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# ARCHITECT

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## WHO DESIGNS SUBURBIA?

MEET ARCHITECT JT ELBRACHT,  
DESIGN DIRECTOR FOR AN 8,800-ACRE  
DEVELOPMENT IN THE ARIZONA DESERT.

# Ceramic Tile.

Beauty from the earth that's actually beautiful for the earth.

Ceramic tile is one of the most versatile, inspiring materials architects and designers have at their disposal. From tiny mosaics to technologically advanced large format tiles; and with boundless color and texture options, to decorating with realistic CMYK (4-color process) digital inkjet printing, the question becomes "what can't one achieve with ceramic tile?"

When it comes to ceramic tile, you're limited only by your imagination – certainly not limited by a lack of eco-friendliness.

## **From plentiful raw materials.**

The natural resources used in ceramic tile manufacture are clay and water, which means, unlike many other surface material options, ceramic tile's raw materials are abundant. Plus, environmentally conscious tile makers, such as Tile of Spain manufacturers, reuse their own water and waste clay, adding to the material's sustainability profile.

## **Ceramic Tile. Naturally eco friendly.**

Beyond not taking much from the environment, ceramic tile gives back – significantly. It's an enduring material with a usable life of over 40 years, so it far outlasts alternative surface materials – up to eight fold.

Spot repairs can be made, rather than total replacement. UV light won't fade ceramic tile. And it has the ability to endure fire, flood – virtually any natural disaster.

When new tile is installed, because it can be laid over existing tile, landfill waste is reduced and finish and substrate resources

are saved. But even when a ceramic tile surface is torn out for new, the waste is 100% natural so it poses no threat to the landfill.

## **Mimicking Mother Nature.**

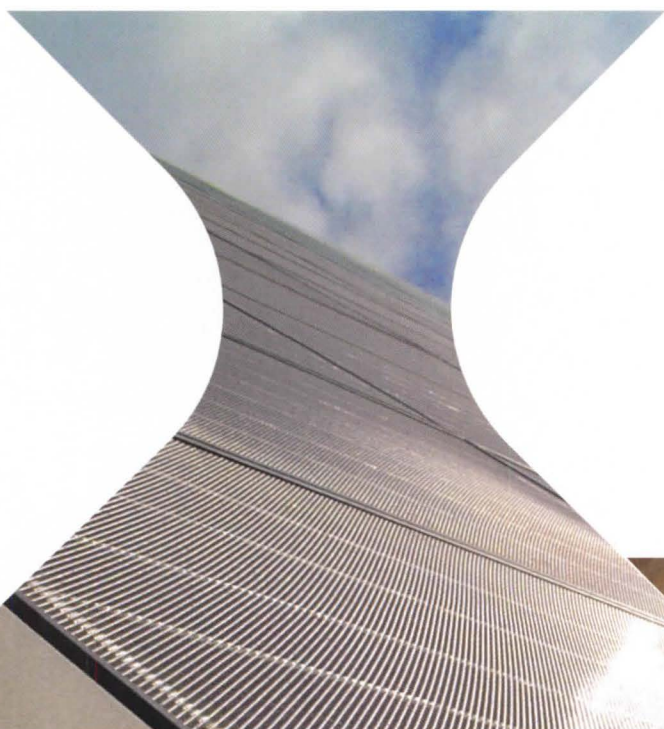
Tile of Spain manufacturers, although traditional craftspeople, utilize the latest technology to trick the eye and the hand, beautifully. Digital inkjet printing is now applied to tile making, enabling architects and designers to exercise their inspirations with looks of materials such as wood, textiles, leather, metals and stone to create faux surfaces. But with all the practical benefits of ceramic tile, including durability, easy maintenance, hygienic properties, and more.

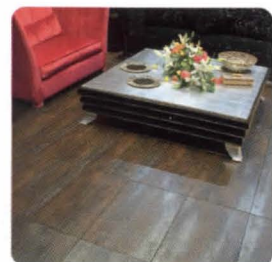
## **Ceramic tile as energy saver and energy producer.**

Technological advancements led by Tile of Spain manufacturers have taken an already eco-friendly material to new heights. For example the use of cogeneration energy to supply plant electricity and heat for spray driers significantly reduces the energy consumption of many facilities. The environmental stewardship extends beyond their own walls, too. Tile of Spain manufacturers have proactively partnered with pioneers in solar energy to develop photovoltaic ceramic tiles that are clad with solar cells to produce energy year round. Now, architects can design building exteriors that are not only venues for creative expression, but for environmental responsibility, as well.

Ventilated facades add to this eco advantage. Because they leave a gap, or "chimney," between the building surface and the tile, a thermal barrier is created, conserving energy and reducing heating and cooling costs and noise pollution. As an added eco bonus, ventilated facades can also be outfitted with photovoltaic tile.

Raised floor systems are another innovation where Tile of Spain manufacturers lead the way. Ceramic tile floors are even more practical when an under-floor space is created for running conduit,





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electrical wiring, computer cable and for in-floor lighting – plus increased-efficiency under-floor HVAC systems.

**Ceramic tile. For improved indoor air quality and safety.**

Because it's inherently healthier than many other surface materials, ceramic tile is often the material of choice for building owners who consider indoor air quality a priority. It's neither a primary nor a secondary source of air pollution because it emits no harmful fibers, gases or other toxic byproducts, as other surface materials do. Ceramic tile also reduces allergens, and doesn't absorb smoke, paint fumes or other contaminants. Because it's chemically inert, ceramic tile inhibits the growth of mold, mildew, fungus and other organisms.

Increased safety is a key benefit of ceramic tile, as well. It's inherently slip resistant and can be made more so by adding antiskid particulates to the tile's surface. Ceramic tile is also easily cleanable without the use of harsh eco-threatening cleaners.

**To do better by the earth, start in Spain!**

Learn more about how ceramic tile has always been an eco-friendly surface material choice – and how advances in technology by Tile of Spain manufacturers have made it even more so. Contact Tile of Spain, 2655 Le Jeune, Suite 1114, Coral Gables, FL 33134. Call 305-446-4387 or email [miami@mcx.es](mailto:miami@mcx.es). Circle no. 385 or <http://architect.hotims.com>

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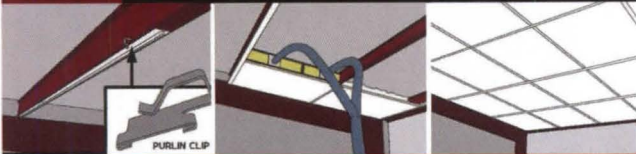
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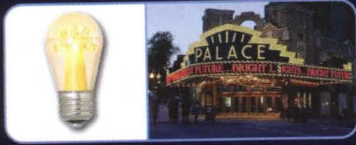
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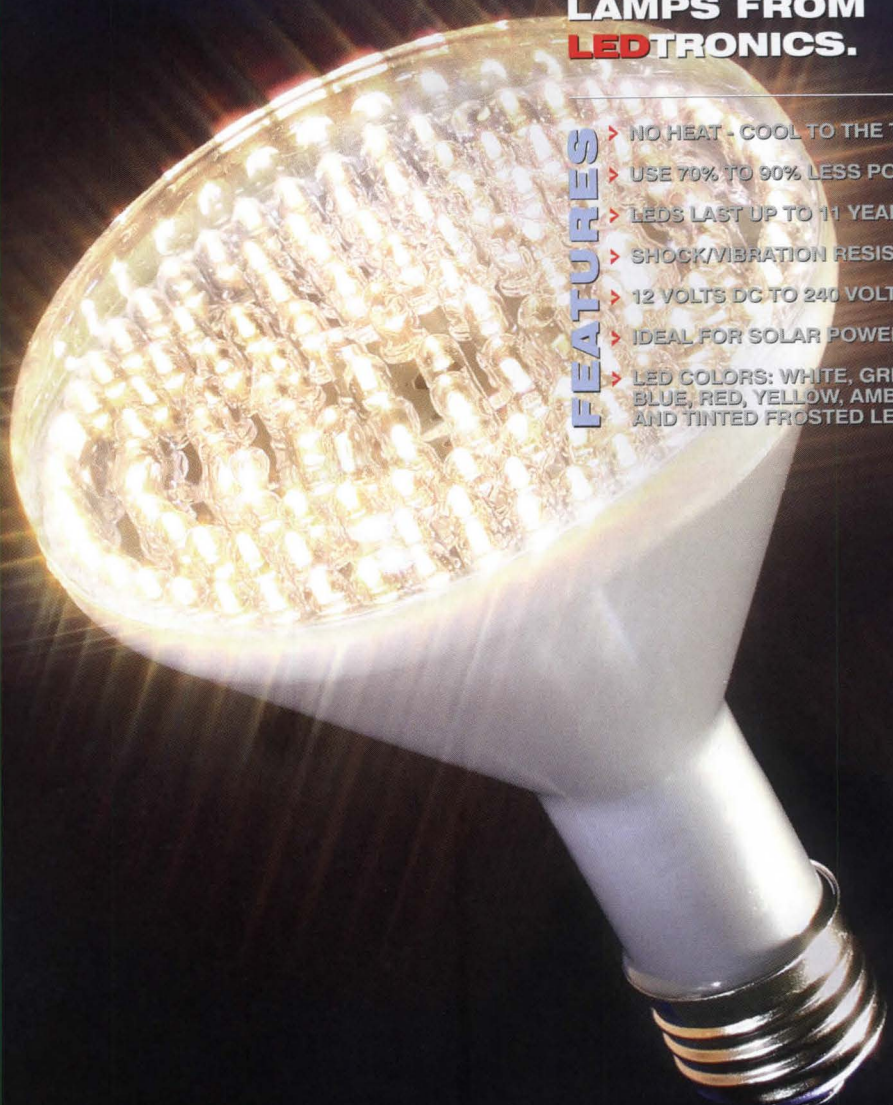


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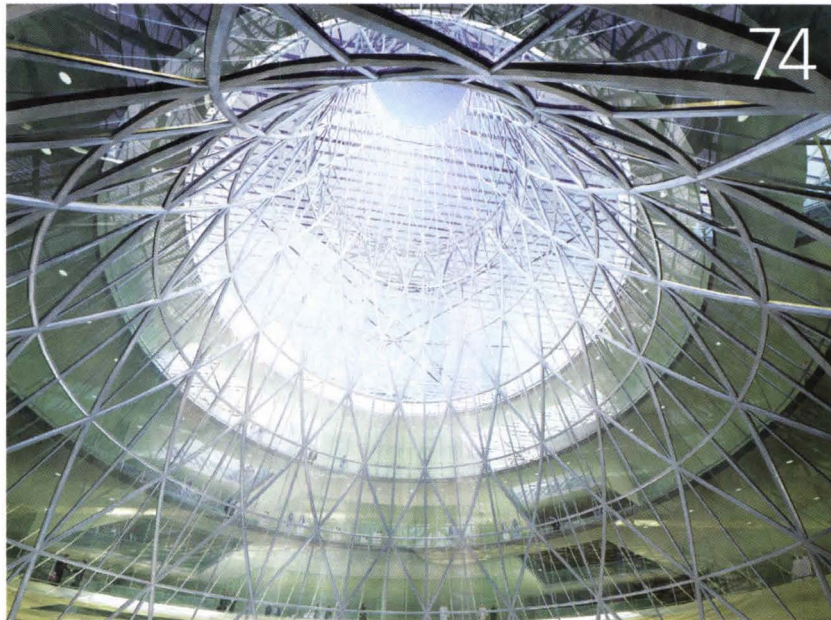
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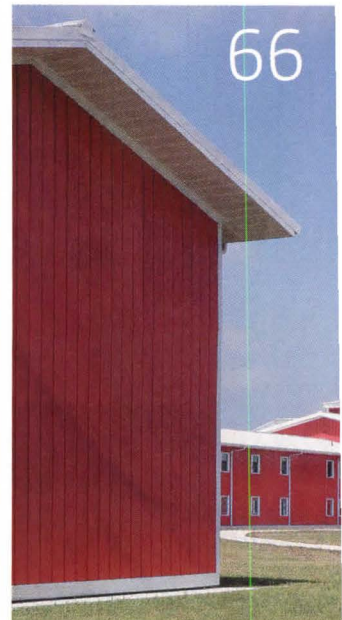
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THERE IS A GENERATION OF ARCHITECTS THAT HASN'T GONE THROUGH A RECESSION. FOLKS SAY, "WHY ARE YOU BOTHERING US?"

*Kermit Baker, from "Tales From the Downturn," page 72*

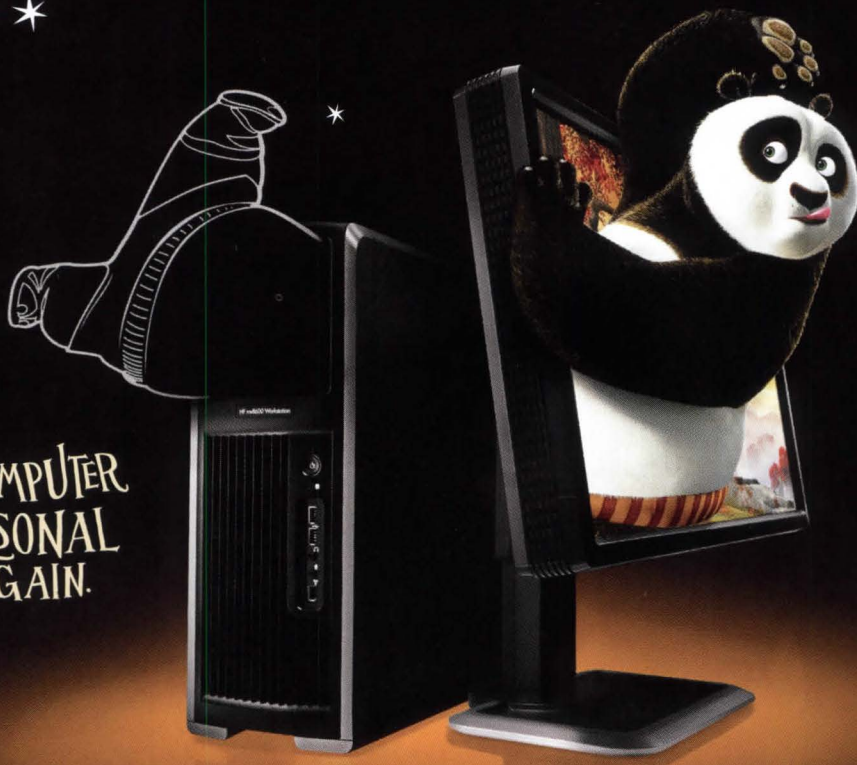


**ON THE COVER**  
JT Elbracht, director of community design for Verrado in Buckeye, Ariz. Photo by Jason Fulford.



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**RIGHT** A regional bus center in southern Paris uses high-tech concrete to achieve an ultra-thin skin.

**FAR RIGHT** Haworth's Mumbai desk is making its debut at this year's NeoCon in Chicago.



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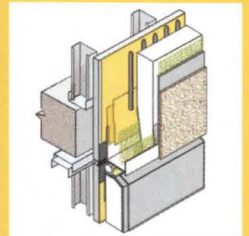
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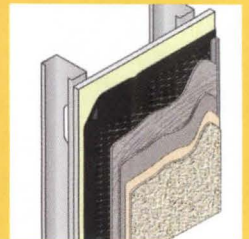
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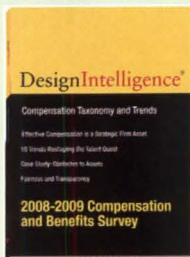
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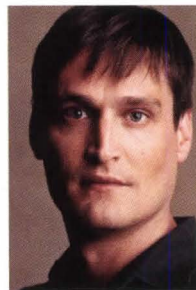
- University Deans Survey
- Historical Review of Architecture, Landscape Architecture, Interior Design, Industrial Design programs
- Design School Directory: the comprehensive listing of accredited design programs in architecture, landscape architecture, interior design, and industrial design
- A regional analysis of top-rated design programs
- Architecture Schools with the Most Faculty Awards
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**Dialogue**

# NETSCH IS STILL AN ARCHITECT, FOR NOW ...



**Ned Cramer**  
Editor in Chief

**I'M THRILLED TO REPORT** that Walter Netsch is, indeed, an architect. In August 2007, I wrote about the Illinois Department of Financial and Professional Regulation's ridiculous efforts to strip Netsch of his license, because he failed to complete continuing education requirements. Netsch, the designer of postwar icons such as the U.S. Air Force Academy, is 88 years old and in poor health. He filed suit, and in early May, Cook County Circuit Judge Kathleen Pantle ruled in his favor. The state regulators did not appeal.

Netsch isn't out of the woods yet.

His license goes up for renewal again in November. A spokesperson for the Department of Financial and Professional Regulation told the *Chicago Tribune*, "We certainly hope Mr. Netsch will be able to complete the continuing education, but since he has not yet applied for renewal, there's nothing we can talk about." A poorly veiled threat? Let's hope the state doesn't make the same mistake twice. Stay tuned.

**Ned Cramer**  
Editor in Chief

## Useful Stats

I assume the intent of including statistics for the "10 Fastest-Growing U.S. Metro Areas" [April, page 22] was to indicate to architects where the potential design action is located. These percentages are tremendously misleading. Tiny Clarksville, Tenn. (pop. 113,175, July 2006) only added 4,187 people during the year but had a growth rate of 3.7 percent. Compare that to Fairfax County, Va. (pop. 1,010,443), whose measly 0.76 percent growth rate equals 7,679 people, nearly double Clarksville. What would really be of interest would be fastest growing areas by increase of total population, square feet of building area, housing starts, and similar quantities.

Love the magazine.

**Ward Bucher**

Bucher/Borges Group, Washington, D.C.  
[ward@bucherborges.com](mailto:ward@bucherborges.com)

## Correction

The last two lines of the April 2007 feature "LOT-EK Goes to China" were inadvertently cut. We apologize for the error. Here is the ending as it should have appeared:

*But in early 2007, pictures began coming in from Kuma. Tolla remembers: "He'd send them and say, 'You guys! Your building is almost done!'"*

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# Contributors



## Jason Fulford

"Buckeye: Next Six Exits" • p. 58

**Jason Fulford is a photographer, graphic designer, and co-founder of J&L Books, a nonprofit that publishes work by little-known contemporary artists. He is also a contributing editor to Blind Spot. Fulford's photographs, which typically depict what he describes as "the simultaneous feeling of sad and funny" in everyday surroundings, have been featured in Harper's, The New York Times Magazine, and Time and on book jackets for Don DeLillo, John Updike, Ernest Hemingway, and Richard Ford. He has lectured at the Corcoran College of Art, the Cranbrook Academy of Art, the Los Angeles County Museum of Art, the Massachusetts College of Art and Design, P.S.1, the School of Visual Arts, Wesleyan University, and Yale University. Fulford lives in Scranton, Pa.**

Fulford flew to Buckeye, Ariz., to document the rapidly growing town for this month's cover story. His first afternoon there, he and Tamara Shopsin, his wife and assistant, hiked around the mountains, scouting for a location for the cover shoot the following morning. They found a spot, up a steep climb, with an almost aerial view of Buckeye's Verrado development. "It was 97 degrees, and I had already sat down on a cactus by accident," Fulford says.

"The next morning, when we met JT Elbracht [director of community design for Verrado], he was surprised that we hadn't seen any rattlesnakes. He said this was the season for them, and also the perfect environment." Then Bob Bushfield—the community development director for Buckeye, who was also at the photo shoot—piped up. "What's that moving over by that rock? We all turned around and saw a roadrunner."

