accentuated the bland, nondefining experience evoked by the museum itself.

For me, the most successful new urban structure was Mies van der Rohe's art museum; it was not a very good museum, but it added great monumentality and verve to its urban setting.


As a final note, let me add that the one essential ingredient shared by all of the great cities of the world, and perhaps shared by the Berlin of a century ago, is livability. To this observer, the new architecture of Berlin is reducing this essential characteristic.

—J. West, AIA
Sarasota, Fla.

Bureaucratic building

When the late Samuel Mockbee chose a rural county in Alabama for his in situ classroom experiments into providing innovative shelter for the area's poverty-stricken inhabitants, it was telling that he chose a district that had no building-code infrastructure.

It is doubtful that the typical hidebound, rigid bureaucratic building and zoning departments that



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characterize many of our cities and counties would have allowed any of the Rural Studio's structures to be built, especially those utilizing a "green" architecture of recycled and discarded materials—even though these buildings were constructed under the supervision of professionals trained in the building arts.

The underlying principles of building and zoning regulations are not at fault: public safety and health along with an orderly allocation of land resources that best protect one's property while providing for the benefit of all.

The problem is when our building methodologies become ensnared by self-serving and bloated bureaucratic intransigence to all but their favorite special interests and the building status quo: trades, suppliers, officials, inspectors, insurance providers, lenders, real estate and development consortiums, politicians and regulatory bean-counters who feel threatened by anything that falls outside of their profitable, uniform box—a box they

have created for themselves under the umbrella of legally sanctioned bureaucratic control.

This young generation of architects is facing a formidable dilemma: Those in control of how and where and if the architect's designs come to fruition represent a deeply entrenched and entangled web of influence and collusion resistant to change and demanding obeisance for inclusion into the system.

How can the profession overcome the bean-counters' penchant for mindless conformity to outdated and self-serving regulations and the bureaucrats' league with special interests to provide the inspiration and innovation that is desperately needed in finding equitable solutions to the housing and environmental crises upon us?

—Daniel John Bornt
Champaign, Ill.

Better, bitter sublime

After reading Michael Sorkin's Critique of Rem Koolhaas in your January 2002 issue [page 51], I have

to ask one question: Do you guys employ any editors on your staff?

In slogging through Sorkin's almost impenetrable prose, I was transported back to my "Introduction to Theory" class, and some of the more pretentious design juries at, yes, the Harvard GSD. And while I think I agree with what I perceive to be Sorkin's basic premise, that it is more "hip" for Koolhaas to be the insightful observer of the modern urban condition that he is than to propose anything actually prescriptive, does the reader really need to have a GSD education, or the patience of Job, to arrive at this point?

Sure, Sorkin can turn a clever phrase ("disco Mylar," "flogging the dead horse of humane urbanity," "the landscape of his bitter sublime"), but whom is he trying to impress with words like "portmanteau," "prosody," or "equipotential"? Is it possible that he is not capable of making his point by speaking clearly?

I do not see how architectural academics like Sorkin will ever be

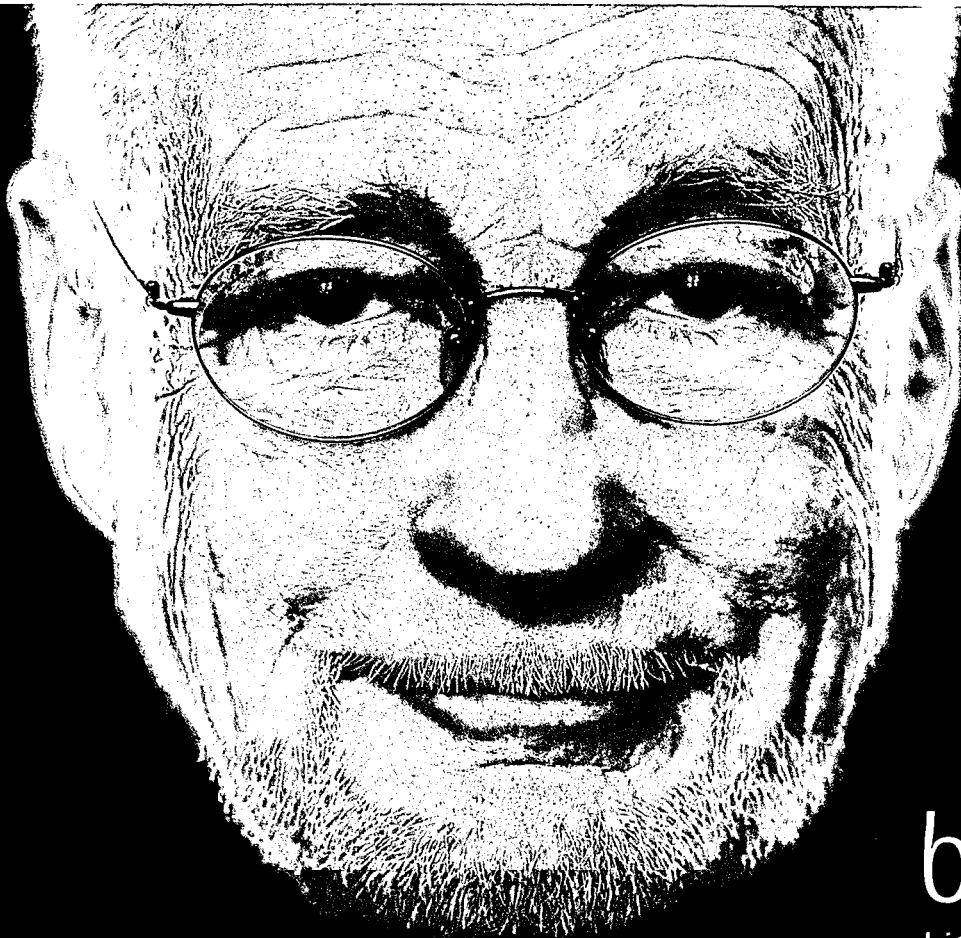
invited to the table with the legislators, businessmen, and the other actual decision makers who will determine if, and how, the modern city will develop, as long as they continue to project the kind of "snoot cocked" (to use Sorkin's phrase), get-paid-by-the-syllable pretension, as evidenced in this piece.

—Robert Gross
*Brookdale Development
Allentown, Pa.*

Corrections

In the April 2002 issue, page 26, a news item entitled "Green building plan to affect \$1.2 billion in L.A. college construction" mistakenly called DMJM+H+N a construction management firm. DMJM+H+N is a full-service A/E design firm, offering a range of services, including construction management. On page 24 of the issue, it was Moshe Safdie & Associates that was selected to design a new federal courthouse in Mobile, Alabama, not Wolf Architecture, as reported.

E-mail letters to rivy@mcgraw-hill.com.



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Australian Glenn Murcutt awarded Pritzker Prize

An iconoclast architect widely credited for developing an identifiable modern residential vernacular for Australia, Glenn Murcutt, Hon. FAIA, has been named recipient of the 2002 Pritzker Architecture Prize. Murcutt (see interview on the following page) works on his own with no staff, completes only a handful of projects each year, has only built in his home country of Australia, and regularly turns away work. Viewed by his Australian contemporaries as the key major influence on environmentally conscious design in that country, Murcutt lectures worldwide about 'green' modern design.

Although widely respected in his own country, Murcutt is not as well known outside of Australia. His selection is a departure—perhaps a deliberate one—for the Pritzker Prize jury, which awarded Rem Koolhaas, Jacques Herzog, and Pierre de Meuron—three architects who have received abundant press coverage—with the prize in the past two years. Murcutt is not as hip or fashionable on the global stage as the most recent laureates—he's far more pragmatic and focused on craft. 2002 Pritzker Prize jury chair J. Carter Brown says, "In an age obsessed with celebrity, the glitz of our 'starchitects,' backed by large staffs and copious public relations support, dominates the headlines. As a total contrast, our laureate works in a one-person office on the other side of the world from much of the architectural attention."

The first Australian to win the Pritzker Prize, Murcutt will be presented with a \$100,000 grant and a bronze medallion as the 26th honoree of the Pritzker Prize in a May 29 ceremony at Michelangelo's Campidoglio in Rome.



Work by Glenn Murcutt, all in Australia, includes (from top) the Marika-Alderton House (1994), in Northern Territory; the Magney House (1984), in Bingie Bingie; and the C. Fletcher and A. Page House (2000), in Kangaroo Valley.

"It's beyond anything I possibly could have imagined. It's such an honor and a privilege to join those before me," Murcutt told RECORD. "It means that at one level in my country, which is a fairly conservative country, this will raise the bar."

Born in 1936 and educated at the University of New South Wales, Murcutt has had his own practice since 1969. His initial projects in the

early 1970s were interpretations of the Modernist work of Ludwig Mies van der Rohe. The majority of his completed work in the past 20 to 30 years has comprised single-family homes that respond to the Australian landscape and climate, with incorporated features for sun-screening, natural ventilation, and recycling of rain water. *John E. Czarnecki, Assoc. AIA*

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- 1979 **Philip Johnson**
United States
- 1980 **Luis Barragán**
Mexico
- 1981 **James Stirling**
Great Britain
- 1982 **Kevin Roche**
United States
- 1983 **I.M. Pei**
United States
- 1984 **Richard Meier**
United States
- 1985 **Hans Hollein**
Austria
- 1986 **Gottfried Boehm**
Germany
- 1987 **Kenzo Tange**
Japan
- 1988 **Gordon Bunshaft**
United States
Oscar Niemeyer
Brazil
- 1989 **Frank O. Gehry**
United States
- 1990 **Aldo Rossi**
Italy
- 1991 **Robert Venturi**
United States
- 1992 **Alvaro Siza**
Portugal
- 1993 **Fumihiko Maki**
Japan
- 1994 **Christian de Portzamparc**
France
- 1995 **Tadao Ando**
Japan
- 1996 **Rafael Moneo**
Spain
- 1997 **Sverre Fehn**
Norway
- 1998 **Renzo Piano**
Italy
- 1999 **Sir Norman Foster**
Great Britain
- 2000 **Rem Koolhaas**
The Netherlands
- 2001 **Jacques Herzog and Pierre de Meuron**
Switzerland
- 2002 **Glenn Murcutt**
Australia

OFF THE RECORD

The new building for the University of Minnesota College of Architecture and Landscape Architecture by [Steven Holl](#) with [Vince James](#) will be completed this month. When dedicated this fall, it will be named [Ralph Rapson Hall](#), in honor of the Minnesota architect who was head of the school for three decades.

[Moshe Safdie & Associates](#) has been selected by GSA in a competition to design a new federal courthouse in Mobile, Alabama.

The Natural History Museum of Los Angeles County has announced five finalists for a \$200 to \$300 million renovation and expansion, which will replace earlier additions to the museum's original 89-year-old building. The candidates are [David Chipperfield Architects](#) of London; [Foster and Partners](#) of London; [Herzog & de Meuron](#) of Switzerland; [Steven Holl Architects](#) of New York; and [Machado and Silvetti](#) of Boston.

May 22 is the 100th anniversary of the birth of [Marcel Breuer](#), who died in 1981.

The finalists for the new Symphony Center for the Atlanta Symphony Orchestra are [Santiago Calatrava](#) of Spain and Switzerland; [Bing Thom](#) of Vancouver, British Columbia; and Danish firm [Schmidt, Hammer & Lassen](#). The symphony narrowed the list of finalists, which originally included [Mack Scogin and Merrill Elam](#) of Atlanta; [Steven Holl Architects](#) of New York; and [Moshe Safdie & Associates](#) of Somerville, Massachusetts.

Baltimore firm [Grieves, Worrall, Wright and O'Hatnick](#) has been selected for an \$85 million museum and orientation center complex at Mt. Vernon, George Washington's estate in northern Virginia.

[IKEA](#) will anchor a 1.6-million-square-foot mall that it is building in Moscow.

Murcutt speaks of his work, frustrations

RECORD news editor [John Czarnecki](#), Assoc. AIA, spoke with Pritzker Prize winner [Glenn Murcutt](#), Hon. FAIA (see story, [previous page](#)), about his career, his work, and ecologically sustainable architecture.

ARCHITECTURAL RECORD: *Do you have any desire to complete a project in a country other than Australia?*

GLENN MURCUTT: No. I've got a waiting list of clients here in Australia, a country I know best. I don't feel the need to build all over the world.

RECORD: *You've been a sole practitioner for more than three decades, and you've said that you have helped to establish about 16 new practices in Australia by giving younger architects projects that you do not have time to complete. Your practice has influenced a whole generation of Australian architects.*

MURCUTT: I've structured a way of practice that was not really in existence when I went into practice [in the 1960s]. I've shown that you can survive [as a sole practitioner], albeit not financially incredibly well-off, but I've survived. Young architects have seen that one can actually start practicing architecture without having to be bound to working in a big practice for the rest of their lives. The corporate architect is no longer seen as the only way to practice in Australia—there are many young architects practicing alone or with just one or two people.

RECORD: *You've also had an influence in the implementation of building materials that are outside the norm in today's architectural practice.*



One of Murcutt's few public buildings is the Boyd Education Centre (1999).

MURCUTT: I work with materials that were once regarded as something you'd build a shed with, or materials that were largely discarded. But they're very economical materials to work with and you can deal with them in a rational way. It is the idea of the core of truth in working with these materials—the absolute understanding of the nature of the materials—that allows the architecture to go beyond the mundane. I wish more people would understand the true costs of materials—we're all too superficial about it.

RECORD: *What are your frustrations with the "green" architecture movement?*

MURCUTT: Most people that are dealing with the so-called environ-

MURCUTT: There's a fairly incorrect perception about the ease with which I do these buildings. I've had a very tough time. But, what it means to me now is that I have to fight a little less, and I'm not going to be so negatively obstructed.

RECORD: *In recent years you've collaborated on some projects with your wife, Wendy Lewin, who is also an architect. How do you decide which projects to work on together?*

MURCUTT: It's very simple. If we can't do a project ourselves, then we ask the other, "How about we do this in collaboration?" And when we do work together, every decision is equally made, from design decisions to the ways that we approach things. If there is any disagreement about the way we do it, then we pursue an idea further so that we can find something that we're both happy with.

RECORD: *Tell me about the 75-room 'eco-hotel' in an area prone to wildfires on the Antarctic coast in Victoria, Australia, that you are designing with Wendy Lewin and Reg Lark.*

MURCUTT: That building has to deal with climate change in very severe ways. We're going to deal with fires, four seasons, a lot of rain at certain times and little rain at others, and a lot of wind all of the time. Out of it will come a resolution of all of those forces acting on this building. This building has got to be like that beautiful stone in a river that's getting worn down to its beautiful, inevitable form. I'm looking for that inevitable way of doing things. That inevitability is very important.



The Simpson-Lee House (1994), in Mt. Wilson.

mental issues are often forgetting about space, about light, about all the things that make architecture. If I was a young architect and saw a lot of the work that's coming from the so-called ecological architects, I wouldn't want to be in that field.

RECORD: *You've had quite a bit of difficulty building some of your projects, with court cases and legal battles. What might this prize mean for your future work?*

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Multiple interests and agendas compete for attention in Lower Manhattan

Cleanup at the Lower Manhattan site of the September 11 disaster is now largely complete, far ahead of the schedule once envisioned. With removal of ruins and human remains winding down, the 16-acre pit now acts as a tragic daily reminder to the thousands of workers and residents who have returned to the surrounding buildings. And it is a reminder that a strategy for rebuilding on the site remains far from complete. This puts Alexander Garvin in the hot seat. Appointed by the Lower Manhattan Development Corporation (LMDC) as vice president for planning, design, and development, it is his job to unite a mind-boggling array of interests and agendas.

The city's looming multibillion-dollar budget deficit is pressuring Garvin to move fast. "New York cannot afford the continuing flight of business nor permit the fear to grow that the city is out of control," explains Raymond Gastil, who has stayed close to the reconstruction process as executive director of New York's Van Alen Institute, which focuses on design of the public realm. "The city needs an expression of confidence in its future."

Move forward at what speed?

But other advocates are urging Garvin to take the time needed "to reconcile reconstruction with the most awful way a building site has ever been created," as Ada Louise Huxtable wrote in *The Wall Street Journal*. Garvin says he is determined not to rush things unduly (see interview, next page) while moving rapidly on vital and low-glamour issues like infrastructure restoration. To replace a giant underground power substation destroyed when 7 World Trade Center collapsed, for example, the building owner, its attorneys, the

government agency that owned the land, the telephone company, the power company, and the city planning department all had to agree on a procedure. "Do we own the property?" asked Garvin rhetorically. "No, but we're helpful in quickly bringing together people who are not used to working in a coordinated fashion."

Garvin may be giving in to relentless pressure from the press and politicians to show more rapid progress on more visible rebuilding. Larry Silverstein, whose Silverstein Properties built 7 World Trade Center, wants to break ground on its replacement this summer. Skidmore, Owings & Merrill is completing a design for Silverstein [RECORD, April 2002, page 30] that will thread columns, lobbies, and elevator towers among the transformers. But LMDC agreed to slice off a third of the site so that a vista closed by Silverstein's original tower along Greenwich Street could be reopened, as designers and activists had recommended. SOM has feverishly tailored Silverstein's tower to meet these new constraints, but it has all happened out of the public view—which is the way it needs to be, says Garvin. "We don't have a choice. Decisions have to be nailed down so that the transformers can be put in and detailed design can commence."

Or does it? Manhattan's office market is now slack enough that rushing Silverstein's tower is only a necessity for Silverstein. It won't be easy for SOM to come up with the kind of affirmative civic and reconciling statement the city deserves in a design driven by a perceived need



Heavy equipment digs into the last mound of debris at the WTC site in early March.

for speed, on a heavily encumbered site, and in the absence of a larger vision for the rest of Ground Zero.

On the rest of the WTC site, Garvin presides over an urban game board in which the pieces comprise interests and possibilities. Might the New York City Opera build a new home downtown? Can long-dreamed-of rail-transportation improvements to the outer boroughs and suburbs be at last implemented? These questions, and numerous others, turned up on a "blueprint" Garvin presented to the LMDC board on April 9.

The blueprint

The dozens of items under consideration in the blueprint include improving open space and pedestrian linkages; encouraging more residential development in what has

long been a nine-to-five precinct; bolstering existing cultural facilities while perhaps adding such new ones as a museum dedicated to "freedom, tolerance, and the values that the World Trade Center represented"; building environmentally sustainable new buildings while preserving and adapting the district's numerous historic structures.

Most of the blueprint items had previously been proposed by the numerous ad hoc coalitions that sprang up after the disaster, especially New York, New Visions, a pro bono coalition of 22 organizations representing architects (including AIA New York), engineers, planners, and other designers, that issued its recommended principles [February 2002, page 26] this winter. AIA New York executive director Rick Bell, FAIA, says his chapter is informally

advising Garvin and his staff. Regarding the New York, New Visions recommendations, Bell says, "We believe that it's had some palpable political impact."

The LMDC has had some difficulty, though, moving forward with its agenda. In late March, it issued a Request for Proposals (RFP) to 24 architecture and planning firms for an "urban plan for the World Trade Center site." The LMDC withdrew the request when the Port Authority of New York and New Jersey, which owns the site, determined that the LMDC did not have a right to build at the site. The Port Authority, "in cooperation with the LMDC," issued its own RFP for an "urban planning study" in late April. Proposals were due May 6.

The LMDC has also relied on several advisory councils that *The New York Observer* succinctly described as "sprawling yet opaque." While LMDC will continue to solicit ideas from the committees and from the public, it will pare down alternatives through in-house deliberations. In April, Mayor Bloomberg appointed four new members to the LMDC board of directors [January 2002, page 28], including, most notably, architect Billie Tsien, a principal with Tod Williams Billie Tsien and Associates. The other three appointees were E. Stanley O'Neal, president and chief operating officer of Merrill Lynch; Sally Hernandez-Piñero, an attorney and former deputy mayor for economic development; and Carl Weisbrod, president of the Alliance for Downtown New York, which manages the Lower Manhattan Business Improvement District.

Some of the stakeholders fear the fix is already in. "Decisions have been made without the participation of the victims' families," says Monica Iken, founder of September's Mission, one of nine major groups that have formed to press the interests of widows and families of those killed in the disaster. Her organization is particularly concerned with the nature of a memorial and regards the Trade Center site as hallowed ground. When asked whether

any of it could be built upon, Iken said in an interview, "It's not about quantity. But the memorial has to be planned before anything else is discussed." Nikki Stern, a long-time marketing consultant to architects, sees the inspiring potential of new development that is innovative and ecologically sustainable. But she, too, lost her husband in the tragedy and understands the reluctance to permit any building on the site. "I'm well aware of the need to own what happened. It provides a point of control. I have never experienced something so beyond my control."

A proposal to have a tomb of unknown victims, similar to the Tomb of the Unknown Soldier, as a portion of a larger memorial was reported to be gaining momentum in meetings between victims' families, the LMDC, and the city.

Future as business center?

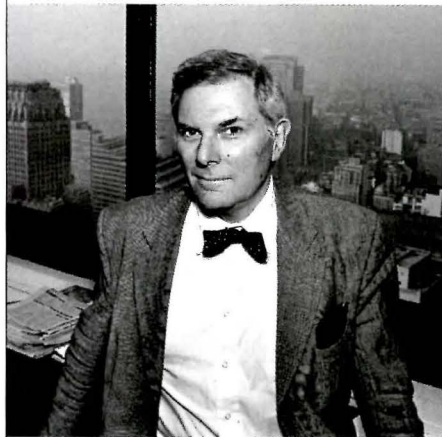
Another question hanging heavily over Lower Manhattan is what kind of future it can forge as a business center. The New York Stock Exchange's role as the linchpin of downtown's financial district has become merely symbolic, say a growing chorus of experts, as more trading functions migrate to electronic realms.

Lower Manhattan had lost its luster long before the September disaster, and its slide won't easily be reversed. The World Trade Center itself was one of decades' worth of largely unsuccessful revitalization strategies. City officials have hailed the return of several financial firms to cleaned-up space in Lower Manhattan, but the city's future is clouded if the zeitgeist of real estate "dispersal" retains its hold. Architectural innovation is not in the Lower Manhattan mix yet, however. The current strategy is an old one: throw money at businesses in the form of tax breaks and incentives as an inducement to stay. But architecture may get a stronger voice with the appointment of Tsien to LMDC's board, which is otherwise heavily weighted to real estate interests. *James S. Russell, AIA, with John E. Czarnecki, Assoc. AIA*

Alexander Garvin, the top planner for WTC redevelopment, talks about process, vision

Alexander Garvin (below), the vice president for planning, design, and development for the Lower Manhattan Development Corporation (LMDC), spoke with RECORD editor at large James Russell, AIA. Garvin, an architect, planner, and real estate developer, is an adjunct professor of urban planning and management at Yale University. He has also served on the New York City Planning Commission.

ARCHITECTURAL RECORD: *What kind of planning process are you undertaking?*



GARVIN: We have had a listening process in which we explored and identified ideas, and we presented LMDC's board with a set of principles and an initial blueprint of action. And now we're asking, "What do you think?" We will analyze the responses and see if other ideas come out. In each case, we will present alternatives with a public review process, and out of this we will eventually have a plan. Another agenda is devising a process to arrive at a memorial.

RECORD: *Do you anticipate sponsoring competitions or using other means to obtain the highest level of design?*

GARVIN: Regarding competitions, we see some process for the memorial, but we haven't decided yet. We'll be working with consultants for urban design work [not

selected at press time].

RECORD: *There's been much discussion regarding whether the financial businesses need to be so concentrated around Wall Street. Does downtown have a future as a financial capital?*

GARVIN: It is the financial capital of world and will remain so.

RECORD: *Do you have a vision for keeping it so?*

GARVIN: I've been here [with LMDC] for only a short time, so it's a little early for that. We're going through a public process precisely to determine what arrives in Lower Manhattan. We already know that

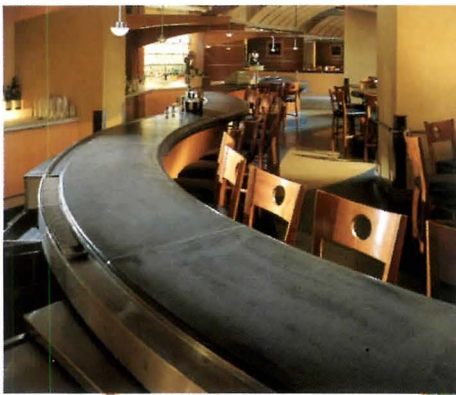
we need to have a set of magnets to bring people in. We need to make the area more accessible to the region. People now want to see the site. We'll bring in more cultural facilities, but there are a number of museums already here, so we may not need to add much more. Some of those museums may need to expand. People have also been moving into Lower Manhattan for some time,

and we'll try to encourage that. We'll plan for the kind of life that had not been prevalent here in the past 60 or 100 years.

RECORD: *What overall goals have you set in your planning?*

GARVIN: We're looking at what to do with West Street, a 260-foot-wide right-of-way that is, in effect, a barrier separating Battery Park City from Lower Manhattan. We need to reconnect the site with the neighborhoods of Lower Manhattan—it cannot remain an island by itself, as the World Trade Center was.

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Record News



Feds turn over Governors Island to New York for a CUNY campus

Governors Island (above, as seen prior to September 11, 2001), the 172-acre island that once was an integral guard post for New York Harbor, will soon become a campus for City University of New York (CUNY). President Bush announced in April that the Federal Government would turn over control of the island to New York State for a nominal cost. Terms of the deal were not announced at press time.

CUNY, with an enrollment of nearly 200,000 students, will likely have classes at facilities on

the island as early as this summer, according to Michael Arena, the university's director of media relations. Initial plans call for the island to be a teacher-training center, and CUNY will be able to reconsider facility needs at its 17 campuses in the city.

Arena says the university does not have plans for major construction on the island. Rather, the university would make use of the existing buildings and may plan for renovations. Historic structures on the island include Castle Williams and Fort Jay, two 19th-century forts that are part of the Governors Island National Monument created by President Clinton. The General

Services Administration had maintained the island property and buildings "extremely well," according to Arena. The land has been dormant since the late 1990s, when it was a Coast Guard base.

Originally much smaller, the island grew with landfill from subway construction that was dumped there beginning in 1901. President Clinton offered to return the island to New York for \$1, but Governor Pataki and Mayor Giuliani could not agree on a reuse plan. *J.E.C.*

Stalled plans for new Penn Station at a critical juncture

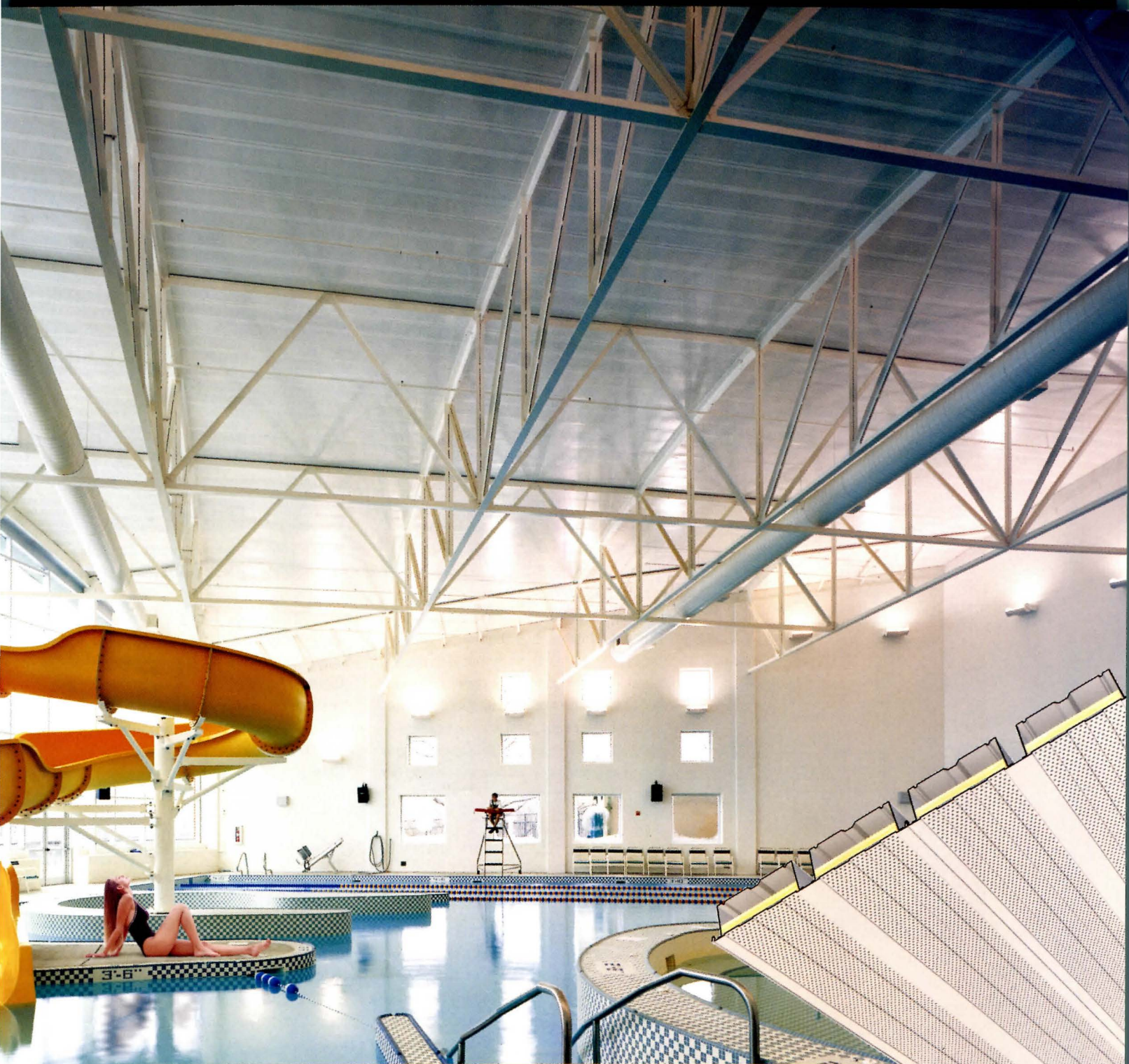
This spring is a crucial time if the new Pennsylvania Station in New York is going to be built as planned. In the works for a decade, with a design by Skidmore, Owings & Merrill awaiting implementation, the plan to convert Manhattan's main post office into a showcase train station for the 21st century has been stalled, but the U.S. Postal Service (USPS) was expected to approve it soon after press time.

The new Pennsylvania Station is planned to be inserted within the James A. Farley General Post Office, one block west of the current Penn Station. *The New York Observer* reported in early April that the Pennsylvania Station Redevelopment Corporation (PSRC) was within weeks of closing a \$788 million deal with the USPS, the last entity to sign onto the plan. After the sale, the postal service will move much of its operations out of the building.

In a move seen as a boost to closing the deal, Mayor Michael Bloomberg appointed former U.S. Senator Daniel Patrick Moynihan, a vocal advocate for the new station, to the PSRC board in April.

A plethora of issues, both political and financial, have stalled or nearly killed the idea in recent years. According to the *Observer*, Rudy Umscheid, the USPS vice president for facilities, wrote to the PSRC on September 21, 2001, indicating that the potential project was dead. In a meeting with President Bush at the White House on October 11, one month after the 9/11 attack, Governor Pataki and Charles Gargano, chief of the Empire State Redevelopment Corporation, emphasized the importance of a new train station, and asked the White House to pressure the USPS. Negotiations then resumed. *J.E.C.*





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Record News

Another one bites the dust: Neutra's Maslon House gone

The suburban teardown has claimed another victim: Richard Neutra's Samuel and Louella Maslon House. Completed in 1962 in Rancho Mirage, California, it was one of three Neutra-designed homes in the Palm Springs area. Located in the gated community of the Tamarisk Country Club, the house was demolished in March, only one month after it was purchased for \$2.45 million.

An essay in site specificity, the house's substantial size was diminished in appearance by its U shape as well as its horizontality, so that it seemed to hover just above the golf course fairway onto which it backed. Designed as a gallerylike space for the Maslons' extensive art collection, the house was occupied by Luella Maslon until her death in July 2001. Buyers Mr. and Mrs. Richard J. Rotenberg of Hopkins, Minnesota, were not available for comment.

Barbara Lamprecht, author of *Richard Neutra: Complete Works*, says that with the demolition, "we have one less opportunity to be exposed to an acute intelligence about how we might live our lives with ergonomic efficiency along with grace. (The loss) is an exception to a growing understanding of preserving Modernism."



Neutra's Maslon House (in a photograph by Julius Shulman, above) was destroyed (top) in March.

Real estate broker Deirdre Coit, who represented the Maslon estate on behalf of Sotheby's International Realty, says she "had no idea" of the teardown plan. She conjectures that while "there are a lot of country clubs, there are only a handful that people want to be in. They wanted the land."

The extant Neutras in the area are the Grace Miller House and Kaufmann House. *David Sokol*

Developer sees \$\$\$ in untouched desert land

Eleven miles north of Palm Springs and Rancho Mirage, California, the desert plains that lie between the Little San Bernardino Mountains, home of Joshua Tree National Park, and the foothills of the Coachella Valley Preserve are reminiscent of California before sprawl. A plan to develop 9,000 acres of this land (above) may change that.

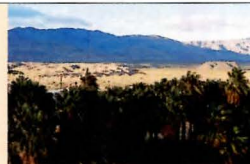
Richard R. Oliphant, C.E.O. of California Intelligent Communities, is in the preliminary stages of planning to develop a new community called Joshua Hills on the site, which will include the World Trade Center University, a 3-million-square-foot technology center, 7,000 units of housing, three hotels, and two country clubs. Ground-breaking is scheduled for 2004.

The proposal has raised the ire of conservationists. According to Ernest Quintana, the superintendent of Joshua Tree National Park, "right now the critical issue is breaking connectivity between the park and the preserve."

Joshua Hills will block the flow of rainwater that nourishes the dune ecosystem of the foothills, he explains, and "the movement of wildlife between the park and the preserve will be severed."

Katie Barrows, associate director of the Coachella Valley Mountains Conservancy, a state agency that is preparing a habitat-conservation plan for the region, says local groups are trying to purchase the site and block the development's approval.

In response to criticism, Oliphant says, "we're letting science design the project, rather than the bottom line." EDAW, the primary environmental consultant, has maintained a natural passageway between the park and preserve for the development. Drought-resistant landscaping, a cooperative power system, and a waste-treatment facility are also planned. *D.S.*





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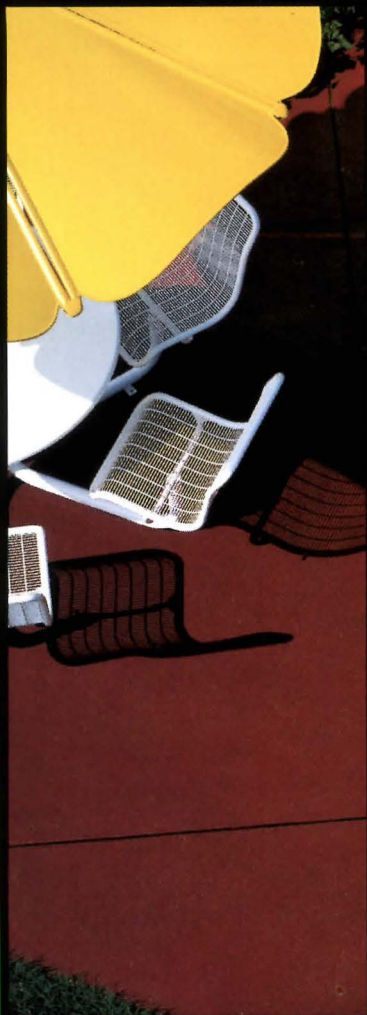
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Two showcases by Coop Himmelb(l)au for art and BMWs

For two recent projects, Vienna-based architecture firm Coop Himmelb(l)au developed two distinctive solutions. The firm recently won competitions for a BMW Event and Delivery Center in Munich (above) and the Akron Museum of Art (below), the firm's first American commission.

"The first generation of buildings that reflect how museums have changed from bank vaults and palaces into urban cultural centers is being designed now," says Akron Art Museum director Mitchell Kahan, citing a number of museums under construction, including Diller + Scofidio's upcoming Institute of Contemporary Art in Boston. And, of course, he's including Akron.

At the end of a yearlong international competition, the Akron Art Museum chose Coop Himmelb(l)au to design its new \$23 million, 50,000-square-foot building. The structure will triple the museum's exhibition space and provide the amenities needed to help it become, as Kahan says, "the public center for the city."

The museum, whose collection includes works from 1850 to the present, currently occupies an 1899 Italian Renaissance-style post office in the heart of the city, and Coop Himmelb(l)au principals, Wolf D. Prix and Helmut

Swiczinsky, known for their expressionistic forms, have proposed a three-part solution to the museum's expansion needs. A three-story glass "crystal" will house a grand lobby that will act, says Kahan, "like a Roman forum or Greek agora," and provide a central core from which to view the museum's art-display, educational, and administrative functions.

Artificially lit gallery spaces with movable walls will be contained in a 25,000-square-foot box that rises above ground level behind the crystal. A steel element, which the architects call a "roof cloud," will link the existing Akron post-office building—which will cease to be an exhibition space, housing educational and administrative operations instead—and the new museum, offering shelter for outdoor concerts and other public events. From various places downtown, the steel deck will also appear to peek above the low-rise rooflines, becoming a kind of "horizontal landmark," as the architects call it. The plan also includes an enclosed courtyard and urban sculpture park. Construction in Akron is slated to begin in 2003 and is expected to take about two years.

Coop Himmelb(l)au won the competition for the BMW Center over Morphosis, Zaha Hadid, and Sauerbruch Hutton. The 500,000-square-foot, \$100 million public showcase for BMW will have a 600-seat auditorium. To be completed in 2004, the building is adjacent to the BMW Group Head Office and the Munich BMW plant. *Jessica Dheere with J.E.C.*



The warping roof of the BMW Event Center (top) and the glass-and-steel addition to the Akron Art Museum (above and right) by Coop Himmelb(l)au.





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Record News

Diller + Scofidio win competition for new Eyebeam home

The contemporary art scene in New York may soon have a building as changeable as technology itself. Eyebeam, a nonprofit arts organization, announced that New York architects Elizabeth Diller and Ricardo Scofidio have won the competition to design its new hi-tech research, education, and exhibition center.

Eyebeam, which focuses on new-media art and cutting-edge technology, challenged the 30 firms originally invited to participate in its competition to design a spatial experience that would reflect the transient nature of new technology, with ever-evolving forms that can vary from pixel light to ambient sound. The hybrid organization also wanted to upend traditional museum paradigms by creating space where artists, researchers, and visitors could mingle, and where glimpsing work in progress might be part of the experience itself.

The 90,000-square-foot, \$60 million structure will be located in Chelsea on the west side of Manhattan and will replace one-story converted garages that have housed Eyebeam since its inception in 1997. The other finalists in the competition were MVRDV of Rotterdam and Leeser Architecture of New York.

In Diller + Scofidio's proposal, a two-ply structure of folded planes, one of poured concrete, the other of a super thin "blue" material now in development, ascend in crumpled, asymmetrical zigzags. The building's wiring



Folding forms contrast with the warehouse context.

technologies, which can easily be modified to fit changing needs, sit between the two layers, while walls and ceilings of interior rooms are made from the uneven surfaces that layering produces. Inside, sheer

glass partitions suffused with liquid crystal can be made dark or transparent to allow selective visual access between spaces. Instead of hiding traditionally private functions like production, the semitransparent membranes, which can be rearranged for installation purposes, allow a high level of interaction between departments.

Although its form may be modified as design development proceeds, Eyebeam hopes to open the building by 2006. *Tess Taylor*

Summit planned to give voice to intern issues

An internship summit, planned to build on the discussion initiated at the 1999 Collateral Internship Summit and the work of the Collateral Internship Task Force, will be held at the University of Oklahoma College of Architecture, October 4 to 6, 2002. Organized by Archvoices.org, an information Web site for interns edited by Casius Pealer III and John Cary, Jr., the 2002 summit is cochaired by Cary and Laura Lee, an associate professor at Carnegie Mellon University. The organizers intend the summit discourse to evaluate the continuum between education and practice, including the IDP program and paths to licensure, and review what has and has not been accomplished since the 1999 summit.

The organizers will select 30 people to participate in the summit, and anyone can apply to be invited to take part. Participants will likely include students, interns, architects, educators, and representatives of other professions. All on-site costs, including accommodations, will be paid by the University of Oklahoma. If interested, e-mail Cary at jcary@archvoices.org. *J.E.C.*



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Record News



Major housing development by Holl in the Netherlands

Steven Holl Architects has won a competition for a significant international housing commission. A design led by associate Martin Cox has won the Schipol Housing Project Competition for 1,250 units of environmentally and socially aware housing on a polder in Haarlemmer-Meer, a municipality near Amsterdam's Schipol airport in the Netherlands. The Holl design was selected over three other firms: Eric van Egeraat Associated Architects, Soeters Van Eldonk Ponec, and MVRDV, in a single phase competition. Construction is scheduled to begin this year, with completion of phase I in 2003.

The project is part of much wider efforts underway to build housing in the Netherlands. The Vinex report, a government-sponsored document, recently recommended that 1.1 million units of housing be created in the Netherlands to respond to increasing housing shortages and projected population growth. The effort will be the largest in the Netherlands since reconstruction after World War II.

The Schipol competition was designed to challenge some of the basic precepts that have informed the creation of Dutch housing in the past. Rather than assuming a nuclear family, the competition asked architects to design model housing that would support diverse living arrangements. In addition, it specified the inclusion of sustainable practices in building efforts.

In order to reduce the energy required to pump the polder, Cox's proposal allows 20 percent of the land to return to water. Six housing types will be constructed. In extended branches, "house factories," which are live-work spaces,

will lessen the need to commute. Co-housing provides space for family units to share responsibilities of domestic life. Senior units provide integrated spaces for the elderly, while towers of "cactus housing" provide temporary housing for jet setters in need of a base near the Schipol airport, the main gateway to the Netherlands. A checkerboard pattern of single-family homes around common courts emphasizes shared space. In addition, a few floating villas, designed with the introspective or solitary in mind, will hover on the surface of newly recovered water. T.T.



Holl's scheme with a view of the polder void (top); aerial of "floating villas" (above); and "cactus towers" (left and below).



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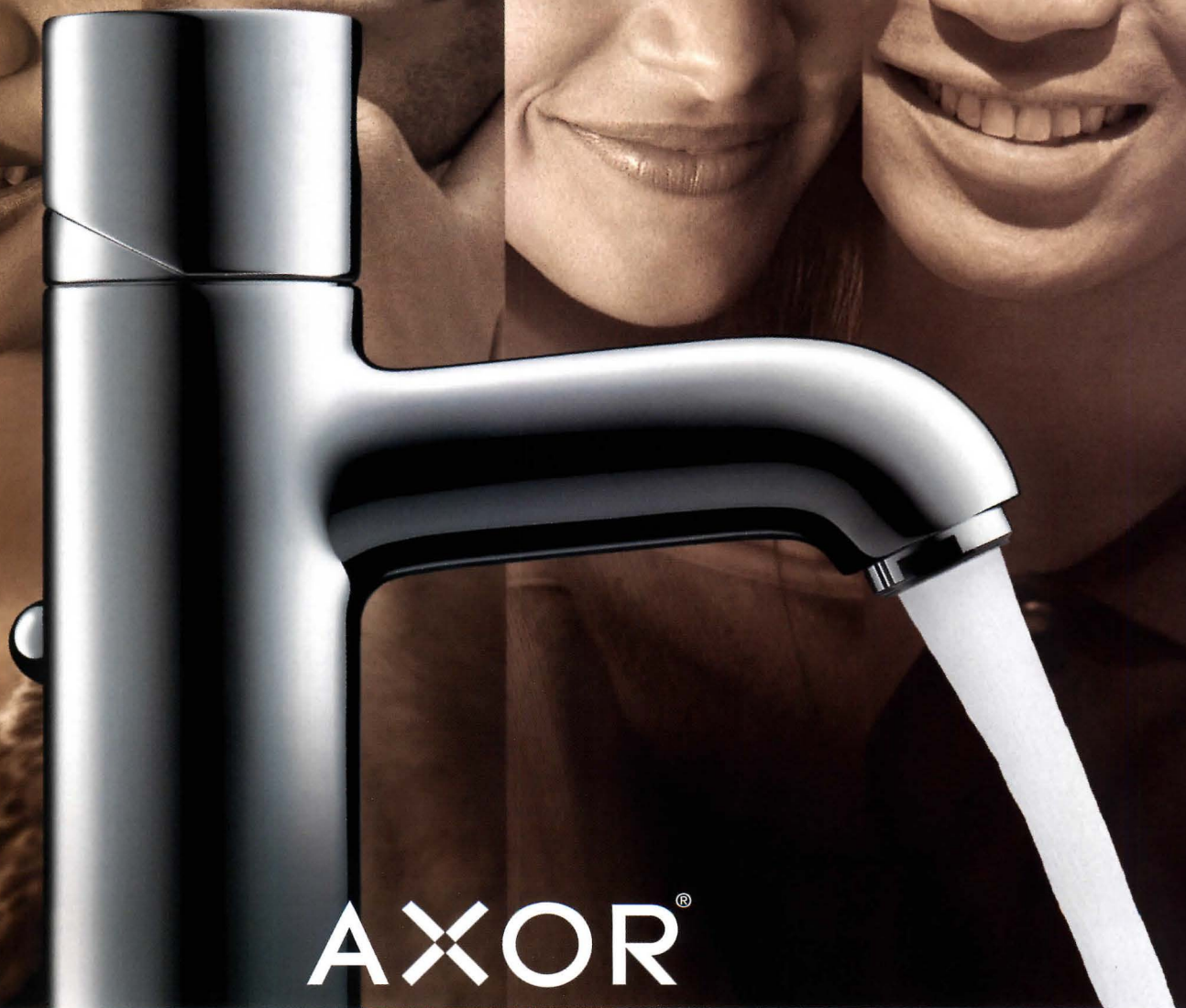
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Record News



Building begins on the Wohl Center, Libeskind's first project in Israel

Letters of the Hebrew alphabet are integral to the concept and design in Daniel Libeskind's first project in Israel, the Wohl Center at Bar-Ilan University near Tel Aviv.

Construction has begun and will be completed by mid-2004 on the 33,000-square-foot building, which will be located on a semicircular, 43,000-square-foot traffic island.

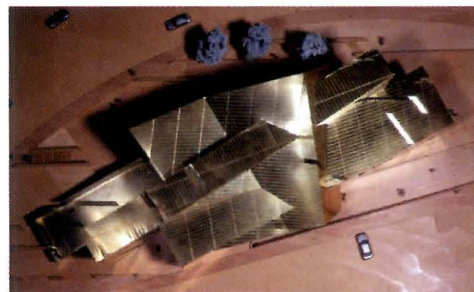
Clad in aluminum panels coated with a gold-colored metallic lacquer, the Wohl Center will house an auditorium, lecture halls, and seminar rooms. The base consists of three long, rectangular "bars." The middle bar, "the spine," contains stairways and elevators and has the only exterior walls that stand at right angles. Some of the diagonal slit windows and skylights, similar to those in Libeskind's Jewish Museum in Berlin, are shaped like Hebrew letters. Libeskind said they express the two essential components of this religiously oriented university: knowledge and faith.

Set into the bars and seemingly "floating"

above them on a cantilever is the auditorium, or what Libeskind calls "the book," which will seat more than 1,000 people. By raising the auditorium aboveground, Libeskind minimizes the footprint of the \$7.2 million building, allowing room for a garden and café. "I had to be creative in how the load was brought down. It is also functional, though, because I wanted to keep the auditorium away from the road acoustically," said Libeskind, who lived in Israel as a child.

The building is situated between the Bar-Ilan University campus and residential high-rises. Thus Wohl Center, which will be the venue of cultural events open to the public, will be a "bridge between the community at large and the university," Libeskind said.

Arup, the London-based engineering firm, ensured the concrete walls would withstand the stresses of their odd angles. Libeskind's local associates are The Heder Partnership, Tel Aviv. *Esther Hecht*



Libeskind's Wohl Center is clad in aluminum panels covered in a gold-colored metallic lacquer.

Educators debate degree nomenclature at ACSA meeting

Architectural educators discussed a number of issues—from distance education to budgets impacting schools of architecture to educating students in the post-9/11 world—at the annual meeting of the Association of Collegiate Schools of Architecture (ACSA) in New Orleans, April 11 to 14. One of the most hotly debated issues, though, continued to be degree nomenclature.

The degree nomenclature debate [RECORD, December 2000, page 34] has been in the forefront since the mid-1990s, when the National Architectural Accrediting Board (NAAB) eliminated time requirements for a professional degree. At the annual meeting, ACSA members debated the issue based on three questions: 1) Should NAAB reinstate a time duration requirement of 6 years for the M.Arch degree?; 2) Should a new degree title, such as D.Arch, be offered as a first professional degree?; and 3) Should the terminal degree be a post-professional (or second professional) degree? The ACSA will develop a position paper to present at the fall 2003 NAAB validation conference. No matter which side educators took, most agreed that they wanted ACSA to come to some resolution on the matter so that the issue does not overwhelm discussions in the next year. Bradford C. Grant, AIA, of Hampton University, will take office in July as the 2002–2003 ACSA president—the first African-American in that position. *J.E.C.*

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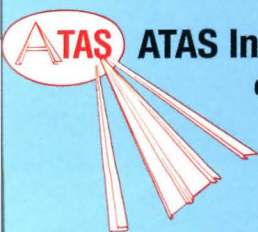
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Record News

William Massie's Urban Beach to grace P.S.1 courtyard

William E. Massie of New York City has been named the winner of the third annual MoMA/P.S.1 Young Architects Program, cosponsored by the P.S.1 Contemporary Art Center in Queens, New York, and the Museum of Modern Art (MoMA). The program invites young architects to design a temporary installation for the center's courtyard. Massie's design will be constructed and featured at P.S.1 from June 30 to August 30.

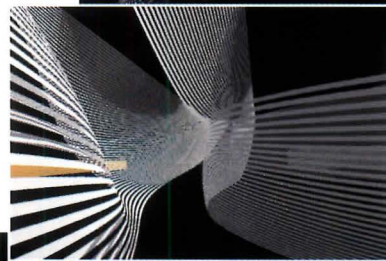
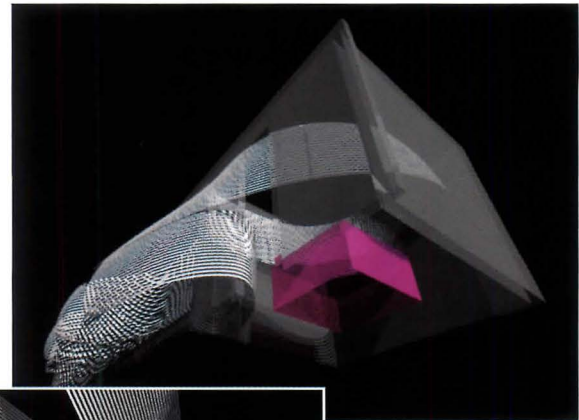
The 25 invited competitors were asked to design a structure for the P.S.1 courtyard with a project budget of \$50,000. The five finalists included Office dA, of Boston; and Specht Harpman, ARO, KDLAB, and Massie, all from New York.

Massie's winning design, called Playa Urbana/Urban Beach, centers on three rectangular pools that function as both wading and reflecting pools. When unoccupied, the pools take on the colors of their surroundings, and at night they will appear to glow because their foam structure will be covered by a layer of phosphorescent plastic. A series of undulating walls of parallel rows of PVC pipes, intended to invoke ideas of "surf, surface, and sensuality," enclose two courtyards for the reflecting pools and a shower area. Massie used digital mapping to relate landscape data from Mexico City to the P.S.1 courtyard, as a reference to the art center's summer

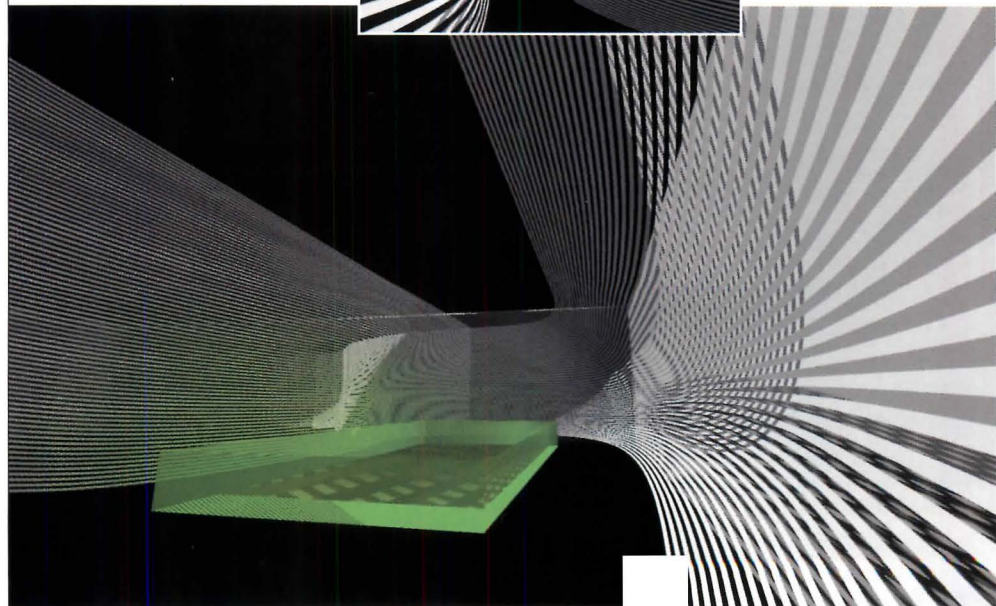
exhibition of art and artifacts from Mexico.

Massie is a graduate of the Parsons School of Design and Columbia University's Graduate School of Architecture. He has taught at Montana State University, was Coordinator of Building Technologies Research at Columbia, and now teaches at Parsons. He has worked for Polshek Partnership Architects and now runs a private practice in New York City.

Lindy Roy [RECORD, May 2001, page 50; August 2001, page 51] won the competition last year, and SHoP/Sharples Holden Pasquarelli [August 2000, page 80] won in 2000.
Kevin Lerner



In Massie's design, PVC pipes and phosphorescent wading pools (worm's-eye view, above) create dynamic patterns.



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News Briefs

Colorado Convention Center expansion begins Ground was broken April 29 for an expansion of the Colorado Convention Center in Denver by local firm Fentress Bradburn Architects, which designed the original building completed in 1990. The expansion, which will more than double the convention center's size to 2.5 million square feet, with a 5,000-seat lecture hall, two new ballrooms, and a 1,100-space parking garage, is expected to open in December 2004.



The Colorado Convention Center addition will have an expansive glass facade.

Nine listed for Avery Fisher Hall job New York's Lincoln Center is inviting nine architects to submit proposals for a redesign of Avery Fisher Hall, home of the New York Philharmonic. The architects are Christian de Portzamparc, Sir Norman Foster, Arata Isozaki, Toyo Ito, Rem Koolhaas, Richard Meier, Rafael Moneo, Jean Nouvel, and Skidmore, Owings & Merrill. Lincoln Center is expected to narrow the list down to three architects by summer and make a final selection by October. The renovation and redesign of Avery Fisher Hall is one part of a \$1.2 billion redevelopment plan for the entire Lincoln Center.

New York transmission tower proposed

A new transmission tower, designed by Kohn Pedersen Fox (KPF) and Desimone Consulting Engineers, has been proposed to replace the broadcasting antenna that once stood atop New York's World Trade Center. That antenna broadcast 18 television and four radio stations. The new, 1,840-foot antenna, with an observation deck at 1,250 feet, would be the tallest observation structure in the world. An exact location has yet to be determined—a number of sites in and near New York Harbor are under consideration.

The tower design features concentric spiraling steel cables, which taper inward and give the illusion of an hourglass. The core houses four egress stairs and two elevators, and the 40-foot-diameter concrete



The 1,840-foot tower by KPF.

structure, sheathed in metal panels, supports three floors with an observation platform, retail, restaurants, and broadcasting equipment.

DuPont wins National Building Museum award

The National Building Museum presented its 2002 Honor Award to DuPont, manufacturer of building products. The award coincides with the 200th anniversary of DuPont, known for its inventions and scientific achievements. "The National Building

Museum is privileged to salute DuPont for its inventive products that directly influence the construction and design process in the building industry," says Susan Henshaw Jones, president of the museum, which has given the award since 1986.

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Dates & Events

New & Upcoming Exhibitions

Houses X Artists=Design Without Rules West Hollywood, Calif.

May 10–June 25, 2002

Commencing this six-month exhibition is the first phase of *Houses by Artists*. The Mak Center, in collaboration with New York-based firm OpenOffice, has invited 10 contemporary artists to stretch their imaginations and each design a house free of the typical constraints imposed on architects by professional practice. Their proposals will be presented in model and digital form as they evolve in three phases over the next six months. At the Mak Center. Contact 323/651-1510.

Museums for the New Millennium: Concepts, Projects, Buildings Milwaukee

May 24–August 4, 2002

This exhibition presents a cross section of the most significant museum projects designed and built within the past 10 years. Through drawings, photographs, and original models, the show features 25 museums from around the world, including the Milwaukee Art Museum expansion by Santiago Calatrava. At the Milwaukee Art Museum. Call 414/224-3200 for more information.

Ongoing Exhibitions

Mood River Columbus, Ohio

Through May 26, 2002

Explore the forms, materials, and textures of contemporary design through a close look at the objects and icons that define our everyday reality. This exhibition features more than a thousand products and designs from the worlds of fashion, sports, and technology, representing such designers as Philippe Starck, Frank Gehry, and Issey Miyake. The show is accompanied by a series of lectures, discussions, and walking tours. At the Wexner Center. Contact 614/292-3535.

Mies in America Chicago

Through May 26, 2002

An exhibition of work from the career of the late German architect Ludwig Mies van der Rohe, after

he arrived in America in 1938. The Seagram Building in New York and the Farnsworth House in Illinois are among the show's highlights. At the Chicago Museum of Contemporary Art. Call 312/280-2660.

US Design, 1975–2000 Denver

Through May 26, 2002

Through a choice selection of drawings and designs, this exhibition celebrates the work of American designers in the last quarter of the 20th century. Included in the show—extending to architecture, industrial design, and beyond—are such designers as Robert Venturi, Maya Lin, and Steven Holl. At the Denver Art Museum. Call 720/865-5000 for more information.

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A New World Trade Center: Design Proposals

Washington, D.C.

Through June 10, 2002

An exhibition featuring sketches, renderings, and multimedia projects created by established and emerging architects in response to the need to rebuild on the site of the World Trade Center and embrace the future of New York.

Organized by the Max Protetch Gallery. At the National Building Museum. Call 202/272-2448 for more information.

Utopia & Reality: Modernity in Sweden 1900-1960

New York City

Through June 16, 2002

This timely exhibition surveys Swedish art and culture from the first half of the century, when youth, progress, and innovation became vehicles for understanding Modernism and the rapidly changing world of the time. A full range of artistic expressions will be covered, from architectural drawings and models to painting, sculpture, graphic design, and photography. At

the Bard Graduate Center. Call 212/501-3000 for further information.

The Alliance of Art and Industry: Toledo Designs for a Modern America Toledo

Through June 16, 2002

In the 1930s, Toledo, Ohio, was a hotbed for cutting-edge industrial design. Now, almost a century later, it is celebrating its past with this exhibition at the Toledo Museum of Art. Among the 180 products included are cars, scooters, appliances, furniture, gadgets, and even a life-size model of the wildly modern "Kitchen of Tomorrow," presented in 1942. For more information, call 800/644-6862.

Designing the Future: the Queens Museum of Art

New York City

Through July 7, 2002

An exhibition featuring drawings and models from the Queens Museum of Art Design Competition. On view are the works of 198 competitors and five Stage II finalists. The exhibition also traces the history of the museum's building, which is the only surviving structure from the 1939 and 1964 world's fairs in Flushing, Queens. At the Queens Museum of Art. Visit www.queensmuse.org.

The Geometry of Seeing: Perspective and the Dawn of Virtual Space Los Angeles

Through July 7, 2002

Through illustrated treatises, drawings, and prints, this exhibition traces the complex yet fascinating history of perspective drawing over a period of four centuries. On display is an extraordinary range of theories and rendering techniques, including the work of Leon Battista Alberti, Albrecht Dürer, and Sebastiano Serlio. At the Getty Center. Contact 310/440-7360.

Gaudí Experiences: Space, Geometry, Structure, and Construction Barcelona, Spain

Through September 27, 2002

Throughout his career, Gaudí's feats of structural ingenuity and seemingly impossible design never ceased to amaze the public. In a tribute to his work, this exhibition unravels the mystery behind Gaudí's construction by exploring the extraordinary methods of calculation used by the architect. At the Museu d'Historia de la Ciutat. Visit www.gaudi2002.bcn.es for more information.

Also at the Soane London

Through October 8, 2002

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Celebrating the process behind the practice, this exhibition is the third in a series linking the work of celebrated contemporary world architects with the tenets and themes that are reflected in the unique collection of architectural ephemera, sculpture, and painting in the Sir John Soane's Museum. The show includes models, film projections, and a selection from concept sketchbooks. At the Sir John Soane's Museum. For more information about the exhibition, contact William Palin at will.palin.soane3@ukgateway.net.

Tours

28th Annual Frank Lloyd Wright House Tour Chicago

May 18, 2002

Eight private residences designed by architect Frank Lloyd Wright will

open their doors for a rare interior tour. Most of the residences are located in the historic communities of Oak Park and River Forest, Illinois. Contact 708/848-1976.

Lectures, Symposia & Conferences

Building a Vision II: The Intersection of Art and Architecture Boston

June 1, 2002

A distinguished panel of artists, architects, and architectural critics are invited by the Institute of Contemporary Art to discuss the blurring line between art and architecture. Symposium speakers include Aaron Betsky, Elizabeth Diller and Ricardo Scofidio, Preston Scott Cohen, and multimedia artist Judith Barry. For more information, call 617/266-5152.

A+A: Reflections on Architecture Barcelona, Spain

June 20-22, 2002

A festival devoted to the fusion of architecture and the moving image. Architects, computer programmers, artists, and filmmakers are invited to analyze possible relationships between animation, experimental films, digital technology, and the creation of 3D space. Sponsored by the Col·legi d' Arquitectes de Catalunya. For more information, e-mail coacanimatica@coac.es.

International Quingue Symposium Newport, R.I.

June 27-30, 2002

This four-day symposium brings together architects, artisans, and scholars to examine key issues in historic preservation practices. It will feature the work of local preservationists and institutions. At the Salve Regina University. Call 401/341-2156 for more information.

Universal versus Individual: The Architecture of the 1960s

Jyväskylä, Finland

August 30-September 1, 2002

This conference will explore the architecture of the 1960s by illuminating universal currents as well as individual and regional trends. Keynote speakers include Beatriz Colomina, Claes Caldenby, and Dennis Doorman. Sponsored and organized by the Alvar Aalto Academy. Visit www.alvaraalto.fi/conferences/universal for more information.

Conventions

Society of Environmental Graphic Design 2002 Annual Conference & Expo Denver

May 31-June 1, 2002

Join fellow architects and designers in this year's SEDG conference, entitled "Trailblazing: Crossing Frontiers." Lectures, workshops, and discussions led by the

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Lightfair 2002 San Francisco June 3-5, 2002

Join over 17,000 architects, engineers, and design professionals in this year's conference and trade show dedicated to architectural and commercial lighting. Over 400 leading domestic and international manufacturers will present the latest products and technology, and the most up-to-date information. At The Moscone Center. Visit www.lightfair.com for registration information.

XXI World Congress of Architecture Berlin

July 22-26, 2002

The Union Internationale des Architectes invites architects and students from around the world to discuss responsibilities and strategies for environmental and sustainable design within an urban context. At The International Congress Centre Berlin. Call 49 30 90 12 13 14 for information.

Competitions

Art-Case Piano Design Competition

Deadline: May 15, 2002

Design Center of the Americas invites musicians, artists, designers, and students to design the first art-case piano of the 21st century. The winner will be unveiled at Design+Architecture Month in

October. For more information, call 954/730-7730.

City Reemerging

Deadline: May 29, 2002

Create a vision for Winnipeg's Historic Waterfront in the upcoming Ideas Winnipeg 2002 ideas competition. Focusing on the East Exchange District in Winnipeg, Ontario, entrants will create ideas for a new urban face on the Red River. Winners will be awarded a total of \$55,000 in cash prizes. For more information, visit www.winnipeg-ideas-competition.org.

Pilkington Glasshouse Competition

Deadline: May 31, 2002

Exploring the architectural potential of glass, entrants are asked to design a house for the 21st century. The winning schemes will demonstrate a creative approach to the use of glass as part of an overall design concept. It is left to each entrant to determine the exact requirements of the space in terms

of the number and age of persons to be accommodated, the number and size of rooms, accessibility, and related matters. Visit www.pilkington.com/glasshouse for more information.

Institute for Architecture and the Humanities Competition

Deadline: June 17, 2002

This is not a design competition. Rather, it is a competition for making judgments about design. Students are invited to revisit already completed work and write their own assessment of the strengths and weaknesses of the project. Open to students in undergraduate and graduate programs. First prize is \$1,000. Call 312/733-7230 for more information.

11th Annual Ermanno Piano Scholarship

Deadline: June 30, 2002

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Miró's tile mural, Mur du Soleil (1957), at the UNESCO Building in Paris, France.



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Dates & Events

France. The grant offers 10,000 euros. Applicants must submit their qualifications, including samples of previous work. For more information, visit www.rpbw.com.

The Great Egyptian Museum Competition

Deadline: August 10, 2002

An open invitation to architects from around the world to participate in the creative design of this new museum. Located near the Giza pyramids, the museum will house some of Egypt's most ancient monuments and treasures. For more information, visit www.gem.gov.eg.

Shinkenchi Residential Design Competition 2002

Deadline: September 2, 2002

This competition, held annually by The Japan Architect, invites architects from around the world to

explore the theme "Dwelling Where the Muses are Served/Spared Emptiness." The entire competition will be judged by one architect: The committee this year has selected Daniel Libeskind. Sponsored by Shinkenchi-sha Company. For more information, visit www.japan-architect.co.jp.

Mobile HIV/AIDS Health Clinic

Deadline: November 1, 2002

Architecture for Humanity, a non-profit organization, announces its 2002 international design competition. Architects are invited to submit designs for a fully equipped mobile medical unit and HIV/AIDS treatment center for use specifically in Africa. Entry fees, donations, and additional fundraising activities will be used to build the winner's prototype. For more information, go to www.architectureforhumanity.org.

Events & Programs

Summer Program in Classicism New York City

June 15–July 29, 2002

Spend six weeks in New York City discovering the elegance of Classical architecture and principles of traditional urbanism. Students will have the opportunity to study with leading practitioners and work directly with a design studio community on real New York City projects. Deadline for application is April 15. Contact The Institute of Classical Architecture at 917/237-1208 for more information.

Eco-ARCHitecture San José, Costa Rica

July 9–30, 2002

The faculty of Architecture and Urbanism of Universidad del Diseño invites students and practitioners to participate in a three-week studio exploring the biophysical and socio-cultural conditions of design in a tropical climate. Application dead-

line is April 30, 2002. For more information, visit www.unidis.ac.cr.

Summer Design Institute 2002

July 15–19, 2002

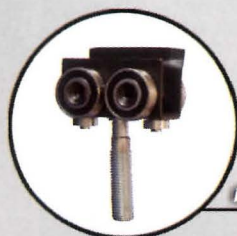
Educators and designers are invited to join a panel of international design educators to discuss strategies for engaging K-12 students in the design process. Hosted by the Cooper-Hewitt, National Design Museum and the American Institute of Graphic Arts, this one week program will feature workshops, studio visits, and keynote presentations by notable designers, including David Kelly, Eames Demetrios, John Maeda, and Eileen Adams. At the Cooper-Hewitt, National Design Museum. Call 212/849-8385 for more information.

E-mail events and competitions to ingrid_whitehead@mcgraw-hill.com. Please send notices of events and competitions two months prior to the event or deadline.

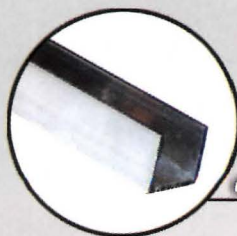
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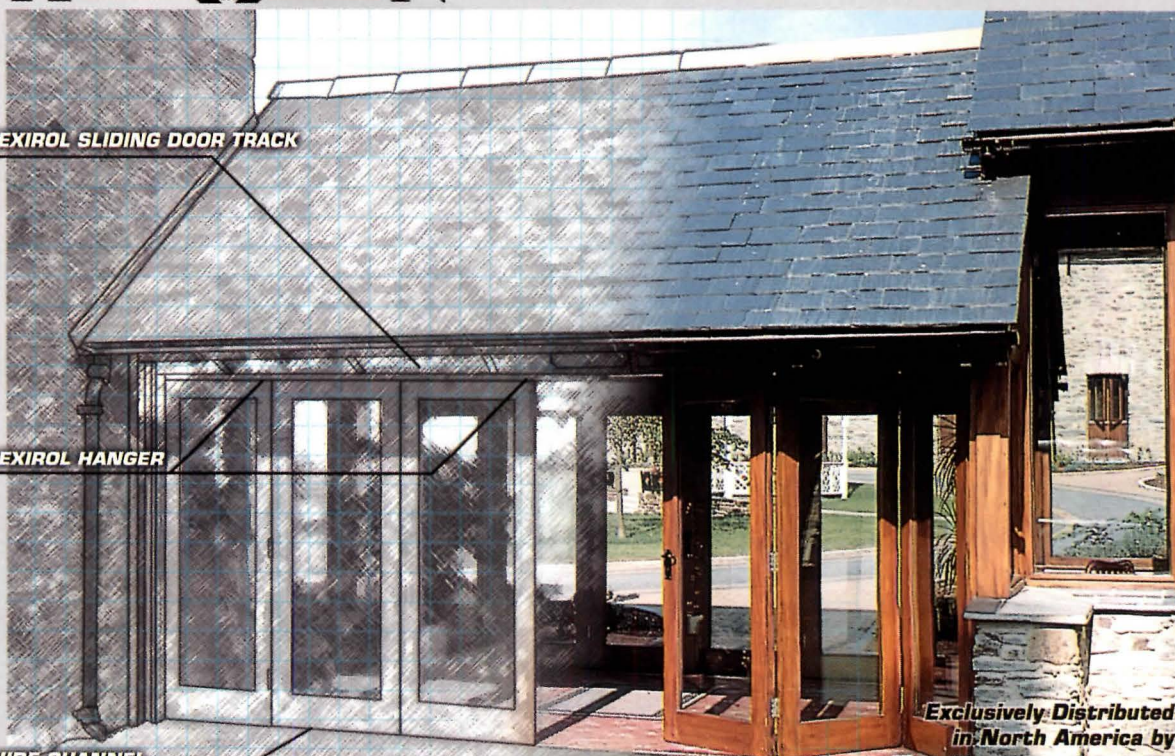
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Charlotte, N.C., embraces prosperity and builds a new identity

Correspondent's File

By Richard Maschal

DEPARTMENTS

In the 1920s, Charlotte produced a character who seemed to define the place. Clarence O. Kuester promoted the city's interests as a Chamber of Commerce executive with such gusto he was dubbed "Booster" Kuester. In those boom times, the city's slogan was "Watch Charlotte Grow." As proud as the city was of its leafy canopy and gracious neighborhoods, it vigorously subscribed to the New South creed that made commerce king. Charlotte grew on cotton and textiles, although few remnants of its mill-town past remain. Boosterism still defines North Carolina's largest city, now a major financial center, home to Bank of America (BoFA), the country's number one consumer bank, and Wachovia, the fourth-largest bank. Their shiny towers rise over uptown (a more upbeat term Charlotte prefers to "downtown.") If "Booster" Kuester came back today, he'd see a city less enamored with growth, with setting records like being the second-fastest-growing American city in the 1990s, or with news items such as: "A recent Urban Land Institute study says Charlotte area residents drive more miles than people in all but six other major cities. Five years ago, Charlotte ranked 17th."

Now, Charlotteans increasingly worry about sprawl. For years the cry has been, "We don't want to be another Atlanta!" These days, the fate of that city—actually smaller in population than Charlotte, although its metro area is larger—seems closer.

Richard Maschal is the visual arts and architecture writer for The Charlotte Observer.

Hugh McColl, Jr., the recently retired chief executive who built BoFA and an advocate for "smart growth," may have something to say about that when he gives a keynote address to the national AIA convention on May 10. Two projects, each costing in excess of \$1 billion, illustrate Charlotte's somewhat ambivalent response to growth. The 65-mile outer belt that will loop the city is already congested on completed portions to the south and east, inspiring dire comparisons with Atlanta's infamous I-285. Some, worried that Charlotte's I-485 will spark sprawl at its interchanges, have called for canceling the northern and western segments before its scheduled completion in 2009. Outer-belt advocates reply that city government can control sprawl through zoning. But a recent study showed population growth along the completed outer-belt route already is moving at a faster pace than in other suburbs. And local government is not known for saying "no" to developers.

While earth movers scrape into the red clay along the outer-belt route, Charlotte also pursues mass transit. In 1999, forward-thinking county voters approved a half-cent sales-tax increase to pay for a system centered on uptown that over 25 years will include five lines of either light rail, busways, or commuter rail. The first leg, an 11.5-mile line south, is scheduled to open in 2006. Mass transit needs density to

succeed, the opposite of the sprawl the outer belt seems to be encouraging. Whether this can be achieved through zoning and in-fill development in a community that loves big lawns and big houses remains to be seen. While Charlotte has not resolved the seeming conflict between these two projects, it

remains and exerts a counter pull on sprawl. In recent years, housing has sprouted among the center city's tall buildings and parking lots. By mid-2003, an expected 10,000 people will live uptown. BoFA sponsored Gateway Village, a \$250 million mixed-use project on the west edge of uptown designed by Duda/Paine Architects of



Downtown Charlotte, with the Charlotte Panthers football stadium in the foreground.

shows signs of backing off the any-growth-is-good philosophy.

Recently, planners called for changes in general development policies to discourage strip malls, subdivisions filled with cul-de-sacs, and even front-loading garages. Davidson, a small college town to the north, afraid it would be overrun by Charlotte-inspired sprawl, adopted rules requiring builders to save open space. Also, despite political strains between the outer suburbs and inner neighborhoods, the community's ongoing commitment to uptown

Durham, with offices, shops, and apartments. The Ratcliffe, a luxury condo development in brick and glass near the Charlotte Convention Center, part of a \$75 million Wachovia development, was designed by FMK Architects of Charlotte. The bank preserved an old florist shop and made it part of the project.

The building cranes that have floated over uptown for three decades remain. The 46-story Hearst Tower, a \$300 million BoFA project, is almost finished. Designed by Smallwood, Reynolds, Stewart,

Correspondent's File

Stewart & Associates of Atlanta, its Art Deco looks, including a frank homage to the Chrysler Building on top, nicely complements Cesar Pelli's 60-story BofA Headquarters nearby. Firms such as Smallwood, Reynolds have shown a greater concern for how tall buildings meet the street. The Hearst Tower plaza will have restaurants, shops, public seating, and an entrance into the adjacent Mint Museum of Craft + Design. During the AIA convention, the Mint will host *American Modernism, 1925-1940: Design for a New Age* from the Metropolitan Museum of Art. The museum, along with a science museum, history museum, library, and performing arts center, form a cultural district on the northern edge of uptown. It soon will have a unique project, the Children's Learning Center, combining a theater and library. The design from Hardy Holzman Pfeiffer (HHP) of New York



features bright colors, bold geometric forms, and, if the budget allows, a theater sheathed in copper. Joining HHP are local architects at Gantt Huberman. Principle Harvey Gantt, FAIA, became Charlotte's first black mayor in 1983.

Charlotte once debated, in all seriousness, when and if it would



The Gateway Village Technology Center (left and above) by Duda/Paine Architects of Durham, N.C.

achieve "world class" status. That talk is over, although a growing Hispanic population has made it more diverse. But it remains hungry for recognition and frets about the "CH factor," the tendency of outsiders to confuse it with Charleston, South Carolina; Charlottesville, Virginia; or— heaven forbid—Charleston, West Virginia. It eagerly embraces the status given by professional sports,

although the NFL Panthers had the league's worst record last year and the NBA Hornets seem bound for New Orleans after a nasty fight over a publicly financed arena to be designed by Ellerbe Becket. But in a city defined by its dedication to development, at least the right questions are being asked about the cost of growth, and some tentative steps are being taken to control it. ■



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FOR THE EMERGING ARCHITECT

DEPARTMENTS

This month, archrecord2 takes you from the backyard to the front office. A group of Phoenix architects collaborated on a doghouse design for a client who is an eight-year-old golden retriever. You'll see both house and dog in **Live**. And in **Work**, you'll get to look over some of the questions that new hires at architecture firms should ask prospective employers. As always, there's a **Design** feature, and you can **Talk** about it all at architecturalrecord.com/archrecord2.

DESIGN

Emergent's organizational chart

To fully understand Tom Wiscombe's web of collaborations, design partnerships, and overlapping firms, one needs to consult a flowchart. Conveniently, Wiscombe provides a sort of high-design Venn diagram near the front of his portfolio as a way of explaining the maze.

Wiscombe started his current career trajectory in 1992, when he graduated with a B.Arch. from the University of California, Berkeley, and more or less

stumbled into a job at the Los Angeles office of Coop Himmelb(l)au.

"They paid me almost nothing,"

Wiscombe said. "I remember surviving on ramen noodles and driving an ex-cop car I picked up at a police auction." But he rose quickly, and Wolf Prix gave him the opportunity to be the project designer in a competition for

the UFA Cinema Center in Dresden, Germany. Coop Himmelb(l)au won the competition, and Wiscombe was given the position of senior designer in the firm's offices in Vienna, Austria, while he worked on the project.

In 1998, Wiscombe returned to the U.S. to study for his M.Arch. at the University of California, Los Angeles. "I needed the degree anyway, to eventually get licensed and teach," Wiscombe said, "but for me, the more important thing was to cut the umbilical cord to the office and get into a mental space where I could begin to define my own work."

It was after Wiscombe's graduation from UCLA in 1999 that his professional associations became tangled. To this day, for instance, he continues to work with Coop Himmelb(l)au on a project-by-project basis. When this cooperative is in effect, it goes by the name LA LAB and can involve not only the Vienna firm and Wiscombe, but also members of Emergent, which is a sort of hub organization that connects all of Wiscombe's various projects.

"Emergent is a kind of opportunistic arrangement," Wiscombe said, "like a cellular slime mold, which is sometimes a single organism, sometimes spread out as multiple organisms, depending on environmental conditions." For Emergent, those conditions are mainly economic, and the firm grows and



**Micro-Multiple House,
Los Angeles, 2001**

Emergent. This speculative house is based on a system of flexible steel trusses that can be shipped in standard containers. The interior space functions as a live/work loft and includes an indoor lake.



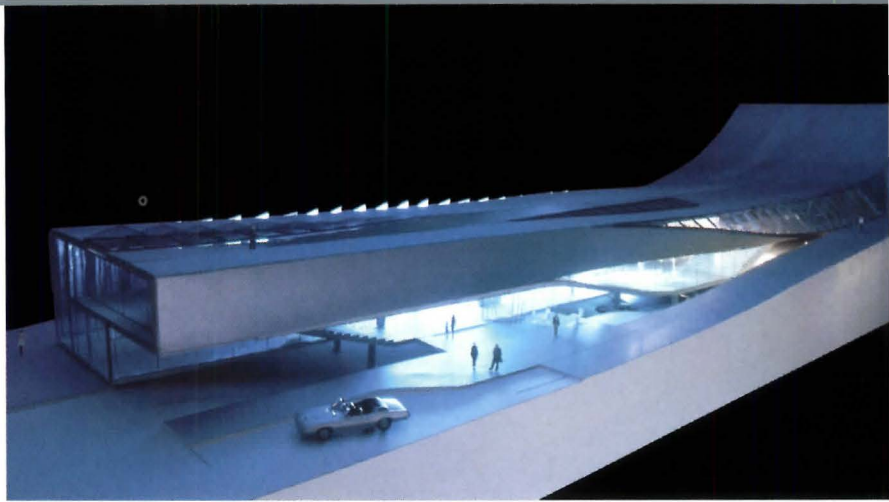
shrinks accordingly, filling up with associate architects and interns, when projects require them.

In addition to LA LAB and Emergent, Wiscombe also collaborates with the architect Kurt Sattler, in a partnership that they call General Dynamics*. Plus, Wiscombe teaches at both the Southern California Institute of Architecture and UCLA.

Wiscombe's father is a scientist for NASA, and the architect attributes his love for materialist philosophy to his dad's atmospheric research. This interest in materialism has led to an insistence on working almost entirely with physical models. According to Wiscombe, models are what enable a materialistic architecture. "At least until truly interactive holographic computer interfaces are available," he said, "models are the most interactive and fastest way of working."

With Wiscombe's many commitments, fast is important, and so is flexible, and his business structure mirrors his design philosophy. "I think architecture has a lot to learn from the worlds of business and biology," he says, "where organizations are in constant flux and have to negotiate new deals or territories to survive. The building industry—and, for that matter, building uses and owners—is changing incredibly fast, and it is systems and organizations that endure, not places, entries, types, or facades." If it is in fact systems and organizations that endure, then Emergent—with its slime-moldlike ability to adapt to constantly changing conditions—has a bright future. *Kevin Lerner*

Go to architecturalrecord.com/archrecord2 to see more of Emergent's work, and to read an extended interview with Tom Wiscombe.