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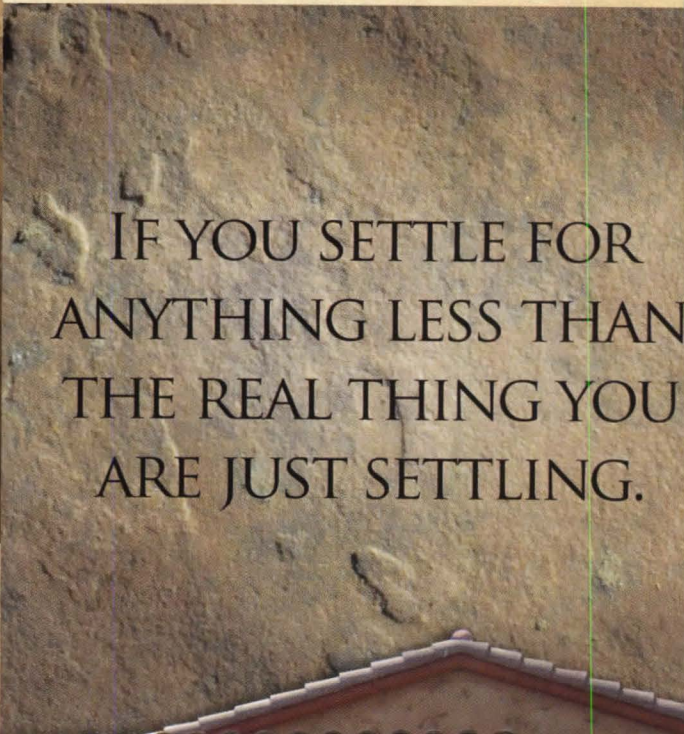
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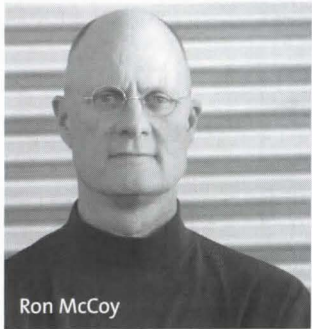
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Moves

# Princeton Names Ron McCoy as New Campus Architect

## 1980 M.Arch. graduate returns to alma mater



Ron McCoy

**RON MCCOY**, now university architect and professor of architecture at Arizona State University (ASU), is heading east to his alma mater, Princeton University. McCoy received his M.Arch. from Princeton in 1980, working for Michael Graves during his student years before moving on to Venturi, Rauch & Scott Brown in Philadelphia. McCoy initially went to ASU in 1995 as that school's director, a position he held until 2003, when he became the campus architect.

"Princeton is a unique university with a unique campus," says McCoy. "One of the challenges for a university architect is to manifest the mission of the institution in its physical place." Founded in 1746, Princeton's oldest structure—Nassau Hall—still bears scars from the Revolutionary War. Significant buildings of every era and style in American architecture abound on the 500-acre campus in central New Jersey.

Diversity has long been part of the campus' *genus loci*. McKim, Mead & White, Ralph Adams Cram, and I.M. Pei structures mark distinctive eras across the parklike campus. Twenty-five years ago, Robert Venturi juxtaposed his historically allusive Gordon Wu Hall adjacent to a starkly modern residential complex by Edward Larrabee Barnes. The most recent additions to this conversation are Demetri Porphyrios' Gothic Whitman College and a swirling science library by Frank Gehry that's soon to open. "It's an interesting mirror, with Gehry on one side and Whitman on the other, that takes a lot of courage," says McCoy. "That's the ability to hold a paradox in your head at the same time."

Princeton plans to construct or remodel almost 2 million square feet of building during the next decade, an unprecedented level of growth

on a campus whose facilities can be as old as 26 decades. But this task isn't daunting to McCoy. In his five years as campus architect at ASU, he's overseen the start of 6.4 million square feet of new construction. "Once you get into those sizes, big is big and complex is complex," says McCoy.

Reed Kroloff, director of the Cranbrook Academy of Art and a former colleague of McCoy's at ASU, lauds his appointment as a "great choice." But Kroloff questions the campus paradoxes that McCoy seems ready to embrace. "Is Princeton ready to make the commitment to progressive architecture, just as they have to progressive theories of teaching, research, and service?" Kroloff asks. "Their record over the last few years has been mixed."

Says McCoy, "It would be short-sighted for any campus that wants to innovate to put a noose around architects and say, 'Build in this style.'" He sees his mission as less committed to the merely contemporary: "University architects have to be able to step beyond one's own time—

**"University architects have to step beyond one's own time—like a good critic or historian."**

like a good critic or historian."

Princeton's retiring university architect is Jon Hlafter, who has held the position for 40 years. McCoy worked with his predecessor when he served as student representative on the University Design Review Committee. McCoy will start in his new position this summer. **EDWARD KEEGAN**

Moves

# Monica Ponce de Leon to Lead Michigan's Taubman College of Architecture

**MONICA PONCE DE LEON** has been named the new dean of the A. Alfred Taubman College of Architecture and Urban Planning at the University of Michigan. Currently a professor of architecture and director of the Digital Lab at Harvard's Graduate School of Design and a principal at Boston-based firm Office dA, Ponce de Leon plans to remain active in the practice, which she founded in 1991 with Nader Tehrani.

"There are a lot of schools that feel their

leadership should in fact be practitioners, and the University of Michigan has that tradition. Michigan is making it very easy for me to maintain my practice," Ponce de Leon says, noting that regular travel to Office dA's Boston digs will be complemented with the opening of a branch office in Ann Arbor.

During her tenure at Taubman, Ponce de Leon plans to further integrate sustainability and technology into the curriculum, making

them an integral part of students' design education, as opposed to a separate unit of study. Of particular interest are the elaborate designs now possible through software. Ponce de Leon is interested in exploring with the students if "complex geometries can actually be the result of structural efficiency," she says. Any curriculum changes will occur after Ponce de Leon meets the rest of the faculty. She assumes her new post on Sept. 1. **KATIE GERFEN**

Culture

# Chicago Philanthropist Opens House Museum

Nineteenth century Nickerson mansion displays an exceptional collection of Tiffany artifacts



Now home to the Richard H. Driehaus Museum, the lavishly appointed Nickerson mansion cost its owner \$450,000 in 1883 dollars.

DOES THE NAME RICHARD H. DRIEHAUS ring a bell? In recent years, the Chicago entrepreneur has given his support to a succession of high-profile architecture initiatives, including an award for classical architecture administered

by the University of Notre Dame. Driehaus' latest foray is a museum of 19th century art and design housed in a freshly restored mansion off the Miracle Mile in downtown Chicago.

The mansion was built for wealthy liquor merchant Samuel Mayo Nickerson. His architect was the little-remembered firm of Burling and Whitehouse, which may seem a deficit for a house museum in Chicago, given the city's publicly accessible residences by such notables as Ludwig Mies van der Rohe, Louis Sullivan, and Frank Lloyd Wright. But the interest of the mansion's architecture, restored by

Antunovich Associates, far exceeds the prestige of the designer originally responsible for it. Nickerson spent \$450,000 in 1883 dollars on construction, and the house's sober sandstone façade conceals period interiors that are among

the most lavish to survive in the city.

Cabinetmaker William August Fiedler was responsible for most of the interior appointments, a curious mix of Arts and Crafts, Moorish, Renaissance Revival, and other styles. The front hall alone is clad in onyx, alabaster, and 17 different types of marble. Many rooms incorporate Tiffany lamps, chandeliers, and other objects from Driehaus' collection, as well as furniture original to the house.

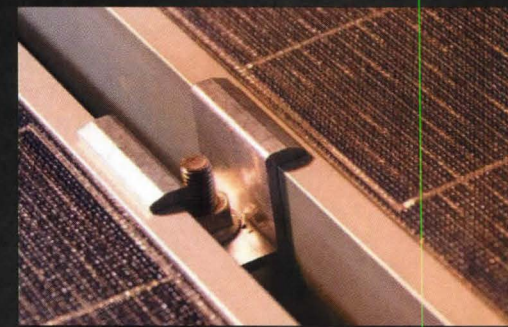
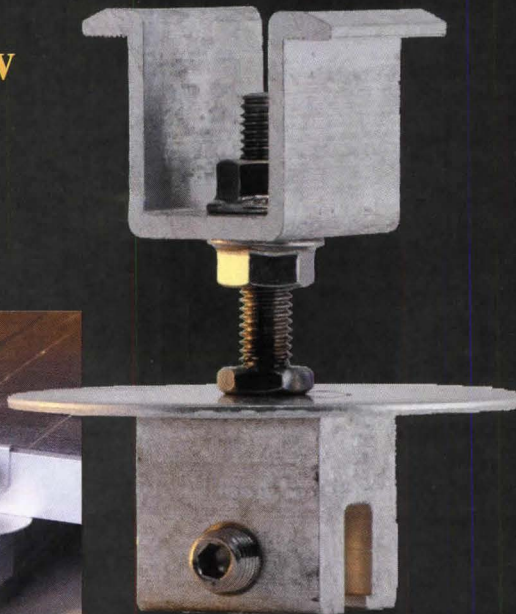
"Good architecture brings pleasure," says Driehaus. The mansion's eclecticism may not qualify as a contemporary crowd pleaser, but it was remarkable by the standards of the day: *Inland Architect* claimed the house "reached a standard of excellence never before attained in Chicago."

*The Richard H. Driehaus Museum will be open for limited hours through Sept. 1. Full operating hours will begin later this fall. 312-932-8665.*

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## REPORT

Recognition

## American Academy in Rome Names 2008–09 Fellows

In early April, the trustees of the American Academy in Rome announced the 31 recipients of the 112th annual Rome Prize. Listed here are the 11 whose projects focus on design and architecture

### ANCIENT STUDIES

→ **John N.N. Hopkins**  
Department of Art and Art History,  
University of Texas at Austin  
PROJECT: The Topographical  
Transformation of Archaic Rome:  
A new interpretation of architecture  
and geography in the early city

### ARCHITECTURE

→ **Matthew Hural**  
Lecturer, Department of  
Architecture, University of Virginia  
Designer, Nelson Byrd Woltz  
Landscape Architects  
PROJECT: Between Inside and  
Out—Aurelian Gates

→ **Ursula Emery McClure &  
Michael A. McClure**  
Principals, emerymcclure

architecture, Baton Rouge, La.  
PROJECT: Terra Viscus: Hybrid  
tectonic precedent

### DESIGN

→ **Robert Hammond**  
Co-founder and president, Friends  
of the High Line, New York  
PROJECT: Designing the Tiber

### → Cathy Lang Ho

Independent writer and editor,  
New York  
PROJECT: Broadband Architecture: A  
study of how new media outlets are  
challenging the authority of print  
publications

### HISTORIC PRESERVATION AND CONSERVATION

→ **Andrew J. Kranis**

Decor project manager, Whole  
Foods Market, Edgewater, N.J.  
PROJECT: Green Piazza: Community  
ecology in the city

### → Rosa Lowinger

Conservator of sculpture and  
architecture, Los Angeles  
PROJECT: Art Vandalism: A  
comprehensive study of its causes  
and effects, with an emphasis on  
conservation of contemporary  
public art

### LANDSCAPE ARCHITECTURE

→ **Chris Counts**  
Senior associate, Michael Van  
Valkenburgh Associates, New York  
PROJECT: Painting and Drawing  
as a Means to Study the Spatial  
Registration, Appropriated Use, and

Movement of Masterpieces of the  
Italian Urban Landscape

### → Hope H. Hasbrouck

Assistant professor, School of  
Architecture, University of Texas  
at Austin  
PROJECT: Interpreting Cultural  
Territories Through Prospect and  
Passage

### MEDIEVAL STUDIES

→ **Erik Gustafson**  
Institute of Fine Arts, New York  
University  
PROJECT: Tradition and Renewal in  
the Thirteenth-Century Franciscan  
Architecture of Tuscany

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**10.11.08**

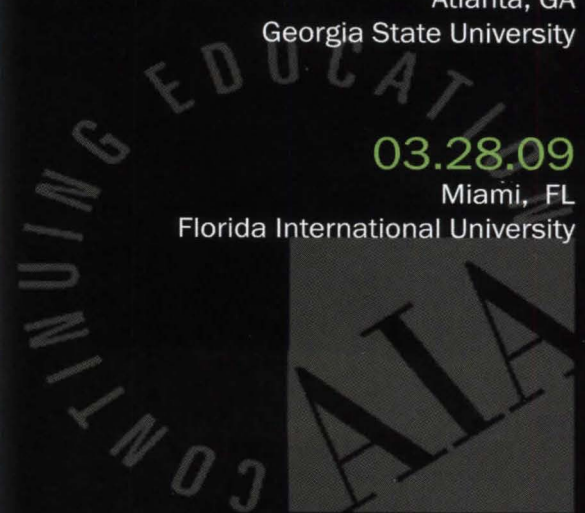
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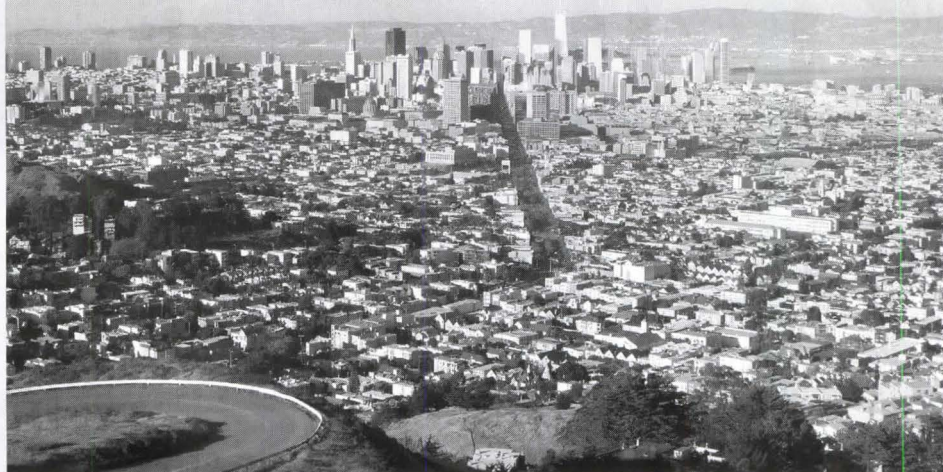
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## REPORT

Planning

# Transbay May Lead to New San Francisco Skyline



A proposal by San Francisco planners would allow five high-rises—including Pelli Clarke Pelli's Transbay tower, the tallest building in this image—to surpass existing height restrictions.

**AT A PUBLIC WORKSHOP** in late April, the San Francisco Planning Department announced a new zoning proposal that would increase height allowances on several sites surrounding the proposed Pelli Clarke Pelli Architects-designed Transbay Terminal tower. Dubbed the Transit Center District Plan, the proposal would allow up to five new towers, including the Pelli tower, to break existing 600-foot-high zoning restrictions—an effort to increase neighborhood density.

“The new proposal would encourage an intensity of office development that would continue and even strengthen San Francisco’s role as the region’s premier high-density, transit-based commercial core,” says David Alumbaugh, a manager in the planning department’s City Design Group. He adds that it would also “establish new programs for historic preservation, creation of a lively public realm of streets and public plazas, and funding mechanisms” that would contribute to the construction of the transit center.

The exact height for the new towers is uncertain because they would take their cue from the Transbay tower, whose height is reportedly planned as 1,000 to 1,200 feet. The proposal would have the next highest limit step down 150–200 feet from the tower’s peak, with other towers stepping down yet again, creating a new arc on the city’s skyline. The profile would also bridge the skyline gap between existing

downtown towers and the newly completed One Rincon Hill housing tower and other planned high-rises in that area. But nothing would top the Transbay terminal. As the gateway to the proposed transit center, “the tower ought to be the tallest structure on the skyline,” says Alumbaugh.

To some locals—like BAR Architects principal Chris Haeggglund, who works a few blocks over from the proposed tower sites—the plan seems like a good idea in principle. “Allowing those densities and helping develop fees for public transportation and a density that will help public transportation is good,” he says. But his support is not wholehearted. “What concerns me about high-rises is not only how they look from five miles away but also how they meet the street,” Haeggglund notes. “It’s important to be sensitive about what’s on that ground level, like what kind of setbacks will be put in place, and to maintain the tight-knit urban fabric.”

City planners hope to have a draft proposal—which will also address the Transbay tower—ready for public review in the fall; a draft environmental impact report would follow next spring. From there, the proposal would proceed to public hearings before being adopted. “While we would have undertaken the plan with or without the transit center moving forward,” says Alumbaugh, “with the future ... seemingly assured, it’s time to rethink this part of San Francisco.” **KATIE GERFEN**

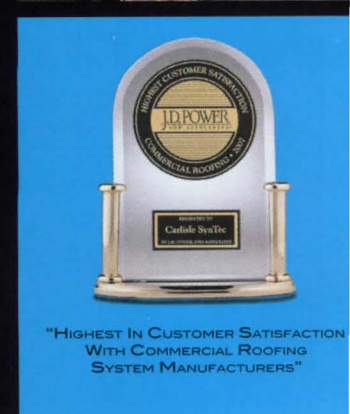


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## Clips

A few days before this issue went to press, a devastating cyclone hit the Southeast Asian nation of Myanmar (Burma). The initial death toll was estimated to be about 22,000, and some observers believed the final

number could exceed 100,000. Aid groups—including the International Federation of Red Cross and Red Crescent Societies (ifrc.org), Oxfam (oxfam.org), and Care (care.org)—have been providing food, water, money, and volunteers. In addition to the loss of life, whole communi-

ties were wiped out, innumerable structures were destroyed or damaged beyond repair, and more than 1 million people were left homeless. To assist with temporary and long-term housing and other rebuilding issues, **Architecture for Humanity** (architectureforhumanity.org)

has been soliciting donations to provide design services.

At the **Harvard Graduate School of Design**, Gerald M. McCue Professor of Architecture **Preston Scott Cohen** has been appointed as chair of the **Department of Architecture**, effective July 1. The three-time P/A Award winner, who maintains a practice in Cambridge, Mass., has also held faculty positions at Princeton, the Rhode Island School of Design, and Ohio State University.

**Perkins+Will** has been selected to redesign the interior exhibit space of the **Intrepid Sea, Air & Space Museum**, housed within the *USS Intrepid*, a decommissioned aircraft carrier that is currently undergoing a major refurbishment. The design team will be led by **Eva Maddox**, winner of the AIA's 2007 Institute Honor Award for Interior Architecture. Chief curator **John Zukowsky**, who previously served as the architecture curator for the Art Institute of Chicago, said in a press release that he expects Perkins+Will's design to "reinforce our museum's reputation as one of New York's most important cultural institutions."

The **University of Southern California** has launched the **American Academy in China**, based in Shanghai and run by **Qingyun Ma**, dean of the architecture school. Several times every year, the academy will host students from USC's graduate and undergraduate programs in architecture, urban design, landscape architecture, and planning for classes in art, design, and the humanities, as well as explorations of Shanghai and three other cities. It will also offer a base for visiting scholars studying Chinese culture.

The **Los Angeles City Council** has unanimously approved the construction of a **wetland park** on an old **Metropolitan Transportation Authority maintenance yard**. The urban park will cost

\$19 million and include a lake, marshes populated with native plants, walking paths, and a community center. The nine-acre site runs from Avalon Boulevard to San Pedro Street.

Moves and appointments at **Ellerbe Becket**: **Gregory Chang**, a principal and director of planning in the firm's Washington, D.C., office, has been named national director of healthcare. He replaces principal **Jon Buggy**, who will now focus full time on managing the Minneapolis office. **Adrian Hagerty**, a 20-year Ellerbe Becket veteran, has been tapped to be the D.C. office's managing principal.

The **New Canadian War Museum** in Ottawa, Ontario, and 11 other buildings have been awarded the 2008 **Governor General's Medal in Architecture**, given by the **Royal Architectural Institute of Canada**. Learn more at raic.org.

Architect **Clifford Curry** and his wife, **H. Delight Stone**, have endowed the **University of Kentucky College of Design** with more than \$5.5 million to fund a new chair of contemporary design and create the **Curry Stone Design Prize**, which will award \$100,000 each year to a designer working in architecture, urban design, graphic design, or product design. The first award will be presented this September at the 2008 IdeaFestival.

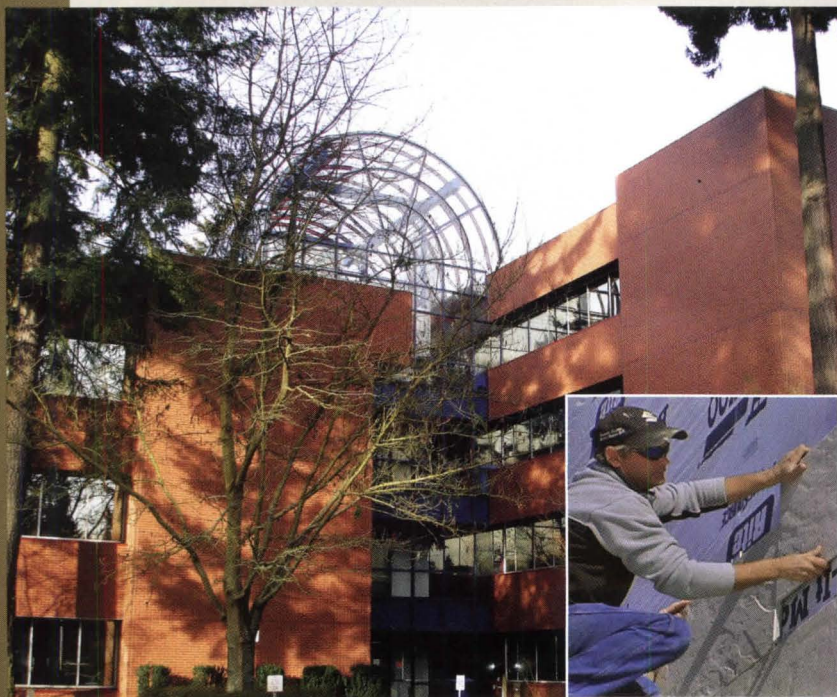
The AIA Intern Development Program Advisory Committee has named **Carrier Johnson Architects** and **JG Johnson Architects** as the **2008 IDP Outstanding Firms**.

In May, after a stormy two-year tenure, **Lurita Alexis Doan** was pressured to resign from her post as chief of the **General Services Administration**, the federal government's main contracting agency.

*continued on page 26* →

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**SCRANTON PRODUCTS**

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→ continued from page 24

**CSO Architects** president **Jim Schellinger**, who was campaigning to be the **Democratic nominee for Indiana governor** (Q&A, April 2008, page 104), narrowly lost his bid to former Indiana congresswoman **Jill**

**Long Thompson**. The unofficial vote tally was 50.2 percent for Long Thompson, 49.8 percent for Schellinger.

**Robert A.M. Stern Architects** has appointed nine new partners: **Augusta Barone, Gary Brewer, Melissa DelVecchio, Sargent**

**Gardiner, Preston Gumberich, Michael Jones, Daniel Lobitz, Meghan McDermott, and Kevin Smith.**

**Christian Menn's** design for the **Peace Bridge**, which would connect Buffalo, N.Y., and Fort Erie, Canada, has been scrapped in

favor of a lower profile bridge from **Figg Engineering Group**. The **Environmental Protection Agency** said Menn's two-tower, cable-stayed design—which is 2.5 times as tall as Figg's design—would create a danger to migrating birds.

Plans are under way to build the **world's most powerful hydroelectric dam** in the **Democratic Republic of Congo**. Grand Inga, first proposed in the 1980s but never built because of political turmoil, is expected to be twice as powerful as the Three Gorges Dam in China and could provide power as far away as South Africa,

by earthquakes. Most of the nation saw a drop in estimates for ground shaking, but a few areas—including western Oregon and Washington—are at a higher risk than before, according to the 2008 survey. Learn more at [earthquakes.usgs.gov/research/hazmaps](http://earthquakes.usgs.gov/research/hazmaps).

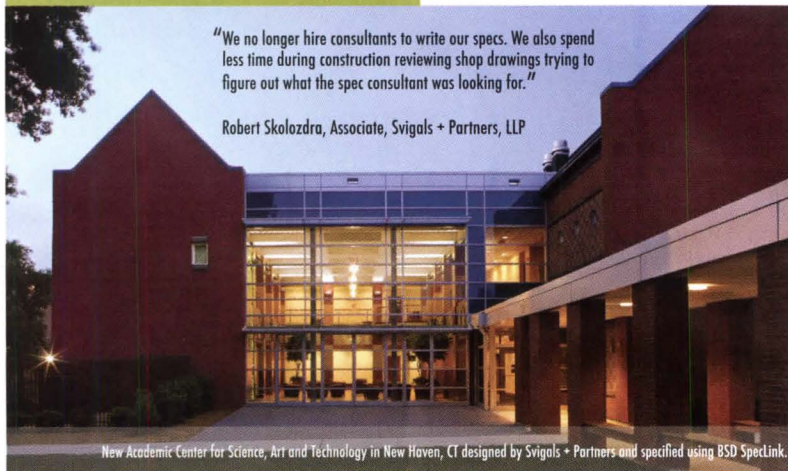
The **Hangzhou Bay Bridge** in China, which links Shanghai and Ningbo, opened on May 1. At **22 miles long**, it is the world's longest transoceanic bridge. The cable-stayed structure took five years to build, and its \$1.5 billion price tag was paid for through a combination of state and private

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Robert Skolozdra, Associate, Svigals + Partners, LLP



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# 7 in 10

Americans have offices or  
designated workspaces  
in their homes, a 112%  
increase since 2000.

SOURCE: AMERICAN HOME FURNISHINGS ALLIANCE

Egypt, and perhaps even Europe.

Environmental nonprofit American Rivers announced its **2008 list of the nation's most endangered rivers** in April: Catawba-Wataree River, Rogue River, Cache la Poudre River, St. Lawrence River, Minnesota River, St. Johns River, Gila River, Allagash Wilderness Waterway, Pearl River, and Niobrara River. Learn more at [americanrivers.org](http://americanrivers.org).

The **U.S. Geological Survey** has released updated **National Seismic Hazard Maps**, which show that 46 states are threatened

funds, a first in China for such a large project. The bridge is expected to cut travel time between China's financial and industrial capitals by 90 minutes.

An oversight: In our coverage of the 2008 architecture awards announced by the **American Academy of Arts and Letters** (Report, May 2008, page 35), we neglected to note that **Richard Meier** received the prestigious **Gold Medal**. The award is offered only once every six years. Previous honorees include Louis Kahn, Philip Johnson, and Frank Lloyd Wright.



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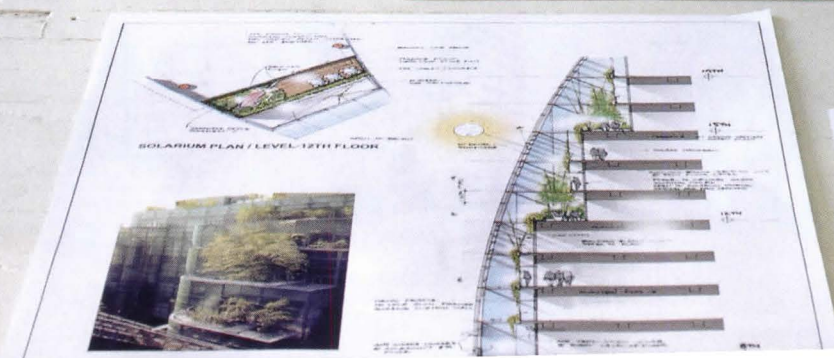
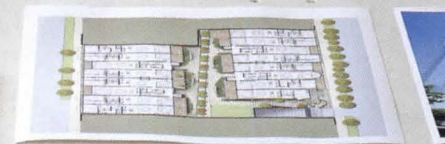
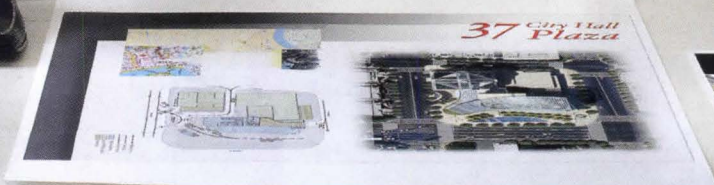
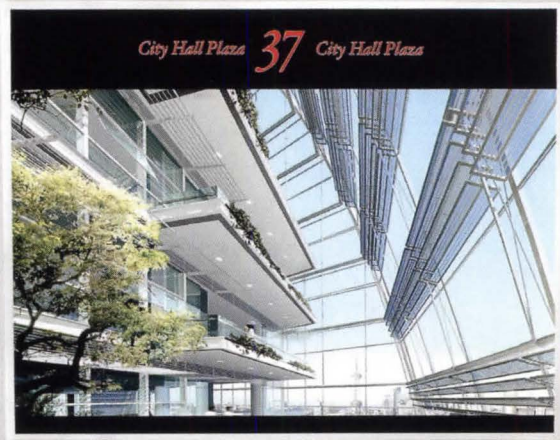
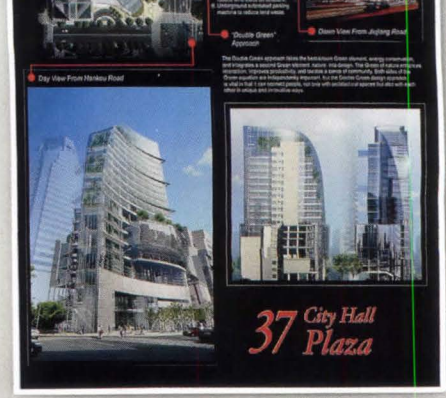
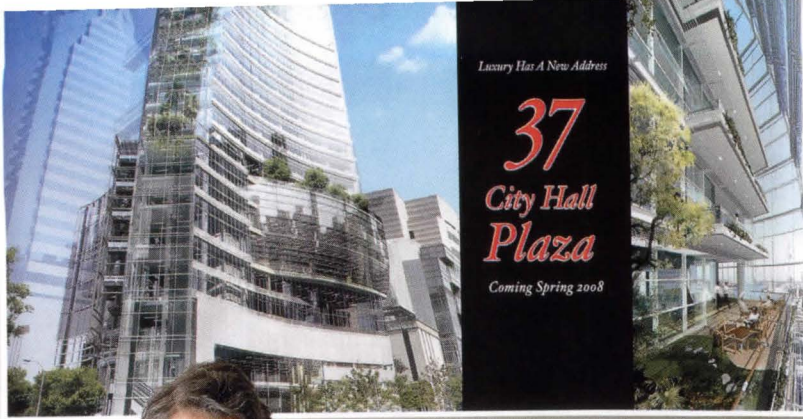
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## REPORT

Recognition

# AIA/COTE Announces Top 10 Projects for 2008

## Buildings small and large offer lessons in design solutions that protect the environment

SINCE 1997, the AIA Committee on the Environment (COTE) has celebrated the best examples of sustainable architecture and green design with its annual selection of top 10 projects. The 2008 list was released in late April, and the winning projects—which range from a 7,750-square-foot education center to a 350,000-square-foot condo mid-rise—were honored in May at the American Institute of Architects' annual convention. "One thing that's very clear from this year's winners," says Henry Siegel, COTE chairman and a founding principal of Siegel & Strain Architects, "is that design matters. [Sustainability] can't just be buildings that perform well. Paraphrasing David Orr, 'if it's not beautiful, it's not sustainable.'" Siegel also notes that the types of projects being submitted to COTE for consideration, which in the past have tended to be of the "campus and nature center" variety, are increasingly city-based. "[We're] looking for diversity, for urban projects," says Siegel. "As time goes by, it is getting more diverse." For detailed information about this year's projects and to see the winners from previous years, visit [aiatopten.org](http://aiatopten.org). BRAULIO AGNESE

### A. Aldo Leopold Legacy Center, Baraboo, Wis.

ARCHITECT: Kubala Washatko Architects, Cedarburg, Wis.

COMPLETED: April 2007

OF NOTE: First building recognized by LEED as carbon-neutral in operation

### B. Cesar Chavez Library, Tucson, Ariz.

ARCHITECT: Line and Space, Tucson

COMPLETED: January 2007

OF NOTE: Built into site and bermed with excavated earth

### C. Discovery Center at South Lake Union, Seattle

ARCHITECT: Miller/Hull Partnership, Seattle

COMPLETED: March 2005

OF NOTE: Designed to be demountable and transportable

### D. Garthwaite Center for Science and Art, Weston, Mass.

ARCHITECT: Architerra, Boston

COMPLETED: August 2007

OF NOTE: Several building systems left exposed to offer teaching opportunities

### E. Lavin-Bernick Center for University Life, New Orleans

ARCHITECT: Vincent James Associates Architects, New York

COMPLETED: January 2007

OF NOTE: 33 percent new construction, 67 percent renovation

### F. Macallen Building, Boston

ARCHITECT: Office dA, Boston (design); Burt Hill, Boston (architect of record)

COMPLETED: April 2007

OF NOTE: LEED innovation point for system that treats cooling tower blowdown water without chemicals for use in irrigation

### G. Nueva School, Hillsborough, Calif.

ARCHITECT: Leddy Maytum Stacy Architects, San Francisco

COMPLETED: September 2007

OF NOTE: Project replaced an 18,000-square-foot parking lot

### H. Pocono Environmental Education Center, Dingmans Ferry, Pa.

ARCHITECT: Bohlin Cywinski Jackson, Wilkes-Barre, Pa.

COMPLETED: October 2005

OF NOTE: Building's north wall is shingled with discarded tires from local sources

### I. Queens Botanical Garden Visitor Center, Flushing, N.Y.

ARCHITECT: BKSK Architects, New York

COMPLETED: September 2007

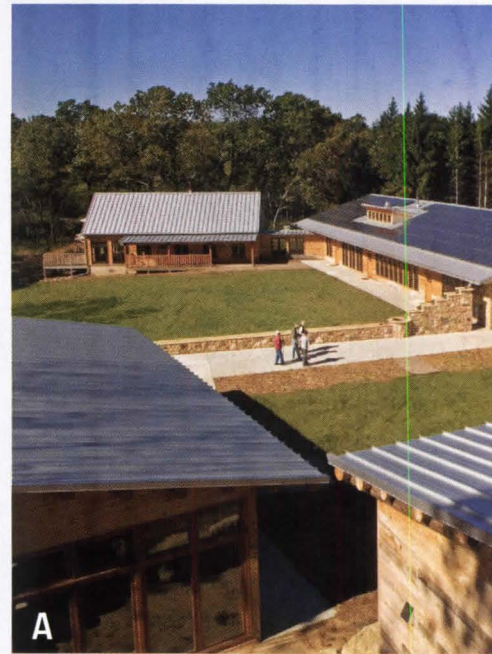
OF NOTE: More than a third of the materials came from within 500 miles of the site

### J. Yale Sculpture Building and Gallery, New Haven, Conn.

ARCHITECT: KieranTimberlake Associates, Philadelphia

COMPLETED: September 2007

OF NOTE: Located on a former brownfield site







B



D



E



F



H



I



J

A-J: KUBALA WASHATKO ARCHITECTS/MARK F. HEFFRON; BILL TIMMERMAN; LARA SWIMMER PHOTOGRAPHY; CHUCK CHOI; PAUL CROSBY; JOHN HORNER; TIM GRIFFITH; NIC LEHOUX; JEFF GOLDBERG/ESTO; PETER AARON/ESTO

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## REPORT

Design

# The Whitney's New Digs



The Whitney Museum of American Art has released Renzo Piano's initial design for a new six-floor, 180,000-square-foot branch in Manhattan's Meatpacking District. Sited between the High Line and West Street, the building will feature 50,000 square feet of gallery space; an education facility, library, theater, study center, and roof gardens are also planned. For those wishing to experience the building on the cheap, entrance to a café, bookstore, and ground-floor exhibition gallery will be free of charge.

Contracts

## Focusing on BIM, AIA Launches New IPD Agreements

**LAST MONTH**, the AIA officially released two new integrated-project delivery (IPD) agreements to help the industry adopt more-collaborative processes and take full advantage of building information modeling (BIM). The agreements have the potential to eliminate "a lot of the adversarial nature of the construction industry" and reduce claims and disputes, says Suzanne Harness, managing director and counsel, AIA Contract Documents. The more traditional agreement requires architects and contractors to collaborate at an earlier stage

but does not substantially change the usual risk allocation, Harness says. The other, however, is a "one for all and all for one" model in which the owner, architect, and construction manager form a single entity—with shared risk and reward—for the purpose of designing and constructing a building. The AIA hopes the latter model, inspired in part by a similar one used in Australia, will motivate all parties to work toward the same goals. Both agreements require that BIM be used "to the fullest extent possible," Harness says. **AMANDA KOLSON HURLEY**

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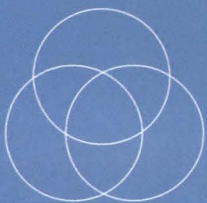
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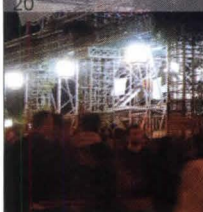




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Edited by Andrew Slocomb West

# CALENDAR

JUNE, JULY, AUGUST

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
22	23	24	25	26	27	28
	<p>CONFERENCE Architecture and mathematics—two words to strike terror in any undergrad. Discover what they can do together at <b>Nexus 2008</b> in San Diego and fear no more. <a href="http://nexusjournal.com">nexusjournal.com</a></p>			<p>MARKET Check out <b>100%Design Shanghai</b> to see what the Chinese say high-end, contemporary design is all about. <a href="http://100percentdesign.com">100percentdesign.com</a></p>		
29	30	1	2	3	4	5
		<p>←STUDENTS The Venice Biennale wants students to translate Aaron Betsky's critical works into a design for <b>EveryVille</b>. <a href="http://labiennale.org/en/architecture">labiennale.org/en/architecture</a></p>	 <p>DESIGN MADE TRADE</p>			<p>↑ANNOUNCEMENT The Memorials Development Committee will announce the winner of Australia's National World War I and World War II design competitions. <a href="http://mdc.org.au">mdc.org.au</a></p>
6	7	8				9
<p>CONFERENCE In reality-television style, designers Ineke Hans and Jason Miller will have to shop all over <b>Tendence</b> in Frankfurt, Germany, to create a retail environment that fits their hypothetical shopper's profile. <a href="http://messefrankfurt.com">messefrankfurt.com</a></p>				<p>CONFERENCE Changing the Change will present research on how to turn the current green movement into something that can actually be sustained, sustainably. <a href="http://changingthechange.org">changingthechange.org</a></p>		
13	14	15	16	17	18	19
<p>OPENING Last chance to cool off in the public baths at EXYZT's Southwark Lido installation at this year's <b>London Festival of Architecture</b>, the month-long ode to architecture. <a href="http://lfa2008.org">lfa2008.org</a></p>				<p>↑TRADE SHOW Discover what Australia's designers have to offer in Melbourne at <b>Design:Made:Trade</b>, where small manufacturers will gather to show their wares. <a href="http://stateofdesign.com.au/designmadetrade">stateofdesign.com.au/designmadetrade</a></p>		
20	21	22	23	24	25	26
		<p>↓LUNCH The CAF's <b>Greening Your Office</b> teaches building managers and developers how to take it easy on the environment. <a href="http://cityofchicago.org">cityofchicago.org</a></p>		<p>↑DEADLINE The <b>Structural Engineering Awards</b> are your chance to prove you can make things that stand up <i>and</i> look pretty. <a href="http://ncsea.com">ncsea.com</a></p>		
27	28	29	30	31	1	2
					<p>↔DEADLINE <b>Ashes to Art</b>   scattered searches out the best in memoriam. <a href="http://funeria.com">funeria.com</a></p> <p>DEADLINE <b>Rafael Viñoly</b> is giving money to study society's built work. <a href="http://www.rvatr.com">www.rvatr.com</a></p>	