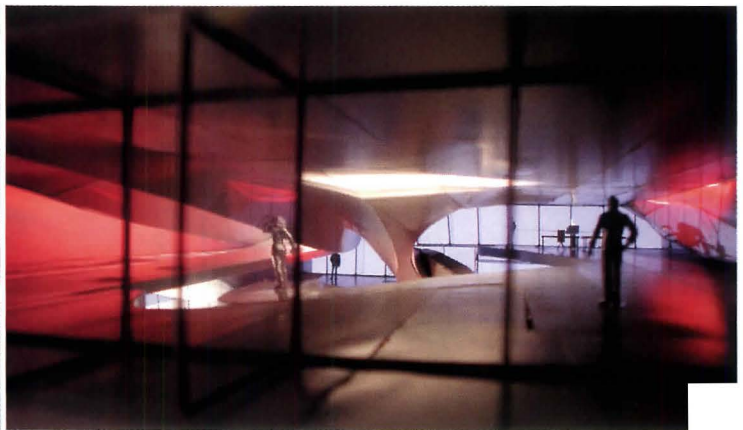
Palos Verdes Art Center Competition, Los Angeles, 2001

Emergent. This design is for a proposed museum and studio complex that would jut out visibly from the

adjacent hillside, giving it a landmark presence. A ground-floor patio area weaves through the space, imbuing the building with a sense of continuity and community.

Radiant Hydronic House, Los Angeles, 2002

Emergent. A central "spine" combines electrical wiring, air ducts, and a system for heating the house via liquids that are warmed in radiant pools on the roof.



WORK

What to ask before you're hired

The current job market may lead recent graduates of architecture schools to believe that the only question they will likely be asking their future bosses is, "Do you take sugar with that?" But a year after getting their first position, there are certain to be questions that these young architects will have wished they had asked. In an attempt to minimize this regret, *archrecord2* asked architects at small, medium, and large firms how smart job seekers can put their potential bosses in the hot seat.

"I was just so glad to get a job where people paid me money," says Dick Hudgens, of Richard Hudgens Architect, in Selma, Alabama. Hudgens emphasizes the importance of landing at a firm where job diversity is the order of the day. "How much variety will there be in the work that I do? I wouldn't want to get chained to a desk doing the same thing all the time."

"What kind of responsibilities will I have in the next year?" asks Jonathan Marvel of New York's Rogers Marvel. "In my firm, we throw out a

bunch of responsibilities to new hires, and it's sink or swim. It's very important to be given responsibilities at lots of different levels to round out the architectural experience."

Arlene Matzkin of Philadelphia's Friday Architects asks, "What am I going to get a chance to do? Will I ever design anything or get to be a project architect on a small job? Some firms have a monotony about them, so you better know what you're buying into."

Peter Nicholas of Chicago's Nicholas Clark

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(continued from previous page) echoes Matzkin. "What happens in medium to large firms is that you get cubbyholed into a specialty. I'd want a firm that would allow me to grow into a role."

Marvel says architects who are starting out need "a level of self-confidence. A lot of this comes from the relationship a young architect has with the partners in the firm. You must feel comfortable, intuitively sensing the presence of dialogue."

To ensure that a young architect feels that sense of dialogue, James Williamson at Williamson Pounders Architects suggests you go to the top: "Ask principals to say something about their vision for what the firm should become in the future. It would tell the employee about the firm; whether its desire is to increase gross receipts, win an AIA award, or improve relations with customers."

This connection with the firm's senior members ("Who am I going to work for?" asks Williamson) isn't merely a question of access, it's an issue of continuing education and preparing for the next step.

"A crucial question to ask would be how to address issues of responsibility and the real coaching one could get from a partner or a project manager," says Carlo Frugiuele of Urban Office

Architecture. "I often try to expose students and people who work for us between the [New York and Milan] offices to all phases of the design process, from client interviews to the production of documents and site administration."

Matzkin adds, "Hopefully, you're going to use all of your skills to move ahead or advance to another firm."

Certainly, there's a danger in asking questions—you want to get a job, not to come off as an investigative reporter. "When you start off, you're afraid to barge in and ask them anything," says Hudgens. "You can't feel inhibited."

"If it were me, I'd want to know what I might be exposed to in the first two years that will allow me to see the full range of professional experience and give me a better view of where I want to proceed," says Chris Hayes of William McDonough and Partners. "The more aggressive you are about it, the better."

The questions young architects ask may make the difference between spending the early part of a career designing skyscraper bathrooms or using it to learn skills that make a better architect. *Jason Clampet*

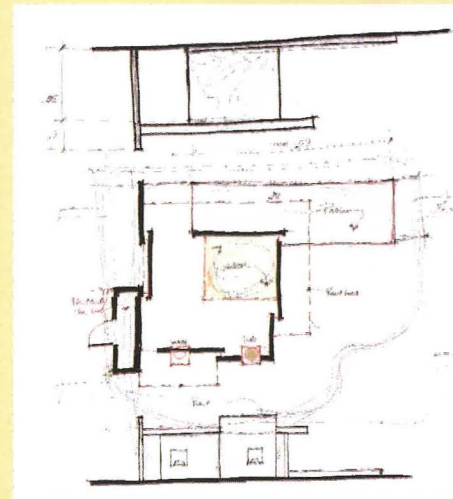
Go to architecturalrecord.com/archrecord2 for more career stories and about young architects.

LIVE

Who built the doghouse? Woof!

Who ever said being in the doghouse is a bad thing? Especially if it has Venetian-plaster walls, granite floors, and a roof garden.

In their "Bow-wowhaus," architect Tom Payton, Doug Theberge, Michela Bull, and Lira Luis—all from Phoenix?



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Critical moment for the WTC site: Determining what gets done and whose voices get heard

Critique

By Michael Sorkin

DEPARTMENTS

During the week of the six-month anniversary of the Trade Center attack, I walked down to see the towers of light on a foggy evening. The clouds lay low and the effect was startling and dramatic, occluding and revealing the powerful skyward beams shrouding downtown in an otherworldly glow. It was completely beautiful and a little frightening, a genuinely aesthetic sublimity that could be taken for what it was, a feeling quite different from the embarrassed awe that shamed earlier fascinations with the twisted, mesmerizing rubble at Ground Zero.

An informal consensus

The site is now nearly clear, testament to the grim, selfless energy of those laboring there round the clock. As workers reach the bottom of the pile, they are discovering the remains of comrades trapped on lower floors and in the lobby when the towers collapsed, an awful closure. The two shafts of light seemed utterly apt during the time of transition from removal and recovery to the consideration of what is to come. They asserted the possibility of a memorial of both power and presence and set a high standard for future projects. That they were there at all also demonstrates the power of the informal consensus that has, for better and worse, begun to determine what can and cannot happen on this place.

For the moment, we find our-

Contributing editor Michael Sorkin practices architecture in lower Manhattan and teaches at City College.

selves in a curious interregnum downtown. While no plans have been finalized, there has been intense jockeying for position, both publicly and, especially, behind the scenes. With the formation of the Lower Manhattan Development Corporation (LMDC), planning responsibility has, however, become clearer, even if the actual power to undertake construction remains dispersed and uncertain. The site is owned by the Port Authority (controlled by the governors of New York and New Jersey), sits within the City of New York, is laced with transport and utility infrastructure controlled by various agencies, and has been leased to Larry Silverstein—a New York real estate mogul with particularly dreary architectural sensibilities (four 50-story towers on the site was his initial public suggestion)—and to Westfield, an Australian shopping-mall-management company that was to have run the huge retail complex beneath the towers.

In addition to these legal stakeholders, the public has made its sentiments known through both traditional political activities and a welter of self-organized alliances that have been meeting regularly and working hard to promulgate ideas for reconstruction. One of the most broad-based of these coalitions—New York, New Visions—recently released a preliminary report that includes a variety of sensible findings, most crucially a call to look beyond the immediate site of the towers and consider the

planning of downtown Manhattan as a whole. The report recognizes a historic opportunity to reattach Battery Park City to the island from which it has long been isolated, to increase pedestrian links, to unify and augment a series of transit lines that converge but don't quite meet at the site, to intensify the mix

to include four directors chosen by Mayor Bloomberg. These include Billie Tsien (the first design professional named); Carl Weisbrod, the president of the Downtown Alliance, which manages the Downtown-Lower Manhattan Business Improvement District; E. Stanley O'Neal, the president of Merrill Lynch;



A temporary memorial, the *Tribute in Light* set a high standard for future projects.

of uses in the area, and a number of other unassailable ideas. And they are not alone; the outpouring of proposals and opinions has been bracing. At no time in my memory can I recall so many discussing questions of planning so fervently.

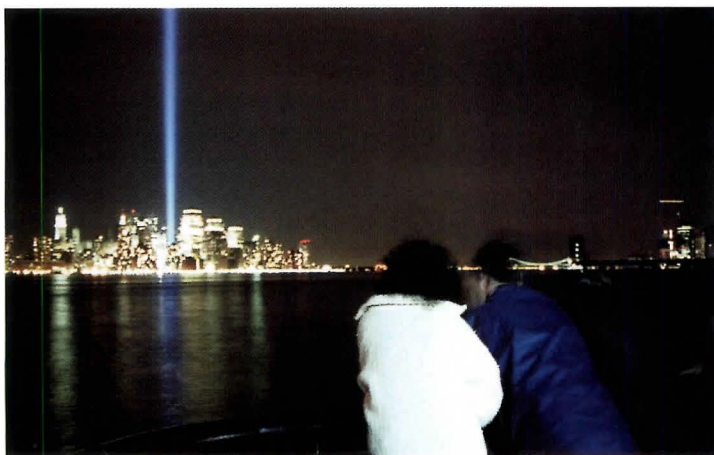
As I write this, the LMDC has just released its first statement of principles for the “future of Lower Manhattan,” and its board—appointed during the Giuliani administration—has been expanded

and Sally Hernandez-Pinero, a former deputy mayor from the Dinkins administration. The mayor has clearly sent a message about diversity by placing Asian-, African-, and Hispanic-Americans (among them two women) on a board hitherto dominated by white, male plutocrats.

The new principles have been *whipped into shape* by Alex Garvin, himself recently hired as the LMDC's vice president for planning. New York City planning commissioner,

professor at the Yale School of Architecture, and author of the ingenious and politically adroit proposal for the 2012 Olympics (done with Daniel Doctoroff, now deputy mayor for economic development), Garvin has articulated a framework that is both wise and very canny. Clearly, Garvin has been listening carefully, and his recommendations parallel those emerging from the broader community of interests. The importance of the memorial is foregrounded, infrastructure and

The closest the principles come to a translatable declaration of design intent is in their call for the restoration of “all or a portion of” the street grid obliterated by the construction of the Trade Center. However, the plan specifically mentions only two streets that cross the site—Greenwich Street, running north-south, and Fulton Street, running east-west—not the 12 blocks that originally stood there. Of course, an open space or memorial scheme (or, for that matter, a com-



Like plans being developed now, the towers of light had a regional impact.

transportation are emphasized, mixed use is invoked, pedestrianism encouraged, open space celebrated, and environmentalism tithed.

The principles are very sound and should attract wide support. However, they are strategic in their avoidance of the more controversial aspects of the plan that must finally emerge. The two big issues center on who decides the fate of the site and what is actually to be done at Ground Zero. While the report and the new appointments go a long way to reassure the public about decisions many feared would be reached behind closed doors, the principles do not take a definitive position on the future of the site itself, listing but not locating uses and calling for a lot of work to take place underground. This reticence is appropriate at this stage: There is still plenty of time to get it right.

mercial, mixed-use development) for the site could establish connections across it without restoring the grid as such. The question, therefore, remains whether there will be a block scheme for the site—defining a series of clear development parcels—or some other approach.

Today, the day after the release of the LMDC's principles, Silverstein revealed his plans for the first site to be put into play, that of the former 7 WTC (which collapsed after the twin towers with, miraculously, no loss of life). The site is pivotal both because it holds an electric substation that must be replaced expeditiously and because the destroyed building had eliminated Greenwich Street, which virtually everyone now agrees should be unblocked. In the just-published diagram of the scheme developed for Silverstein by David Childs of Skidmore, Owings & Merrill (SOM),

the missing block of the street has been restored, with the result that the footprint of the new building is considerably smaller than the original one. Although the new tower will be higher than its 40-story predecessor, there is a net reduction of 300,000 square feet of space.

This begs the question of what will be done with the leftover development rights, and rumors are flying that Silverstein is trying to renegotiate the terms of his lease with the Port Authority to reflect the diminished carrying capacity of the site. It has also been suggested that this may simply be the beginning of a much more protracted negotiation, to escape any potential financial liability from the consequences of the “official” plan. Indeed, rumors are also circulating that SOM is preparing studies for the entire WTC site on

This community has been disappointed at being excluded from representation on the LMDC and having only been offered a role on the memorial subcommittee. Advocates (myself included) for leaving most of this sacred site open as a civic memorial space seem to be increasingly marginalized. I get the impression that the “cooler heads” in power regard any such scheme as the victory of sentiment over reason (i.e., money) and that the dispassionate, “rational” position is for a mix of economic, cultural, and memorial activities on the site.

Adjudicating conflicting claims

Indeed, there is no purely logical method for adjudicating these conflicting claims. In the absence of genuinely competing plans, developed as actual designs, there cannot

IT'S TOO SOON TO CLOSE DOWN POSSIBILITIES. WE NEED COMPETITION NOW—IT'S TOO SOON FOR COMPROMISE.

Silverstein's behalf as part of his strategic negotiation for a new lease.

SOM has been the ubiquitous mover downtown. Marilyn Taylor, chairman of the firm, has emerged as a key avatar of the New Visions report and is also leading a planning study of lower Manhattan's east side funded by Weisbrod's Downtown Alliance, while Childs is designing 7 WTC and doing planning studies for Silverstein. Am I overreacting to the hydra of an interlocking architect/developer directorate and the fact that all the commissions doled out thus far have gone to one firm? There is a huge potential conflict between business and citizenship here, and SOM needs to lay its cards on the table in terms of its own desires and interests for Ground Zero.

The real wild card in all of this, though, is the memorial. In recent weeks I have gotten the strong sense that the idea that the entire site be dedicated to such a memorial is being quietly slipped off the table. Most vocal among the supporters of such a plan have been the tragedy's bereaved survivors, although this is not a uniform position among them.

be a basis for deciding on the superiority of one solution over another. It would be a shame if the process were to proceed “deductively,” as if the solution could simply be programmed by consensus.

Eventually, there is sure to be a competition for some portion of the site, something specifically designated as “the memorial.” But the time to throw the process open is now. With a good, comprehensive set of ideas on the table, it is critical that the process engage a wide range of alternatives, formal arguments that interpret the consensus artistically, fertilizing it with invention.

Walking around the almost completely cleared site the other day, I was stuck both by the agonizing extent of the void and its profound legibility. In visual and urbanistic terms, this is not a space that *must* be built upon to find its compelling visual, functional, and expressive logics. It is too soon to close down possibilities, and that is why it is important that we have discussion and competition now, not simply business as usual: It is too soon for compromise. ■

Proposed MasterFormat changes would radically enhance document's usefulness

Practice Matters

By Charles Linn, FAIA

MasterFormat, the 16-division system for organizing construction information that has been accepted industrywide for decades, may soon undergo a major overhaul. The executive committee of the Construction Specifications Institute (CSI) and their counterparts from Construction Specifications Canada (CSC) recently approved a concept for revising and expanding the 38-year-old system to include types of construction that were previously not covered. The two organizations recognize that construction is an activity that is constantly evolving and that MasterFormat must also change to remain relevant to the construction industry. The groups' Expansion Task Team solicited input from 500 organizations within the AEC industry, as well as from organizations whose interests are not currently covered by the document. Publishers who produce products that follow MasterFormat, such as McGraw-Hill Construction's Sweets and ARCOM's *MASTERSPEC*, have also given input to the Expansion Task Team, and the changes are being coordinated with the development of the Overall Construction Classification System (OCCS). The OCCS will eventually be used by all industries involved in creating and sustaining the built environment, from conception through demolition.

The new MasterFormat would greatly enhance that process, says Dennis Hall, AIA, chairman of the Expansion Task Team and principal of Hall Architects, in Charlotte, North Carolina. The system would be expanded to cover more types of

construction, maintain better organizational consistency among divisions, and reserve space for future material.

"MasterFormat was started by architects who were in the business of designing buildings," says Hall, "so there is a lot of construction activity that MasterFormat didn't include before. Now, we're trying to bring the rest of the construction industry together under one common system that everybody can use. The new system would classify and organize information that was previously dispersed all over the place."

One of the things that Hall tries to emphasize when explaining how MasterFormat would be reorganized is what the document would and would not do. It would not be a system of classifying products, nor would the divisions be intended as a way to designate trade jurisdictions. "That is a huge misconception we're constantly fighting," he says. "People say things like, 'the electrical contractor owns Division 16.' That's not true. The electrical contractor's work is defined by their contract on a project. It may or may not be restricted to what's in Division 16."

MasterFormat, reorganized

The first two divisions of MasterFormat—Division 0, Procurement and Contracting Requirements, and Division 1, General Requirements—would not be greatly affected by the proposed changes. Things start getting interesting in Division 2, formerly Site Construction. This would now be

called Existing Conditions and would contain information on, for example, site survey, hazardous materials removal, and demolition. Items from the former Division 2, Site Construction, would be relocated to a new division, 31.

Divisions 3 to 14 would change little. But users of the new system would notice right away that in the proposed revisions, Division 15, Mechanical, and Division 16, Electrical, are given division numbers in the 20s and reorganized. Divisions 15 through 20 are to be reserved for future use.

The 20, 30, and 40 series

Here's where things start to get really radical. These new divisions would fulfill CSI's promise to take on new construction types. The 20 series, which concerns building systems, would now contain the information once collected in Divisions 15 and 16, and it would be broken into five sections. Division 21, completely new, would be called "Life Safety and Facility Protection." It would include such things as system monitoring and controls, security access and surveillance, and protection systems and alarms. In Division 22, plumbing would be given its own section. Divisions 23 and 24 would concern HVAC and electrical, respectively. Division 25, Communications, would include data systems, local area networks, telephone, and building communication systems. Divisions 26 through 30 would be reserved for future use.

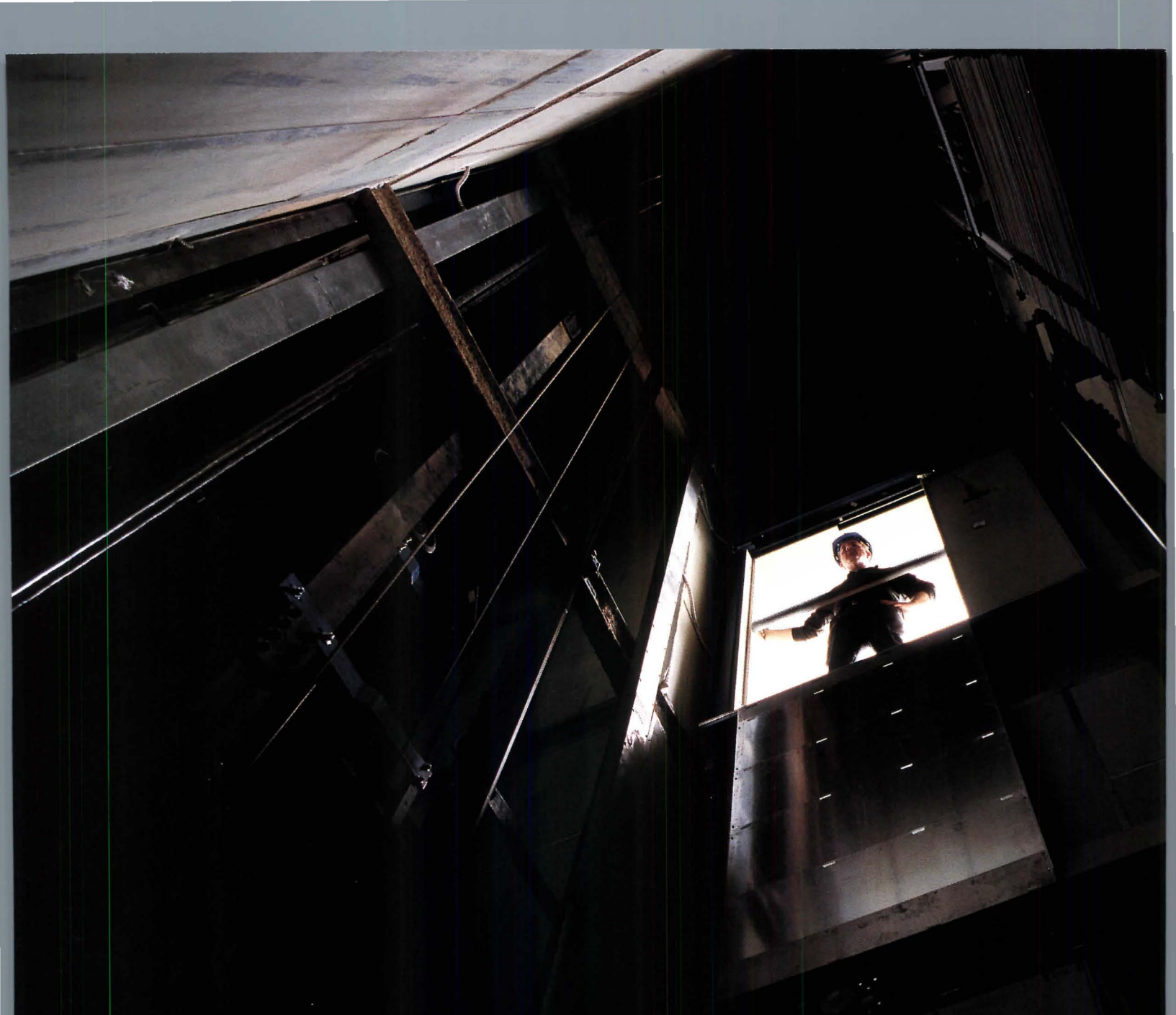
The 30 series would focus on

civil engineering. As mentioned, some of this information was previously found in Division 2, formerly known as Site Construction. Division 31, Exterior Construction, has information on items like geotextiles, curb and gutter, and foundations. A new section, Division 32, Exterior Improvements, would cover such things as irrigation, fountains, and site amenities. Division 33 would cover transportation, including railroad, highway, and airport work. Division 34 would comprise waterway and marine construction. Divisions 35 to 40 would, again, be reserved for future use.

The new 40 series would open up a huge amount of information that was previously not classified. Division 41, Fluid Treatment, would be the place to look for water supply and treatment equipment, and filters. Solar collectors, turbines, wind generators, and fission reactors are among the products that would appear in Division 42, Power Generation. Division 43, Processes, would contain information on process equipment, incinerators, and process instrumentation.

What's next

Over the coming year, the proposed revisions to MasterFormat will be subjected to several stages of public review. They should be approved about a year from now and offered for sale in December of 2003, according to Hall. Those who are interested can download a draft version of the proposed changes at the Construction Specification Institute's home page, www.csinet.org. ■



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Ever more popular, ever more dogmatic: The sad sequel to Christopher Alexander's work

Commentary

By William Saunders

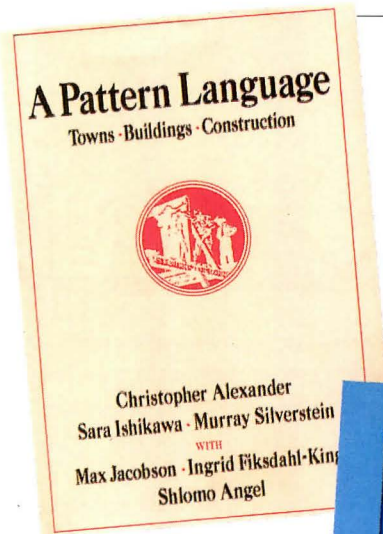
The Nature of Order, Book One: The Phenomenon of Life, by Christopher Alexander. New York: Oxford University Press, 2002, 472 pages, \$75.

A Pattern Language: Towns, Buildings, Construction, by Christopher Alexander, Sara Ishikawa, Murray Silverstein, with Max Jacobson, Ingrid Fiksdahl-King, Shlomo Angel. New York: Oxford University Press, 1977, 1,171 pages, \$65.

Fame and adulation can be toxic to creative people. Surrounded by sycophants, they can lose the ability to be self-critical, become trapped in other people's ideas of them, and begin to imitate what they once did with originality and verve. Public infamy, on the other hand, can engender isolating paranoia.

Christopher Alexander presents a case in point. He garnered early success in academia for his first major book, *A Pattern Language*. Then came a steady increase in popular acclaim, accompanied by a decline in highbrow respect. Still his most rewarding book, *A Pattern Language* has been the best-selling architectural treatise in the U.S. for at least 10 years, while it and the rest of Alexander's writings have virtually disappeared from the curricula of architectural schools and received almost no attention in scholarly

William Saunders is the editor of the Harvard Design Magazine and the author of Modern Architecture: Photographs By Ezra Stoller.

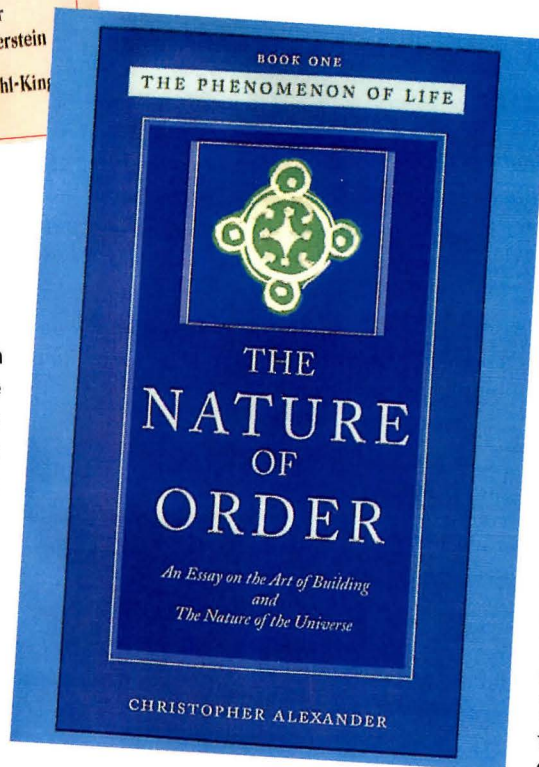


The ever-expanding scope of ambition: In 1977, Alexander focused on the built world. Today he looks at all of life.

publications. Since its launch in 2000, the Web site for *A Pattern Language* (www.patternlanguage.com) has been visited almost entirely by homeowners and builders but by relatively few architects, a site staff member tells me. Alexander's current admirers are many, and they treat his every word as profound truth.

The fact that Alexander's writing has received both reckless neglect and reckless adulation since the 1980s might partially explain why his most recent book, *The Phenomenon of Life* (the first of four books to be called *The Nature of Order*), is full of pitiable delusions of grandeur and persecution. Alexander often sounds the note that he alone sees the light.

While others are suffering from "mass psychosis"—his phrase for the "unimaginably bad" state of architecture—he does confess a fear that his magnum opus may be a pipe dream. It is painful to say it, but he has reason to worry. The admired main author of *A Pattern Language*, a flawed yet richly rewarding classic, has just pub-



lished what I will show to be (take a deep breath) a self-deceptive, sloppy, ill-informed, and numbingly repetitious book full of contradictions, foggy generalities, and extreme and unsupported assertions. In it, Alexander condemns works without explanation; condemns image culture but treats

photographs of people as mere graphics; calls Deconstruction "deconstructionism"; makes grammatical errors; mostly references publications that were written before 1980; and so on. (Full disclosure: I read this book in an "uncorrected page proof.")

Alexander's career as a prominent intellectual began when he

was a doctoral student at Harvard. With Serge Chermayeff he published *Privacy and Community* in 1963. The next year brought his dissertation-based *Notes Toward a Synthesis of Form*. In those halcyon days, when he was not yet an institution, he wrote his most original and perceptive essays, including "The City Is Not a Tree" (1966), still occasionally studied in architectural schools. In 1967, full of missionary fervor, Alexander secured not only a teaching position at the University of California, Berkeley, but also funding from the National Institute of Mental Health to establish the Center for Environmental Structure. The Center's initial research created the content for *A Pattern Language* in 1974.

A Pattern Language's great service is to reveal how certain qualities of experience are encouraged by certain environmental structures. I began writing "certain desirable qualities," but stopped so I wouldn't fall into the trap Alexander

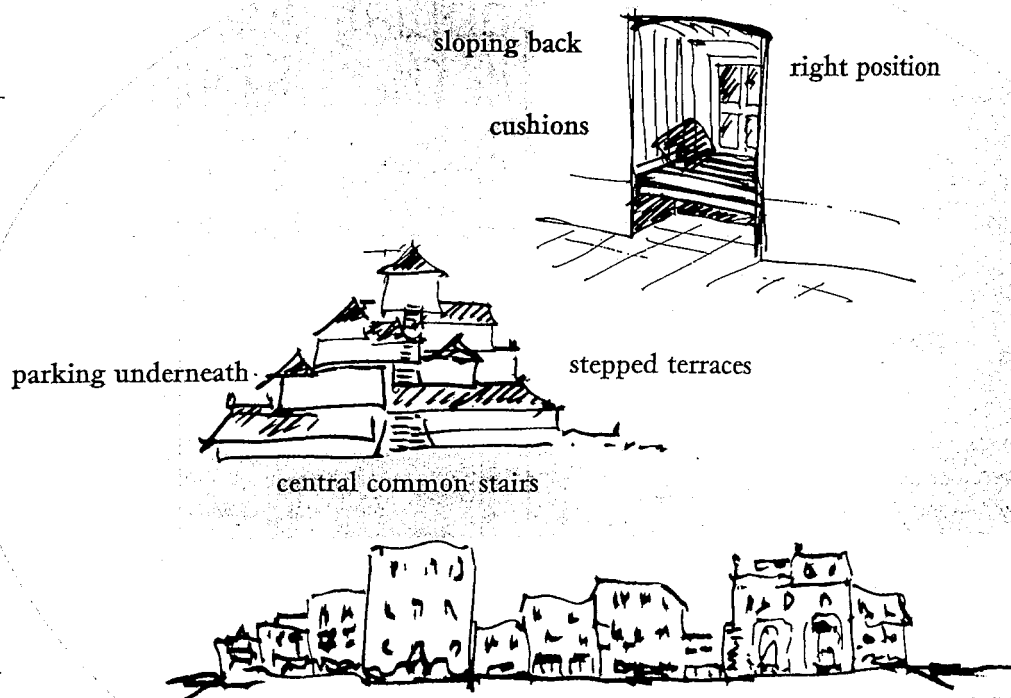
Commentary

is in—refusing to see that the qualities of life that he values are not valued by everyone. In both *A Pattern Language* and his new book, ideal life for Alexander is Californian/Mediterranean—comfortable, easygoing, sensuously pleasurable, communal, and full of leisure time for socializing and solitude—life as it can be during vacations. Alexander cannot imagine that anyone would prefer a life with more conflict, intensity, and rough edges, or that his ideal life could lead to complacency. (In architecture, his preference for highly detailed, decorated, handcrafted buildings—the Alhambra is his ideal—leads him to dogmatically condemn anything Minimalist.)

A rich set of guidelines

However, insofar as we do want the kind of life Alexander seeks, *A Pattern Language* presents a rich, huge, and instructive set of guidelines. The book's greatest strength is its extensive description of delightful details of ordinary life and places. Alexander and his coauthors did wide-ranging fieldwork, making close observations, collecting photographs, and learning from experience.

Treated as a smorgasbord for selective consumption, the book is marvelous. Many—perhaps most—of its 253 rules present ideas that are familiar to architects but worth being retold. For instance, the book's assertion that rooms should receive daylight from at least two sides may seem obvious, but it is neglected all the time in new houses and office buildings. And readers will also come across less familiar good ideas. Among them: to increase privacy in small houses, string out rooms horizontally or vertically; to increase sunlight in row houses, make them wide and shallow. Most impressively, *A Pattern Language* keeps in focus the truth that people want and need different



Drawings from *A Pattern Language* illustrate several of Alexander's notions of creating the proper scale and compositions for buildings and towns.

degrees of privacy and communal involvement. It is attuned to creating zones—like balconies overlooking streets—that offer a choice of participation or detachment. And *A Pattern Language* was ahead of its time in identifying the ideas codified in the 1990s by the New Urbanists, ideas supporting mixed use, pedestrian zones, and so on.

As a smorgasbord of ideas, *A*

WHEN TREATED AS A SMORGASBORD FOR SELECTIVE CONSUMPTION, THE BOOK IS MARVELOUS.

Pattern Language will continue to be worth reading. But Alexander has always wanted his readers to consume from his work not just morsels but his whole five-course meal of design principles. Paradoxically, while *A Pattern Language* presents ideas for environments that would increase personal freedom, spontaneity, and even anarchy, it does so in an authoritarian way: "Buildings must always be built on those parts of the land which are in the worst condition, not the best." The book

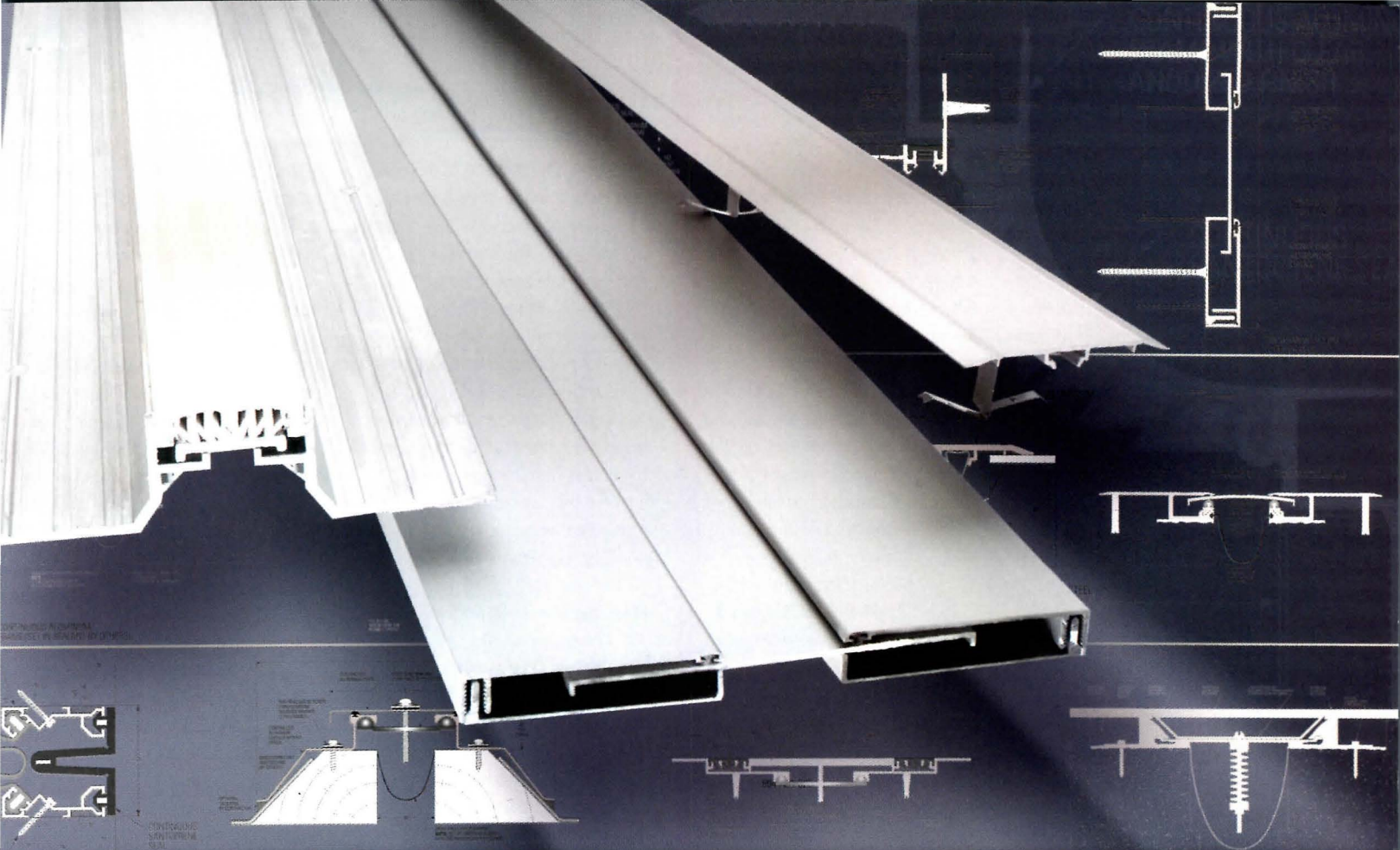
seeks to dictate planning and design decisions everywhere and at every scale, from the region to the mullion. Even as the book prescribes ideas to maximize individual control—for instance, that all stores and houses be owned by those who run or occupy them—enacting many of its rules would require top-down governmental control. The contradiction that freedom is to be

achieved through obedience to his rules pervades Alexander's work.

A Pattern Language presents a system of interlocking parts. The new emphasis of the Center for Environmental Structure, a researcher there told me, is on sequences of steps for designing everything from entryways to houses. Indeed the *Pattern Language* Web site offers people the chance to be guided through design sequences, a process that exerts more control than reading

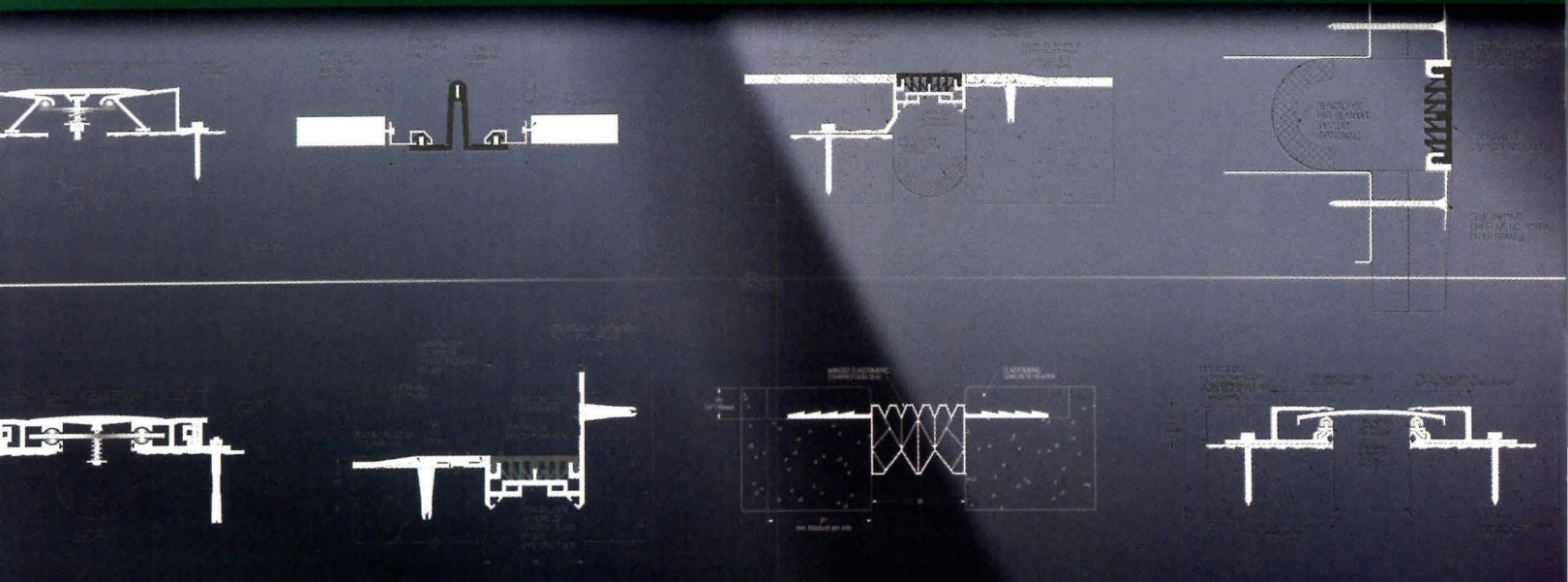
the book does. But then, millions of Americans buy "how to" books every year—they want the control of "authorities."

It is impossible, as well as potentially repressive, to produce a seamless system for creating environments that need to respond to our unpredictable needs and complex natures. Following some of the book's rules (for instance, "break the urban area into local transport areas, each one between 1 and 2 miles across") would prevent following other rules ("urban fingers should never be more than 1 mile wide"). If a town center were drawn in plan using all of the book's rules, the result would be a hodgepodge of competing elements. There would be a crowding together of—among many other things—grave sites, natural bodies of water, carnivals, small stores, playgrounds, animal pens, travelers' inns, beer halls, birthing centers, swimming pools, housing, and agricultural land. Alexander's imperious effort to build a comprehensive system works against his own best impulses, *stifling the spon-*



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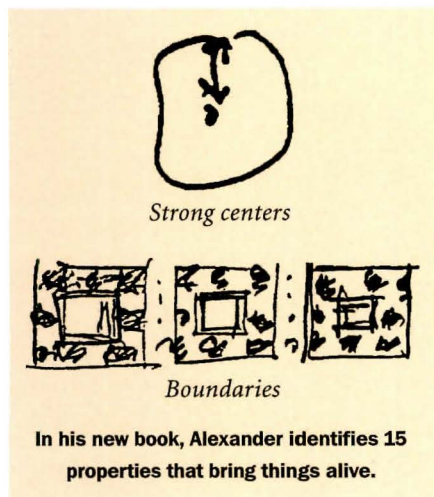
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Commentary

taneity he so clearly loves.

A *Pattern Language* is most useful to those who are as carefree with Alexander as he would like us to be in his ideal environment. We can use his rules according to our needs, wants, and opportunities. And if we were to follow his rules as the spirit moves us, the results might be delightfully quirky, like a rambling New England farmhouse added to over centuries, full of odd



nooks and crannies.

Alexander's intentions—to encourage maximum aliveness—mark him as a radical utopian who wants to “repair the world.” He cares so much about fostering a better life that he throws off the wet blanket of practicality. Allowing his wishes to run wild, he is often dreamy in a flower-child kind of way: He prescribes things like naked bathing with family and friends and high schools run by students. His is a childlike fidelity to the belief (however naive) that people are naturally good and to the hope (however naive) that in his new world, goodness would prevail.

Sadly, his latest book has all the faults and few of the virtues of *A Pattern Language*. Those who love the earlier book for its abundance of concrete detail and suggestions for improving the quality of ordinary life will be sorely disappointed by the new book's tendency toward

abstraction and its distance from common experience. Written over 30 years, *The Phenomenon of Life* recalls George Eliot's novel *Middlemarch*, in which Casaubon spends his adult life trying to write a grand synthesis of all myths. Casaubon's ambitions far outreach his abilities, and his obsessive but hopeless project cuts him off both from other people and social realities. Other literary characters come to mind: Don Quixote tilting at windmills, earnestly and self-importantly fighting battles against imagined enemies. And King Lear, desperately needing loyalty, insisting that the world conform to his illusions of it, and escaping into fantasy rather than accepting recalcitrant realities.

It is rarely appropriate to focus on an author's psyche when reviewing a book, but Alexander makes his psyche a major part of this publication:

“On some days I look at the theory I have formulated in these four books and can hardly believe that it is true. It provides a view of the universe which is so surprising, and so much at odds with the normal common-sense ways of thinking about physical reality we have currently, that it seems almost like a fantasy....

“[Saint Teresa] struggled with her faith, and, in the midst of her doubt and disbelief, found occasionally for a few moments that indeed she did believe. And for this she was canonized.

“I have always identified with Saint Teresa ... Much of the time I find myself wondering if the theory I have presented can really be true, or if I have merely concocted some fantastic fiction. But occasionally, in a few lucid moments, I see clearly, and it seems to me that it must be true, simply because there is no other explanation which is equally convinc-

ing and covers all the facts. Then in another instant I am doubting again, because it is just too difficult for a hard-boiled empiricist like me to believe that the metaphysical part, especially, of what I have written, and my analysis of the nature of space and matter, really can be true.”

This is excruciatingly personal. And it is more than a little odd and self-aggrandizing to compare belief in his theory with belief in God. But Alexander is right to point out that throughout the book his conflicted thinking is both metaphysical (focusing on what cannot be seen and measured) and empirical (focusing on what the senses register).

Making the subjective real

The Phenomenon of Life is, at its core, a claim that subjectivity is not really subjective but is “out there” in the objective world. Alexander gives objects a sense of self, even feelings: A wave can have “wild rage,” a meadow can have “tenderness.” In Alexander's view, the more “self-hood” things have, the more life they have. Any two things, even stones, can be compared to determine which has more life. This is so, says Alexander, because certain visual properties create and indeed are aliveness. Alexander claims to have

ALEXANDER IS MAKING THE WORLD OVER TO SUIT HIMSELF, TO BE A COLONY OF HIS PSYCHE.

“discovered” 15 such properties, things like internal differences of scale, strong boundaries, “good shape,” gradients, and roughness. How has he discovered these properties? By consulting his feelings and seeing what qualities make him decide that one thing is more like his “deepest” self than another thing.

This is all maddeningly self-contradictory. Notice how slippery the following passage is: “We can see that [the things I have said have life] also are bound up with, and cause in us, deep personal feeling. They have deep feeling. They awaken feeling in us.” Alexander is desperate to have it both ways: Things have feelings and they cause

feelings. But all he can really know and express about what has “value” is what he feels. So he simply and baldly makes the following assertion again and again throughout the book: If I feel a thing is objectively there, it is objectively there.

Alexander's stance is solipsistic: He is making the world over to suit himself, to be a colony of his psyche: “I did not impose on myself the modesty of judgment typical in a pluralistic society. I did not worry about ‘my’ values compared with someone else's values. I simply identified those examples which had the greater degree of wholeness they induced in me, and assuming, with as much confidence as I felt to be real and reliable, that what I measure here would also be shared with others.”

Here lurks the dubious central idea of *The Phenomenon of Life*: All people at all times have the same responses to the same things. Believing this, Alexander can assume that his feelings are timeless and universal. When his students don't share them, he asserts that they have been brainwashed—he just has to push them harder and they always come around ... after some “squirming.”

Alexander ends *The Phenomenon of Life* by revealing to

us an epiphany he experienced as a young man visiting a Buddhist temple. Did he experience God and realize that he had to devote his life to what lay beyond his own paltry being? No, quite the opposite: He discovered that the world had been made for him. After having climbed a stairway up through hedges until it suddenly ended, he sat on a step and was stunned when a dragonfly landed beside him: “I felt certain—no matter how peculiar or unlikely it sounds today, as I am telling it again—that they had made that place, knowing that the blue dragonfly would come sit by me.” From then on, he knew that he was the *measure of all things*. ■

Looking at sprawl and listening to architects talk about themselves and their work

Books

How Cities Work: Suburbs, Sprawl, and the Roads Not Taken, by Alex Marshall.

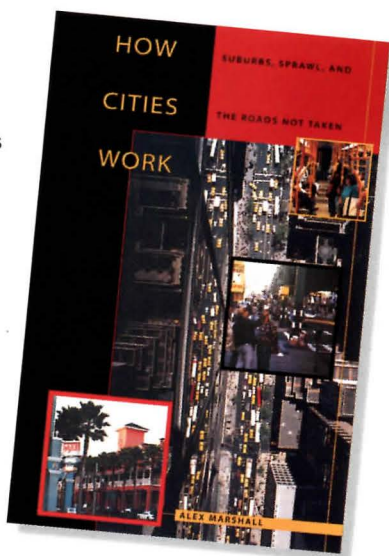
University of Texas Press, 288 pages, \$25 (paper).

In this important new book, Alex Marshall attempts to make sense out of the nationwide battle over suburban sprawl and the declining sense of place in the communities where most Americans live and work.

For more than a decade, Marshall witnessed battles over suburban growth management and urban revitalization at close range in his role as a reporter for *The Virginian-Pilot* in Norfolk, Virginia. With Norfolk as home base, he journeyed to four communities—Celebration, Florida; the Silicon Valley, California; Jackson Heights, New York City (in the borough of Queens); and Portland, Oregon—all archetypes for the new American metropolis. While Marshall is critical of the public policies and investments shaping today's sprawling communities and of the New Urbanism, his book is not a polemic like James Kunstler's *Geography of Nowhere*.

Marshall's central thesis is that public policies and investments shape cities and regions. In particular, he believes that transportation systems play a critical role in establishing patterns of urban development. He believes American transportation, instead of reinforcing cities, tends to mindlessly expand them. Real urbanism, he asserts, comes from organizing streets

around pedestrians' needs for short distances and around public transportation for longer-distance travel. To reverse postwar policies that ignore pedestrians and transit in favor of cars—a reflection of deeply felt, though largely unexamined,



public values—will require refocusing public policy on the needs of communities, not just individuals, Marshall writes.

His description of Celebration, Florida, is a scathing criticism of New Urbanism, in particular of some New Urbanists' emphasis on site planning and architectural details at the expense of regional planning concerns. His comparison of Celebration with the nearby "real" community of Kissimmee underscores, he believes, the need to reinvest in existing communities rather than in isolated, elite new subdivisions.

He contrasts the dynamic wealth-creating role of suburban

centers, such as Palo Alto and Sunnyvale, with the emerging role of San Francisco as a high-end suburb and cultural center. At the same time, he notes, older urban areas such as San Jose and East Palo Alto have been relegated to providing housing of last resort for the poor and working classes. These new roles reverse the traditional ones of cities and suburbs.

Marshall's Jackson Heights case study stresses the critical role of pedestrian- and transit-friendly communities in accommodating the newest wave of immigrants. Here, dense shopping streets and residential areas force old and new residents from dozens of countries to deal with each other as neighbors. Marshall concludes that New York's investment in restoring its transit system has played a critical role in creating this new society and underpinning the city's economy.

Finally, Marshall finds that in Portland, a regional urban growth boundary, investments in light rail, restrictions on highway building, and the city's promotion of downtown development have reversed trends toward sprawl.

While Marshall declares that *How Cities Work* is more about understanding than solutions, his case studies do show the way. He ends with three recommendations: 1) Build cities around public policies and investments, not private developers' wishes; 2) Invest in transportation systems that reinforce existing cities, and adopt policies that encourage public

transportation; 3) Promote regional governments with the authority to shape new patterns of metropolitan growth built around transit- and pedestrian-oriented communities.

In many ways, this book is the 21st-century analogue to one of the most important planning books of the past century, Benton MacKaye's 1928 landmark, *The New Exploration*. Like MacKaye's book, which shaped the thinking of generations of regional planners in the 20th century, *How Cities Work* could become a touchstone for coming generations interested in comprehending and redirecting metropolitan growth. Robert D. Yaro, president, Regional Plan Association of New York

On Foster ... Foster On, introduction by Deyan Sudjic, edited by David Jenkins. Munich, London, New York: Prestel, 814 pages, \$75.

When Lord Norman Foster was awarded the Pritzker in 1999, the prize's executive director, Bill Lacy, wrote that the British architect's designs pushed "modern technology to its artistic limits" and that his architecture "will undoubtedly be the standard for much of the architecture of the next century." The 49 essays about Foster in the first part of this book, written by 15 architects and critics over a 25-year period, flesh out Lacy's assertion. Nearly all are laudatory, although there is an exception or two, as when François

Books

Chaslin describes Foster's buildings as "technical contraptions" and writes that his architecture "remains cold, sometimes almost clinical in its perfection." But taken together, the essays amount to a *Festschrift*, a celebration of the 66-year-old architect's career.

During the past decade, Foster has moved from the design of individual buildings to tackle complex urban challenges. His airport in Hong Kong, for instance, involved building two suspension bridges, 21 miles of highway, a mass-transit rail system, the removal of a mountain, and the creation of an artificial island. "There was, as always with

Chris Abel, Ott Aicher, Kazuo Akae, Hugh DR Baker, Rayner Banham, Alastair Beart, Sebastiano Brandolini, Peter Buchanan, Loren Butt, Francois Chaslin, Doug Clelland, Theo Crosby, Luis Fernandez-Galiano, Thomas Fisher, Kenneth Frampton, Richard Buckminster Fuller, Joseph Giovanni, Jonathan Glancey, Ron Herron, Robert Hughes, Charles Jencks, Leon Krier, Vittorio Magnagto Lampugnani, Rodolfo Machado, Robert Maxwell, John McKean, Rowan Moore, Martin Pawley, Kenneth Powell, Malcolm Quantrill, Richard Rogers, Robert Sainsbury, Robert A.M. Stern, Dayan Sudjic, Wilfried Wang, Christopher Woodward

On Foster... Foster On
aircraft, airports, architecture, bicycles, cities, clients, community, components, culture, design, dogmas, ecology, energy, engineering, environment, flexibility, flying, furniture, future directions, heroes, history, housing, humanism, industry, influences, infrastructure, integration, kit-of-parts, libraries, light, marathons, materials, more-with-less, museums, nature, people, problem-solving, research, social goals, space, structure, sustainability, symbols, systems, teams, technology, towers, tradition, transport, urbanism, visionaries, workplace

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Foster, a search for the bigger picture," Deyan Sudjic writes in the introduction. "What has changed, however, is the architectural climate." It has allowed Foster to design a crop of Pacific Rim cities and to help European rust-belt cities, including Duisberg, Germany, to recreate themselves. Sudjic believes that such works as the Hong Kong and Shanghai Bank—which seemed to define Hong Kong while reinventing the skyscraper—show that Foster comprehends both the impact of galloping globalization and the need to create a sense of individual identity and difference.

The essays in *On Foster* describe Foster as the design guru of a new machine age, a humanist, a rationalist, a wizard of glass con-

struction, a contextualist, a brilliant office-space planner, and a master of the elegant detail. "Is he not himself Superman, flying solo in his gliders and helicopters, above this confused world?" asks Chaslin, not without sarcasm.

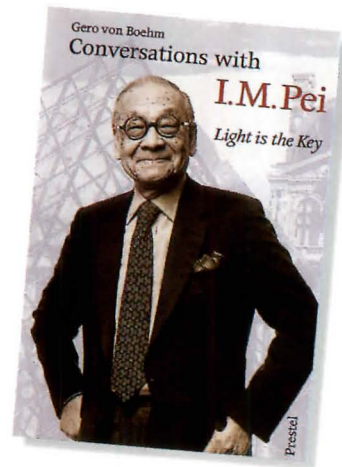
But in the *Foster On* section of the book, comprising 50 short essays by Foster—some about other architects and their work, some about his own designs and ideas—the architect seems less a hero than a methodical and impersonal technician. Stylistically, even intellectually, his writing is prosaic.

While the book's printed text is liberally sprinkled with small but sharp black-and-white photos and drawings, to really see Foster's projects, you need to spin the beautifully designed CD-ROM that accompanies the book and fits snugly into its front cover. In addition to describing Foster's practice and his projects, classifying them by building type, and listing awards and publications, the CD-ROM has a section called "inspiration." There you find images from the world of aviation and space exploration, including old and new fighter and commercial planes, Cape Canaveral launching towers, and airports. You'll also find offshore oil rigs, trains and train stations, medical operating theaters, and a variety of glassy arcades and glazed buildings. Foster's muse, it would seem, is Mercury, the ancient god of speed and commerce.

Andrea Oppenheimer Dean

Conversations with I.M. Pei: Light is the Key, by Gero von Boehm. New York: Prestel Publishing, 128 pages, \$30.

Like most American immigrants, I.M. Pei is rooted in at least two cultures. Born in Canton, China, in 1917, he was taught the Confucian ethics and traditions of his forebears. He first encountered Western culture at age 10 in Shanghai, "the Paris of



the East" at the time, which he found "very exciting, but also a very corrupt place. So I learned both good and bad from Shanghai."

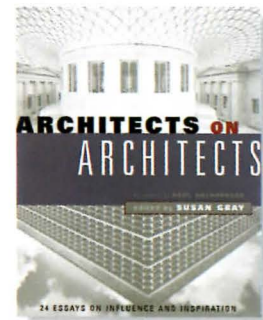
Gero von Boehm uses an interview format to tell the story of Pei, a quietly impassioned, calm and cautious, yet iron-willed architect. The interviews, most probably controlled and edited by Pei with a view toward his legacy, tell at least as much about his vision and values as his work. They reveal how he was scarred at 13 by his mother's death, emotionally excited soon afterward by the discovery of classical music, and thrilled at 19 at the prospect of going to the U.S. "to learn, so that I could return and serve the country. For the Chinese of my generation, patriotism was a very powerful force."

Pei graduated from MIT in 1940 and proceeded to Harvard's Graduate School of Design. Doubts about his design abilities initially directed him toward engineering, he says, until Professor William Emerson, a descendant of Ralph Waldo, scolded him. "Young man, that is rubbish. I have never yet met a Chinese who cannot draw." At Harvard, Pei learned discipline from Gropius and gentler qualities from Breuer, his "teacher and best friend at Harvard ... He kept talking about light"—the absence of which, Pei now believes, renders form inert and space static. He soaked up Corbu,

recalling the architect's two-day visit to Cambridge in 1935, "dressed in black with thick glasses," as "probably the most important days in my architectural education."

After Harvard, Pei put in 12 years working on urban development projects for the developer William Zeckendorf because he "wanted to learn something about real estate." To his apparent surprise, he also learned about politics, how "to sell an idea to a city or a state." He learned where power resides in civic undertakings, and "that good ideas are worth nothing without allies who support them." He says that while working for Zeckendorf he acquired skills that allowed him to build the Louvre extension in the early '80s.

In the interviews, Pei describes superior architecture as "the where, the when, and the why ... [addressed] convincingly and eloquently and with style." We hear Pei denigrate architecture that emphasizes style and admit to weaknesses in his own designs. Of the Kennedy Library, for instance, he says, "I think there was a loss of energy and ambition in ourselves, architect and client." We listen as he confesses envying "those who can design beautiful furniture, but not those who design coffee pots." We hear a talented designer, armed with knowledge and a clear vision, pass on his views and experience. AOD



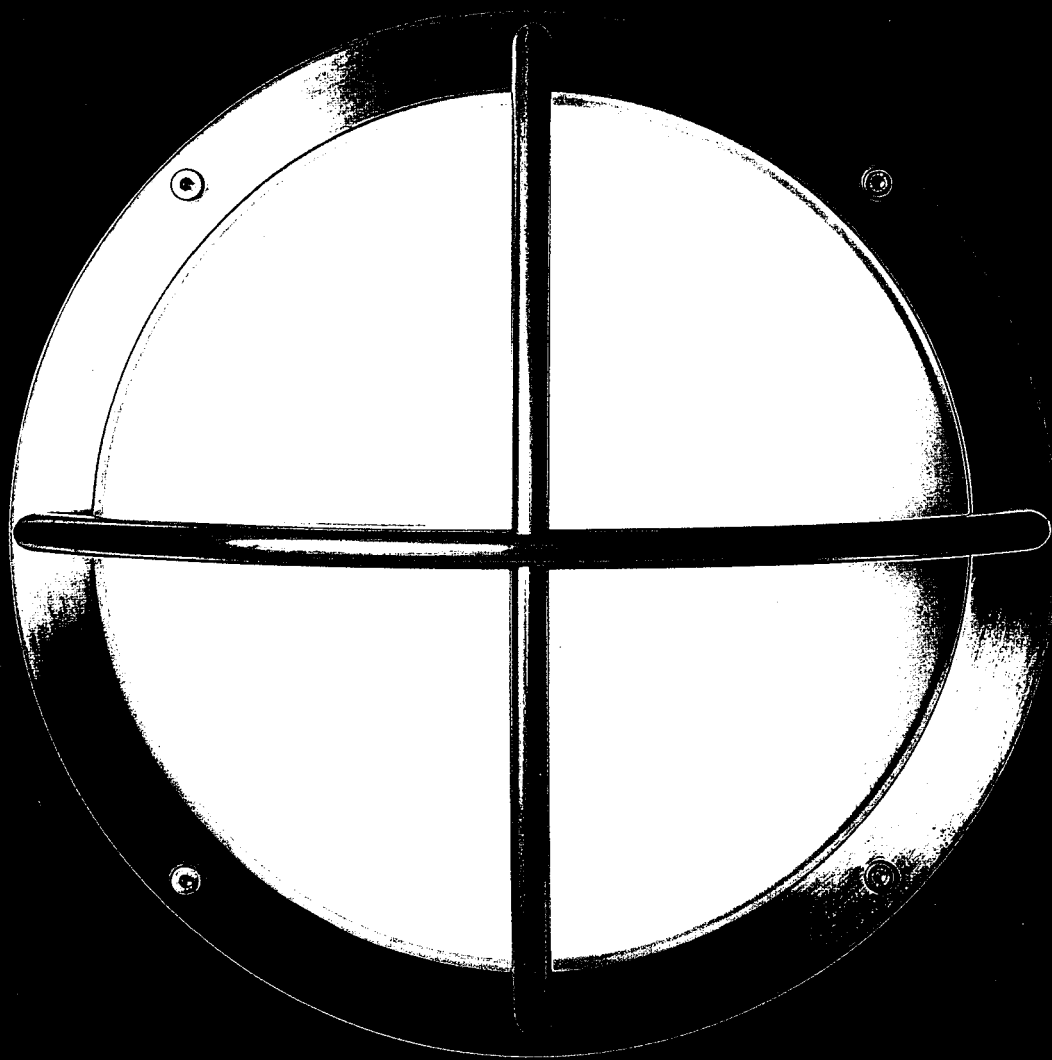
Architects on Architects, edited by Susan Gray. New York: McGraw-Hill, 114 pages, \$40.

Get architects to write about their mentors

and they may disclose more of themselves than when writing or talking about their own work. Such revelations are among the pleasures of this book. The 24 contributors are well known. Some reveal themselves to be quite selfless, some to be self-absorbed, but all show themselves to be "people who think and learn, and whose

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Books

ideas do not spring full-blown from their heads," as Paul Goldberger accurately says in the foreword.

Some have written gemlike tributes, notably Tadao Ando to Le Corbusier and Norman Foster to Paul Rudolph. Others are more solipsistic, particularly Michael Graves, FAIA, on Le Corbusier. A full five eulogize Corbu, which doesn't come as a surprise. But that Rudolph is honored by four—albeit four Yalies—is telling, and especially that one of them is Robert A.M. Stern, FAIA, who has spent most of his career rebelling against Rudolphian Modernism. And who would have guessed that Henry Cobb, FAIA, would select H.H. Richardson as his mentor, in part for his "intuitive capacity, which we would not be wrong to call genius"? Or that Richard Meier, FAIA, with his many built references to Corbu, would nevertheless single out

Wright and Fallingwater?

But, remember, this is a book about memory, and, as John Irving wrote in *A Prayer for Owen Meany*, "You think you have a memory, but it has you." AOD

Marcel Breuer, Architect: The Career and the Buildings, by Isabelle Hyman. New York: Abrams, 2001, 384 pages, \$85.

Isabelle Hyman's long-awaited monograph on Marcel Breuer (1902–81) is generous with facts but stingy with appreciation. It is divided into two roughly equal sections: "A Professional Life" offers more detailed biographical information than any previous book about Breuer and, tangentially, much information about the genesis of the Modern movement in Germany, England, and then America; "Works" offers descrip-

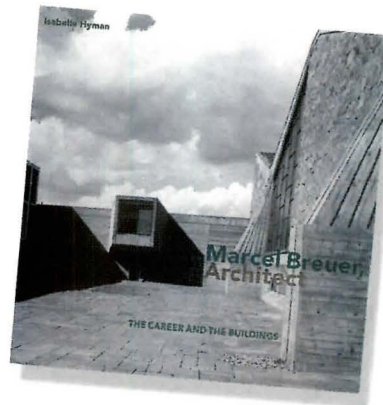
tions of about 250 Breuer buildings and projects, most of them illustrated with photographs and plans. The two parts combine to make this a valuable reference work.

But this is not a book to kindle enthusiasm for its subject. No one book can do everything, of course, and Hyman admits in her preface that she omits "the subject of Breuer and architectural structure," even though "in the case of many Breuer buildings ... the structure is the architecture." That being true, the consideration of structure would seem essential. Also ignored is

Breuer's famous furniture design, less important than structure to an understanding of his buildings, but hardly irrelevant.

Hyman does mention some critical controversies attaching to Breuer's work: the quality of his furniture design vs. the quality of his architecture; the quality of his houses vs. that of his large buildings; Gropius's design vs. Breuer's; painterly vs. monumental forms; the International Style of white cubes vs. a more ingratiating modernism of natural materials. But these subjective areas are not pursued in the objective biographical section.

Hyman's opinions surface clearly in the "Works" section, however, and they are often negative, particularly in her consideration of the larger buildings. For those, Breuer attempted to animate facades of many repetitive floors with prefabricated concrete panels that incorporated structure, window frames, and air handling; their faceted depth provided some degree of sun shading and a great



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Books

degree of visual variety, especially on those facades Breuer was able to curve. The results varied in their degree of success, admittedly, but Hyman, while referring to "the sculptural chiaroscuro of the later work," and while letting Breuer off the hook rather easily by calling his plan for a 55-story tower over Grand Central "ill-advised," peppers most of her descriptions of these buildings with scorn: "banal ... lifeless ... repetitive, formulaic ... monotony and inertness ... creative dead end ... visually stultifying ... uninspired ... dehumanized"—this last word seeming particularly inappropriate for Breuer's work. One has to feel sorry for an author who feels forced to write about so many buildings she hates.

Hyman even criticizes Breuer's refusal in his last years to exchange his Modernist ideas for Postmodern ones, saying that "the changed

world of architecture ... was passing him by," making his buildings "dated" and "retrograde." This is a view that might have been excused from a faddist of the '70s, but not from a present-day observer who must have noticed that Postmodernism has fallen largely from view while Modernism continues from strength to strength.

Hyman's work displays admirable industry and scholarship and will consequently be useful for years to come, but—unlike Breuer and his architecture—it has no eye and no heart.

Stanley Abercrombie

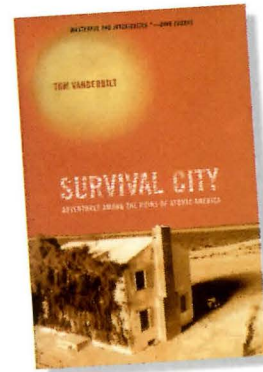
Survival City: Adventures Among the Ruins of Atomic America, by Tom Vanderbilt. New York: Princeton Architectural Press, 224 pages, \$25.

Tom Vanderbilt shows us in *Survival*

City that a lot of people spent the cold war preoccupied with calibrating the most efficient way to vaporize architecture. Hence the world's first underground elementary school, the missile silo, and, of course, all of those fallout shelters with their ominous black-and-yellow signs. Vanderbilt, a self-described "cold war tourist," aims to discover what we built during the last century's unchecked defense spending and military sprawl. He leads us through nuclear proving grounds made to look like miniature German suburbs, long-forgotten congressional relocation bunkers, and Nixon's pyramid, a missile-site radar tower in North Dakota. Although these relics now seem quaint, the question of how architects and engineers respond to the threat of attack today does not. Vanderbilt asks the question: "How

does one design for security without simultaneously heightening feelings of insecurity?" However, writing before September 11, Vanderbilt unfortunately missed a chance to connect his research to the present, and his four-page postscript on the recent attacks falls too short to generate intellectual debate. Still, if this book teaches us anything, it is that a civilized society will not sacrifice aesthetics for safety. Architects employing the dominant expression of the cold war era, the International Style, largely disregarded the sober advice of civil-defense planners to create subterranean, windowless shelters; many of their clients accepted the liabilities of urban density and determined to live and work in glass-and-steel towers, however vulnerable they might be.

Will Yandik



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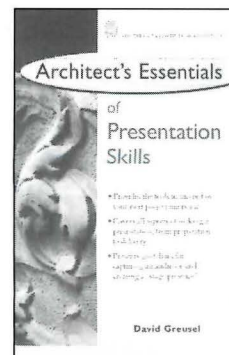
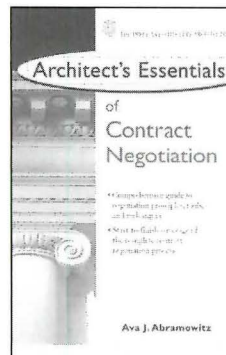
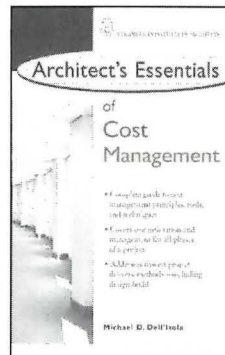
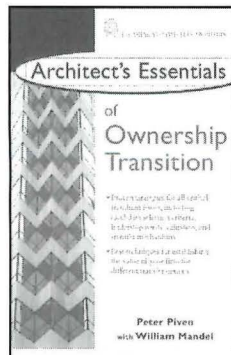
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Taking the A train to Queens: Housing alternatives for a new seaside community

Exhibitions

By Jayne Merkel

Arverne: Housing on the Edge, originated by the Architectural League of New York, Gallery of the Yale School of Art and Architecture Building, New Haven, Conn., February 11–March 8, 2002.

“Arverne-by-the-Sea” sounds idyllic—a New York City neighborhood with subway service to Manhattan and only blocks from a beautiful beach that runs all the way to the Hamptons.

Hoping to make this dream come true, leaders of the Architectural League of New York commissioned studies from four teams of designers just as the city’s Department of Housing Preservation and Development (HPD) was issuing a Request for Proposals (RFP) for the site, the largest developable tract of vacant land in the city.

In the 19th century, grand hotels and Shingle Style mansions lined Arverne’s boardwalk. But fires and hurricanes in the first decades of the 20th century took their toll. By the 1930s, it had become an inexpensive resort with rows of simple beach bungalows. Then it declined further. After World War II, the New York City Housing Authority built high-rise housing projects there, and the area became predominantly poor. In 1965, Arverne was designated an urban-renewal area, and most of the old, low-rise houses were torn down.

Today, Arverne has the largest

Jayne Merkel is a contributing editor at AD Architectural Design magazine and the former editor of Oculus.

concentration of public housing in the city and is infamous for its vacant lots where packs of wild dogs roam. There are no grocery stores or job opportunities.

In December 2000, as the city advertised its RFP for “the development of market-rate housing and community and commercial facilities” on 100 acres of the 308-acre site, the League held a housing symposium and invited architects who had been studying housing in their academic studios and professional offices to develop schemes.

Alternatives to the norm

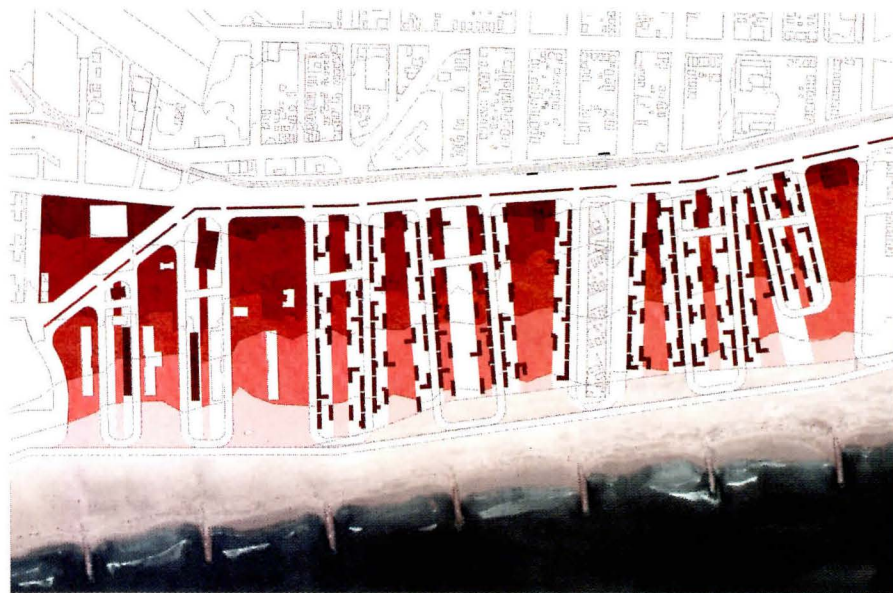
The League had hoped to present the theoretical studies before the city selected a development plan so it might inspire alternatives to the one- and two-family row houses that have become the norm in New York’s outer boroughs. But the HPD felt it had to proceed, so the League opened its show this past winter at the same time the city awarded the project to the Benjamin Development Company and the Beechwood Organization, working with Ehrenkrantz, Eckstut & Kuhn Architects (EEK). The League’s show was recently on view at Yale.

In putting together the exhibition, Rosalie Genevro, the League’s executive director, selected architects with a variety of design approaches. The show certainly presented a range—from an economic analysis illustrated with

abstract geometric forms (developed by CASE, a new Dutch research foundation founded by architects) to an experiential scheme with vibrant, almost pulsating versions of buildings (from Michael Sorkin at City College). Team leaders did the

boxes that form a street wall, and Marble Fairbanks’ row houses with curving “expanded roofscapes” clustered around courtyards.

The CASE team—including architects Bruce Fisher and Beth Margulis, along with John Bosch and Reinier de Graaf—produced a



Deamer + Phillips and a team from Yale focused on environmental issues.

work in their own offices, drawing on ideas they had been developing (in some cases for years) in books and in the classroom.

The Columbia University team—which included Michael Bell, Mark Rakatansky, Scott Marble, and Karen Fairbanks—proposed a variety of dwelling types to create transitions from the old bungalows and new row houses on the east side of the site to the high-rise slabs on the west. The designs ranged from Bell’s glass-walled houses on stilts to Rakatansky’s solid-walled, Modernist

kind of moonscape on the dunes. To encourage long-term economic development related to Kennedy airport, CASE concentrated its initial efforts on improvements in infrastructure. The plan would allow roads that no longer serve buildings to return to landscape, discouraging the growing tendency to build single-family suburban housing on the peninsula’s existing urban grid. It would also build new “soft” roads along topographical lines, as the need arises, fostering clustered housing.

Exhibitions

Environmental challenges

The Yale team focused on infrastructure, too. Concerned about the environmental challenges posed by the fragile dune landscape, ocean storms, and decrepit streets and sewers, Diana Balmori, Deborah Berke, Peggy Deamer (of Deamer + Phillips), and Keller Easterling suggested creating a natural system with drainage swales; porous paving; and plants, bacteria, and sunlight that treat effluents, instead of rebuilding the “hard” drainage

from SHoP and SYSTEMarchitects, devised a proposal for one sector of the site inspired by “the play between private and communal spaces” in the early-20th-century “new town” community of Sunnyside Gardens, in Queens, and Sea Ranch, in California. But they employed a 21st-century kit of building parts and stepped the houses down as they move closer to the beach.

Although not initially invited by the Architectural League, a team from Cooper Union and Pratt Institute—led by Diane Lewis and James Rossant—participated in the exhibition because it had been hired by community leaders in Arverne to devise a plan for stitching together a group of existing institutions with new educational and housing facilities. Called “Universe-City,” the plan envisions a campus incorporating the 80-year-old Bethel African Methodist Episcopal Church, Public School 183, and the Hammel Houses public housing project, along with a new chapel, a planetarium, a library-math-science center, housing for the elderly, and a landscaped plaza.

The Architectural League exhibition in New York also showed the plans designed by EEK for the developers selected by the city. EEK’s scheme envisions a Main Street connecting housing sites with the

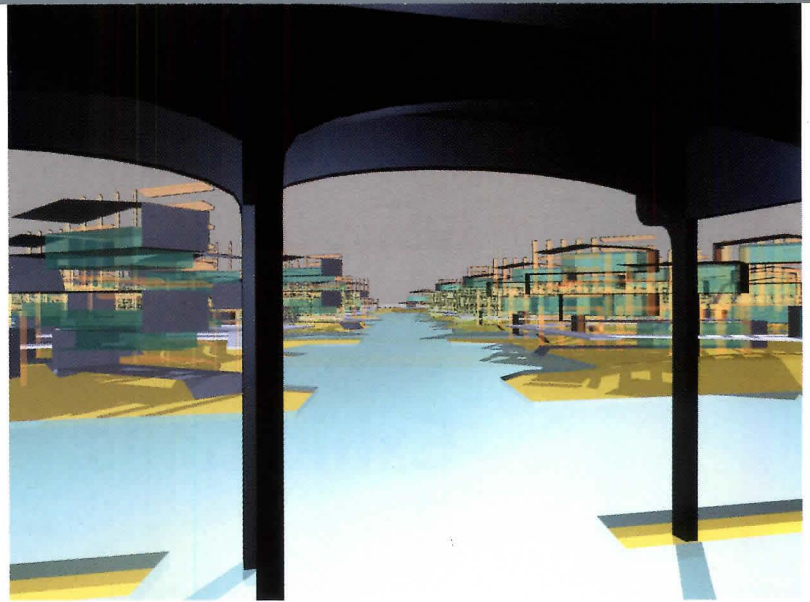
beach and subway station. Inspired by another successful early-20th-century Queens new town, Forest Hills, EEK designed a commercial core with apartments above stores and three distinct neighborhoods with 2,200 units of different housing types. Forest Hills is actually a better model than Sunnyside, despite the prominent role the latter played in early modern housing literature and the fact that Lewis Mumford lived there. This is because Sunnyside consists solely of housing, whereas Forest Hills is bordered by parks, linked by both the Long Island Railroad and the subway, and has a walkable downtown most American cities would die for. Construction should start on the first EEK houses this summer.

Using HUD funds

The New York City Housing Authority is also planning to pump \$225 million of federal money from the HOPE VI housing redevelopment program into

the Arverne area. Instead of using the money to tear down its high-rise housing projects (as many cities have done), New York will invest the Housing and Urban Development (HUD) money to connect existing public housing projects (the Arverne and Edgemere Houses) by pedestrian paths to parks, community centers, and a commercial strip designed to resemble the thriving one in Belle Harbor, a prosperous beachside neighborhood on the western end of the Rockaway peninsula.

Getting the right balance between innovation and time-tested ideas is never easy. If some of the faculty architects’ schemes seem to come more from their own past work than conditions at the site itself (glass walls in a hurricane zone? pristine boxes in a green scheme?), they at least offer alternatives to the formulaic housing built in New York recently and to the much-touted but tired New Urbanist schemes. *(continued on page 110)*



SYSTEMarchitects from City College envisioned a techno-romantic town on the sea.



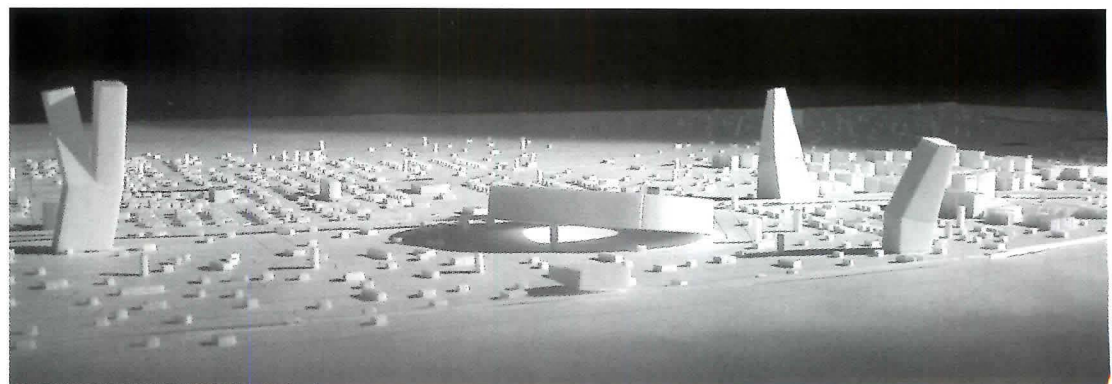
Housing by the Columbia team.

that is there now. Their plans for boxy energy-efficient buildings in various densities and hybrid types call for modular construction to minimize cost and speed production.

Manufactured housing also plays a role in the scheme developed by the City College team, which emphasized the pleasures of the beach-front environment rather than the problems. Sorkin’s master plan provides a broad, planted path leading from the existing elevated train station to the beach, a stretch of “Copacabana,” miniature wetlands, and “green-machine” technology that converts black water to gray.

Recalling earlier new towns

Other members of the City College team, which included architects



The plan produced by CASE, a Dutch research group, depicts a kind of moonscape on the dunes.

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Exhibitions

Briefly Noted

Mood River, curated by Jeffrey Kipnis, at the Wexner Center for the Arts, Columbus, Ohio (through June 30, 2002).

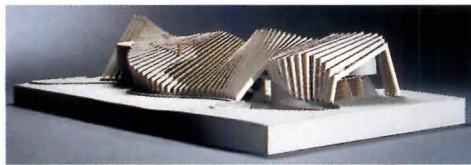
In *Mood River*, toothbrushes, trash cans, iMacs, and power saws appear to float and fly; curves, surfaces, and angles seem to tangle; and everyday objects—ones easily found in the kitchen or under your bed—morph into a medley of textures, tones, and colors.

Bringing together more than 2,000 artifacts and icons from the worlds of fashion, sports, technology, and entertainment, this exhibition explores the forms, materials, and objects that create the landscape of our modern-day reality.

Inspired by *Machine Art*, Philip Johnson's 1934 groundbreaking exhibition at the Museum of Modern Art in New York City, *Mood River* features more than 200 artists and designers from 12 countries. Recent works by Hussein Chalayan, Greg Lynn, Issey Miyake, Philippe Starck, and Karim Rashid, scattered throughout the exhibition, reveal unexpected connections between the different design media. Also threaded throughout the show are works by artists such as Frank Stella, John Chamberlain, Rachael Neubauer, and Tony Cragg.