## Looking Ahead:

**CONFERENCE**  
**Build Business: Innovate to Elevate;**  
 Denver; Aug. 6–9;  
[buildbusiness.org](http://buildbusiness.org)

**DEADLINE**  
**International Design Awards 2008;**  
 Aug. 15;  
[idesignawards.com](http://idesignawards.com)

**SEMINAR**  
**Architect as Developer;**  
 Washington, D.C.; Aug. 24;  
[ArchitectAsDeveloper.com](http://ArchitectAsDeveloper.com)

**ANNUAL MEETING**  
**CACE 2008 Annual Meeting;**  
 Richmond, Va.; Aug. 13–16; [www.aia.org/ev\\_CACE\\_2008\\_annual\\_mtg](http://www.aia.org/ev_CACE_2008_annual_mtg)

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**Will Bruder AIA** President,  
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**Graham Downes** Architect & Developer

**August 24, 2008**  
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- ▶ Permanent take out financing
- ▶ Construction contracts

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Text Andrew Slocomb West

# PRODUCTS

## NEOCON PREVIEW

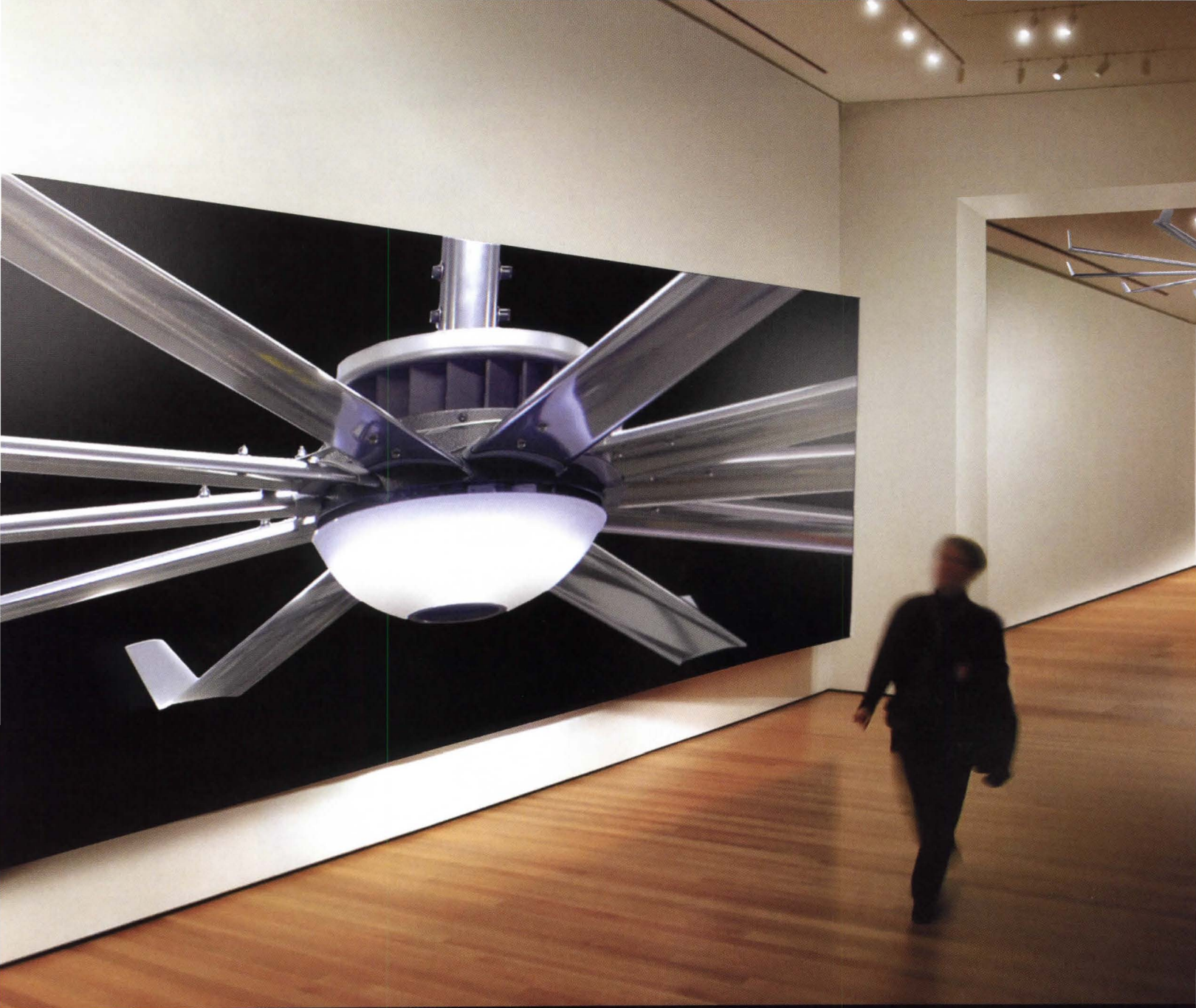


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**1. Herringbone striped upholstery fabric**

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Herringbone pattern overlaid with intermittent stripes that run the length of the fabric • Available in brown, navy, and heathered gray • 100 percent wool • Upholstery weight and contract grade • New addition to fashion designer Paul Smith's Maharam line • *Circle 101*

**2. Wave XL drapery**

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**3. Mumbai desk**

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One sheet of plywood bent to form two layers • Internal support is laser-cut steel • Approximately 91 inches wide, 38 inches deep, and 29 inches high • From the Castelli Collection • Designed by Doriana and Massimiliano Fuksas • *Circle 103*

**4. Revv desk chair**

Office Star • [officestar.net](http://officestar.net)  
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**5. T6 office furniture system**

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Text Kate Herman

# NUMBERS

## Curbing Carbon

**ARCHITECTURE 2030** won't wait until 2050, the United Nations-issued deadline, to find a way to reduce carbon dioxide and other gas pollutants by up to 85 percent. Instead, the nonprofit has thrown down the gauntlet with its "2030 Blueprint," which calls for the U.S. building sector to dramatically improve energy efficiency, ultimately becoming carbon-neutral 22 years from now. Founder Ed Mazria says this can be done with a small annual investment in tax credits and other incentives for builders and architects who choose energy-efficient materials in their projects. In addition to reducing the sector's carbon footprint, this would also boost local economies. "If the feds give this money to nuclear or coal [facilities], it's in one industry," Mazria says. "But if you invest in energy efficiency, you're spreading it [nationwide] and contributing to every industry."

### MAZRIA'S MATH →

# 216,000 jobs

The number of new jobs created with the \$21.6 billion investment. "Construction can't be outsourced, so the money is filtered back into the local economy," Mazria notes.

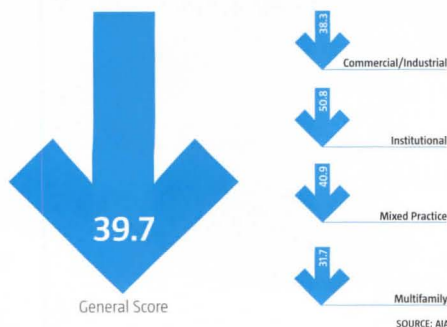
# \$ 21.6 billion

# 86.7 million

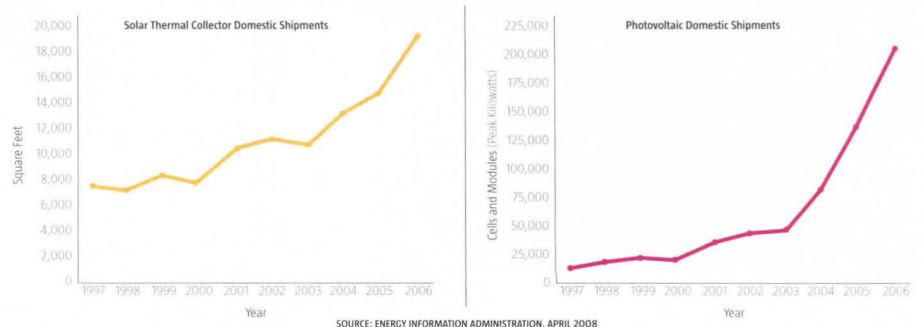
metric tons of CO<sub>2</sub> The drop in emissions for each \$21.6 billion spent. The building sector now produces between 2 billion and 2.5 billion tons of carbon dioxide per year, says Mazria. A United Nations panel has said the world must curb its CO<sub>2</sub> growth within seven years and shrink it between 50 percent and 85 percent by the year 2050.

The annual investment needed to reduce the building sector's 38.5 QBtu (quadrillion British thermal units) in annual energy consumption by 1Q Btu each year. A fraction of the nation's \$14 trillion GDP, the cost is one-eighth that of the recent federal economic incentive plan.

Architecture Billings Index, March 2008



Solar Energy, 1997-2006



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Text Margot Carmichael Lester

# LOCAL MARKET

## PROVIDENCE, R.I.

### Population/Employment

Residents in 2006: 175,255  
Job growth, 2000–2006:  
10.7 percent

### Office Market

Average asking rate for Class A inventory: \$30.45/s.f. on 11 percent vacancy

### Residential Market

In January–February 2008, the median home sales price fell 10.2 percent from the previous year, to \$220,000.

### Market Strengths

- Historic legacy
- Colleges and universities
- Near Boston and New York

### Market Concerns

- State budget deficit
- High state and local taxes
- Housing affordability

### Forecast

“There’s a strong sustainability argument [for the] preservation and reuse of buildings,” says William Kite Architects associate Christine Malecki West. “[We’ve] managed to avoid much of the sprawl that plagues other urban areas. The key to maintaining compact density will be redeveloping urban historic properties sensitively.”

**PROVIDENCE IS A CITY STEEPED IN HISTORY.** For now, anyway. A budget deficit has forced Rhode Island lawmakers to find ways of getting the books in order. One target: the historic tax credit. Recently passed and signed legislation has scrapped state credits. Projects approved for 2008 will have to pay a fee and sign a contract with the state’s tax division. And those still on the boards? They’ll get no breaks from the Ocean State.

“The impact over the years we had [the credit] was large. There were many historic buildings that had been unused and deteriorating, and people couldn’t figure out a way to finance the rehab until the state credit became available,” says Kristin DeKuiper, a partner in the Boston office of law firm *Holland & Knight*, where she specializes in real estate and tax credits. “The federal [historic preservation tax] credit is great, but it’s only

20 percent of qualified rehabilitation expense. The state credit filled the financing gap for many projects that otherwise could not have been done. Without it, many future projects won’t be able to be done.”

In a city that is nearly 100 percent built out, the new law puts developers and preservationists in a bind. “[The proposed law] creates a difficult situation to encourage new growth without either tearing something down or cleaning something up, which often rubs against our preservation principles,” said Durkee, Brown, Viveiros & Werenfels Architects principal Stephen Durkee a few weeks before the legislation was passed. The firm has worked on more than a dozen preservation/rehabilitation projects in downtown Providence over the past 10 years. “There are no easy answers,” Durkee added.



### 1 ALGER HALL

**Architect:** William Kite Architects, Providence; **Completion:** 2005; **Cost:** \$4.4 million; **Size:** 28,600 s.f. • Then: grade school; now: School of Management, Rhode Island College. Design and preservation awards.

### 2 RENAISSANCE PROVIDENCE

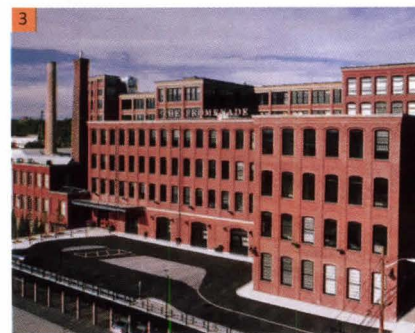
**Architects:** BBG-BBGM, New York (building); ForrestPerkins, Washington, D.C. (interiors); **Completion:** 2007; **Cost:** \$100 million (approx.); **Size:** 230,000 s.f. • Then: arts center and Masonic temple; now: hotel and state’s largest preservation project. One preservation award.

### 3 PROMENADE APARTMENTS

**Architect:** RGB, Providence; **Completion:** 2005; **Cost:** \$42 million (construction); **Size:** 285,000 s.f. • Then: manufacturing plant; now: loft-style living. Preservation and adaptive reuse awards.

### 4 AS220 BUILDING

**Architect:** Durkee, Brown, Viveiros & Werenfels Architects, Providence; **Completion:** 2007; **Cost:** \$4.6 million; **Size:** 24,000 s.f. • Then: Dreyfus Hotel (ca. 1890); now: downtown live/work complex for artists. One preservation award.




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Text John Gendall Photo Matt Greenslade

# SCREEN GRAB

INVINCIBLECITIES.COM



A sociologist by training, Camilo José Vergara uses his camera to document the changing American ghetto.

**"THINGS AIN'T WHAT THEY USED TO BE."** That song, penned in Harlem by Duke Ellington, could very well describe the nature of the Manhattan neighborhood today. Harlem, after all, is in the midst of massive change, with glass-and-steel co-ops, former U.S. presidents, and Starbucks moving into what had been, for a century, a ghettoized African-American community. Invinciblecities.com unveils what Harlem was 30 years ago, what it is now, and its many iterations along the way. Featuring the photography of Camilo José Vergara, the site begins in the tumultuous '70s and traces the history of Harlem since then through Vergara's photos, which he has taken and meticulously documented over the decades.

The photographs form part of a larger endeavor to chronicle the American ghetto. Launched in 2003 with Vergara's images of Camden, N.J., and Richmond, Calif., and updated in 2007 with Harlem, the website provides a sweeping look into these three communities. The site's name

comes from a line in a Walt Whitman poem that is inscribed on Camden City Hall: "I dream'd in a dream, I saw a city invincible."

Trained as a sociologist, Vergara started photographing conditions of poverty in 1969. He quickly recognized architecture's dynamic character and its potential to convey narratives: "I realized early on that buildings tell stories very clearly and each of them tells it differently." He records each shot's location precisely, giving the project historical gravitas. The site's design is eminently user friendly, allowing visitors to easily arrange photographs based on date, location, architectural features, or themes.

Vergara has lived in Harlem since 1970. A former MacArthur fellow, he collaborates on the website with Howard Gillette, a historian at Rutgers University. "I've been shooting these places for a long time, on 35 mm Kodachrome," Vergara says, "and the internet has become a great way to make the medium speak very directly."

## LINKS

<p><a href="http://momahomedelivery.org">momahomedelivery.org</a></p>	<p><a href="http://www.designboom.com/contemporary/dubai.html">www.designboom.com/contemporary/dubai.html</a></p>	<p><a href="http://youtube.com/watch?v=UirwUtCfLY">youtube.com/watch?v=UirwUtCfLY</a></p>	<p><a href="http://normalroom.com">normalroom.com</a></p>
<p>On July 20, "Home Delivery: Fabricating the Modern Dwelling" opens at MoMA. The exhibit will feature five full-scale houses, the first time since the mid 20th century that the museum has built occupiable model buildings for a show. Follow the progress of the five architecture firms erecting the prefab homes.</p>	<p>Between Dubai—said to be home to 15–25 percent of the world's construction cranes—and Abu Dhabi, it's hard to beat the United Arab Emirates for sheer volume of eye-popping architecture going up. Art and design site Design Boom does its best to keep pace, offering this glimpse of 57 projects.</p>	<p>When Philip Met Susan: In this clip from a BBC documentary, cultural critic Susan Sontag visits Philip Johnson in his Seagram Building office sometime in the early 1960s. Barely a minute long, but worth it to hear Sontag describe the modernist box as "gleaming like a switchblade in the autumn sun."</p>	<p>A curious exercise in user-generated content, Normal Room lets anyone post photographs of spaces in their own homes, along with some basic information: location, type of abode, occupants, etc. The images likely won't offer much design inspiration, but armchair anthropologists should have a field day.</p>



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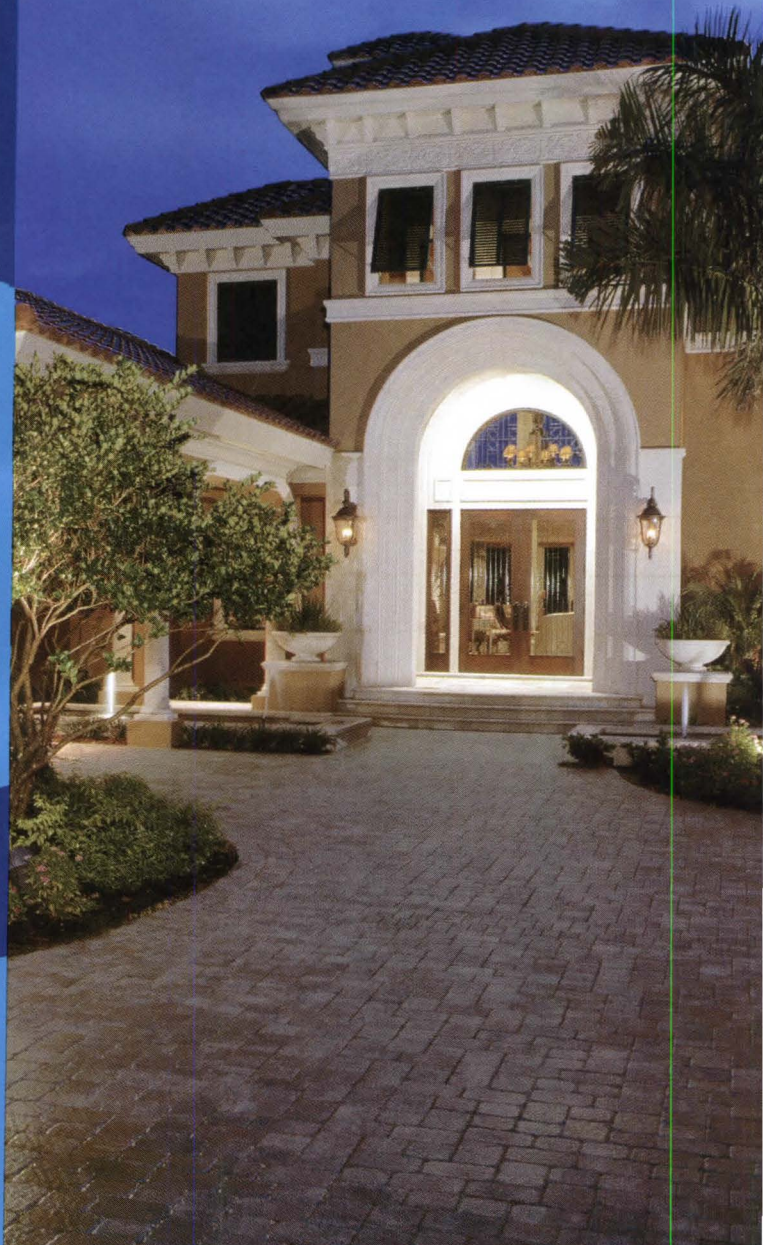
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TO DEVELOP A WINNING RFP, FOCUS ON YOUR STRENGTHS AND MAKE SURE YOU SEND THE RIGHT MESSAGE—AND THE RIGHT MESSENGER. **Text** Fred A. Bernstein **Photo** Tim Evans

## WINNER TAKES ALL



**Greg Hollenkamp**, CEO of KKE Architects in Minneapolis, concedes that winning RFPs can be tough. Firms should understand the client's needs and hammer home their own credentials, he advises.

**FOR MANY FIRMS**, winning private commissions is easier than landing public jobs. As Greg Hollenkamp, CEO of Minneapolis-based KKE Architects, observes of private-sector clients, "There's usually only one decision maker—and you may know the person or know someone who knows him." But for firms hoping to grow—or to keep from shrinking at a time when much of the private economy is ailing—winning public projects is vital. And that means learning to respond to requests for proposals (RFPs), a process at which KKE excels.

Since 2003, KKE has expanded from its Minneapolis headquarters, opening offices in California, Nevada, and Arizona. In each location, the first commissions came from private clients: "[In] a new area, you need housing, and then you need retail services, and following that you need offices, and then schools, and then government services," explains Hollenkamp. But as the regions (and firm offices) mature, the firm increases its share of public projects, which now account for about 25 percent of its \$40 million in annual billing. Understanding the RFP process has been no small factor in that success.

### Get to know the players.

KKE's marketing department monitors federal, state, and local publications for new RFPs. Still, Hollenkamp says, "If you find out about an RFP after it comes out, it probably means you're not connected enough to the decision makers. And if you don't know the decision makers, you'll have a harder time understanding their needs."

### Skip RFPs that don't reflect your strengths.

"We feel very strongly that if you can't differentiate yourself, you probably don't want to go after the project in the first place," Hollenkamp says.

### Read, and repeat.

The RFP will generally explain what the client hopes to accomplish with the project. There's a problem that has to be solved; often, the building is only part of the solution. Respond in a way that shows you understand what's driving the client.

### If it's worth saying once ...

When writing your response to the RFP, Hollenkamp says, "First tell them what it is that you're going to tell them. Then tell them. Then tell them what you told them. Some people will read every word of the RFP, but some will skim—and you still want to make sure they get the message."

### Try to avoid being selected for your fee.

Most RFPs ask you to propose a fee. But don't shortchange

yourself by making that your selling point. "You don't want to be selected because you're the cheapest firm," says Hollenkamp. "You want to be selected because you're the best firm for the job."

### Pick the right people inside the firm ...

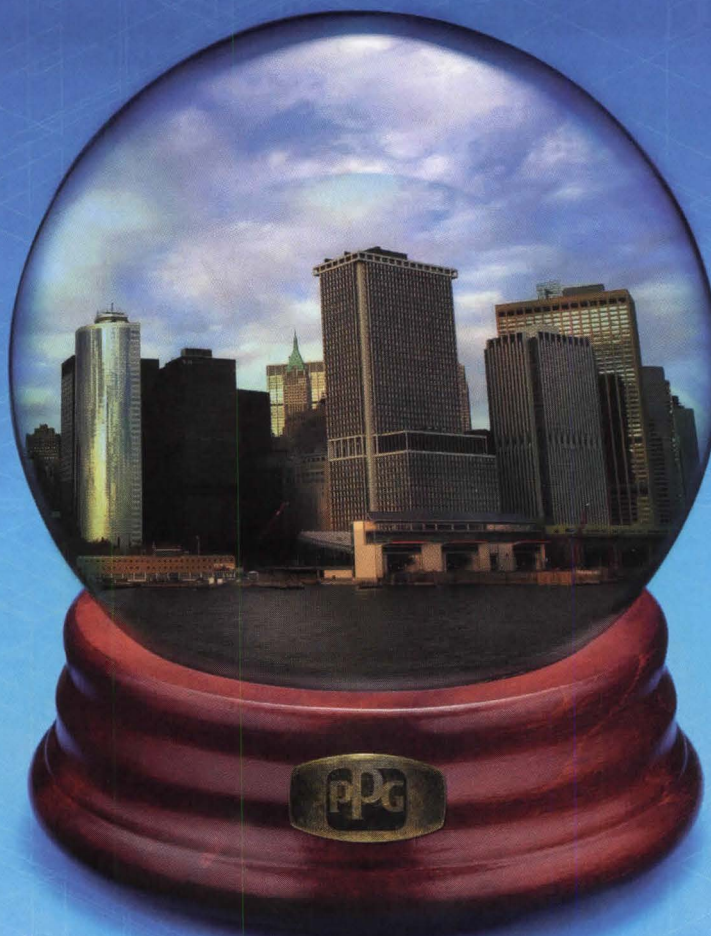
Usually, the RFP will ask who in your firm will run the project. Make sure that person is experienced with the relevant building type, says Hollenkamp. And make it clear that whoever is making your pitch will really be in charge. "At our firm, we have a 'seller-doer' model: There's never going to be a bait and switch."

### ... and outside.

"Usually, you'll also be asked who, outside the firm, is on your team. Be creative. If it's a school project, maybe you want to bring in a retired school administrator as a consultant."

### Keep your website current.

Most RFPs put strict page limits on responses. That means you can only present images of a few of your projects. It's safe to assume that decision makers who want to see more will visit your firm website, Hollenkamp says. So be sure your website sends the appropriate message. It makes sense, he adds, to have a website that's easily changed, so if you're competing for a very large project, you can highlight experience with that type of building.



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WE CULL SOME STRIKING STATS FROM ZWEIGWHITE'S 2008 INFORMATION TECHNOLOGY SURVEY OF ARCHITECTURE AND ENGINEERING FIRMS.

Edited by Edward Keegan

# MINING THE DATA ON I.T.



## BREAKDOWN OF THE SURVEY SAMPLE

Sample size: 129 architecture, engineering, planning, and environmental consulting firms completed and returned a valid questionnaire.

**23%**

Architecture or interiors

**23%**

Full-service engineering or E/A

**22%**

Multidiscipline engineering

**12%**

A/E (primarily architecture)

**9%**

Single-discipline engineering

**9%**

Environmental consulting

**2%**

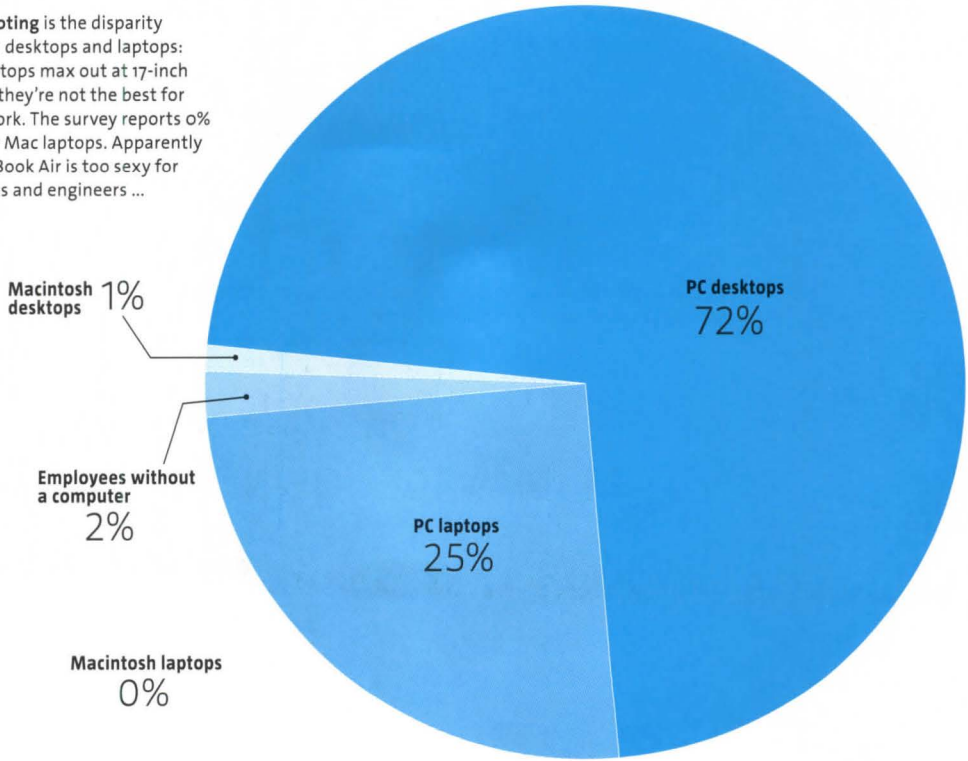
Design/build

Although the survey offers great breadth in terms of geography and firm size, one caveat: Architecture- and engineering-based firms are basically undifferentiated. Architecture, interiors, and A/E firms that privilege architecture account for only 35 percent of the survey pool.

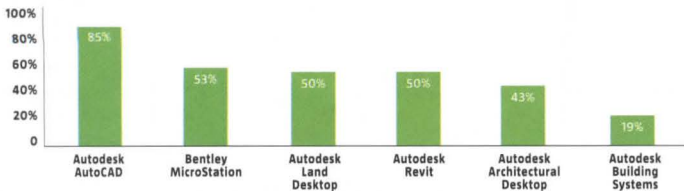
## COMPUTING HARDWARE

On average, almost three-quarters of firms' employees are using PC desktops.

Worth noting is the disparity between desktops and laptops: Since laptops max out at 17-inch screens, they're not the best for CADD work. The survey reports 0% share for Mac laptops. Apparently the MacBook Air is too sexy for architects and engineers ...



## CADD APPLICATIONS USED



News flash: AutoCAD is the predominant software for computer drafting. In fact, five of the six applications that crack double digits in the survey are Autodesk products.

**Strategy**

**WIRELESS CONNECTIVITY**

Does your firm currently have any wireless networking capabilities in its office or offices?

**81%** → Yes  
**19%** → No

Wireless networking has grown enormously in the past five years, up from less than a third of surveyed firms in 2003. Architects are leading their engineering brethren in the rush to become untethered: **83 percent** of architecture and interiors firms have wireless, versus **77 percent** of full-service engineering or E/A firms.

**BIM**

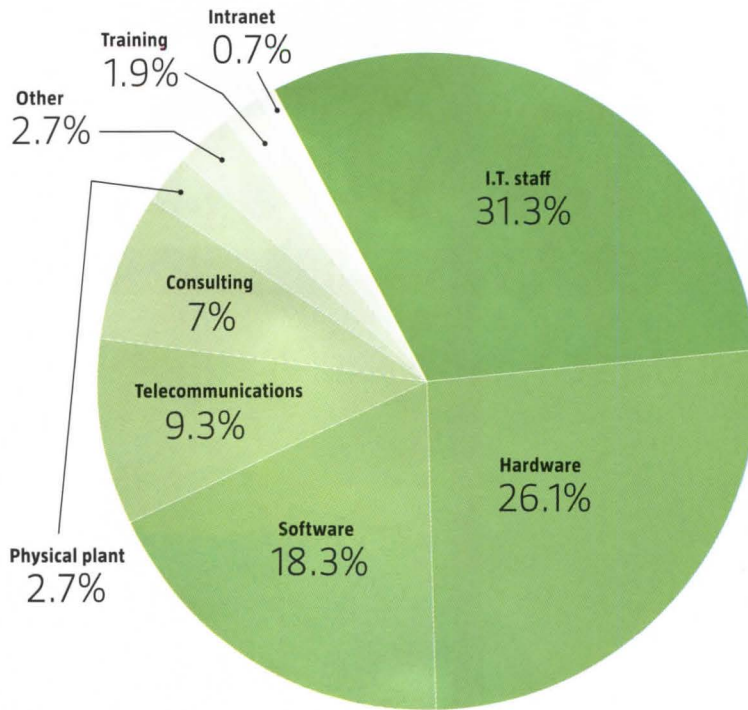
Does your firm plan to increase its use of BIM in 2008?

**65%** → Yes  
**34%** → No  
**1%** → Unspecified

BIM isn't prevalent for project work yet, but it's weighing heavily on the minds of nearly two-thirds of A/E professionals who expect to increase, or begin, their use of BIM this year.

**BREAKDOWN OF I.T. EXPENSES**

Staff labor makes up the largest percentage of firms' technology expenses.



It's easy to get caught up in hardware and software, but staffing is firms' single largest I.T. expense. Even when looking under the hood at the components of I.T. services, it's the people who remain key to providing them.

**I.T. MANAGER OWNERSHIP**

Is he or she an owner in your firm?

**YES**  
↓  
**38%**

**NO**  
↓  
**59%**

Unspecified → **3%**

More than a third of I.T. managers have ownership in their firms, despite the fact that, according to additional survey data, only 21 percent of them are registered professionals in a design or engineering discipline. The upshot: I.T. is crucial. Or is the tail wagging the dog?

**PERSONAL DIGITAL ASSISTANTS**

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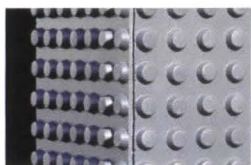
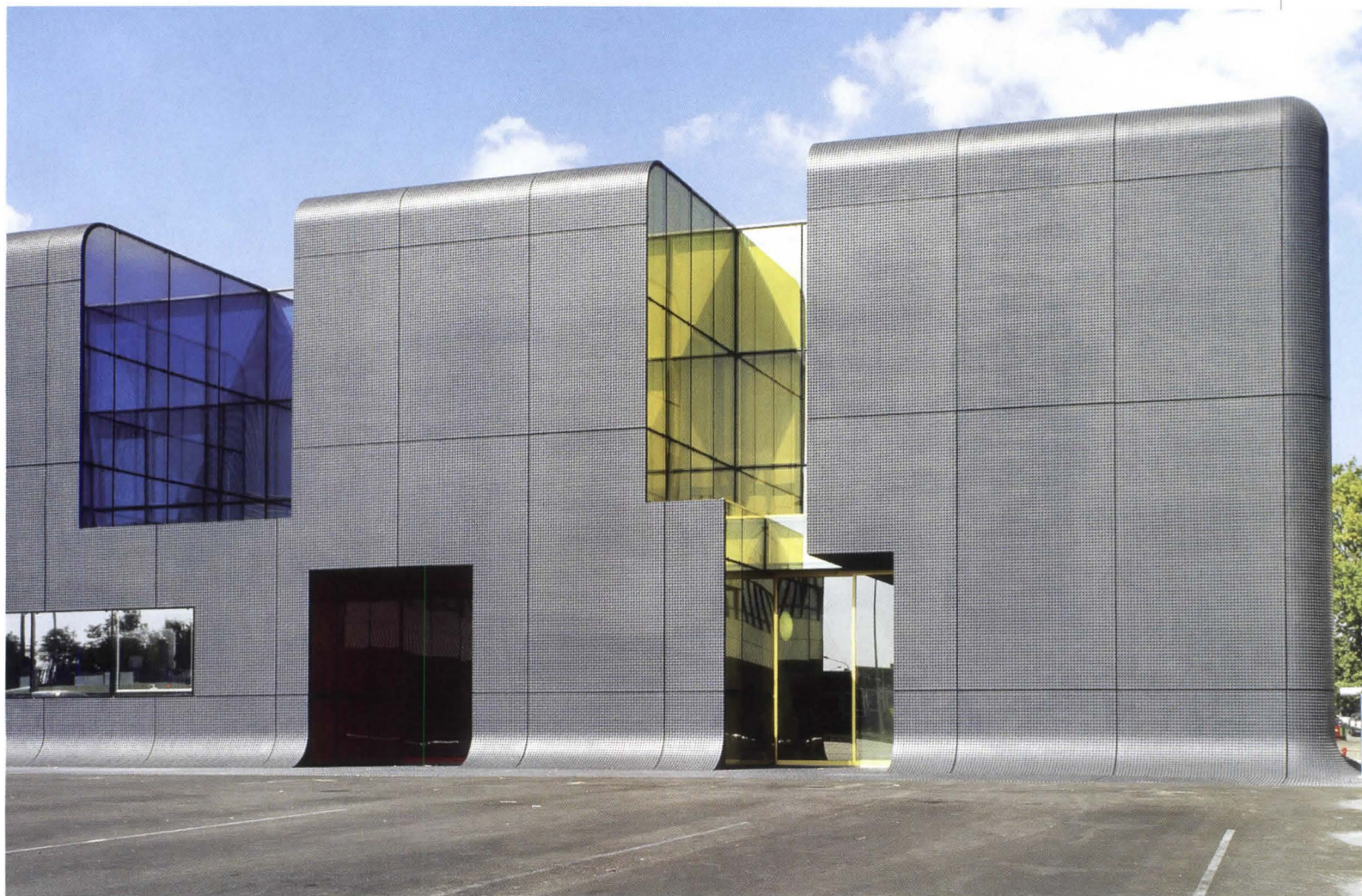
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Text Katie Gerfen

## THIN IS IN, ABROAD



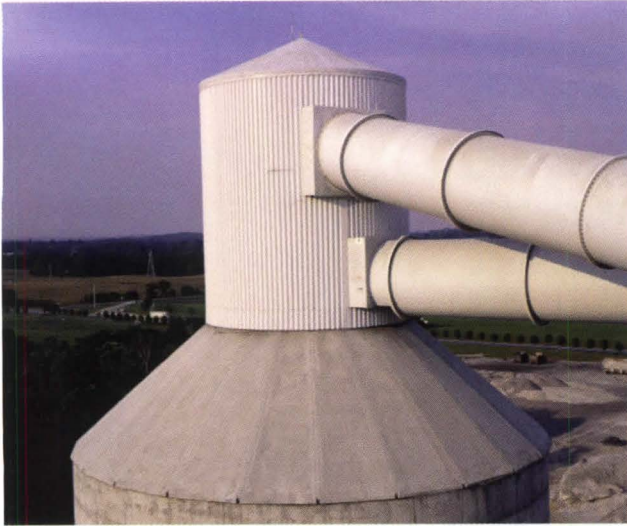
At the regional bus center in the southern Paris area of Thais, custom-molded panels made from fiber-reinforced Ductal concrete form an ultra-thin structural cladding system with a thickness of less than 1¼ inches.

**AFTER BUS DRIVERS** in the southern Paris area of Thais drop off their last passengers, they return to a central depot that appears at first glance to be the coolest Lego fort that can exist outside of a child's imagination. This new regional bus center, designed by local firm Emmanuel Combarel Dominique Marrec Architectes, is clad with gray cast-concrete panels with a pattern of raised circles that resemble the knobs on the famous toy blocks. The panels are a near-identical color match (and in fact a deliberate homage to) the surrounding pavement, from which they rise in an inward curve. They then arc over the roofline, creating a 35-square-meter, two-story volume with no right angles on its perimeter. The architects introduce vividly colored glazing in cutout sections, allowing light to filter deep into the building.

These glazed cutouts also reveal the secret of the building's concrete skin: the custom-designed panels' total thickness is a svelte 3 cm (less than 1¼ inches), and there is no additional backing, meaning that these panels are structural in and of themselves. Ideal for maximizing the interior space on a small site, the nominal width of these panels allows the square footage that normally would have been taken up by façade systems to be turned into usable space.

### The science of being thin

The material used to make the panels is Ductal, a fiber-reinforced concrete made by French concrete company La Farge. Whereas traditional concrete requires a system of metal rebar to be structurally stable, Ductal uses tiny fibers to give the necessary tension. These fibers



Mixed in standard concrete machinery (top and bottom left), Ductal is extremely viscous, resulting in a very smooth pour (above right) that can conform to intricate shapes and easily be embossed in custom forms.

can be steel or organic, depending on the end-use application of the material, and they typically constitute 2 to 4 percent of the overall concrete mixture. In most other commercially available fiber reinforced concretes, fibers make up 1 percent of the mix. The higher concentration of fibers in Ductal means a much higher tensile strength, allowing it to be used in applications that call for extremely thin profiles or complex forms.