In many ways, the exhibition's

provocative juxtaposition of objects, materials, and forms is reminiscent of the rhythm and structure of poetry. Subtle connections between seemingly unrelated objects elicit a range of emotions and arouse a deep respect for the power of design to pique our senses. The



Bart Prince's Hight House is included in US Design.

exhibition is organized into four major sections, or "streams": bliss, rage, ecstasy, and trauma. Moving through the show, visitors find a number of remarkable displays, such as skateboards twisting to the ceiling, spoons dangling like suspended rain, and a waterfall of headlights spilling to the floor.

Mood River also features a handful of special installations, appropriately called "waves," which change partway through the exhibition's four-month run. The first of these waves featured a skate bowl, designed by SIMPARCH, where local skateboarders could show off their moves, and *Design Afoot*, an exhibit that delved into the recent athletic-shoe craze. The second wave, which opened on April 24, brought in *Paint-Ball Robot*, an interactive computer that visitors can manipu-

late to throw paint balls at a canvas; and a special installation of work by fashion designer Hussein Chalayan.

Approaching its third month, *Mood River* has been extended through June 30. With a host of programs and events planned for the spring, visitors still have a chance to dive in before the river dries up.

Christina V. Rogers

US Design 1975–2000, curated

by R. Craig Miller, at the Denver Art Museum, Denver (through May 26, 2002).

US Design may not have the seductive power of biomorphic curves and floating displays, but it does provide an in-depth look at the history behind such design challenges as in-line skates and iMac computers.

In this retrospective, curator R. Craig Miller and his team of design scholars trace the cultural and theoretical issues that have shaped design in the past quarter-century to offer us a critical look at the evolution of the field.

Examining different facets of late-20th-century design, the exhibition attempts to draw a number of underlying connections between architecture, graphics, and industrial design. Here images of a stealth bomber coexist peacefully with the ubiquitous Greek-motif take-out coffee cups and advanced-performance Rollerblades as visitors move through the various trends and movements of the period.

The exhibition is arranged according to four major concepts that delve into various issues concerning Modernism, Postmodernism, and the emergence of technology and digital media.

Key designers also play a role here, and visitors will not be surprised to encounter the work of Robert Venturi, Michael Graves, and Frank Gehry more than once. In fact, the dominance of this trio of architects is a bit of a disappointment in light of the diversity of graphic and industrial designers whose eclectic

work is one of the strongest points of the exhibition. CVR

Perfect Acts, curated by Jeffrey Kipnis, at the San Francisco Museum of Modern Art, San Francisco (through June 30, 2002).

It seems that architects travel in groups of five. First there were the Whites, then the Grays. Now, with the opening of the traveling exhibition *Perfect Acts* there is yet another fivesome on the scene: Peter Eisenman, Rem Koolhaas, Daniel Libeskind, Thom Mayne, and Bernard Tschumi.

On display are 130 examples of two-dimensional work created by these architects between the years 1977 and 1987 when a slowing of the economy curtailed new construction. During this time, there was an eruption of intellectual discourse and critical architectural thought. The title, *Perfect Acts*, refers to the freedom these architects had to expand their ideas and explore them on paper without the limitations of external constraints.

Each set of drawings in the exhibition examines key issues at



Exodus, by Koolhaas and Zenghelis.

the time, from urban fragmentation to questions of time and language. Among the many projects are Tschumi's narrative series called the *Manhattan Transcripts* and Mayne's ink-and-graphite drawings for a proposed residence for himself, *Sixth Street House*.

Their musings, experiments, and exploration into the nature of architectural representation spawned a new era of visual presentation and elevated architectural drawings to the status of art. Who knows, maybe one day they will even be an inspiration to the next group of five. CVR ■

Bring your board and you can skate in *Free Basin* by SIMPARCH.



Snapshot



By Ingrid Whitehead

The “Crystal City” may sound like a place where superheroes retire or evil sorceresses dwell in icy towers. In reality, it’s only slightly more mundane—a nickname for the city of Corning, New York, famous for celebrating the magical material known as glass. In Corning, thanks to such world-renowned institutions as the Corning Museum of Glass and the Steuben factory (both originally designed by Wallace Harrison in the 1950s), you can explore the history of glass, as well as watch master glassblowers transform molten glass into intricate shapes and functional vessels. With an expansion and redesign by Smith-Miller + Hawkinson Architects that won a Business Week/Architectural Record Award [RECORD, October 2001, page 112], the Corning Museum has helped to make Corning the third most visited city in New York. Part of that popularity is due to a recent addition to the museum’s campus, the finely crafted Summer Stage, by Ingaliil Wahlroos and Flavio Stigliano, built primarily to house the Hot Glass Road Show, the world’s first mobile glassblowing unit.

Wahlroos and Stigliano were both members of the Smith-Miller + Hawkinson’s team that redesigned the

Glorifying glass at Corning’s Summer Stage

Snapshot

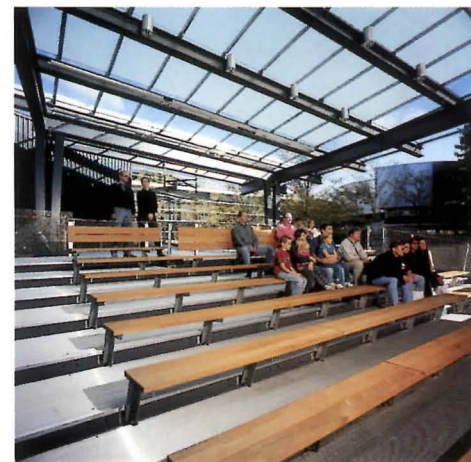


The glass roof was designed with a system of layered glass panels with fully unframed edges (left and previous page). It appears as a dual plane that has slid free from the supporting steel structure beneath it. A ramp descends to the seating area (below), which is raised above the courtyard. This space has the effect of an outdoor room with surprising intimacy.

museum—Wahlroos as project architect and Stigliano as a project designer. Wahlroos had established such a good relationship with the client that when a new, 150-seat stage was needed to accommodate the crowds interested in a close-up view of glassblowing, she was their first choice as architect. It also didn't hurt that she had moved to Corning and was in the process of developing a course, to be taught at Cornell University, called "The Architecture of Glass." Logically, she asked Stigliano to come on board.

With all the properties of the material in play—its reflectiveness, transparency, lightness—the project became a study of glass to shelter a place where glass is studied. The roof is constructed of two glass panels tilted diagonally and in opposition to each other. It is higher on the west side to accommodate the mobile stage, one of the features of the Hot Glass Road Show. When not in Corning, the show travels across the country to educate people about glassblowing. It houses a 300-pound glass-melting furnace, two glory holes, an iron warmer, and an annealer. The entire unit weighs 35,000 pounds, and when docked at the Summer Stage, its mobile stage nestles comfortably between the steel columns of the large glass roof.

"The Summer Stage was my dream project," says Wahlroos, acknowledging the joy of a small project where client, architect, material, and design were all in harmony. The magic of the Crystal City at work? ■



American Institute of Architects

2002 Honor Awards

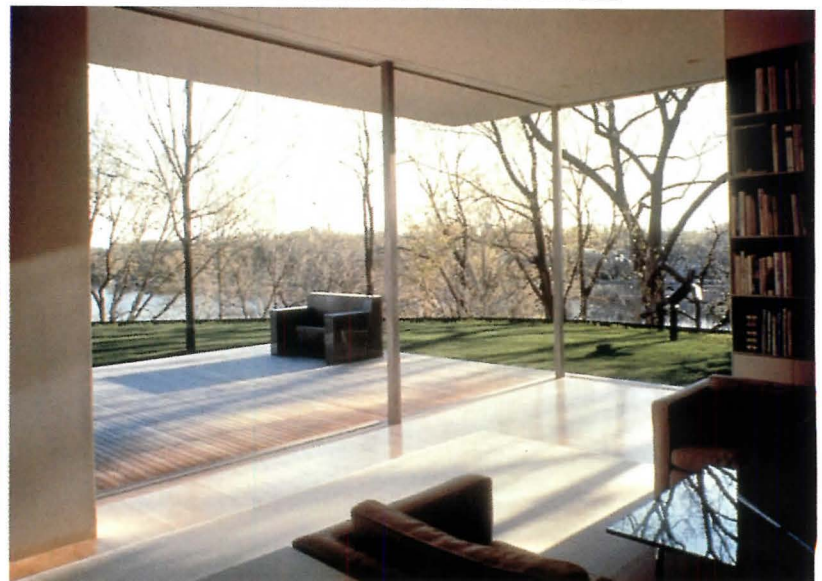
Architecture	p. 122
Interiors	p. 142
Urban Design	p. 154
25-Year Award	p. 158
Firm Award	p. 162
Gold Medal	p. 171

The only constant among this year's winners of the AIA Honor Awards for Architecture, Interiors, and Urban Design is, in fact, inconsistency—in location, building size, renovation versus new construction, firm type and size, and the variety of building types and uses. These projects are all offspring of the opulence of recent years, when the economics of our country was not only sound but inflated and overconfident. Interestingly, in spite of our current sluggish economy, with only promises of recovery, the design and construction industry has remained more or less stable—a comforting fact, given the calamity and subsequent uncertainty that shook our nation on 9/11. It is a point of optimism that buildings, which seek to embellish our world, have continued to emerge, while the larger historical context of war and terrorism attempts to destroy it. Concern about architecture has rarely been so prevalent in America, with thoughts of skyscrapers, national security, and what constitutes the comforts of home prominent in people's minds.

On the following pages we feature 18 winners in architecture, eight in interiors, and four in urban design, chosen from a total of 460 submissions received by the AIA. A healthy mix of architects, academics, planners, and government officials, from all corners of the U.S., served as jurors. They marked a high regard for context in the design responses, as well as a noticeable exploration of the use of glass, light, and water, often in concert with landscape architecture and the graphic arts. Intertwined among the sophisticated computer graphics displayed in the awards binders were many beautiful hand drawings that made the architecture more poignant and tangible. While the jury was very pleased with the work being judged, there were few examples where sustainable design or other social imperatives were driving forces. Accompanying quotes, taken from the jury's deliberations, are contained in these pages and shed light on what makes this work exceptional. Jane F. Kolleeny

ARCHITECTURE

The diversity of project types among the winners of the 2002 AIA Honor Awards for Architecture is mind-boggling—it includes an equipment shed, a burger joint, a courthouse, a school for children, a restored barn, an estuarine habitat, and a parking garage/chilled water plant. Who could ever have imagined such variance? Equally striking is the location of the winning projects: While all are in the U.S., they spread from east to west, north to south. Then, too, the architects themselves are broadly represented: old-guard firms, the newly established, large mainline offices, and tiny practices. The differences in their work is vast, but the winning designs are all bound together with the thread of excellence.



1. The Dayton House
Minneapolis
Architect: *Vincent James Associates*

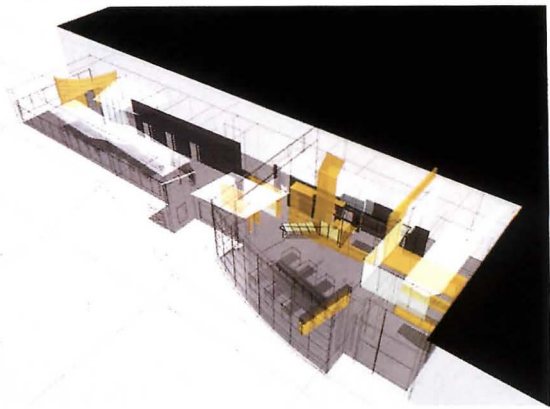
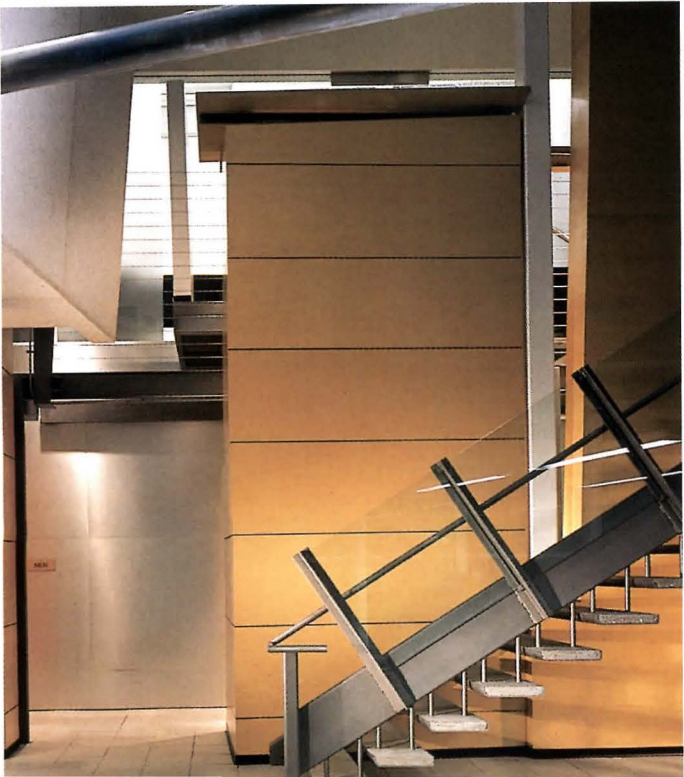
“While abstract in nature, the spaces seem calm, serene, and intimate, an ideal house for the clients, who are in their seventies.”

2. Temples of Industry
Omaha
Architect: *Randy Brown Architects*

“The design elevates the quality of the workplace by considering the need for places of rest and for stimulation of the eye and the mind.”



2





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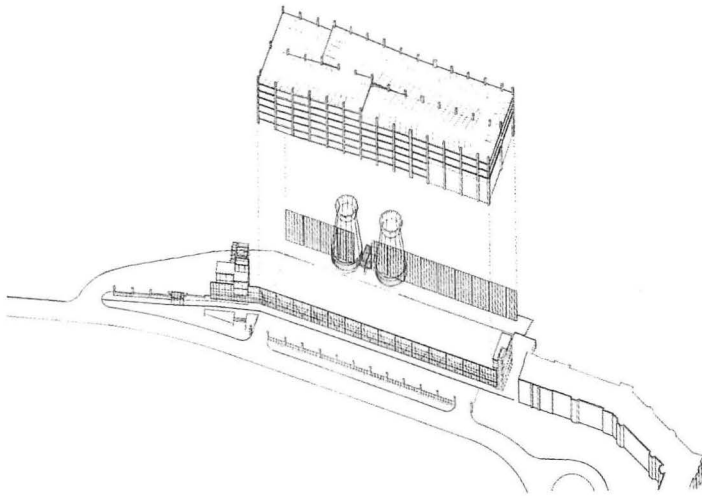
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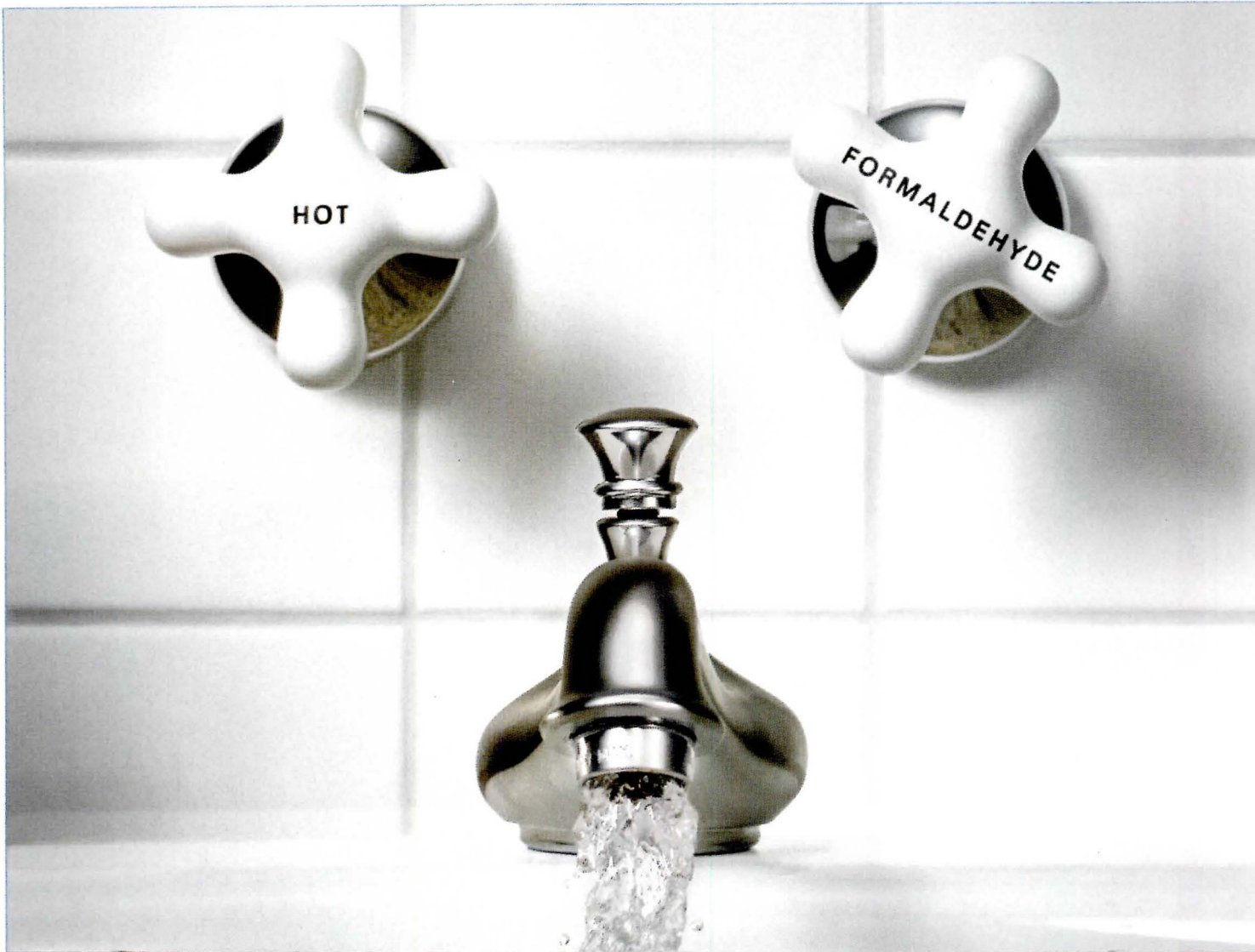
**3. Newton Road Parking and
Chilled Water Facility,
University of Iowa**
Iowa City, Iowa
Architect: Herbert Lewis Kruse
Blunck Architecture

**“Much care has been given to the massing,
material selection, and detailing of
this structure to elongate, lighten, segment, and
assemble itself in inventive ways.”**

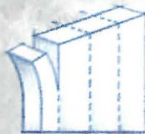


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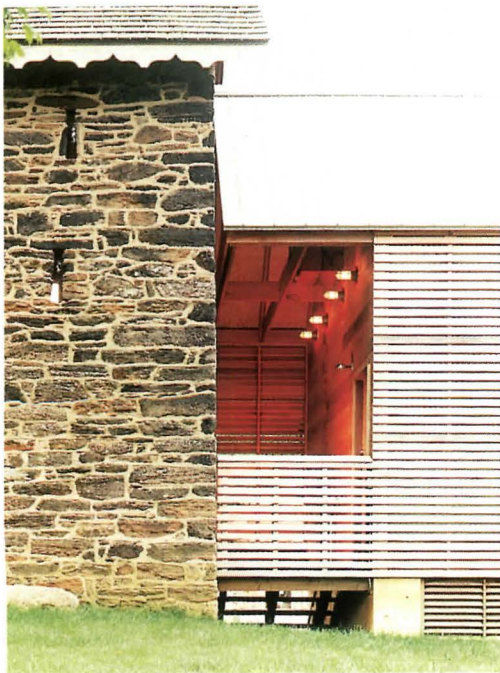
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4. Barn Renovation and Lath
House Addition
Philadelphia
Architect: James Dart, AIA

“An ingenious addition to an historic barn that creates interest by contrasting the assembled nature of the new with the monolithic quality of the old.”



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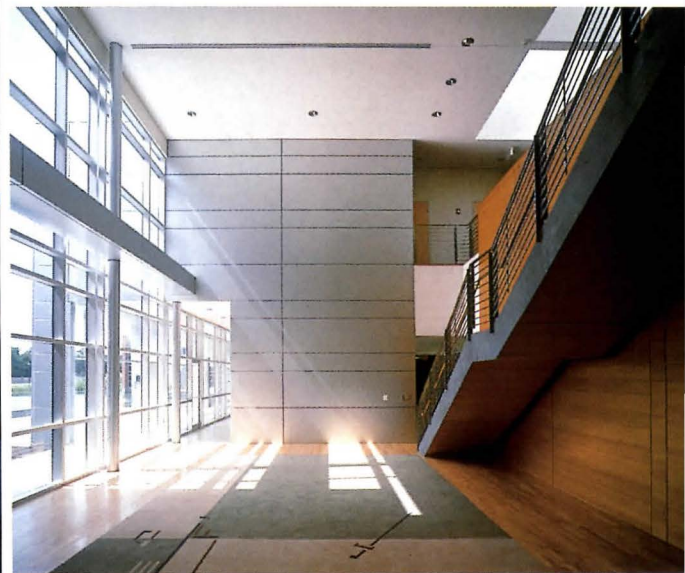
5. Estuarine Habitats and Coastal Fisheries Center

Lafayette, La.

Architect: *Guidry Beazley*

Ostteen/Eskew Filson Architects

“A sophisticated integration of sustainable design measures in daylighting, sun shading, and energy conservation that meets its educational mission in an innovative way.”



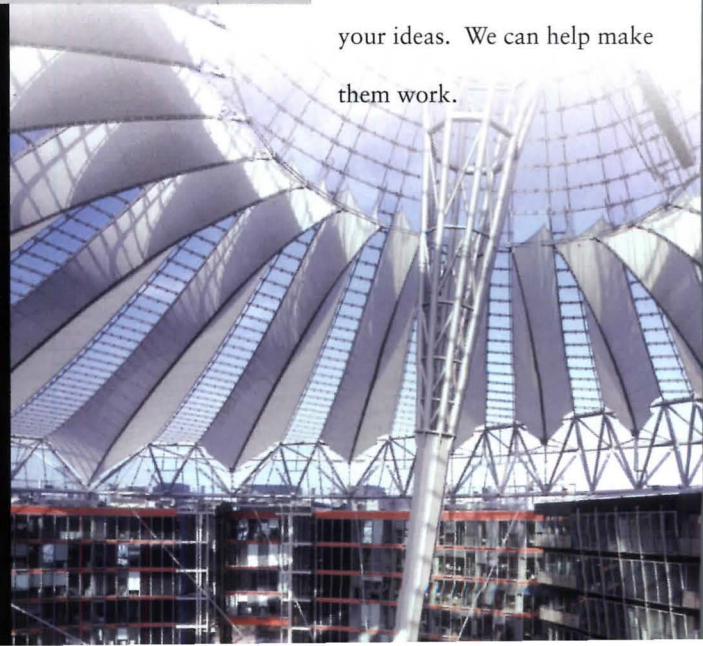
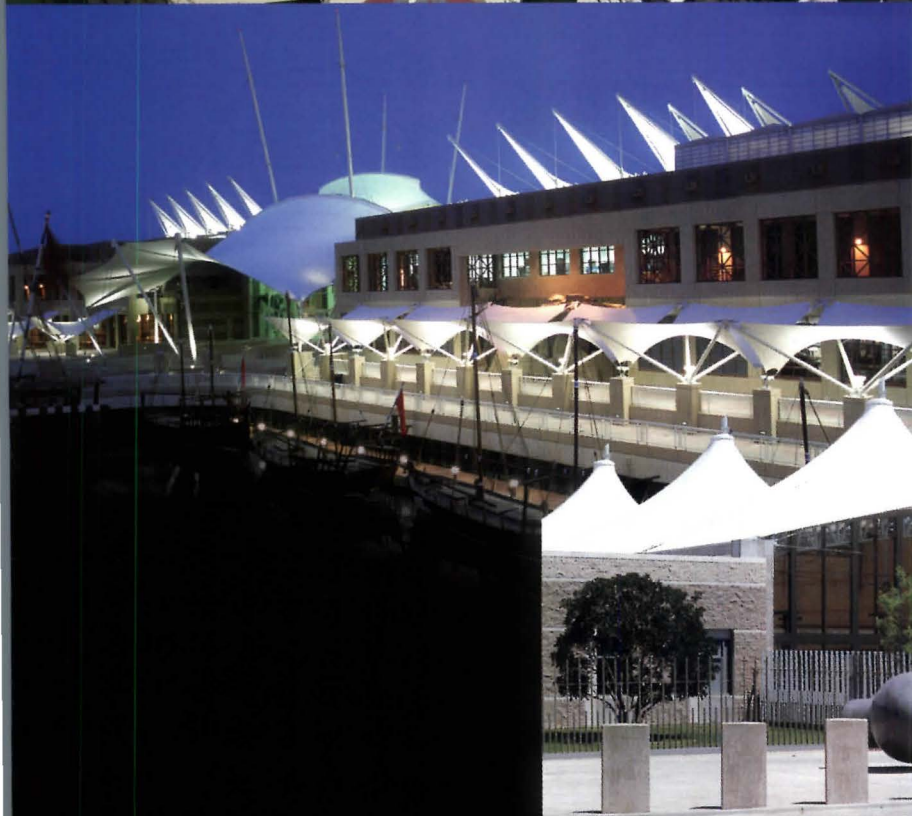


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6. New Equipment Shed at Straitsview Farm
San Juan Island, Wash.
Architect: Charles Rose Architects
[RECORD, June 1998, page 103]

“An essay on the use and joinery of wood ... both simple and sophisticated, it creates a tension between low and high art.”

7. IN-N-OUT Burger Restaurant
Los Angeles
Architect: Kanner Architects

“Generated the most debate over the importance of contextualism, materiality, and architectural language ... achieves a memorable image and is beautifully sculpted, painted, and detailed.”



6



7



8. Sandra Day O'Connor
United States Courthouse
Phoenix

Architect: Richard Meier & Partners,
Architects; Langdon Wilson
[RECORD, March 2001, page 185]

“The genius of the plan is in the multitude of separate circulation systems in an environment of connected open spaces.”

9. Frederick Phineas and Sandra
Priest Rose Center for Earth and
Space, American Museum of
Natural History
New York City

Architect: Polshek Partnership Architects
[RECORD, August 2000, page 98]

“The building offers a range of environments—cave-like to celestial. The power of the sphere-in-a-cube idea makes the space immediately comprehensible.”



8

9



10. Sony Center
Berlin, Germany
Architect: Helmut Jahn
[RECORD, November 2000, page 126]

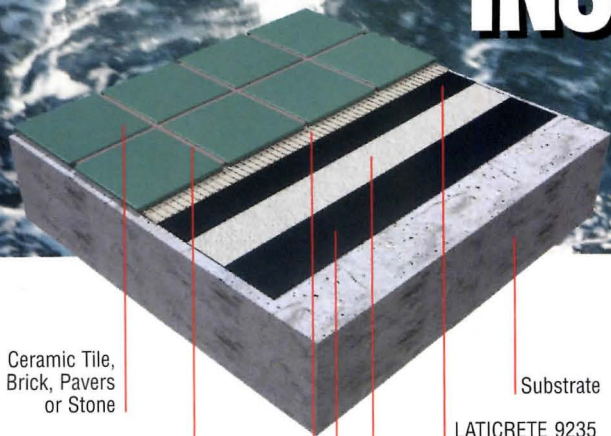
“Inventive public space, canopied and protected by a celebratory glass tent ... the great diversity of spaces mirrors the multiplicity of uses.”



10



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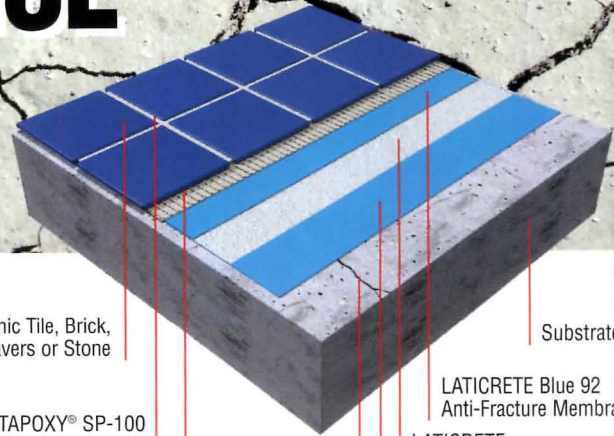
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11. Little Village Academy

Chicago

Architect: Ross Barney +

Jankowski

[RECORD, October 1997, page 105]

“Changing floor patterns, little windows for the kids, the sundial at the main stair—all things to teach, delight, and enrich the space.”

12. Meredith Corporate Expansion and Interiors

Des Moines

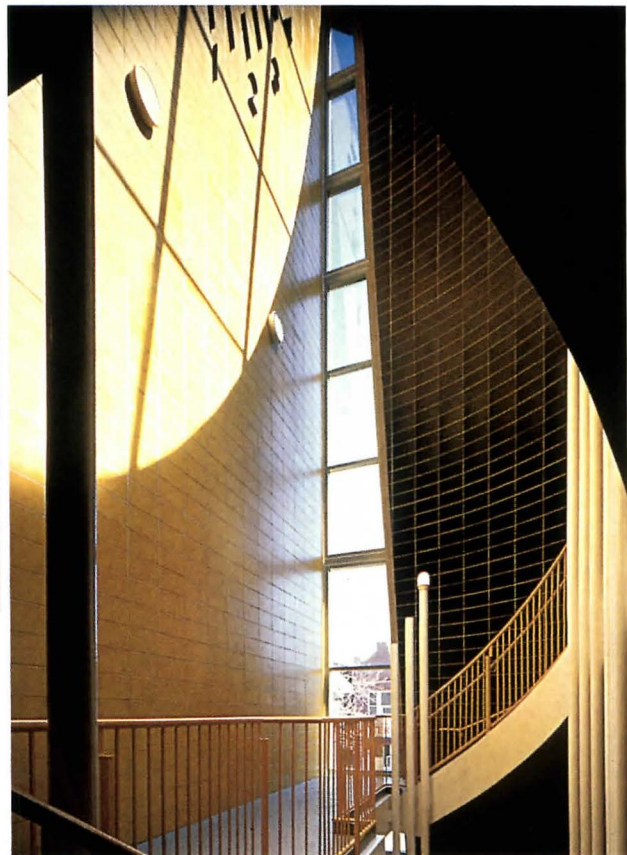
Architect: Herbert Lewis Kruse

Blunck Architecture

[RECORD, May 2001, page 152]

“The interaction between site and building, existing and new, large and small, landscape and structure, combine to assemble a convincing, orchestrated, total design.”

11



12



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13. Valeo Technical Center

Auburn Hills, Mich.

Architect: Davis Brody Bond

[RECORD, May 1998, page 214]

“The column grid and envelope delineate an architectural boundary in a vast open space.”

14. The New 42nd Street Studios

New York City

Architect: Platt Byard Dovell

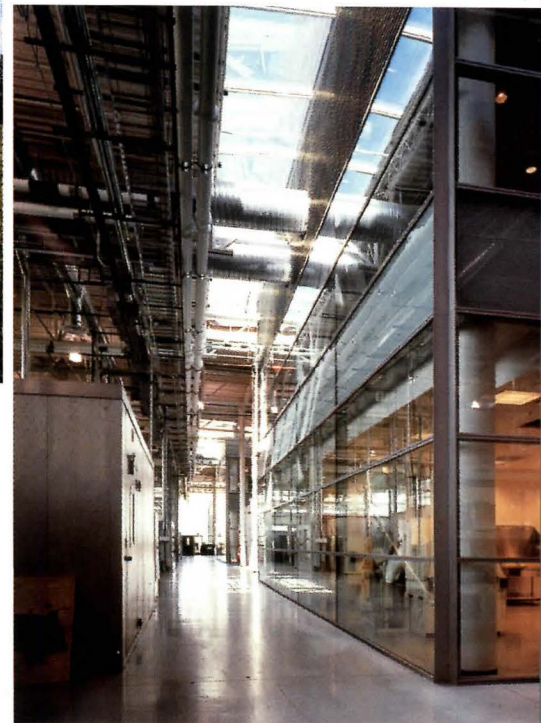
Architects

[RECORD, November 2000, page 196]

“The changing light makes the building an interpretive art object, depicting the kinetic energy of dancers’ movements.”



13



14



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Pala Casino

Pala Indian Reservation, Pala, CA

Owner: Pala Band of Mission Indians

Architect: Klai: Juba Architects

General Contractor: DPR Construction

Roofing Contractor: Ehmcke Sheet Metal Corp.

Profile: Snap-On Standing Seam

Color: Copper Penny Metallic

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15. Rauner Special Collections

Library in Webster Hall,
Dartmouth College

Hanover, N.H.

Architect: Venturi, Scott Brown
and Associates

[RECORD, October 2000, page 158]

“Environmental requirements were met by sensitively inserting this architectural cabinet for books within the historic space.”

16. Rachofsky House

Dallas

Architect: Richard Meier &
Partners, Architects

“Sophisticated relationships—including site to building, house to pool, solid to void—reveal a depth of understanding about human perception of space, distance, and boundary.”



15



16



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17. New International Terminal, San Francisco International Airport
San Francisco
Architect: Skidmore, Owings & Merrill; Del Campo & Maru; Michael Willis Architects

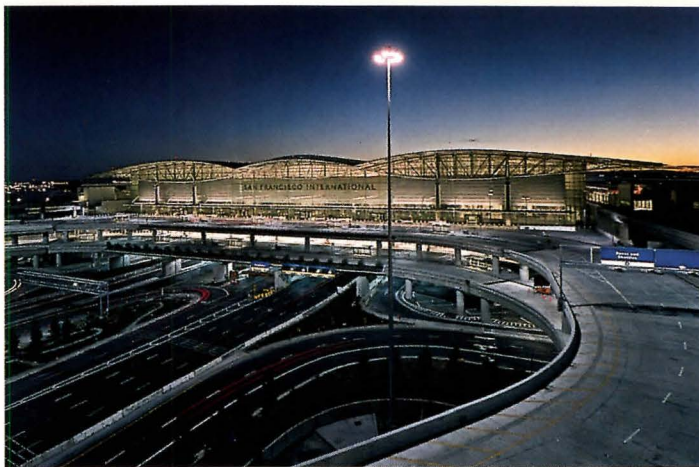
“A clear idea of form and space with basic elements of light. A unique structural roof that looks like dragonfly wings and alludes to flight.”

18. Maple Valley Library
Maple Valley, Wash.
Architect: Cutler-Anderson Architects; Johnston Architects

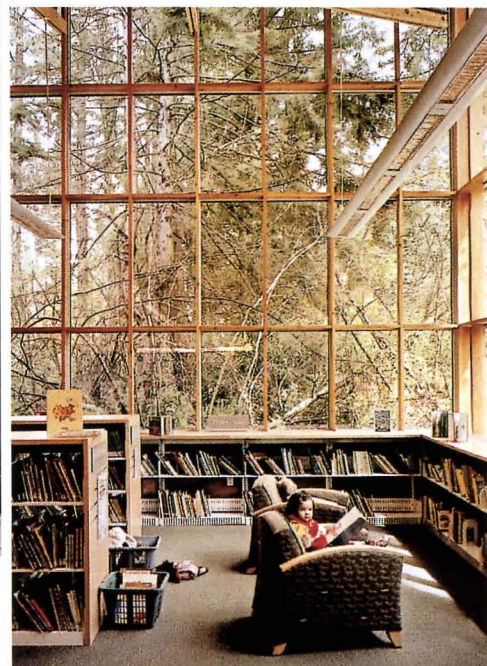
“Clearly a community building, the library’s open and easily understood organization and circulation constantly unfolds with visual and tactile delight.”



17



18

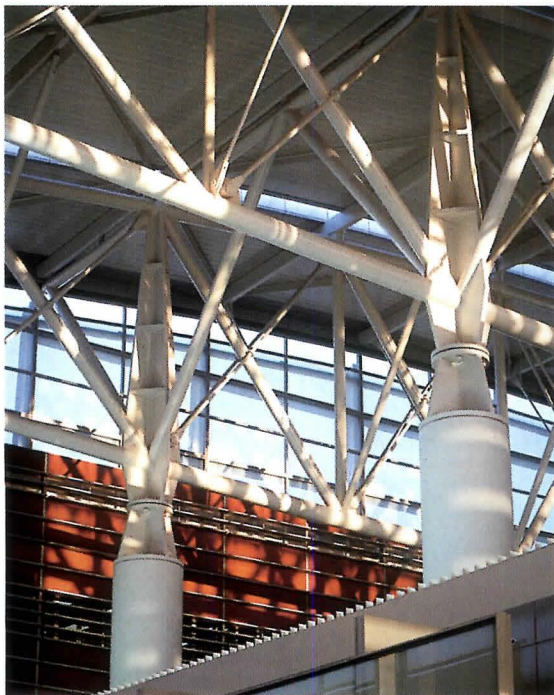


INTERIORS

Should it come as a surprise to us that almost half of the winners of the AIA Honor Award for Interior Design (and about the same percent of those who won for architecture, by the way) have been previously published in this magazine? We were both amazed and reassured to discover this fact. While the perception of beauty is said to be in the eye of the beholder and therefore subjective, the following 12 projects speak their own language of context, materials, innovation, and color. Each project featured here makes ingenious use of environments to tell a story, and they all craft important spaces that celebrate people.



1



**1. New International Terminal,
San Francisco International Airport**
San Francisco
Architect: Skidmore, Owings &
Merrill; Del Campo & Maru;
Michael Willis Architects

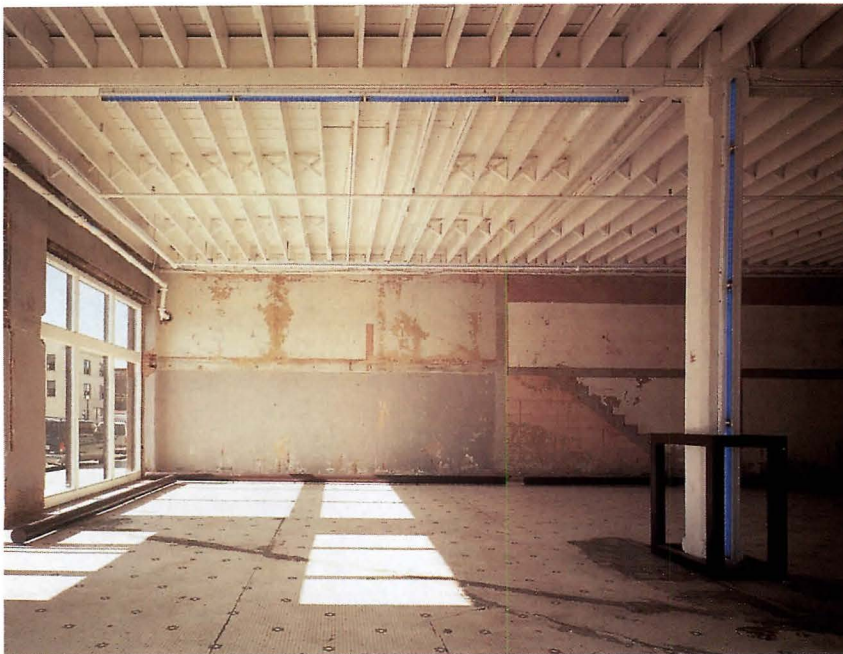
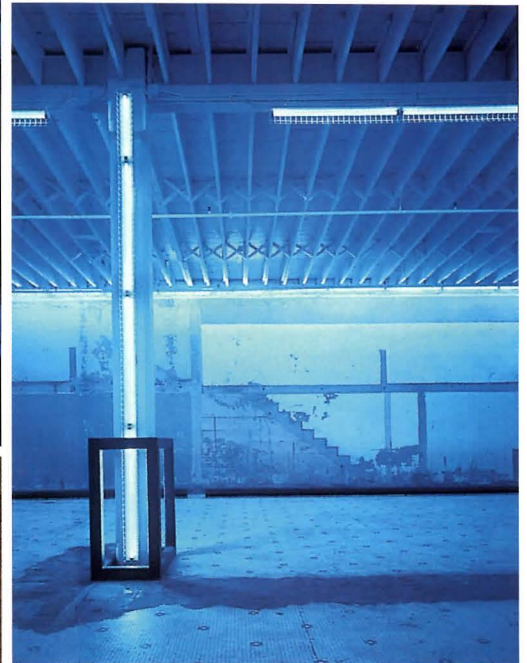
**“A powerful axial approach, yet calm
in its horizontality and restrained in its use
of materials and color.”**

2. Vesper Building
Oklahoma City
Architect: Elliott + Associates
Architects

**“Takes a banal use and raises it to an artful
level—an art piece that functions as a garage;
a museum piece in the middle of the city.”**



2



3. Smith-Buonanno Hall

Providence

Architect: *William Kite*

Architects

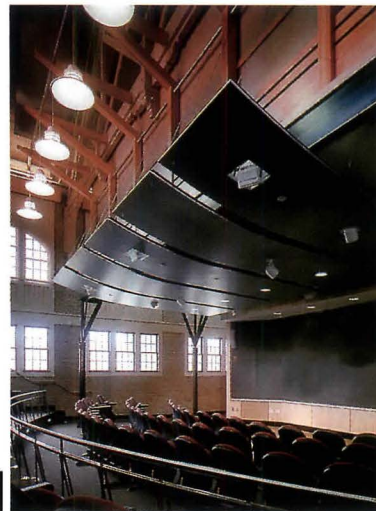
“The architect has used new materials to make a well-crafted, modern interior that complements the character of the original historic building.”

4. XAP Corporation

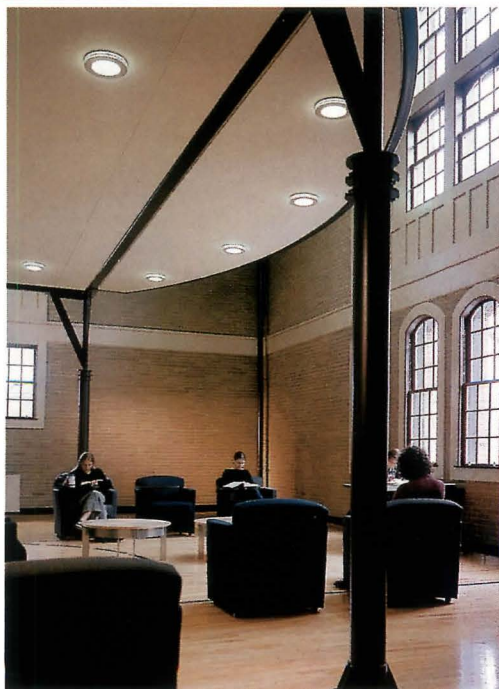
Culver City, Calif.

Architect: *Pugh + Scarpa*

“A unique sense of material, craft, and individual form ... the furniture is as successful as the architecture.”



3



5. Tsunami

Las Vegas

Architect: Thom Mayne, AIA,

Morphosis

[RECORD, September 2000, page 107]

“This project delivers on its name—oriental, enigmatic, sensual feeling, but with lots of action, as if waves were crashing into Vegas.”

4



5



HONOR AWARDS INTERIORS

6. Old St. Patrick's Church

Chicago

Architect: Booth Hansen Associates

[RECORD, January 2001, page 88]

“Impressive use of new technology combines with sensitive understanding of traditions and craft to fortify the spirit and meaning of this historic church.”

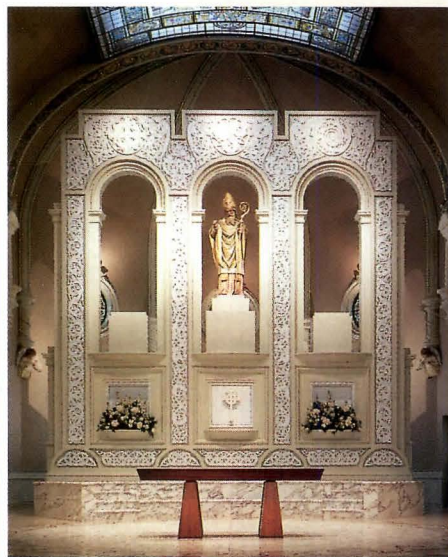
7. Chicago Tribune Pressroom

Renovation

Chicago

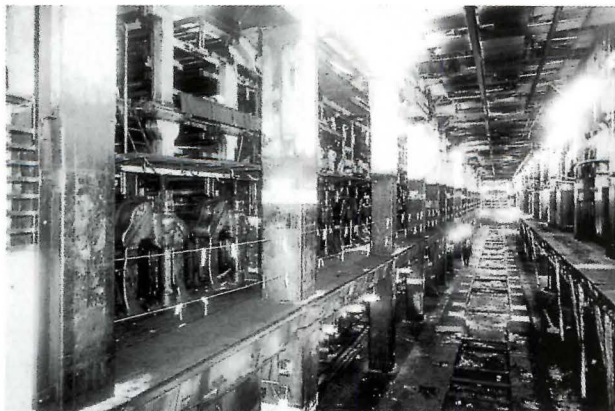
Architect: Perkins & Will; McClier Corporation (associate architect)

“The new space is respectful of the former industrial newspaper press, but enough of the original space is removed to allow a subterranean, uncluttered feeling.”



6

Chicago Tribune pressroom before renovation.



7



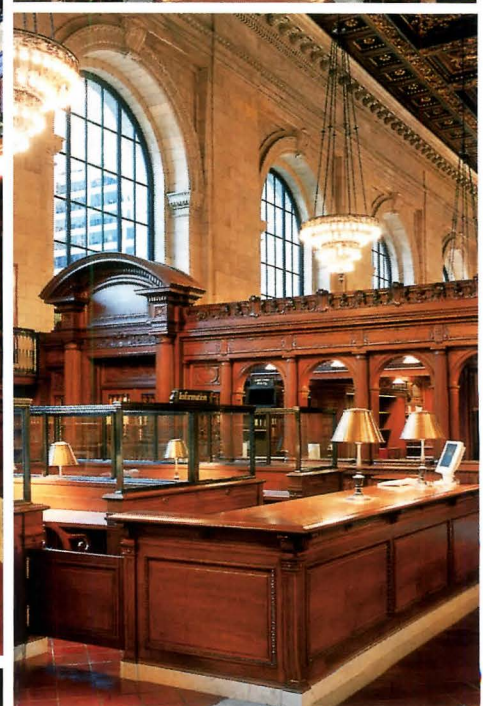
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/winka_dubbeldam

I AM PART #19



8. Rose Main Reading Room
Restoration, New York Public Library
New York City
Architect: Davis Brody Bond

“Polishing and embellishing an old friend to give it new life ... resurrecting preeminent grand spaces in the city of New York.”



8

I AM
PART
HUMAN



#19

9. Sticks, Inc.

Des Moines

Architect: Herbert Lewis Kruse
Blunck Architecture

[RECORD, June 2000, page 130]

“What would ordinarily be a windowless industrial warehouse is transformed into a lively, artistically designed space.”

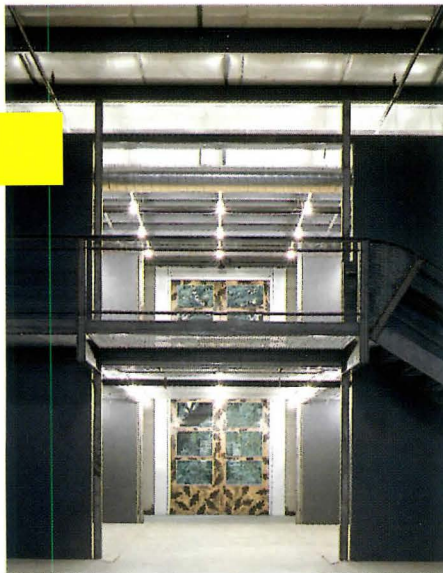
10. Qiora Store and Spa

New York City

Architect: Architecture
Research Office

[RECORD, September 2001, page 114]

“Cool, minimal, and lush, the space beckons to the passerby, promising a highly sensory experience for those who enter.”



9



10

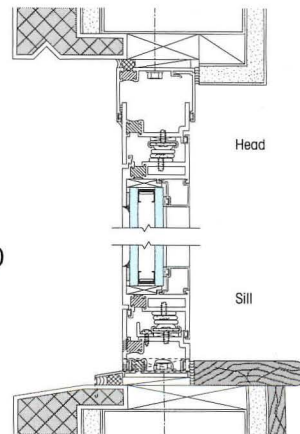


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Director: Merit Glass

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11. North House

Oklahoma City

Architect: Elliott + Associates

Architects

“Thoughtful, controlled interior relies on shadow and light to give the feeling of a three-dimensional, contemplative place.”

12. TBWA/Chiat/Day Advertising

Los Angeles

Architect: Clive Wilkinson

Architects

“By using the principles and language of city planning, the architects have created an intriguing workspace for a creative user.”

[RECORD, August 1999, page 102]



11



12





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URBAN DESIGN

Every good design begins with planning, the unsung hero of architecture, where the contextual logic of design finds a home. Three of these plans pertain to urban areas on the waterfront that emphasize pedestrian life. The fourth outlines strategies for urban sprawl and could be applied to any neighborhood that seeks holistic solutions. Together, this balanced group of exemplary candidates both confirm and applaud the central importance of a sound plan.

1. Lakeshore East Master Plan

Chicago

Architect: Skidmore, Owings & Merrill

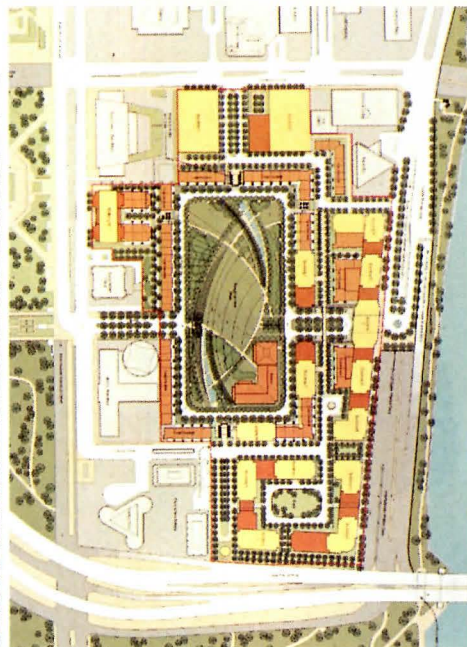
2. A Vision Plan for Pittsburgh's Riverfronts

Pittsburgh

Architect: Chan Krieger & Associates; Bohlin Cywinski Jackson, and Urban Instruments (associate architects)



1






“A deceptively simple plan surrounding a 6-acre rectangular central park is integrated with an ingenious section to connect the city to the river.”

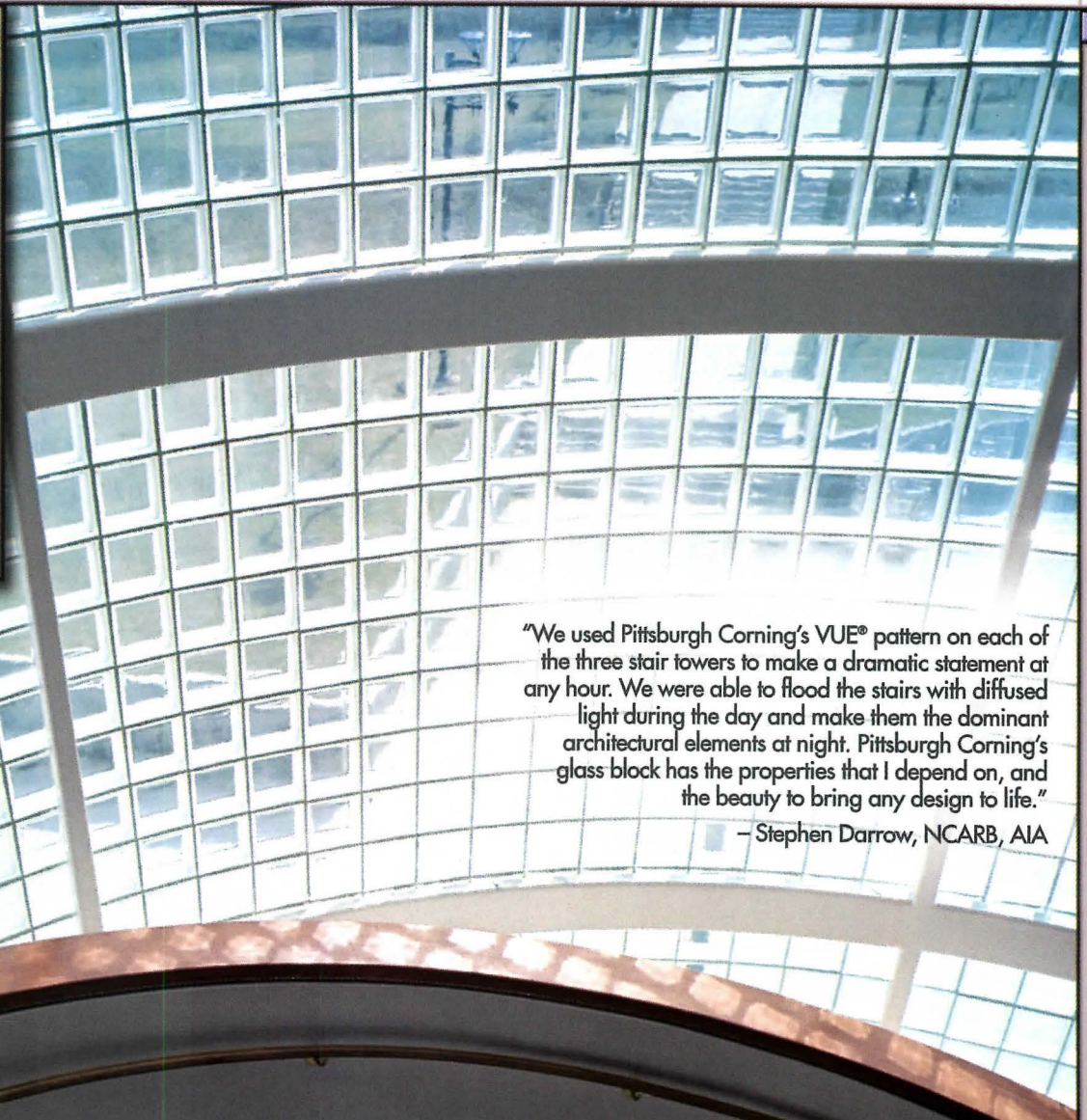


2

“Three rivers become an identifiable civic space, celebrated both day and night.”



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 — Stephen Darrow, NCARB, AIA

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Project Name: Lake Dallas High School Owner: Lake Dallas Independent School District Architects: DMS Architects Design Architect: Stephen Darrow, NCARB, AIA



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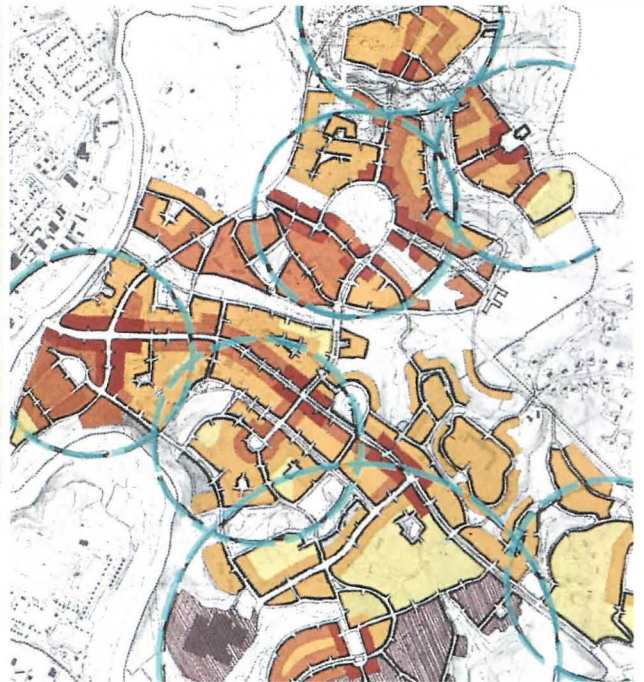
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**3. The Neighborhood Model:
Development Area Initiatives Study**
Albemarle County, Va.
Architect: *Torti Gallas and Partners-
CHK*

4. Riverwalk Gateway
Chicago
Architect: *Skidmore, Owings &
Merrill*



3



“It is not only a plan for property, but a sourcebook of guiding principles on what kind of new development is most in the public interest.”

“The designers inserted a new, lively canopy structure beneath the existing bridge, creating an attractive portal through a dark and foreboding underpass.”

4



UNLEASH YOUR imagination

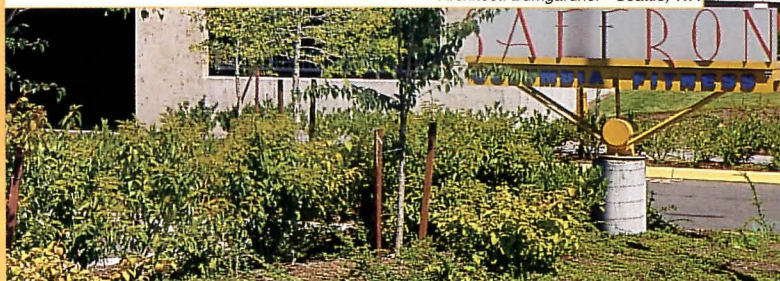


Metal Construction Association

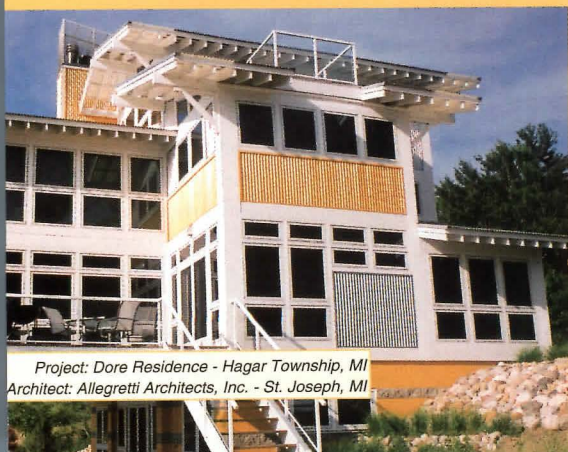


Project: The Saffron Complex - King County, WA
Architect: Bumgardner - Seattle, WA

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Project: Dore Residence - Hagar Township, MI
Architect: Allegretti Architects, Inc. - St. Joseph, MI

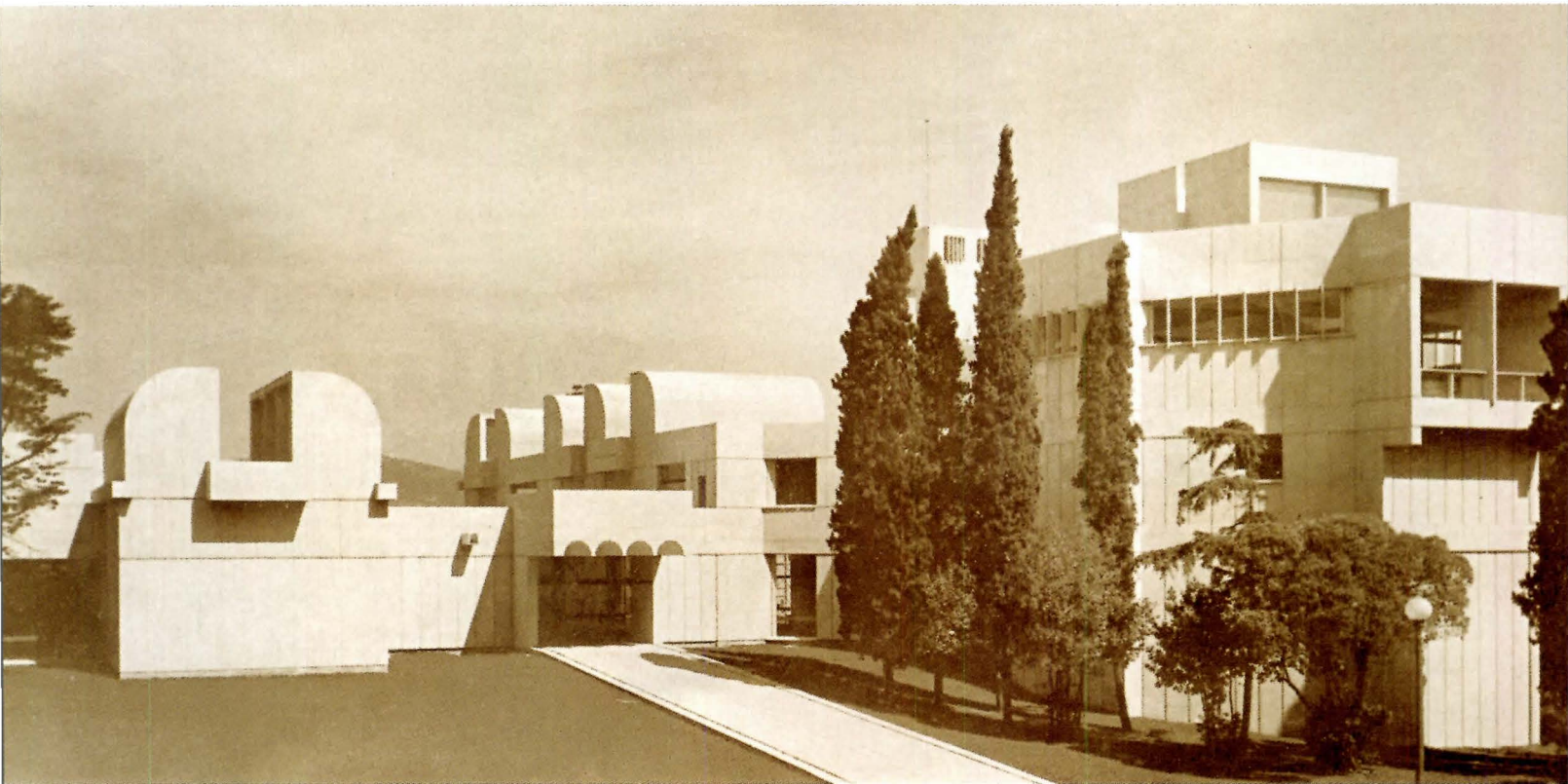
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The
Mediterranean marries
Modernism in a timeless
tribute to Joan Miró



Sometimes friendship can spawn works of enormous beauty. Renowned artist Joan Miró and architect Josep Lluís Sert were native Barcelonans who wove their respective visions together in the Fundació Joan Miró. Opened to the public in 1975, the museum is located in Parc de Montjuïc, Barcelona, and its Modernist building blends with the

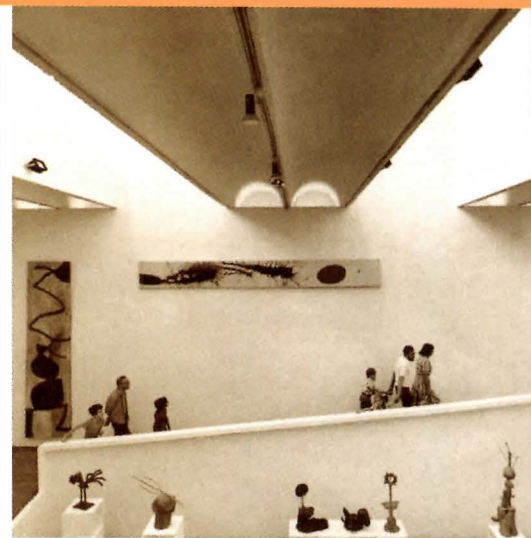
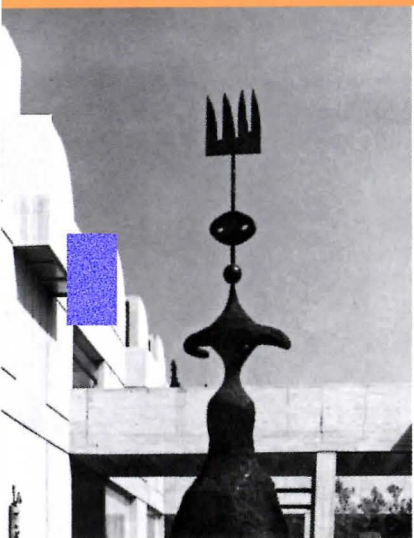
native Catalan style. In the words of Robert Campbell, FAIA, “Sert’s career-long effort was to marry the logic and rigor of the Modern movement with the vernacular architecture of the Mediterranean, which he loved and admired for being so responsive to climate and culture.” In addition, it is a project of enormous durability, as evidenced by this award. In their nomination, the

Boston Society of Architects hailed it as a “project for the ages.”

Rather than a large, undifferentiated hall to be partitioned and lighted for each exhibit, this museum was conceived as a “kit of parts,” a variety of proportioned spaces of differing sizes and lighting conditions. Defining the volumes of the complex are small rooms for close-up contemplation, expansive galleries for distant viewing,

spaces with high ceilings for tall, vertically displayed art, and an outdoor roof garden and lawn-covered areas for large sculpture.

Although additions to the museum in 1988 and 2001 by Jaume Freixa expanded its exhibition and office space, and added a restaurant, it remains in immaculate condition and retains its initial appearance—*Jane F. Kolleeny*





Winners and Jurors

WINNERS

Architecture (page 122)

The Dayton House: Vincent James Associates; *Temples of Industry:* Randy Brown Architects; *Newton Road Parking and Chilled Water Facility, University of Iowa:* Herbert Lewis Kruse Blunck Architecture; *Barn Renovation and Lath House Addition:* James Dart, AIA; *Estuarine Habitats and Coastal Fisheries Center:* Guidry Beazley Ostteen/Eskew Filson Architects; *New Equipment Shed at Straitsview Farm:* Charles Rose Architects; *IN-N-OUT Burger Restaurant:* Kanner Architects; *Sandra Day O'Connor United States Courthouse:* Richard Meier & Partners, Architects and Langdon Wilson; *Frederick Phineas and Sandra Priest Rose Center for Earth and Space, American Museum of Natural History:* Polshek Partnership Architects; *Sony Center:* Helmut Jahn; *Little Village Academy:* Ross Barney + Jankowski; *Meredith Corporate Expansion and Interiors:* Herbert Lewis Kruse Blunck Architecture; *Valeo Technical Center:* Davis Brody Bond; *The New 42nd Street Studios:* Platt Byard Dovell Architects; *Rauner Special Collections Library in Webster Hall, Dartmouth College:* Venturi, Scott Brown and Associates; *Rachofsky House:* Richard Meier & Partners,

Architects; New International Terminal, San Francisco International Airport: Skidmore, Owings & Merrill, Del Campo & Maru, Michael Willis Architects; *Maple Valley Library:* Cutler-Anderson Architects and Johnson Architects

Interiors (page 142)

New International Terminal, San Francisco International Airport: Skidmore, Owings & Merrill, Del Campo & Maru, Michael Willis Architects; *Vesper Building:* Elliott + Associates Architects; *Smith-Buonanno Hall:* William Kite Architects; *XAP Corporation:* Pugh + Scarpa; *Tsunami:* Thom Mayne, AIA, Morphosis; *Old St. Patrick's Church:* Booth Hansen Associates; *Chicago Tribune Pressroom Renovation:* Perkins & Will and McClier Corporation; *Rose Main Reading Room Restoration, New York Public Library:* Davis Brody Bond; *Sticks, Inc., Herbert Lewis Kruse Blunck Architecture;* *Qiora Store and Spa:* Architecture Research Office; *North House:* Elliott + Associates Architects; *TBWA/Chiat/Day Advertising:* Clive Wilkinson Architects

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Tadao Ando, Hon. FAIA

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Bernard J. Cywinski, FAIA (chair), Havertown, Pa.; Thomas H. Beeby, FAIA, Chicago; Nathaniel O. Clark, Assoc. AIA, Baton Rouge, La.; E. Ean McNaughton, Jr., FAIA, New Orleans; Scott Merrill, AIA, Vero Beach, Fla.; Rebecca Swanston, AIA, Baltimore; Marilyn Wheaton, Detroit; Isaac Williams, Columbia, Md.

Interiors

Carol Ross Barney, FAIA (chair), Chicago; Michael Gabellini, AIA, New York City; Stephen H. Kanner, FAIA, Los Angeles; Sunam Sorg, FAIA, Washington, D.C.



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Jonathan Barnett, FAIA (chair), Washington, D.C.; David D. Dixon, FAIA, Boston; Barbara E. Wilks, FAIA, Brooklyn, N.Y.; Don C. Miles, FAIA, Seattle; Hunter Morrison, Cleveland

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Thompson, Ventulett, Stainback & Associates

garners

Firm of the Year Award for excellence in a diverse practice

By Deborah Snoonian, P.E.

You may think you've never been in a building designed by Thompson, Ventulett, Stainback & Associates (TVS). Think again. It's estimated that some 240 million people visit this firm's projects annually. That's *240 million*, the equivalent of 85 percent of the U.S. population. (By contrast, the most popular attraction in the U.S., Walt Disney World's Magic Kingdom in Florida, brings in 15 million visitors a year.) With its diverse portfolio of convention centers, corporate campuses, interiors, sports facilities, and retail complexes, the 2002 AIA Architecture Firm Award winner establishes a benchmark for the sheer omnipresence of its projects in the urban fabric.

But it wasn't just its ubiquity that prompted the AIA to honor TVS this year. "TVS is a firm that understands the value of public space," said Thompson E. Penney, FAIA, senior principal of DLR Group, in his nomination letter. "They understand the importance of creating public spaces that enrich, uplift, and inspire the human spirit ... [it's] a firm that touches millions of lives through the gifts they create." Above all, TVS has come to be synonymous with an architecture of citizen-

ship: projects that give presence to the neighborhoods they inhabit, that help cities and their denizens realize their aspirations, and that serve as engines for urban renewal and economic growth.

Making it big in their own backyard

To hear Thomas W. Ventulett III tell it, there were no such grand ambitions back in 1968, when he, Bill Thompson, and Ray Stainback founded TVS in Atlanta, Georgia—a city just beginning to evolve into an economic and cultural center of the South. "Our biggest aspiration was to survive our first year in business," he says.

But firm president Roger Neuenschwander, AIA, insists that Ventulett (the only founding partner who is still practicing) is being modest. "I joined TVS in 1973," he recalls, "and it was clear to me even at that

stage that the partners had the same long-term goals: to grow steadily and focus on stability."

In those few short years, TVS had blossomed from three to nearly 60 people. A year later, the firm landed a hometown commission for the Georgia World Congress Center, which put it on the map.

The World Congress Center design became the template for much of TVS's future work. In that project,

TOP CONVENTION CENTERS BY TVS

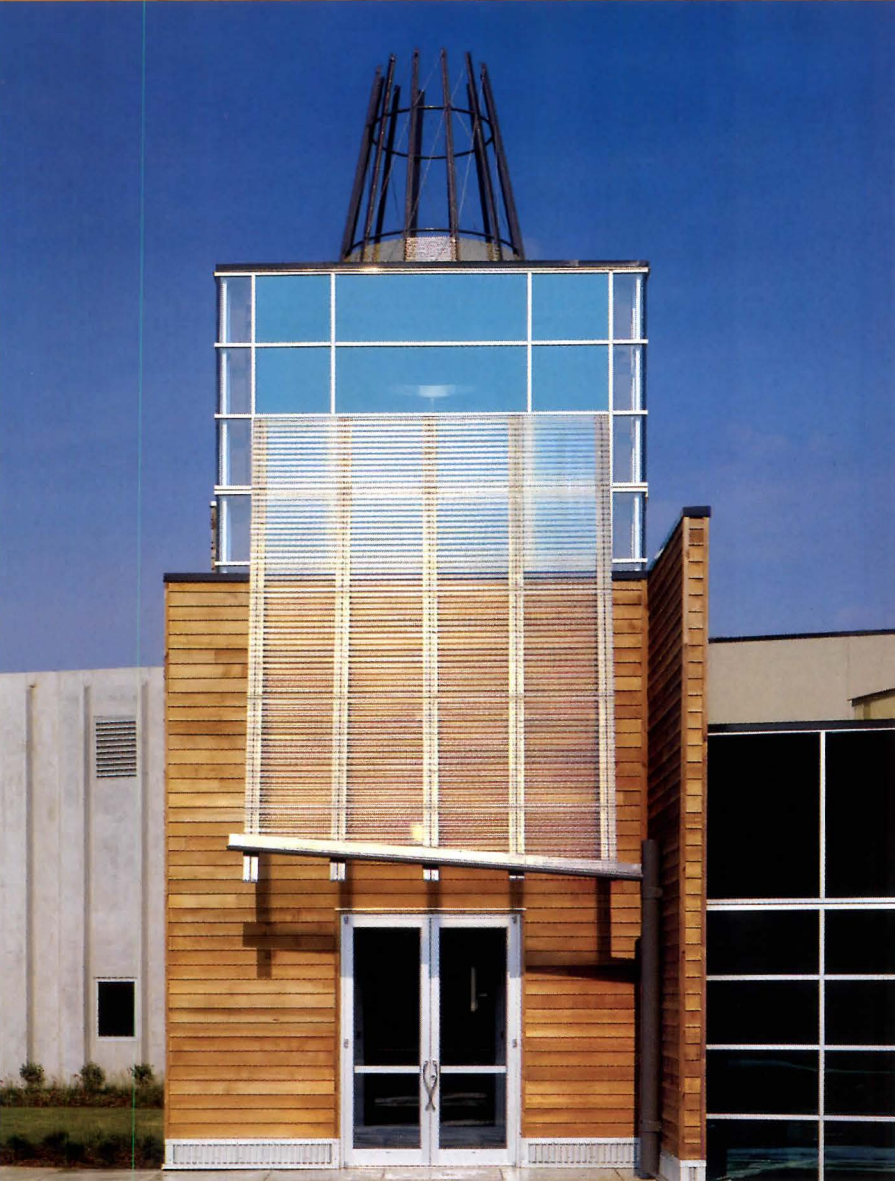
Project Name	City	Completed
Georgia World Congress Center (Phases I, II, IV)	Atlanta, Ga.	1976, 1993, 2002
Miami Beach Convention Center Expansion	Miami Beach, Fla.	1989
Pennsylvania Convention Center	Philadelphia, Pa.	1994
Charlotte Convention Center	Charlotte, N.C.	1995
Orange County Convention/Civic Center	Orlando, Fla.	1996
McCormick Place Expansion	Chicago, Ill.	1997
Midwest Express Center	Milwaukee, Wis.	1998
Henry B. Gonzales Convention Center	San Antonio, Tex.	2000
Richmond Convention Center	Richmond, Va.	2001
Washington, D.C., Convention Center	Washington, D.C.	2003

TVS has had a hand in many of the largest convention-center commissions in the country (see a full list of their public projects on www.archrecord.com).

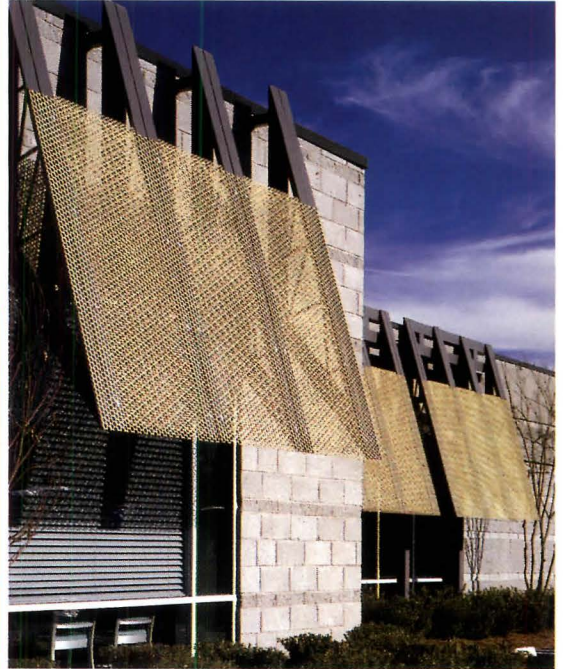
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United Parcel Service World
Headquarters
Atlanta, Georgia, 1995

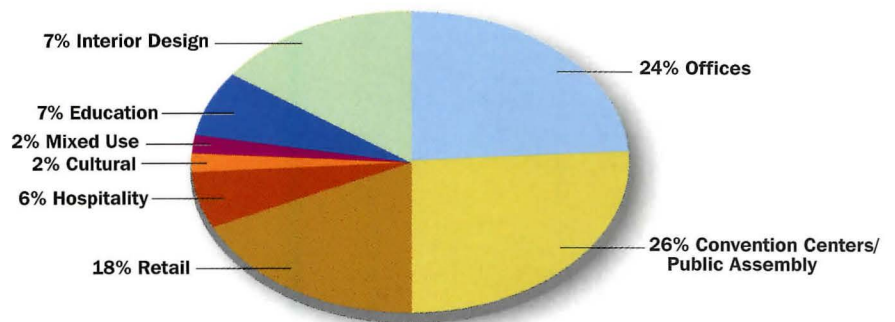




Interface Ray C. Anderson Plant
West Point, Georgia, 1997



TVS Project Types



the firm conceived a multiphase series of complementary buildings for public gatherings—conventions, sporting events, hotels—in a down-at-the-heels industrial neighborhood on the periphery of downtown Atlanta. The scheme was wildly successful. Three subsequent expansions in less than thirty years have more than doubled the project's original size. "We sort of lucked into the big time with that one," says Mike Ezell, AIA, senior principal.

It was more than good fortune, for TVS did nothing less than invent the architectural nomenclature of the modern-day convention center. The firm's designers reimagined the convention hall, typically an uninspired clear-span structure, as a building or buildings that needed to include a variety of gathering spaces, arranged and scaled for personal contact. They added concourses, exhibition spaces, flexible meeting rooms,

TVS radically overhauled the way convention centers are conceived and designed.

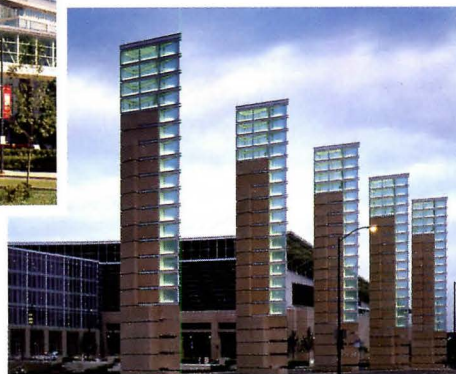
and hallways to facilitate interaction and circulation, making the new complexes microcosms of their host cities. This groundbreaking work has been widely emulated, and two of its centers—Chicago's McCormick Place and Philadelphia's Pennsylvania Convention Center—were feted with AIA national honor awards.

Steady growth with a balanced portfolio

Early success paved the way for many more commissions for convention centers (see sidebar, page 162) and gave TVS entrée to retail and corporate work, including a major project in Atlanta for IBM. During the 1970s and 1980s, it broadened its client base and grew steadily, even as the fates of other firms rose and fell with the real estate market. Throughout this time, the partners remained closely engaged in every aspect of the firm's operation. In 1979, with an eye toward longevity, the partners turned over the firm's ownership to their employees. "It's had a profound cultural impact on the manner in which we practice and the



McCormick Place Expansion
Chicago, Illinois, 1997



**Prince Street Technologies
Corporate Office**
Cartersville, Georgia, 1995





Carter's Children's Clothing
Atlanta, Georgia, 2001



Charlotte Convention Center
Charlotte, North Carolina, 1995

way we relate to each other and our clients," says Ray Hoover, senior principal. Now there are 265 TVS employees in Atlanta and Chicago who are invested, literally, in the firm's well-being.

Although TVS ranks among the largest firms in the country, it is organized in a studio system, giving it the feel of a collection of midsize firms. The arrangement lets team leaders mentor younger architects on the entire design and production cycle, and clients have valued the responsiveness and flexibility it offers them. When TVS redesigned the corporate headquarters for carpet manufacturer Prince Street Technologies [RECORD, December 1996,

TVS's design philosophy is simple: The client is the visionary, not the architect.

pages 44–46], the architects worked side by side with the client to create an open, transparent building that mirrored the company's newly flattened hierarchy. "Really good architects can bring you benefits you never expected," said president Joyce LaValle when the project was complete. The approach taken is consistent with the TVS design philosophy: The team believe their clients, not they, are the real visionaries. "We just help them interpret their visions," says Ventulett.