According to Vic Perry, vice president and general manager of Ductal for La Farge North America, the tensile strength of the material comes down to the ratio of aggregate to structure and the distribution of those structural fibers in the mix. In Ductal, the ratio of aggregate to fiber is the same as that of standard concrete to rebar, just on a much smaller scale. The Ductal aggregate is very fine sand, with grains averaging 400 microns in diameter. "All [of the ingredients are] commercially available materials," says Perry. "There's no magic dust or anything." The self-

consolidating material has a very smooth finish, and can be sanded or polished to a shine—or like the Thais bus center panels, molded to achieve fine patterns.

Mixed in batches using the standard machinery, when wet Ductal looks, if anything, thinner than the traditional material. A smooth consistency and high ductility allow the material to be easily poured.

#### On the cutting edge and just catching up

Introduced in 1997, Ductal is not a new product by any sense of the word. In Europe, the material is used regularly to create complex curving forms and skins. The Thais bus center, for instance, was not the architect's first foray into Ductal skin, nor was it for La Farge, which does a lot of cladding business in Europe.

Even in Canada, Ductal has been used in projects ranging from sunshades and roofs to pedestrian bridges. An undulating canopy at an LRT transit station was completed in Calgary in 2003. But in the United





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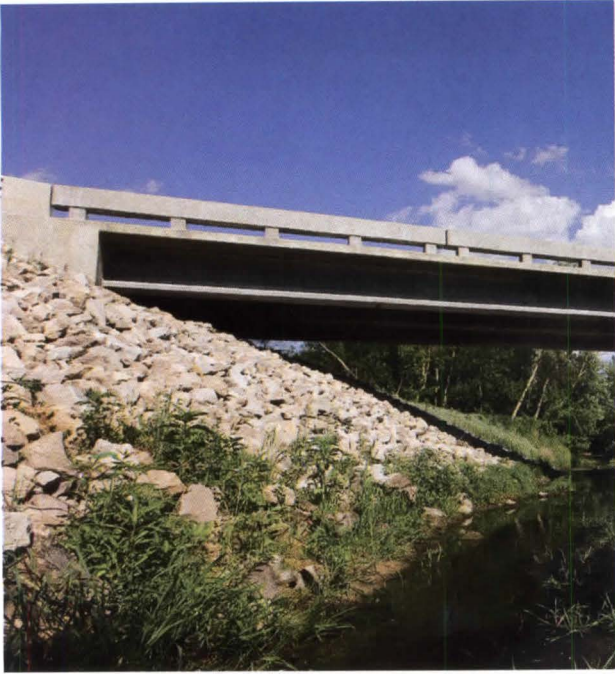
Great architecture often shines best when it imitates or becomes part of its natural surroundings. And there can be few places anywhere where this is better demonstrated than on the bank of the Singapore River – the totally spectacular Esplanade Theatres on the Bay.

The project involved Xypex waterproofing the below-grade foundation that would be subjected to significant hydrostatic pressure and a harsh marine environment.

Xypex Crystalline Waterproofing replaced the originally specified membrane because of its ability to withstand extreme hydrostatic pressure and to protect reinforcing steel against corrosion. The use of Xypex Admix accelerated the construction schedule and resulted in a time-saving of more than two months; a true example of value engineering.

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**To achieve complex forms** with Ductal, fabricators must first build intricate formwork (above right), which has been one roadblock in adopting Ductal into common use in the United States. Currently, the two main uses in the domestic market are highway bridges (top left) and niche furniture markets (bottom left), which can achieve detailed rebarless forms with the fiber-reinforced material.

States, use of this material has not caught on as widely.

This has partly to do with codes, and partly to do with the unique fabrication requirements associated with Ductal. The material itself can achieve complex forms readily, but to do so, complex formwork is required. "You need to have fabricators who are willing to take on a challenge," says Perry. Another challenge: Thin Ductal panels are too thin to be acceptable under existing U.S. codes for safe structural concrete. "We are working to get codes rewritten so that architects can design with Ductal and still be compliant," says Perry.

And some of the struggles with Ductal are because the wonder concrete cannot always deliver on its long list of promises. Guy Nordenson, founder of Guy Nordenson and Associates Structural Engineers in New York, is using the material for the floor panels of two pedestrian bridges at Yale University. "It is a great material," he says, "but because it is proprietary, there

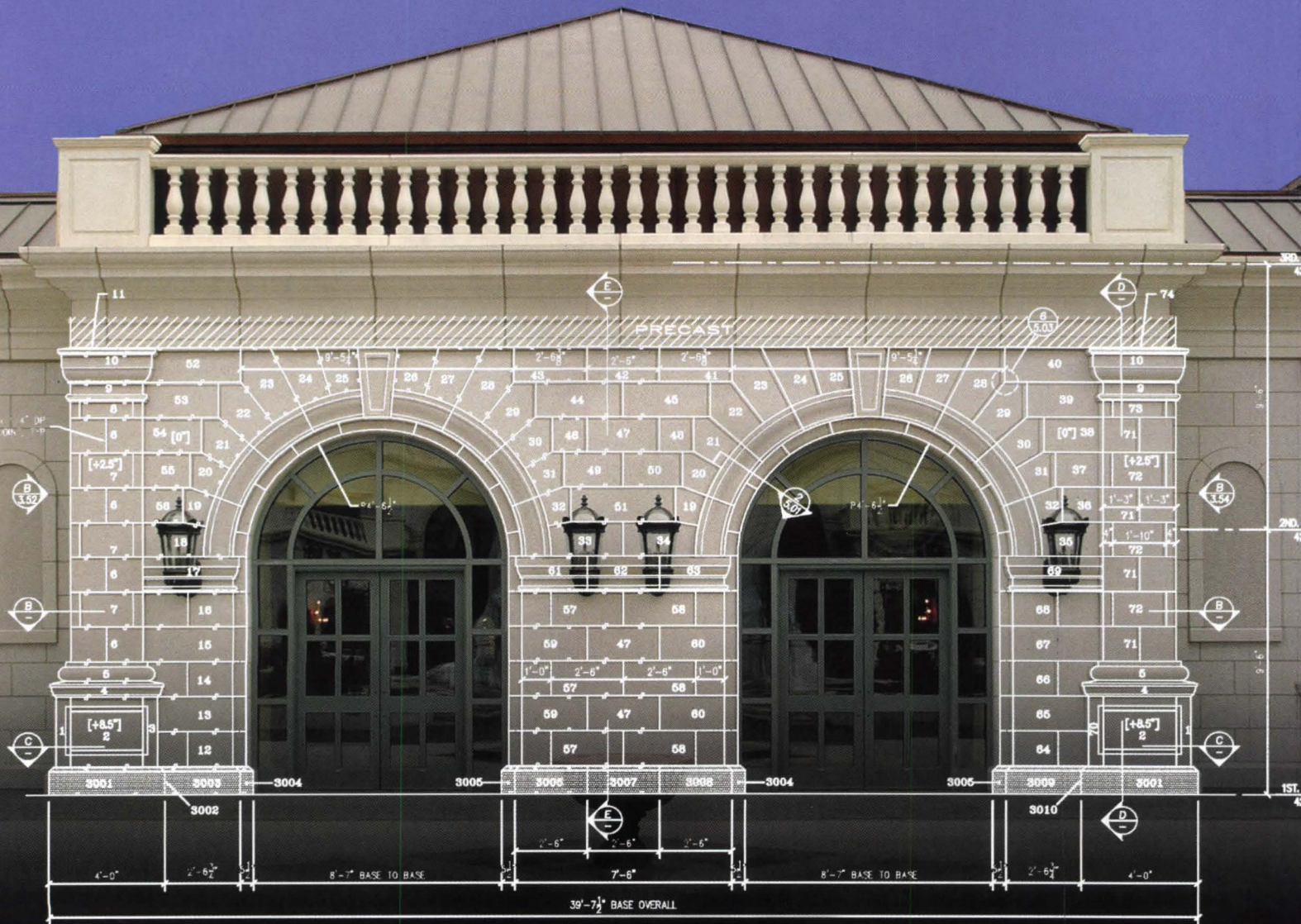
are limits to the ease of procurement. Many claims are made, but come crunch time, not all come through." Still, Nordenson intends to learn from the challenges and use Ductal again.

In the domestic market, La Farge has worked with the Federal Highway Administration to build stronger and more durable highway bridges using Ductal. And the material works well in the context of boutique urban furniture and accessories such as sinks and countertops because the lack of rebar allows for complex shapes.

The company hopes to see the product catch on more in the U.S.—and not just for monetary reasons, according to Perry. "We work with a lot of architects, and a lot of them are early adopters," he says. "But they are restricted in the projects they are working on. We would like to see more projects with interestingly shaped shells and canopies." ☞

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**BETWEEN 2000 AND 2006, ARIZONA'S MARICOPA COUNTY GAINED NEARLY 700,000 NEW RESIDENTS, MAKING IT THE FASTEST-GROWING COUNTY IN THE UNITED STATES. ITS FASTEST-GROWING TOWN, ONCE A FADED HIGHWAY PIT STOP, IS NOW A 25,000-PERSON PHOENIX EXURB—THAT COULD SWELL TO 400,000 OVER THE NEXT 25 YEARS.**

**WELCOME TO BUCKEYE, ARIZ., WHERE AMBITIOUS PLANNERS ARE TRYING TO KEEP THE BEDROOM-COMMUNITY DOLDRUMS AT BAY. PLEASE BUILD CAREFULLY.**

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**WHO DESIGNS THIS STUFF, ANYWAY? FROM THE FILES OF BUCKEYE'S BUILDINGS DEPARTMENT, SOME UNSUNG ARCHITECTS OF THE EVERYDAY:**

→ 1. **Arcodev Architects** (Littleton, Colo.): Brakes Plus, 1116 S. Watson Rd. • 2. **DFD CornoyerHedrick** (Phoenix,

**UNTIL RECENTLY**, people in Buckeye, Ariz., thought the town's heyday was behind them. Buckeye sprang up in the late 1880s as a farming community alongside the new Buckeye Canal in what was then the Territory of Arizona. For decades, travelers crossing the Sonoran Desert saw Buckeye from Monroe Avenue, its main street, which doubled as the old U.S. Highway 80. Commissioned in 1926, 80 was the first road from coast to coast that was open all year, and it brought traffic moving right through downtown Buckeye between Phoenix, 35 miles to the east, and Southern California. But in the 1970s, Highway 80 was outmoded by Interstate 10 a few miles north, and strangers with money to spend mostly stopped coming.

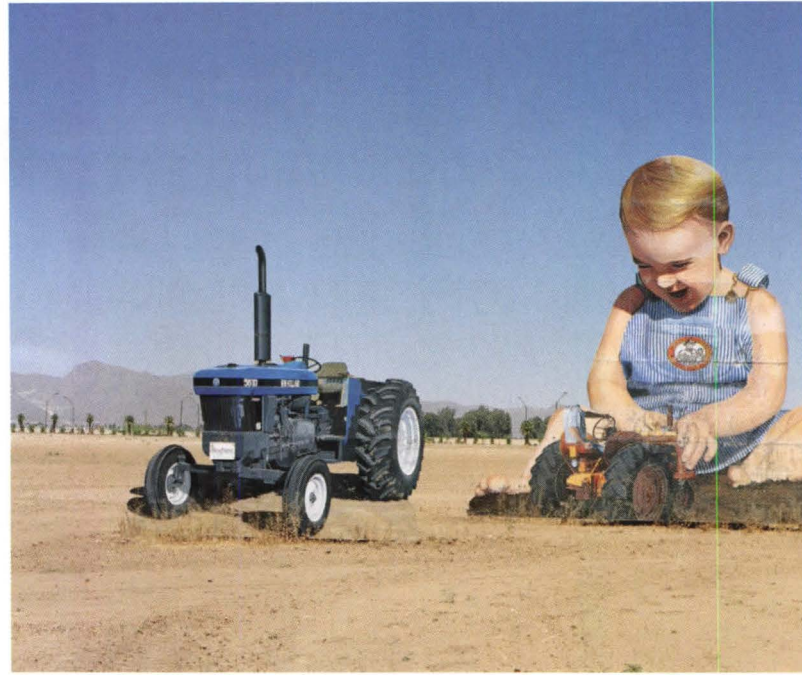
Today, however, they are back in droves. Whereas Interstate 10 once threatened to suck the life out of

Buckeye, it has recently proved to be one of the keys to the town's incredible reawakening—as a beeline toward more affordable housing beyond Phoenix's outer ring. Earlier this decade, developers began laying claim to huge pieces of land around Buckeye for new subdivisions and shopping centers. Across much of the Phoenix area, this influx has already brought miles of neighborhoods where houses sit rather far from shops, services, or anything fun, so it's hard to walk from here to there.

Buckeye—given the fast pace of its development—might be the last place you would expect to find anything smarter. But the town's planners and politicians are trying to get ahead of the vacuum that a developer's nature abhors, and design, of all things, a sustainable suburb. Over the past few years, they have been seri-

ously overworked.

The town hasn't a moment to lose. Last year, *Forbes* magazine listed Buckeye as the second-fastest-growing suburb in the nation (after Lincoln, Calif., outside Sacramento). Between 2000 and 2005, Buckeye's population increased by nearly 200 percent, to 25,406. Three other towns nearby—Surprise, Goodyear, and Avondale—also were among the 10 fastest-growing suburbs on the *Forbes* list. The latter three towns, which have an air of polished newness along their palm-lined shopping strips and are filled with people speaking in Midwestern accents, butt up against the White Tank Mountains—the edge of the Valley of the Sun and long that of the Phoenix metropolitan area. But Phoenix's population pressure has begun to break around the mountains on vast tracts of desert, studded with



Ariz.): Linens 'n Things, 500 S. Watson Rd. • 3. Carter & Burgess (Ft. Worth, Texas): CVS, 21087 W. Main St. • 4. Rob

tall saguaro cactus and brushy palo verde trees and undulating westward down to the Hassayampa River.

Over the past several years, the town of Buckeye has annexed 370 square miles of this land into its corporate limits, and its total planning area, which it intends to annex eventually, measures 598 square miles, which is larger than Phoenix. From its northernmost corporate limit to its southernmost, Buckeye runs about 45 miles long. From east to west, it is 24 miles wide.

Right now, across much of this terrain, it doesn't look as if much is going on, particularly along the Sun Valley Parkway, a four-lane divided road that stretches north from Interstate 10 into the desert before turning east back to Surprise. It has been called the Road to Nowhere. Off the interstate, a sign on the parkway cautions that there are no services for the next 35 miles.

"You're still driving through the heart of Buckeye," said Phil Marcotte, the chief building official for the town, who was doing the actual driving. Marcotte, who started work for the town in 1994, when it had about 5,600 people, offered to show me around the vast tracts of Buckeye where developers are laying seed for 22 approved master planned communities that are expected, by 2030, to hold more than 400,000 people.

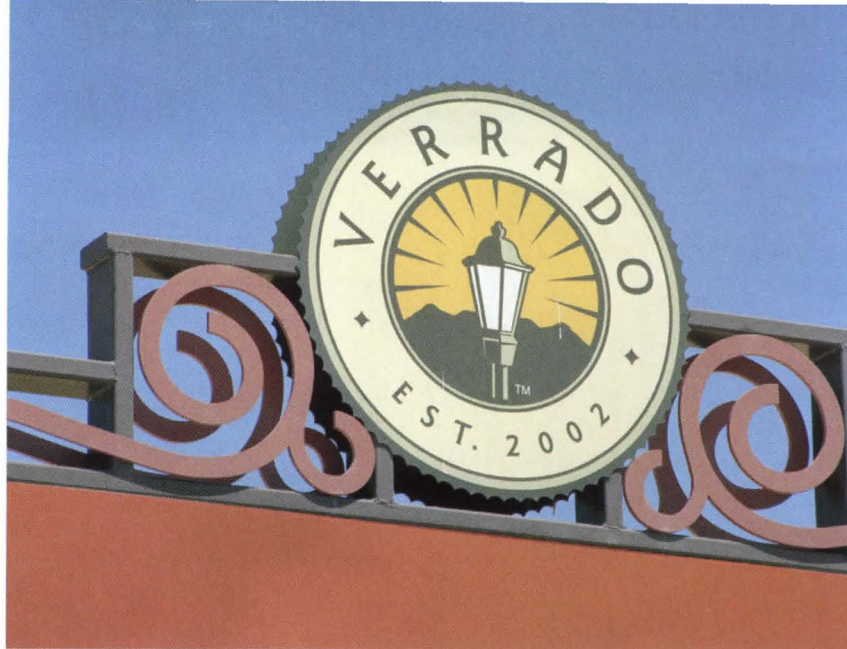
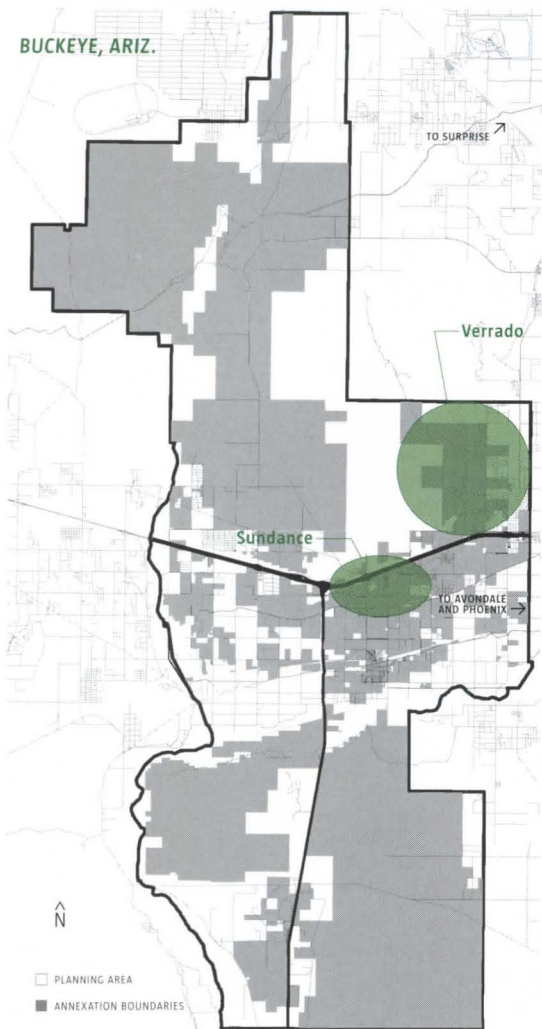
It all seems unlikely. But as you cruise a few miles up the parkway from the interstate into the scrubland, an oasis of sprinkler-fed green lawns appears on the left. It is Tartesso West, a 5,500-acre master planned community where home builders such as Hacienda, Atrius, Pulte, and Canterra are erecting the first dozens of 21,790 planned housing units around a series of neighborhood parks. They are mostly attractive, single-family stucco-ish houses with multiple gables

and xeriscaped front yards, sunning under high-voltage lines drawn from the Palo Verde Nuclear Generating Station off to the southwest. A sign near the entrance advertised houses starting from \$199,999.

"They're giving them away!" observed Richard Rohrback, Buckeye's senior building inspector, who had joined us for the drive.

"Yeah, but we're still buildin' em," Marcotte said.