Forging ahead with business plans

Today, TVS is a highly diverse practice that has garnered numerous accolades on the national, state, and regional levels. Its interiors studio is one of the largest and busiest in Atlanta, and its thriving convention-center practice has been thrust onto the national stage. Washington, D.C., tapped it to design a 2.3-million-square-foot center to replace an undersize, 1970s Brutalist convention hall which was roundly criticized as a failure even as its concrete was setting. The District eagerly awaits the building's March 2003 opening, the largest public works project in the city



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Atlanta, Georgia, 2001



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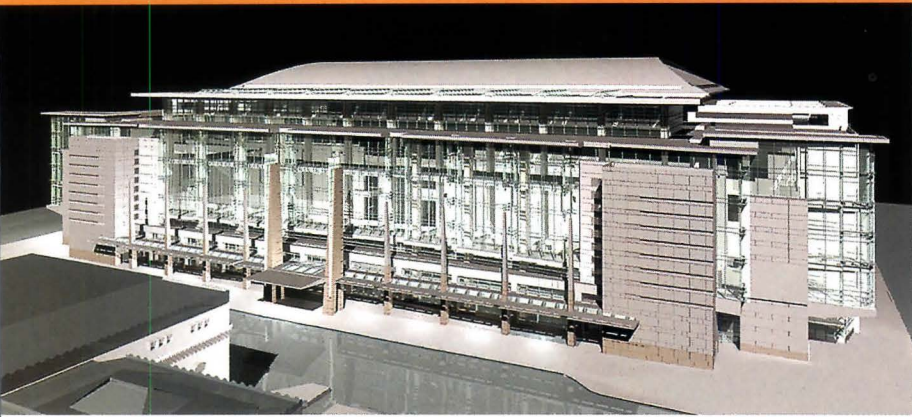


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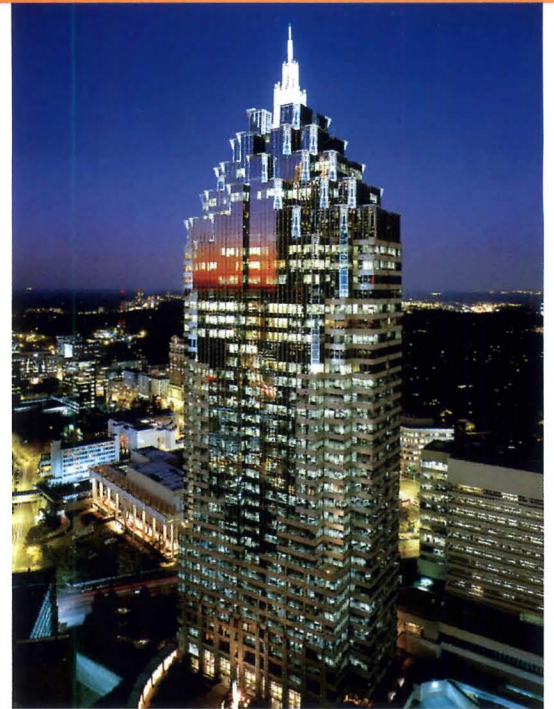
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**Washington, D.C.,
Convention Center**
Washington, D.C., 2003



Puerto Rico Convention Center
San Juan, Puerto Rico, 2002



Promenade Two
Atlanta, Georgia, 1990

since it was first laid out. Located in a downtown business improvement district close to public transportation, hotels, and restaurants, it will draw an estimated 2.5 million visitors annually and provide a staggering \$1.4 billion per year in economic stimulus.

Not content to rest on its laurels, TVS constantly identifies business opportunities that will keep its practice relevant and robust in the years to come. As early adopters of green building practices, it has implemented a sustainability training program and begun crafting a business plan to outline how to put this expertise to work for its clients. Recently, it formed the Insight Alliance, a flexible design group composed of TVS, retail experts Callison, and resort/destination designers WATG that will collaborate on mixed-use projects around the world. This cooperative strategy gives TVS the reach, flexibility, and responsiveness of a multinational firm, while letting it avoid the risk and expense of opening short-term-project offices.

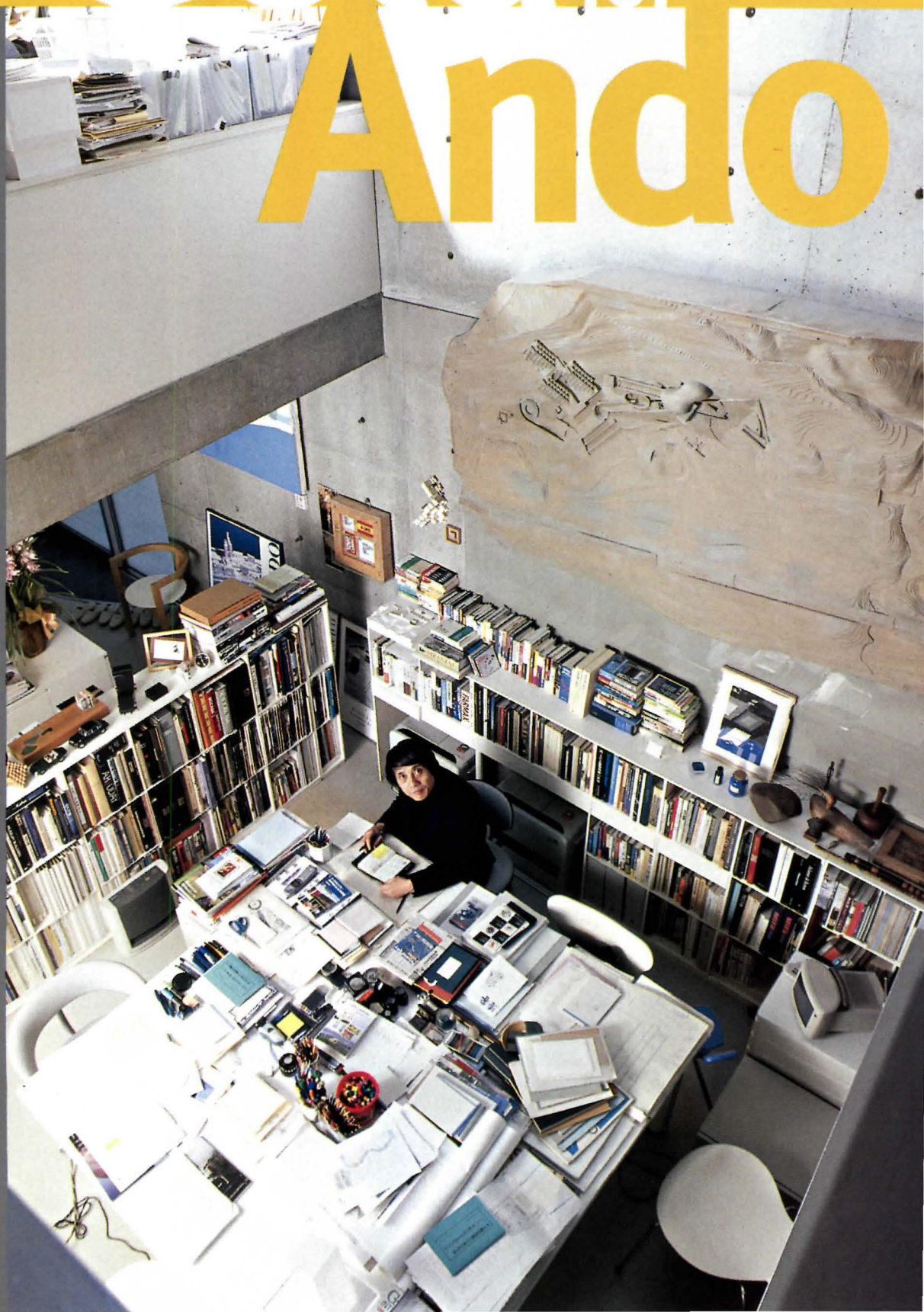
For now, though, the firm is enjoying its moment in the spotlight—and feeling humbled by it. Ventulett, who worked with past Firm Award winners on the AIA's urban design committee, says, "Those firms were a tremendous influence on me—they got me excited about our work. It never occurred to me that one day we might achieve the same things they did."

"We have such respect for the previous recipients," adds Neuschwander. "I can't think of a greater gratification than being recognized by your peers." ■

Gold for Ando

Few architects practicing today have the power to affect the human spirit as does Tadao Ando. The Japanese architect commands the admiration of intellectuals, critics, and the public for projects that combine the pragmatic, the sensual, and the ethereal. As Peter Eisenman wrote, "Something in his work is shivering, beyond the cool, the rational, the poetic, or the sublime." By combining simple materials and elemental forms, he mediates between humankind and larger forces, touching our senses and elevating our sensibilities. The following pages demonstrate how, by employing a Modernist idiom, 2002 Gold Medalist Ando has created a profound architecture for a postmodern age.

Robert Ivy



Tadao Ando

speaks for the

RECORD

Interview by Robert Ivy

Last month ARCHITECTURAL RECORD visited Tadao Ando, Hon. FAIA, in his office in Osaka, Japan, and talked with him about the nature of architecture and creativity, and his view of architecture within a changing global landscape.

AR: You have taken the Modernist idiom for your architecture and made it your own. How do you see this language evolving?

TA: The logic of Modernism, you could say, is born from functionalism as we know it, but that's only the beginning of what Modernism is all about. Modernist architecture also has to deal with people. And people always relate to the spirit of the place, or to the spirit of the time. Without this spirit, Modernist architecture cannot fully exist. Since there is often a mismatch between the logic and the spirit of Modernism, I use architecture to reconcile the two.

AR: There are several themes in your work that are striking. For example, you conceive of space as a dark, heavy, and powerful void.

TA: If you give people nothingness, they can ponder about what can be achieved from that nothingness.

AR: Yet another theme in your work is the element of surprise. You take a path, which makes a turn, and you discover something else.

TA: When I design buildings, I think of the overall composition, much as the parts of a body would fit together. On top of that, I think about how people will approach the building and experience that space.

AR: It's not fashionable to talk about beauty, but in looking at your buildings, I think about it. What is the role of beauty in your work?

TA: There is a role and function for beauty in our time. In Japan it may be translated into the concept of *Uskuji*, which also means a beautiful life, that is, how a person lives—his or her inner life. It's something beyond appearance, or what only meets the eye. You can't really say what is beautiful about a place, but the image of the place will remain vividly with you. People tend not to use this word *beauty* because it's not intellectual—but there has to be an overlap between beauty and intellect.

AR: You purposefully introduce intuitive, internal, or illogical elements into your work. These are very human attributes. Is this a way of understanding and connecting to people?

TA: You're absolutely right. It's a way of relating the work to people.

AR: How does your architecture come to terms with the immense speed of change going on in the world now? For example, you designed the Komyoji Temple in Saijo, Ehime, out of wood, which suggests impermanence. It seems like the Ise Shrine in Nara, which is rebuilt every 20 years.

TA: The speed of change makes you wonder what will become of architecture. In the West there has always been the attempt to try make the religious building, whether it's a Medieval or Renaissance church, an eternal object for the celebration of God. The material chosen, such as stone, brick, or concrete, is meant to eternally preserve what is inside. But in Japan, there's nothing like that, since the temple is made of wood. The divine spirit inside the building is eternal, so the enclosure doesn't have to be. Japanese architecture, therefore, allows you the freedom to express this concept. It's a mistake to adhere to the stylistic development of religious architecture of the past and try to imitate it.

AR: What about the role of craft in your work?

TA: The level of detail and craft is something that's inscribed within the original design concept. And so when I begin to draw, I know what kind of detailing I want the building to have.

AR: What do you see as the role of architecture in the world?

TA: We have to realize that the "age of discovery" has brought with it a disruption of the environment. Now architects are facing the "age of responsibility." When you design and build something, you have to consider what you are taking away from the earth or the environment in order to make something new. At the same time, I would add that the American people have a lot of courage. This is embedded within the American spirit, the "frontier spirit." You always want to try to make something new, and, of course, America is the world leader in economics today. I hope America can also be the cultural leader of the world, and use this frontier spirit to lead and show others that we need courage to go places where we have not gone before.

If you look at the 1950s, you will notice that the modern world's most representative architecture was created in the United States at that time—such as the Seagram Building. And even before that, with the Chrysler Building and Rockefeller Center, you can see that American society was interested in creating a culture of the future. But now, more and more, its society is concerned with economy and finance. I hope that America as a whole, and especially its architects, will become more seriously involved in producing a new architectural culture that would bring the nation to the apex—where it has stood before—and lead the world. ■

www For the complete interview with Tadao Ando, go to Interviews at architecturalrecord.com.



Tadao Ando's Constancy of Form

Selected projects from three decades of architectural work demonstrate Ando's clarity of line and contour with the manipulation of space and light that give his forms timeless appeal

1970s–1980s



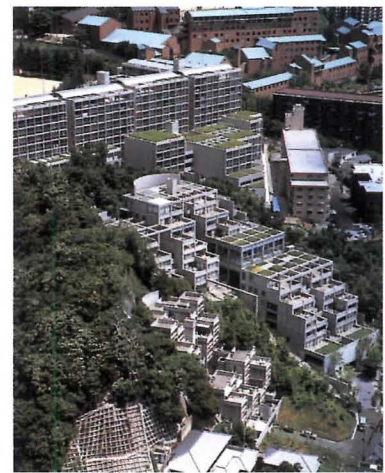
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1. Interior, Row House, Sumiyoshi-Azuma House, Sumiyoshi, Osaka, Japan, 1976

2. Rokko Housing I, II, II, Nada, Kobe, Hyogo, Japan, 1983, 1993, 1999

3. Time's I, II, Nakagyo, Kyoto, Japan, 1984, 1991

4. Interior, Koshino House, Ashiya, Hyogo, Japan, 1981, 1984



2



3

4



Simple geometric forms, where masses and voids interact with choreographed precision, have marked Tadao Ando's work over the past three decades. The velvety tactility of concrete, combined with the smooth transparency of glass and the forceful ruggedness of steel, are all characteristics of this strikingly crafted work. By deftly placing these serenely proportioned objects in a natural topography where sculptural land forms alternate with bodies of limpid water, or by inserting them into a dense urban fabric, Ando creates a powerful, kinesthetic experience, where just approaching and moving through the spaces takes on dramatically ritualistic overtones. As architectural investigations, his temples, housing developments, museums, and office complexes illustrate that the manipulation of form, space, and light can bring poetry to the most mundane as well as the most spiritual activities.—Suzanne Stephens

5. Kidosaki House, Setagaya, Tokyo, Japan, 1986



5

6. Church on the Water, Yufutsu-gun Hokkaido, Japan, 1988

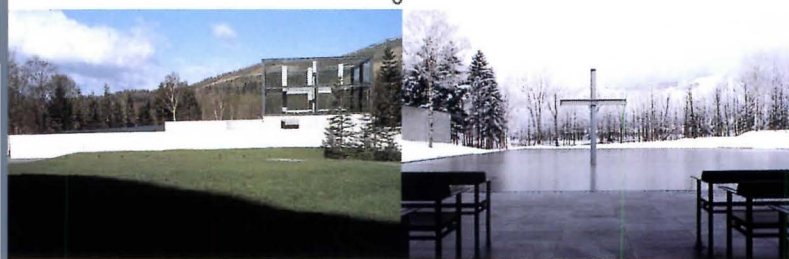


7. Church of the Light, Ibaraki, Osaka, Japan, 1989



8. Chapel on Mount Rokko, Nada, Kobe, Japan, 1986

6

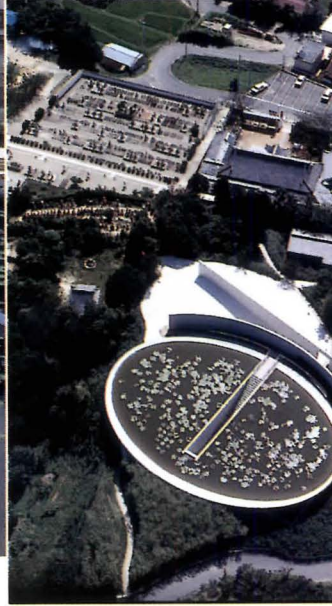


7



8

MAITSUOKA (1, 5, 7, 8); JAPAN ARCHITECTURE
SHIGEO OGAWA (2); JAPAN ARCHITECTURE/HIROSHI
UEDA (3); TOMIO OHASHI (4); TADAO ANDO (6)



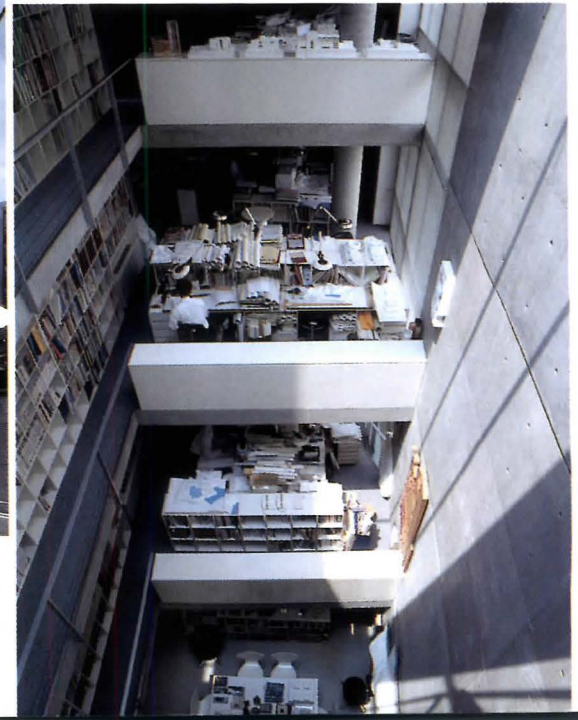
9, 9a, 9b

9, 9a, 9b. Water Temple, Tsuna-gun, Hyogo, Japan, 1991, showing the stair descending from the edge of the lotus pond to the new hall below.

10, 10a. Atelier in Oyodo II, Kita, Osaka, Japan, 1991



10, 10a



11, 11a. Chikatsu-Asuka Historical
Museum, Minamikawachi-gun,
Osaka, Japan, 1994

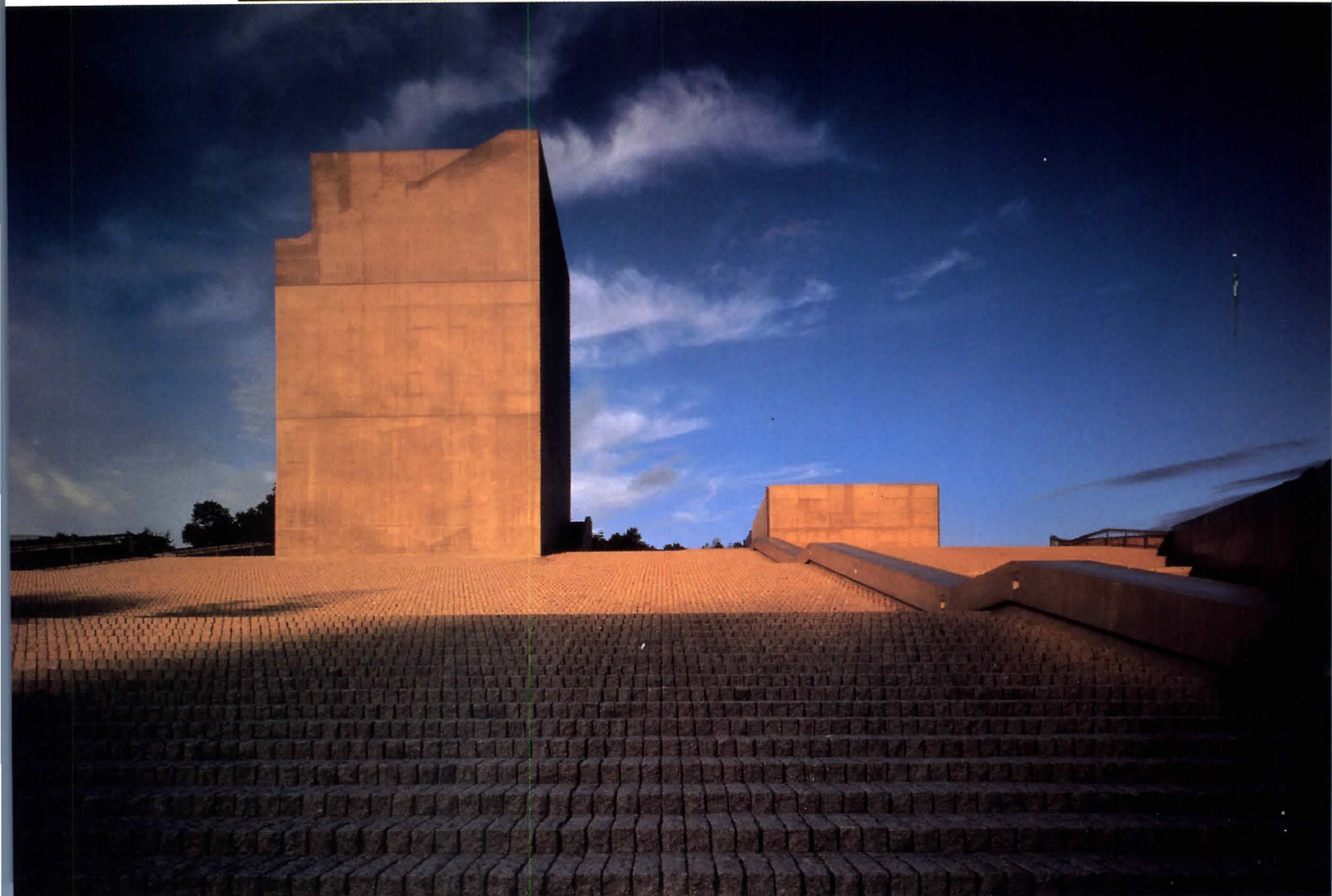
12. Japan Pavilion, Expo '92,
Seville, Spain, 1992



11, 11a



12



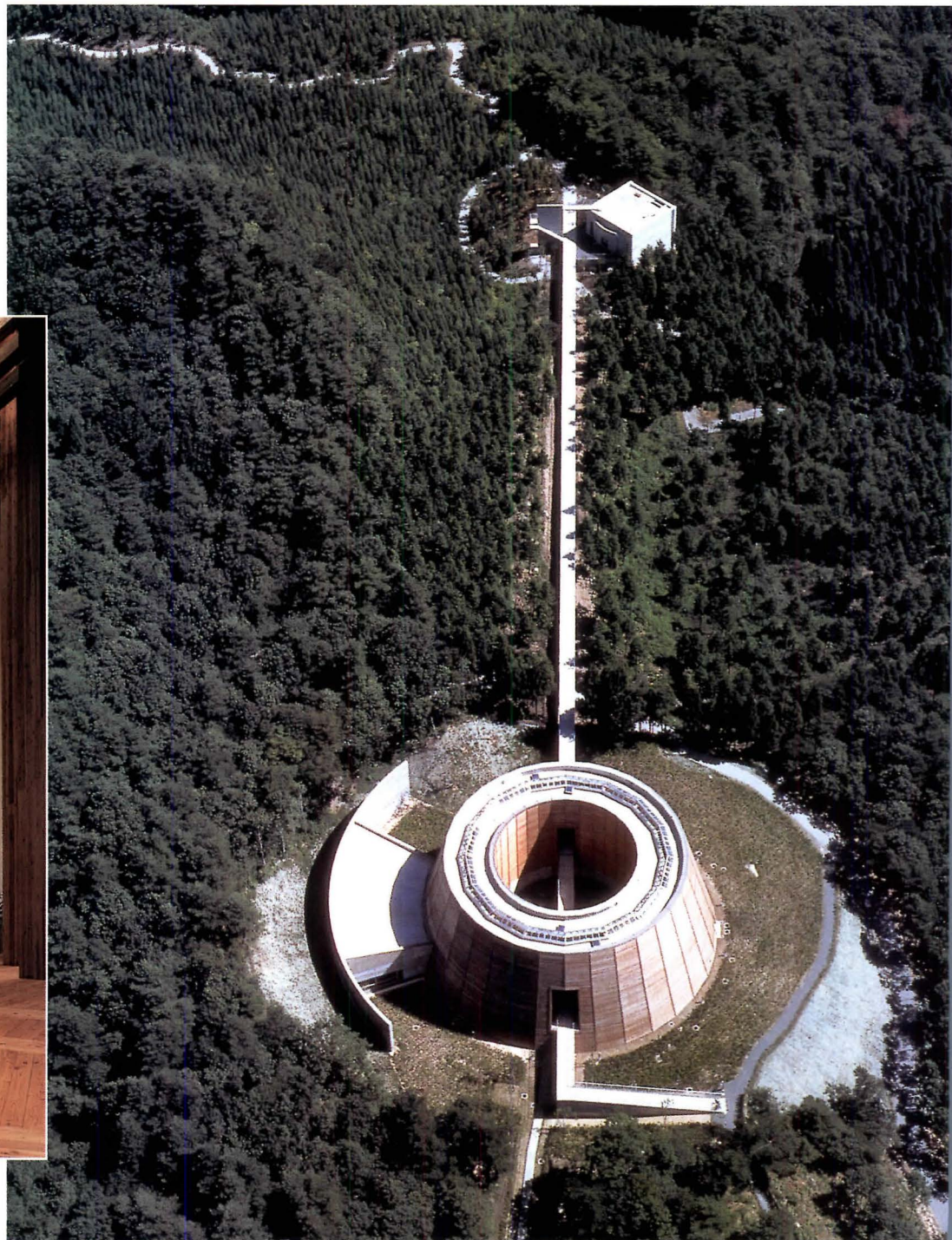
1990s



13

13. Meditation Space, Unesco,
Paris, France, 1995

14, 14a. Museum of Wood,
Mikata-gun, Hyogo, Japan, 1994



14, 14a





15

15. Suntory Museum, Minato,
Osaka, Japan, 1994

16, 16a. Naoshima Contemporary
Art Museum and Annex,
Naoshima, Kagawa, Japan,
1992, 1995



16, 16a





17, 17a. Awaji-Yumebutai
(Awaji Island Project),
Awajishima, Hyogo, Japan, 2000

18. Fabbrica (Benetton
Communication Research Center),
Villorba, Treviso, Italy, 2000

19. Armani/Teatro,
Milan, Italy, 2001

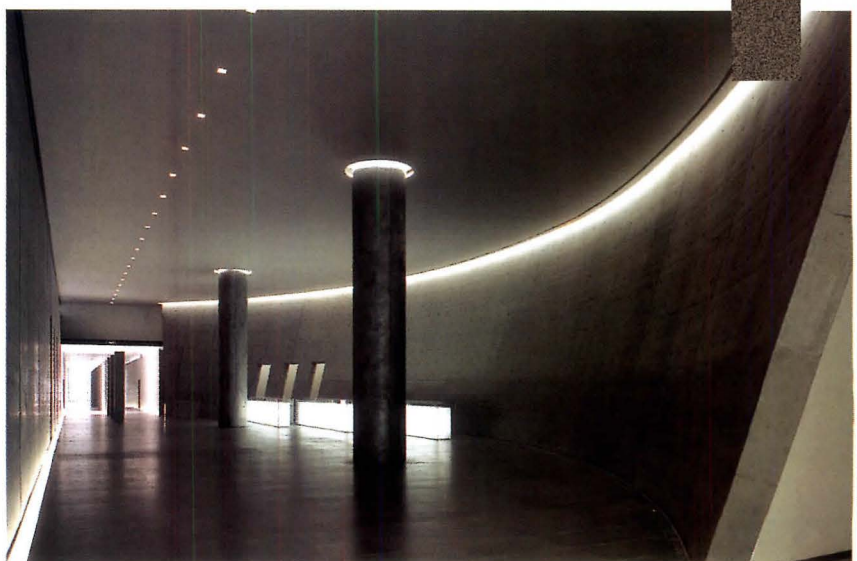
17, 17a



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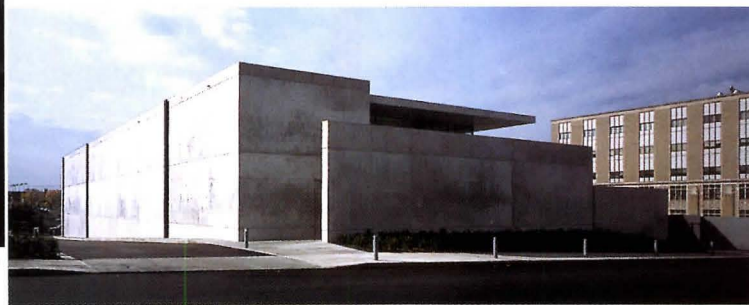
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20, 20a

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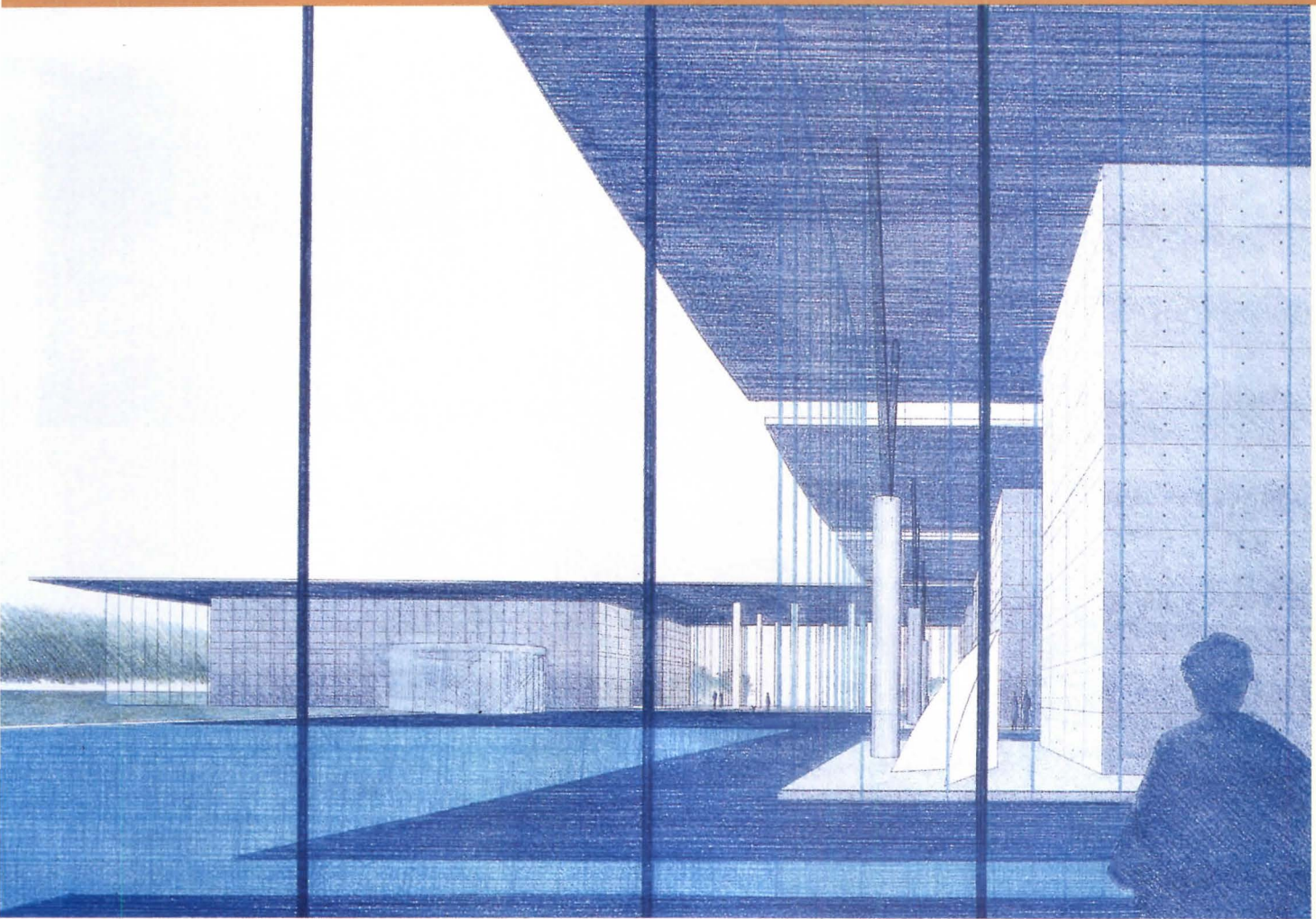
20, 20a. Pulitzer Foundation for the Arts, St. Louis, 2001

21. Komyo-Ji Temple, Saijo, Ehime, Japan, 2000

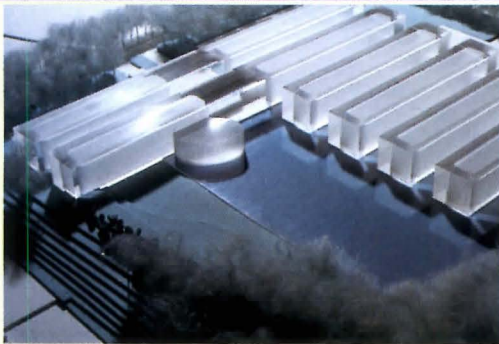
22. Sayamaike Historical Museum, Osakasayama, Osaka, Japan, 2001

22





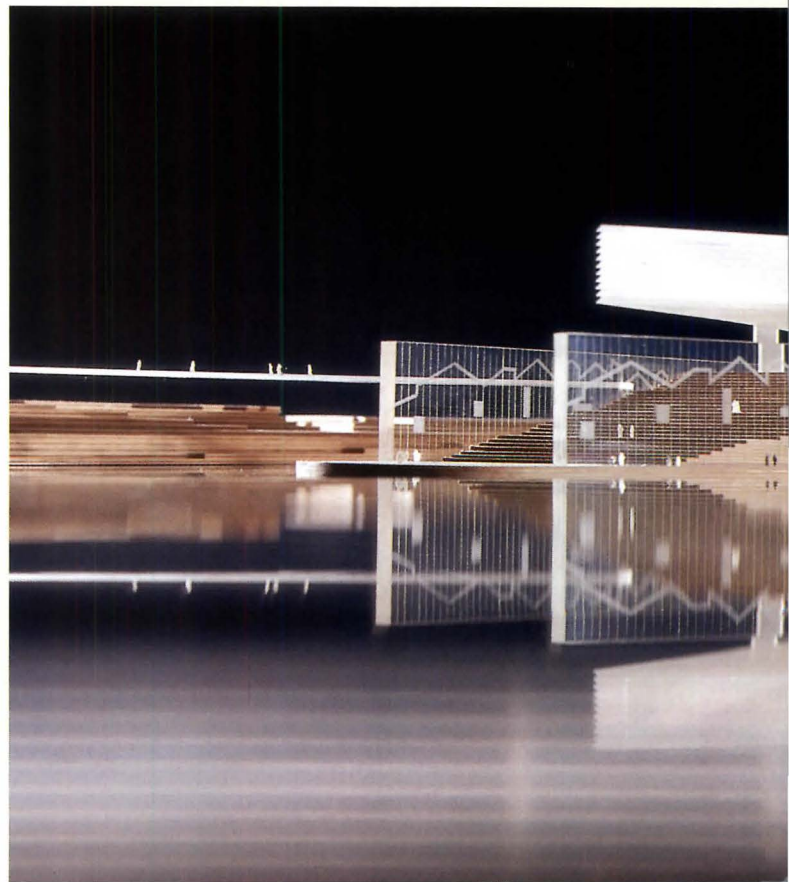
23, 23a

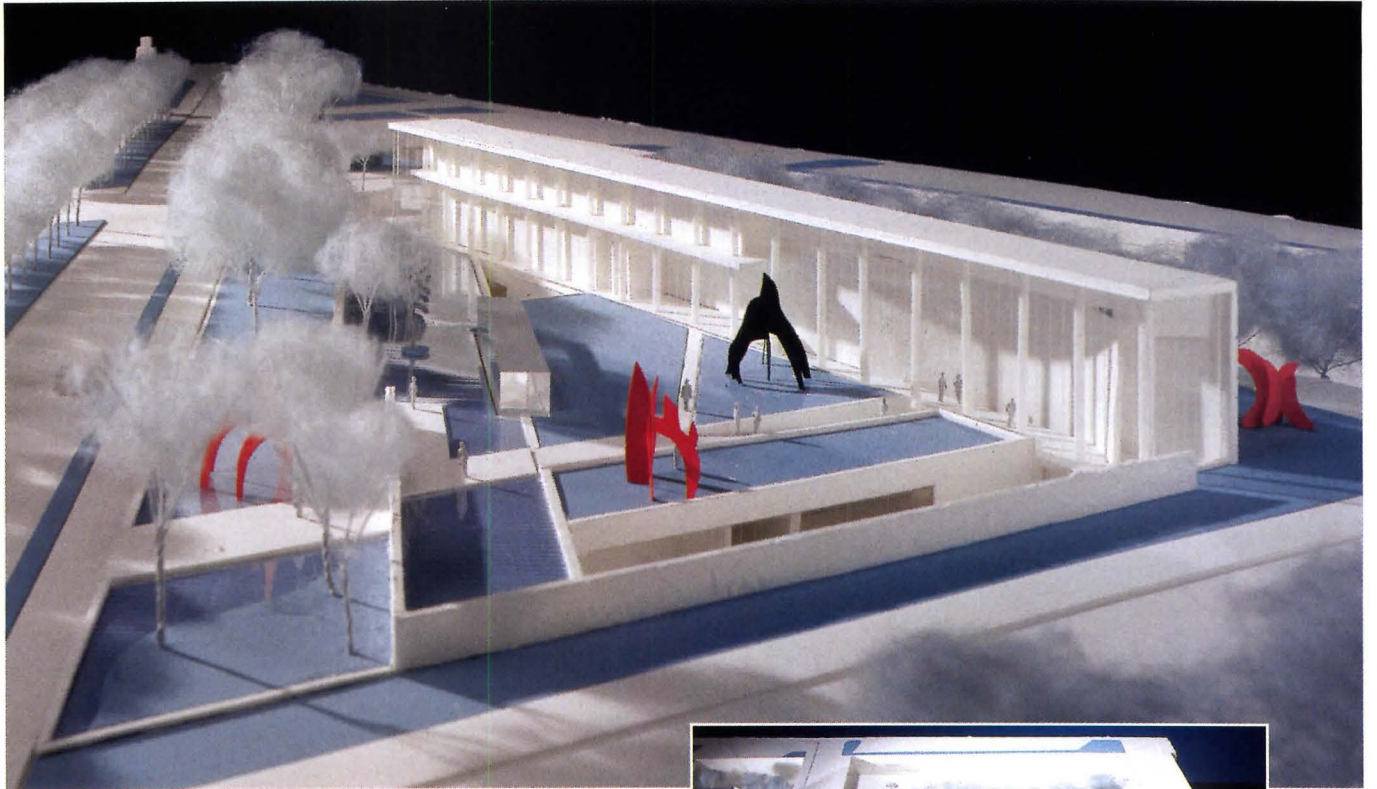


23, 23a. Modern Art Museum of Fort Worth, Fort Worth, 2002

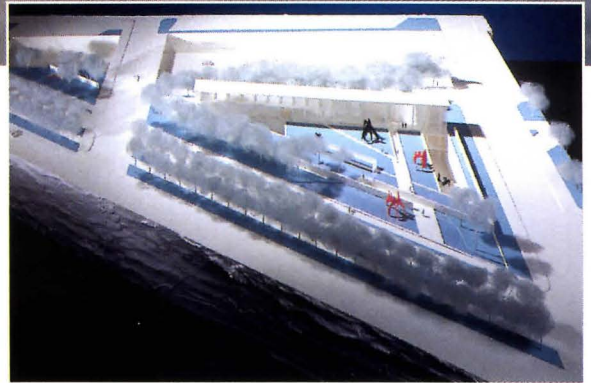
24. Fondation d'Art Contemporain François Pinault, Seguin, France, 2007 (expected completion date)

25, 25a. Calder Museum, Philadelphia (completion date unknown)

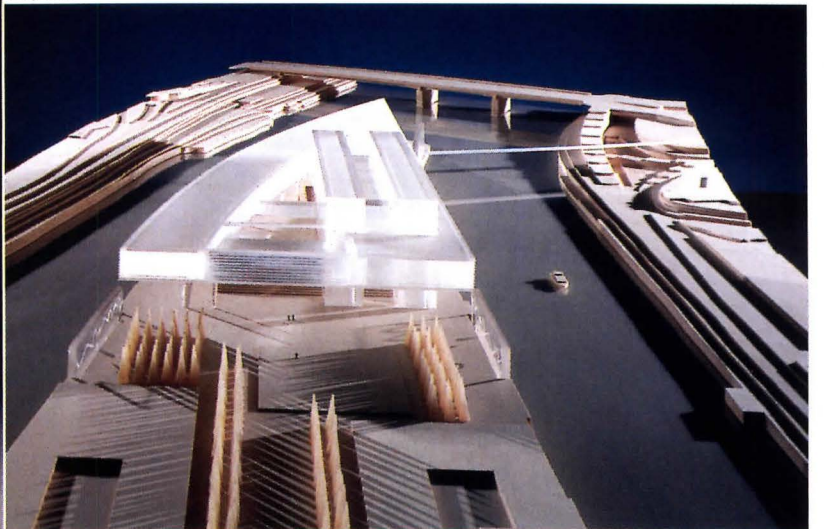
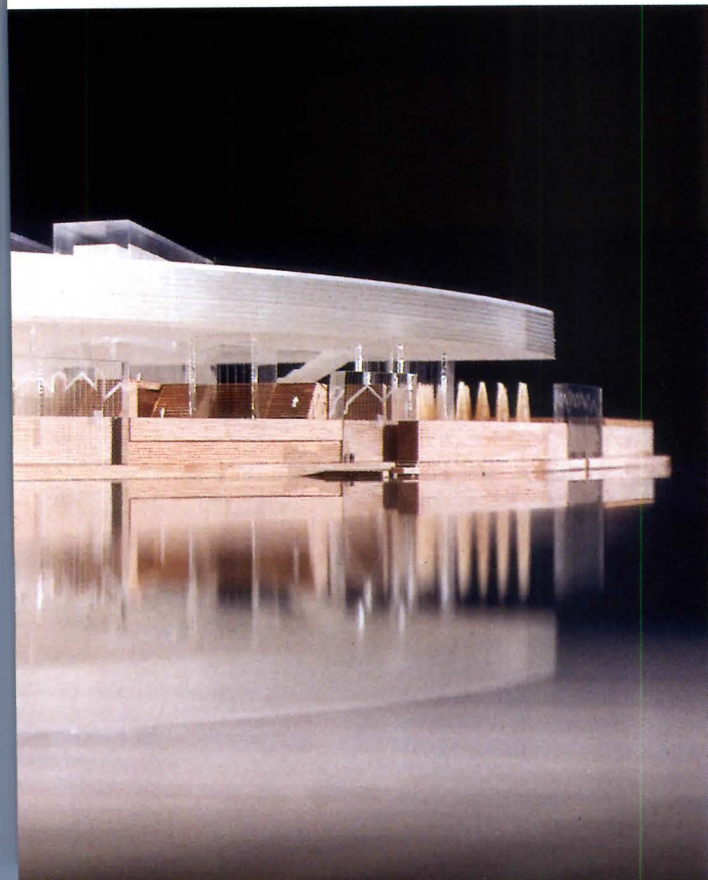




25, 25a



24, 24a



An Elemental Language of Design

Tadao ANDO's architecture balances rational man-made forms with the unpredictable natural world

By Naomi Pollock

There are buildings, and then there is architecture. But even within architecture, not all achievements are created equal. Occasionally we encounter one so remarkable, it shakes our very foundations. The work of this year's AIA Gold Medalist, Tadao Ando, has accomplished this with astonishing frequency. In Ando's hands, the basic tools of our trade—concrete, glass, and wood—become the means of paring away the superfluous and underscoring the essential until a solution is reached that invokes the spirit and stimulates the senses. For more than 30 years, Ando has repeatedly demonstrated this talent through his houses, churches, museums, and commercial projects within Japan, and now, increasingly, in Europe and the U.S.

Perhaps the most emblematic of Ando's works is the Church of the Light, completed in 1989 in suburban Osaka, Japan. Concealed within a rectangular, concrete box and an L-shaped, angled wall is a chapel that is so simple, yet utterly profound. Even the best photographs do not do it justice. Muted light bordering on semidarkness fills the nave, yet two narrow slots of intense daylight in the shape of a cross pierce the wall behind the altar. A study in contrasts, the soothing, softly lighted sanctuary with its plain wooden pews invites contemplation, while the sharply defined cross draws the gaze like a magnet and focuses attention on the appointed task of supplication. Through his controlled use of light, exacting geometries, and superbly crafted materials, Ando deftly translates the experience of prayer into architectural expression.

While the orchestration of these elements makes Ando's buildings so compelling, his use of concrete is the most imitated aspect of his architecture. Yet few architects come anywhere close to achieving Ando's velvety texture and uniform color. The secret is not in the material's composition, but in its formwork—itsself practically a work of art. Made from carefully treated wood planks assembled with a high level of precision, the form's perfectly honed surfaces help eliminate imperfections and leave their smooth imprint on the concrete as it cures. In fact, the forms used for the Church of the Light were so refined that instead of being discarded after construction, they were stained and recycled as wooden pews and flooring.

Ando's love affair with concrete is much more than skin deep. He uses angled or curved walls and ramps that take advantage of the material's plasticity to offset his buildings' rectilinear compositions. And out of its



Row House, Sumiyoshi-Azuma House, Osaka, Japan, 1976.

dense matter Ando fashions thick walls that enclose inwardly focused buildings and sanctuarylike spaces that are separated from their surroundings but not from the natural environment. Indeed, the unadorned concrete planes are the ideal backdrop for the ever-changing diurnal light and mesmerizing pools of water, continually switching their course, that are featured in his buildings.

The balancing of rational, man-made forms and the unpredictable, natural world is a recurrent theme in Ando's work. Although Ando's brand of nature is a far cry from its wild and chaotic original state, he does not try to dominate it, either. Instead, he seeks a harmonious continuum between indoors and out by limiting exposure, sometimes very dramatically, or by using water, and occasionally greenery, in an abstracted or controlled way. Much more than decorative add-ons, Ando's reflecting pools are as integral to the overall composition as any major room, and often fill substantial parts of the respective building footprints. The pools contribute to

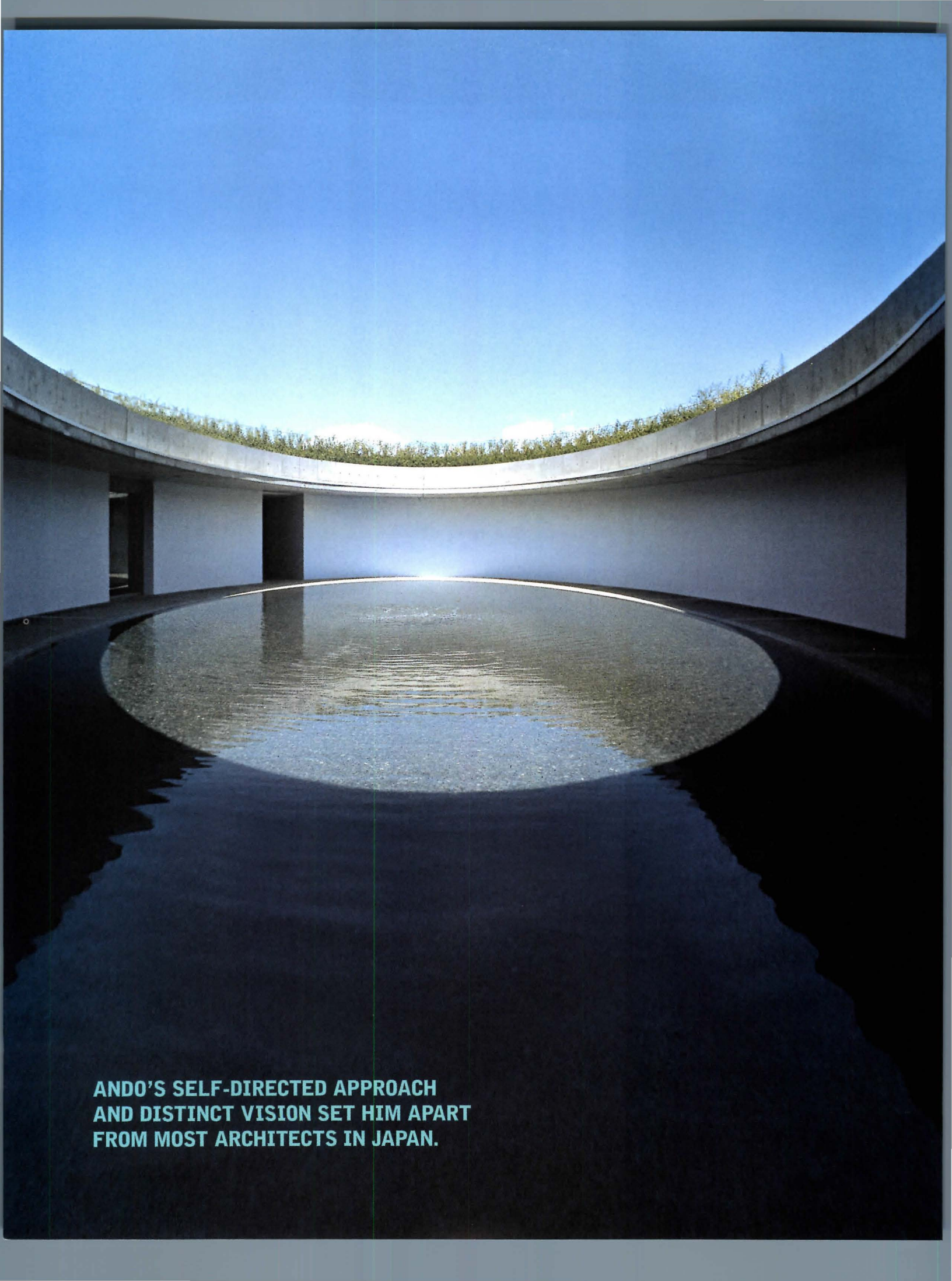
the contemplative atmosphere, incorporating trees and clouds into the building, if only as reflections on the water's shimmering surface.

Ando's reverence for and studied inclusion of nature surely owe something to traditional Japan, where exquisite gardens look untouched, although every branch has been pruned and every stone positioned. The restrained way he frames views raises the appreciation of nature while it recalls traditional windows and wall openings that focus the eye on a particular scene, instead of allowing it to roam freely over the landscape. Yet Ando's compelling use of concrete and his manipulation of searing daylight—in contrast to traditional Japan's preference for shadowy, indirect light—are evidence of the profound impact Western design has had on him.

Ando's interest in Japanese and Western design developed in tandem almost from the start. Born in Osaka in 1941, he grew up in his



Naoshima Contemporary Art Museum, Kagawa, Japan, 1995 (above and opposite).



**ANDO'S SELF-DIRECTED APPROACH
AND DISTINCT VISION SET HIM APART
FROM MOST ARCHITECTS IN JAPAN.**



The power and drama of the Koshino House, Ashiya, Hyogo, Japan, 1984, is achieved through the use of concrete and light.

grandmother's home. A typical house made of wood and paper, which he still owns, it happened to be across the street from a carpenter's shop where Ando spent hours learning to work with wood. By the time he turned 18, he had begun his independent investigation of architecture in earnest by visiting temples, shrines, and teahouses in nearby Kyoto and Nara. "I was studying architecture by going to see actual buildings and reading about them," Ando explains.

Even during a brief stint as a professional boxer, Ando continued learning about this subject. One of the books that captivated him was a volume about Le Corbusier, which he purchased at a used bookstore in Osaka. "I traced the drawings of his early period so many times that all the pages turned black," Ando says. During the mid-1960s, he made several trips to

WITH CONCRETE, GLASS, AND WOOD, ANDO PARES AWAY THE SUPERFLUOUS AND UNDERSCORES THE ESSENTIAL.

Europe, the U.S., and Africa to experience Western architecture firsthand. Ando's unique self-directed approach—he never studied architecture at school and never apprenticed in an established firm—sets him apart from most designers in Japan, where few stray from a set course. But it may account for his clear, distinct vision, which does not bear the mark of any mentor and does not belong to any movement.

By 1969, Ando had spent enough time in practical training to take the professional licensing exam—passing the first time—and then open an office. Although his practice now fills a five-story, curved, concrete building at the end of a quiet Osaka street, Ando still keeps close tabs on his projects. From his large, square desk at the base of a skylighted atrium running the height of the building, Ando can communicate easily with his staff hard at work in the studios surrounding the void, as well as give his dog, Le Corbusier, an occasional pat as he lumbers by. While a skylight crowns the atrium, the building is essentially devoid of windows, except for a large strip of glass down the center of the facade and two little round portholes on either side of the main entrance.

Despite his unconventional training, Ando has become a significant player in Japan's architectural mainstream. He was even invited to join the faculty of Tokyo University in 1997. Having launched his practice with the design for the interior of a café, by 1976 Ando established his

reputation with his Sumiyoshi Row House. While very modest in scale, this rebuilding of an existing house in central Osaka shocked Japan's architectural community with its blank, concrete facade and internal, but completely exposed, courtyard separating the kitchen/dining room from the living room on the ground floor and the children's and parents' bedrooms on the second. The house forced the occupants to cross an outdoor space regardless of the weather to complete the most basic functions. But it also outlined ideas, principally the integration of daylight and the introduction of nature, that Ando has grappled with ever since.

Throughout the 1970s, Ando built a stream of private houses and small commercial developments in and around Osaka that brought him increasing recognition. One of the defining moments of this stage of his career was the completion of the Rokko Housing overlooking the Bay of Osaka. A grid of boxlike dwellings interspersed with plazas, the 20-unit complex built into the south-facing 60-degree slope of Mt. Rokko demonstrated Ando's ability to jump from small to large-scale projects and to another level of complexity in design.

While Ando's work had begun to garner attention abroad, it was not until the completion of his churches and museums in the 1980s that his international reputation took off. It was through these projects that Ando's real gift for manipulating light, engaging nature, and imbuing buildings with a palpable spirituality became apparent. Yet, because most of his buildings during this period were built in Kansai, an area of Japan that includes Osaka, Kyoto, and Kobe, much of his Western audience could not experience his architecture directly.

In the 1990s, Ando's identity as one of the world's leading architects solidified. A major benchmark occurred when the Museum of Modern Art in New York anointed him with a solo show in 1991. A stunning display, the exhibition attracted the attention of the general public in the U.S. and was the first of many prestigious accolades and awards that Ando was to receive. It also spawned the commission for a private home in Chicago, his first building on American soil.

With the opening of the Pulitzer Foundation for the Arts in St. Louis last fall and the much anticipated completion of the Modern Art Museum of Fort Worth later this year, not to mention the Alexander Calder museum proposed for Philadelphia, Ando's work soon will be better known to Americans. The architecture may be rooted in Japan, but its potency easily transcends national bounds. ■



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Lessons from the best-managed firms

Small, medium, and large

Is Growth a Burden or a Blessing?

FEATURES

By Jane F. Kolley and Charles Linn, FAIA

Starting the firm seemed simple enough. You and a few friends from college struck out on your own with a couple of small contracts. That was 15 years ago. Your desks were hollow-core doors on sawhorses jammed into a second-floor office subleased from an insurance agency. Somebody gave you a two-year-old set of *Sweet's*. One of your friends did the books, and once a month on Friday \$20 was pilfered from the cookie jar for ribs and beer. That was your company culture.

A year later, you and your partners faced what seemed like a huge decision. To qualify for a project you sought, you'd have to hire an honest-to-goodness, full-time employee. Now you'd be paying health insurance and workman's compensation, you'd have to withhold taxes and eventually pay other benefits, such as a 401K, profit sharing, vacations, and sick leave. To break even on the costs of hiring, you'd have to keep the new person on for at least a year. But it was time to sink or swim, and you dove in.

Once you'd added one employee, hiring others got easier. When the two church jobs came along, you added four. When you got the high school job, you added six more and moved to a bigger space. Pretty soon there was a receptionist, secretary, a bookkeeper, a spec writer, a field person, a marketing manager, a kid to update the Web site, a human resources director, and an employee manual. Nowadays there are 75 employees. Where all-night charrettes once demonstrated the firm's enthusiasm for flexing its creative muscle, timesheets and billable hours govern yours and everybody's thinking these days. When it's time for ribs (rice and beans for the vegetarians) and near-beer (you wouldn't want to be liable if an employee had a car accident), you and your partners catch yourselves calculating how billable hours will slip away while everybody eats, and wondering, are we still having fun?

Growth is a slippery slope that all firms either embrace or eschew, since firms are on a continual path of change and repositioning.

For example, Herbert Lewis Kruse Blunck Architecture, in Des Moines, Iowa, had a staff of 28 in 1997 and 52 in 2001, almost doubling in size in four years. Mithun Architects, in Seattle, jumped from 50 to 150 employees between 1992 and 2002, tripling its size over a 10-year period. At the same time, many partnerships divide and refine into new identities, such as Hellmuth, Obata + Kassabaum (HOK), with 1,850 employees in 24 offices worldwide, which is divided into three main businesses with several business-unit divisions organized according to market type.

Many jobs require a minimum number of workers, and there is no doubt that the larger an organization gets, the more complex its administration becomes. Increased workload means an enlarged infrastructure, which means escalating overhead, reinventing firm culture, and pursuing new markets. Gary Desmond, FAIA, of AR7 Hoover Desmond Architects in Denver, with a total staff of 21, says, "smaller size is better for culture but not as good for benefits and HR." A larger firm like HOK, founded in 1955 by three partners, today must overcome the

Growing Pains: What It Costs to Add an Employee to the Firm

Adding staff is not an inexpensive proposition—when recruiting costs are added to taxes, benefits, equipment, and fees, putting a person to work who makes \$55,000 annually could cost almost \$27,000! And this does not include other overhead, such as rent, equipment, repairs and maintenance, professional insurance, professional fees, travel and entertainment, depreciation, and so on.

The following represents how much a New York City firm estimates it will spend to recruit and hire a specific individual:

Pre-hire costs	
Candidate identification (advertising/recruiting fees)	\$ 450–10,000
Interview process (value of time)	\$ 1,100
Offer materials (take-away materials, monograph)	\$ 55
Subtotal	\$ 1,605 to \$11,155
Post-hire costs	
For an employee making	\$ 55,000 per year
IT equipment	\$ 3,300
Employee benefits	\$ 2,500–7,500
Taxes	\$ 5,000
Subtotal	\$ 10,800 to \$15,800
Grand total	\$ 12,405 to \$26,955

Data courtesy of Tim S. Reedy, Administrative Director, HHPA, New York City



Part I

SIZE HAS A TREMENDOUS AFFECT
ON MOST THINGS—DOES IT
AFFECT ARCHITECTURAL PRACTICE?

	CITY	STATE	MULTI-OFFICE	# TOTAL STAFF	# PRINCIPALS	# ASSOCIATES	# SUPPORT STAFF	# IT STAFF	YEAR ORIGINATED	PC/MAC	TECHNOLOGY INFRASTRUCTURE	ACCOUNTING SOFTWARE	TYPES OF DATABASES	DATABASE SOFTWARE	CAD SOFTWARE	RENDERING SOFTWARE
AR7 HOOVER DESMOND ARCHITECTS	DENVER	CO	NO	21	4	0	-	1.5	1978	PC/MAC	SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	ACCESS	AUTOCAD	FORM-Z
BELMONT FREEMAN ARCHITECTS	NEW YORK	NY	NO	8	1	8	1	0	1986	PC	T-1 LINE, SERVER, WEB SITE	QUICKBOOKS	PROJECT, CLIENT	MICROSOFT OFFICE	AUTOCAD	AUTOCAD 3D
BROMLEY CALDARI ARCHITECTS	NEW YORK	NY	NO	8	2	1	1	5	1991	PC	WEB SITE	QUICKBOOKS	CLIENT	OUTLOOK	AUTOCAD	3D STUDIO
BUTTRICK WHITE & BURTIS	NEW YORK	NY	NO	25	2	2	5.4	1.5	1983	PC	SERVER, WEB SITE	HARPER AND SHUMAN	CLIENT	ACCESS	AUTOCAD 2000	LIGHTSCAPE, ILLUS
CENTERBROOK ARCHITECTS & PLANNERS	CENTERBROOK	CT	NO	75	1	14	16	3	1975	PC	T-1 LINE, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	PROLOG	AUTOCAD 2002, ARCHITECTURAL DESKTOP 3	3D VIZ
COLLINS + SCOVILLE ARCHITECTS	ALBANY	NY	NO	61	5	10	7	1.5	1991	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	-	PROJECT, CLIENT, EMPLOYEE	COSENTIAL, ADVANTAGE, EXPEDITION	AUTOCAD LATEST	3D STUDIO, VIZ, FO
COOPER, ROBERTSON & PARTNERS	NEW YORK	NY	NO	75	18	6	0	4	1979	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK	PROJECT, CLIENT, EMPLOYEE	MARKET EDGE ACT, WINDOWS	AUTODESK 2I	ARCHITECTURAL D
CUH2A	PRINCETON	NJ	YES	397	27	109	65	14	1962	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	ACCESS, SQL SERVER	AUTOCAD, MICROSTATION	3D VIZ, MAX
DANGEROUS ARCHITECTS	CHELSEA	MI	NO	5	1	2	2	.5	1994	PC	SERVER, WEB SITE	DELTEK	PROJECT	MS WORD	AUTOCAD	AUTOCAD
DAVID OWEN TRYBA ARCHITECTS	DENVER	CO	NO	32	3	7	4	.5	1988	PC	T-1, SERVER, WEB SITE	QUICKBOOKS	-	-	AUTOCAD	FORM-Z
DOMINY + ASSOCIATES ARCHITECTS	SAN DIEGO	CA	NO	23	5	2	3	2	1986	PC	SERVER, INTRANET	WIN2	CLIENT	-	AUTOCAD	COREL DRAW, 3D
DPK&A ARCHITECTS	PHILADELPHIA	PA	YES	34	3	10	7	3	1984	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	ACCESS, OUTLOOK	AUTOCAD 2002	FORM-Z
DWG GROUP	CHESTER	NY	YES	18	2	2	1	2	2000	PC/MAC	T-1 LINE, SERVER, WIRELESS	SEMA4	PROJECT, CLIENT, PERSONAL	AUTOCAD 2000, MICROSTATION	-	3D STUDIO VIZ
EINHORN YAFFEE PRESCOTT	ALBANY	NY	YES	450	46	160	94	20	1982	PC	T-1, SERVER, WEB SITE, INTRANET	MICROSOFT ACCOUNTING PLUS	PROJECT, CLIENT, EMPLOYEE	CRM, ACCESS, SQL SERVER, ADVANTAGE, ADP	AUTOCAD, MICROSTATION, ARCHITECTURAL DESKTOP	3D STUDIO VIZ, FO LIGHTSCAPE
FLAD & ASSOCIATES	MADISON	WI	YES	360	17	84	59	14	1927	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	MS SQL 7	AUTOCAD 2000	ACCURENDER, 3D STUDIO VIZ
GARRETT SMITH	ALBUQUERQUE	NM	NO	9	1	0	1	1	1990	PC	T-1, SERVER, WEB SITE	IN-HOUSE	PROJECT, CLIENT	-	AUTOCAD	FORM-Z
GRUZEN SAMTON	NEW YORK	NY	YES	135	6	30	15	3	1936	PC	T-1 LINE, SERVER, WEB SITE, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	MARKET EDGE	AUTOCAD 2000	FORM-Z, 3D VIZ, DESKTOP 3.3
GUSTAVSON/DUNDES ARCHITECTURE & DESIGN	NEW YORK	NY	YES	7	2	4	1	1	1985	PC	SERVER, WEB SITE	SEMA4	PROJECT	-	AUTOCAD DESKTOP	-
HARDY HOLZMAN PEIFFER ASSOCIATES	NEW YORK	NY	YES	145	8	16	31	11	1967	PC	T-1 LINE, SERVER, WEB SITE, INTRANET, EXTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	FILEMAKER PRO, CUMULUS, ACCESS	ARCH. DESKTOP 3.3, FORM-Z, 3D STUDIO MAX	3D MAX, LIGHTSCAPE, COREL DRAW
HARLEYELLIS	SOUTHFIELD	MI	YES	313	40	50	48	12	1908	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	DELTEK	PROJECT, CLIENT, EMPLOYEE	FOXPRO SQL	MICROSTATION, AUTOCAD	-
HARRY TEAGUE ARCHITECTS	ASPEN	CO	NO	17	1		4	0	1978	MAC	SERVER, WEB SITE	SEMA4, DELTEK	CLIENT, CONTACT	FILEMAKER PRO	POWERCAD	ARCHICAD
HERBERT S. NEWMAN & PARTNERS	NEW HAVEN	CT	NO	56	7	9	9	3	1964	PC	T-1 LINE, SERVER	DELTEK	PROJECT, CLIENT	ACCESS	AUTOCAD 2000, R14	-
HELLMUTH, OBATA + KASSABAUM	ST. LOUIS	MO	YES	1,850	316	459	185	93	1935	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	SEMA4	PROJECT, CLIENT, EMPLOYEE	PIVOTAL, FILEMAKER PRO	AUTOCAD	AUTODESK, 3D STUDIO VIZ
R.M.KLIMENT & FRANCES HALSBAND ARCHITECTS	NEW YORK	NY	NO	35	5	3	3	1	1972	PC	T-1 LINE, SERVER, INTRANET, WEB SITE	CFMS, DELTEK ADVANTAGE	CLIENT, CONTACT, PROJECT	ACT, PROLOG MANAGER	AUTOCAD 2000, AUTOCAD 14	3-D STUDIO, ACCU
IBARRA ROSANO DESIGN ARCHITECTS	TUSCON	AZ	NO	2	2	0	0	0	1998	MAC	WEB SITE	-	CLIENT	APPLEWORKS	CLARIS CAD, VECTORWORKS	-
KOHN PEDERSEN FOX	NEW YORK	NY	YES	385	13	72	39	6	1976	PC	T-1 LINE, SERVER, WEB SITE, INTRANET	EXCEL	PROJECT, CLIENT, EMPLOYEE	DELTEK CRM	MICROSTATION, AUTOCAD 2002	3D STUDIO VIZ
KRUECK & SEXTON	CHICAGO	IL	NO	14	2	2	.5	1	1978	PC	T-1 LINE, SERVER, WEB SITE	DELTEK ADV.	-	-	MICROSTATION	FORM-Z
LEERS WEINZAPPEL	BOSTON	MA	NO	35	4	6	6	1.5	1982	MAC	T-1 LINE, SERVER, WEB SITE	DELTEK ADV.	PROJECT	FILEMAKER PRO	VECTORWORKS	FORM-Z
LINE AND SPACE	TUSCON	AZ	NO	4	3	2	7	0	1978	PC/MAC	T-1, WEB SITE	QUICKEN	CLIENT, PROJECT	-	AUTOCAD	3D VIZ
LMN ARCHITECTS	SEATTLE	WA	NO	105	25	36	20	2	1979	PC	SERVER, WEB SITE	QUICKEN	CLIENT, PROJECT, CONTACT	DELTEK CRM	MICROSTATION	4 MARKETING, 3 C
LOHAN ASSOCIATES	CHICAGO	IL	NO	65	17	17	17	2	1988	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADV.	PROJECT, CLIENT, EMPLOYEE	ADVANTAGE (ACCOUNTING), ACCESS	AUTOCAD 14, AUTOCAD 2000	ADT 2I, 3D STUDIO MICROSTATION, FO
LOONEY RICKS KISS	MEMPHIS	TN	YES	146	6	8	31	4	1983	PC	T-1, SERVER, WEB SITE, INTRANET	DELTEK ADV.	PROJECT, CLIENT, EMPLOYEE	ACT, DELTEK, ACCESS	AUTOCAD, - ARCH. DESKTOP	3D STUDIO VIZ, FO LIGHTSCAPE, RHIN
MITHUN ARCHITECTS	SEATTLE	WA	NO	140	15	48	-	5	1949	-	T-1 LINES, EXTRANET, INTRANET, WEB SITE	DELTEK ADV.	CLIENT	FILEMAKER PRO	AUTOCAD 2000, ADT	-
MORGAN ARCHITECTURE	PRINCETON	NJ	NO	5	1	1	3	1	1993	PC	T-1 LINES	SEMA4	PROJECT	-	AUTOCAD	-
MURPHY BURNHAM & BUTTRICK	NEW YORK	NY	NO	17	3	14	3	1	1987	PC	T-1, SERVER, WEB SITE, INTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	OUTLOOK	AUTOCAD	FORM-Z
NBBJ	SEATTLE	WA	YES	862	91	263	117	3	1943	PC/MAC	T-1 LINES, SERVER, EXTRANET, INTRANET, WEB SITE	HARPER AND SHUMAN	PROJECT, CLIENT, EMPLOYEE	MICROSOFT SQL	MICROSTATION	3D STUDIO VIZ
OGAWA DEPARDON ARCHITECTS	NEW YORK	NY	YES	8	2	0	5	1	1987	PC	T-1 LINES, SERVER, WEB SITE	PROPRIETARY SOFTWARE	CLIENT, EMPLOYEE	OUTLOOK	AUTOCAD	-
PERKINS EASTMAN	NEW YORK	NY	YES	410	26	69	82	14	1981	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	PEACHTREE	PROJECT, CLIENT	COSENTIAL DATABASE	AUTODESK 3 AUTOCAD 2000	3D VIZ, 3D MAX, LIGHTSCAPE
PERRY DEAN ROGERS	BOSTON	MA	NO	52	4	12	8	2	1923	PC	T-1, SERVER, WEB SITE, INTRANET	DELTEK ADV	PROJECT, CLIENT, EMPLOYEE	ACCESS	AUTOCAD	ACCURENDER
PUGH & SCARPA	SANTA MONICA	CA	NO	19	2	2	2	2 AS NEEDED	1991	PC/MAC	T-1, SERVER, WEB SITE	DELTEK HARPER AND SHUMAN	PROJECT, CLIENT, EMPLOYEE	NOW CONTACT AND NOW UP-TO-DATE	POWERCAD	FORM-Z, PHOTOSH
RANDY BROWN	OMAHA	NE	NO	4-12	1	1	1	0	1993	PC	SERVER, WEB SITE	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	-	MICROSTATION	3D VIZ
RNL DESIGN	DENVER	CO	NO	200	14	48	15	8	1956	PC	T-1 LINES, SERVER, WEB SITE, INTRANET	-	PROJECT, CLIENT, EMPLOYEE	MS ACCESS	AUTOCAD DESKTOP 3.3	3D VIZ, AUTODESK
ROSS BARNEY & JANKOWSKI	CHICAGO	IL	NO	49	3	2	-	3	1981	PC	T-1 LINES, SERVER, INTRANET	AXIUM	PROJECT	-	AUTOCAD	3D VIZ, PHOTOSH ACCURENDER
SEARL & ASSOCIATES, ARCHITECTS	CHICAGO	IL	YES	11	2	7	2	0	1990	PC	INTRANET, SERVER, WEB SITE	QUICKBOOKS	CLIENT, PROJECT	FILEMAKER PRO	AUTOCAD	ACCURENDER
SHUBIN & DONALDSON	CULVER CITY	CA	YES	12	2	8	2	.5	1990	PC/MAC	SERVER, WEB SITE, INTRANET	QUICKBOOKS	PROJECT, CLIENT, EMPLOYEE	FILEMAKER PRO	AUTOCAD, VECTORWORKS	FORM-Z, 3D STUDIO
SMITH GROUP	DETROIT	MI	YES	936	163	166	131	28	1853	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK SEMA4	PROJECT, CLIENT, EMPLOYEE	SQL, MS OUTLOOK, MS ACCESS, GENTRAK RFP	AUTOCAD 2001, MICROSTATION	3D STUDIO MAX, VIZ, FORM-Z
SKIDMORE, OWINGS & MERRILL	NEW YORK	NY	YES	1,017	29	249	208	22	1936	PC/MAC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	MS SQL	-	AUTODESK, 3D STUDIO MAX, P RENDERZONE
SORG & ASSOCIATES	WASHINGTON	DC	NO	35	1	3	4	3	1986	PC	T-1 LINES, SERVER, WEB SITE	DELTEK	PROJECT, EMPLOYEE	FILEMAKER, ACT	-	COREL DRAW
STUDIO A/B	NEW YORK	NY	NO	2	2	0	0	0	1992	PC	WEB SITE	WIN2	PROJECT, CLIENT	EXCEL, ACCESS	DRAWBASE, AUTOCAD	PHOTOSHOP
SWANKE HAYDEN CONNELL ARCHITECTS	NEW YORK	NY	YES	300	16	50	52	15	1906	PC	T-1, SERVER, WEB SITE, INTRANET	EXCEL	PROJECT, CLIENT, EMPLOYEE	ACCESS, DELTEK, ACT, SQL	AUTOCAD	3D STUDIO, FORM-Z
THOMPSON, VENTULETT, STAINBACK & ASSOCIATES	ATLANTA	GA	YES	268	42	153	76	9	1968	PC	T-1 LINES, SERVER, WEB SITE, INTRANET, EXTRANET	DELTEK ADVANTAGE	PROJECT, CLIENT, EMPLOYEE	VISUAL FOX PRO	MICROSTATION	3D STUDIO
VALERIO DEWALT TRAIN & ASSOCIATES	CHICAGO	IL	NO	34	5	5	5	1	1982	PC	T-1 LINES, SERVER, WEB SITE	-	PROJECT, CLIENT	ACT, ACCESS	BENTLEY, MICROSTATION	MICROSTATION, PHOTOSHOP, PHOT
WILLIAMSON POUNDERS	MEMPHIS	TN	NO	15	2	0	3	1	1990	PC	T-1 LINES, SERVER, WEB SITE	WIN2 AND ABRA	PROJECT, CLIENT, EMPLOYEE	MICROSOFT	AUTOCAD, DATACAD	-

MARKETING TRAINING PROVIDED FOR TECHNICAL STAFF	# PRINCIPALS PERFORMING BUSINESS DEVELOPMENT	% PRINCIPALS' TIME IN BUSINESS DEVELOPMENT	OVERSEAS MARKET	% REPEAT CLIENTS	LEADERSHIP TRANSITION POLICY	ADDITIONAL SERVICES
NO	2	35%	NO	50%	YES	PREDESIGN, INTERIORS
NO	1	30%	NO	30%	NO	INTERIORS
-	2	25%	YES	90%	-	PREDESIGN, INTERIORS
NO	2	6%	NO	80%	NO	PREDESIGN
NO	6	60-80%	NO	46%	YES	PREDESIGN, INTERIORS, PROGRAMMING
YES	3	25-30%	NO	75-80%	YES	DESIGN/BUILD, INTERIORS
YES	10	10-25%	NO	65%	YES	PREDESIGN, CORPORATE ADVISORY, PROGRAMMING
-	2	80%	YES	75%	NO	PREDESIGN, LABORATORY PLANNING, STRATEGIC PLANNING
NO	-	20%	NO	0	NO	PREDESIGN, INTERIORS
NO	3	25%	NO	60%	NO	PREDESIGN
NO	1	20%	NO	30-40%	YES	PREDESIGN, INTERIORS
YES	3	30%	NO	70%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS PRESERVATION, CULTURAL RESOURCE MGMT, CONSERVATION
NO	1	40%	NO	30%	NO	DESIGN/BUILD, PREDESIGN
YES	25	15%	YES	80%	YES	DESIGN/BUILD, INTERIORS, PREDESIGN
YES	16	40%	YES	75%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
NO	1	35%	NO	40%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, LANDSCAPE
YES	6	20-90%	YES	60%	YES	PREDESIGN, INTERIORS PROGRAMMING
NO	2	20%	NO	-	NO	PREDESIGN, INTERIORS
YES	8	25%	NO	10%	YES	PREDESIGN, INTERIORS, PROGRAMMING
YES	35	10-35%	NO	75%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, LANDSCAPE
NO	1	10%	YES	-	NO	INTERIORS, PREDESIGN
NO	6	10-80%	NO	70%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
YES	316	20-35%	YES	50%	NO	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, ENGINEERING, GRAPHICS
YES	4	5%	NO	60%	YES	INTERIORS, PREDESIGN
NO	2	-	NO	50%	-	INTERIORS
NO	5	60-80%	YES	30%	YES	PREDESIGN
NO	1	10%	NO	60%	NO	PREDESIGN
NO	4	20%	NO	52%	NO	PREDESIGN
NO	2	10-20%	NO	-	YES	DESIGN/BUILD, PREDESIGN
NO	6 PARTNERS, 16 PRINCIPALS	18-20%	YES	73%	YES	PREDESIGN, INTERIORS, URBAN DESIGN
YES	5	20%	YES	60%	YES	PREDESIGN, INTERIORS
NO	5	15-20%	NO	70%	YES	PREDESIGN, MARKET RESEARCH, COMMUNITY VISIONING, GRAPHICS
YES	ALL	20%	YES	40%	YES	INTERIORS
NO	1	20%	NO	50%	NO	DESIGN/BUILD, INTERIORS
NO	3	50%	YES	50%	NO	MAINTENANCE, PREDESIGN, INTERIORS, GRAPHICS
YES	8	91%	YES	30%	YES	DESIGN/BUILD, MAINTENANCE, PREDESIGN
NO	2	30%	YES	40%	NO	DESIGN/BUILD, PREDESIGN, INTERIORS
NO	26	15%	YES	60%	YES	PREDESIGN, INTERIORS, PROGRAM MGMT, URBAN PLANNING/DESIGN, LANDSCAPE
NO	4	20%	YES	30%	NO	PREDESIGN
NO	2	30%	NO	80%	NO	MAINTENANCE, PREDESIGN, INTERIORS
NO	-	20%	NO	-	-	DESIGN/BUILD, PREDESIGN
YES	14	30%	YES	70%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS
NO	1	30%	NO	30-40%	NO	PREDESIGN INTERIORS
YES	2	20%	NO	25%	NO	PREDESIGN
NO	2	40%	NO	15%	NO	PREDESIGN
YES	14-19	25%	YES	85%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS, LANDSCAPE, ENVIRONMENTAL
YES	29	5-30%	YES	75%	YES	DESIGN/BUILD, PREDESIGN, INTERIORS, ENGINEERING, GRAPHICS
YES	2	25%	YES	65%	NO	DESIGN/BUILD, INTERIORS
NO	2	10%	NO	20%	NO	INTERIORS
YES	16	50%	YES	60%	YES	PREDESIGN, INTERIORS, PRESERVATION PLANNING
YES	18	25%	YES	60-65%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
YES	5	45%	NO	90%	YES	MAINTENANCE, DESIGN/BUILD, PREDESIGN, INTERIORS
NO	2	25%	NO	25%	NO	PREDESIGN, INTERIORS

The following data was collected between October 2001 and January 2002, using a two-part survey. One survey solicited factual information about firms, part of which is included in this chart. The balance of this data will appear next month. The second survey featured narrative questions, was more subjective, and solicited opinions concerning the relationship between a firm's size and its ability to function. We used this survey to substantiate many of the points we make in our article series. Of the 52 respondents in the survey, 18 are in the small category, 10 are medium-size, 10 are large, and 14 extra-large. Geographically, half the firms are on the coasts and half in the interior. Twenty-one of the firms we surveyed have more than one office, and this included firms in all size categories, with 12 multi-office extra-large firms. The youngest firm was founded in 2000; the oldest in 1853. Ten firms have both Macintosh computers and PCs; three have Macs only. Even firms of modest size have Web sites—only three did not. All but a few small firms have information-technology staff. About half the firms have done at least one overseas project, and most firms perform predesign and interior work. Some firms reported as much as 90 percent of their work was from repeat clients, although other firms specialize in project types that do not tend to repeat, such as performing arts facilities.

Note: A dash appearing in the chart means either "none" or information was not provided.

perception that “we are a huge, bureaucratic, corporate powerhouse,” says Bill Valentine, president of the HOK Group. Growth also means more institutionalization and specialization of tasks and a greater need to pay attention to the bottom line to cover the overhead and keep those hungry mouths fed. “Larger firms create a machine with lots of cogs to plug people into—it is a more efficient mousetrap,” says Randy Brown, AIA, of Omaha, who has 12 employees.

And what does the need for profitability do to the creativity that governed the initial impulse to produce architecture? Some say there is no conflict. “Profitability is a direct extension of having a strategic plan that clearly defines the direction you will take in your selected markets. You maintain profitability by staying with your plan,” says Roger Neuenschwander, president of Thompson, Ventulett, Stainback and Associates (TVSA), in Atlanta, with 268 employees. Others are not so sure: “It is always hard to make a profit when you care about design,” says Gilles Depardon of Ogawa Depardon Architects, a firm of eight in New York City.

For many firms, growth is reactive rather than proactive. Landing new work with considerable scope motivates firms to hire staff as quickly as possible. But growth is not just about adding more warm bodies; growth causes revenue and quality-control problems, not to mention the time-consuming task of hiring staff and then training them, which often gets short shrift because of time demands. And there are more costs incurred in hiring than just paying a salary (see box, page 190). Firm managers should think about growth strategically, rather than impulsively, anticipating what will happen before the squeeze, rather than during it.

Why write about firm size?

Over years of interviewing people for the magazine on a wide range of practice-related issues, we’ve found the subject of

firm size was common to most of our discussions. One of the most attractive things about practicing architecture is that firms don’t have to be large to do it well—the perfect size is whatever works best to accomplish whatever purpose the architect has embraced for his or her work.

But that outlook may be simplistic. We found that firms large and small alike often have the impression that their size is awkward, that it “both hinders and helps,” says Peter Newman, a partner at Herbert S. Newman and Partners, New Haven (56 on staff). So, we decided to explore what kinds of problems are unique to different-size firms. For this three-part series of articles, we used a survey to solicit opinions about firm operation from principals, administrators, and marketing staff of about 50 firms of all sizes, located throughout the U.S. Our survey was not intended to be conclusive, but to unveil trends to guide our discussion. Our sample was not random—we chose firms that we have worked with in the past.

We divided the firms into categories by size. Looking at the *AIA*

Firm Survey for 2000–2002, we learned that 87 percent of firms have one to 19 people, and we decided to call these “small firms.” This category was subdivided in the *AIA* survey, but we felt one category that featured firms of modest size would illustrate similarities of culture, overhead, and project opportunities. Our medium-size category, at 20 to 49 persons, was the same in the *AIA* survey, and comprises 8 percent of total firms. Our large firm size is 50 to 149 people, and we added an extra-large category to account for firms that employ a minimum of 150 people, although *AIA* combined these in a large-size category of 50 or more staff. We felt it necessary to create this “jumbo” category to account for the mega-size firms responsible for the vast majority of the earnings of our profession. By compiling this information and reviewing recent literature on firm organization and management, we have made a number of observations on how firm size affects, or in some cases does not affect, the practice of architecture.