The bursting of the housing bubble has slowed down home sales and also slowed the pace of housing-permit approvals and inspections around Buckeye. But "slow" is relative. In 2000, the town issued 76 building permits, or about 6 per month. In 2005, it issued 4,549, or about 379 per month—at one point, on Rohrback's count, his staff was performing 300 inspections a day. Last year, the number of permits issued dropped to 2,888, about 241 per month.



niczek Architects and Associates (Phoenix, Ariz.): Bashas', 21064 W. Main St. • 5. Armet Davis Newlove Architects

We left Tartesso West—where we saw exactly one human being out walking the streets on a hot afternoon—and drove along the empty parkway and turned left into Festival Ranch, Buckeye's northernmost master planned community. The 10,000-acre property is being developed by Pulte Homes' subsidiary Del Webb to include 24,000 housing units around a 23-acre village center. So far, there are two completed housing developments, including the new Sun City Festival for retirees. Sun City Festival residents can shop at a new Safeway, fuel up at a new Shell station, and go chipping at the Copper Canyon Golf Club. Near the entrance, there are plans for a 155,000-square-foot retail center anchored by a Fry's Market-center grocery store.

On the way to Festival Ranch and back, we passed by Douglas Ranch, by far the largest of Buckeye's approved master planned communities. The

former cattle ranch encompasses 32,250 acres and will have 83,266 new dwelling units when fully built. For the moment, it is as empty as it ever was, and some of the roughest land you've ever seen.

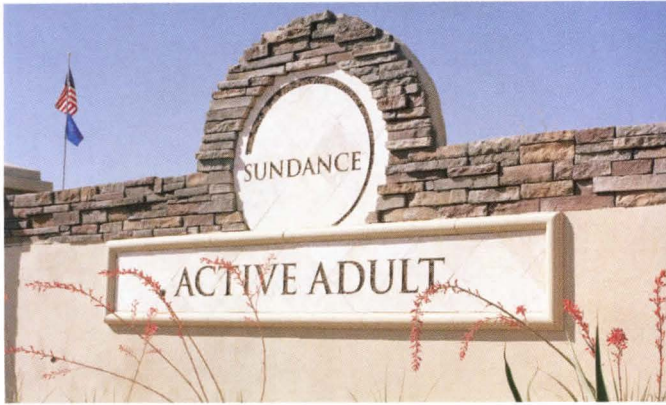
**"WE DON'T WANT** to become a bedroom community," said Bob Bushfield, a planner who is the director of community development for Buckeye. He looks askance at what has happened to so much of the Phoenix metro area, a suburban monoculture of tract homes built exclusively around the automobile. "That's not our goal."

When Bushfield came to Buckeye several years ago, he was the planning department. In 2005, he hired Suparna Dasgupta as his assistant director, and she is in charge of planning and zoning, with oversight of community master plans. "It's just exploded since about 2003, when things really took off," Bushfield said. The department

now has a staff of seven people, if you count Marcotte, who has another 10 inspectors out in the field.

To avoid the bedroom-community syndrome, Bushfield, Dasgupta, and their staff must fit together many kinetic pieces of an urban puzzle at once to try to ensure that people who live in Buckeye generations from now don't find themselves trapped in neighborhoods without stores or places to work—or in a town that can't sustain its own infrastructure, education system, or, most importantly in the desert, water.

In January, the Buckeye Town Council approved a major update to the town's general plan, which, in keeping with Arizona state law, guides all development in town. In May, the town's residents were to vote whether or not to ratify the plan. Dasgupta, who managed the writing of the new plan, believed that voter ratification would be quite likely, be-



(Santa Monica, Calif.): El Pollo Loco, 758 S. Watson Rd. • 6. **Deutsch Associates** (Phoenix, Ariz.): Grazie Pizzeria a

cause the plan had been developed over two years with copious feedback from stakeholders, such as longtime residents, new arrivals, farmers, developers, the chamber of commerce, and officials with Maricopa County and the regional planning agency,

lucky in my other job if I got 10 people to come.” (Dasgupta previously worked as a planner in Cincinnati.)

The plan follows the mandates of Arizona’s Growing Smarter legislation, passed in 1998 and beefed up in 2000, which requires local govern-

Growing Smarter has given the town’s planners an excellent excuse for policies that will not destroy the region’s natural ecology but that will also support population growth, if indeed the cake can be both had and eaten. Buckeye’s new general plan is written to work hand in glove with a massive transportation study by the Maricopa Association of Governments covering the Hassayampa Valley, which includes all of Buckeye. The Hassayampa study contemplates more than a dozen new major parkways and freeways in addition to arterial routes and projects possibilities for pedestrians, bicyclists, bus riders, and light rail users.

The Hassayampa study has also helped Buckeye determine where it will situate areas for new urban growth—mainly in an area south of Interstate 10. The planning staff is working to concentrate major office centers in a medium-density expan-

## IN 2000, THE TOWN ISSUED 76 BUILDING PERMITS; IN 2005, IT ISSUED 4,549. LAST YEAR, THE NUMBER DROPPED TO 2,888.

the Maricopa Association of Governments. By the time the process was finishing, people stood up at town council meetings only to praise the plan, Dasgupta said.

“It was unbelievable,” she added. “We had a minimum of 100 people at every public hearing. You never see that kind of participation. I would be

ments to enact development strategies with citizen input. The plans have to address the preservation of open space, the shaping of growth areas, environmental planning, the funding of development costs, property rights, and water supply. (Buckeye can pump groundwater for the next 100 years from the Hassayampa River aquifer.)





Bar, 21055 W. Main St. • 7. **Boice Raidl Rhea Architects** (Merriam, Kan.): Lowe's, 700 S. Watson Rd., and Wal-Mart,

sion of downtown. On planning maps, the location for this city center would sit next to four proposed freeways, the prospects for which would seem, most other places, simply stary in their scope. In Buckeye, nobody seems to doubt that they will come true.

**IF THE TOWN'S PLANNERS** could have their way, Buckeye's neighborhoods would look a lot like Verrado, one of its first major master planned developments, several miles northeast of the old downtown. Verrado drapes over 8,800 acres on an eastern slope of the White Tank Mountains, land that was formerly a proving ground for Caterpillar tractors. The development has attracted attention across the Phoenix area for its creation of an actual new town, with a main street business district (on Main Street) and better-than-decent production architecture in its houses and buildings.

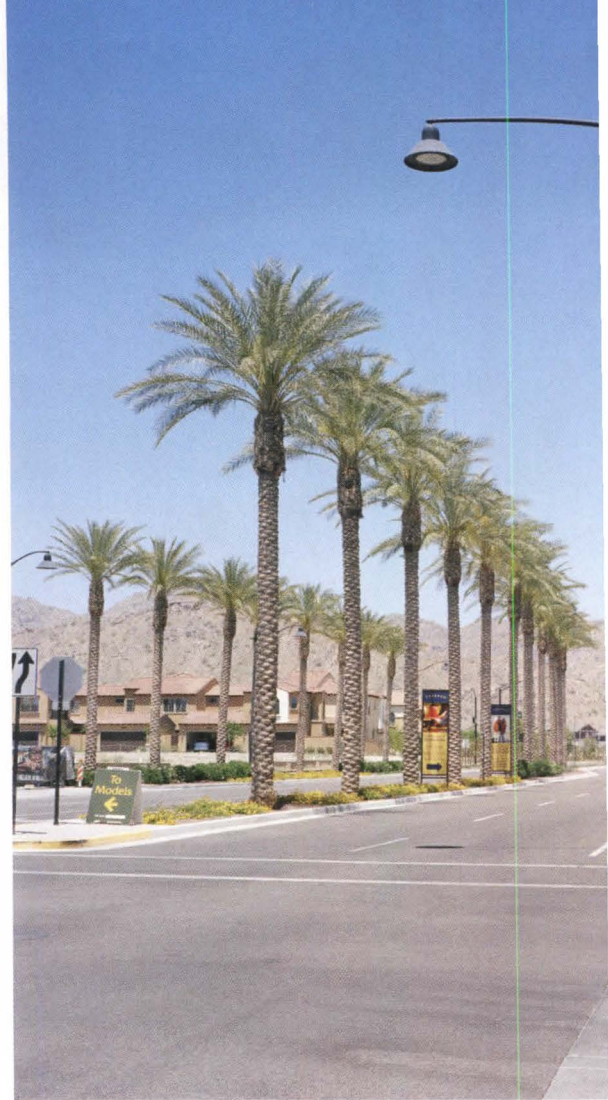
It didn't get that way by accident.

Mass home builders generally design subdivisions as easily and cheaply as possible, which is why you see suburbs with oceans of nearly identical houses sequestered well away from the clots upon clots of retail plazas and pad-site restaurants on the black-top heat islands that line the major roads. Driving through the outskirts of Charlotte or Sacramento these days is like watching the Flintstones, with all the same scenery rolling by in the background.

Verrado shows the influence of New Urbanism, a kind of "planned organic"—a seemingly spontaneous mixture of houses, condos, and apartments for all kinds of households that will, when done, salt in several hubs of stores and services among them. Although most of the home builders putting up houses in Verrado are production builders, they're having to behave differently here to get a piece of the place.

The developer, DMB Inc., is giving the builders multiple smaller sites on which to work. JT Elbracht, an architect (and Taliesin West alumnus) who is Verrado's director of community design, pointed out the arrangement on a large-scale model in Verrado's homey welcome center. "Instead of letting [builders] put 200 houses over there all in one spot, we said, 'Put 30 over there, 40 over there, and 20 over there,' so it disperses. This way, you get big houses next to medium houses next to small houses, like small towns have."

The Main Street configurations were practically alien to the retail tenants in the town center. CVS wanted to build a pad-site store. "We talked to them and talked to them and said, 'Guys, we're not going to let you do that,'" Elbracht recalled. And DMB didn't; the new CVS resides in a nicely detailed arcade storefront faced in stucco.



1060 S. Watson Rd. • 8. **Architekton** (Tempe, Ariz.): KFC, 682 S. Watson Rd. • 9. **RHL Design Group** (Scottsdale, Ariz.): S

Across the street, the local grocer, Bashas', initially objected to DMB's requirement that it have entrances on three sides to make it more engaging to folks walking by. Citing the risk of theft, Bashas' officers said, "No, no, only two. Absolutely only two," Elbracht said. "And we said, 'OK, do this, guys: Put the doors in, and, if it doesn't work, you can lock the doors.'"

Robert Kubicek, a Phoenix architect responsible for about two dozen retail projects within Buckeye, designed that Bashas' store, which measures 16,000 square feet in a Main Street building with apartments overhead. The biggest problems, he said, came in trying to keep the store from bothering upstairs tenants with noise and exhaust. His clients at Bashas' balked at the three-doors idea because "like everybody else, they want a little bit of control," he said. But the doors seem to work fine. "It's been very successful," he said,

and has compelled Bashas' to look anew at putting stores in densely built sites.

Elbracht reserves special bragging rights for the new Verrado High School, just outside the town center. The school's design (shown opposite, top right corner)—an industrial turn on Frank Lloyd Wright—is conceptually head and shoulders above the typical suburban school building. Massaging the school project along the lines of Verrado's vision took some doing because the school is a public entity. "The school district gets its money from the state," Elbracht said. "They only have so much, and we did a collaborative process with them to get a great-looking school that didn't cost them or the taxpayers any more money."

A LEED silver certification is pending for the school, based on its energy efficiency and recycled and locally bought materials, among other

features. The firm that designed it, Orcutt|Winslow in Phoenix, also designed Verrado Middle School nearby and is working on a new elementary school for the community. David Schmidt, the project architect, said he had his doubts about fulfilling DMB's wishes for a showcase high school.

"At first, I thought, I can't afford to follow [DMB]" because of the costs that could entail, Schmidt said, adding that the developer's dictates initially seemed like interference, though DMB was donating the land and chipping in \$2.25 million of the school's \$40 million budget. "We finally started to look at it their way to try to come up with a design." Looking back, he said, "I'm glad DMB pushed us the way they did—it gives the school a different character."

Buckeye officials are also impressed by Verrado, which has had a considerable influence on them. "I've never seen how much planning



tion, Sun Valley Road • 10. **Orcutt|Winslow** (Phoenix, Ariz.): Verrado High School, 20050 W. Indian School Rd.

thought goes into it—the effort that they’ve put into planning,” Dasgupta said. In particular, she cited the new fire station being designed for Verrado by Perlman Architects, an arched, hipped-roof building that will look as if it’s been there since the 19th century. “The fire station the town is going to get out of that effort is just a gorgeous building,” she said.

**THE REAL ESTATE** frenzy has slowed down somewhat lately in Buckeye. A new Target and Home Depot near Verrado are on hold. But a big retail hub, called Sundance Towne Center, has opened next to the new Sundance community along I-10 between Watson and Yuma roads. A 75-acre tract that Google’s map shows as a graded site has a Wal-Mart, a Lowe’s, a Linens ‘n Things (the company filed for bankruptcy in April), two banks, an OfficeMax, a Peter Piper Pizza, a Brakes Plus, and an AutoZone.

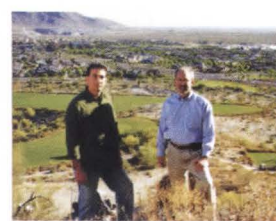
People in Buckeye need this sort of stuff. (They also need police and fire protection in far-flung sections, which they are getting in a system of sturdy, temporary stations dotting the area.) The town wants them to have it but also wants to temper the way these businesses typically look, which is ugly. So the planners are putting their prerogatives in writing.

Last year, Buckeye’s town council adopted a set of design rules for newly built commercial and industrial buildings. They’re currently being refined to fit into the new development code. At heart, the rules are critical of common suburban shopping development. They tell developers to be nicer to the roadside, with more texture and articulation in their buildings than they usually offer, and to consider surrounding landscapes more carefully. There’s a palette of approved materials—brick, stone, stucco, and wood, among others. The

rules proscribe massive asphalt parking lots. They suggest that developers throw in some benches, kiosks, and trees and make their buildings look like something besides cash cows. The set of rules is “one of the things the town needed for a long time,” according to Dasgupta.

The city of Scottsdale has a similar sheaf of design guidelines in effect, so they won’t be wholly new to most developers who have worked in the area. But developers would just as soon not deal with them. Robert Kubicek, the retail architect, noted that the city has been trying to persuade developers to “buy in as quickly as possible” to the new design rules even though they don’t yet have the force of an ordinance.

“Of course, our developers are saying, ‘When they’re there, we’ll do it. Until then, we’re working with the old’” rules, Kubicek said. “Because the new rules are, you know, tougher.”



**JT Elbracht** (left), director of community design for master-planned Verrado, and **Bob Bushfield**, director of community development in Buckeye, on a hill overlooking Verrado.

Text Elizabeth Evitts Dickinson

# THE FUTURE OF INCARCERATION

## And a brief history ...



## JUSTICE DESIGN HAS EVOLVED SINCE JEREMY BENTHAM'S REVOLUTIONARY PANOPTICON. TODAY'S ARCHITECTS WANT TO CREATE JAILS THAT AREN'T PUNISHING TO LIVE IN—OR LOOK AT.

**TEN STORIES HIGH** and clad in razor wire, the Brooklyn House of Detention, closed since 2003, is considered a hulking eyesore by local residents. But New York City's Department of Corrections wants to make it bigger. Two years ago, Martin Horn, the corrections commissioner, announced plans to reopen the facility and double its 749-bed capacity with a new addition. Located on Atlantic Avenue in downtown Brooklyn, the jail is convenient to the courthouse—and uncomfortably close, community members feel, to their brownstone neighborhoods with upscale cafés and shops. To appease residents, Horn proposed a solution. What about wrapping the jail with commercial uses?

At an AIA-sponsored event in New York this past February, architects saw what a “jail with retail” might look like. The city's Department of Design and Construction asked Skidmore, Owings & Merrill to create a rendering of an improved façade with street-level shops and a grocery store. The city then issued an RFP for official design proposals for the development. It plans to reopen the expanded jail in 2012.

The House of Detention represents a small but growing movement in the oft-overlooked field of justice architecture: jails that don't look like jails. James Gondles, executive director of the American Correctional

Association, says the trend is gaining momentum, particularly in large urban areas. Gondles was a sheriff himself in Arlington, Va., where he helped oversee the construction of a new jail—the Arlington County Detention Center—that followed this maxim. “We didn't want it to look like a jail, and it doesn't. It looks like an office building,” Gondles says.

This exterior treatment is just part of the story. The last 25 years have seen a steady revision in the thinking behind justice design, culminating in new architecture for jails, juvenile detention centers, and, to a lesser extent, prisons. Architects specializing in these facilities are promoting better conditions for the incarcerated and the correctional staff through careful design considerations, bolstered by emerging science and strategic partnerships with correctional associations.

However, these advances come amid rising criticism of the American justice system as a whole. According to a Pew Charitable Trust report, one in 99 American adults will spend time behind bars in 2008, and with the taxpayer-footed cost to build and operate correctional facilities skyrocketing, some architects are boycotting the field of justice design altogether. At the heart of the debate is a provocative analysis of justice in this country and the role architects and designers should play.

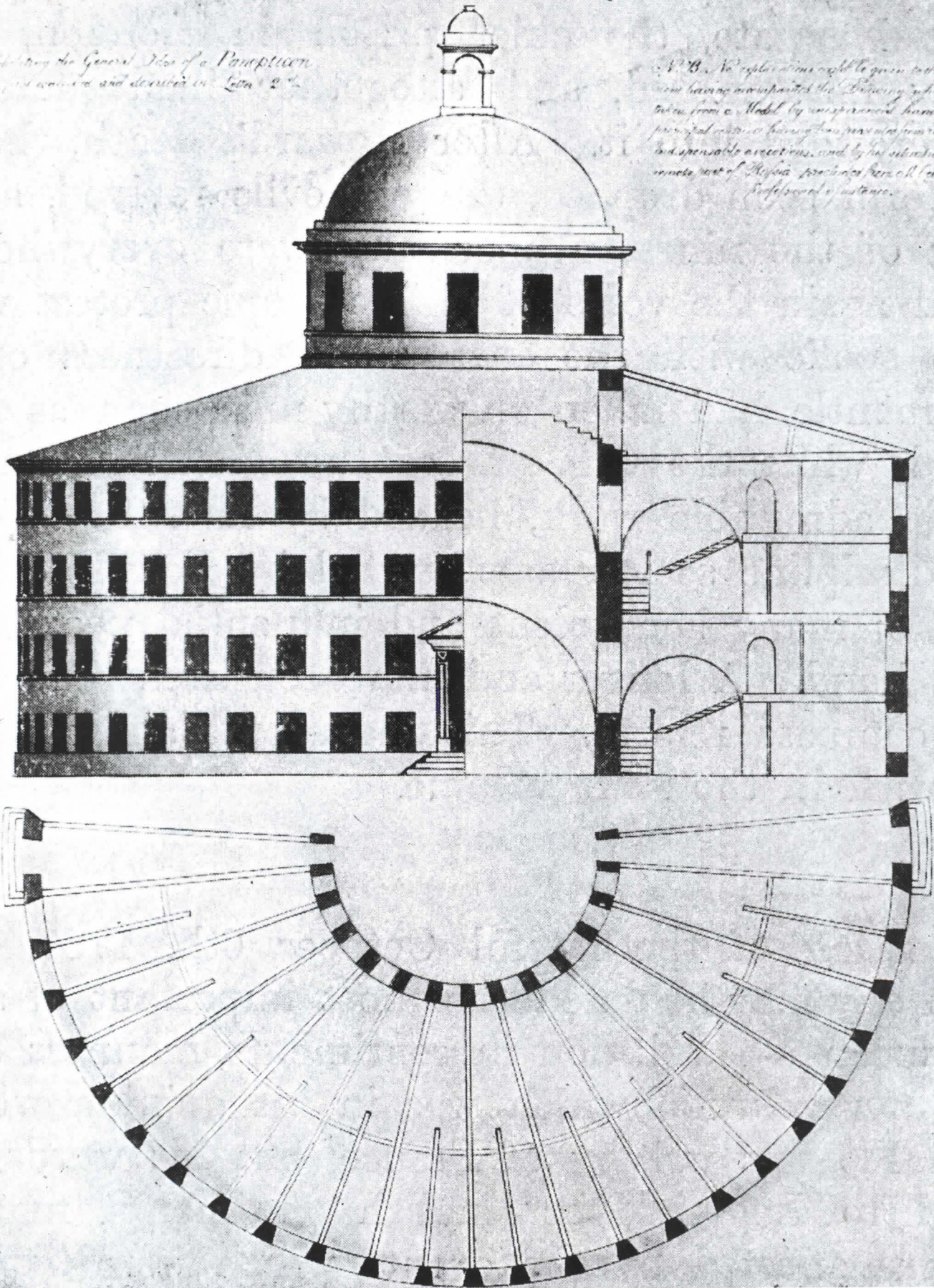
**Greek for “all-seeing,”** the panopticon detention model was proposed by English theorist Jeremy Bentham in the 1780s. The radial configuration would have cells on the circumference and guards at the center, hidden from the prisoners' view. Bentham called the design “a new mode of obtaining power of mind over mind.” Prisons and jails around the world have been built in line with Bentham's principles.