The challenges and relevance of size

Size has a tremendous affect on most things, but is good architectural practice among them? It certainly affects the tasks of the individuals who work at firms, the process by which design is performed, and the overall culture. Some recent graduates say they want to work at small firms so they can have a diversified experience. Belmont Freeman, AIA, of Belmont Freeman Architects, New York City, with a staff of eight, feels its small size “is a positive attraction to talented young professionals who see the opportunity to get directly involved in all aspects of design and production.”

Others say they want the large firm experience so they can work on bigger, more visible projects. “Large offices give you better exposure to multiple project types and sizes and allow you to work on many projects at different stages,” says Maureen Intihar, a recent graduate who joined

**SMALL AND LARGE FIRMS
ALIKE SEEM TO HAVE
THE IMPRESSION THAT
THEIR SIZE IS AWKWARD.**

Mithun Architects. A jumbo-size firm might offer travel to overseas projects, experience in multioffice collaboration, and elaborate intern-training programs. In a medium-size firm, an architect could work on projects of substance in a modest-size environment. “All of our staff have more contact with clients and a much more varied project range,” says Suman Sorg, FAIA, of Sorg and Associates, Washington, D.C., with 35 employees.

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but may fail if they can't afford to hire enough people to keep up with their workload or if their clients are slow to pay. The large firm may have enough people and equipment to handle the work but may fail because its size limits its ability to adapt to change, or because it can't keep enough work flowing in in a timely way.

Without adequate financial controls, costs can become unruly for the large firm. This can lead to cash-flow problems, forcing it to lay off people to survive. Principals who run large firms become concerned that they have to operate within such tight margins that they no longer have the opportunity to spend time being creative and doing the best possible design work. Another view comes from Jim C. Childress, FAIA, at Centerbrook Architects in Centerbrook, Connecticut, with 75 on staff, who says, "Ironically, architecture is more profitable if you put more emphasis on doing great architecture and not on making money." We explore the "creativity versus profit" conundrum in Part II of our series.

Expansion necessitates change. You will know when change is needed, because the evidence speaks clearly. You realize that the founding principals cannot be hands-on with every project coming

into the firm, and that trusting the associates is a necessity. You see your firm's appetite for new work exceeds the principals' ability to be the sole rainmakers. You know when the firm's bookkeeping software isn't sophisticated enough; you need a human resource person who is knowledgeable about more than health insurance; and you realize you need dedicated staff for technology and marketing. When firms enter this stage, there is no universally right way to grow, but at a minimum, investments in infrastructure and technology, the empowerment of second-tier staff, and recruiting for the long-term will be required.

Many design firms suffer from the misconception that their size-related troubles are unique. We asked our surveyed firms about the challenges of their size, including both the advantages and the disadvantages. John Scott, AIA, president of CUH2A, in Princeton, New Jersey, with

397 on staff, feels his firm is "unable to fully realize the benefits of being small or large. We are nimble enough to change quickly, and large enough to qualify for any project we are interested in, but hard put to differentiate ourselves by anything other than region." Kelly Donahue, corporate communications manager at Einhorn Yaffee Prescott (EYP) of Albany, New York, with multiple offices on the East Coast and 450 on staff, says, "We are considered a production-oriented firm instead of a design-oriented firm," a disadvantage the firm has faced, she feels, largely because of their size.

Some of the smaller firms, including Garrett Smith, in Albuquerque, with a staff of nine; Krueck and Sexton, Chicago, with 14 people; and Dangerous Architects, in Chelsea, Minnesota, with five employees, cited problems with being perceived as too small to be entrusted with the next-tiered size of projects, though they feel they can handle them. Jennifer Greene, associate and marketing director at R.M.Kliment & Frances Halsband Architects, New York City, says, "We want to remain at 35 employees, but it is challenging to be able to bring in the work at the right time to keep everyone busy without overworking them."

Larger firms had different problems. Karen Cooper, a partner at Cooper Robertson & Partners, New York City, with 75 on staff, is challenged to "maintain the collegial, low-key atmosphere while striving to implement more rigorous management procedures necessary for a larger size firm." Meredith Berman, marketing director at Gruzen Samton, New York City, with 130 people, says that as a larger firm, its size forced it to take any and all work to maintain payroll. "When we were small, we were able to be more selective about which jobs we took. It is a constant balancing act between projects that are a design challenge and projects that are 'bread and butter'—those that are profitable and keep people busy." Tim Reedy, administrative director of Hardy Holzman Pfeiffer Associates (HHPA), with a total of 145 employees in Los Angeles and New York City, says, "Our size allows us to be flexible in structuring, although the longevity of staff has led to a large number of senior staff, which creates

**"WHEN WE WERE SMALL,
WE WERE ABLE TO BE
MORE SELECTIVE ABOUT
WHICH JOBS WE TOOK."**

interesting organizational issues. HHPA has had to redefine what is typically viewed as 'senior.' Staff that have been with the firm for a number of years are recognized for their individual contributions to the efforts of their team, which has eased the stereotype that one needs to advance to project management to succeed and has allowed the firm to avoid having a surplus of managers."



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Tod **Williams** and Billie **Tsien** combine
weighty materials and ethereal space
to make the small **AMERICAN FOLK ART
MUSEUM** into a big deal

PROJECTS

Cullman/Danziger Family Atrium

The first-floor gallery introduces a subtle but rich mix of materials, including Italian limestone, concrete, a cherry bench designed by the architects, and green fiberglass.



The first new museum building in New York City since the Whitney opened in 1966, the American Folk Art Museum integrates the concrete athleticism of Marcel Breuer's rugged masterpiece with Tod Williams and Billie Tsien's particular command of materials and spatial choreography. Less eccentric in form than the Whitney, the Folk Art shares with it a sculptural approach to architectural space that differs markedly from the thin-skinned aesthetic of so much architecture today. Like Breuer's museum on Madison Avenue, the Folk Art is a small building with heft, a rugged urban object with a heart softened by ethereal light, flowing spaces, and graceful circulation.

Clad in panels of tombasil, a white-bronze alloy normally used to manufacture fire nozzles and ship propellers, the Folk Art's narrow 53rd Street facade acts as both veil and shield—offering peeks inside while protecting the museum in an impressive coat of armor. [For a discussion of Williams and Tsien's use of materials, see *RECORD*, March 2001, page 68.] With its folded and faceted metal sections of cast tombasil set off by strips of glass, the elevation is alluring in a big-city way. Hard-edged and rigorous, it reveals just enough to get our imaginations going. Fissures in the tombasil, created as the metal alloy was cast, give the facade a remarkable texture that catches daylight in ever-changing ways and brings it alive. Although industrially produced, each panel is unique, so it alludes to handwork and the nature of folk art. The result is a particularly tactile facade that—while not warm and fuzzy—begs to be touched.

Standing like the first tooth in a child's mouth, the six-story-high building (with two levels below grade) will be enveloped on three sides by Yoshio Taniguchi's addition to the Museum of Modern Art, which recently started construction and is scheduled to debut in 2005. Until then, it's impossible to judge how the Folk Art will work with its much-larger-and-still-growing neighbor. Although Williams and Tsien were among the finalists in the competition to design the MoMA expansion (and would have liked to do both projects), Williams admits that having two firms at work on the block contributes diversity to the streetscape. And he thinks highly of Taniguchi. "His work is quiet and elegant and should work well with our building," says Williams. "When the Folk Art is locked in with the Taniguchi building, it will work even better than it does now," adds Williams. "It will stand out less as an object on the street, so the interior will come as more of a surprise."

Even now the Folk Art connects with what exists of its setting: Its proportions engage the small plaza directly across 53rd Street, and its massing echoes (albeit faintly) that of Eero Saarinen's CBS Building next to the plaza. "We wanted some of the solidity and weight of CBS," explains Tsien, "while maintaining flexibility in the building's muscles."

To emphasize the blocky, sculptural nature of the building, the architects recessed the main entry behind the metal facade, instead of

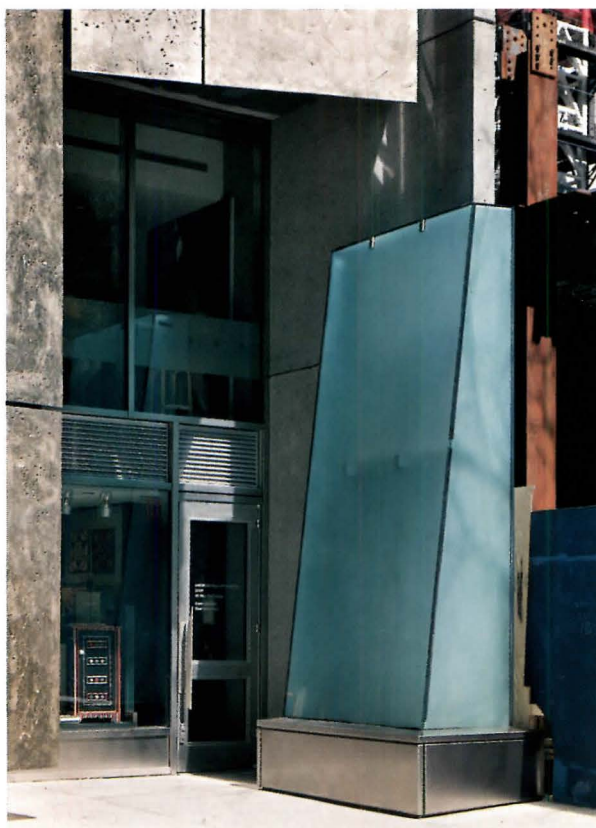
projecting it forward. This strategy eliminates the need for a canopy that might detract from the integrity of the facade, but it makes finding the entrance a little tricky—especially for visitors who mistake the door to the museum store for the entry to the museum.

When the museum's board of directors began discussions with the architects, it envisioned a building with two stories of offices above four or five stories of gallery space. Williams and Tsien's first key act was to convince the museum to put offices and educational facilities (library, auditorium, and classroom) below ground, opening all the above-grade space for the public. Although this shift meant less attractive offices for the staff, it freed up the best space for galleries and created the chance to animate the public areas with daylight cascading from above.

Shoehorned onto a 40-by-100-foot lot with windowless party

walls on two sides, the 30,000-square-foot museum could easily have felt dark and pinched—the fate suffered by Raimund Abraham's nearby Austrian Cultural Forum, another narrow mid-block building, which opened last month. While Abraham's building has a sexy stiletto facade just 25 feet wide, it offers little more than a stack of boxy spaces inside. The Folk Art Museum, on the other hand, presents a series of remarkably rich spatial experiences, as visitors move from one gallery to another, one floor to the next. By offering a variety of stairs on each floor (in addition to the elevator and fire egress), moving the location of the stairs in plan, changing the width and character of the stairs, and carving a central atrium that changes dimensions at each level, Williams and Tsien have created one of the most fully realized architectonic buildings in recent decades. Although each floor resembles the next in plan—narrow gallery, elevator, and fire stair on one side of the atrium and wider gallery on the other side—sectional changes in vertical circulation and shifting views up and through the central atrium make

every floor feel different. The architects mention the Sir John Soane's Museum in London, with its ever-changing interior perspectives, as inspiration for the Folk Art. They also cite the Mercer Museum in Bucks



A glass pyramid brings daylight to floors below grade.

Project: *The American Folk Art Museum, New York City*

Architect: *Tod Williams Billie Tsien, Architects—Tod Williams, FAIA, Billie Tsien, principals; Matthew Baird, project architect; Philip Ryan, Jennifer Turner, Nina Hollein, Vivian Wang, Hana Kassem, Kyra Clarkson, Andy Kim, William Vincent, Leslie Hansen, project team*

Associate architect: *Helfand*

Myerberg Guggenheimer Architects

Engineers: *Severud Associates (structural); Ambrosino, DePinto & Schmeider (mechanical)*

Consultants: *Gregory Romine (curtain wall); Renfro Design (lighting); Ralph Appelbaum (exhibition); Pentagram (graphics); Acoustic Dimension (acoustical)*

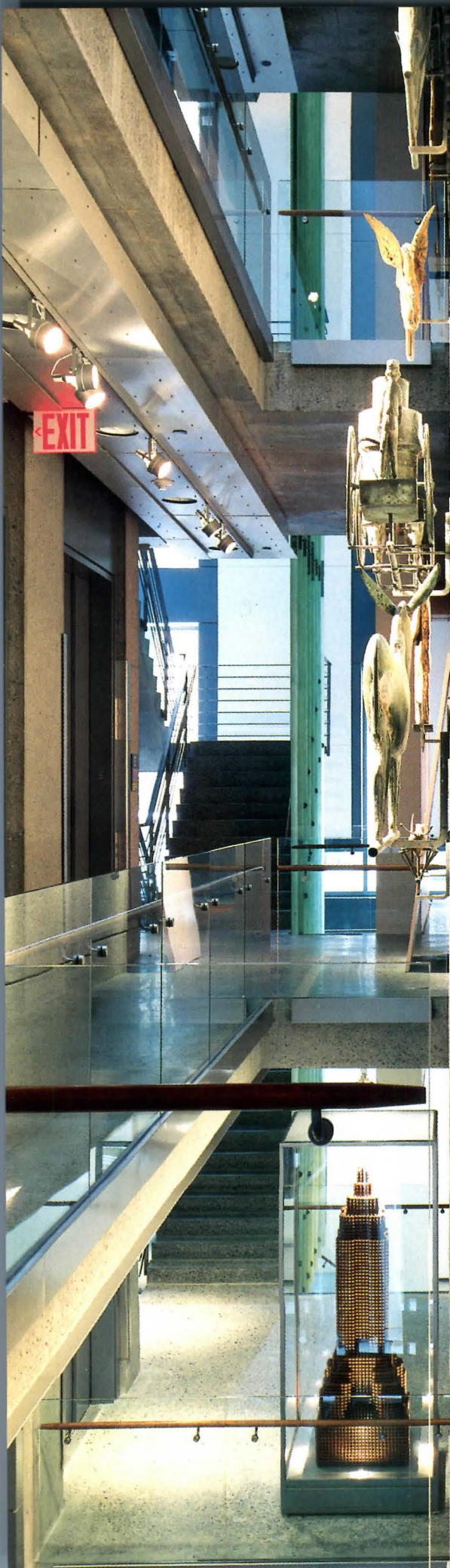
General contractor: *Pavarini Construction*

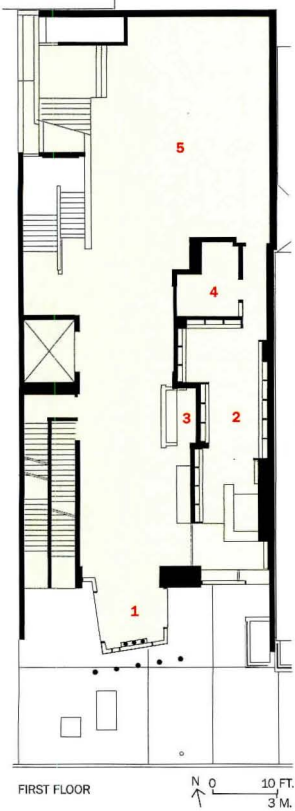
Spaces between the tombsil panels on the museum's 53rd Street facade reveal the dark weather barrier behind them, making it clear the metal front is suspended, not structural. To create different effects, some panels were cast on concrete, while others were cast on a steel surface.



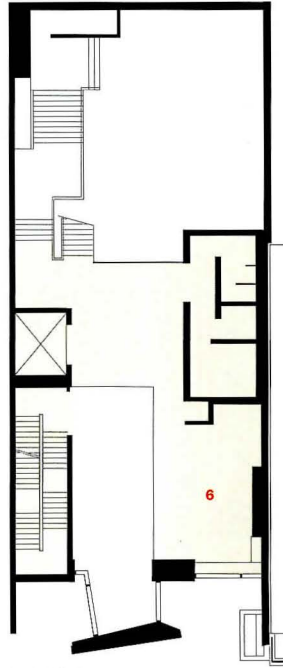


Key pieces from the museum's permanent collection help animate open spaces such as stairwells and the narrow atrium (opposite). Galleries on the east side of the atrium (right in photo opposite) have floors made of Douglas fir that had been submerged in a lake for 100 years. Fir boards also grace the balustrade of the café on the mezzanine level and add a warming note to the central atrium (left).

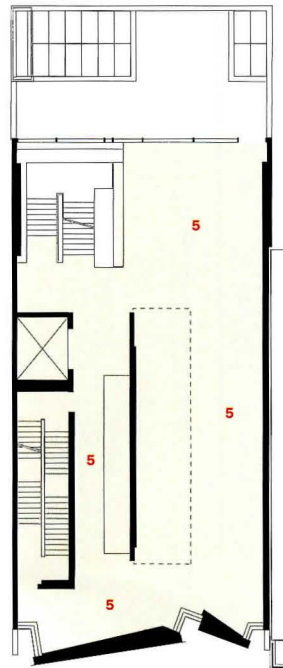




FIRST FLOOR

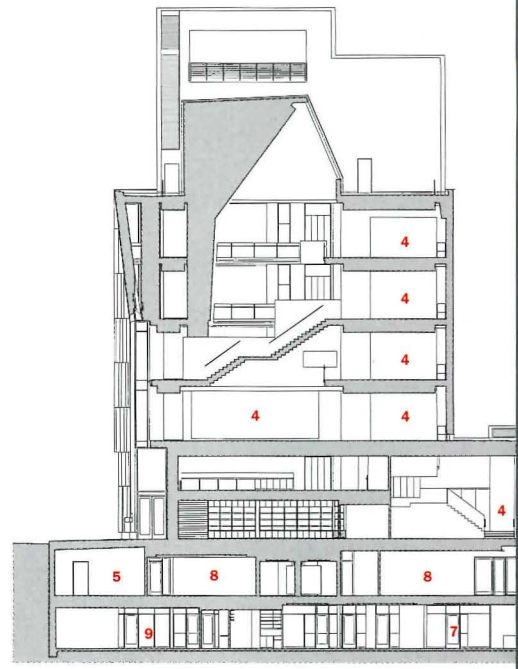


MEZZANINE



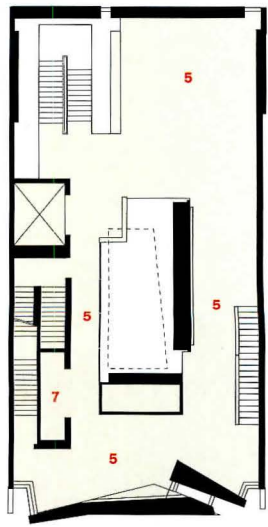
SECOND FLOOR

- 1. Lobby
- 2. Store
- 3. Reception
- 4. Office
- 5. Gallery
- 6. Café
- 7. Janitor

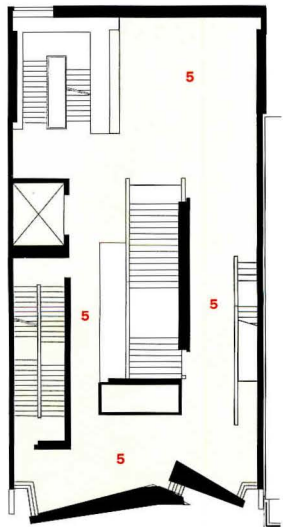


NORTH-SOUTH SECTION

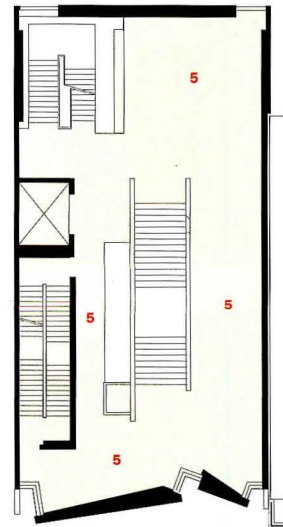
- 1. Lobby
- 2. Store
- 3. Store
- 4. Gallery
- 5. Mechanical
- 6. Auditorium
- 7. Offices
- 8. Classroom
- 9. Library



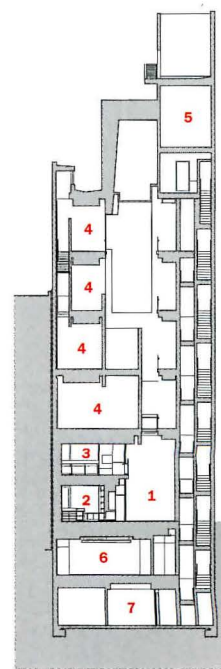
THIRD FLOOR



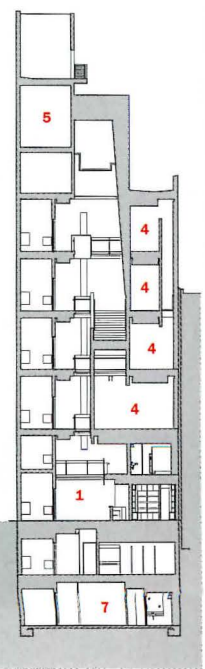
FOURTH FLOOR



FIFTH FLOOR

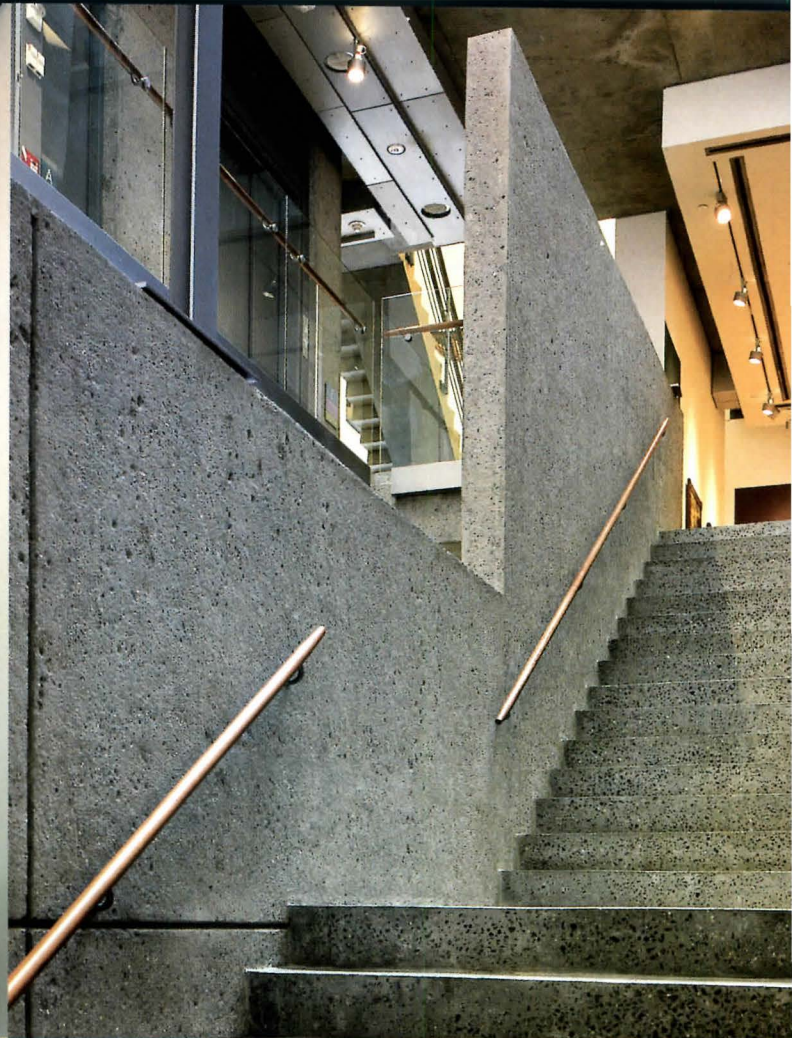


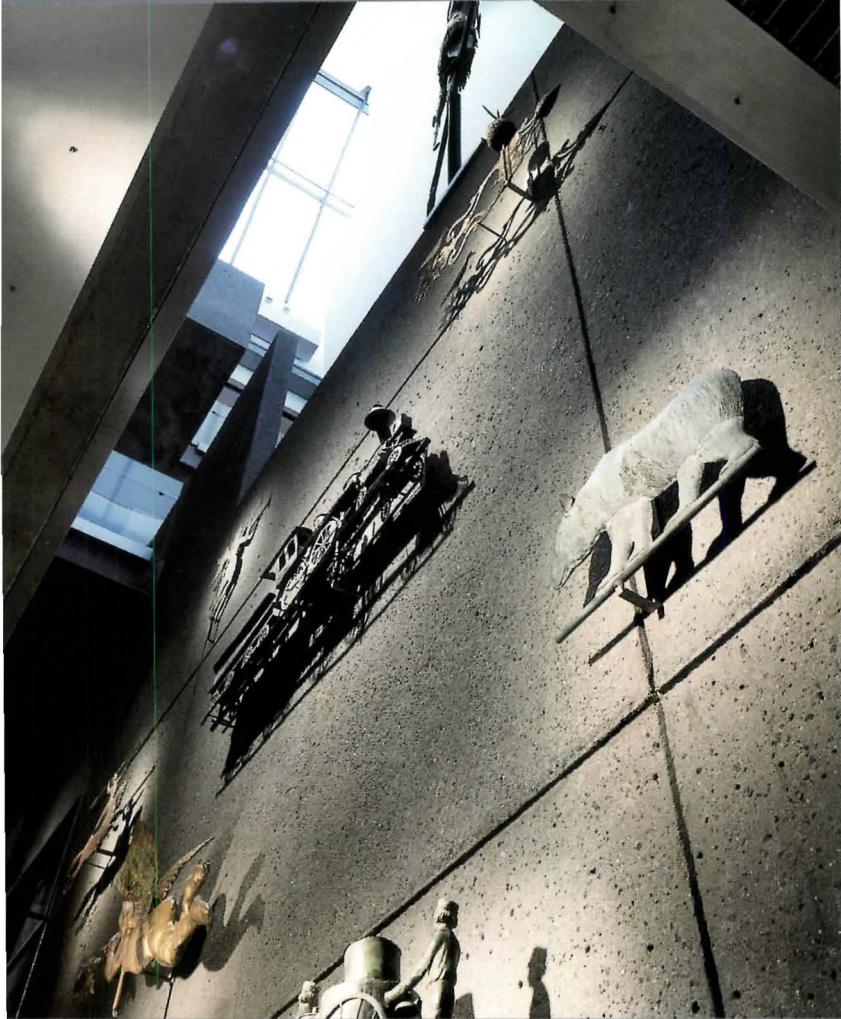
SECTION FACING SOUTH



SECTION FACING NORTH

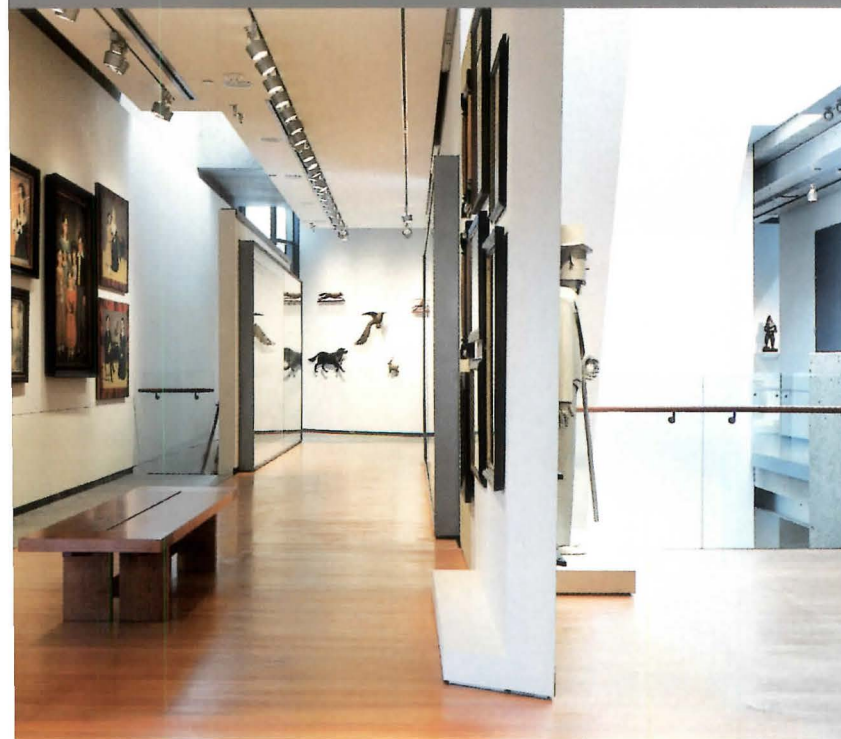
By changing the dimensions and character of the various stairs, the architects made circulating through the museum a critical part of the visitor's experience. In the north stair (bottom right), steel-framed display cases help integrate art with the architecture, while a wide concrete stair (top right) opens up views as visitors climb from the third to the fourth floors. Almost domestic in scale, a wooden stair connects the fourth and fifth floors (right). A bench in a landing offers a place to rest (bottom left).





The architects used daylight in a variety of ways—sliding it in from above or the sides in galleries (below) to

protect artwork, or pouring it in from a sky-light above the central atrium (opposite) to draw visitors upstairs.



County, Pennsylvania, a rugged and quirky concrete structure built by tile manufacturer Henry Mercer in 1916 that shares with the Soane's Museum an inventive use of daylight and space.

"The design reflects a personal and obsessive effort to bring light inside," says Williams of the Folk Art Museum. "We wanted the personal journey through the museum to be driven by light," adds Tsien. At the start of that journey, on the museum's first floor, daylight sneaks in from three different directions—front, back, and above—slipping through cracks in the building's poured-concrete shell. And as visitors move through the museum, the direction and quality of illumination keeps changing, culminating in a shower of light from a large angled sun scoop at the top of the building.

Similarly, space undergoes a process of expansion and contraction. For example, the central atrium, which seems to be a vertical blade of space on the first floor, swells into a broad, light-filled well as a wide concrete stair takes visitors from the third to the fourth floor. The unexpected appearance of this grand staircase in the belly of the building

THE MUSEUM OFFERS A SERIES OF RICH SPATIAL EXPERIENCES AS VISITORS MOVE FROM ONE FLOOR TO THE NEXT.

comes as a wonderful piece of architectural theater, providing a place to watch what's happening on several different floors. One flight up, compression kicks in, as a narrow wooden stair—practically residential in scale—takes visitors to galleries on the south side of the top floor.

As they have done in many other projects, Williams and Tsien wield a palette of simple but elegant materials. The combination of bush-hammered concrete walls, smooth concrete floors with exposed and polished aggregate, warm planks of Douglas fir salvaged from the bottom of a lake, cold-rolled steel handrails, and Italian limestone brings to mind the interiors of Louis Kahn in its ability to complement and heighten the building's spatial richness.

Another rewarding aspect of the project is the way Williams and Tsien integrate pieces of the museum's collection with the architecture itself. Projecting from concrete walls, set at critical junctures on various floors, and animating vertical spaces, art such as weather vanes and duck decoys establishes an almost intimate connection with visitors. "We wanted to mark the journey through the museum with memory points of art," explains Tsien.

While folk art may conjure images of the quaint and traditional, Gerard Wertkin, the director of the American Folk Art Museum, states, "American folk art is, above all, art. So it was important for us as a museum to have a building that expresses this. Williams and Tsien gave us a building that elevates art. It enlightens, challenges, and instructs."

In a time of slick elevations and computer-generated blobs posing as architecture, the Folk Art Museum reaffirms the power of design conceived in three dimensions and buildings enriched with sculpted space. ■

Sources

Tombasil panels: *Tallix Foundry*

Curtain-wall installation:
Ornamental Metals Group

Structural concrete: *Rogers and Sons*

Concrete finishing: *Global Services*

Fiberglass panels: *Fiberglass Plus*

Pietra Piasentina limestone: *Port Morris Tile and Marble*

Douglas fir flooring: *Haywood Berke*

Cold-rolled steel handrails: *Post Road Ironworks*

Cold-rolled steel exhibition cases:
Showtime Builders

Millwork: *Gillanders Group*

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The 820,000-square-foot complex sits on a 25-acre site landscaped by Michael Vergason (opposite). One tower houses Gannett corporate offices, while the other is for USA Today.

Kohn Pedersen Fox's architecture and Lehman-Smith + McLeish's interior design create a small city beyond the Beltway for **GANNETT**

By **Andrea Oppenheimer Dean and Allen Freeman**

Sprawling south of Washington's Beltway, Tyson's Corner scatters the nation's fourth-largest population of office workers and the East Coast's second-largest accumulation of retail over the once pastoral Virginia landscape. Into this aesthetically deprived environment, generated by the internal combustion engine and bottom-line architecture, comes an oasis of thoughtful—but not innovative—design funded by deep corporate pockets. Call it the shock of the highly competent.

The Gannett Corporation, squeezed for space in two leased towers in Rosslyn, Virginia, across the Potomac from the Kennedy Center, began hunting eight years ago for a site where it could build a new headquarters. Although farther away from Washington, Tyson's Corner is close to where many of Gannett's 1,780 employees live (including its chief executive officer) and has a county government with a pro-business stance. In addition, the 25-acre parcel Gannett bought offers high visibility at the intersection of the Beltway and the access road to Dulles Airport.

At first, Gannett envisioned a 30-story tower on the site's highest point. In the end, it got an expansive mid-rise at the opposite side of the site, a quasi-city in a suburb, some might say, or a palace in a park. Two slant-topped towers, 11 stories for Gannett, nine for its flagship newspaper, *USA Today*, rise in icy-glass geometries from a four-story podium overlooking grounds landscaped around a man-made lake. A parking garage attached to the back of the headquarters also distinguishes the 820,000-square-foot complex from its car-encircled neighbors.

A 30-story tower on the site's highest and least-spoiled spot would have required extensive excavation and subjected the company's employees to many elevator trips. Besides, Gannett wanted separate identities for the corporation and the newspaper, flexible workspaces that could accommodate a 20 percent growth and changes in organization, two newsrooms, and a host of employee amenities to compensate for services left behind in the city. The program suggested a pair of mid-rises and a large podium base.

When Douglas Hays of landscape architect Michael Vergason's

Contributing editor Andrea Oppenheimer Dean writes about architecture and design from Washington, D.C. Allen Freeman is a senior editor of Preservation magazine.



PROJECTS

office proposed moving the building to the flat end of the property, Kohn Pedersen Fox (KPF) design principal William Pedersen, FAIA, recognized a no-brainer. "You learn early in architecture school to build on the worst part of your site and look at the best part. We flipped the building around, and everything fell into place," Pedersen says.

Project: Gannett/USA Today Headquarters, McLean, Virginia

Architect: Kohn Pedersen Fox Associates—William Pedersen, FAIA, Robert L. Cioppa, FAIA, Michael Greene, AIA, Jill Lerner, AIA, principals; Jerri Smith, AIA, David Lukes, Roger Robison, AIA, Takatomo Kashiwabara, AIA, team leaders; Vlad Balla, Gertrudis Brens, Andrew Cleary, Jason Gomez, Adolfo Guerrero, Miranti Gumayana, Eric Howeler, Ming Leung, Nicholas Martone, Victor Pechaty, Audrey


Torina, Mark Townsend, Jason Wright, team members

Interior designer: Lehman-Smith + McLeish—Debra Lehman-Smith, James Black McLeish III, Terese Wilson, Ron Fiegenschuh, Richard L. Bilski, AIA, Rebecca Montesi, Carmen Epstein, Filip Simpson, Lisa Toomey, project team

Engineers: TOLK (m/e/p); CBM Engineers (structural); Dewberry & Davis (civil)

General contractor: The Clark Construction Group





Glass fins on the reflective facades help the building cut a dramatic profile from the highway (top). But the complex mostly turns inward, to an artfully pastoral landscape with a courtyard and

pond (opposite, top and bottom right; this page, bottom right). A 2,000-car garage (opposite, bottom left) just west of the office building reduces the amount of surface space used by cars.

Unlike grand buildings of another era, there's no heroic portal here. Visitors park in a small lot adjacent to the building, take in the attractive landscaping, then enter a glass corner of the podium to find a vast, two-story lobby. A 10,000-square-foot entrance hall may seem a corporate indulgence, but Pedersen says large tour groups need to assemble there. Debra Lehman-Smith, of interior designers Lehman-Smith + McLeish,

“YOU LEARN EARLY IN SCHOOL TO BUILD ON THE WORST PART OF YOUR SITE AND LOOK AT THE BEST,” SAYS PEDERSEN.

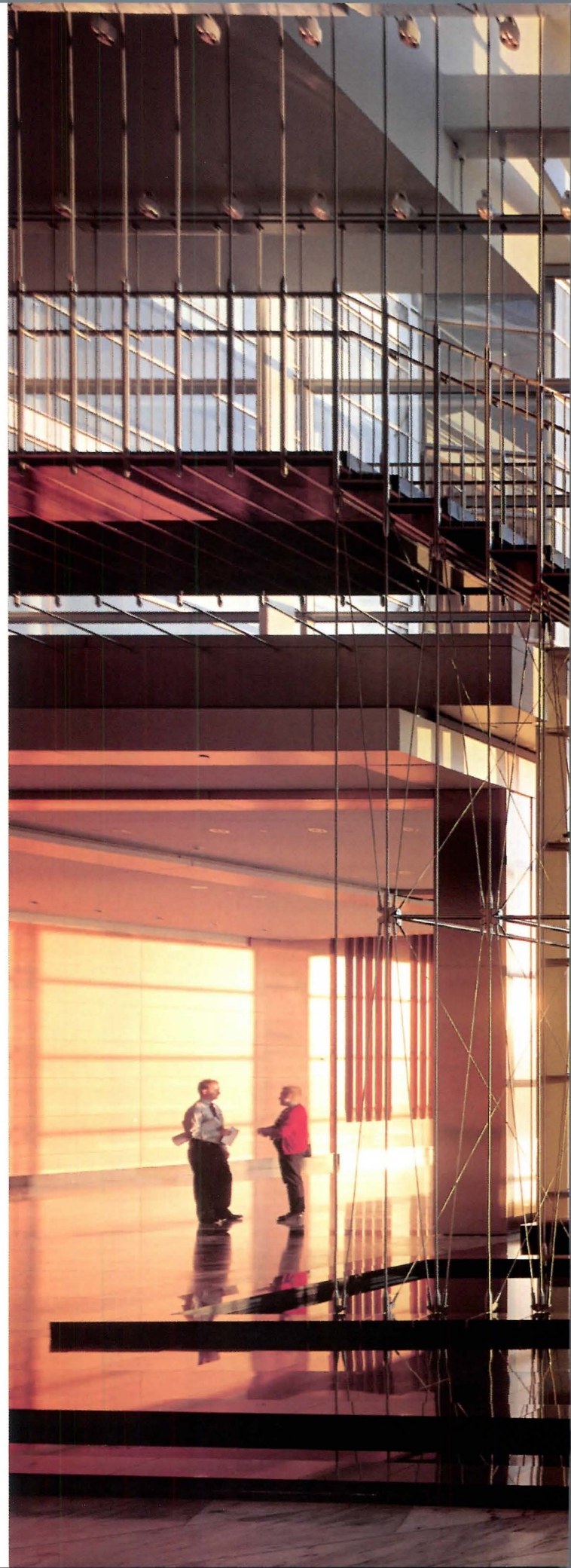
attributes the size to corporate largesse, a place for “massive black-tie fundraiser dinners for 400.” Visitors ascend a stainless-steel, cable-supported, riserless stair, the lobby's sculptural eye-catcher. Employees, meanwhile, dash in from the garage and along the lobby's edge to Gannett's elevators or down a wide, long expanse to *USA Today's*.

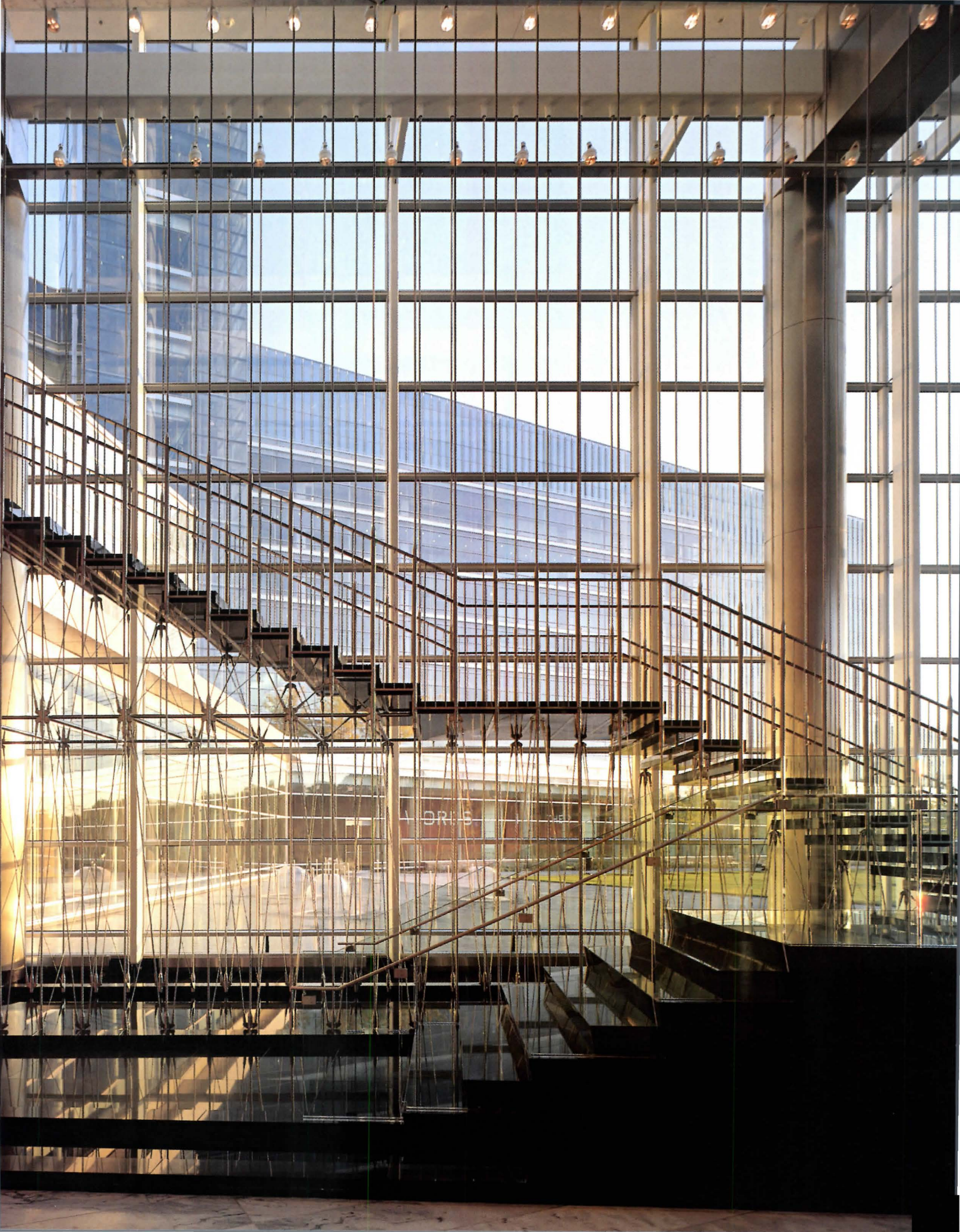
Recalling the power architecture of the 1950s and '60s, when corporations built luxurious headquarters in the suburbs, the Gannett complex offers generous employee amenities, such as a dining area open-

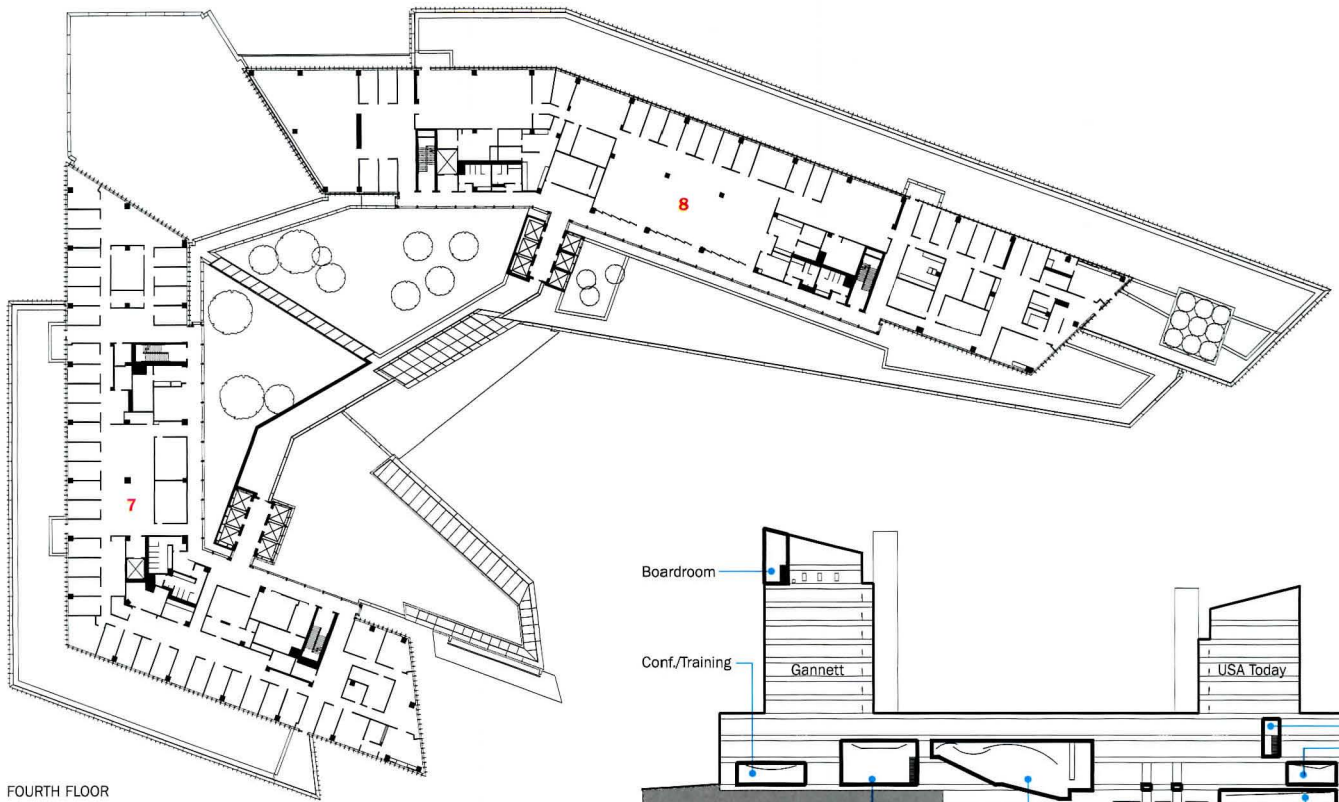




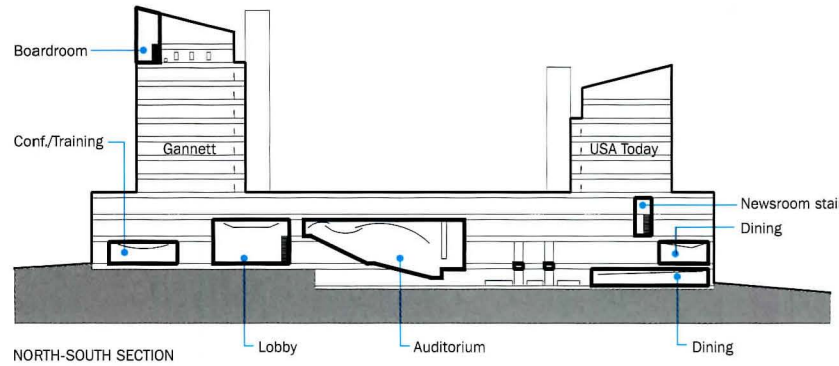
Instead of surrounding the building with surface parking, the architects attached a parking structure to the back of the complex (above foreground). A 10,000-square-foot entry hall (right) can also serve as a venue for gala events.





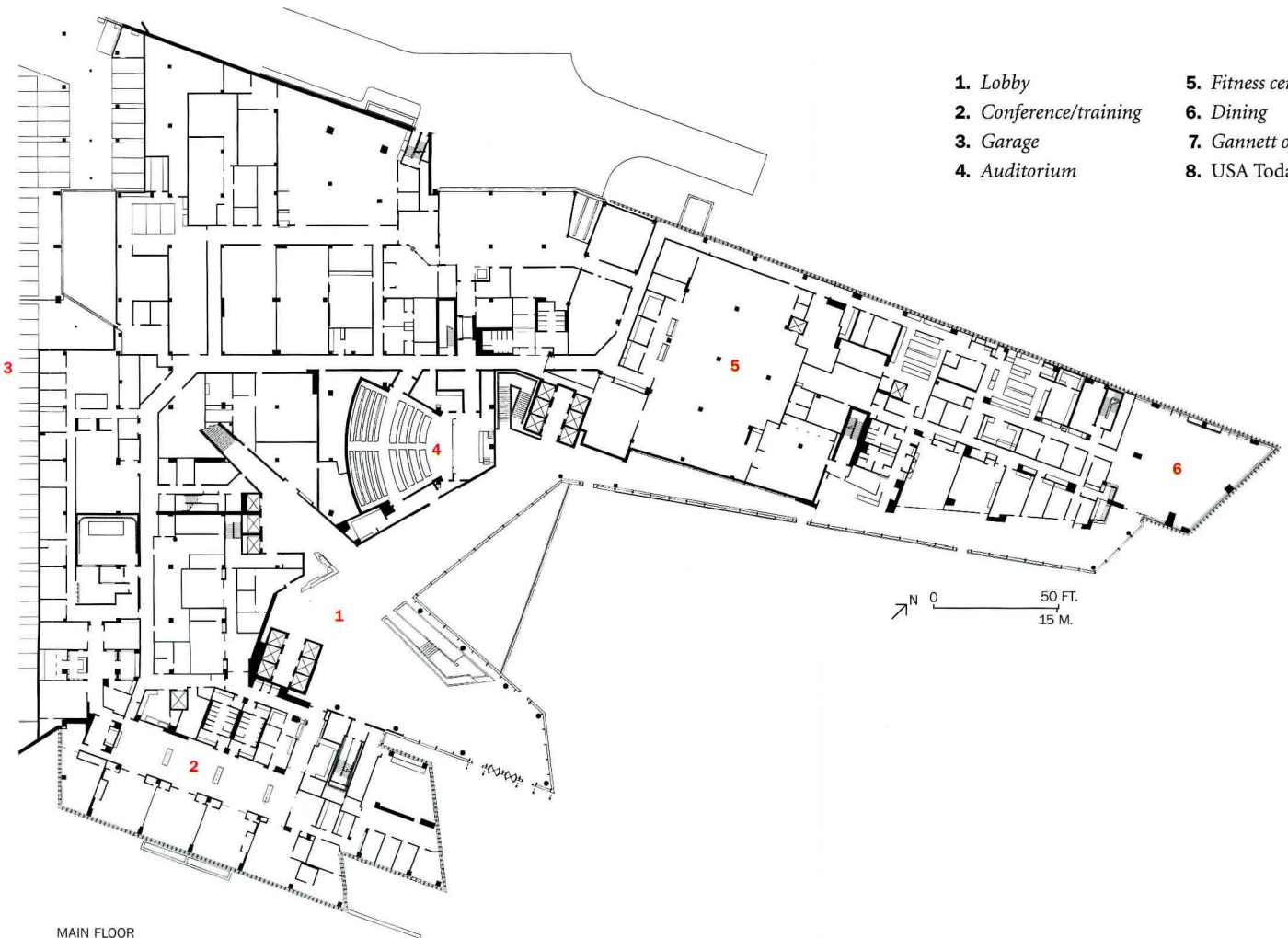


FOURTH FLOOR



NORTH-SOUTH SECTION

- | | |
|------------------------|----------------------|
| 1. Lobby | 5. Fitness center |
| 2. Conference/training | 6. Dining |
| 3. Garage | 7. Gannett offices |
| 4. Auditorium | 8. USA Today offices |



MAIN FLOOR





ing onto a terrace; 24/7 takeout and gourmet menu; a well-equipped health club stretching out on two levels; a tennis court on top of the garage; jogging paths around the lake; and an extensive program of contemporary art integrated with the architecture.

Pedersen's governing idea was to create "a small city with a focus, a place of gathering." Using standard, concrete, flat-slab construction, with 30-foot bays, he folded the podium into an irregular, south-facing U-shape. Dining, amenities, and work spaces fill the podium and partially wrap around a central courtyard. Floors are never more than 70 feet across, allowing daylight to penetrate nearly all work spaces. (Too much, say newsroom denizens; a fix of shades is in the works.)

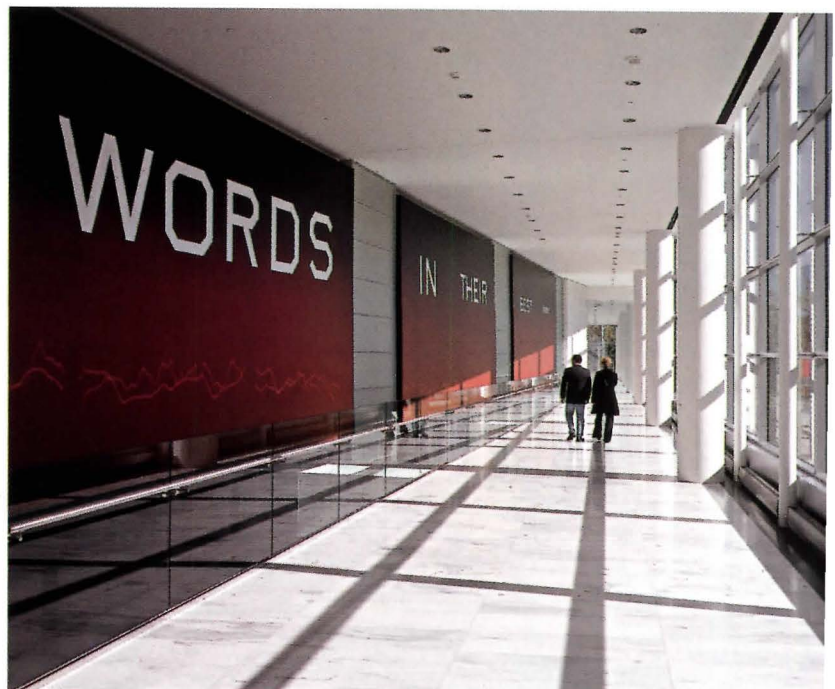
The main corridors in the podium occupy the U's inner periphery and are clad in untinted, low-E glass that offers views of the courtyard, stone terraces, lake, and verdant hillside. From those exterior vantages, the clear glazing turns corridors into linear stages across which employees and visitors move: Edge building circulation comes to Edge City. Translucent elevator towers, also placed within the U, tie together some rather complicated facade geometries and make the building dance a little.

The majority of the cladding is green reflective glass adorned by vertical 10-inch-wide glass fins set at 2.5-foot intervals. Created with the help of glass artist Jamie Carpenter, the fins add depth, texture, and—in the right light—sparkle. But the shiny facades don't significantly distinguish themselves from those of Gannett's more prosaic neighbors. While architects of buildings at Tyson's Corner typically treat exterior materials as wrapping paper, KPF modulated the Gannett-USA *Today* palette carefully, and Debra Lehman-Smith's firm wove the architectural shapes, transparencies, and translucencies into the less-public realms of the complex's interiors.

A 20,000-square-foot, double-height suite in the base of the

Ample daylight and an integrated program of commissioned artworks (below) animate circulation spaces,

such as the main lobby (above) and the gathering area in front of the 300-seat auditorium (above left).





Common facilities, including a two-level fitness center (left), dining facilities, auditorium, and training and conference rooms, occupy a single podium, while Gannett and USA Today (below) each get their own office tower.



Gannett tower houses conference, training, and client-dining spaces. The materials include sycamore and various types of glass; the walls are lacquer; the floors, marble. The aesthetic is corporate-slick but tasteful.

An auditorium that seats 300 “hangs in the belly of the building,” as Lehman-Smith puts it, between the two towers. You enter at the side of the raked, 8,000-square-foot space at a wide cross aisle. Theater seating occupies the sloped floor in the back half of the hall; workstations line up closer to the stage. The split arrangement of the floor, also expressed by curving strips of sycamore on the ceiling, makes small-scale briefings and training sessions close to the stage more intimate, while accommodating larger events, as well.

The two 100,000-square-foot newsrooms, a cluster of news conference rooms, and the editors’ glassed-in offices occupy the podium’s second and third floors on the *USA Today* end of the headquarters. Large, flat-panel TV screens on the walls, and platform floors with wiring underneath, remind visitors that Gannett is a multimedia giant and that it anticipates changes in technology.

The offices on the *USA Today* side are more casual and open than those for Gannett executives, whose culture is more buttoned down. A minimally adorned suite for the corporation’s board occupies the symbolically important position on top of the taller tower, and the designers let the views of the building’s own pirouetting geometries create the drama. You reach the suite via a processional marked by art works by Lita

FLOORS ARE NEVER MORE THAN 70 FEET ACROSS SO OFFICES AND NEWSROOMS GET PLENTY OF DAYLIGHT.

Albuquerque. Nine glass-topped boxes, embedded at regular intervals in single file along the 11th story’s marble floor, are filled with blue pigment and lit from inside, and their surfaces are inscribed with fragments of poems. They lead to a 5-foot blue orb, also by Albuquerque, one of five artists commissioned by Gannett for site-specific works in the building. The art program’s theme, says Lehman-Smith, “is the collision between fine art and media art.” All of the artworks—by Albuquerque, Ed Ruscha, Joseph Kosuth, Jaune Plensa, and Tom Phillips—combine images and words, the tools with which Gannett built its communications empire.

Gannett executives got what they wanted: serious corporate-park architecture that harkens back to Gordon Bunshaft’s mid-1950s Connecticut General Headquarters. “They see the company as the information provider for the new millennium and wanted a facility that said they’re on the cutting edge of communications,” says Rick Bilski, Lehman-Smith-McLeish’s project architect. If, from the perimeter corridors or offices that face the courtyard, you focus on Michael Vergason’s landscape, or if you look to the distant horizon from one of the top stories, you can ignore the ragged context of Edge City. A comment by KPF’s project architect, Jerri Smith, AIA, tells the tale: “I don’t think the neighboring buildings are part of what this project was about.” ■

Sources

Metal-and-glass curtain wall:

Custom by Harmon

Aluminum windows: Baker

Architectural Metals

Reflective glass: Viracon

Clear laminated glass: John Depp

Cherry paneling: Brochstein’s

Fabric panels: Architectural Fabric Systems

Venetian plaster: Guilders Studios

Carpets: Constantine

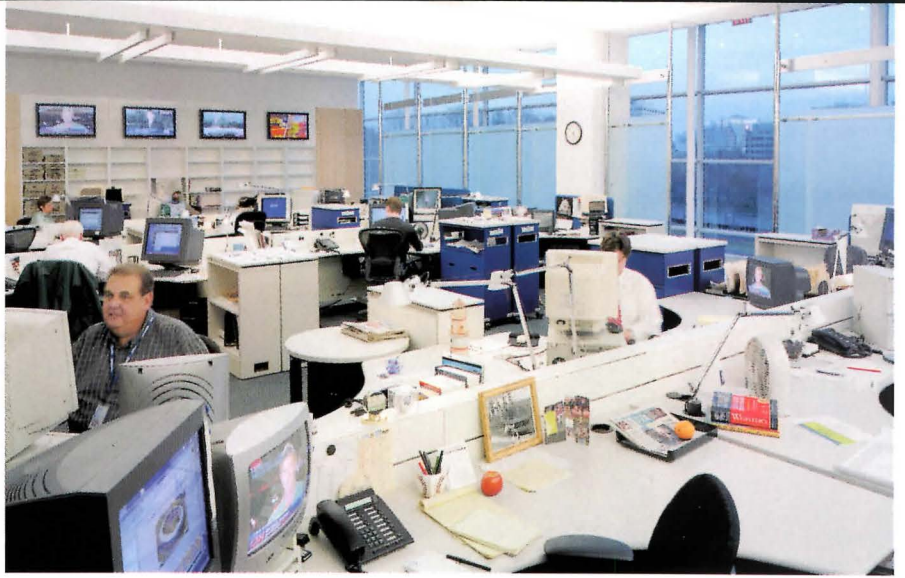
Office furniture: Vitra

Executive office furniture: FCI

Task lighting: Artemide

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The complex provides both open-plan newsrooms (right) and private perimeter offices (below). Steering clear of the deep floor plates found in many other office buildings, the designers brought plenty of daylight—sometimes too much, say workers—to office spaces.



The vestibule of the former town house reflects Annabelle Selldorf's distillation of modern and traditional motifs.



Annabelle Selldorf brings the sensibility of Mies and Loos to the conversion of a Beaux Arts town house into the **NEUE GALERIE** in New York City

By Suzanne Stephens

You could almost call it invisible architecture. Annabelle Selldorf's approach to designing spaces for the display of art is so subtle, it reaffirms the essence of architecture found in what Mies van der Rohe called "beinahe nichts"—almost nothing. She is known as an architect who has deftly manipulated proportion, materials, detailing, and lighting to create art galleries and artists' lofts and other residences known for their restraint and clarity. In this recent conversion of a large New York town house into the Neue Galerie, a museum for early-20th-century German and Austrian art, the contents—painting, sculpture, and art objects—stand out dramatically against mute yet luminous environments. Selldorf has also isolated the major architectural features of this palatial landmark, designed in 1914 by Carrère and Hastings, so the spiraling marble and wrought-iron stair, the domed skylight, and the marble and wood wainscoting of the major rooms emerge in full relief. The difficult combination of restoration and modernization is intended to look effortless: Selldorf did not try to make an aggressive architectural statement that would compete with the museum's collection, which includes paintings by Gustav Klimt and Egon Schiele, and furnishings and objects by Adolf Loos, Kolomon Moser, and Josef Hoffmann. At the same time, she did not try to create a white-box, Minimalist backdrop for the work on view nor, conversely, to bring back the total turn-of-the-20th-century domestic splendor of this mansion built for industrialist William Starr Miller. "You continually make judgments about how to keep the entire work coherent and intact yet also serve the purposes of exhibiting art," Selldorf remarks. "It was a painstakingly discreet renovation."

The idea of the Neue Galerie was initiated by Serge Sebarsky, the late art dealer and collector, and Ronald Lauder, chairman of Estée Lauder, who is a collector himself as well as the former ambassador to Austria. In 1994, Sebarsky bought the 80-year-old structure—itsself a



Project: *Neue Galerie New York, Museum for German and Austrian Art, New York City*

Owner: *Ronald Lauder*

Architect: *Selldorf Architects—Annabelle Selldorf, principal; Randy Goya, Anne Nixon, project managers; Gretchen Stoecker, project architect; Leander Grayson, Karen Lu, project team*

Engineers: *Gilsanz Murray Steficek (structural); Jack Green Associates (MEP)*

Lighting: *George Sexton Associates—George Sexton and Brian McIntyre*

General contractor: *Clark Construction Corporation*

Waterproofing: *Associates Construction Consultants*



Beaux Arts reprise of early-17th-century houses enclosing the Place des Vosges in Paris—from the Yivo Institute for Jewish Research, which had occupied it for 40 years. After Sebarsky's death in 1996, Lauder reportedly spent \$20 million to buy the house from the Sebarsky Foundation and renovate it to accommodate a 23,000-square-foot museum with 4,300 square feet of exhibition space. Selldorf, who at the time had recently restored an Italian Gothic palazzo in Venice for an art foundation, was brought in to see what she could do. It needed work. "The whole concept for the museum evolved through ongoing conversations with Ronald Lauder; the museum director, Renée Price; and the curators," Selldorf says. "We didn't want to restore it in such a way that it seemed overdone and unnatural." One of the first decisions was to bring back natural light into the stair hall by removing a roof that had been placed over the domed skylight. Selldorf installed a structural glass skylight above the dome, which also serves as a small outdoor terrace for the museum's fourth-floor offices.

The house's largest public rooms were situated on the second floor, or piano nobile, where a surfeit of marble trim and oak wainscoting confronted Selldorf. This floor was chosen to showcase the permanent collection of Austrian art, while German art and objects were placed upstairs on the third floor, along with galleries for temporary exhibitions. In the former music room on the second floor, Selldorf kept the marble but removed mirrors so that the paintings could be mounted against white plaster panels edged with gilt molding. With the insertion of a gridded, backlit, glass-paneled ceiling, the gallery has a luminous quality that

brings out the deeply saturated colors of the paintings. The former library on the second floor, lined in boiserie, displays design objects of the Wiener Werkstätte and related ateliers in bold wood vitrines inspired by ones in the Victoria and Albert Museum in London.

On the third floor, the quiet palette of white and gray painted drywall creates a neutral backdrop for mounting art works. Although the original parquet could be kept on the second floor, new oak planks, 4 inches wide, were installed on the third. The luxurious sheen of these horizontal planes brings Adolf Loos to mind, just as the linear stretches of gridded steel grills for return air are reminiscent of Josef Hoffmann.

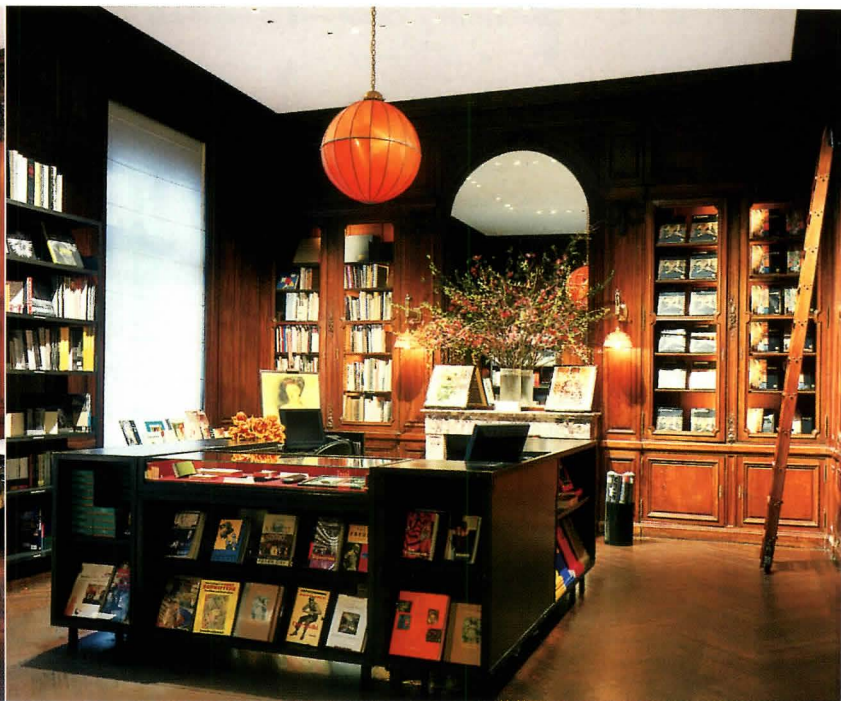
Fitting out the museum with ducts and returns for the HVAC while keeping close to the ceiling heights of the town house was a headache. As Selldorf put it, she needed to "snake ductwork down the walls and former chimneys" and also create an enormous mechanical space on the roof. Finding room in the house for a bookstore and café on the ground floor, plus offices and storage on the fourth and fifth, "was like cutting holes in the air," Selldorf notes, "but in the end it was quite efficient." In designing the 70-seat Café Sebarsky on the ground floor, Selldorf left the oak paneling of the former dining room facing Central Park intact. But to shift the mood more toward Austria and Germany, Selldorf filled the café with reproductions of chairs Loos had Thonet build to his own specifications for his famous Café Museum in Vienna in 1899.

Although Selldorf states, "It's important not to over-restore," she doesn't feel that the architect's role should be passive. New needs and idiosyncratic spaces have to be dealt with. For example, a white-glass-pan-



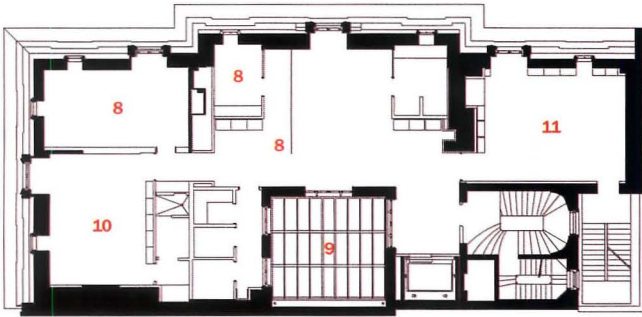
A new white-glass-paneled elevator (opposite, far left, and above right), illuminated by an Adolf Loos pendant lamp, slips beside the

main stair (opposite, right). Ceiling fixtures in the café and bookstore (below left and right) are based on Josef Hoffmann designs.

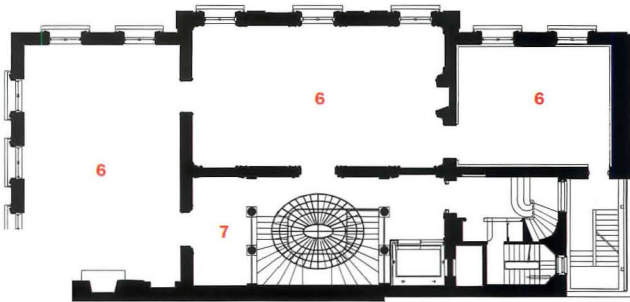




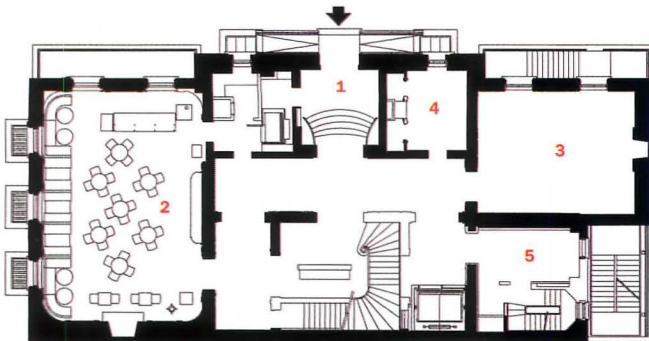
SECTION LOOKING NORTH



FOURTH FLOOR



SECOND FLOOR



FIRST FLOOR



In the design shop, vases by Josef Hoffman are illuminated in the vitrine above a Hoffmann desk. The mantelpiece clock by Adolf Loos is part of the permanent collection.

1. Entrance
2. Café
3. Bookstore
4. Shop
5. Coatroom
6. Permanent exhibition
7. Hall
8. Administration
9. Terrace with glass floor
10. Office
11. Conference room



On the second floor,
the former library now
displays objects from
Wiener Werkstätte and
related ateliers in
custom wood vitrines,
illuminated by
recessed track lighting.





The third-floor galleries are covered with new oak planks (above), dramatizing furniture by Loos and stainless-steel return-air grills (below).



eled elevator cab is tucked into a space next to the main stair. Selldorf resisted the idea of inserting an attention-getting historicist or modern mechanistic device there. “Instead of a spectacle, we made the elevator a white, silent, shiny Miesian box, to look as if it had always been there, unless you thought about it,” she explains.

Like Mies van der Rohe and Adolf Loos, Selldorf emphasizes stringency of line and proportion, offset by luxurious materials. In this process of distillation, the architectural firm devoted a large amount of time overseeing the execution on-site. “You’ve got to be finicky,” Selldorf advises, adding, “I had a dedicated team of architects—stubborn about the craft and the detail.” The result is a highly disciplined work of art that recaptures the spirit of the old New York town house, but allows the German and Austrian artifacts to emerge brilliantly and clearly from their elegant backdrop. ■

Sources

Roof: Laurenco Roofing (built-up); Premier Roof (installation standing-seam copper roof)

Windows (wood): Historic Windows
Steel: O’Keefes

Glass: Gray Glass (low-iron); Century Glazing (structural)

Skylight: Atlantech Systems

Cabinetwork and custom woodwork:

Budd Woodworking; Donadic Woodworking; Michael Gordon

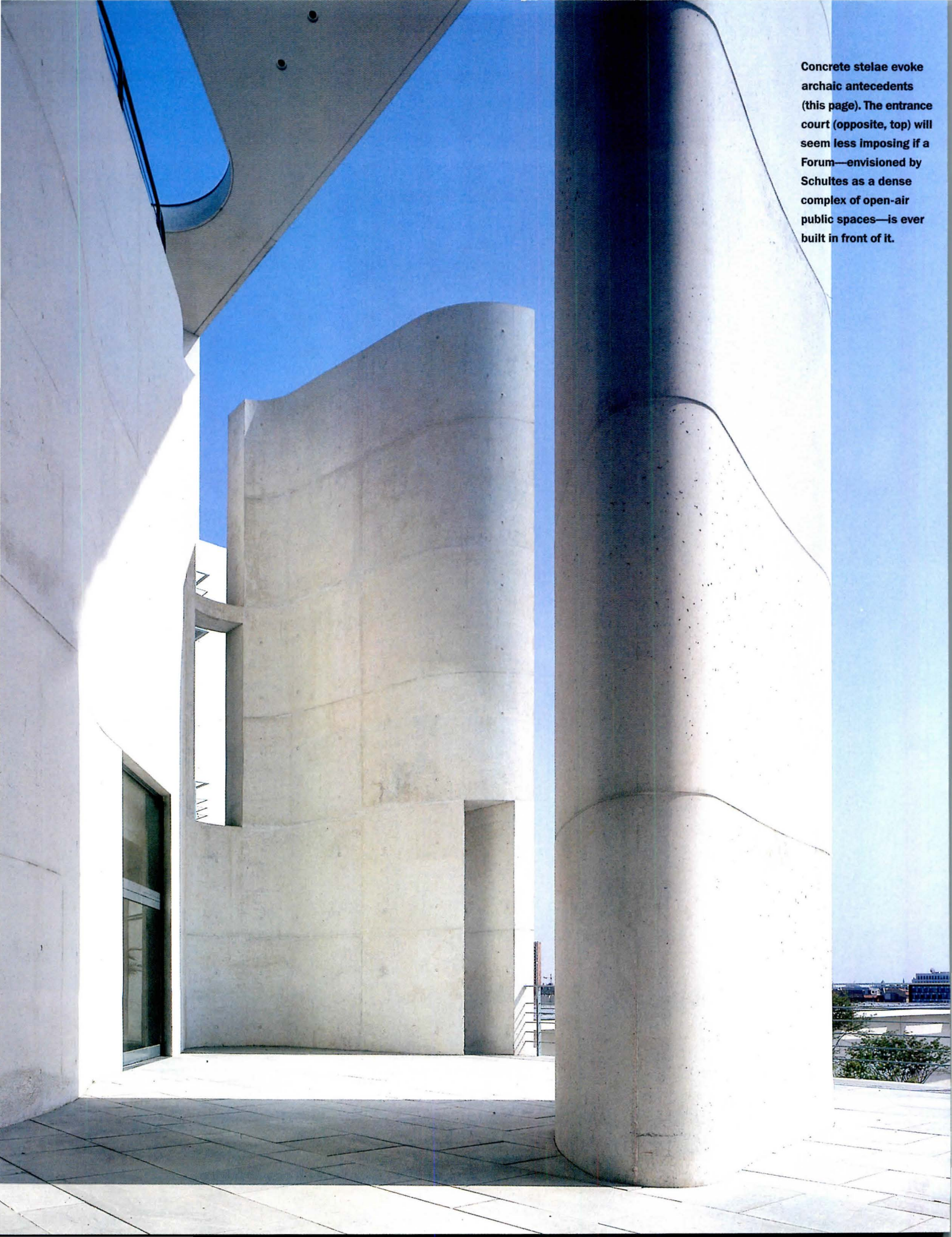
Wall coverings: J. Edlin Interiors; Sam Kasten Handweaver (fabric)

Exhibition lighting: Nulux

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A second-floor gallery features *The Dancer* by Gustav Klimt and a Kolomon Moser table.



Concrete stelae evoke archaic antecedents (this page). The entrance court (opposite, top) will seem less imposing if a Forum—envisioned by Schultes as a dense complex of open-air public spaces—is ever built in front of it.

CRITICISM In Axel Schultes' controversial struggle to realize Germany's new CHANCELLERY there are lessons for American public building design

By James S. Russell, AIA

Wags describe Berlin's new chancellery as a "washing machine." Indeed, not a few people see these offices for united Germany's chief executive as almost ludicrously bombastic. But if a deeper consideration of the chancellery's architecture does not fully allay these glib assessments, there is much to be learned about how we use design in important public contexts and how architecture can represent national values.

Americans tend to prefer architectural modesty in public buildings in order to symbolize the aspiration (if not the reality) of small government. Thanks to the tragically successful use of architectural monumentality and theatricality as propaganda by Hitler and his chief architect, Albert Speer, today's Germans maintain an aversion to imposing edifices and to a design rhetoric of power. The problem in either case is how to turn a negative quality into a positive architectural expression.

Architects wring their hands over the diminished role of design in the public realm, but conditions will not improve without considering what public architecture says—the human or civic values it represents. Axel Schultes and Charlotte Frank, of Axel Schultes Architekten, in Berlin, grappled with the antimonumental urge in their design for one of united Germany's new centers of power: the 690,000-square-foot Berlin Chancellery, which returned to Berlin last year after a half-century absence.

The chancellery's east facade—its most public side—expresses an architectural ambivalence for all to see. The 120-foot-high cubic central block rises imposingly above embracing office wings. But the casting of the building's concrete shell appears to have frozen a kind of explosion in which the top of the cube flares upward in a tentlike arc, rent with great curved openings. Looking as if they were flung centrifugally out from within the chancellery's metal and glass walls, a small herd of piers—vestigial Classical columns, maybe—dot the forecourt and a recessed fifth-floor balcony.

This is how Schultes has explained these disparate gestures: "We had wanted the new chancellery in the Spreebogen to be a place of balance—balance and contrast. Heavy and light, closed and open, intimate and public—a stimulus to the political imagination of governed and gov-

ernors alike." The trees sprouting 46 feet above grade in the top of the piers are intended to add a touching Romanticism, à la Karl Friedrich Schinkel. They "temper above all the stiff ceremony of our *cour d'honneur*," Schultes has written, "touching a chord of German yearning ... a yearning for the south, for the fountains of all our cultural experience."

Schultes ultimately fails to reconcile the opposites he so colorfully aspires to balance. In speeches, articles, and interviews, he has

Project: Berlin Chancellery

Client: Bundesrepublik Deutschland

Architect: Axel Schultes Architekten—Axel Schultes, Charlotte Frank, project design; Christoph Witt, Philipp Heydel, project management; Monika Bauer, Martina Betzold, Andreas Büscher, Stephan Ernst, Roland Frank, Christian Franke, Marc Frederking, Holger Gantz, Paul Grundei, Christian Helfrich, Matthias Hiby, Ayse Hicsasmaz, Caspar Hoesch, Frithjof Kahl, Markus Kenkmann, Arndt Kerber, Margret Kister, Hartmus

Kortner, Hans Krause, Gerhard Münster, Cornelius Nailis, Anna Pfeiffer, Martina Pongratz, Klaus Reintjes, Andreas Schuldes, Lutz Schütter, Christian Werner, Jost Westphal, team

Engineers: GSE; Saar Enseleit und Partner; Schlaich Bergermann und Partner (structural); Schmidt Reuter Partners (mechanical, building ecology); R+R Fuchs (facade)

Consultants: Akustik-Ingenieurbüro Moll (acoustics); Licht-Kunst-Licht (lighting); Lützwow 7 (landscape)

Contractor: Stahlbeton





Master plan's monumentality:

The east elevation (above and below left) faces a court of honor for arriving dignitaries and acts as a TV-news backdrop (below right). The western garden facade (opposite, top) is similar. Within the concrete frame, the horizontal division of each facade discreetly describes the building's

organization. Below grillwork that obscures a floor devoted to various high-security functions are two levels of meeting rooms and reception spaces. Above the grilled entablature, upper floors are devoted to the chancellor's offices. They pick up panoramic views to the north and south through enormous cutouts





(below left). Ironically, Schultes's own winning master plan created for a 1995 competition for the new government sector (page 235) adds to the sense of severity. He conceived of a band of ministries—including the chancellery—that would cross the Tiergarten Park over the Spree River and into the former eastern sector,

where it was supposed to engage the existing city pattern. Almost all of what is being built ended up in the park, and it is impenetrably fortresslike (below right), the opposite of what was intended. The effect is exacerbated by a security fence erected over Schultes's objections in an adjacent public boulevard.



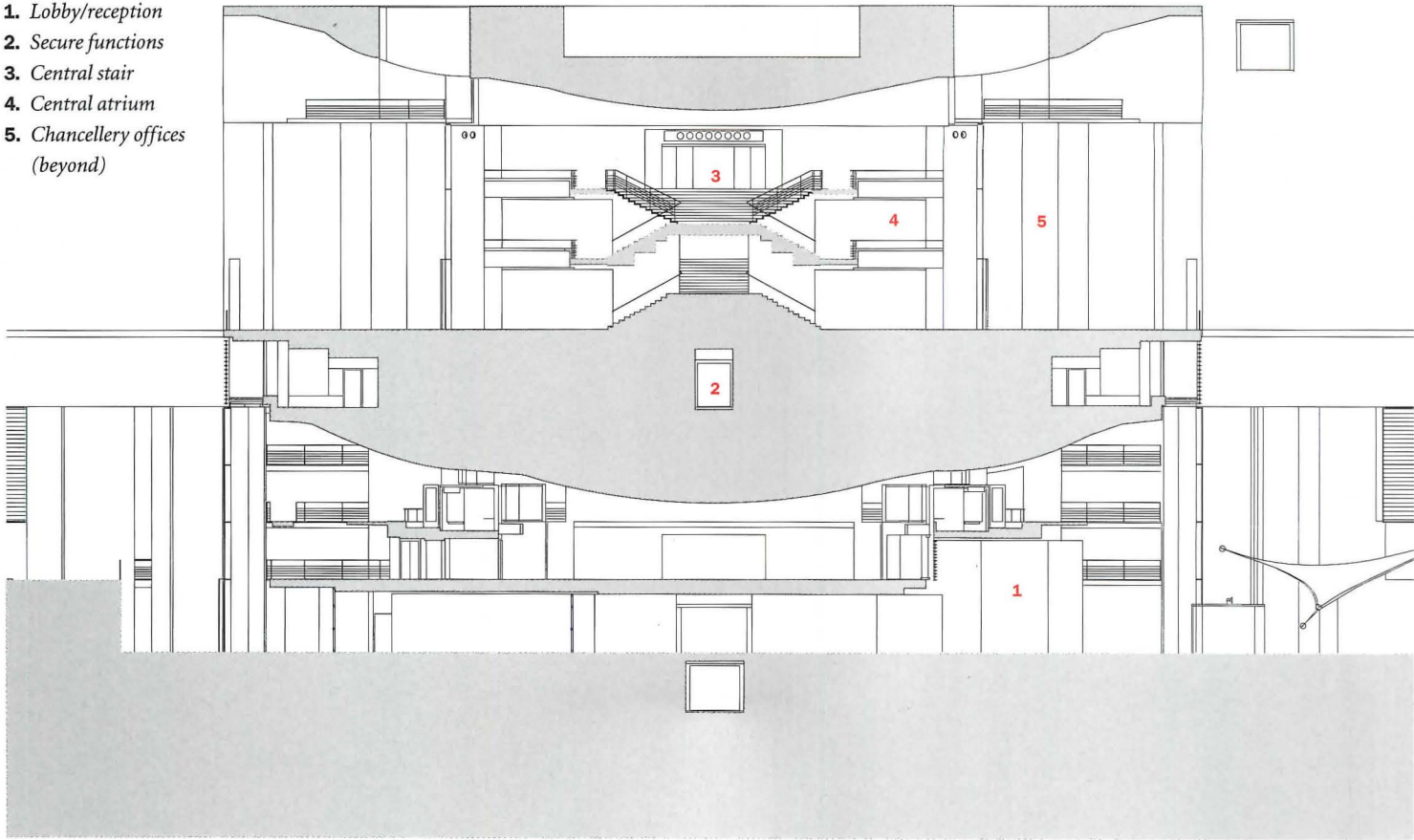




Secret garden: The enclosing office wings dissolve into an open pavilion at the edge of the river (opposite and middle right). Its high, long roof frames a panorama across the city's historic Tiergarten. While likely to be among the structure's least used spaces, it ranks as the most sublime (above), aided by the garden, which stretches perhaps a quarter of a mile across and beyond the Spree River (bottom right) to the radius end envisioned in Schultes's original master plan (below).



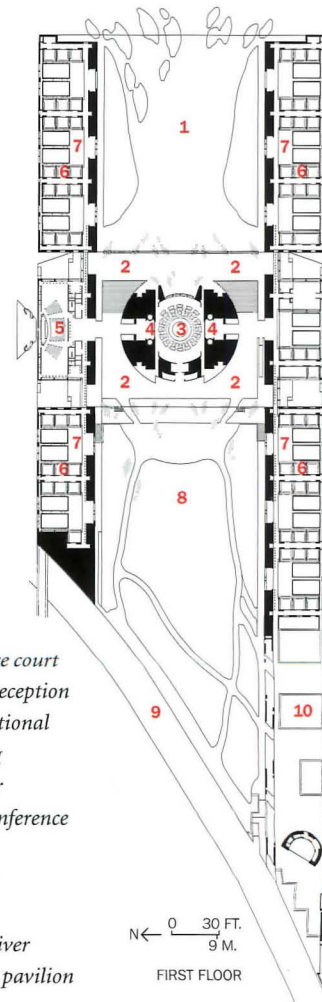
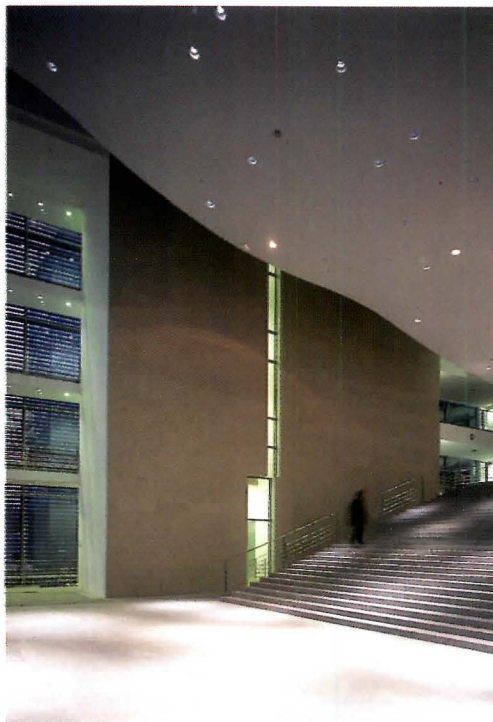
- 1. Lobby/reception
- 2. Secure functions
- 3. Central stair
- 4. Central atrium
- 5. Chancellery offices (beyond)



SECTION

Elegant progression: A solid core (section above and plan right), which contains the main meeting and conference spaces, anchors the building like a beefy hearth and chimney. An airy lobby (opposite)

and generous reception area flows up a flight of stairs (below right) around the core back to the main block's grand glass western facade (below left), which, in turn, opens into a verdant garden.



- 1. Entrance court
- 2. Lobby/reception
- 3. International meeting
- 4. Elevator
- 5. Press conference
- 6. Office
- 7. Atrium
- 8. Garden
- 9. Spree River
- 10. Garden pavilion

0 30 FT.
9 M.

FIRST FLOOR



manifested his anxiety about the design and his struggle to realize an expression appropriate to a new, idealistic and democratic Germany. (For a blow-by-blow, see Michael Z. Wise, *Capital Dilemma: Germany's Search for a New Architecture of Democracy*, Princeton Architectural Press, 1998.) But he did choose a difficult strategy.

Schultes won the competition for the chancellery because he eschewed the self-consciously monumental conventions of the Classical tradition yet also moved away from the self-effacing Modernism that made the Bonn capitol all but invisible. He has never been willing to let go of some traditional architectural devices that strike him as primordial, however. He finds these in the elongated, column-lined courtyards of Isfahan; the waterfall of courts and loggias in Hadrian's Villa, in Rome; the pavilionlike ground plan of Hagia Sophia, anchoring a gaggle of heavy-masonry cells. These ancient landmarks share an expressionism of surface and materials akin to the "tectonic" architectural culture, advocated particularly by Kenneth Frampton, that aspires to authentically root buildings in a time and place.

While eliding the minefield of unfortunate connotations less abstract historicist devices would have evoked, there's an implication of moralism in Schultes's hands, an implied "honesty" in the use of materials and forms that, at least in the building's external expression, seems not fully earned. We have been down the archaic-as-expression road with Le Corbusier, Louis Kahn, Carlo Scarpa, even James Stirling, and since you

can find quotations from almost all of these seminal figures in the chancellery, it's hard not to conclude that Schultes has failed to find a transformative artistic mechanism the way his mentors did.

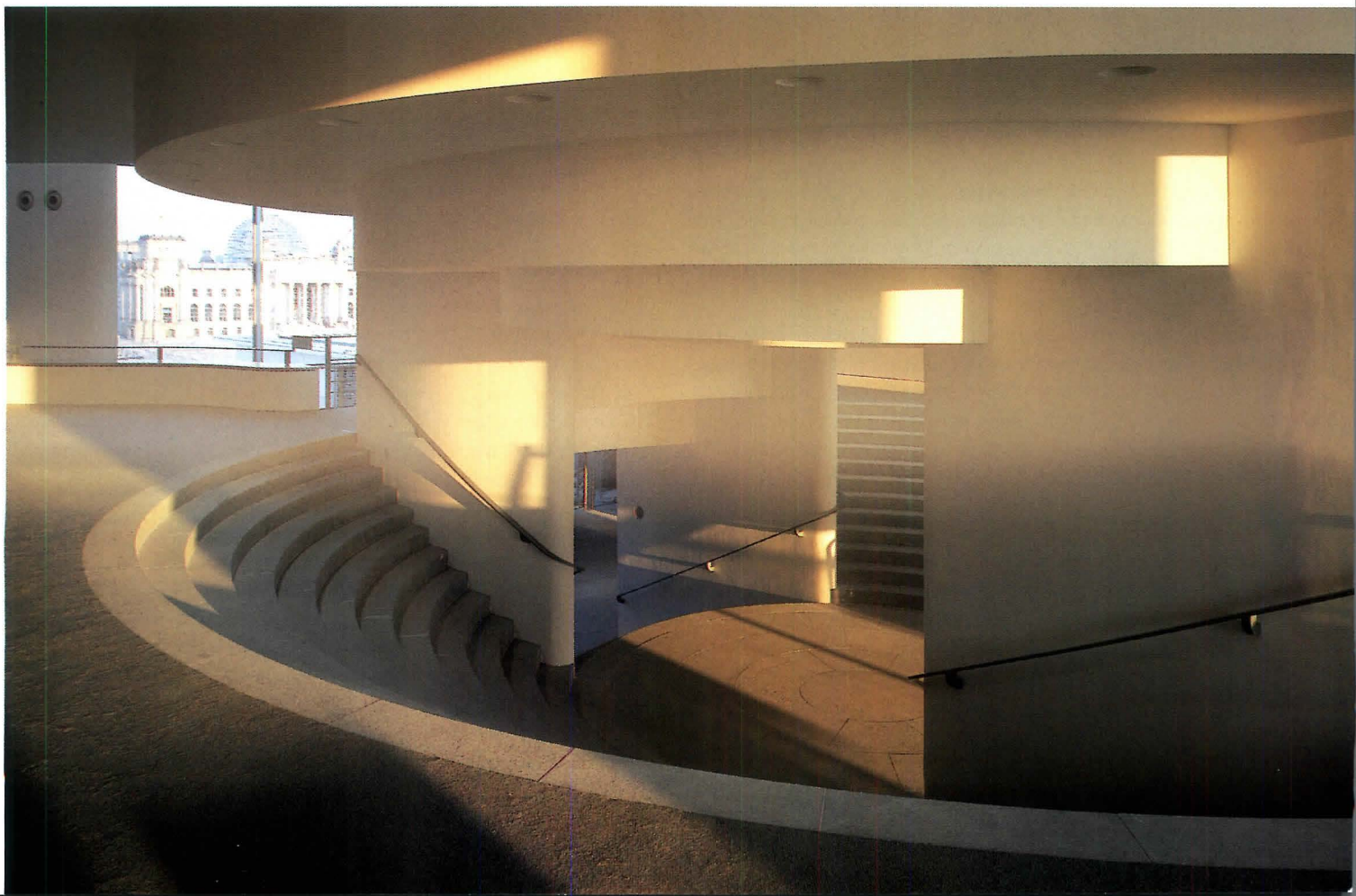
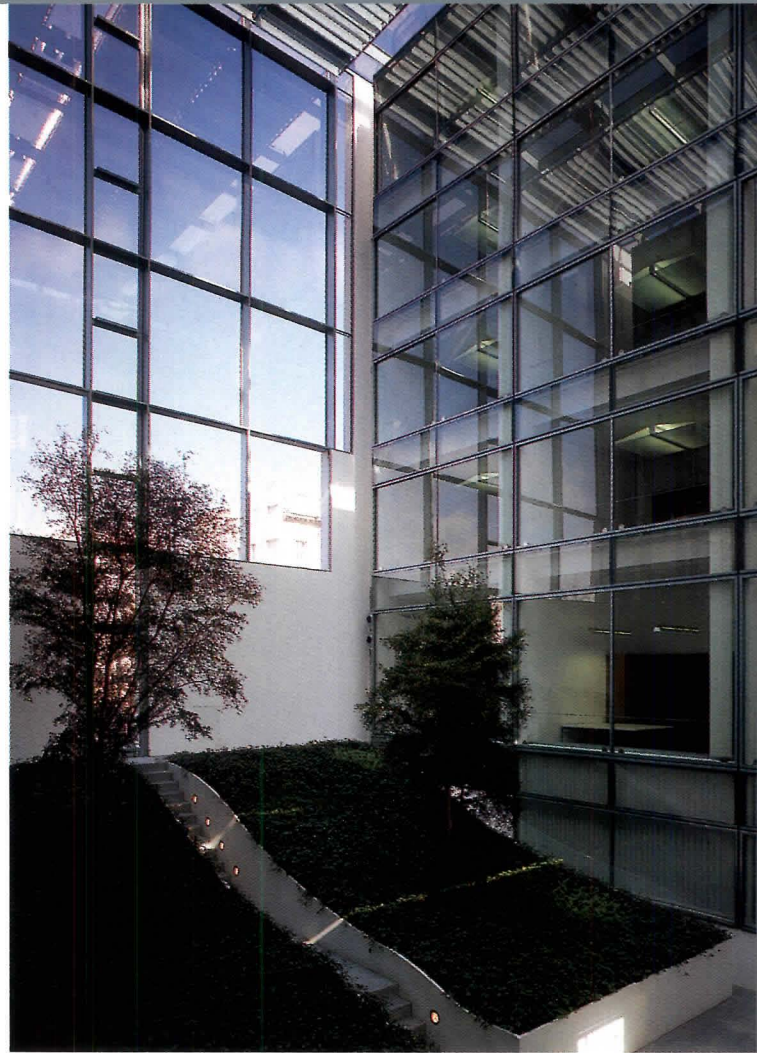
Schultes not only admires the rich procession of solid and void or lightness and density in archaic architecture, he seeks to capture that "power in building," a "lightness of stone," and a "materiality of light," as he writes in *Chancellery Berlin: Axel Schultes, Charlotte Frank* (Edition Axel Menges, 2002). It sounds contradictory, and remains unresolved. The chancellery's layers of surface and the enormous spans in cast concrete testify to Schultes's attempt to invent a mode of expression that plays on the viewer's expectations about load, weight, and span. This mode relies on a literacy about construction that may no longer exist in a "you can make it out of anything" world. Even in his own terms, the scale of the project partly defeated Schultes, he admits. For example, the sheer quantity of cast-in-place concrete involved made it impossible to get a consistently stonelike natural variegation. Instead of the sensuous gray of the unadorned surface, Schultes had to settle for the flatness of paint.

Once entered, however, the building offers a far more extraordinary and confident impression. The waving edges of the lobby bridges and the fluttering ceiling planes read like enormous unfurling flower petals, opening the whole building outward.

From within, the sculptural and layered aesthetic seems deeply

Inviting deliberation: The low wings of the chancellery array 370 offices in 13 blocks (opposite, top), each of which opens onto a naturally ventilated courtyard, enlivened by individually designed gardens and works of art (right and far right). Early schemes for the central block gave greatest importance to primary meeting rooms, with other functions arranged in slabs of "service" spaces. In the end, the architects made the building's connective tissue key to its internal expression. On the fifth through the eighth level of the central block, Schultes and Frank pushed the offices and meeting rooms to the north and south sides, allowing the solidity at the center of the lower levels to give way to atriums that stretch vertically across the four upper levels (opposite, middle). The offices are quietly elegant and handsomely appointed, but Schultes and Frank recognized that officials often find the key to a contentious issue outside formal meetings. In contrast to the dense fabric of ancillary services that wrap the offices, open, airy lobby bridges

traverse the atriums (opposite, bottom), punctuated at the center with a stair that ascends in alternating convex and concave amphitheatric wedges (below). The intriguing stair seems to invite conversation, and the bridgelike lobbies save the interior from the labyrinthine quality so common in government buildings. The lobby bridges open broad views east and west across the atriums, through the high glass walls and their layers of exterior piers and overhangs.





tied to the building's purpose. The drama of the informal gathering spaces and their progression is pregnant with expectation. These spaces present themselves—perhaps too romantically—as settings for the great affairs of state. The agoralike lobbies almost palpably ask politicians to seize the moment. One imagines the chancellor posed in front of the vast curve of windows that frame his office, gazing over the Tiergarten, to the Reichstag, the Brandenburg Gate, and the skyline of the reunited city. Can one do anything but put the pettinesses of day-to-day politics in perspective, summoning the wisdom to recognize the great issues at stake? This is no doubt an idealistic, if not naive, view of how architecture can affect the way politicians work, but it is in this kind of expression that the building is truly representational—its grandeur is not empty but embodies peoples' aspirations.

On the other hand, as one gazes across the dispiriting spectrum of public building in America—the prisonlike public schools or the cookie-cutter Classicist municipal buildings—we find an aspiration to little more than value engineering. In Washington, D.C., a planned Capitol Visitor Center will be buried [RECORD, March 2002, page 135]—speaking to no values at all. Whether or not he fully succeeded in his aspiration, Schultes dared the German people to express greatness, and they, courageously, took him up on it. ■

Sources

Stone: *Naturstein Vetter*
Facades: *Ruper App; Gebruuder Schneider Fensterfabrik*
Concrete: *Itter*
Elevators: *Tepper*

www For more information on the people and products involved in this project, go to Projects at architecturalrecord.com.

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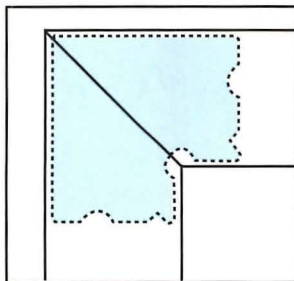
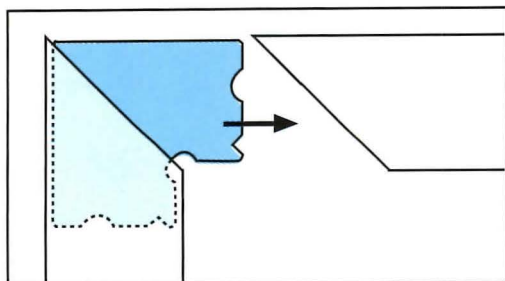


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1.

Sapporo, Japan

Hiroshi Hara rejects the retractable roof and engineers an indoor/outdoor facility with a moving playing field instead.



2.

Miami, Florida

On one of Miami's most prominent waterfront sites near downtown, Arquitectonica's new stadium is bringing life back to the city center.



3.

Cincinnati, Ohio

NBBJ employs a very urban approach—in terms of both design and planning—to create a link between downtown and the Ohio River.



4.

Indianapolis, Indiana

With Chinese forms and industrial materials, BDMD provides the world's largest sporting venue with an iconic image.

By Elizabeth Harrison Kubany

Sports are big business, and with big business comes big controversy. Throughout the 1990s, we heard endless noise about team owners threatening to relocate their franchises if their home cities refused to subsidize new stadiums. Team owners insisted that these new facilities were necessary for financial reasons—to accommodate larger crowds and provide new revenue sources in the form of corporate suites, club seats, retail venues, bars, and restaurants.

One could argue that billions of dollars in public monies could be put to better use than to underwrite wealthy teams and their wealthier owners. But municipalities were held hostage because major league stadiums—whether for baseball, football, or hockey—draw unprecedented crowds and, therefore, have the power to revitalize entire areas of a city.

There was an architectural side to this controversy, as well. Baltimore's Camden Yards set a precedent when it opened in 1992 because of the way it sparked the renewal of this beleaguered urban area. The 46,000-seat baseball park, with its traditional bricks-and-mortar design, proved to be an appropriate response to the needs of that city, and Camden Yards' ability to bring life back to the city center spawned numerous historicist stadiums around the United States.

As the four projects on these pages show, however, stadiums do not have to be theme parks in order to be successful. All of these projects employ unabashedly modern architecture to achieve the same net result. They are popular venues that draw huge crowds but use forward-looking forms to do so. In some cases, this approach provides far greater flexibility to solve site constraints than the historicist approach would.

In the northernmost part of Japan, Hiroshi Hara has achieved a remarkable feat of engineering in his all-weather Sapporo dome. The forbidding local climate made a retractable roof impossible, so Hara designed a vast, column-free dome, resembling a flying saucer, with a grass soccer field that glides between inside and out via pneumatic force to allow the grass to get sunlight. Arquitectonica's American Airlines Arena uses glazing to open it to the nearby downtown area, and outdoor terraces to link it to Biscayne Bay. NBBJ has broken up the seating bowl of Paul Brown Stadium so that the city and stadium become intertwined. And, finally, the control tower of Indianapolis Motor Speedway is a modern take on a Chinese pagoda, which lends visual interest to this complex whether filled to capacity with a quarter of a million people or totally empty.

These projects help prove that traditional architecture needn't be the answer to the problem of how to design sports stadiums that can provide iconic imagery to help revitalize cities. No matter who pays for them. ■

www For additional stadiums, and more information on the people and products involved in the following projects, go to Building Type Study at architecturalrecord.com.

Sapporo Dome

Sapporo, Japan

1

IT MAY LOOK LIKE A UFO, BUT WITH ITS MOVING GRASS PLAYING FIELD, HIROSHI HARA'S STADIUM IS A FEAT OF ENGINEERING.

By Naomi R. Pollock, AIA

Architect: Hiroshi Hara—Hiroshi Hara, partner in charge

Client: City of Sapporo, Japan

Consultants: Mutsuro Sasaki, Yoshio Tanno, Osamu Hosozawa (structural); Hiroaki Takai, Takashi Ichihashi (mechanical); Tsukasa Tomabechi (snow engineering); Tatsuiichi Tsujii (landscape ecology); Kaoru Mende, Hiroyasu Shoji (light design)

General contractors: Taisei Corporation; Takenaka Corporation; Schal Bovis

Size: 982,810 square meters

Completion date: May 2001

Sources:

Glass curtain wall: Asahi Glass Hokkaido Building Materials Co.

Roofing: Sankyo Aluminum Industry Co., E. Katayama & Co.

Skylights: YKK Architectural Products

Indoor arena seating: Kotobuki Corporation

Indoor arena lighting: Matsushita Electric Works

Elevator: Toshiba Elevator and Building Systems

Escalator: Hitachi

www For more information about the people and products involved in this project, go to Building Types Study at architecturalrecord.com.

Background

In planning for the World Cup 2002, the Federation Internationale de Football Association (FIFA) broke with tradition and, for the first time ever, invited two countries, Japan and Korea, to host the event jointly. To meet the tournament's needs within Japan, FIFA selected 10 host cities throughout the archipelago, among them Sapporo, the largest city on the island of Hokkaido.

Located in the northernmost part of Japan, Sapporo captured the world's attention as the venue for the 1972 Winter Olympics. Although the ideal setting for skiing and skating, the city had no stadium fit for a major soccer tournament.

So, in 1996, Sapporo conducted an international competition for the design of an all-weather dome on the outskirts of the city. In addition to the World Cup's requirement for a natural-grass soccer field, the new building had to include a professional-grade baseball diamond and be able to host events such as rock concerts and large exhibitions. Beating out teams from a number of different countries, Tokyo architect Hiroshi Hara took first prize.

Context

The site, which was previously open farmland belonging to an agricultural research institute, posed few constraints. For Hara, the greatest design challenge was the local climate. During the winter, Sapporo's



daytime temperatures are well below freezing, and winds from Siberia buffet the city all season long. But precipitation is the real problem: Each year the city gets a whopping 20 feet of snow. Predicting how the snow would behave on a long-span roof was extremely difficult. "Snow is very unpredictable," explains Hara. "You never know what the load will be at any particular time."

Because of the harsh weather, the grass playing field had to be covered. At the same time, the field

required four hours of direct sunlight every day for the grass to stay healthy. To resolve this conflict, Hara had to find a way to move either the roof or the field. Because of the snow load and other climactic conditions, the use of a retractable roof was eliminated from the start. The only option was to move the field.

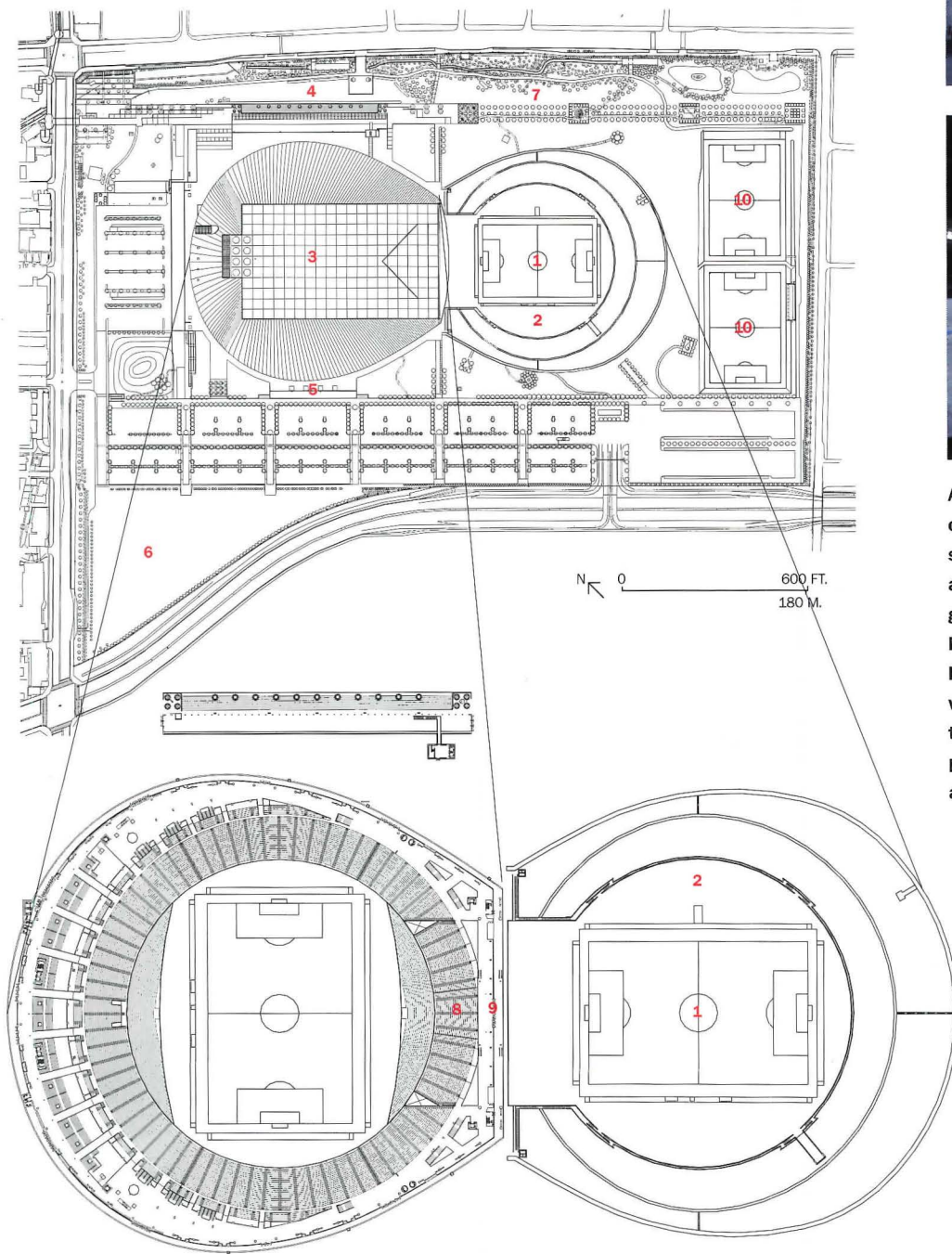
Solution

"In principle, my scheme is really very simple," says Hara. Shaped in plan like a figure eight, Hara's proposal consisted of two arenas, one

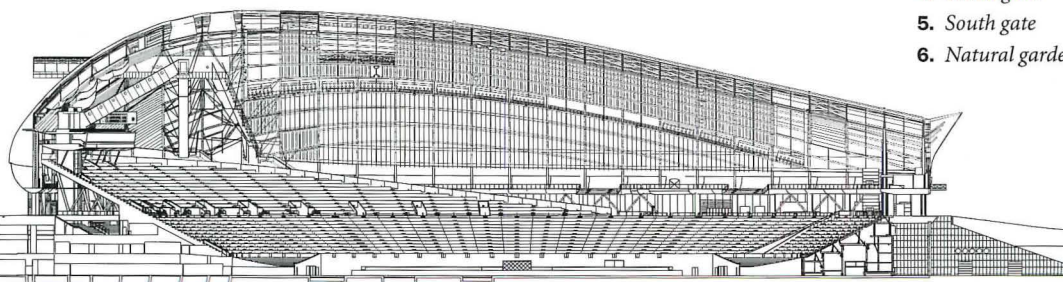
Dealing with very heavy, and unpredictable, snow loads (opposite and this page, bottom) was the architect's greatest

challenge. A retractable roof was ruled out, replaced instead by a field that slides in and out of the dome (this page, top).

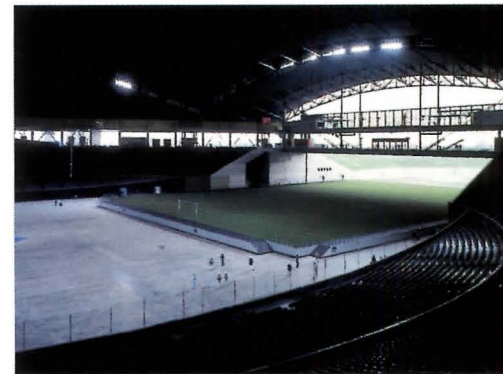




SITE PLAN AND FLOOR PLAN



SECTION



A remarkable feat of engineering, the sliding playing field allows the grass to get its requisite four hours of daily sunlight. When the weather is good, the field becomes part of the outdoor arena. The 83,000-ton

field glides via pneumatic force (above top) into the column-free, 43,000-seat indoor stadium. Designed for soccer matches (above), the dome also accommodates baseball games, concerts, and large exhibitions.

- 1. Hovering stage
- 2. Open-air arena
- 3. Indoor arena
- 4. North gate
- 5. South gate
- 6. Natural garden
- 7. Botanical garden
- 8. Movable/retractable stand
- 9. Moving wall
- 10. Sub soccer fields



indoors and one outdoors, with a soccer field that glides back and forth between them. At grade, the stainless-steel clad, 43,000-seat indoor dome looms over its wide-open site like a gleaming flying saucer.

The dome's aerodynamic form grew out of the need for a roof that could not only withstand and deflect the snow but also shelter a vast, column-free space. Spanning 804 by 745 feet, the roof is supported by a shell structure composed of 13-foot-deep space trusses that transfer their loads to a ring of columns at the building perimeter. The dome's flat end opens onto the outdoor stadium. Here an internal "bridge" and tension cables complete the structural loop by channeling loads to either side. While sheets of glass seal the bridge's double-deck slot of space, a 50-foot-tall moving wall underneath opens up like traditional Japanese sliding doors to let the soccer field pass through at ground level.

Following the Japanese tradition of temporary furnishings, such as *sudare* bamboo shades used to change the traditional house from summer mode to winter, Hara devised a kit of movable parts, albeit on a much larger scale, that can transform the building from baseball stadium to soccer arena to event hall and back again.

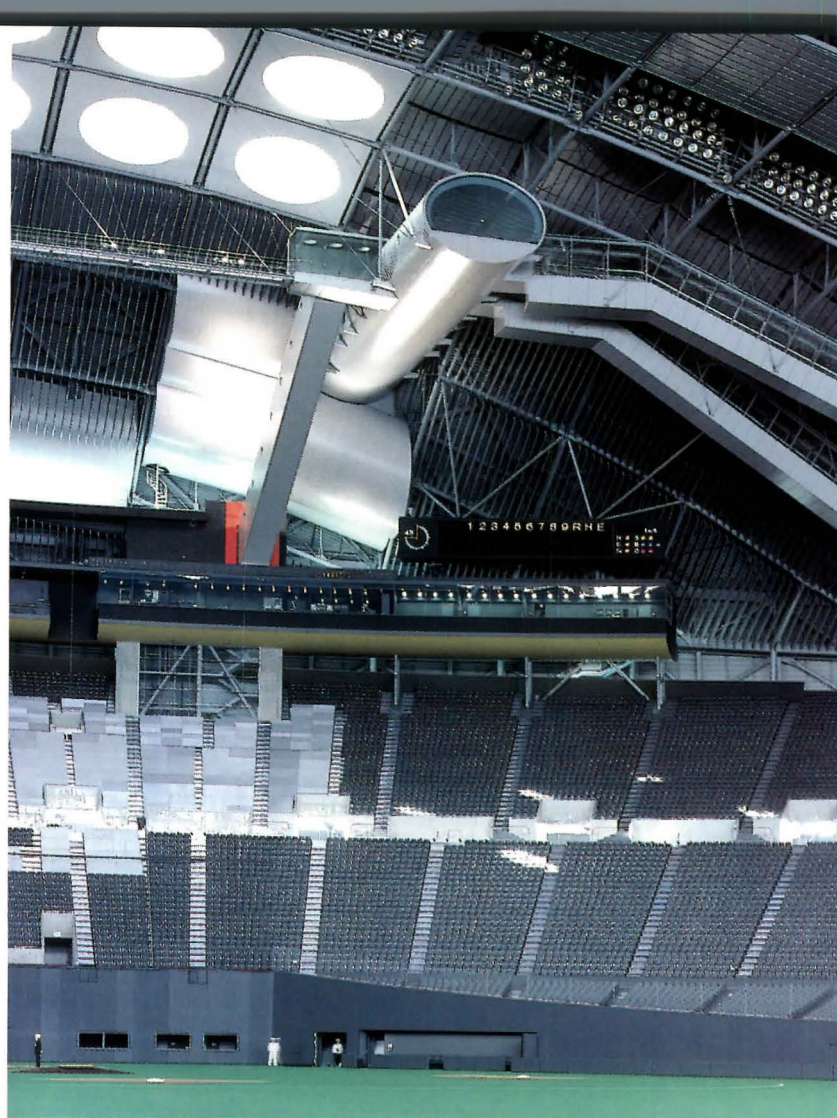
While rolling out synthetic turf

and adding a fake pitcher's mound are all it takes to turn the arena into a baseball field, the conversion to soccer mode requires moving an 8,300-ton field. Composed of structural steel, concrete, sand, and grass, the "hovering stage" literally glides from outdoors to indoors like a magic carpet. First, air is blown in and trapped with perimeter seals under the field, which reduces the field's weight by one-tenth. Then the air's pneumatic force of 1.09 atmospheres propels the field forward at a rate of 4 meters per minute while wheels and floor-mounted sensors guide its course.

Once the field enters the building, it rotates 90 degrees on a pivot to face the main grandstand. The five-hour conversion is complete after four groups of movable seats are locked into position.

Commentary

Sometimes the truth really does seem stranger than fiction. But on close inspection, Hara's dome is not as wild as one might think. Expanding on the tried-and-true method of movable parts, Hara came up with an elegant and straightforward solution. While the stadium cost much more than a conventional stadium, "the city is getting two buildings in one," says Hara. And maybe, if they are lucky, Sapporo will even get a professional sports team to go with it. ■



American Airlines Arena Miami, Florida

2

ON A PROMINENT WATERFRONT SITE, ARQUITECTONICA USES MODERN FORMS (OUTSIDE) AND BRIGHT COLORS (INSIDE) TO MAKE A SOPHISTICATED AND WELCOMING VENUE.

By Beth Dunlop

Architect: Arquitectonica—Bernardo Fort-Brescia, FAIA, Laurinda Spear, FAIA, partners in charge; Michael Woollen, AIA, project manager; Robert Given, Mark Bichel, Marta Sensidoni, Jorge Cuba, Evan Siegel, Drew Napolitano, Carol Dufresne Trent, Peter Brand, Isis Hunt, Reinaldo Borges, Christian Petschen, project team

Associate architect: Heinlein & Schrock—George Heinlein, AIA, principal in charge; Debra Ford, AIA, project architect

Client: Miami-Dade County and Miami Heat Basketball Properties

Consultants: Thornton-Tomasetti (structural); Donnell, Duquesne, Albaisa (structural); Flack + Kurtz (mechanical, electrical); Fraga Engineers (electrical); PAWA (civil); Curtis + Rogers (landscape); L'Observatoire (lighting); Gottschalk + Ash (graphic design); WJHW (acoustical); Coastal Systems International (environmental)

General contractor: Morse Diesel/Odebrecht

Size: 782,400 square feet

Cost: \$220 million

Completion date: December 1999

Sources

Curtain wall, doors, aluminum windows: RC Aluminum

www For more information about the people and products involved in this project, go to Building Types Study at architecturalrecord.com.

Program

Controversy erupted immediately when the NBA's Miami Heat chose a site for its new arena on Biscayne Bay at the northern end of downtown, across from the Port of Miami. Civic activists and environmental groups opposed an arena there, envisioning a park on this desirable public land instead. Ultimately, the Heat won a 58 percent favorable margin in a countywide referendum and was allowed to go ahead.

In turn, Arquitectonica was asked to design the 20,000-seat American Airlines Arena. Their mandate was to construct a building that would do justice to its gateway position in downtown Miami. The arena needed to offer indelible architectural imagery and to connect game goers to both the city and the sea.

Professional sports are big business, and for the arenas to be considered a success, they require a complex arrangement of seats—from the regular seats to “club” seats to private boxes. South Florida is a region where private rather than corporate wealth dominates, so fewer corporate boxes were necessary. Rather, four ground-floor “starboxes” and 20 center-court suites were required. The Heat also wanted 300 special seats for diehard sports fans willing to pay a premium.

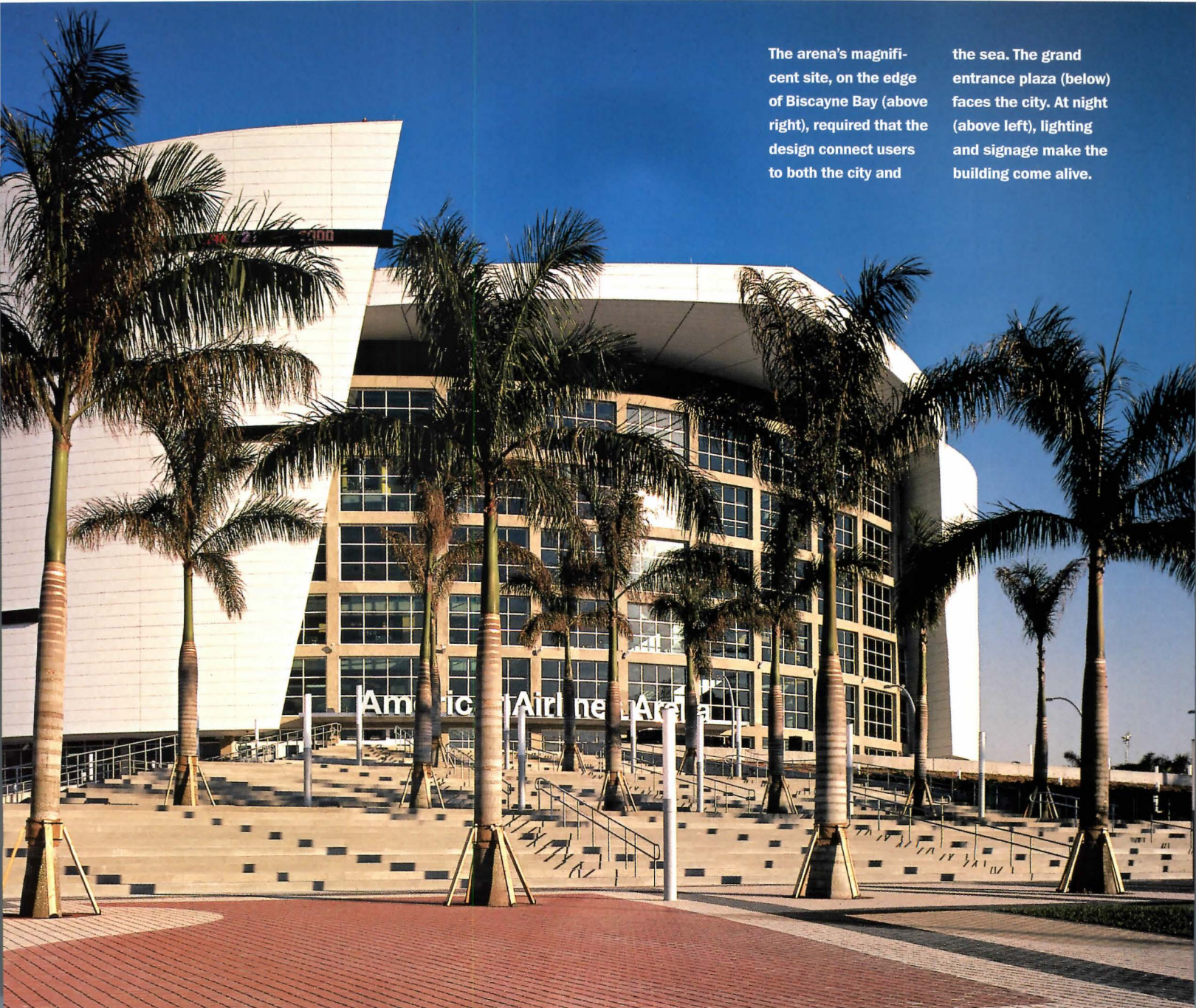
Yet, Arquitectonica was also asked to ensure that even the cheaper seats were good ones; the

goal was to create an arena of tight, clear sightlines and close connections to the play. Other requisites were a practice court, a training gym, the locker room, and a physical therapy center for the team. The Heat also wanted to consolidate its entire management into one area.

Solution

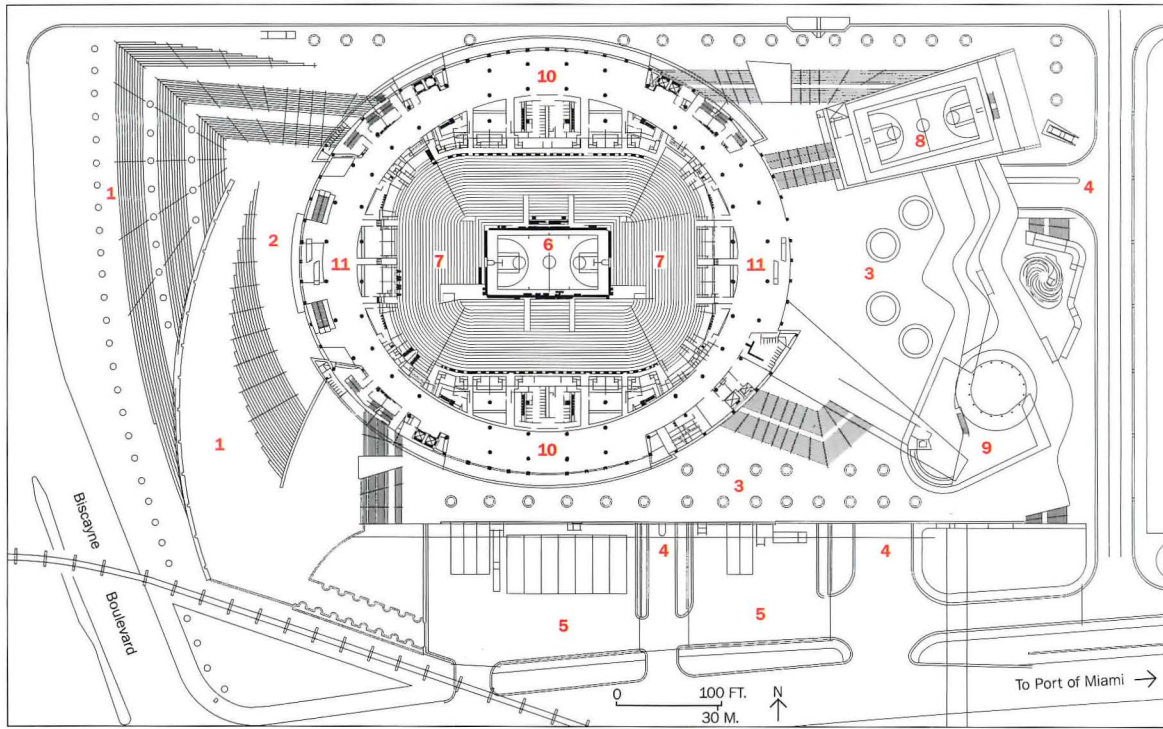
Arquitectonica started with an ellipse as the basis of its design, a form that emerges as a concrete-and-glass grid; however, the building is transformed into an abstract





The arena's magnificent site, on the edge of Biscayne Bay (above right), required that the design connect users to both the city and

the sea. The grand entrance plaza (below) faces the city. At night (above left), lighting and signage make the building come alive.



1. Stairs/ramps
2. Main entrance
3. Elevated terrace
4. Underground parking garage access
5. Loading docks/service
6. Event floor
7. Seating
8. Practice court
9. Restaurant
10. Main concourse
11. Atria

Warm colors arranged in a flame pattern enliven the main event area (below), as does artist Christopher Janney's imaginative anemone-like Turn Up the Heat light-sculpture scoreboard.



sculptural entity by the two vast white fins that envelop it. From a distance, the fins look like sails on a giant ship, giving the arena a powerful presence on the bayfront.

Because most fans arrive from the downtown area, the approach into the building on this elevation is quite grand—up a broad, palm-studded, piazzalike stairway. Lit from within, the arena glows like a ship lantern. “We wanted the building to feel very festive at night,” says Arquitectonica principal Bernardo Fort-Brescia.

Inside, the arena is divided into four color-coded quadrants—red, orange, yellow, and blue—as an organizing thesis. These zones are expressed in the finishes; for example, in the colors of the geometric-patterned terrazzo on the concourse floors. Each quadrant also has its own geometric motif, providing what Fort-Brescia calls “a subliminal way-finder through the building.”

The focal point, of course, is the perfect rectangle of the regulation basketball court. The seating rises above it with some visual interest; a large abstract flame pattern in the team colors (red, orange, and yellow) overlays the stands. Although built for basketball primarily (the Heat and the WNBA Miami Sol both call it home), the arena also is used as a hockey rink and concert venue.

Commentary

The American Airlines Arena is both sophisticated and fan-friendly, a carefully detailed sports facility. The architects have paid great attention to both the formal and spatial aspects of the building, as well as to the finishes. It is proof that modern forms can be just as effective in creating iconic sports architecture as historicist ones.

As for the players, this arena is widely thought to offer some of the best accommodations in the NBA, from the domed and carpeted locker room with its custom wood cabinetry to the practice court that looks out onto Biscayne Bay and the Miami seaport beyond. “This is off-the-hook,” said guard Mike James, admiringly. “It’s nice. It’s really nice.” ■



The concourses (above and left) were purposely left rough, with exposed structural and mechanical systems, to make the building feel somewhat gritty, like a true sports facility.

Paul Brown Stadium

Cincinnati, Ohio

3

WITH A CONTEMPORARY VOCABULARY AND A DECIDEDLY URBAN APPROACH, NBBJ DESIGNS A VERY GOOD NEIGHBOR.

By David Mohny

Architect: NBBJ—Dan Mies, design principal; Ron Turner, technical design principal; Friedl Bohm, partner in charge; Paul Becker, project manager; Paul David, senior project designer; Guy Painchaud, senior interior designer; Ed Mickelson, landscape designer; Marc Davidson, project architect; John Truong, technical architect; Taylor Hamblett, construction administrator

Associate architect: Glaser Associates—Art Hupp, principal

Owner: Hamilton County, Ohio

Consultants: Arup (structural); Flack + Kurtz (mechanical, electrical, HVAC, lighting); JMA Consultants (civil); Catt Lyon Design (graphics); G.J. Thelen & Associates (geotechnical)

General contractor: Turner/Barton Malow/D.A.G. (joint venture)

Size: 1.8 million square feet

Cost: \$310 million

Completion date: September 2000

Sources

Roof system: Bird Air

Curtain wall, windows, storefront: Wal-Tek

Architectural glazing: Viracon Glazing

Overhead coiling doors: Cincinnati Overhead Door

www For more information about the people and products involved in this project, go to Building Types Study at architecturalrecord.com.

Background

Like many other stadiums and ballparks built during the past two decades, Cincinnati's Paul Brown Stadium was designed as a part of an overall urban design program, intended to tie a major entertainment venue into the improvement of the district around it. But unlike many of these efforts, which use historicist designs as an anchor, Paul Brown Stadium is thoroughly contemporary in its imagery.

The stadium's designers, NBBJ Sports and Entertainment/Los Angeles, take great advantage of the riverfront site. In the mid-1990s, Cincinnati embarked on a major urban redevelopment project. One primary goal was to facilitate a better

connection between the commercial core of the city's downtown, loosely centered on Fountain Square, and the Ohio River three blocks south. Urban design guidelines prepared by UDA Associates in Pittsburgh emphasized linking a series of discrete riverfront spaces into a continuous waterfront park, and siting new public facilities, like football and baseball stadiums, as both attractions and public gathering areas.

Solution

But it is in the architectural composition of the stadium itself that the designer's sensitivity to the urban context shines. Unlike several generations of closed-in stadiums, this facility for Cincinnati's football fran-

chise, the Bengals, opens itself to the city by breaking up the seating bowl. Seating sections are organized into separate grandstands on the sides and ends of the playing field. From the point of view of the fan, this has the effect of minimizing corner seats, placing more seats on the primary sides of the field and thus giving a much higher percentage of the audience better views of the game. Better views make better customers and provide higher ticket revenues for the team.

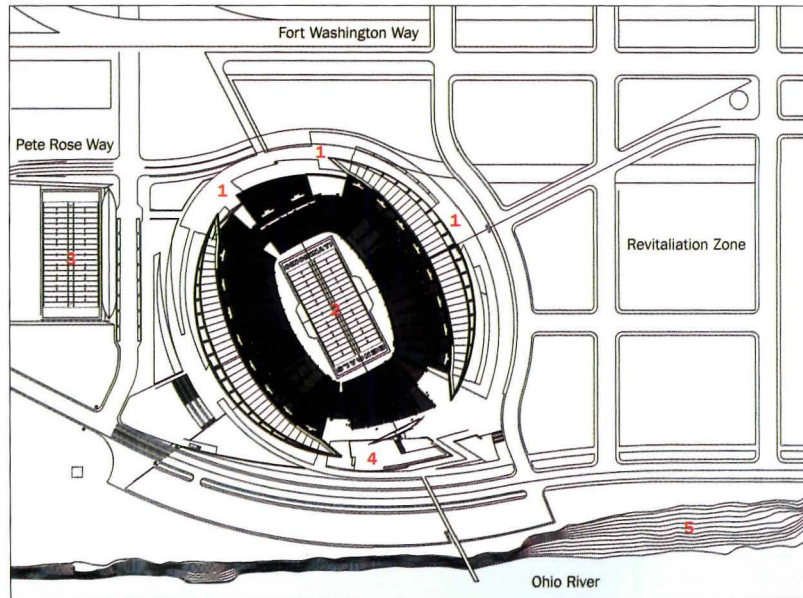
Yet there are intangible benefits, as well. Paul Brown Stadium has 67,000 seats, but it invites the entire city in at every opportunity. The gaps between grandstands provide wonderful views both in and out of the



Linking downtown Cincinnati with the Ohio River (opposite), the stadium serves an important urban design function. By breaking up the seating bowl, the

designers invite the city into the stadium (this page, bottom) and give the building the feeling of a group of discrete elements (below), rather than a monolith.





1. Entrances
2. Field
3. Practice fields
4. Administration building
5. Future river park development

stadium. Everyone in the immediate vicinity of Paul Brown Stadium on game day will be aware that a major sporting event is underway: Large sections of seated fans will be visible and audible to those merely passing by, imparting an infectious sense of participation in a spectacle. Views out of the stadium are remarkable, as well; they afford the fans a panorama not only of downtown but also of the riverfront and the historic waterfront cities of northern Kentucky across the Ohio River, along with the bridges connecting both sides of the river.

The fracturing of the seating bowl also serves the urban context in another way. The separate grandstand elements have a verticality that they would not have if they were unified. From a distance, the varied elements of the stadium's design echo the look and the scale of a group of buildings on adjacent city blocks. "We had both a building type and a sport not known for bold architecture," says Dan Mies, lead designer for NBBJ. "We asked ourselves: In an urban site, can we break the components down to integrate the stadium into the urban environment?"

The success of NBBJ's urban intentions is further enhanced by the use of a variety of materials. The exterior combines masonry, translucent glazed skin, and perforated stainless-steel panels. Angular



Exposed structural elements, such as the tensioned truss system for the grandstands, give the building an industrial quality that relates to the historic Roebling Bridge, as well other rail and vehicular bridges nearby.



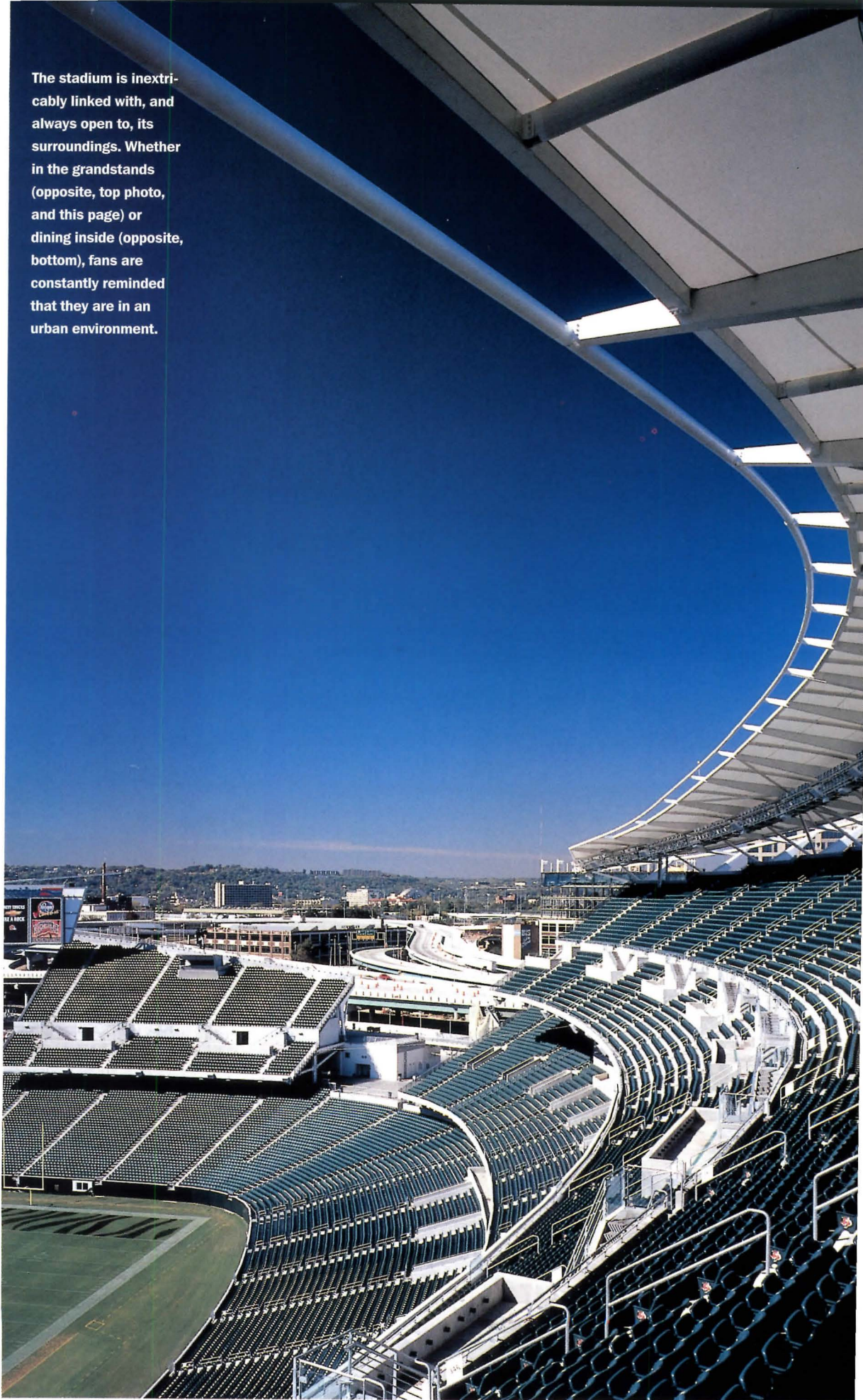
edges emphasize the change of materials, giving the complex a sense of motion and urban vitality. And the difference between day and night, when the translucent and perforated exterior skin systems are lit from within, is another attribute. Lighting stanchions above the sidelines and major electronic signs in the end zones are also separate elements, further breaking down the scale from stadium to urban assemblage. The exposed structural elements, most notable in a tensioned truss system for the grandstands and the cantilevered lights and signage, resonate with the historic Roebling Bridge (a precursor of the Brooklyn Bridge), as well as other bridges for both rail and vehicular traffic nearby. Thus, in terms of its apparent massing, materials, and methods of construction, the stadium is a remarkably good complement to its neighbors.

The prime tenant, the Bengals football team, has traditionally utilized a collegiate approach to practice and preparation. Practice fields are adjacent to the stadium, and the team areas incorporate a large auditorium for film and strategy reviews. Team administrative offices overlook the river and, in following the overall urban design concept, appear to be a separate building from that side of the complex. Great care was taken by the designers to provide creature comforts. In addition to three levels of skyboxes, there are four large lounge areas, myriad concession outlets, and enough restroom facilities to eliminate waiting lines for both sexes, a chronic problem for major sporting facilities.

Commentary

In solving so many of the urban issues associated with contemporary stadiums, the designers of Paul Brown Stadium have addressed key issues of our time with architecture that is reflective of this time, not with a retro approach. It's a welcome course for a city usually known for its conservative cultural aspirations, resulting in one of Cincinnati's most important civic amenities. ■

The stadium is inextricably linked with, and always open to, its surroundings. Whether in the grandstands (opposite, top photo, and this page) or dining inside (opposite, bottom), fans are constantly reminded that they are in an urban environment.



Indianapolis Speedway

Indianapolis, Indiana

4

BROWNING DAY MULLINS DIERDORF DESIGNS A CHINESE PAGODA IN INDUSTRIAL MATERIALS TO GIVE AN ICONIC IMAGE TO AMERICA'S MOST POPULAR SPORT.

By Elizabeth Harrison Kubany

Architect: *Browning Day Mullins Dierdorf Architects—Jonathan R. Hess, AIA, principal in charge; David M. Long, project manager; Matthew S. Woodruff, AIA, project architect; Stephen A. Hoersten, project coordinator; Chad Hunsaker, Randy Hurst, Keith Clark, Matthew Garrett, Somsri Bond, Tony Allen, R. Shannon Cole, Charles Johnson, project team*

Client: *Indianapolis Motor Speedway Corporation*

Consultants: *Fink Roberts & Petrie (civil/structural); Circle Design Group (MEP); Browning Day Mullins Dierdorf Architects (landscape); Fisher Marantz Stone (lighting); Ralph Gerdes & Associates (code)*

Size: *100,000 square feet*

Completion date: *September 2000*

Sources

Structural glazing: *Pilkington Planar*

Insulated-panel glazing: *Kalwall*

Elastomeric roofing: *Firestone Rubbergard*

Aluminum doors: *EFCO*

Locksets: *Best*

Hinges: *Hagar*

Pulls: *Rockwood*

Cabinet hardware: *Blum; Stanley*

www For more information about the people and products involved in this project, go to Building Types Study at architecturalrecord.com.

Background

It may be a forgotten bit of American history that Indianapolis was once a hub of our country's auto industry. At the beginning of the 20th century, the city was home to over 60 car manufacturers. (Ultimately, Indianapolis was never a real threat to Detroit's auto business because the lack of a navigable river prohibited transportation of coal, iron, and other materials necessary to support auto production.)

Intended to be a showcase and testing facility for this fast-growing industry and financed by four local businessmen, the Indianapolis Motor Speedway was built on 328 acres five miles northwest of the city in the spring of 1909.

Poor attendance at the track's trio of inaugural events caused the owners to rethink their plans and focus instead on a single event for 1911. On May 30 of that year, a 500-mile race took place that enjoyed instant success as the inaugural Indianapolis 500.

Built for this initial race in 1911, the site's first "pagoda" (so named because the necessary stacking of graduated levels made the building resemble a Chinese pagoda), the precursor to the modern-day control tower, housed scoring and race-control functions. The pagoda burned down in 1925 and was replaced by a similar structure. In 1957, a steel and glass structure replaced the former wood building.



Problem

From 1911, no race other than the Indy was held at the Speedway until a NASCAR stock car event, the Brickyard 400, debuted in 1994. In 1998, the track announced that the Grand Prix would race there beginning in 2000. Three different races (Indy, NASCAR, and Formula One) with three different types of cars having varying sets of facilities requirements meant that the Speedway needed a major upgrade.

Browning Day Mullins Dierdorf (BDMD), an architecture firm based in Indianapolis, was commissioned to improve the existing facilities and to design the necessary new ones.

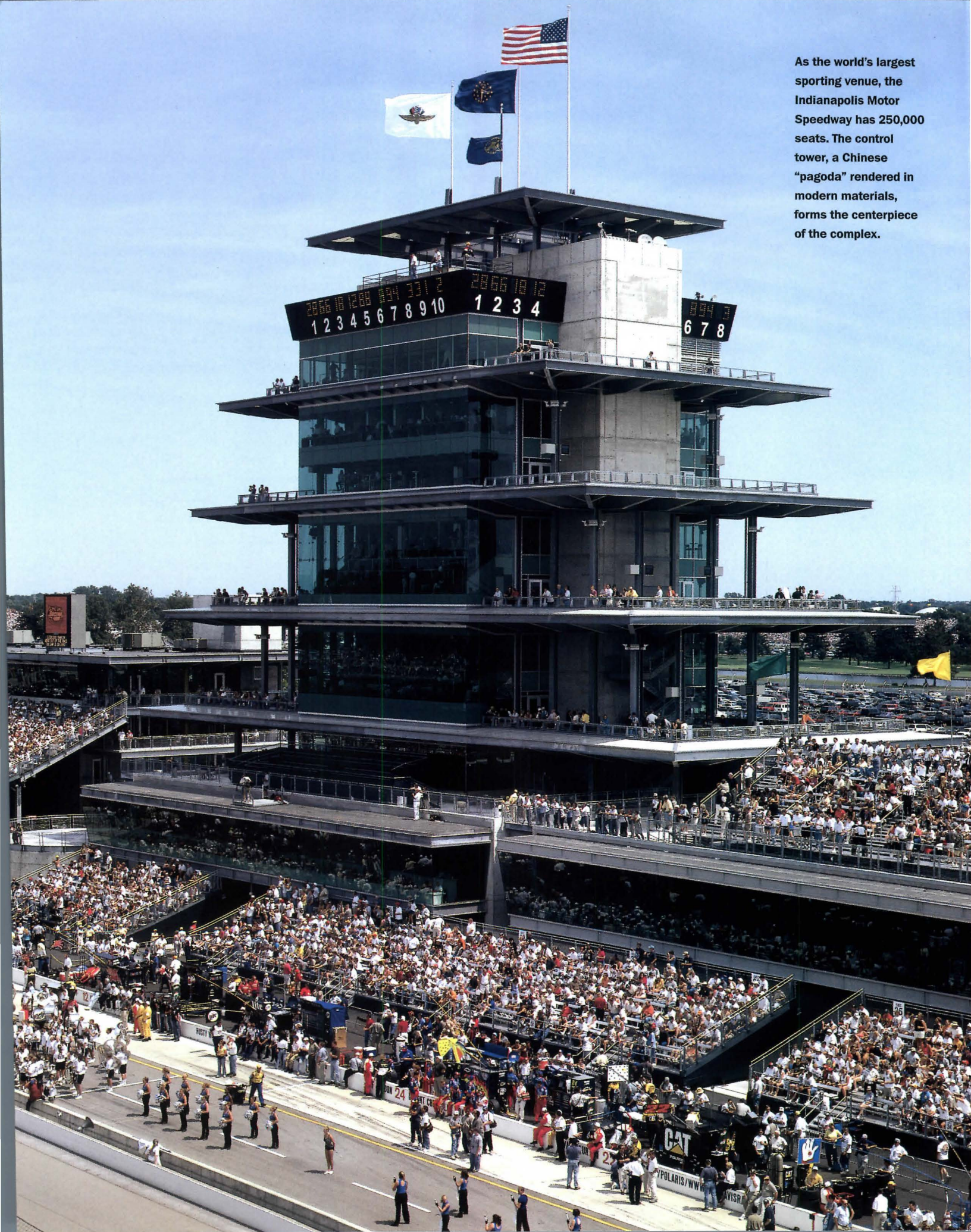
Solution

Five structures were built to provide

the spaces required by the international sanctioning group. The first, a nine-story, 100,000-square-foot control tower, replaced the 1957 structure. According to Jonathan Hess, AIA, partner in charge of the project, BDMD's charge was twofold: to expand the control tower to include space for corporate hospitality, safety, and security, as well as broadcast, while providing an iconic image for the structure, which forms the centerpiece of the complex.

The new 153-foot-tall building borrows iconography from both the 1911 and 1957 buildings and, as a result, looks like a contemporary concrete, galvanized steel and glass version of the original Chinese pagoda. At alternate levels, the exposed galvanized structural steel

As the world's largest sporting venue, the Indianapolis Motor Speedway has 250,000 seats. The control tower, a Chinese "pagoda" rendered in modern materials, forms the centerpiece of the complex.





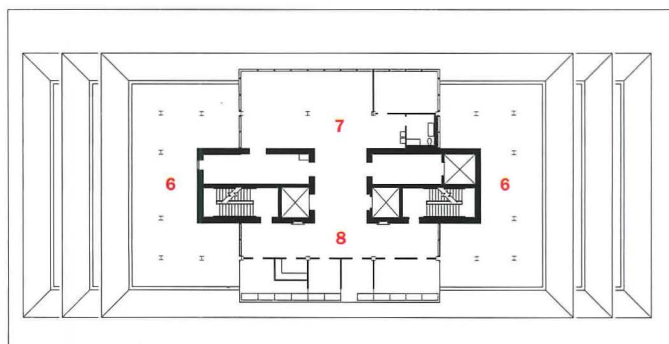
(the same material used in the miles of bleacher seats that surround the building) cantilevers to provide exterior viewing decks. The tension-glass curtain-wall system allows unobstructed views to the cars.

Other facilities built as part of this project include garage buildings, a media building for 700 journalists, team offices, and a catering facility.

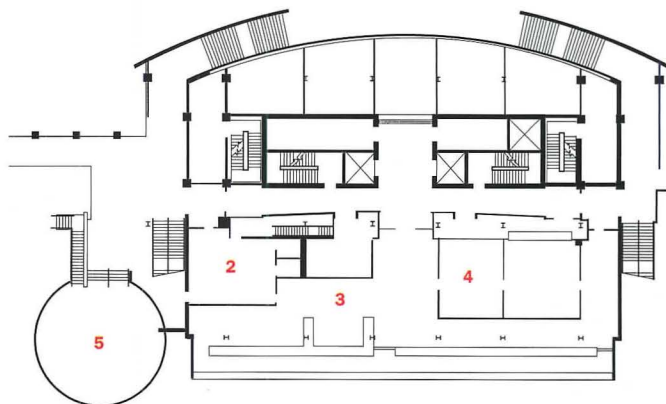
Commentary

According to Hess, the project presented a "curious design challenge." With more than 250,000 permanent seats, the Indianapolis Motor

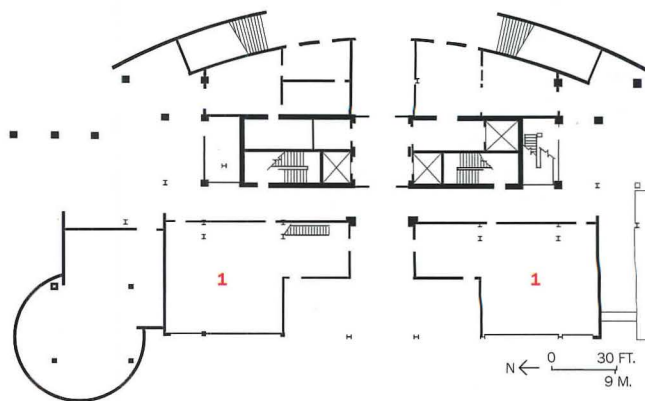
Speedway is the world's largest sporting venue. Three times a year, these seats are completely filled. But, because the building is host to only three events a year, the complex is starkly empty most of the time and the building is in "quiet repose," says Hess. So the architects had to design something visually interesting that could hold its own even when surrounded by miles of empty grandstands. Using vernacular Chinese forms and modern materials, they were able to produce a structure that affords color to the complex even when the complex is totally empty. ■



BROADCAST LEVEL



SCORING/TIMING LEVEL



GROUND FLOOR

A tension-glass curtain-wall system and good sight lines provide unobstructed views to the cars, from the first to the fourth turns, no matter where a spectator is seated.

1. Hospitality
2. Interview area
3. Race control
4. Media workroom
5. Winner's podium
6. Observation
7. Production area
8. Broadcast booths



Buckminster Fuller's Dreams of Spanning Great Distances Are Being Realized in Big Projects

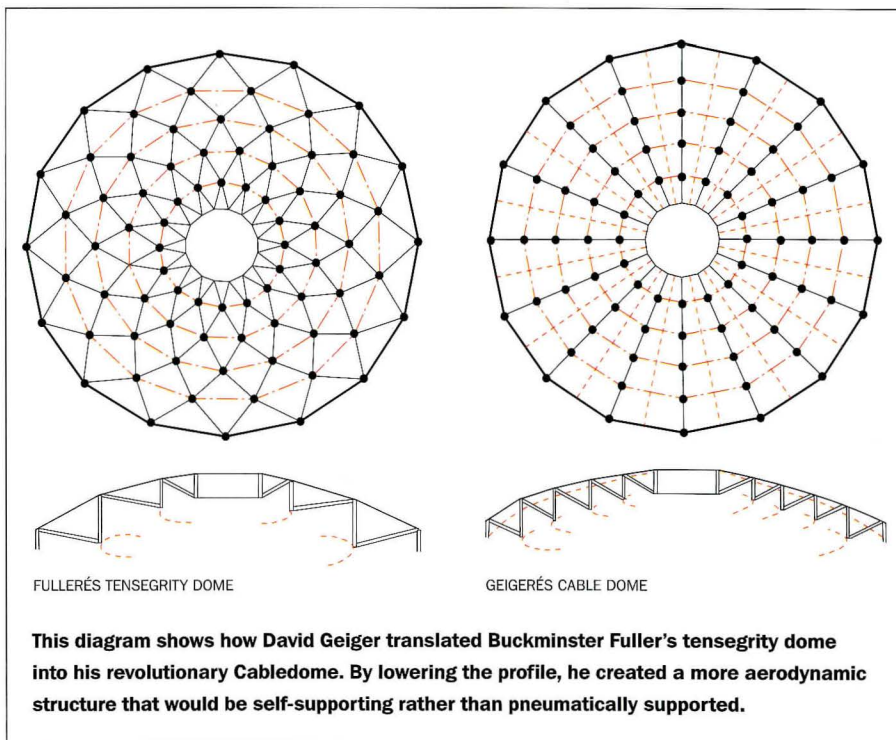
LONG-SPANS AMPLIFY THE COLLABORATIVE RELATIONSHIP BETWEEN ARCHITECTS AND ENGINEERS

By Sara Hart

“Islands of compression in a sea of tension!” was Buckminster Fuller’s poetic definition of *tensegrity*. He also offered a more extensive one in his seminal book, *Synergetics* (1982), in which he coined the term as “a contraction of ‘tensional integrity.’” Tensegrity describes a structural-relationship principle in which structural shape is guaranteed by the finitely closed, comprehensively continuous, tensional behaviors of the system and not by the discontinuous and exclusively local compressional member behaviors. Tensegrity provides the ability to yield increasingly without ultimately breaking or coming asunder.”

New York structural engineer Guy Nordenson, who worked for Fuller in 1974, parses the definition more succinctly: “Tensegrity structures are self-contained networks of cables and posts, sometimes of regular geometry, sometimes quite free-form. The basic principle is always the same: posts—that is, compression members—are suspended in a net of prestressed cables. The tension in the cables is what gives the system its stiffness and, as a result, the structures tend to be quite springy.”

This principle is important to understand, because not only was it the theoretical basis for Fuller’s revolutionary geodesic domes, its evolution has made spanning great distances possible today. Because technology didn’t catch up with theory until the 1980s, Fuller’s round, freestanding structures of the 1950s and ’60s never grew very large in diameter. It wasn’t until structural engineer David Geiger simplified the construction of Fuller’s domes that the long-span domes that now cover sports stadiums, airport terminals, and convention centers were developed. Geiger, who died in 1989, engineered the first tensegrity structure at



CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article, as well as the Tech Brief on page 283. To receive credit, turn to page 366 and follow the instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Discuss innovations in long-span roof structures.
2. Describe the complexities in drawing and constructing domes.
3. Explain the structural systems used in dome structures.

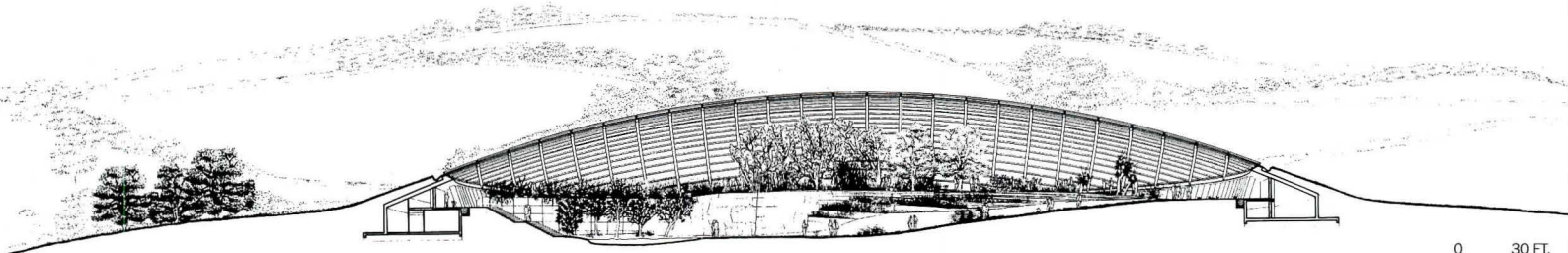
www For this story and more continuing education, as well as links to sources, white papers, and products, go to architecturalrecord.com.

a large scale and patented it as the Cabledome. In essence, his system became the prototype for most long-span, tensile-membrane roofs.

“The Cabledome is technically not a tensegrity dome, because it relies on a continuous perimeter compression ring,” explains Geiger principal David Campbell. “Bucky’s tensegrity concept requires that all compression in the system be discontinuous. Bucky also patented a dome system that employed suspended, nested, annular frames, which he called the ‘Aspension Dome.’ In Bucky jargon, the Geiger Cabledome is really a tensegrity-type Aspension Dome.”

Geiger’s first long-span, cable-stiffened, pneumatic dome was the U.S. Pavilion at Expo 70 in Osaka (Davis, Brody & Associates; DeHarak and Chermayeff & Geismar). With a clear span of 465 by 265 feet, it was an engineering marvel. And at a cost of only \$4.50 a square foot, it was economical. Inflated from the interior, the entire roof was held in tension and weighed only 1.5 pounds per square foot, compared with the Houston Astrodome, built five years earlier, which weighed in at a relatively hefty 30 pounds. Only four materials were needed for the primary structural system and enclosure: steel cables for the roof, which are attached to a reinforced-concrete ring beam, which is set into an earth berm, and, finally, vinyl-coated fiberglass fabric. The use of this particular fabric represents an early example of technology transfer. Geiger helped show off American ingenuity at the expo by choosing fire-resistant fiberglass developed by NASA for the roof.

His cable-stiffened dome for the fencing and gymnastics arenas at the 1988 Olympics in Seoul was a marvel as well. Here, he finally got away from the air-inflated domes, which rely on mechanical equipment



SECTION THROUGH GLASS HOUSE



for their structural integrity. Campbell reminds us that pneumatically supported structures can and do deflate: “The most significant was the Pontiac Silverdome deflation in 1985 due to snow, followed by a wind storm that resulted in almost all the roof fabric being ‘lost.’” At Seoul, Geiger lowered the roof profile, simplified the cable system, and delivered two self-supporting structures with 393-foot and 295-foot diameters at only \$20 per square foot.

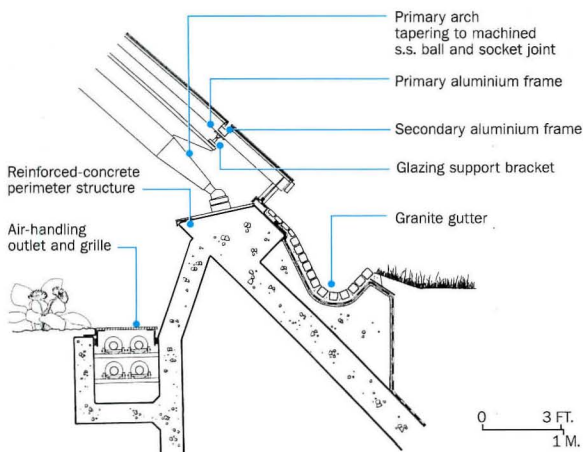
Spanning greater distances in more innovative ways has been a preoccupation of engineers and architects ever since—from the Georgia Dome (1992, Thompson, Ventulett, and Stainbeck; Matthys Levy; Weidlinger Associates) to the Millennium Dome (1999, Richard Rogers; Buro Happold) to the Eden Project (2002, Nicholas Grimshaw & Partners; Anthony Hunt Associates; Arup) [RECORD, January 2002, page 92]. Not all long-span roofs are tensegrity types, as evidenced by the three projects shown here, but they all share some ancestry with the Fuller and Geiger. While these three examples boast the tag line of “world’s largest” in their respective categories, they also illustrate the harmonic convergence of architecture and engineering in exciting new ways.

Crystal palace

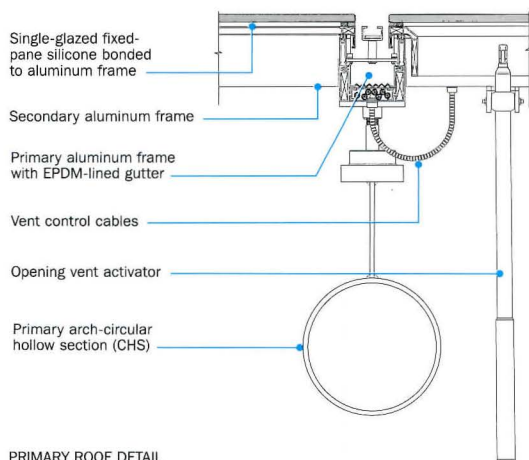
Wait 200 years to build another national botanic garden, then commission Foster and Partners to design the world’s largest single-span glass house as its focal point. That’ll bring the world’s attention to a country. Foster, who resurrected the British Museum with a spectacular Great Court and launched it into the 21st century [RECORD, March 2001, page 114], has accomplished a similar feat with the Great Glass House at the National Botanic Garden of Wales in Carmarthenshire. The domed structure, 312 feet by 180 feet, will contain a Mediterranean climate for 100,000 plants.

The structure is reminiscent of Geiger’s U.S. Pavilion at Expo 70. Both roof systems are supported on a reinforced-concrete ring beam resting on an earth berm. Whereas Geiger’s roof was a vinyl-coated fiberglass fabric, Foster’s pushed the envelope with CAD tools unavailable in 1970, to create an oval, torus-shaped glass dome. Because the complex geometry of the dome (the design of which is detailed in Tech Brief, page 283) was difficult to describe in conventional working drawings, the architect and engineer used a 3D CAD model, which was distributed to the steel manufacturer and concrete and glazing contractors with a set of explanatory drawings. The house is inclined to conform to the contours of the rural landscape, and the structure is bermed so that the dome appears to emerge naturally from a hill.

Construction was not easy and required surgical precision from all the trades. Fortunately, much of the steel, precast concrete, and glazing fabrication took place in the controlled environment of a workshop. The ring beam, being poured in place, was a bigger challenge and eventually required a surveyor to locate the x, y, and z coordinates in the field for the contractor. The beam upon which the torodial, glazed roof rests is close to



PERIMETER SECTION



PRIMARY ROOF DETAIL



**The Great Glass House,
National Botanic Garden
of Wales**

Carmarthenshire, Wales

Architect: *Foster and Partners*

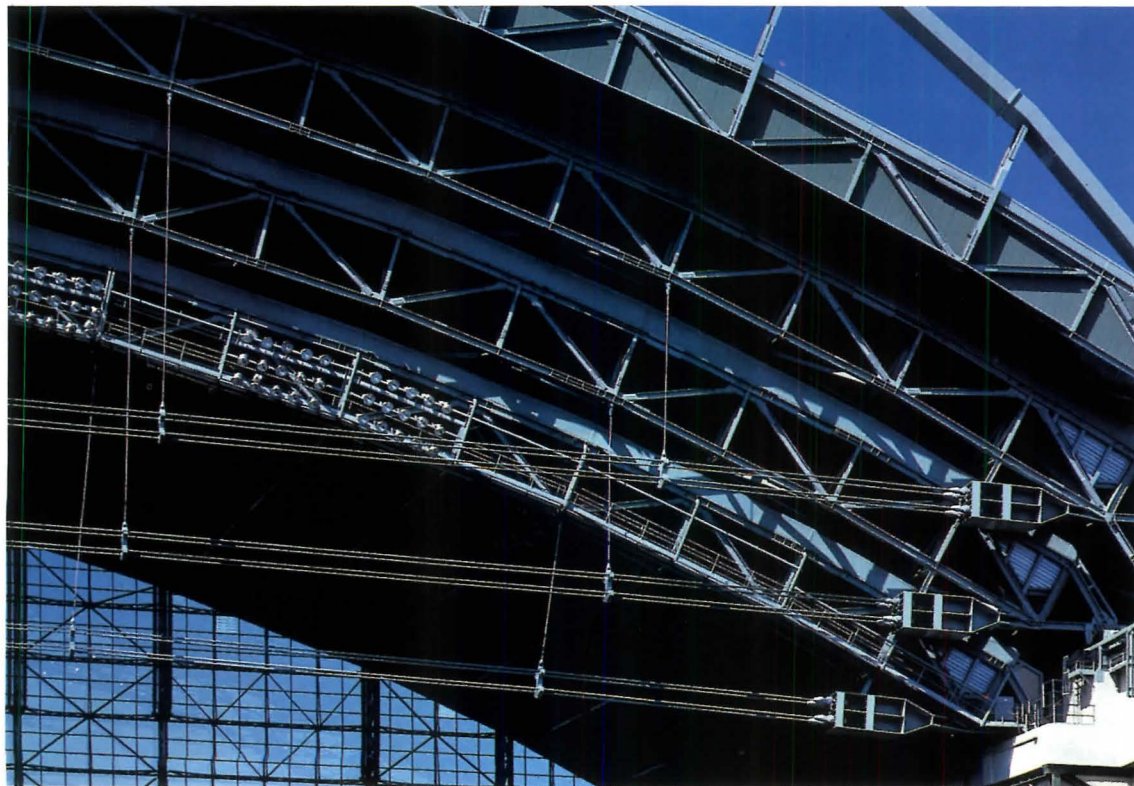
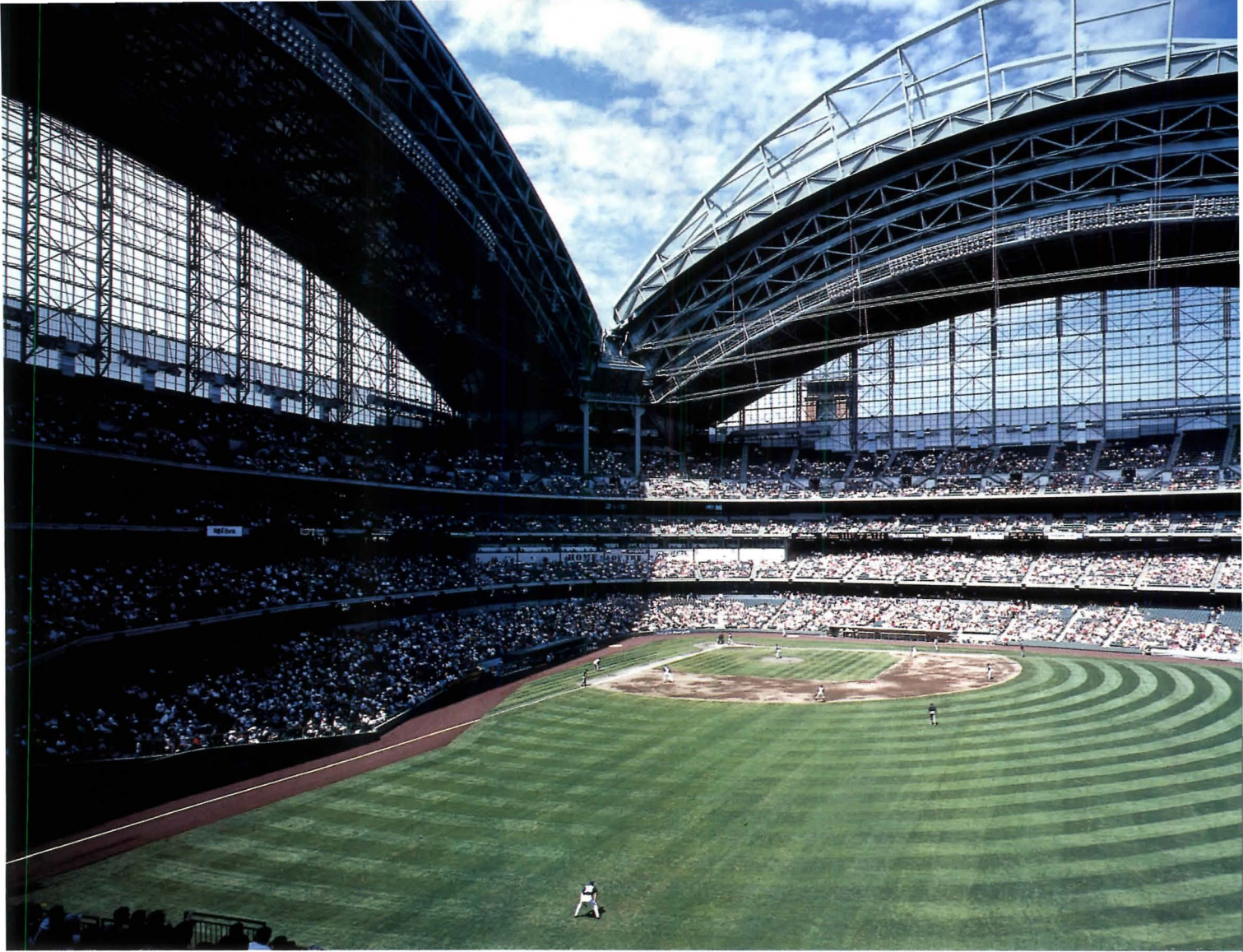
Structural engineer: *Anthony
Hunt Associates*

Date of completion: 2000

Roof span: 312 by 180 feet

Consultants: *Watson Steel
(structural steelwork); Metallbau
Fruh (glazing)*

The Great Glass House (this page and opposite) is a torus-shaped glass dome covering a single volume. The continuous arched structure, supported on a tilted compression-ring beam, has few dimensional repetitions. The primary arches are a composite steel profile fabricated from a circular hollow section (CHS) with a tee section welded to the top (opposite, bottom detail). The arches terminate in machined, solid, stainless-steel ball-and-socket joints (opposite, top detail).



**Miller Park,
Milwaukee, Wisconsin**
Architect: *NBBJ Sports &
Entertainment*
Structural engineer: *Arup*
Date of completion: 2001
Roof span: 590 feet (retractable)
Consultants: *Mitsubishi Heavy
Industries of America (roof
fabricator)*



Miller Park seats 42,500 spectators. A massive retractable roof provides an open-air stadium (opposite, top) on sunny days and a climate-controlled environment on cold or rainy days. When the roof is closed (above), a heating system keeps the seating bowl at 60 degrees when the exterior temperature drops below 30 degrees. No cooling is

provided for the bowl, but the outfield wall opens for ventilation. In order to minimize the height of the dome while providing clearance for fly balls within the stadium, the dome panels hang from finlike trusses, creating a dramatic profile (below). A cable truss underneath (opposite, bottom) provides additional support.



grade on the south side and rises 23 feet above floor level on the north. It tilts to the south to maximize daylight transmission and away from the north to resist cold winter winds.

Twenty-four tubular steel arches span up to 189 feet, giving a clear height of 49 feet over the general floor level. The arches vary in length due to the oval plan and terminate in a ball-and-socket joint at the ring beam (see detail, page 268). By using this kind of connection, the engineers avoided having to fabricate unique end plates for each arch.

THE ARCHES VARY IN LENGTH DUE TO THE OVAL PLAN AND TERMINATE IN A BALL-AND-SOCKET JOINT AT THE RING BEAM.

The solid stainless-steel joint allows rotation, to prevent the transfer of moment stresses due to the thermal expansion of the steel members.

The glazing system is unique to this project. Trapezoidal panes of glass are bonded to an aluminum subframe, which sits over a fully drained framing system. The drains direct the rainwater, which is used to water the plants and flush the toilets, into two 18,500-gallon tanks. Natural ventilation is provided by 147 computer-controlled vents (see Tech Brief, page 283).

Play ball ... anytime

The world's first covered and air-conditioned superstadium was the Houston Astrodome (Wilson, Morris, Crain and Anderson, and Lloyd,



**CargoLifter Airship
Hangar, Brand, Germany**

Architect: SIAT Architektur +
Technik

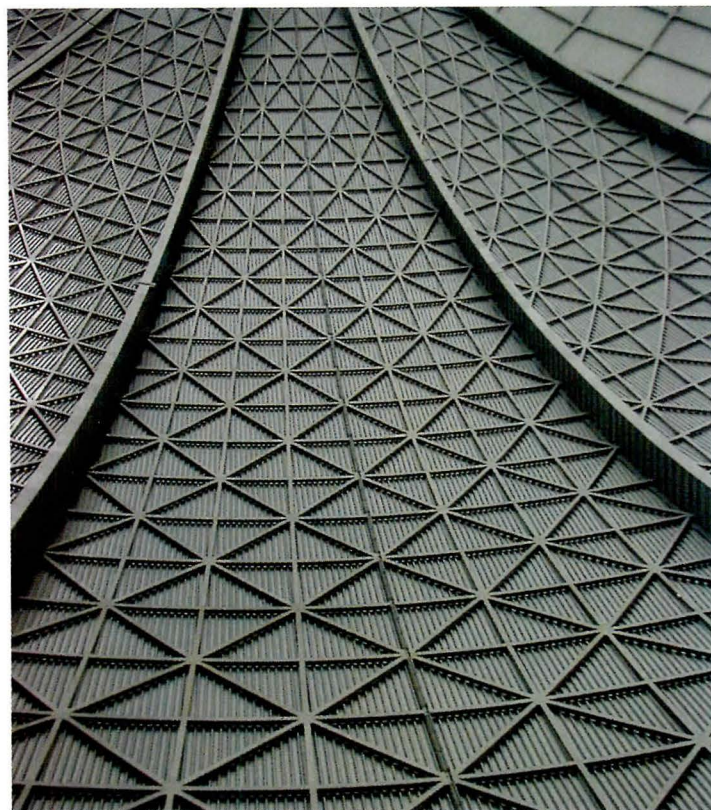
Structural engineer: Arup

Date of completion: 2003

Roof span: 1,190 by 738 feet

Consultants: Klöffel (building
services)

The design team minimized the weight and cost of the hangar's enormous doors (right) by cladding a horizontal, vertical, and diagonal grid with corrugated-metal sheeting. The PVC-coated stressed mem-



brane (top left and above) that covers the structure spans 102 feet between the trussed tubular arches in the warp direction and between the ridge truss and edge cable attached to the arch bases in the fill direction. A small prototype for the CargoLifter sits inside the hangar (in the center, above).

Morgan & Jones; Walter P. Moore and Associates). It covers 150,000 square feet of playing surface and is covered by a skylit dome 642 feet in diameter. Not without the serious flaws that prototypes often have, it was nonetheless touted as the "eighth wonder of the world" when it opened in 1965, and became a huge tourist attraction. Since the city's National League team, the Houston Astros, left the Astrodome in 1999, the stadium's fate is uncertain.

Fast-forward 37 years and witness one example of how spanning a superstadium has evolved. Miller Park, the new home to the Milwaukee Brewers, opened in April 2001. Designed by Los Angeles-based NBBJ Sports & Entertainment, it's topped with one of the most advanced and elegant roofs in the U.S. Furthermore, it's the only fan-shaped, retractable roof of this scale in the world. Design principal Dan Meis calls the concept "drop-dead simple." Its panels pivot from a point directly above home plate following a radial line, which, unlike other linear stadium roofs, reflects the the layout of a baseball field and the motion of the game. "We were originally concerned about moving the panels on a radius," explains Meis, having feared that a fan-shaped design would be more expensive than the typical linear roof. "When we submitted a model for our design [to the client], we instructed the model maker to make the roof actually open with the push of a button, figuring that if it worked in model, we'd figure out a way to make it work in reality," says Meis.

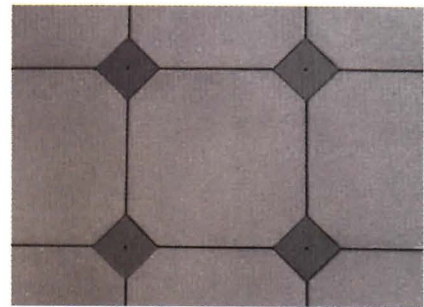
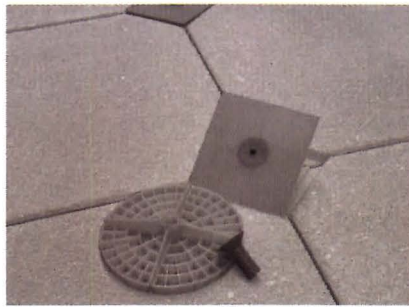
A retractable roof solves what might be called the Astrodome problem. When the roof glazing at the Astrodome produced too much glare for catching fly balls in the outfield, it was painted white. Of course, without proper daylight, the natural grass promptly died. Although this serious problem was solved by the immediate invention of AstroTurf, it did reflect the drawbacks of playing field sports inside. Miller Park does not have this problem. When the weather is cold and rainy, spectators are protected from the elements; the rest of the time, the games are played outdoors on natural turf, as they should be.

The \$50 million, 12,139-ton, retractable roof, manufactured by



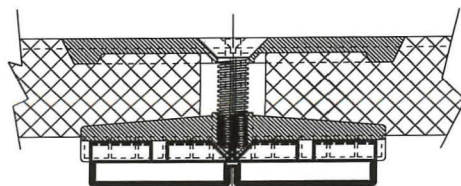
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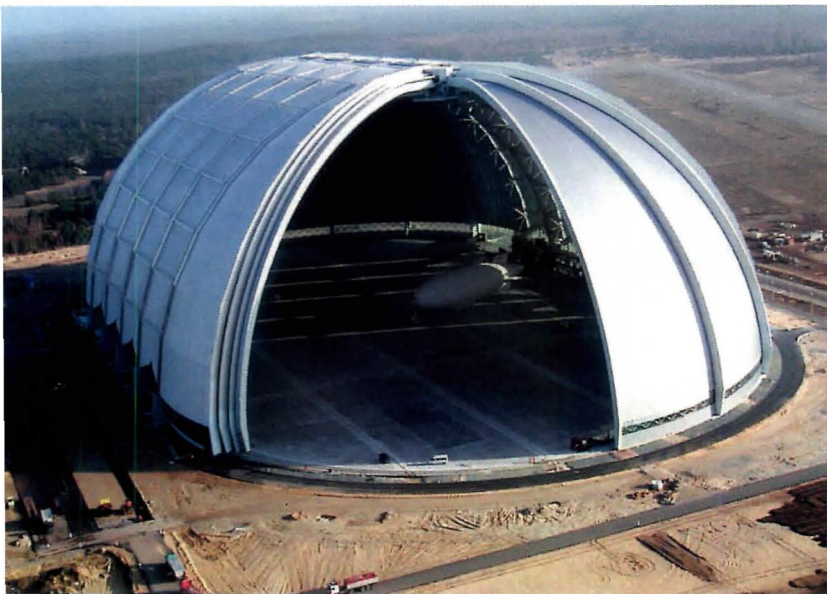


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External horizontal props between the top chords of the arches (above) restrain any torsion that might be caused by eccentrically connected membranes. The sliding doors (shown partially opened below)



are supported by a 3-foot-thick concrete slab. The doors can be completely opened in only 15 minutes.

Mitsubishi Heavy Industries of America, opens and closes like a fan in about 10 minutes. Two fixed panels span across the foul lines, forming the clerestory windows at the top. Electric bogeys move the other five panels to each side, which stack three on one side, two on the other.

The roof's unusual profile is the result of another design and engineering innovation. The upturns, or finlike trusses that support the panels, are on top of the roof. Typically, they support the roof from underneath. Meis explains, "Because the clearance must be 180 feet above second base [the maximum height a ball presumably can be hit], roofs with trusses underneath must be much taller than necessary to provide the required clearance." In this scenario, however, the structural system is inverted, requiring only a cable truss on the interior. This achieves a lighter, less bulky roof.

Of course, something has to hold up any roof, and here the materials statistics for the whole park are rather staggering. The 1,200,000-square-foot park includes 25 miles of deep piles, 70,000 cubic yards of structural concrete, 4,600 pieces of precast concrete, and 9,000 tons of steel. The sum of these materials is enough to build a 50-story building.

The cargo hangar

Everything old is new again. It's been 50 years since Germany manufactured its famous Zeppelins. Now a company called CargoLifter AG is developing airships (named CL 160s) to transport goods—generators, turbines, and oil drills—up to 176 tons over a distance of 6,000 miles. By definition, these flying cranes are technically blimps—helium-filled with no rigid skeleton. Without a metal chassis, so to speak, the CL 160s are lighter and, therefore, able to carry more cargo weight.

The company needed a hangar with a volume of 194 million cubic feet in which to build and store these airships. At 1,191 feet long by 225 feet wide and 351 feet tall, CargoLifter AG got "the world's largest

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self-supporting enclosure.” Far from a merely utilitarian shelter, the hangar has many clever elements in which the architecture is integrated into the structure—or vice versa, depending on one’s viewpoint. This suggests a palpable collaboration between architect and engineer at the grandest of scales.

Every detail has multiple functions and meanings writ very large. According to Arup, who engineered it, the hangar imitates the blimps’ design in the quest for lightness. Five steel arches and a ridge girder support the barrel-shaped midsection. The arches, trussed and

FAR FROM A MERELY UTILITARIAN SHELTER, THE HANGAR HAS MANY CLEVER ELEMENTS IN WHICH THE ARCHITECTURE IS INTEGRATED INTO THE STRUCTURE.

cross-braced to withstand wind and torsion, are anchored in U-shaped, reinforced concrete plinths above grade, which also act as covered entrances that, in turn, protect employees from snow sliding off the high fabric roof. The arches are glazed between the top chords, allowing daylight into the building. These “arches of light” also serve as egress beacons, guiding the way to emergency exits at the termination of each arch.

The membrane stretched between the arches consists of four layers of PVC-polyester mesh and is translucent to bring in additional

daylight, which is supplemented by bright spotlights whose beams are diffused by large mirrors. The mesh layers form air pockets that provide thermal insulation. PVC membrane was chosen for three reasons: It’s lightweight, has a life expectancy of at least 20 years, and has enjoyed 30 years of being successfully engineered.

They’re called doors, but bear little resemblance to any other kind. Semicircular in plan and a quarter of a sphere in three dimensions, they have an arch length of 551 feet (by comparison, the height of the Statue of Liberty is 153 feet), and the designers had to minimize the tonnage of steel to keep the costs from being exorbitant. The solution illustrates the shell principle. The inner part of each of eight door panels is made of identical horizontal, vertical, and diagonal steel members and clad with corrugated-metal sheets. The panels slide along motorized rails in two directions—three slide inside of each other and nest into one fixed panel in each direction. When closed, the panels form smooth, tightly fitting spheres.

Although David Geiger died suddenly in 1989 at the age of 54, his firm continues his work and still focuses primarily on long-span construction, adapting and improving on the Cabledome in each new project (see Tech Brief, page 286). Could these engineers design a span across an entire city? The answer is, probably. In 1950, Bucky Fuller proposed to cover a large portion of midtown Manhattan with a transparent, climate-controlled dome 2 miles in diameter. Although it may sound far-fetched, the concept is technically and economically attainable. One day soon there might be a compelling reason to do just that. ■



AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- ◆ Read the article “Buckminster Fuller’s Dreams of Spanning Great Distances Are Being Realized in Big Projects” using the learning objectives provided. Then read the Tech Brief on page 283.
- ◆ Complete the questions below, then fill in your answers (page 366).
- ◆ Fill out and submit the AIA/CES education reporting form (page 366) or download the form at www.architecturalrecord.com to receive one AIA learning unit.

QUESTIONS

1. Tensegrity describes which structural relationship principle?
 - a. continuous tensional behaviors
 - b. exclusively local compressional behaviors
 - c. continuous perimeter compression
2. Which of these is the prototype for all long-span tensile membrane roofs?
 - a. Geodesic dome
 - b. Cabledome
 - c. Astrodome
 - d. Aspension Dome
3. Only the following materials—fiberglass fabric, steel cables, a concrete ring girder, and an earth beam—were needed for the primary structural system and enclosure of which project?
 - a. U.S. Pavilion at Expo 70
 - b. Cabledome
 - c. Astrodome
 - d. Miller Park
4. Which structure has the only fan-shaped retractable roof?
 - a. U.S. Pavilion at Expo 70
 - b. Cabledome
 - c. Astrodome
 - d. Miller Park
5. Which is the disadvantage of a stadium roof with trusses underneath?
 - a. it is a less bulky roof
 - b. it uses a cable truss on the interior
 - c. it must be taller for clearance inside
 - d. it causes interference with high balls
6. Why is the CargoLifter CL 160 hangar covered with translucent PVC mesh?
 - a. to provide natural ventilation
 - b. to bring in additional daylight
 - c. to allow for the shape of the blimps
 - d. to withstand the wind
7. Which element is the same in both the U.S. Pavilion at Expo 70 and the Glass House at the National Botanic Garden of Wales?
 - a. vinyl-coated fiberglass roof
 - b. concrete ring beam resting on an earth beam
 - c. an oval glass dome
 - d. tubular steel arches
8. Why does the Glass House at the National Botanic Garden tilt to the south?
 - a. to maximize daylight inside
 - b. to catch the rainwater for watering plants
 - c. to maximize southern balmy breezes
 - d. to align with the magnetic north pole
9. The Glass House ventilation system is computer controlled for which?
 - a. temperature
 - b. wind speed
 - c. humidity
 - d. all of the above
10. The x, y, and z coordinates of the oval Glass House were tied to which?
 - a. traditional survey grid lines
 - b. fixed landmarks
 - c. Wales National Ordnance survey grid lines
 - d. both fixed landmarks and Wales National Ordnance survey grid lines

New power pricing affects conservation

By Lindsay Audin

Power marketers and some utility companies are now providing end-users with choices regarding how their electricity is priced, and that has been making engineers and architects reevaluate how they control energy consumption in buildings. Different pricing methods can drastically change the practicality of many energy-efficiency measures, so those who advise clients about which strategies are best must be as cautious as those who finance, purchase, and install them for their buildings.

For decades, engineers and architects have designed systems that control energy usage based on prevailing prices and a known rate-of-return or payback period. Conservation measures from insulation to lighting were judged on how quickly their cost could be recuperated by energy savings. This method for placing a value on improvements was reliable because energy pricing was either stable or else changed for everybody at the same time. Few customers got better prices than others.

Today things are different. As a result of the deregulation of natural gas and electricity, it is quite possible for several adjacent buildings to have very different pricing regimes. Building A might have a flat pricing

structure for electricity; building B may operate under a standard electric tariff; while building C could pay a different price for power each hour of the day.

Understanding deregulated utility pricing

Regulated electric rates usually charge commercial and industrial customers separately for power consumed during peak and off-peak periods. Each charge represents a different line item on a monthly bill. Under a utility's standard electric tariff, where competitive pricing prevails, the part of the customer's bill covering transmission and distribution remains regulated but may have shrunk to less than a third of the total, minimizing the impact of variations in its cost.

In another scenario, a customer buying power from an unregulated vendor could elect to be charged a flat rate for all power consumed, regardless of the time of day. In essence, the usual peak-demand charges for the generation portion of the cost of power have been "folded" into the overall energy charge, making on-peak and off-peak power cost the same, regardless of how much power is consumed during the peak-demand period. Alternatively, customers may buy energy at a real-time, or market-based price, in which the amount charged changes hour-by-hour based on the current wholesale price for electricity. These users may see their costs vary widely from month to month depending on market conditions such as the weather or consumer demand, or other factors, such

as a power-plant outage.

Why would a customer choose one or the other of these seemingly extreme pricing options? Some, wishing to avoid price fluctuations common under deregulation, are apt to jump at the certainty offered by flat pricing. Other customers, like industrial plants, who can cut their load during peak times, may choose real-time pricing. This allows them to make money by cutting load when power is very expensive, while powering up their plants at times when power is cheap.

The good, the bad, and the profitable

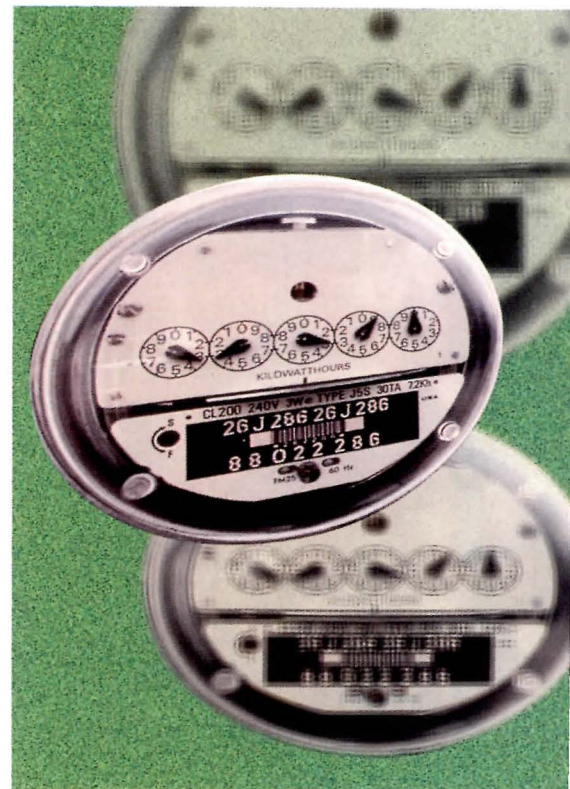
So what happens when the electric-usage pattern of a customer changes due to installation or upgrade of an energy system? That depends on the interaction between the system and the pricing structure.

An energy-management system, for example, may cut off-peak power use by turning lighting and fans off when a building is not in use. Relative to the old utility tariff that separately charged for energy and peak demand, a fixed-price rate structure increases the value of saved off-peak kilowatt-hours (kWh), shortening the payback period for energy-conservation measures that save off-peak power.

But a customer who elects to buy power on a real-time-price con-

tract will likely pay less for off-peak kWh, making the conservation of off-peak energy less lucrative. Even occupancy sensors, which usually turn off lights during off-peak hours, must be more carefully analyzed for cost-effectiveness.

Here's an example. A university in New York City wants to install a thermal storage system to cool a building by using ice made at night,



when power is usually cheap, instead of running an electric chiller for cooling during summer peak-demand hours. The difference in cost between nighttime off-peak power (\$.05/kWh) and more costly daytime power (\$.25/kWh, with peak-demand charge included) comprise most of the savings from

Lindsay Audin is the president of Energywiz, an energy and technology consulting firm (energywiz.com).

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Energy Update

such systems. But what if the university's purchasing department opted for a flat-rate contract? Then, all power would cost the same (\$.14/kWh), whether it was day or night. When the cost differential is eliminated, the dollar savings from thermal storage may be greatly reduced. Even though using the ice-making equipment still cuts peak demand, the payback period for installing it nearly triples, from 4 years to 12 years, making it economically unfeasible.

In a second example, a cost analysis of a daylighting-control system in the Chicago area came to a similar conclusion. An office building with an energy-management system that automatically dims common-area and perimeter interior lighting would reduce both consumption and peak-demand charges under an old energy price structure. This isn't true under a

flat-rate contract, where a daytime kilowatt hour that once was \$.12/kWh is worth \$.07/kWh under the flat-rate contract, because the demand charges are averaged together with the energy charges. On the other hand, if the power is purchased in real time, that daytime kWh could be worth up to \$.50/kWh. Unfortunately, because the market price is always fluctuating, that value cannot be relied upon to compute an ensured payback period. A price that varies in real time, based on wholesale power markets, may result in that kind of super-high charge only a few hours a year, once again raising questions regarding how quickly an expensive dimming system would pay for itself.

And, there's still another wrinkle. Some power contracts include a "usage clause." Such clauses penalize customers if they reduce usage

beyond an allowable level, for example, if they use 10 percent less than the amount they consumed the year before. The effects of any conservation effort must now be calculated to avoid triggering this penalty or else double-checked to see that the net savings will still justify the investment.

This new reality simply means that energy-efficiency strategies

customer's HVAC plant may require that it remain on a "bundled utility service," one that charges separately for demand and different rates for on- and off-peak power.

Before advising a client on energy-conservation strategies, talk with a few power vendors. Some are happy to provide the best of both worlds: flat pricing during part of the year, and a floating price that

WHEN ELECTRICAL BILLING CONTRACTS ARE CHANGED, ENERGY-CONSERVATION MEASURES CAN BECOME IMPRACTICAL.

must now be coordinated with power-purchasing strategies. If the purchasing department changes billing contracts without considering how it might affect energy-conservation measures, options that could result in overall lower costs might become impractical. Unless something better than the fixed-rate pricing regime is acceptable, it may be necessary to avoid deregulated energy pricing. Economical operation of the

is sensitive to peak-demand conditions during the summer months. Sometimes separating central plant loads from those that are unlikely to vary during the year—offices, for example—into different meters and accounts may also make sense. Doing so could allow one part of a building to be charged a variable price and another part a fixed rate. Such sophistication may not be possible with existing buildings but may work in new facilities. ■



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Tech Briefs

3D CAD models make highly complex geometry possible in glass house • Seismic upgrade gives new life to university building • A tensegrity dome gets rigid

Structural engineers build a virtual 3D model of Norman Foster's Glass House in Wales

Techno-wizardry has sprouted at the National Botanic Garden of Wales, where Foster and Partners designed the Great Glass House (See Building Science, page 267), a dazzling elliptical dome of a greenhouse that's tipped 7 degrees off the horizontal to turn its glazed face to the southwestern sunlight. In bringing the project to life, the designers took full advantage of digital tools for design, construction, and operation.

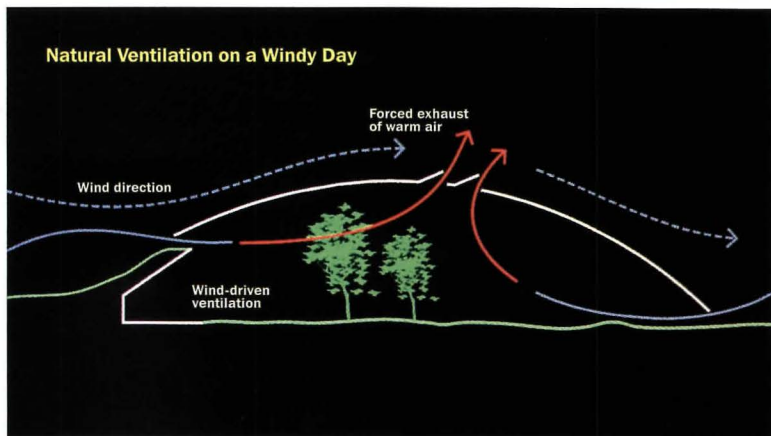
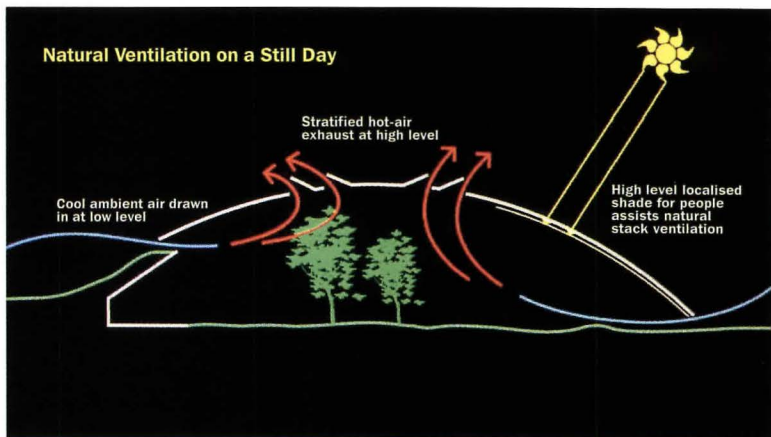
Foster and Partners teamed with structural engineering firm Anthony Hunt Associates to build a 3D virtual model of the Glass House, using Bentley's MicroStation CAD software. The dimensions of the building, which is oval in plan, were determined by plane cuts of a torus, says Nigel Curry, associate at Foster and Partners. Its superstructure is described by the structural engineers as a "multiple steel arch toroidal" dome with a single-glazed roof derived from two orthogonal circular arcs of different radii. Several digital models were developed and evaluated by the structural engineers; only three physical models were built to help refine shape and siting. "The building's unusual form would have been impossible to analyze for structural performance without the number-

crunching capabilities offered by today's computers and software," says Wolf Mangelsdorf, an associate at Anthony Hunt.

Designing in cyberspace is one thing; assembling a building in glass, steel, and concrete is quite another. The dome's complex geometry meant nearly every one of the 785 trapezoidal panes of glass for the roof, along with the components of the aluminum frame and subframe, had to be cut to a different shape and size. Double-curved soffits and walls curve in plan and vary in height; some slope as much as 70 degrees to the horizontal. Construction tolerances were a mere 10 millimeters. Essentially, erecting the Glass House became a challenge similar to piecing together an enormous 3D jigsaw puzzle.

To meet such exacting standards, Foster and Partners sent the CAD files to the steel manufacturer and the concrete and glazing contractors, who used them to fabricate components precisely. Traditional grid-line offset methods of surveying at the building site weren't going to cut it for construction, either.

Instead, the builders were asked to create their own coordinate system for the building, based on the path and center lines of the CAD model. Using a high-precision theodolite, the builders then transferred the building's x-y-z spatial coordinate system to the site, tying it into the Wales National Ordnance Survey Grid and to fixed landmarks. "This was seen

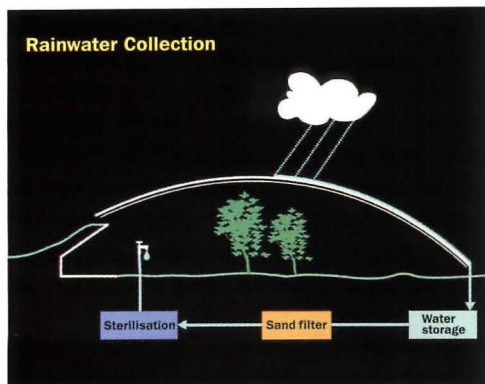


Using finite element analysis, environmental consultants designed a system of natural ventilation essential to maintaining a Mediterranean microclimate, using 147 computer-controlled vents.

by all as the most efficient way of building, [given the structure's complexity]," says Curry. Prefabricated components were marked by grid and unit references to ensure they were placed correctly. During construction, the CAD model was updated and reissued as needed to reflect the latest conditions.

Some 100,000 Mediterranean plants thrive under the dome's cover. Using natural ventilation within the Glass House was not only environmentally sound, it was necessary to ensure that the plants could tolerate the decidedly unbalmy climate of Wales. Environmental consultants Max Fordham and Partners examined

airflow through and around the Glass House using finite element analysis, with programs and spreadsheets they developed in-house. The Glass House's glazing system is equipped with 147 computer-controlled vents, which open outward or close automatically depending on temperature, wind speed, and humidity. Sensors both outside and within the structure gauge and respond to ambient conditions constantly, and the computers that control the vents receive up-to-date weather forecasts via a link to a local meteorological center, so that operators can make adjustments as needed. *Deborah Snoonian*



The roof channels rainwater into two 18,500-gallon tanks to be used to water plants and flush toilets.

Tech Briefs

University uses a seismic upgrade to enhance the learning environment

To its fans, Wurster Hall presides (or looms, according to its detractors) over the southeastern slope of the University of California, Berkeley. And because this concrete Brutalist building is home to the Department of Architecture, it provokes outspoken, often conflicting, opinions from usually oblivious passersby. There was unequivocal agreement, however, about the results of a 1998 campus survey that rated its chances of standing up after the next earthquake as “very poor”—meaning the building would likely suffer extensive damage and might even collapse in a major temblor. No argument was heard against making a priority of the seismic retrofit of a building that lies 100 yards from the Hayward fault, is occupied 24 hours a day, and houses the Departments of Landscape Architecture, Architecture, and City and Regional Planning.

Wurster Hall, which opened its doors in 1965, was designed by a faculty team consisting of Joseph Esherick, Vernon DeMars, and Donald Olsen, each of whom had his own firm at the time. Joseph

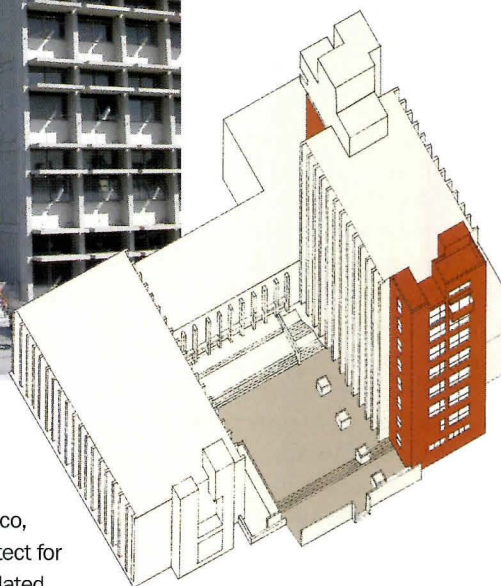
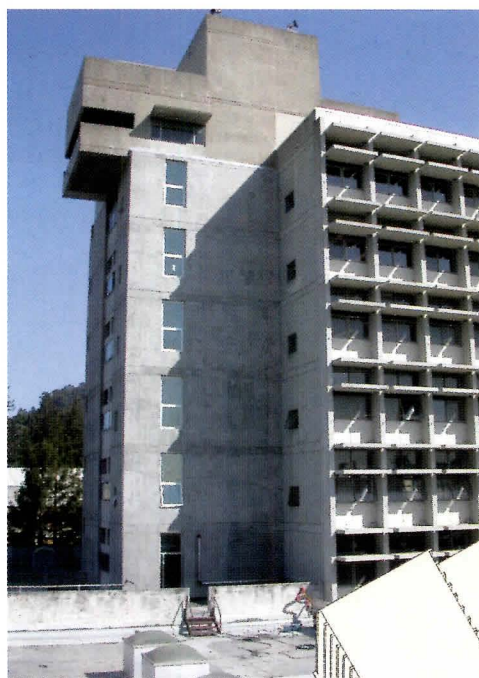
Esherick’s office did the working drawings. From the projecting concrete sunshades and exposed ductwork, piping, and conduit to the rough plywood and unfinished concrete wall surfaces, the idea for the design was that systems would be apparent and the building itself would act as a learning laboratory. What couldn’t be seen—or even known in the ‘60s—were the structural weaknesses that make the building so susceptible to a seismic meltdown.

The reinforced concrete structure is a 210,000-square-foot, asymmetrical composition enclosing three sides of an east-facing courtyard. On the north side is a 10-story tower that houses the design studios on the fourth through ninth floors. To the south is a four-story wing. A three-story structure connects the two wings and also creates an east-west connection. The lobby inside the west-facing entrance provides the vertical and visual relationship between the first-floor auditorium, café, and classrooms and the second-floor

library, departmental offices, and courtyard.

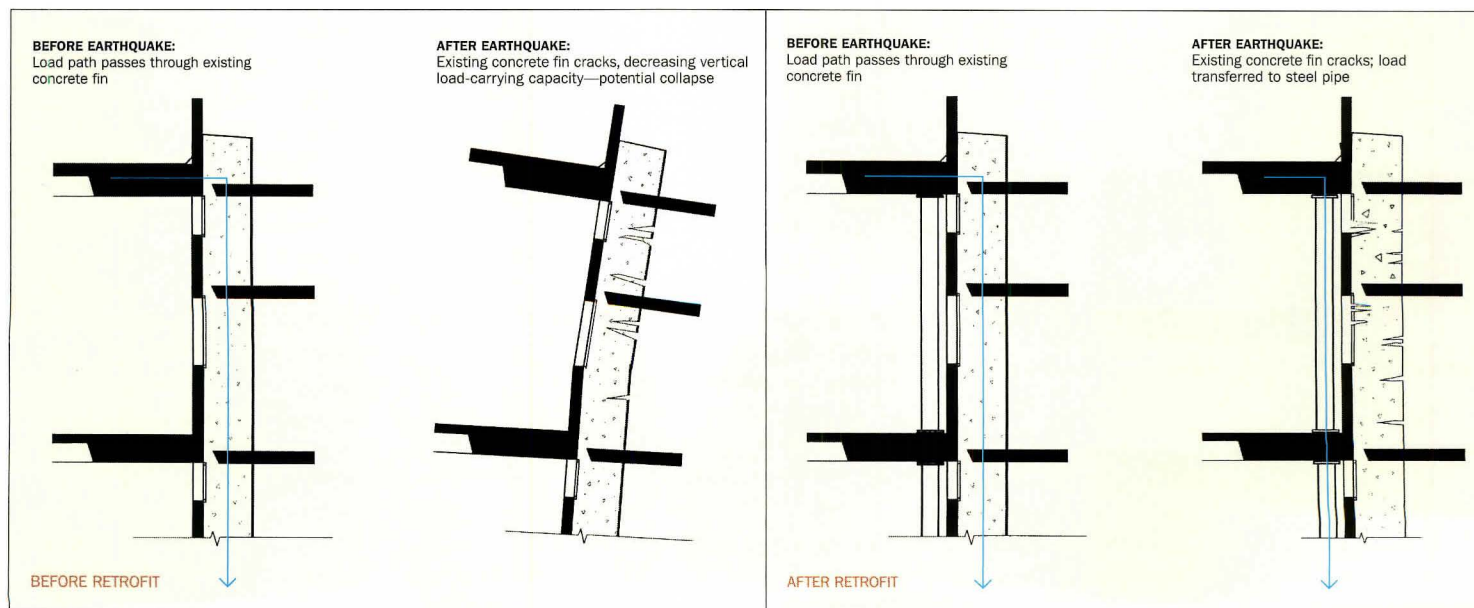
Esherick’s successor firm, EHDD of San Francisco, was selected as the architect for the seismic retrofit and related design work. Rutherford and Chekene were the consulting seismic engineers. The team was charged not only with solving the seismic problem but responding to strong and potentially conflicting opinions about how to preserve the building and enrich it. “The Dean of the College of Environmental Design, Harrison Fraker, charged us with finding opportunities to enhance the

New shear walls stabilize the existing stair tower (left). A new, larger east tower (below in red) will buttress the studios and provide additional classroom space. Diagrams (bottom) show how vertical loads will be transferred after an earthquake.



teaching environment in the course of providing the appropriate seismic solution,” says the project architect, Jennifer Devlin of EHDD.

“The predominant weakness in the building was in the east-west direction. We now know that discontinuous shear walls, which were typical in the ‘60s, are insufficient. They lose their integrity, and the columns alone would be unable to



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Tech Briefs

support the building," explains Afshar Jalalian, senior associate at Rutherford and Chekene. Solving the shear in the tower was the overriding design challenge, as it was relatively easy to locate shear walls in the lower wings.

Five alternatives for strengthening the tower were considered during the conceptual phase: perimeter, interior steel bracing; interior shear walls; an exterior macro frame around the entire tower; demolishing the tower altogether; and, finally, adding external buttresses. One by one, the first four solutions were eliminated for reasons ranging from cost to infeasibility. Ultimately, the architects selected external buttressing, for having the least impact on the appearance of the building and being the best option for spatial enrichment. This reinforcement was needed only in the east-west direction, so it could be more readily blended in with the solid ends of the tower. The new east tower is considerably larger than the existing stair tower. Besides providing buttressing

against earthquake ground movements, the new structure will provide badly needed seminar space at the ends of the studios. This will increase the studio space and provide a new place for data



The reconstructed lobby stair.

cabling and power needed in computerized studios.

The west tower was strengthened by adding a 6-inch reinforced concrete jacket that was integrated into the existing structure through

vertical strips that were removed and repoured along with the jacket. The neat joints will be visible from the interior, revealing once more how the building is put together. The effect on the external appearance of the building is negligible. The gravity loads are carried by interior columns and exterior fins. Both are extremely brittle and would be unable to withstand the horizontal motion without failure. The interior columns were wrapped with a glass-fiber composite that is as thin as a piece of cloth. It is run through epoxy glue and then wrapped around the columns to hold them together. The finish adds no more than ¼ inch to the exterior dimensions. The fins were provided with supplemental supports, pipe columns—18 inches at the lower level and 8 inches at the top—placed at every fourth bay.

"The west-tower shear walls, which extend through the building to tie into the foundation, caused a reconfiguration of the lobby stair and that created an opportunity to open up the lobby and improve the connection to the library and the rest of the second floor," says Devlin. The ripple effect

of the seismic reconstruction means that the library has also been reconfigured for ADA compliance as required in areas affected by a seismic retrofit. She continues, "We were also asked to provide new thinking about how to use the space for teaching, and the library has really become the heart of the building." Dean Fraker, who has raised donations to fit out new spaces and refinish older ones, comments, "All told, the work has been done mostly within the existing envelope and the building vocabulary. It is most noticeable from the courtyard, where we now have twin towers, but even that work is subtle and sympathetic."

All this work didn't come inexpensively, however, and the state didn't share the dean's broad view of the scope. It limited its financial contribution to the minimum number of walls, slabs, and enclosures needed to achieve the seismic solution, which amounts to approximately half of the \$32 million cost of the entire project. The balance of the costs have been picked up by the university, and donations were raised by the College of Environmental Design. *Barbara Knecht*

Bucky Fuller's concepts continue to evolve in Geiger Engineers' long-span roofs

In 1994, the Convention Authority of Cumberland County, North Carolina, commissioned Charlotte, North Carolina-based Odell Associates to design a 13,000-seat multipurpose arena in Fayetteville. Suffern, New York-based Geiger Engineers, pioneers in long-span roof systems, adapted its Cabledome system to cover the space in a way never realized before.

In 1984, David Gerger, founder

of the eponymous engineering firm, developed the Cabledome from Buckminster Fuller's tensegrity dome (see *Building Science* story, page 267). As with all tensegrity domes, the Cabledome was meant to be clad with tensile membranes, most often translucent Teflon-coated fabric.

The Crown Coliseum needed a completely opaque roof, so the engineers substituted a rigid secondary structure for a tensile membrane, using conventional construction materials and techniques.

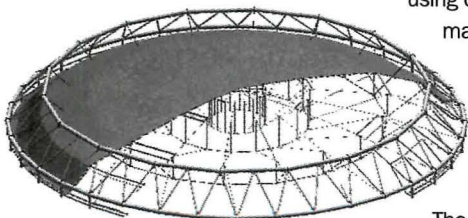
This hybrid Cabledome system is a cable-strut network consisting of a perimeter compression ring in the form of a conical truss. The secondary roof structure is



The Crown Coliseum in Fayetteville, N.C., is the first known tensegrity dome employing a conventional rigid structure of steel joists and metal deck.

conventional—metal deck, open-webbed bar joists, and steel girders, assembled into 18 pie-shaped panels, which "float" directly on the cable-strut network, supported only at the corners on the masts as shown in the diagram at left.

Principal David Campbell maintains that Crown is "the first rigidly clad tensegrity-type dome in the world"—but perhaps not for long, as this project demonstrates its utility where tensile membrane is undesirable. *Sara Hart*



Digital Architect

The case for a digital master builder

By Deborah Snoonian, P.E.

A recent symposium sponsored by the Department of Architecture at the University of Pennsylvania began with a promise. "This is not going to be about blobby forms," said Branko Koralevic, associate professor and director of Penn's Digital Design Research Laboratory, in his opening remarks at *Designing and Manufacturing Architecture in the Digital Age*, which took place in late March [Note: RECORD publisher McGraw-Hill was a conference sponsor.] The audience of 150 smiled knowingly at his comment, perhaps even sighed with relief—blobs are so *passé*.

The two-day event was an international assembly of cutting-edge practitioners and researchers who discussed the role of digital technology in design and practice. The presenters went beyond merely marveling at innovative architectural forms (hence, the no-blob promise) to bring forth examples of new fabrication technologies, CAD/CAM innovations, mass customization, and other digital tools put to use on current and planned projects. Above all, architects were urged to harness the power of technology for all stages of design and construction; in other words, to reassume the role of the master builder.

A technological crossroads

The old Chinese maxim "May you live in interesting times" applies

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today to architects with respect to computing. CAD software and other productivity tools have automated some laborious tasks over the past two decades, but they haven't fundamentally changed the way architects practice. But new tools offer that promise, and Koralevic wants designers to overcome their ambivalence about technology. "Architects have a chance to regain ground they've lost to contractors and other parties," he said. "We can overthrow traditional construction techniques, with profound consequences."

William Mitchell, dean of MIT's school of architecture, framed the event by envisioning a future of "information-rich design worlds linked to fast, programmable construction machines." MIT's Media Lab is exploring design tools with unique interfaces; one of the most intriguing is called Illuminating Clay, which lets designers analyze free-form clay models. The model's geometry is captured in real time with a laser scanner; using this information, computer simulations of conditions such as shadow casting, land erosion, or visibility are calculated and projected back onto the clay model. A designer can change the model's shape and see the effects of those changes right away, which allows design options to be explored rapidly without having to type in data. Think about it: Would you miss

your CAD software? Your keyboard? Your computer screen?

Digital gurus at work

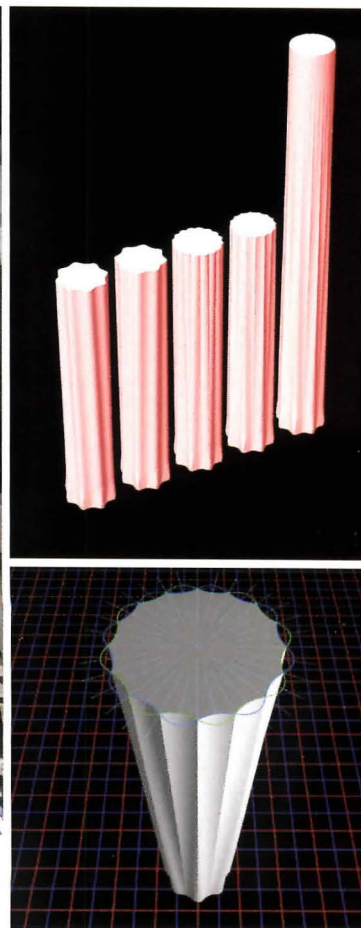
Several speakers, many from outside of the U.S., presented a compelling case that technological advances were integral to achieving design goals for a wide variety of projects.

Mark Burry, who is professor of innovation at RMIT University in Melbourne, Australia, has been involved in completing the construc-

tion of Antonio Gaudí's Sagrada Familia Cathedral in Barcelona since the 1970s. Construction began on the church in 1889, but it was unfinished when Gaudí died in 1926. The design's documentation was incomplete because many of the 1:10 scale plaster models he left behind were destroyed in the 1930s. Burry has taken photos, drawings, and surviving shards of the models and analyzed them with parametric design software to fill in the missing gaps. The software was essential for



A column from Gaudí's Sagrada Familia Cathedral in Barcelona (above). Computer modeling illustrates the development of a single eight-sided column (top right), which shows a gradual addition of sine curves in cross section (bottom right). The sine curves undergo phase shifts as the column rises from base to capital.



Digital Architect

DIGITAL TECHNOLOGY

resolving the complex geometries Gaudí had conceived, Burry said. He estimates it will take another 40 years to finish the cathedral.

Mark Goulthorpe, principal of dECOi Architects of Paris, presented a range of projects that used digital manufacturing tools and other research. Blue Gallery, an exhibition space in London, boasts sinuous curves reminiscent of seashells. It was built entirely of nonstandard wood, fiberglass, and aluminum components, many fabricated with computer numerically controlled (CNC) machines. Construction tolerances for the project were a mere two millimeters. (Sadly, the project was intended as an experimental effort, and the artists had such regard for the space that they wouldn't hang their work in it. The gallery was dismantled shortly after it was completed.)

Another dECOi project, the Aegis Hyposurface, was commissioned in a competition sponsored by the Hippodrome Theater in Birmingham, England. It's a curtain of steel mesh mounted on computer-controlled pistons, which slide back and forth in response to external "stimuli" such as movement, light, and sound. "The project was designed to show on the outside the events that are happening inside [the theater]," said Goulthorpe. A collaborative effort between dECOi, RMIT's Burry, and leading

and Partners' Specialist Modeling Group, discussed the design of the Greater London Authority Headquarters along the Thames, whose energy-efficient form he likened to a "parametric pebble." A 3D digital model of the structure was created in Bentley Systems' MicroStation software, then rationalized into panels to refine the glazing and structural-steel systems. Fabricators and the construction contractor were required to develop their own digital models based on the firm's data to ensure that components would be machined to required tolerances and would be assembled correctly at the site. Instead of a traditional grid-line offset survey, the 3D building model was linked to known locations at the site. The builder even attached holographic targets to connections in the structural-steel system, which were laser-scanned on-site so that steel beams were inserted in the correct position.

For Gehry Partners, the physical model precedes the virtual one. When designing L.A.'s Disney Concert Hall, models were built, laser-scanned, and brought into CATIA software for analysis and refinement. "We don't do rationalization,"

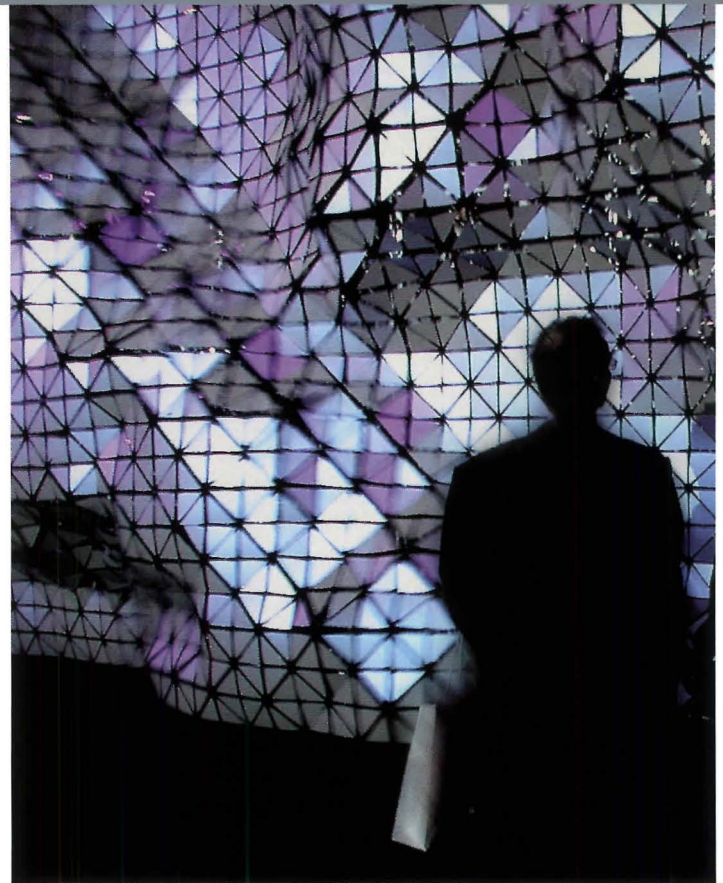
"ARCHITECTS HAVE THE CHANCE TO REINVENT DESIGN AND CONSTRUCTION PRACTICES," SAID KORALEVIC.

researchers in solid geometry and electronics, the project garnered top honors at the 2001 Far East International Digital Architectural Design (FEIDAD) Awards.

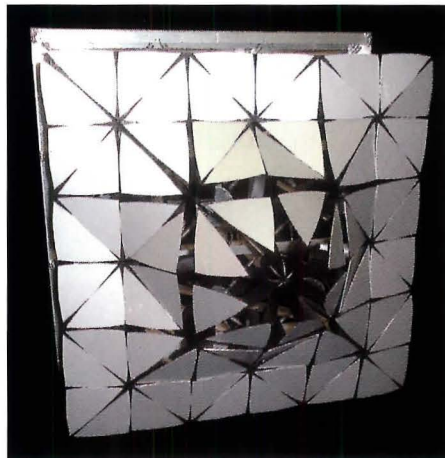
Two firms renowned for techno-prowess—Foster and Partners and Gehry Partners—presented different ways of using digital tools to achieve design goals. Hugh Whitehead, from Foster

said principal James Glymph. "We produce shaped, sculptural forms that stay as is." The project, begun in 1989 and halted in 1994 due to budget concerns, benefited from more acceptance of computing in design when it was restarted, post-Bilbao, in 1997.

Gehry's swooping forms are notoriously challenging to build. The concert hall, with its demanding



The steel curtain of the Aegis Hyposurface (above) is attached to a grid of sensor-activated pistons (left).



seismic and acoustical requirements, is so complex that a 4D CAD visualization tool was developed by Disney and Stanford University (soon to be licensed commercially) to show its erection sequence over time. The team uses the 4D model to identify and correct construction problems before they happen.

Toward a digital future

The projects were groundbreaking, but there's no denying a gulf exists between what these practitioners do and how most architects work. Few firms design high-budget iconic architecture, and many lack the resources to invest in or even inves-

tigate the latest tools. So what will it take for true digital-age design to enter the mainstream? What will help architects return to their master-builder roots?

The answers, in short, were numerous: overcoming adversarial relationships among designers, engineers, and contractors (what Glymph calls, at least in the U.S., "the Wild West atmosphere" of construction); a higher tolerance for risk; educational changes that emphasize the wise use of digital tools rather than mere facility with them. All agreed these changes will take decades.

Technology for architects is in its adolescence. It's difficult to envision how exactly it will transform aesthetics or architectural practice. But projects with roots in digital innovation offer reason to be enthusiastic or at least curious about its implications. The symposium was a call for action: architects must embrace technology's potential or run the risk of being marginalized by those who do. What sounds better to you? ■



USG Presents

Selecting and Specifying Sustainable Walls, Ceilings and Substrates

by: *Richard C. Master, AIA, CSI*
Chair Emeritus, Specifications and Building Technology, Professional Interest Area (PIA), AIA
Manager, Architectural Systems
USG Corporation

Any way you look at it, sustainability has become a fundamental principle underlying successful building design. From a global standpoint, sustainability is imperative, as it offers a critically important means for conserving our dwindling natural resources. From an architectural business standpoint, it's becoming an increasingly important consideration, as a growing percentage of building owners and homeowners not only desire "green" buildings, but are now demanding them.

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

Use the learning objectives below to focus your study as you read **Selecting and Specifying Sustainable Walls, Ceilings and Substrates**. To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 297, then follow the reporting instructions on page 368 or use the Continuing Education self report form located at architecturalrecord.com.

Learning Objectives:

- Understand the environmental benefits inherent in common wall, ceiling and substrate panels;
- Recognize the impact that embodied energy has on green product selections;
- Learn some general guidelines for creating green specifications.

Green has, in fact, gone mainstream. Manufacturers are giving high priority to environmental concerns in their product development processes; builders and developers are acutely aware of how sustainability can impact project success; and retailers are proactively promoting green products.

Green has, in fact, gone mainstream. Manufacturers are giving high priority to environmental concerns in their product development processes; builders and developers are acutely aware of how sustainability can impact project success; and retailers are proactively promoting green products.

Despite its growing acceptance, sustainable building design remains a complex undertaking. Because environmental issues can – and should – be considered in virtually every aspect of the design process, specifiers need to have a working knowledge of a wide range of green definitions, criteria, standards and applications.

This article will attempt to clarify some of the issues relative to green product selections and design specifications as they relate to walls, ceilings and substrates.

Green Product Selection

Green product selection is a key component of sustainable design. Green products can loosely be defined as those that reduce, recycle and renew – the three R's of sustainability. Specifically, sustainable products:

- Reduce the amount of raw materials needed for the manufacturing process. Lighter and/or smaller products generally require the use of less energy for transportation, storage and construction. Reduce can also refer to decreasing the amount of material used and/or wasted.
- Offer high recycled content and/or environmentally friendly reuses. The benefits here are obvious. Products with a high-recycled content may reduce raw material usage, energy consumption and landfill waste.
- Renew the environment by using materials that can be regenerated and/or materials offering environmentally friendly benefits.

The virtues of the reduce, recycle and renew principles must be balanced with an awareness of how embodied energy impacts sustainability. Embodied (or embedded) energy is the amount of non-renewable energy

required to extract, manufacture, transport and construct building products. It must be factored into all green product specifications, as it can have a significant – and sometimes surprising – impact on sustainable design.

Generally speaking, products with low embodied energy are good sustainable design choices. However, this is not to say that products with high embodied energy are always poor sustainable choices. A high embodied energy product containing large amounts of thermal mass may provide significant savings in energy usage over the life cycle of a building. The initial high embodied energy in the product is more than compensated for by its ability to reduce a building's recurring long-term energy needs (e.g. heating and cooling).

One aspect of embodied energy that is sometimes overlooked is material transportation. Transportation requires the use of non-renewable fossil

fuels, which under certain circumstances can negate the benefits of an otherwise excellent sustainable product selection.

Consider the use of gypsum board. In certain areas of the country, the product is manufactured using recaptured gypsum formed as a by-product of operations in some power plants. The coal burned in many of these facilities produces



Gypsum board scores extremely high on nearly all sustainable design criteria. It is made from an abundant and non-endangered mineral (gypsum) and has low embodied energy. Drywall made from recaptured gypsum reduces landfill waste resulting from fossil-fuel power plant generators.

undesirable pollutants, including sulfur dioxide. Wet limestone scrubbers are often used to prevent this pollution from entering the atmosphere. As the exhaust smoke from the power plant rises through the scrubber, its pollutants are chemically removed. The calcium and water in the wet limestone combine with the sulfur dioxide to create calcium sulfate, or recaptured gypsum. Gypsum manufacturers source this recaptured gypsum to produce wallboard, thereby reducing landfill waste. The wallboard made from recaptured gypsum is indistinguishable in terms of performance and quality from panels made from mined gypsum rock.



Given these benefits, the use of recaptured gypsum in drywall would seem to be a win/win scenario. And in most cases, it is. However, when the embodied energy required to transport the panels over a longer distance is factored in, the green value of

Environmentally friendly gypsum fiber panel floor underlayments (shown here) and exterior sheathings are made from 95 percent recycled materials, offering a sustainable alternative to wood-based products such as lauan.

recaptured gypsum can be significantly diminished. When a recaptured gypsum panel is shipped more than about 200 miles by truck or 400 miles by rail, the environmental benefits of the recaptured content in the board are offset by the increased energy required for long-distance transportation. In other words, it doesn't make environmental sense to ship recaptured gypsum panels made in Alabama to a job site in California.

The same premise holds true with other recycled and renewable products, making transportation a key factor to be aware of when creating sustainable specifications.

With that said, let's take a closer look at how gypsum board, acoustical ceiling panels, cement board panels and gypsum fiber panels rate in terms of the reduce, recycle and renew principles.

Gypsum Board Panels

Gypsum board scores extremely high on nearly all sustainable design criteria. Gypsum, the primary raw material used to make wallboard, forms naturally like salt or limestone, and is one of the most abundant minerals on the planet. It is neither rare nor endangered.

The bulk of the remaining materials in gypsum board consist of paper (recycled, from newspapers, phone books, old corrugated cartons and cardboard cuttings) and corn or wheat starch binders. The corn and wheat starch binders are renewable agricultural resources and are environmentally superior choices compared to using polymers derived from petroleum.

The embodied energy of gypsum board is extremely low. Drywall has less embodied energy than a wide variety of building products, including brickwork, concrete, particleboard, insulation, glass, vinyl flooring, plastics, steel and aluminum.

It is also important to note that manufacturing gypsum board is a low-waste production process. Approximately 95 percent of the raw materials entering a board plant leave as finished product. And most of the remaining 5 percent is recycled into small strips used to support stacks of finished gypsum panels. Overall, high-efficiency board plants can produce less than 1 percent material waste.

Manufacturers are now using hundreds of thousands of tons of recaptured gypsum to produce wallboard, reducing power plant landfill needs. Both mined and recaptured gypsum can also be reused to manufacture new gypsum panels. Other reuses include soil amendment (using gypsum as a high-calcium fertilizer or as a method for treating high soil pH), neutralizing the high pH levels caused by road salt applications, odor treatment and concrete set.

Acoustical Ceiling Panels

Some acoustical ceiling panels contain mostly mineral wool, gypsum and smaller amounts of paper and starch, as well as other miscellaneous materials. The recycled content in ceiling panels varies from approximately



Most acoustical ceiling panels consist of approximately 40 percent mineral wool, which is usually made from slag, a by-product of steel manufacturing. The use of slag eliminates the need to mine and process naturally occurring materials, while reducing landfill waste.



Cement board panels are made from approximately 20 percent recycled materials, including fly ash, a by-product of power plant emission control processes.



To minimize construction waste, conduct a pre-construction meeting with contractors to discuss waste and disposal strategies and to explore alternative reuse options.

20 to 80 percent, depending on the product type, manufacturing process and plant location. The mineral wool used in the panels is usually made from slag, a by-product of steel manufacturing that consists of calcium silicate and other impurities. The slag is melted in coke-fired cupolas or electric melters and spun into fibers, which are incorporated into the ceiling panel production process. The use of slag reduces the need to mine naturally occurring materials such as basalt rock. It also decreases landfill waste. A high percentage of the paper used in the manufacturing process is recycled pre-consumer (cuttings from cardboard box manufacturing) and post-consumer (newspapers). The starches used as binders in the manufacturing process are renewable agricultural resources.

Like gypsum board manufacturing, acoustical ceiling production is a low-waste process. Panels that are chipped or broken during manufacturing are recycled and returned to the process.

The steel suspension systems used to support ceiling panels are considered green because they can be more easily reused than wood. The suspension systems can be 100 percent recycled by remelting and salvaging the metal.

It is also worth noting that some acoustical ceiling panels are available with a limited warranty against mold and mildew growth, which can help promote indoor air quality (IAQ).

Gypsum Fiber Panels

The gypsum fiber manufacturing process combines gypsum and cellulose paper fibers to create a variety of high-performance panels, including floor underlayments and exterior sheathings. Gypsum fiber underlayment and sheathing panels are both made from 95 percent recycled materials. Specifically, 85 percent of the content in these panels comes from recaptured gypsum and 10 percent is from post-consumer recycled paper fiber. The panels offer an excellent sustainable alternative to other wood-based panels, most notably lauan, which is harvested from endangered, old-growth forests.

Cement Board Panels

Cement board, a water-durable, multiuse panel commonly used as a backer for ceramic tile, is made from approximately 20 percent recycled materials, including fly ash. Fly ash is a waste stream material from power plant emission control processes that features cement-like properties. It is produced by electrical power companies in the combustion of coal and other solid fuels, and is subsequently purchased by cement board producers and used to manufacture the cement board panel core.

LEED: A SUSTAINABLE RATING SYSTEM

The U.S. Green Building Council (USGBC), a diverse coalition of principal groups involved in the building industry, was established in 1993. The council's mission is to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

Developed by the USGBC, the Leadership in Energy and Environmental Design (LEED) program created a building rating system to evaluate environmental performance from a "whole building" perspective, providing a standard for what constitutes a green building. Credits are earned for satisfying specific building criteria.

The LEED™ Rating System evaluates the environmental performance of a building, awarding points for:

- SUSTAINABLE SITES
- WATER EFFICIENCY

- ENERGY AND ATMOSPHERE
- MATERIALS AND RESOURCES
- INDOOR ENVIRONMENTAL QUALITY
- INNOVATION AND DESIGN PROCESS

Within "Materials and Resources" for example, points are awarded for specifying a certain percentage of building materials that contain a specified percentage of post-industrial recycled content or post-consumer recycled content. Points are also awarded for specifying materials that are manufactured regionally within a certain radius.

The LEED™ Reference Package includes an extensive reference guide and rating system and is available to order at: www.usgbc.org or write: U.S. Green Building Council, 1015 18th St., N.W., Suite 805, Washington, D.C. 20036, or call (202) 828-7422.

Green Specifications

In order to maximize the sustainable value of these – and other – green building products, architects should incorporate sustainable design criteria into building specifications. Proper specification details ensure that the benefits inherent in green products are supported during the construction process and fully realized throughout the building's life cycle.

The first step in creating an effective green specification is to use a standard specification layout, such as MasterFormat™, from the Construction Specifications Institute. The MasterFormat divides specifications into three categories:

- **Part 1: General** –Describes general procedures and administration.
- **Part 2: Products**–Describes materials, products, equipment and systems.
- **Part 3: Execution**–Describes the proper procedures for the installation of specific products and systems into designed applications.

The three-section format provides architects with a structure to add detailed notes and full explanations of the environmental requirements expected for each project. There's no need to add additional sections, as this may only confuse contractors and building owners who are already familiar with the MasterFormat structure.

When creating environmental specifications, define your terms. Don't assume that users of the specification will know the exact meaning of recyclability, post-industrial materials or other environmental terms.

Consider including the following general criteria in your specifications as needed to meet the sustainable objectives of a specific project:

- Outline on-site product storage procedures. Given the fact that standing water is a common occurrence on many construction sites, materials should not be stacked on the ground and cartons should not be left unopened and exposed to weather.
- Detail appropriate methods for storing and discarding construction waste that cannot be eliminated. Conduct a pre-construction meeting with appropriate contractors to discuss methods for minimizing construction waste and disposal, and to explore alternative reuse options.
- Encourage the establishment of good construction practices. Realistic construction schedules will enable contractors to fully enclose buildings to minimize moisture penetration issues that may contribute to poor product and system performance.

Do *not* include descriptions of a project's environmental goals (e.g. attaining a LEED green building rating) in the specification. Rather, include this information as part of your instructions to bidders.

Last, but not least, remember the three R's discussed previously when selecting products to include in the specification. Choose products that reduce, recycle and/or reuse. Bear in mind though, effective green product selection requires a careful analysis of a wide range of factors. A product with high recycled content or other obvious environmental benefits is usually a solid choice for sustainable design. However, mitigating factors, such as the product's embodied energy or its impact on a building's life cycle energy usage, must be weighed in order to make the best sustainable choices.

In the end, well-researched green product selections, combined with intelligent sustainable specifications, offer architects a practical and effective solution for helping conserve our natural resources, while meeting a growing demand for environmentally friendly design and construction practices.

ADDITIONAL REQUIRED READING

As part of this CES activity, you are required to read the following additional materials:

"Drywall Recycling" provides more information on gypsum reuses. To access the material online, visit the California Integrated Waste Management Board Web site at <http://www.ciwmb.ca.gov/ConDemo/factsheets/Drywall.htm>.

To request a faxed copy of the material, contact Marty Duffy at (312) 606-5781 or mduffy@usg.com.

...

"Environmentally Preferable Purchasing (EPP) Terms" on the Environmental Protection Agency Web site provides definitions for dozens of environmental terms. To access the material online, go to: <http://www.epa.gov/opptintr/epp/eppterm.htm>. To request a faxed copy of the material, contact Marty Duffy at (312) 606-5781 or mduffy@usg.com.

About USG

USG Corporation is a Fortune 500 company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling panels and grid; and building products distribution.

United States Gypsum Company, a subsidiary of USG Corporation, is the nation's leading manufacturer of gypsum board panels and the largest user of recaptured gypsum. The company uses more than 2.3 million tons of recaptured gypsum annually in the production of its SHEETROCK® Brand Gypsum Panels. Overall, the panels contain an average of 31 percent recycled content – 5 percent post-consumer waste and 26 percent post-industrial waste.

The company also manufactures FIBEROCK® Brand Sheathing with AQUA-TOUGH™ and FIBEROCK Brand Underlayment – AQUA-TOUGH, both of which are made from a *gypsum fiber* manufacturing process that utilizes 95

percent recycled materials. The panels offer an excellent sustainable alternative to wood-based panels, most notably lauan, which is harvested from endangered, old-growth forests.

USG Interiors, another subsidiary of USG Corporation, is the only manufacturer to offer a limited lifetime warranty against mold growth on acoustical ceiling panels. The warranty is offered on the company's ECLIPSE™ CLIMAPLUS™ and ASTRO™ CLIMAPLUS ceiling panels, both of which are treated with the proprietary AEGIS Microbe Shield™.

For further information about USG's environmental practices and products, write USG Corporation, P.O. Box 806278, Chicago, IL 60680-4124, call USG's Customer Service Department at 800-USG-4YOU or visit the company's Web site at www.usg.com.

Learning Objectives

- Understand the environmental benefits inherent in common wall, ceiling and substrate panels;
- Recognize the impact that embodied energy has on green product selections;
- Learn some general guidelines for creating green specifications.

Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 368. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—architecturalrecord.com—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

Questions

- Q: 1. Which of the following factors will negatively impact the sustainable benefits of using gypsum panels made from recaptured gypsum?
- A: a. Installing the panels horizontally
b. Transporting the panels over long distances
c. Exposing the panels to moisture on the job site
d. Kiln drying the panels during manufacturing
- Q: 2. Products with low embodied energy:
- A: a. May negatively impact indoor air quality
b. Are usually of lower quality than high-embodied energy products
c. Will not promote the growth of mold or mildew
d. Save on non-renewable energy required for manufacturing and transportation
- Q: 3. Which of the following is not a recognized aspect in the LEED Rating System?
- A: a. Products that contain post-industrial or post-consumer recycled content
b. Products that are manufactured regionally
c. Products with high fire ratings
d. Indoor environmental air quality
- Q: 4. Which of the following is not a possible reuse for gypsum panels?
- A: a. Drywall manufacturing
b. Soil amendment
c. Road salt treatment
d. Slag
- Q: 5. A key benefit of green building products that reduce is:
- A: a. They lower a building's life-cycle energy usage
b. They require fewer raw materials to produce
c. They minimize the growth of mold and mildew
d. They are less costly
- Q: 6. Which of the following is not considered part of the green specification process::
- A: a. Choosing products that minimize construction waste.
b. Considering material transportation and embodied energy issues.
c. Encouraging proper material storage on the job site
d. Recommending fastest-possible construction schedules
- Q: 7. Match the environmental term with its correct definition:
- A: a. Biodegradable
b. Compostable
c. Disassembly potential
d. Energy consumption
1. Capability of organic material to biologically decompose into humus-like material
 2. The total amount of energy consumed for product or service manufacture, use, and disposal.
 3. Capable of decomposing under natural conditions.
 4. The ease with which a product can be disassembled for maintenance, replacement, or recycling.
- Q: 8. Match the environmental term with its correct definition:
- A: a. Extended product responsibility
b. Life cycle assessment
c. Reactivity
d. Reconditioned
1. The tendency of a solid waste to exhibit harmful characteristics when in contact with other substances
 2. Refers to the process of restoring used, durable products to meet original performance standards, resulting in less waste and raw material and energy use
 3. The examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use and disposal.
 4. A product systems approach to environmental protection that considers product chain and life cycle environmental impacts
- Q: 9. Ways to reduce drywall waste can include all but which of the following:
- A: a. Constructing standard-sized walls and flat ceilings
b. Reducing the embodied energy of material transportation
c. Ordering custom-sized sheets for nonstandard walls
d. Finding substitutes that are reusable, such as modular "demountable partitions" for commercial buildings
- Q: 10. Most drywall waste is generated by which:
- A: a. Manufacturing
b. Demolition
c. New Construction
d. Renovation



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LIGHTING

The alchemy of standard fluorescents and architectural materials



Lighting has evolved faster than many building technologies. Red light-emitting diodes, for example, are 100 to 1,000 times brighter than they were when invented in 1960. This and other astonishing developments might tempt one to consider designers who employ workhorses

such as linear fluorescents stuck in the land of retro. But the ability of a design team to manipulate the mundane into something remarkable remains a good measure of imaginative—and often cost-effective—architectural lighting. Interacting with new generations of building materials, standard lamping can be the catalyst for an alchemy of form, volume, and light.

At the new MoMA Design Store, lighting designer Bill Schwinghammer collaborated with the firm 1100 Architect on a luminous architectural envelope to house high-style museum merchandise. A skinlike membrane of polyvinyl material along the ceiling and side wall is backlit with linear fluorescents. Schwinghammer found through mock-ups that the framed scrim surface, though not widely used as a diffuser for lighting, reduced the color temperature of the lamps from 3,500 degrees to 3,000 degrees Kelvin; this cast the warmer light he envisioned. Lighting integrated with the enclosure also eliminated the need for applied accent illumination throughout the main retail level.

The RealNames Corporation (left) features color-filtered fluorescents behind translucent walls for ambience writ large in a dot-com workplace. Vertical planes enlivened with bright hues and low-level illumination complement a landscape of computer screens awash with Web animation.

We are pleased to announce that archrecord.com users soon will be able to locate virtually any lighting manufacturer by clicking the Lightsearch button in the lighting area of our Web site. Produced by inter.Light, Inc., Lightsearch is a comprehensive search tool that allows one-click access to the Web pages, company profiles, and e-mail addresses of more than 7,000 lighting companies, including over 4,000 manufacturers. Whether scouting for a standard lamp or a new-technology standout, you will find it a helpful resource. *William Weathersby, Jr.*

301 Creative uses

306 Rain

II By IV Design Associates

315 RealNames Corporation

*Blauel Architects; Bottom
Duvivier*

320 MoMA Design Store

Johnson Schwinghammer

325 The Foundry Lobby

Tillett Lighting Design

331 Technology: compact, indirect luminaires

333 Lighting resources



absolute zero.

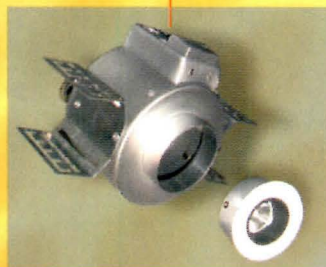
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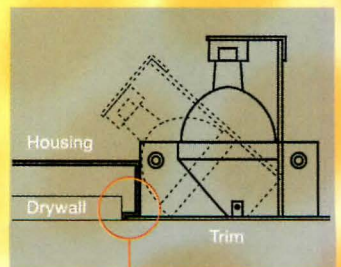
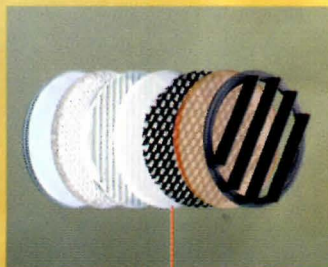
Adjustable – put light where you want it



Trap door transformer – quick access, smallest aperture



Tuneable effects – trim holds three lenses/louvers/filters



Recessed trim – absolutely flush with ceiling

*patent pending

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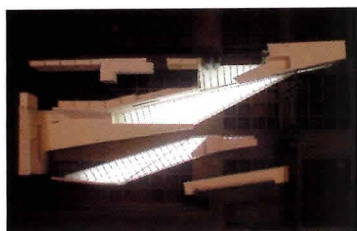
LUCIFER
LIGHTING COMPANY

Creative Uses

A California college puts free-form light boxes in a lounge • Yale's art gallery sees the light • Orlando's entertainment ethos brings neon-edged fins to a public building

A slash of overhead lighting shapes a student lounge at the California Institute of the Arts

Home to a student body of budding artists, filmmakers, and performers, the California Institute of the Arts (CalArts) in Valencia, California, is a college that encourages creative experimentation. School administrators recently decided that student amenities at the 30-year-old campus required a more progressive outlook. Griffin Enright Architects, working



The lounge's reflected ceiling plan.

with architect Elyse Grinstein, was commissioned to turn an underused lounge in the classroom building into a lively, multiuse space.

Filled with dilapidated, leftover furniture and bereft of architectural details, the existing 1,590-square-foot space was like "a crash pad out of *Wayne's World*," says principal architect Margaret Griffin, AIA. "Our goal was to create an attractive, flexible environment where art students and faculty could interact between classes or at special events like screenings or exhibitions."

The program called for accommodating a lounge, coffee bar/café, bookstore, and exhibition space within the ground-floor corner of a three-story, concrete-waffle-slab building constructed in the late 1960s. The lounge was to remain open around the clock, even when the café and bookstore were closed.

To link the various functions without sacrificing a sense of openness, the design team inserted a furniturelike collage of simple materials and dynamic form. The main programmatic elements are intertwined laterally across the plan. A

diagonal circulation path through the space connects an interior corridor of the building with the exterior terrace and dormitories beyond.

Working within a budget of \$40 per square foot, the architects employed a palette of durable, stock materials. Folded panels of plywood and polycarbonate plastic are expressed as benches, counters, art exhibition walls, and sheathing for an overhead light box.

Although a maximum ceiling height of only 10 feet was allowed because of an existing HVAC plenum, the architects "wanted to engage the ceiling as a strong design element," Griffin says.

"Designing a sculptural light box that slashed overhead became a way to help blur the boundaries of the program and to underscore the concept of planes folding and unfolding through the space."

Supported by a steel frame—and braced to meet earthquake-resistant codes—the polycarbon-



The counter and light box extend beyond the facade to engage the terrace.

ate-panel-clad structure stretches across the student center like an oversize Origami. Folding down at points to meld into wall panels of the same material, the free-form lighting unit breaks the mold of drop-ceiling illumination. Fitted with T8 linear fluorescents and stretching 47 feet at its longest point, the

light box provides ambient and task lighting for multiple functions.

To strengthen the link between the center and the campus, the light box, counter, and bench project through the facade to engage the terrace. The light box is a beacon while also supporting events that flow outdoors. *William Weathersby, Jr.*



The diagonally placed light boxes are visual cues drawing patrons through the lounge, while illuminating varied tasks.

Creative Uses

New daylighting enhances a collection at the Yale University Art Gallery

Ensnared for nearly 30 years in a black-box space, the prestigious American Collection at the Yale University Art Gallery was long overdue for an updated setting. Considered avant-garde when designed by Chermayeff & Geismar in the early 1970s, the gallery space on the New Haven, Connecticut, campus relied on the dramatic contrast of stark accent lighting within a blacked-out surround, achieved by painting out the original laylights of Egerton Swartwout's 1928 Gothic Revival building.

The museum recently decided to reintroduce daylight into the main gallery space, which would also showcase the architectural grandeur of the historic building. In the course of a renovation by exhibition designer Stephen Saitas and the lighting design firm Hefferan Partnership, the installation of the collection was reconfigured to bring paintings into the large central gallery, with furniture and decorative

objects relocated to smaller adjacent galleries.

Introducing the right amount of daylight into the painting gallery was a delicate and complex procedure, says principal lighting designer Steven Hefferan. "We produced extensive computer modeling and full-scale mock-ups to develop a new daylighting solution."

Daylight was engineered as the main source of illumination, with electric-lighting systems used only as augmentation. The original laylight was replaced with laminated glass and a UV-absorbing interlayer. A 7 percent transmittance scrim was stretched above the laylight.

The temporal qualities of daylight are allowed to fluctuate daily and seasonally, so that the viewer gets a sense of time and season when within the space. To protect the artwork, lighting levels are kept within the museum's annual illuminance-exposure criteria.

A photocell-activated wall



Painted over in the 1970s, the main gallery's laylight has been fitted with new laminated glass and a UV-absorbing interlayer (left). A furniture exhibition is lit by PAR30 and MR16 track fixtures (below).



wash of 5 foot-candles reaches full intensity when daylight falls below the required threshold. A two-circuit track provides a 7-foot-candle highlight on the picture plane. PAR30 and MR16 fixtures with spread lenses create a layering of low-glare accent and wall-wash effects.

The smaller galleries, which house light-sensitive decorative arts and special exhibitions, feature no daylight and much lower levels of electric illumination. Adjustable ceiling-mounted tracks with PAR30s provide wash light, and MR16s high-

light large objects. Display cases combine dimmed fluorescent ambient fill light and MR16 accent lights on displayed items. Transition areas assist visual adaptation as patrons enter nondaylight galleries.

The relighting was part of an interim renovation that is projected to last five to 10 years. Polshek Partnership has developed a master plan to renovate Yale's art complex. *Nayana Currimbhoy*



Nighttime neon (above) outlines glass fins fronting the library (right).

An illuminated sculpture invites interaction with Orlando's library

Trained as an architect and jazz musician, Christopher Janney pursues art to reconcile his dual passions: making music more physical and buildings more dynamic. He accomplishes both goals in "Light Waves," a site-specific work supported by the Orlando Public Arts Commission to enhance the city's main library.

Arguably anathema to architectural purists but considered a welcome public enhancement in the themed-entertainment capital of Orlando, Janney's installation provides a counterpoint to the library's Brutalist facade designed by John



Johansen. An interactive component grants pedestrians a connection to the building, "allowing a sense of ownership of the public place and surrounding urban environment," Janney says.

Four 38-foot-tall, transparent fins rise along the western elevation. Composed of flat colored glass with wavy edges, the fins rise 11 feet from ground level to the roofline.

During the day, the glass is like a kinetic painting that changes depending on variegations in sunlight, clouds, and weather. At night, neon and interactive musical ele-

ments allow passersby to compose with light and sound.

Light boxes, each housing 9-foot-by-6-inch lengths of white neon, originate at the bases of the glass forms, highlighting the hard concrete edges of the facade's cladding.

A panel beneath each fin is silk-screened with the pattern of a human hand in the color of the corresponding glass. When touched, sensors trigger changes within the lighting pattern accompanied by a musical and environmental-sound score composed by Janney. A riddle etched in a plaque near the installation is a further enticement: Anyone who correctly deciphers the message and presses the appropriate sequence of sensors is rewarded with a dance of light. *Leanne B. French*



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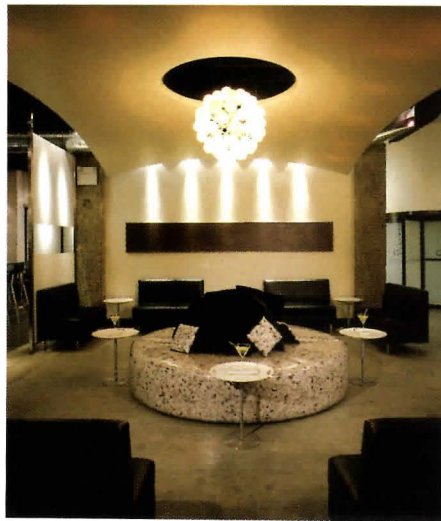
Glowing white cubes and rectangles set near cascading water are a recurring motif. The bar is internally lit with fluorescents (right and below). A waterfall behind the backbar's glass wall is lit with MR16 spots. In the lounge (opposite, top), a mod fixture orbits above a feather pouf covered in clear vinyl.



Dappled with light, the glossy planes of Rain frame an evocative setting for Toronto nightlife

By **Nayana Currimbhoy**

Mist rolling over a lake on a wet morning. That was our inspiration for Rain,” says Keith Rushbrook, principal of II BY IV Design Associates. In the new nightspot near Toronto’s theater district, such sensual imagery takes the form of glowing glass cubes, pools of light reflected on glistening surfaces, and spotlight waterfalls cascading over walls of pebble and glass. Shadowy, light-dappled spaces—as evocative of rainy nights as misty mornings—are a dramatic backdrop drawing patrons to this popular, Asian-influenced restaurant and lounge.



Rain was the second commission for Rushbrook and design partner Dan Menchions from clients Michael and Guy Rubino, following the four-year-old restaurant Zoom. Located on the ground floor of a historic building that was once a women’s prison and now houses offices and shops, Rain juxtaposes textural materials with sleek modern furnishings.

Bamboo, slate, pebbles, and sandblasted-glass surfaces surround vinyl-upholstered banquettes and chrome-legged tables and bar stools. A cosmopolitan lounge that takes its cuisine seriously, Rain showcases a dim sum-style menu served from an open kitchen.

Designing both the interiors and the lighting plan, II BY IV employed illumination as an atmospheric catalyst. Prominent custom-furniture pieces glow from within, while inventive chandeliers become sculptural focal points. “Lighting promotes a mood,” says Rushbrook. “The uplighting is flattering and the mistiness sets a tone.”

The designers kept the industrial feeling of the 2,400-square-foot space intact. Within the building envelope—encompassing a concrete floor and ceiling, white-painted brick walls, and exposed ducts—a somber palette of blue, gray, and green is suffused with reflected and refracted light.

Entering through frosted-glass doors on which *Rain* is etched in fluid lettering, patrons arrive within a dusky vestibule showcasing a luminous composition. A sandblasted-glass reception desk, internally illuminated with dimmed fluorescents, sits in front of a 50-foot-long wall of pebbles embedded in mortar that is lacquered to a slick, wet shine. Over its surface, two full-height waterfalls cascade onto narrow beds of river rock inset into the sealed concrete floor. Narrow-beam MR16 fixtures spotlight the trickling water. The tableau is a backdrop for two eccentric, 10-foot-diameter chandeliers: Squat, 40-watt clear bulbs are suspended individually at varied heights, “like a rim of raindrops falling

Nayana Currimbhoy is a writer based in New York City. She is a frequent contributor to RECORD Lighting.

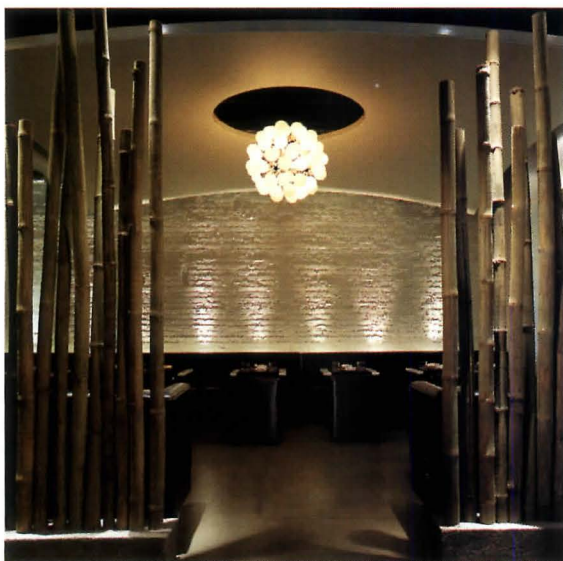
Project: Rain, Toronto
Owners: Michael and Guy Rubino
Interior and lighting designer: II BY IV Design Associates—Keith Rushbrook, Dan Menchions, principal

designers; Jenny Lee, designer
Mechanical and electrical engineer: ESTI Consultants
General contractor: ICI Construction





Chandeliers designed by Achille Castiglioni reign in the main dining room. Narrow-beam halogens graze a white-painted brick wall to evoke light rippling on water (below).



into a pond,” says Rushbrook.

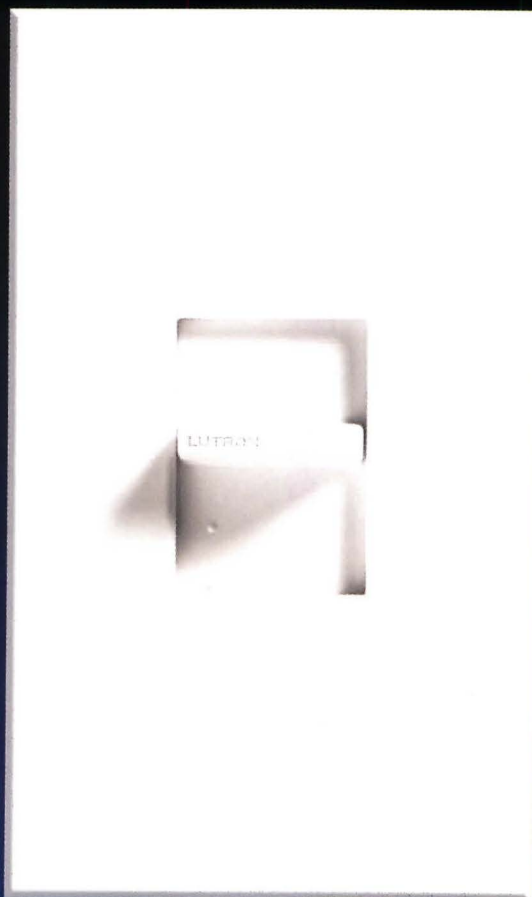
To the right of the reception area, a cocktail lounge is dominated by an oversize pouf stuffed with feathers and upholstered in shiny transparent vinyl. A curving canopy of PVC material stretched across a metal frame brings the 24-foot-high ceiling down to an intimate level, while serving as a reflective backdrop for a sculptural chandelier designed by Italian industrial design star Achille Castiglioni.

In the main dining room set with rows of tables, two additional stretched canopies, pierced by cluster-orb chandeliers, mirror the lounge area with its tentlike ambience. White-painted brick walls on either side of the room are washed by narrow-beam MR16 uplights, evoking pools of light cast over water.

Luminous furniture is a design device carried through in the main bar area, where a U-shaped, translucent glass bar is illuminated from within by 2-foot dimmable fluorescents. “Gimlet” stools designed by Jorge Pensi pull up to the bar. Behind the backbar’s glass wall, another waterfall is highlighted by ceiling-mounted MR16 spots. The lighting creates the illusion of water trickling down the bottle-lined shelves.

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In the reception area (right), two “chandeliers” are composed of clear bulbs suspended in circles at alternating heights to suggest raindrops. Steps lead to a row of five unisex washrooms (below), whose frosted-glass doors feature integrated contact light switches. Reproductions of Eero Aarnio’s 1960s Bubble Chair flank a glowing cube in the anteroom.



Framed by circular portals, a platform level three steps up from the bar is divided between the open kitchen to one side and a row of unisex washroom cubicles. The cubicles are equipped with floor-recessed waterproof halogen fixtures that are activated when the frosted-glass doors are shut. Viewed from the nearby anteroom, the glowing doors add another layer of changing light. Suspended nearby, two Plexiglas

THE METAPHOR OF WATER DROPLETS IS INTERPRETED BY LIGHT FIXTURES, FROM PENDANTS TO SUSPENDED BULBS.

chairs—reproductions of Eero Aarnio’s 1960s Bubble Chairs—flank another of Rain’s signature illuminated cocktail cubes.

Throughout the restaurant and lounge, divisions between rooms seem figurative rather than literal, an illusion created by the marriage of lighting and tactile screens. A grove of tall bamboo reeds, anchored in troughs and highlighted by halogen track fixtures, separates the main dining room from a long communal table in an adjoining space. Elsewhere, frosted-glass partitions, framed in stainless steel and illuminated by recessed halogens, function as theatrical scrims. Fluid and slightly mysterious, the lighting is right as Rain. ■

Sources

Chandeliers: *Flos*

Surface-mounted MR16 fixtures, suspended single lamps: *Eureka*

Bar and table cubes, recessed and track MR16 fixtures: *Eurolite*

Recessed floor lights: *Martini*

Fireplace lighting effect: *Belfer*

Additional lighting: *Litemor*

www For more information on the people and products involved in this project, go to Lighting at architecturalrecord.com.

A building core wrapped with tinted fluorescents creates a vibrant open-plan workspace in California

By Leanne B. French

Many dot-coms may have come and gone, but the Internet revolution has left its mark on the U.S. workplace. The Redwood City, California, headquarters of RealNames Corporation, a provider of Internet keyword navigation, is an example of a worker-friendly office born of e-business. For its 53,000-square-foot Silicon Valley facility, a tilt-up building in a business park, the company wanted to encourage communication and creativity within an open-plan office defined by clean lines and durable furnishings and materials. To help recruit and retain talented personnel comprising mostly twentysomethings, the client sought an office that put the “fun” in functional. Once past the reception area, colorful ambient lighting wraps the walls of a central core of enclosed rooms, forming a vibrant backdrop to animate the surrounding open space.

California architects Bottom Duvivier designed the interior spaces and lighting with Blauel Architects, which developed the initial illumination concept. Blauel, a London-based firm that had previously designed offices for RealNames, brought an awareness of the firm’s open-air philosophy to the project. Bottom Duvivier contributed an intimate knowledge of the site, having previously converted the same building for two computer-industry tenants.

“This building has led different lives, with various configurations supporting specific functions,” says design principal Lisa Bottom. “At one time it housed a medical-equipment-repair company, with a warehouse and loading dock where you could drive trucks in and out of the main space. For RealNames, we mapped out a perimeter



Leanne B. French is a writer based in New York City. She regularly writes about lighting, architecture, and entertainment design.

Project: RealNames Corporation, Redwood City, Calif.

Architect, interior designer: Bottom Duvivier—Lisa Bottom, principal; Robert Hayes, Davis Larsen, Dimple Mittal, project team

Consulting architect, concept lighting designer: Bernhard Blauel

Architects—Bernhard Blauel, principal; Peter Jurschitzka, Andy Nettleton, Angelika Zwingel, Robert Zeller, project team

Electrical engineer: Palmer Electric—Brian Iwashita

General contractor: DPR Construction

The RealNames Corporation café has a 130-foot-long wall of polycarbonate panels backlit with linear fluorescents fitted with color filters. Additional

compact fluorescent downlights focus on tabletops. “The light box was an economical way to animate the double-height room,” Lisa Bottom says.





A mezzanine-level boardroom overlooks the café (opposite). The stairway is illuminated by strip lights. In the double-height,

open-plan office (this page), the color wall provides an ambient glow, while baffled T8 fluorescent pendants serve as task lighting.



A single-height, open-plan office area has views into a breakout room (above). The boardroom backlights acoustical panels with vertical fluorescents (right). A waiting area displays a hint of the illuminated wall as a visual cue (below).



FLUORESCENT LIGHTING IN THE BOARDROOM IS INTEGRATED WITH ACOUSTICAL WALL PANELS.

lobby and café, custom compact fluorescent cylindrical pendants complement the colorful walls and provide additional ambient light.

Pendant T8 fluorescent fixtures, with indirect uplight and downlight components, are suspended over the rows of workstations. With most employees focused on their computer screens, additional desktop task lights are kept to a minimum.

Conference and breakout rooms on the main and mezzanine levels supplement the open plan for private meetings. "Although the open-plan office supports a feeling of teamwork—the C.E.O. does not have a private office—we needed to provide areas for people to duck into for private or lengthy meetings," Bottom says.

On the mezzanine level, the boardroom overlooking the café features lighting integrated into an acoustical shell designed in collaboration with consultant Charles Salter Associates. Fabric-covered acoustical wall panels, with linear fluorescents mounted vertically at their edges, make a visual statement and control noise. As additional baffling, fabric-covered acoustical panels cover the ceiling, with compact fluorescent downlights illuminating the conference table. Remote-controlled light settings support videoconferencing and audiovisual presentations. ■

Sources

Side-mounted fluorescents with

color sleeves: *Columbia*

Custom compact fluorescent

pendants: *Prescolite*

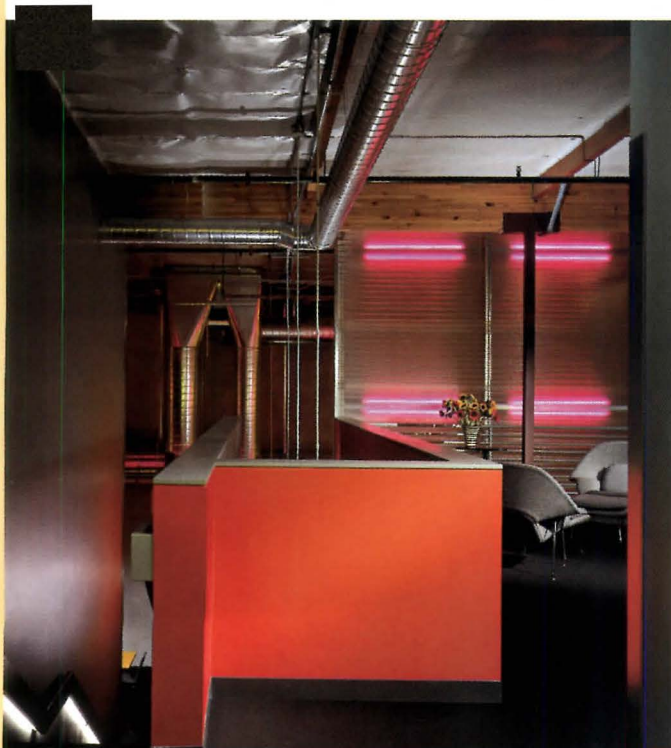
Indirect fluorescents: *Finellite*

Low-voltage fixtures, recessed compact fluorescents: *Prescolite*

Custom lighting controls: *Palmer Electric*

Boardroom lighting control: *Lutron*

For more information on the people and products involved in this project, go to Lighting at architecturalrecord.com.



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Cast-iron columns are encased in sandblasted glass and lit with fiber optics, while fluorescents backlight a white membrane ceiling for a sleek canopy.

A second satellite store for MoMA in Manhattan places iconic design objects in a landscape of light

By William Weathersby, Jr.

See the art show, buy the poster. The Museum of Modern Art has long influenced public perceptions of what is considered good art and design, its imprimatur a name-brand seal of approval. As the commercial extension of its revered galleries, the MoMA Design Store is a “franchise” presenting both aesthetic philosophy and consumer goods. It is also a crucial source of income for the institution’s balance sheet. Following its first satellite store, on 53rd Street near the museum (now shuttered during a three-year renovation), MoMA recently headed downtown to open another retail outpost in SoHo. Twice the size of its uptown counterpart, the 10,000-square-foot store occupies two floors of a landmark cast-iron building at the corner of Spring and Crosby Streets.

Creating a versatile, contemporary retail environment within the historic context of the storefront space was the mandate given to the firm 1100 Architect. The challenge was to maintain some structural elements—timber, cast iron, and masonry—while inserting a new infrastructure to reflect MoMA’s Modernist spirit and to serve quick-change retail requirements. With an inventory of design objects, furniture, and printed images that are reproductions of cultural icons, the store was planned as a complementary backdrop that wouldn’t compete for attention. The solution was architectural framework as luminous landscape, with lighting the catalyst allowing the merchandise to shine.

“It was important for us to design a space that would, in a sense, extend out from the store itself,” says principal architect Juergen Riehm. “Even from the street, the glow of the interior sets it apart and draws the attention of passersby.”

“The store functions as luminous light box,” says principal lighting designer Bill Schwinghammer of Johnson Schwinghammer, who previously consulted with 1100 Architect on the design of the midtown MoMa Design Store. For lighting that melds with the architectural envelope, rather than functioning as applied accent illumination, the design team engineered a luminous wall and ceiling treatment punctuated by glowing glass-sheathed columns. A skinlike polyvinyl membrane fabric is stretched across multiple panels along the ceiling, down one wall of the main floor level, and down the same wall of the cellar level in a continuous, unbroken curve. Backlit by fluorescents, the surface creates a bright, shadow-free interior to frame the distinct shapes and colors of merchandise on display. “With ceiling heights of almost 20 feet, the ceiling plane is monolithic but dynamic enough to light the space,” Schwinghammer says.

The 3-foot-long linear fluorescents were placed 4 inches behind the ceiling panels to create a patterned surface. “It has a change in tonality, partly inspired by a George Nelson lamp,” Schwinghammer says.

The polyvinyl membrane rolls down along the walls behind merchandise shelving, and the fluorescents were placed farther behind the panels, about 1 foot, to minimize contrast. The illuminated plane is more



Within a historic cast-iron building in SoHo, the even light attracts passersby.

of a solid white backdrop so the pattern of light does not compete with products on display. The merchandise is backlit with warm fluorescent lighting strips and then lit from the front of the casework by a cool neon light source. The two color temperatures create a layering effect that adds depth to the display.

“The shapes and colors of the products are so distinctive that they are the store’s main design elements and can stand alone without highlighting,” Schwinghammer says.

Cast-iron columns on the main floor are points on the grid around which display credenzas and shelving units are organized. To retain a feeling for the emporium’s historic beginnings, visible cast-iron columns are encased in angular, irregularly shaped slabs of translucent sandblasted glass. Because the glass structures are immovable but the architect wanted to incorporate a layer of light, end-glowing fiber-optic cables are set at the base of each column. “There’s a ghostly silhouetting of the columns that adds architectural interest as an almost photographic effect,” Schwinghammer says.

Project: MoMA Design Store, N.Y.C.

Architect: 1100 Architect—Juergen Riehm, David Piscuskas, principals; Pam Nixon, Ellen Martin, project managers; Erin Valli, Jamie Palazzolo, David Later, design associates

Lighting designer: Johnson Schwinghammer—Bill Schwinghammer, principal designer;

Michelle Clement, project manager

MEP engineer: Lilker Associates

Structural engineer: Robert Silman Associates—Nat Oppenheimer

Expeditor: Arpad Baksa Architect

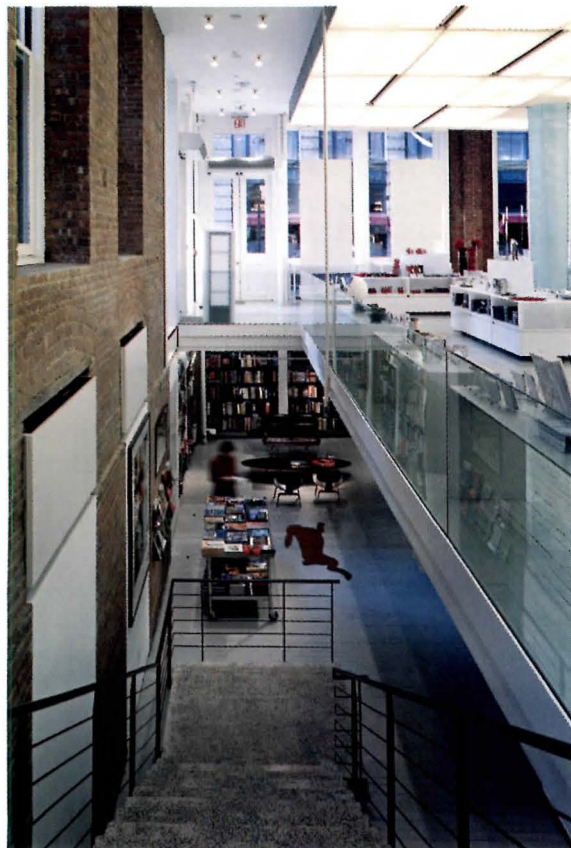
Construction manager: Seaboard Construction

General contractor: Gilman Construction



On the store's lower level, AR70 and PAR30 track fixtures spotlight furniture vignettes set on display platforms (above left). Books are

washed with custom T5 fluorescent picture lights (above right). The glass-edged staircase opens sight lines to the lower level (below).



Near the staircase on the main level is a display vignette that focuses on scarves, accessories, and textiles. It is illuminated with neon accent in several hues that can be mixed to complement specific merchandise. Since the store opened, the neon lighting has primarily been mixed to approximate an even white glow to coordinate with the general illumination, according to Schwinghammer, although lighting cued to the colorations of seasonal soft goods is a direction the display designers are experimenting with. "It gives them the option of having one pivot area in the floor plan that pops visually as you circulate through the space."

The main-floor shopping area yields to a glass-framed stairwell to one side, allowing a view to the lower level where books are displayed alongside modern furniture classics. (Floor planes on both levels are wood plank painted white.)

The surface-mounted track lighting uses two beam spreads—a low-voltage spot and standard-voltage AR70 and PAR30 lamps—to create pools of light. Bookcases downstairs are washed with custom T5 fluorescent picture lights in a stainless-steel shroud. "Lighting is more flexible downstairs," Schwinghammer says. "There is more contrast and drama. Upstairs is more about repetition and consistency. The products are what pull you through." ■

Sources

Stretch-membrane ceiling: *Barrisol*
 Fluorescent channels: *A+L Lighting*
 Fiber optics: *Lucifer Lighting*
 Track fixtures: *Lightolier*
 Neon: *Patrick Nash*

Lighting Controls: *Lutron*

For more information on the people and products involved in this project, go to Lighting at www.architecturalrecord.com.



The membrane wall is backlit with fluorescent lights, with vertical strips of neon along the shelves adding another layer of light.



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Interlocking volumes outlined in light enhance the lobby of a high-rise apartment tower in Manhattan

By William Weathersby, Jr.

Arriving in the lobby of a high-rise apartment building in Manhattan can be a misleading experience. Often sterile and nondescript, at times oppressive with ersatz period stuffiness, such lobbies can leave first impressions disengaged from the well-appointed apartments one might discover upstairs. Following in the footsteps of boutique hoteliers, developers of urban residential towers are targeting a well-designed lobby as a valuable amenity and marketing tool.

Betting that prospective design-savvy tenants would welcome an enhanced sense of arrival, the developers of the Foundry commissioned architect Joel Sanders to create a lobby interior with a distinctive Modernist look. A two-building rental complex in the Hell's Kitchen

neighborhood on the west side of midtown Manhattan, the redbrick-clad Foundry was designed by building architect Schulman Claman Lichtenstein & Efron. Sanders designed the lobby interior for the main 12-story Foundry building at West 54th Street and 10th Avenue, as well as the smaller 55th Street entry for the adjacent 6-floor sister tower. The buildings share a courtyard garden.

"The client asked us to create a main lobby of balancing contrasts," Sanders says, "a space that brings together elements considered opposites—organic and inorganic, city and country, new and old."

Articulated with rectilinear volumes defined by textural planes, the 54th Street lobby plays with the notions of indoors and out. To under-

score architectural tectonics with a subtle layer of illumination, Sanders collaborated with principal lighting designer Linnea Tillett of Tillett Lighting Design.

The lobby consists of two central interlocking volumes. An inner shell is composed of intersecting planes of terrazzo and Sheetrock. Surfaces fold inward to merge with furniture elements; a terrazzo concierge desk and settee seamlessly rise out of the ground plane. The monochromatic enclosure rests within a darker outer envelope formed by a textured water wall and a sub-floor covered with black aggregate panels that resemble a bed of river rocks. As one moves deeper into the lobby, the white platform drops away to reveal more of the rocky underpinnings: A Minimalist installation seems crossbred with a rock garden.

"Lighting reinforces the notion of suspension, a room within a room," Tillett says. Backlit cutouts in the floor and ceiling planes of the inner "membrane" offer visitors glimpses of the surfaces beyond. The white-box geometry one might expect at the base of

Project: *The Foundry Lobby, New York City*

Architect: *Joel Sanders Architect—Joel Sanders, principal; Christoph Mueller Roselius, project architect; Brian Kimura, Dan Gallagher, project team*

Lighting designer: *Tillett Lighting Design—Linnaea Tillett, principal*

Electrical engineer: *Robert Ettinger*

Electrical contractor: *High Rise Electric*

General contractor: *Gotham Organization*



Backlit white planes of Sheetrock and terrazzo form an enclosure that seems to float within an outer shell (this spread and preceding page). T8 fluorescents illuminate cutouts around columns, while 70-watt incandescents light the dark rocky layer resting beneath the terrazzo platform.







The fiberglass-clad columns ascend to fluorescent-lit covers painted a medium green (above). In the lobby of the sister apartment tower

(below), custom fluorescent lanterns pinwheel out of a canted wall paneled in walnut. The row of fixtures leads guests toward elevators.

a new apartment tower has been folded, perforated, and incised with light.

Fiberglass-clad columns with a mottled, coal-color finish pierce the horizontal planes. T8 fluorescents illuminate the ceiling cutouts, which are painted a medium green to heighten contrast. Lighting the aggregate-clad surface below the terrazzo floor are surface-mounted PAR30 fixtures. Grazing the water wall, halogen fixtures are fitted with pattern projectors to enhance the play of shadow and light. The use of standard, long-life lamps facilitates maintenance by the building service staff.

In the smaller lobby of the adjacent sister building, Sanders and Tillett worked with the same vocabulary of architectural materials and lamps to create a visual connection between the two entries. Here, however, lighting moves to the foreground. Rather than being captured in recessed coves, the glow of even illumination seems to have moved down one wall and pushed forth to greet entering pedestrians. Expressive custom sconces, angular fluorescent light boxes set at irregular intervals, pinwheel out of the walnut-clad wall to give a sense of movement and direction. ■

Sources

Cove fluorescents, downlights:

A+L Lighting

Water-wall halogens: *Precision*

Projection Systems

Incandescents: *Litelab*

Lamps: *Philips Lighting; General Electric*

www For more information on the people and products involved in this project, go to Lighting at architecturalrecord.com.



Inside the new compact, indirect luminaires

THE BRIGHT, TINY T5 FLUORESCENT LAMP IS INSPIRING A PLETHORA OF NEW FIXTURE DESIGNS

By Charles Linn, FAIA

Fluorescent lamps have been slimming down. The T8 is $\frac{1}{2}$ inch skinnier than the T12, and the newest version, the T5, is $\frac{3}{8}$ of an inch thinner than that. The efficacy of these dowel-like lamps is slightly better than their fatter ancestors, they have excellent color-rendering characteristics, and one manufacturer claims its lamp will maintain 95 percent of its lumen output over its lifetime. Computer-designed optics allow T5-equipped indirects to distribute light over a ceiling more widely and uniformly than ever before. With all this going for the T5, it's no wonder that almost every manufacturer who makes indirect lighting has developed new luminaires for it.

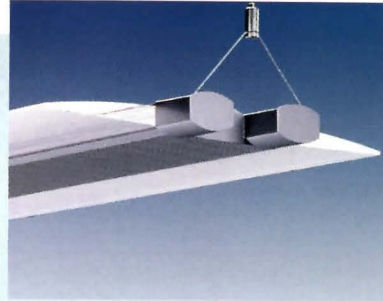
One of Zumtobel Staff's recent offerings is the Orea (top). The top of the fixture is left open so light, emerging laterally from the lamps and flowing into wide, shallow, wedge-shaped lenses, can get to the ceiling. The lenses use micropisms to distribute the light downward and give the fixture its winglike appearance.

Ledalite's Meso X1 (upper far right) is the first commercially available upright to use holographic diffusion material to distribute its luminous output. These clear, flat sheets use microscopic "microstructures" to distribute light. Depending on how this is applied, the sheets can disperse or constrain the output of a lamp, even shaping it into an elliptical or linear beam. The Meso X1's diffusers create a "batwing" light distribution without using a parabolic reflector or baffles.

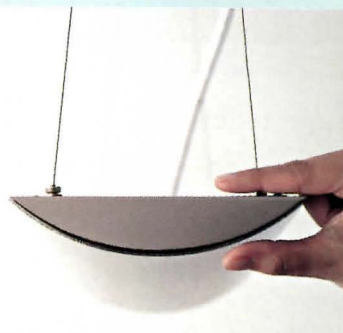
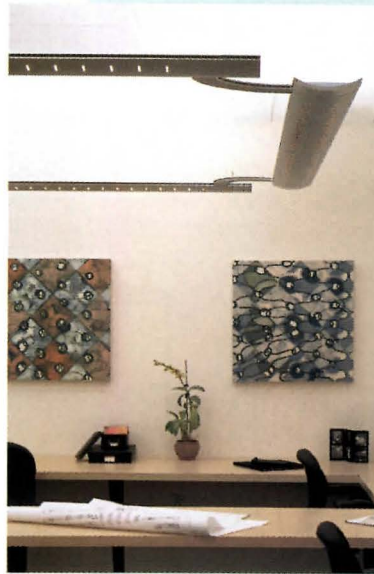
Peerless Lighting, an Acuity Brands Company, has just introduced its Lightedge series (right). The T5's compact shape allows Lightedge fixture housings to be very shallow. The fixtures come in two forms, either curved or angular V-shaped, and with or without slots. They can be wall-mounted or cable-suspended, and "sweep joiners" may be used to connect corners. The luminaires' optics employ hammered-metal reflectors and diffusing acrylic. The endcaps are milled from blocks and joined to the fixture's extruded portion so precisely that the entire assembly appears to have been machined from a single, solid piece of anodized aluminum.

The Alente (middle far right), designed by Stefano Casciani, is being manufactured by a new company, Ivalo Lighting, of Willow Grove, Pennsylvania. The shell of the fixture and canopy are aluminum, and the grille and bottom lens are made from either clear or frosted polycarbonate disks—anodized black and blue finishes are available as options. One interesting point is that this specification-grade product can be bought singly. If you want just one for your home office, you can easily get it.

Boyd Lighting created a new division called Lightspace to produce and market the Whisper (bottom right and far right). At just over an inch in height and 6 inches wide, this fixture exemplifies the way in which T5 lamps allow optical systems that create wide, evenly distributed upright to be miniaturized. Fixture options include bottom-mounted louvers and MR11 downlights. Like the Avalo, you don't have to buy a mile to get 4 feet. The Whisper can be bought one unit at a time. ■



The small size of the T5 fluorescent lamp helps keep indirect fixtures compact without sacrificing their ability to uniformly distribute light over a the ceiling plane.





Brio

...tasteful innovation



Brio (left) virtually disappears in the plenum compared with traditional low-glare parabolics.

T5 Luminaire

Innovative in form and function, Columbia's revolutionary Brio maximizes the advantages of T5 lamp technology, combined with the beauty of perf and the precision optics of parabolic louvers. The result is a stunning blend of performance and style in an astonishingly low profile housing.

- Brio is available in 2'x4' and 2'x2', two or three lamps, T5 or T5 HO, only 2½" deep
- Brio Stretto is available in 4'x4' and 4'x2', one lamp, T5 or T5 HO, only 3½" deep
- Meets IESNA RP-1
- Single wall wash option eliminates "cave effect"
- Double wall wash option illuminates corridors

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Lighting Briefs

This is the last year **Lightfair International** will be held in San Francisco. The annual trade show/conference will now alternate between Las Vegas and New York. Check it out at the Moscone Center from **June 3-5**. *Rita F. Catinella*



▲ Pure and simple

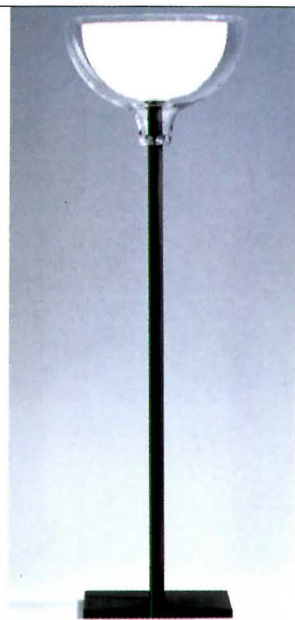
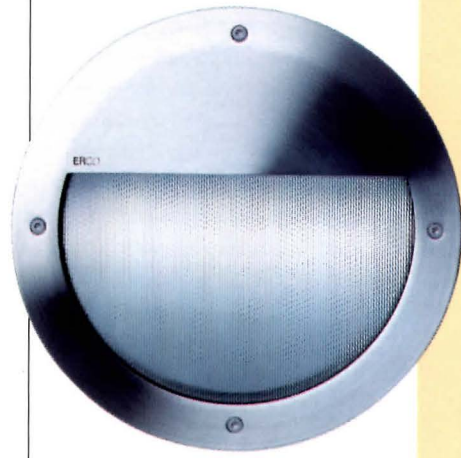
Purity is a utilitarian system of architectural lamp holders. It is available in several varieties of pendant, ceiling, wall, or table versions, and with a choice of lamp types. The Clarity line adds a subtle touch of decoration through the addition of a transparent glass shade. The shade is available in several styles and color options, including clear crystal, cobalt blue, and gold. Hardware on both fixtures is clear anodized aluminum, and the springs and glass mounting clips for Clarity are stainless steel. Designed by Douglas Varey, these fixtures suit a wide range of applications. 206/343-9323. Resolute, Seattle. **CIRCLE 200**



▼ In the washlight

Erco Lighting introduces the Visor floor washlights for nonglare lighting of outdoor floor areas and pathways. They combine newly developed reflectors with spread lenses for uniform ground lighting. The cover material is stainless steel and there are versions for different lamp types. Jilly is a new series of track-mounted washlights that feature reflectors that improve versatility. The series complements the existing Jilly spotlight series. Antiglare attachments ensure high visual comfort. 732/225-8856. Erco, Edison, NJ.

CIRCLE 201



◀ Old craft in a new light

Flos has a history of collaborating with the world's most innovative designers. In these new fixtures, the combination of traditional techniques and experimentation results in a contemporary look. The Cicatrices de Luxe series by Philippe Starck features handblown, hand-engraved leaded glass crystal vessels of various shapes and sizes. The fixture is available in three ceiling versions and a floor lamp. The XXL is part of the Metropolitan Collection by Antonio Citterio. It is an incandescent floor lamp with an external diffuser of transparent glass surrounding an internal diffuser of blown opal glass. The brass column is 79" high. 631/549-2745. Flos USA, Huntington Station, N.Y. **CIRCLE 202**

► Color chameleon

Chameleon, from Architectural Area Lighting, is a new wall sconce that can be easily configured as an uplight, downlight, or uplight-downlight for interior and exterior applications. It is shown here with a conical glass shade topped by concentric rings with colored lens options. Chameleon is wet label listed. Also new from the company is the MiniSconce. This ADA-compliant fixture is designed for exterior or interior environments, includes stainless-steel or copper-fascia panel options, and is available in up, down, or up-and-down illumination. 714/994-2700. Architectural Area Lighting, La Mirada, Calif. **CIRCLE 203**



Lighting Briefs

▼ High lumen output

At LightFair 2002, Venture Lighting will introduce its new 875-watt lamp, part of Venture's full line of energy-efficient Uni-Form Pulse Start Metal Halide System lighting. With 80,500 mean lumens, this new lamp gives 12,200 more mean



lumens than the standard 1,000-watt lamp. It also saves up to 157 system watts compared to the standard 1,000-watt lamp. 800/437-0111.

Venture Lighting International, Solon, Ohio.

CIRCLE 204

► Outside in

Aeris is a new line of low-profile luminaires that address both daytime appearance and nighttime performance. Available in two sizes, Aeris 1 is sized to provide distribution patterns for walkways, pathways, and common areas, while Aeris 2 is designed for open parking areas, entry drives, and roadways. A wall mount option allows lens-up orientation for indirect lighting of atriums and lobbies, providing a consistent look from exterior to interior. All reflectors are interchangeable. 404/853-1400. Lithonia Lighting, Atlanta. **CIRCLE 206**



▼ Light energy

Energie, a new importer of lighting, introduces several new fixtures. Syltoplus conceals miniature T5 fluorescent lamps inside a 1 1/4"-diameter extruded aluminum cylinder. The cylinder twists to adjust the light source up to 180 degrees. The candlelike design of



Free integrates easily with many styles, and the circular design of Centra features a dual optical system centered around an aluminum reflecting disk. 720/963-8055. Energie, Lakewood, Colo. **CIRCLE 208**



◀ Weighty light

Bar Bell is a decorative table lamp that provides softly diffused ambient lighting. Two round acrylic shades measuring 8 1/2" in diameter and 6" in height are stacked one on top of the other and connected by a partially exposed solid brass stem. The bottom shade hovers 1" above the base, obscuring the lamp stem and sockets to create a design in which light radiates from the entire fixture. Illumination is provided by two 60-watt candelabra lamps in each shade, controlled via an in-line dimmer switch. Available in several finishes. 914/698-7799. Nessen Lighting, Mamaroneck, N.Y.

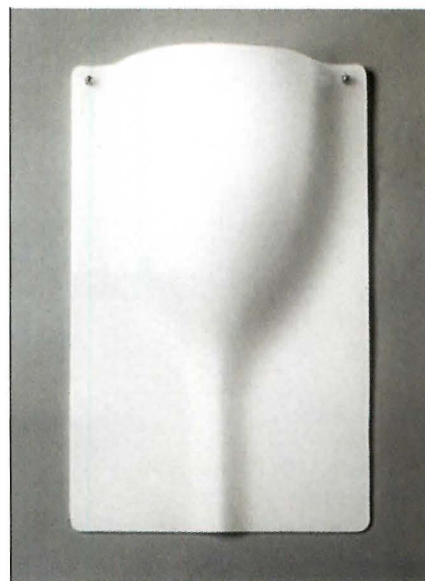
CIRCLE 205

► Keeping a low profile

The new Triad T8 is a super-low-profile electronic fluorescent ballast ideal for pendant mount and other specialty lighting applications. The extremely



compact size allows flexibility for lighting designers and fixture manufacturers to produce smaller, more optically efficient luminaires. Two models cover multiple lamp applications, and instant-start operation provides maximum efficiency. 615/316-5100. Universal Lighting Technologies, Nashville. **CIRCLE 207**



lighting. Created from polished, sandblasted, hand-blown translucent white Italian glass, each fixture protrudes only 3 3/4" from the wall, meeting ADA requirements. Bang, shown here, measures 15" x 9" and mounts flush to the wall. The elongated contours, similar to a champagne flute, allow diffused light to be emitted upward and against the wall surface while creating an ambient outward glow. Illumination is provided by a choice of one double-ended, 100-watt halogen lamp or one 13-watt quad tube fluorescent lamp. Two polished

▲ Bing (badda) bang

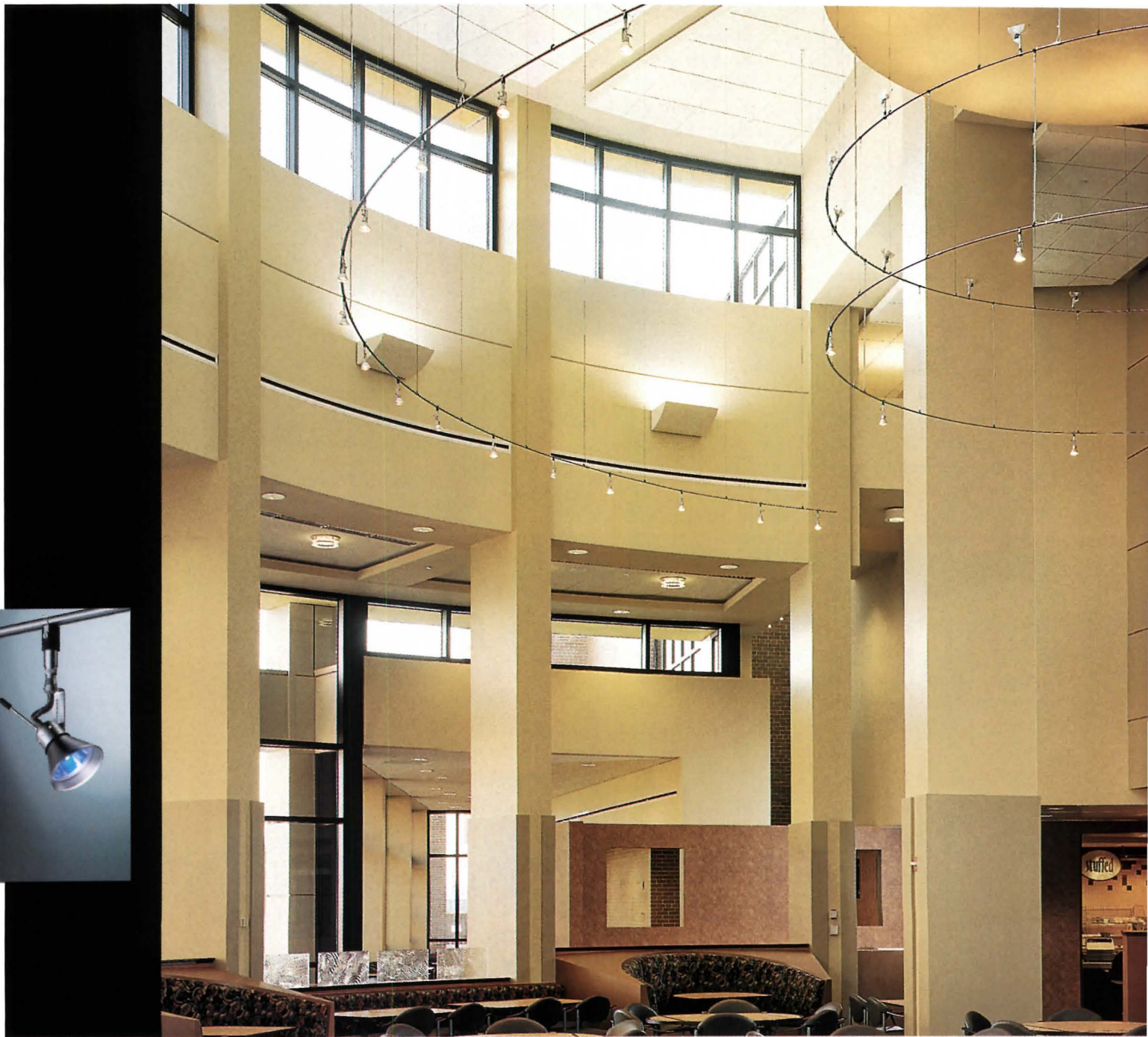
Bing and Bang are two new wall sconces by d'ac Lighting that provide nonglare, softly diffused ambient area

chrome nuts secure the shade to a metal mounting plate. 914/698-5959. d'ac Lighting, Mamaroneck, N.Y.

CIRCLE 209

BRUCK

L I G H T I N G S Y S T E M S



VIA, one of eight systems from Bruck, is a low profile track system that can easily change directions and elevations. Available in straight or curved segments, in chrome, matte chrome, or gold finish.

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Lighting Briefs



▲ Ceramic arc metal halide

Juno's MH2 Track Fixture Series is designed to utilize the full range of PAR20/PAR30/PAR38 and ED-17 ceramic arc metal halide lamps, and features a modular ballast/fixture format that reduces fixture size and maximizes versatility. 847/813-8443. Juno Lighting, Des Plaines, Ill. **CIRCLE 210**

▼ Spotlight on bulbs

The new Halogena indoor floodlight and spotlight bulbs from Philips last 50 percent longer than standard incandescent spotlights and floodlights, and the halogen technology makes the light whiter and brighter. The easy-to-grip shape of the new bulb also makes changing it easier, especially in narrow, recessed fixtures. 800/555-0050. Philips, Somerset, N.J. **CIRCLE 211**



▼ Celestial shade

The Celeste wall sconce is among the latest introductions to Canadian lighting manufacturer Hemera's collection. Designed by Vincent Dion, the Celeste features a mesh pleated shade over a polished nickel-plated structure. The main features



of the Celeste are the stainless-steel meshing and the original canopy, which eliminates all apparent fasteners. The dimensions are 10" high by 6" wide by 4" deep, meeting ADA requirements. All of Hemera's products are designed and manufactured within the company's own facilities in Montreal. Celeste is part of a collection that consists mainly of high-end decorative contract lighting products for residential, commercial, corporate, and hospitality applications. 514/277-9363. Hemera, Montreal, Canada.

CIRCLE 212

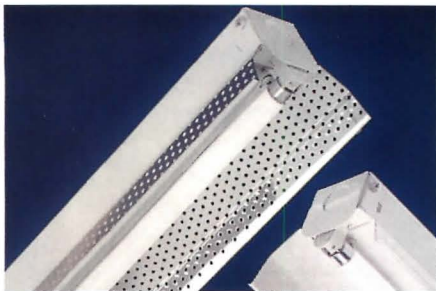
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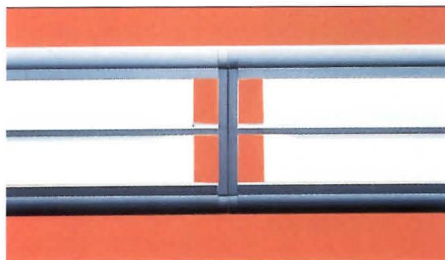


► **When size matters**

The new Low-Profile T5 Direct MS5 Series of fluorescent lighting fixtures is specifically designed for surface and pendant-mount direct applications that demand high light levels from a compact luminaire. The 5,000-lumen-output T5 is 40 percent smaller than the T8



and comes in one- or two-lamp basic configurations in several lengths, as well as a staggered version. Available reflectors include white, specular, or galvanized finishes in solid or perforated styles. 404/853-1400. Lithonia Lighting, Atlanta. **CIRCLE 213**



low-glare light downward, providing glare-free lighting for the most demanding applications, including offices with conventional CRT screens, flat-screen VDTs, laptops, and PDAs. Aria also features

a continuous-run design and is available in 9" single panel or 14" double panel configurations. 800/932-0633.

Zumtobel Staff Lighting, Highland, N.Y.

CIRCLE 215

▲ **Nothing to reflect upon**

There are no conventional reflectors or louvers in the new Aria luminaire. Instead, a microprism structure directs

▼ **Light matrix**

The Matrix Collection includes a sconce, table lamp, floor lamp, pendant, and ceiling fixture. A key element of the line lies in its flexible shade concept. Matrix features a slide-on shade design for ease of replacement. The shade material consists of an amber-hued perforated paper backed by clear LEXAN. The metal components are finished in a soft textured bronze and the wood finish is walnut. Lamp choices include two 75-watt A-lamps or two 13-watt CPF. Custom options are also available. 800/978-8828. Neidhardt, Redwood City, Calif. **CIRCLE 214**



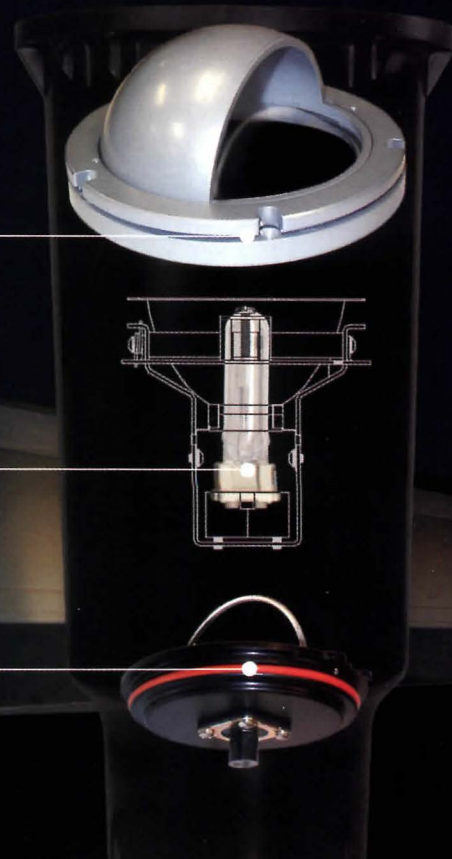
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Lighting Briefs



▲ Subtle and clean

Designed to be suspended by aircraft cable, Pizzicato luminaires promote a clean appearance and allow for mounting flexibility. Solid or perforated housings provide the choice between direct and indirect or indirect only light distributions. Pizzicato is available in one, two, or three lamp versions using T8 or T5/T5HO lamps for maximum energy efficiency and color rendering. Electronic ballasts are standard. 800/234-1890, ext. 6688. Day-Brite Lighting, Tupelo, Miss. **CIRCLE 216**

► Controlling effect

ColorDial is the dial controller for Color Kinetics digital lighting fixtures. ColorDial's control knob allows users to alternate among a variety of preprogrammed colors and color-changing effects without any added programming or setting of dipswitches. Users simply press the dial knob to select the desired effect and turn the knob to change the speed of the effect. 888/FULL-RGB. Color Kinetics, Boston. **CIRCLE 217**



▲ Aisle illuminator

W.A.C. Lighting's new line of compact fluorescent wall-washer track heads are ideal for commercial applications such as supermarkets and retail stores. An

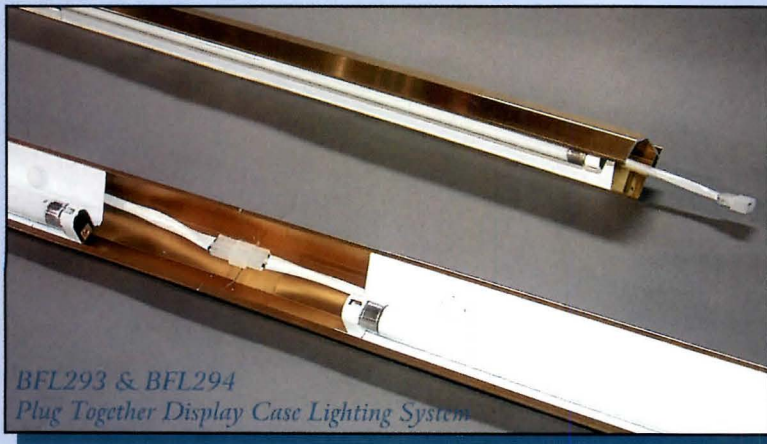
energy-efficient alternative to incandescent, compact fluorescent lighting consumes as little as one-fifth the power and lasts up to 13 times longer. The units are offered in five different

wattages, adaptable to four different W.A.C. Lighting track systems, and are designed for use with most major brands in retrofit projects. 800/526-2588. W.A.C. Lighting, Garden City, N.Y. **CIRCLE 218**

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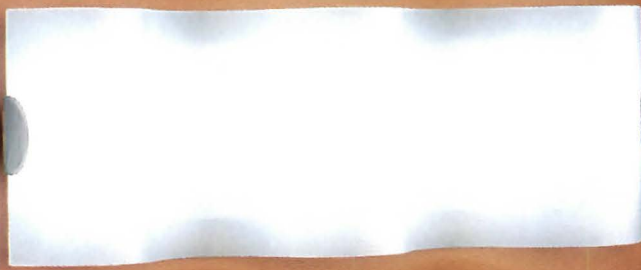
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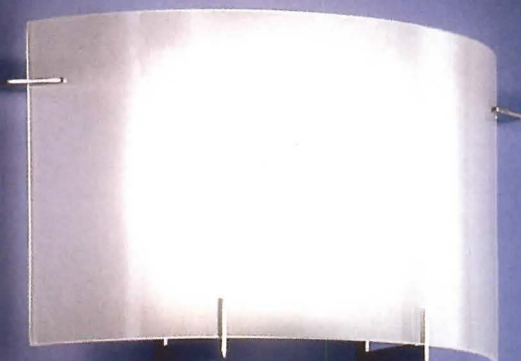
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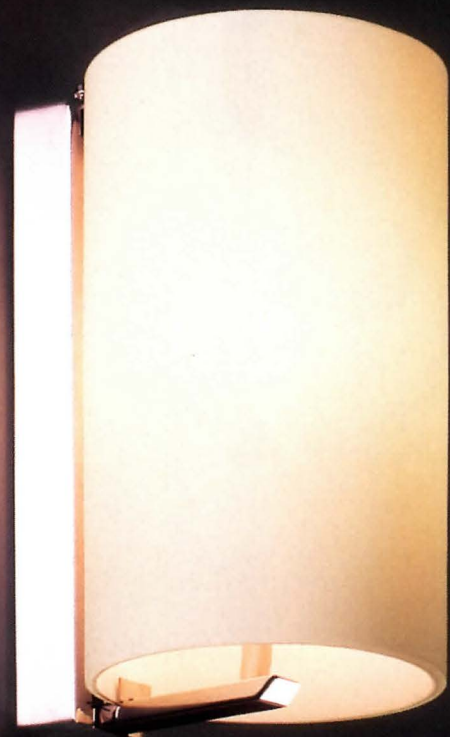
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SILO

Lighting Briefs

► Stainless track-lighting system

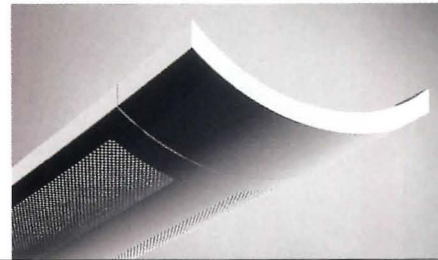
Hubbell Lighting combines the look of a stainless finish with the advantages of a two-circuit track system to create a flexible, clean-looking, integrated series. Two available track-head styles are combined with smooth or etched stepped-glass shades, spun- or screen-metal shades, or barn doors. There are also yoke-mounted and wall-wash fixtures. All combine with matching stainless track and accessories. 540/382-6111. Hubbell Lighting, Christiansburg, Va. **CIRCLE 219**



▼ Focus your attention

Focal Point has reintroduced their Verve line of indirect lighting. Available in both pendant and wall-mount versions, Verve's indirect light distribution offers soft illumination while assuring ceiling uniformity. Each pendant variation may be row-mounted to any run length, or as individual 4', 8', or 12' fixtures. Wall-mount variations also adapt to both

extended-run and individual-mount conditions. Verve II's slim profile is enhanced by perforations in the housing. 773/247-9494. Focal Point, Chicago. **CIRCLE 220**



▼ Giving light form

Mitra is a new large-scale ceiling-mounted fixture from Lightform+, a manufacturer of custom and standard lighting sold through Forms+Surfaces. Drawing on Forms+Surfaces' palette of architectural materials, Mitra features an expanse of patterned glass floating beneath a powerful CFL light source. Mitra is available in two models, a 42" round version and a 36" square version. 800/451-0410. Forms+Surfaces, Carpinteria, Calif. **CIRCLE 221**



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New Products

The National Roofing Contractor's Association (NRCA) has decided to help organize the repair and replacement of the Pentagon's roofing system necessitated by the September 11th attack. NRCA has received donations of labor, materials, and \$125,000 for the project, mostly from **small, family-owned businesses**. NRCA's 2003 Convention and Exhibit will be held February 11-14 in New Orleans. *Rita F. Catinella*



An impregnated oil protects Soveco shingles from insects and fungus.

4.7". Thin shingles are 3 to 8 mm thick, and thicker ones measure 10 to 14 mm. Each shingle is also impregnated with a special oil that guarantees its life span for 30 years against the effects of humidity, insects, and fungus. Shingle shapes include rectangular, round, and beveled, depending on the application. A fully patented packaging protects thin shingle ends and ensures total treatment impregnation and drying without splintering or warping. Soveco is looking for commercial partners as dealers or sole importers of its products. 312/222-1235. French Technology Press Office, Chicago.

CIRCLE 222

Wooden roofing shingles designed to stand up to tropical elements

The French company Soveco produces patented roofing shingles made of wood tiles guaranteed to weather storms, heavy rains, hurricane winds, snow, salty air, and sea spray for at least 60 years. The Soveco process is the only one in the world that has been approved

to last against extreme winds for more than 10 years in tropical areas, says the manufacturer. France's building materials research center, the CSTB, has tested and officially certified the resistance of Soveco shingle cladding against hurricane winds of over 180 miles

per hour. A natural insulating product, Soveco shingles can be made from any wood species and come in a variety of sizes, shapes, and colors. Each shingle measures 23.6" long for roof slopes of 15 to 35 percent, and 15.7" long for slopes of 35 to 40 percent, with shingle width at



More colorful TPO roofing membrane

Stevens Roofing Systems now offers its Stevens EP brand of thermoplastic polyolefin (TPO) membrane in eight new colors, in addition to standard white. The colors include Light Slate Gray, Pewter, Buckskin, Desert Brown, Patina, Dark Ivy Green, Neon Blue, and Terra Cotta. Each is available in nominal 45 mm and 60 mm thick-

nesses. All Stevens EP membrane products are scrim-reinforced for added strength and durability. Matching unreinforced material is also available for flashing pipe boots and inside and outside corners.

Stevens EP is designed for commercial, industrial, and institutional applications. The membrane can be installed using a variety of methods, such as mechanical attachment, fully adhered, stone and paver ballast, or as a vented roofing system. Several warranty types and terms are available, and some Steven EP membranes are available with a 55-mm layer of fleece added to the underside of the 45- or 60-mm membrane. 877/TPO-ROOF, ext. 1004. Stevens Roofing Systems, Holyoke, Mass.

CIRCLE 223

PV system for commercial roofing

The Solar Grid photovoltaic system from Garland offers a fixed electricity rate and reduces dependence on the aging utility infrastructure. Prior to installing a SolarGrid PV system, a Garland representative provides a complete roof assessment to determine the condition of the existing system and whether it needs to be

upgraded. SolarGrid's system includes PV modules, combined boxes, inverters, transformers, and the hardware necessary to attach it to various commercial roof systems, including standing-seam metal roofs. 800/321-9336. The Garland Company, Cleveland.

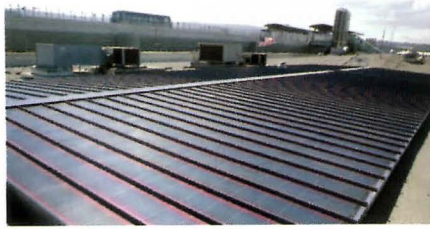
CIRCLE 224



New Products

► California skies

San Francisco International Airport has installed a 20-kilowatt array of building-integrated PV roofing panels to provide a portion of the power needed at one of the airport's support buildings. The system, designed and installed by Renewable Energy Resources of Occidental, Calif., uses "peel and stick" Uni-Solar PV laminates bonded to metal roofing pans and installed in modular units. 800/843-3892. Bekaert ECD Solar Systems, Troy, Mich. **CIRCLE 225**



▲ Depot back on track

The Milwaukee Road Depot and Train Shed in Minneapolis, vacant since the 1970s, has been restored. The standing-seam roof on the train shed now utilizes 66,000 square feet of Petersen's Snap-Clad 24 gauge steel panels finished in a custom Diplomat Gray Kynar 500 paint. In addition, the project uses 22,000 square feet of Pac-Clad 24 gauge steel material for miscellaneous flashing details. 800/323-1960. Petersen Aluminum, Elk Grove Village, Ill. **CIRCLE 227**

► Steel roofing shingles

Centura is a new line of lightweight, 29-gauge Galvalume steel roofing shingles. Centura shingles are coated with Fluoron cool-pigment paint developed to meet energy-saving criteria for roofing materials by deflecting the UV rays of the sun. The shingles are guaranteed against excessive color fading for 25 years from the date of initial installation. Their smooth surface helps to shed snow easily, which can reduce damage to the roof and gutters. 800/BUILD-GP. Georgia-Pacific, Atlanta. **CIRCLE 229**



◀ Prime real estate

Rheinzink was selected for the integrated roofing design for the Paul-Lincke-Höfe project in Berlin. Five commercial buildings that were part of a former telegraph factory were transformed into 166 lofts with a total living space of 15,000 square feet. Approximately 3,500 square meters of roof were covered using a traditional double-standing-seam technique. The project won a "residential real estate" award at the Eleventh Annual Real Estate Congress, held in Frankfurt, Germany. 604/291-8171. Rheinzink Canada, Burnaby, British Columbia. **CIRCLE 226**

▼ Tile look, metal performance

Met-Tile has updated its system of "tile panel" roofing that combines the look of tile and the high performance of metal to include a new standard paint finish. The silicone modified polyester paint system is a low VOC finish that offers durability and corrosion

resistance and is suitable for water catchment applications. It is available in 10 standard designer colors and in custom colors. The Met-Tile system carries a 230+ mph wind rating based on UL wind-uplift testing. The system is also UL-listed for impact resistance. The panels weigh only a fraction as much as tiles. 909/947-0311. Met-Tile, Ontario, Calif. **CIRCLE 228**



▼ Reroofing while you work

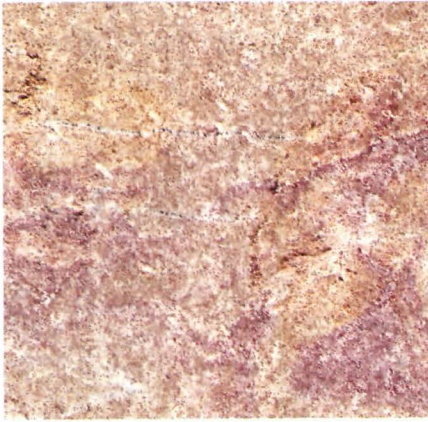
When Hubbell Die Casting needed to reroof its Moultrie plant, a new prepainted standing-seam steel roofing was installed over the facility's existing metal system. The project also involved installing 1½" of batting between the two roofing systems, which increased the roof's R-value by an additional 10 points. 888/544-6447. American Iron and Steel Institute, Washington, D.C. **CIRCLE 230**



Product Briefs

► Tasteful limestone

Derived from a subterranean quarry beneath the Corton vineyards in France, Haifa's Corton Limestone is distinguished by burgundy-colored veins, believed to be the result of rainwater mixing with fallen grapes. Haifa claims that the company's patented process that gives freshly quarried stone the look of authentic antiquity can even deceive experts.

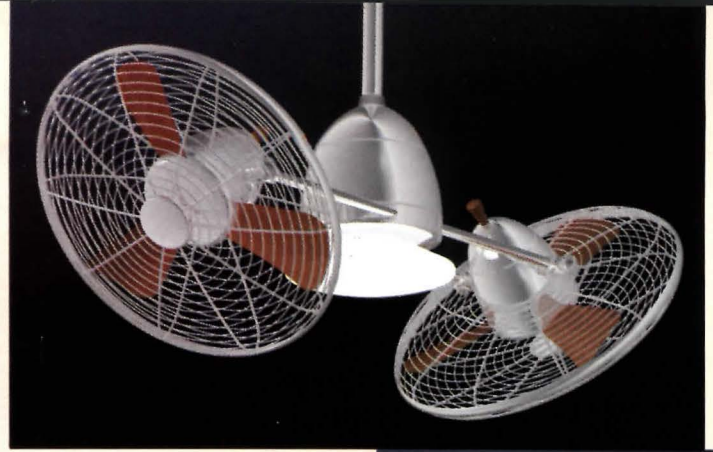


Haifa is marketing the stone for wine-cellar flooring, shelving, and wall cladding. Most recently, Haifa has been selected to supply Corton and Jerusalem limestone for the kitchen restoration of Blair House, the official presidential guest house in Washington, D.C. 561/641-4911. Haifa, Lake Worth, Fla. **CIRCLE 231**



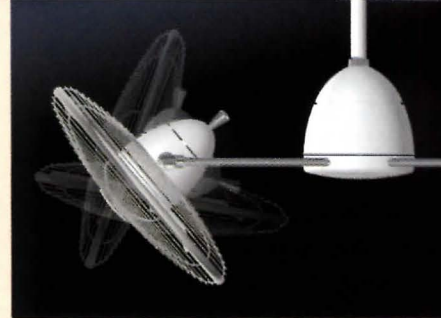
▲ Valuable deposits

The Green River Stone Company offers fossil art and fossil stone products that have been unearthed from stone deposited 50 million years ago and extracted by hand from the company's private quarry. They produce individual fossil specimens, artistic fossil murals, and other stone products for museums, private collectors, interior designers, and architects. Murals range in size from 18" x 24" to 4' x 8', and larger pieces are also available. The quarry lies in the heart of Fossil Lake's sedimentary deposits. Fossil Lake was once a fresh-water lake with a subtropical climate ideal for palm trees, crocodiles, turtles, and an abundance of fish. 435/753-4069. Green River Stone Company, Logan, Utah. **CIRCLE 233**



Gyro fan G Squared Arts

Gyro is the newest fan concept from G Squared Arts president Mark Gajewski, a three-time winner of the Chicago Athenaeum Museum of Architecture and Design "Good Design Award." Gyro is a 21st-century version of the antique gyro fan, combining both oscillating-fan and ceiling-fan functions. The design allows the fan to gently sweep the room or direct the airstream where it is needed by remote control. The side fans can be tilted individually. Available in either a brushed-nickel, chrome, and wood finish or a white and chrome finish. A removable, fully dimmable light kit is included. Other fans in the G Squared line include Acero, Flyte, and eMotion. 877/858-5333. G Squared Arts, San Luis Obispo, Calif. **CIRCLE 232**



▲ Modern merchandising

The wall/perimeter shelving system called Pog is shown here with acrylic face-outs and thick, beveled, acrylic shelving. Sorbetti acrylic in yellow/green supports the "twist and lock" inserts of the Pog system, allowing easy removal and replacement. The background is peeled bamboo laminated to clear acrylic and backlit. The Cosmos cosmetic merchandising unit features pieces that are easily adjustable, using a system of milled aluminum pucks. 800/350-4127. B&N Industries, San Carlos, Calif. **CIRCLE 234**

Product Briefs

▼ Safer homes

Liberty Safe introduced a new residential safe at the 2002 International Builder Show in Atlanta. The safe provides UL-listed security and certified fire protection for important valuables, papers, and personal treasures of the home. The safe features electronic touch-pad access, interior lighting, hardware plated in either brass or brushed aluminum, and functional storage capacity. Designed to be concealed, the product is offered in three sizes—4, 8, and 12 cubic feet—and five exterior colors, including sage, khaki, rust, night black, and diamond white. The interior of the product is



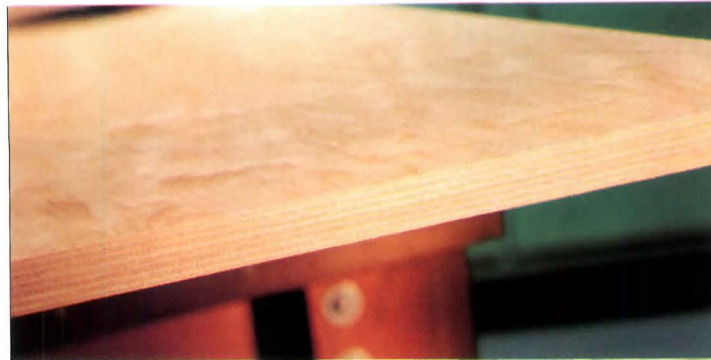
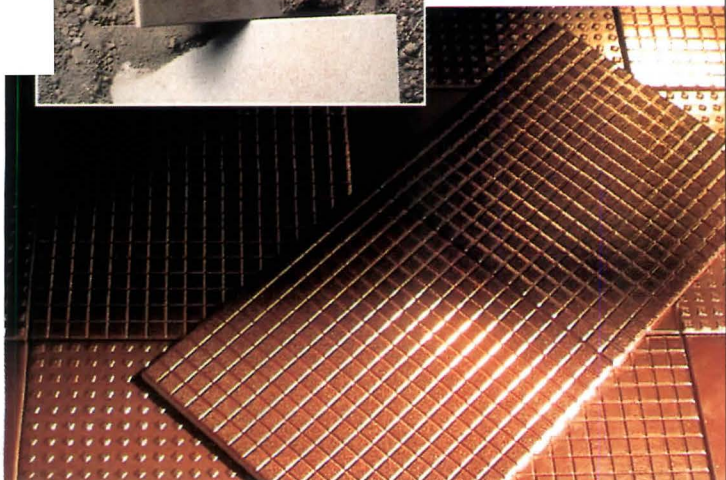
fully upholstered with a rich pin-dot velour in silver or beige that is matched to the exterior. 866/263-4766. Liberty Safe, Payson, Utah. **CIRCLE 235**

▼ Spanish styles

Dore floor tile (far bottom) from Tau's high-tech Metalica Collection, is one of several new tiles available from Spain. The metallic coated tiles incorporate a futuristic look of studded metal plating or grillwork. The collection includes wall and floor tiles in both steel (Alpax) and

golden finish (Dore). The floor tiles feature an antislip grid and a special finish treatment. Cleve (below left) by Pamesa incorporates "dry glazing," the latest technology in the production of all-through-body porcelain. During the pressing process, dry powdered pigments are seeded onto the surface of the tile to create coloration and pattern. 305/446-4387. Tile of Spain Center, Trade Commission of Spain, Coral Gables, Fla.

CIRCLE 237



▲ Hardwood plywood/veneer

Columbia Forest Products has introduced a line of certified hardwood plywood and veneered particleboard (right), as well as Europly (above), a premium plywood panel featuring a domestic hardwood face and a multilayered core comprised of 60 percent imported Polish birch and 40 percent alder. 800/547-4261. Columbia Forest Products, Portland, Ore. **CIRCLE 236**



▲ Robotic parking

The first fully automated parking garage in America, located in Hoboken, N.J., is 56' tall, 100' deep, 100' wide, and can

hold 324 cars. To park, the driver puts his or her car in one of several entrance stations and inserts a key card into a slot. The car, now protected on a steel pallet, is lifted under computer guidance

into one of the available slots in the heart of the building. Retrieval is also automatic. 888/762-6727. Robotic Parking, Clearwater, Fla. **CIRCLE 238**



▲ Save space, oil, and energy

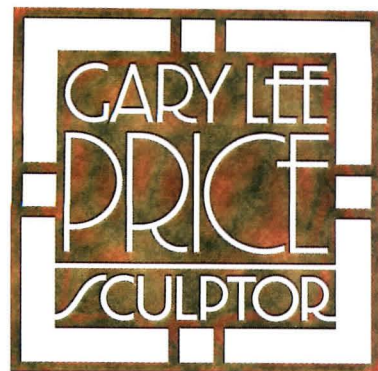
The KONE ECO3000 escalator, recently introduced to the North American market, saves space, oil consumption, and energy.

The escalator offers a smaller footprint, a wide selection of finishes, and the 96 percent efficient KONE ECO3000 Drive System. A compact, chainless drive eliminates the need required in standard escalators to lubricate the drive chain, and the optional KONE EcoStart conserves energy by adjusting voltage and current up to 120 times per second in response to escalator workload. 800/956-KONE. KONE, Moline, Ill. **CIRCLE 239**



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"New Heights"
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I also wanted to say something about childhood and our fascination with flight. To me, flight represents freedom and rising above our problems and gaining that all so important 'perspective' on life. I feel like I have to take a couple of flights a year just to get off of the earth and regain some of that 'vision'.

— Gary Lee Price

"Wings"
Bronze, 18", 50" and 7ft. high

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Product Briefs

▼ Deck the walls

Wall Art wall base is a premanufactured pattern for inside and outside corners. It is not a laminate, which the manufacturer claims makes it more durable and easier to install than wood, stone, or metal. Available in 10 patterns, Wall Art gives designers the opportunity to create the effect of a wall trim without the high costs.

Available now in the United States and Canada. 800/899-8916. Johnsonite, Chagrin Falls, Ohio. **CIRCLE 240**



▲ Colorful concrete

Exposed aggregates used in conjunction with Chromix Admixtures provide a colorful, slip-resistant surface for public areas, walkways, and seafront promenades. Varying the size of indigenous aggregates can provide design interest along with the cost-effectiveness of cast-in-place architectural concrete.

800/800-9900. L. M. Scofield Compan., Los Angeles. **CIRCLE 241**

▼ Barely there

Visplay Area, from Marlite, is the third product to be offered through the Marlite/Visplay partnership. Visplay Area features a range of sockets and components, including adjustable uprights, and merchandising accessories systems that can be easily mounted to wood or glass and configured to create displays for a wide variety of retail offerings. Its modern, clean, *Minimalist design* has few visible

structural elements, ensuring that the assembly doesn't overpower the merchandise. Available in the same finishes as other Visplay and Marlite assemblies, Area components can be used to create center-floor displays, platforms, risers, and tables, complemented by Visplay Mono and Stripes as vertical systems, or alone with conventional display systems. Marlite offers preassembly and shipping to job sites to decrease installation time. 330/343-6621. Marlite, Dover, Ohio.

CIRCLE 242



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▲ Vinyl rainbow

Azrock introduces 26 new colors to its commercial vinyl flooring line. The new colors are part of their Standard Cortina

Collection. The addition of the new colors now makes a total of 60 colors available for the Vinyl Composition Tile (VCT). The tile offers a solution for high-traffic areas and has been tested for air-quality emissions. The standard Cortina Collection has received certification by the GreenGuard Registry.

713/802-1008. Domco Tarkett Commercial, Houston. **CIRCLE 243**

► Not too hot

Dune fine-textured acoustical ceiling is now available in Fire Guard panels. The panels are specially formulated and manufactured to provide enhanced resistance to flame spread, smoke generation, and/or structural failure. They are offered in two sizes and three edge options. 877/276-7876. Armstrong World Industries, Lancaster, Pa. **CIRCLE 244**



► Twister a-coming

Quattrocchio, the Italian exhibition systems manufacturer, is introducing Twister shelving at the International Contemporary Furniture Fair 2002, held in New York City this month. The system is assembled from steel "ladders" and injected acrylic shelves in translucent colors. New panel options include super-size perforations in squares and circles, along with sleek steel mesh. A pole support now offers designers the ability to make lower-cost enclosures with Zero panels, utilizing a new universal node connector. An integral showcase module allows for cost-effective display cases within the Zero system. 401/724-4470. Zero U.S., Lincoln, R.I. **CIRCLE 245**



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Product Briefs



▲ For the king's throne

The Royal Flushometer meter regulates the amount of water used during one flush, setting the standard for low-consumption toilets. The Royal accurately delivers water from 15 to 100 psi, offering water economy, low maintenance cost, and a long life. 800/9-VALVE-9. Sloan, Franklin Park, Ill. **CIRCLE 246**

▼ Fire protective insulation

FlameChek duct insulation is a high-temperature insulation blanket for use in commercial and industrial fire-protection applications. FlameChek meets industry requirements and is specifically designed to provide one-to-two-hour fire ratings around ducts. 800/723-4866. CertainTeed, Valley Forge, Pa. **CIRCLE 247**



▲ Looking for the complete package

The new abuse-resistant wood doors from Total Door Systems are designed to stand in as an alternative to heavy steel doors in hospitals, classrooms, offices, or anywhere a steel door may be less desirable. The low-profile electromagnetic door fasteners (above) can be used anywhere, even with other sensors and detectors located nearby. Concealed door closers (top) become invisible when the door is closed. They are ADA compliant through the full swing. 248/335-7380. Total Door Systems, Pontiac, Mich. **CIRCLE 248**

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Product Briefs



▲ Hanging tough

DecorCable Innovations announces the availability of their newly expanded JAKOB Inox Line of Vertical Cable Railings Systems. The new system of cables is designed to meet all building codes, allowing architects to incorporate the look of stainless-steel cables in a way that was not available before. The system offers preassembled components in lengths ranging from 20" to 47", with a choice of 12 mounting options. The line includes steel rods and wires suitable for structural, residential, and retail applications. 800/444-6271. DecorCable Innovations, Chicago. **CIRCLE 249**



▲ Breathe easier

Camfil introduces Ultrasolve air filter, a 4"-deep air-filtration system ideal for commercial, institutional, medical/health-

care, food-processing, electronics, and other indoor facilities where air quality is important. Using a polypropylene medium with high strength and low resistance to airflow, the filter is appropriate for high-humidity situations. The 4"-deep filter helps save valuable air-handler-component and inventory space, and its low-pressure drop performance (40 percent lower than comparable filters) reduces energy consumption. 973/616-7300. Camfil Farr, Riverdale, N.J. **CIRCLE 250**

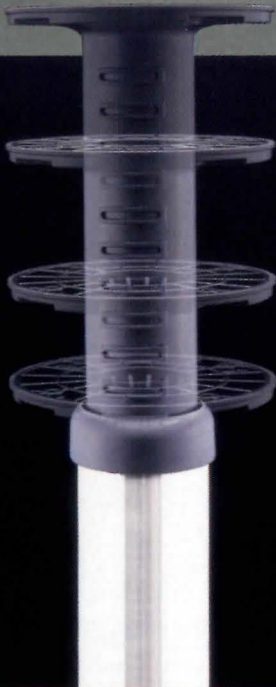
▶ Hot concrete

USG introduces its new Levelrock brand of floor underlayment RH (Radiant Heat). The poured gypsum concrete product is formulated to deliver long-term strength and heat-transfer performance. It is suitable for use with hydronic and electrical systems. 800/487-4431. USG, Chicago. **CIRCLE 251**



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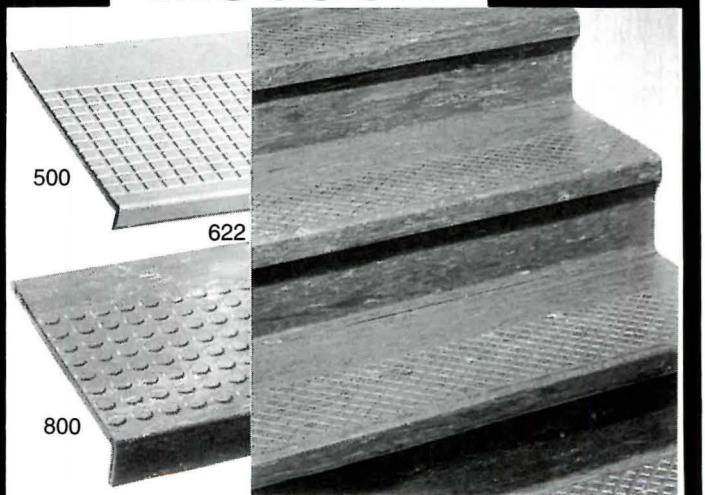
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