# PANOPTICON

Plate 1

*Explaining the General Idea of a Panopticon  
as first conceived and described in Letter 2<sup>d</sup>.*

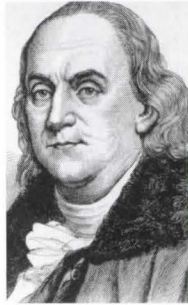
*As the Author has explained in the preceding Plate  
the having constructed the following which was  
taken from a Model by Messrs. Howard, the  
principal author of the present Panopticon, and by his situation in a  
mild part of Russia, practices from all causes of  
Infectious Diseases.*



1773

The Maison de Force is completed in Ghent, Belgium. It separates inmates by gender and offense, but still operates under the workhouse philosophy advanced in England.

1790



The Quakers manage parts of the Walnut Street jail in Philadelphia. Reformers like Benjamin Franklin advance humane treatment of inmates and a design concept based on single, solitary cells.

1816

A prison in Auburn, N.Y., opens. Unlike the Pennsylvania jails, it includes communal areas for meals and recreation, with smaller cells for sleeping built vertically in multi-leveled tiers, called cell blocks. This becomes known as the Auburn system and is replicated in places like New York's Sing Sing prison for the next 150 years.



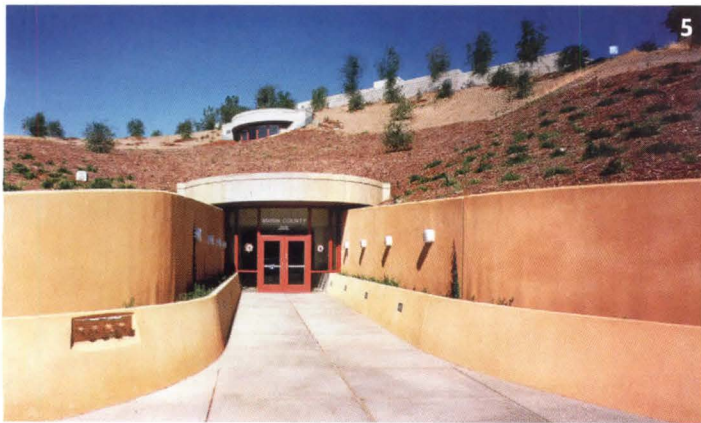
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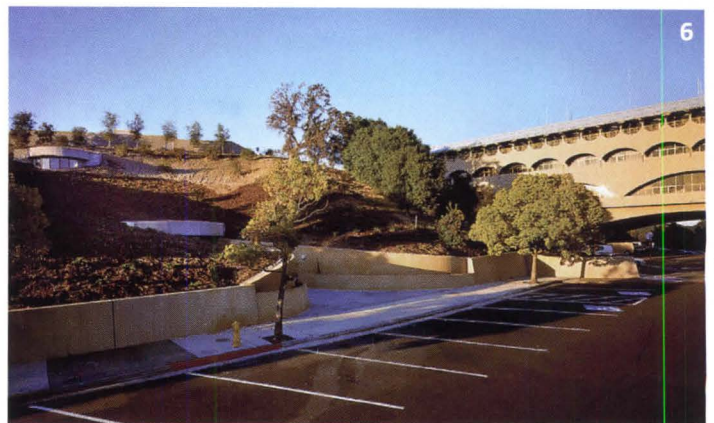
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4



5



6

1934

The first super-maximum security prison (known as a supermax) in the U.S. opens on Alcatraz Island. This decade also saw a rise in large rural institutions, such as San Quentin, leading to the nickname "The Big House."

## BEING A GOOD NEIGHBOR

The Brooklyn House of Detention expansion is not, in fact, a result of rising inmate population. Rather, it is an effort to streamline the system for those awaiting trial and sentencing (as well as for their families and lawyers). Currently, most inmates are housed in a complex of nine separate jail facilities on Rikers Island, in the East River between Queens and the Bronx. Some 350,000 people visit Rikers on an annual basis. The DOC hopes that decentralizing the population into community jails in Brooklyn and the Bronx will expedite the system. "Every day, we have to bus 1,500 inmates to courts all around the city and bus most of them back," explains Stephen Morello, a DOC spokesman. When you're dealing with rush-hour traffic on the Brooklyn-Queens Expressway, that's no small matter.

It's important to bear in mind the basic distinction between jails and prisons. Jails are locally operated and funded, used to confine people before and after adjudication. Those arrested can cycle in and out, with many spending only 48 hours in the system. Inmates who were found guilty and sentenced to a jail are likely serving no more than a year. Prisons, on the other hand, are state- and federal-funded facilities for those who have been convicted and are likely serving longer sentences. According to the U.S. Department of Justice's Bureau of Justice Statistics, at the end of 2006, state and federal prisons held 1,570,861 inmates, while local jails held 766,010 persons awaiting trial or serving a sentence.

For a jail to function effectively within a community, it must work in lock-step with the rest of the justice system—from law enforcement and social services to courthouses and law offices. Ken Ricci of Ricci Greene Associates has been active in justice design since graduating from the Pratt Institute in the 1960s and has long advocated for improved, humane facilities. Ricci believes that locating jails in city centers close to other agencies is most helpful for those who have been arrested. "Jails are legitimate buildings in an urban environment. They are part of the civic landscape," Ricci says. When designing a jail, he adds, you have to consider the totality of the system. "You must always ask yourself how you can reduce the time of the stay for the inmate."

Getting communities to accept a new jail can be a challenge, especially when it's coming to the center of town. Most prefer jails to be buffered from society or, better yet, consigned to an island like Rikers. This is where exterior design comes in. One major change in recent decades is that jails have gone from more traditional, round or linear models, with cells lining the perimeter or circling a guard tower, to a more pod-like orientation. In this configuration, housing units ring around a central dayroom, a setup that has obvious advantages for the inmates inside. By contrast, on the cell model, "If you do a cell window, you wind up with a 5-inch slit because that's the size you can't get a head through," says Andy Cupples, a principal at DMJM H&N. "Once you do that, it's very prison-like."

The pod strategy gives rise to improvements outside and in. For a new jail in downtown Denver, scheduled to open in 2010, Ricci Greene has created, with Hartman-Cox Architects and OZ Architecture, an interior from which inmate quarters look onto a recreation yard that's open to the sky. "As a pedestrian on the street, you can't see this, but as an inmate you can access the outside," Ricci says.

While more prevalent in urban settings, the push to fit in is not reserved for cities alone. DMJM H&N was part of a design-build team for the Lexington-Fayette County Detention Center in horse country outside of Lexington, Ky. (Ricci Greene also consulted on the project.)

Neighbors were concerned that the 1,280-bed, 425,000-square-foot facility would clash with the landscape of sprawling fields peppered with horse barns. After a series of public meetings to discuss the design, the architects recessed the facility into a hill at the center of the site. The administration building, which is more visible to the public, is designed to look like an equine facility.

## IN A TRADITIONAL JAIL, WE INADVERTENTLY CREATED A LOT OF BAD BEHAVIOR.

—JENNY HUTCHINSON,  
NATIONAL INSTITUTE OF CORRECTIONS

"Modern jails make good neighbors," Ricci says. "But that is not the end of the story. You also have to look at the environment on the inside."

### DIRECT SUPERVISION AND NORMATIVE DESIGN

The switch to a pod orientation in jails and prisons is not just aesthetic. Increasingly, correctional facilities are moving away from the remote supervision of inmates from separated control rooms or guard towers. This remote-supervision model was inspired, in part, by English theorist Jeremy Bentham and his panopticon (Greek for "all-seeing"). On Bentham's design, guards could observe inmates from a tower or cell without direct interaction. A modified panoptic design was used at the Twin Towers Correctional Facility in Los Angeles, which opened in 1997.

Today, however, a direct-supervision model, which places the officer in housing cells with the detainees, is becoming more popular. Direct-supervision facilities look to create a normative environment, in which the surroundings uphold healthy social norms. The model springs from a belief that the design impacts the inmate's frame of mind and that, by offering as "normal" an interior as possible, you can mitigate violence and aid rehabilitation.

Gone are the harsh steel chairs bolted to the floor. Gone are the dark rooms encased with bars. In their place are dayrooms designed to harness natural light and common areas outfitted with movable furnishings, carpeted flooring, and advanced double-glazed security glass without bars. Natural materials like wood are used when possible, and great care is given to acoustic levels. "When you reduce the decibel level, people's adrenaline level goes down, including the staff," Ricci says.

Guards sit in the center of the unit and circulate through the space, which allows them to better interact with the population and help subdue conflict. When inmates act out, their privileges are revoked and they are removed to a more secure section of the building.

"Direct supervision is probably the greatest

**1. Gwinnett County Detention Center Renovation and Expansion, Lawrenceville, Ga.** • HOK expanded the center's program space, enlarging the lobby and adding new magistrate courtrooms and a preadmission area. An adjoining tower with 1,440-bed capacity is scheduled to finish in 2009.

**2. Pima County Justice Facility Expansion, Tucson, Ariz.** • DMJM H&N designed low-to-medium-custody pods; a lockdown facility; an infirmary; and a mental health unit, for a total of 510 new beds. Architects also added a new public entry and video visitation area.

**3. Women's Eastern Reception, Diagnostic and Correctional Center, Vandalia, Mo.** • This facility houses all security and custody levels of women inmates in the state of Missouri. HOK gave it a residential look and feel, with visiting areas both outside and inside and small suites for family visits.

**4. Lexington-Fayette County Detention Center, Lexington, Ky.** • Located on the outskirts of town, near horse country, DMJM H&N's 1,280-bed jail is recessed into a hill to minimize its visual impact. The administration building (shown) was designed to look like an equine facility.

**5. Marin County Jail, San Rafael, Calif.** • Adjoining the Frank Lloyd Wright–designed Marin County civic center (6), DMJM H&N's jail has six pods that contain 222 cells. It is recessed into the hillside and has skylights providing natural light.

leap forward we've had in a long time," says Jenny Hutchinson, the jails division chief at the National Institute of Corrections, an organization that frequently partners with architects on research, advocacy, and training. "It combines an architectural design with a philosophy of managing inmates. When it's done correctly, it can eliminate problems that we have considered inherent in jails, like violence and vandalism."

She adds: "In a traditional jail, we inadvertently created a lot of bad behavior. We expected the worst of those inmates and we conveyed that by the way we interacted with them through the fixtures, the furnishings, and the design of the physical plant."

Cupples, of DMJM H&N, thinks the direct-supervision facilities he designs have a positive impact. "I've always had this belief that what we do as architects is an art and a science, but also a social science, and that what we do can influence behavior." In the case of his firm's award-winning, \$29 million expansion of Pima County Justice Facility, a jail in Tucson, Ariz., the client wanted a safe, normative environment to reduce violence and support inmate release back into the community. The architects began by breaking down a large, 64-bed dormitory into eight, eight-person mini-dorms. This allows the inmates some level of privacy and greatly reduces noise within their housing areas. Inmates have access to dayrooms and outdoor recreation. Pima also added high-tech components, such as video visitation (another burgeoning trend in justice design), which allows families to visit during extended hours since staff do not have to physically move them to a visitation room.

## YOU GO TO PRISON AS PUNISHMENT, NOT FOR PUNISHMENT.

—KEN RICCI, RICCI GREENE ASSOCIATES

Normative, direct-supervision designs are also being applied to juvenile detention centers. Ricci Greene Associates specializes in direct-supervision designs. The firm recently completed the Union County Juvenile Detention Center in New Jersey, a 70,000-square-foot building surrounding nearly an acre of outdoor space. Each housing unit centers around a dayroom with lots of glass and views to the outdoors, and every unit has its own recreation area. There is a full-scale gym as well as classrooms and resource centers.

So far, anecdotal evidence shows that direct supervision does better the environment for both inmates and staff. Before joining the National Institute of Corrections, Jenny Hutchinson spent seven years in the jail system as a correctional officer. She witnessed the transformation from remote to direct supervision firsthand. "I felt much safer," she says. "I felt much more productive. I enjoyed working with inmates and felt as if I could use higher-level skills." This is backed up by statistics being collected at the Pima facility. Arizona corrections chief Martha Cramer was so impressed that she wrote an article for *Corrections Forum* magazine

extolling the jail's design and how it has reduced violent behavior and greatly improved the conditions for staff.

The cost to build direct supervision is not necessarily more than remote supervision, according to the NIC. Either way, it's a lot: According to the Pew Charitable Trust, states spend more than \$40 billion a year on corrections.

### A HUMANE APPROACH

Not surprisingly, given America's large incarcerated population, the trend around the country is definitely toward increased jail sizes. "We are in another cycle of upgrowth," says Cupples. He speculates that part of the problem may be a system that doesn't do a good job at releasing offenders back into society. Many return to the system very quickly via new offenses or basic parole violations. "We're in a spiraling cycle that keeps feeding itself like a hurricane," Cupples says.

That is exactly what concerns California-based architect Raphael Sperry. Sperry believes that no amount of design, however high-quality, can remedy the flaws that he sees as inherent in the American justice system, including a failing War on Drugs and three-strikes legislation. In 2004, Sperry and a group of volunteers launched the Alternatives to Prisons program (formerly known as Prison Boycott) through the nonprofit group Architects/Designers/Planners for Social Responsibility. Nearly 1,000 architects and designers have signed a petition pledging to boycott the design, construction, or renovation of a jail or prison within their practice.

"You can design something with the best intentions, you can design something that's supposed to rehabilitate people, but there is no guarantee that it's going to be operated that way," Sperry says. "The classrooms and gymnasiums in California jails, for example, are used for overflow housing." Making jails and prisons larger won't have any effect on crime, Sperry says: "We've tried incarcerating everybody, and it isn't working. What we need are better solutions."

In many ways, Ken Ricci is in agreement. He says that his firm has stopped designing prisons at the state and federal level because he does not believe architects can have much of an impact. As for jails: "Yes, I'm an architect and I want to build buildings, but there is something in our system that could be altered to reduce the size of our jails." Ricci urges a big-picture approach to sustainable justice design that includes right-sizing jails and finding alternatives to incarceration ("LEED is very limiting for this building type," he points out). He says that his firm has convinced clients to minimize the number of beds in a facility and look to the resources of social services. "Shouldn't our plan be to reduce the footprint and suggest that clients not solve everything through a building response?"

As for boycotting justice design altogether, Ricci doesn't believe architects have enough clout—rather, they should be in the trenches helping to change the system from within. "The need for law enforcement and justice is fundamental in any society." That said, incarceration needs to be humane: "You go to prison as punishment. You don't go to prison for punishment. Prison should not be awful. It shouldn't be dangerous. The deprivation of your freedom, for an American, is punishment enough." ☺

1955

The United Nations Standard Minimum Rules for the Treatment of Prisoners are passed, which recognize the basic human rights of prisoners and help establish regulations for prison design.

**Union County Juvenile Detention Center, Elizabeth, N.J.** • Ricci Greene Associates' 70,000-square-foot juvenile facility, which houses 80 boys and girls, wraps around nearly an acre of outdoor recreation space (1) and brings in ample natural light. At the center is the gymnasium (2), its Kalwall panels acting as a lantern.

The metal skin on the side of the gym (3) is the same as that used on the outside of the corridor it faces—just rotated 90 degrees. The glazed corridor wall (4) allows sunlight to hit the floor inside, and the perforated-metal cornice serves not only as a modest sunshade, but also as a deterrent to climbers.

An open reception desk of glazed concrete masonry units (5), with an abstract backdrop of MDF panels, welcomes relatives and friends of inmates. Two boys' units flank a small outdoor recreation yard (6). This arrangement brings sunlight into the dayrooms and also allows for casual surveillance between them.



1970s

Judges begin to consider prisoners' rights and mandate significant improvements in prison conditions.

1975



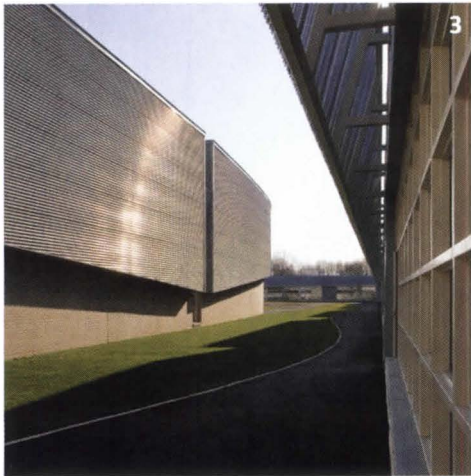
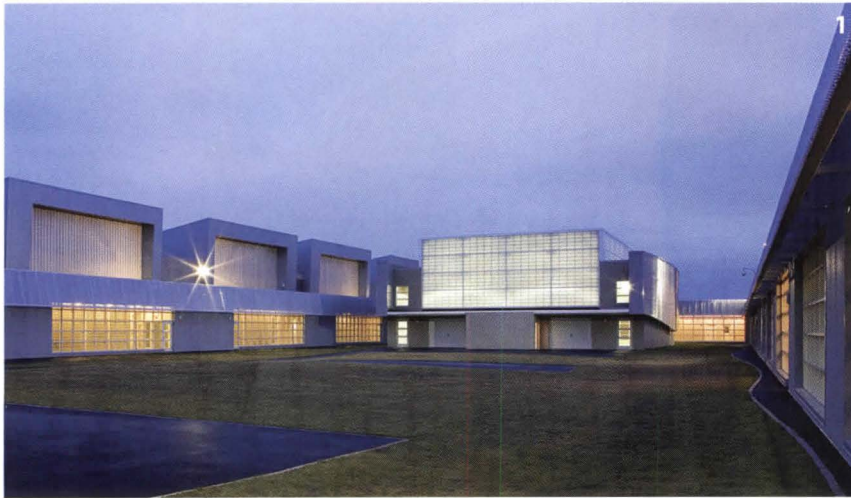
French philosopher Michel Foucault publishes *Discipline & Punish: The Birth of the Prison*, a popular book offering a critical analysis of Jeremy Bentham's panopticon and the failure of the prison complex.

1981

The first direct-supervision jail opens in Contra Costa, Calif.

1984

The first privately operated prison is established in Tennessee. By 2006, 7.2 percent of American prisoners were held in private facilities.



MIKIKO KIKUYAMA PHOTOGRAPHY (1-6); FOUCAULT PORTRAIT: GETTY IMAGES



→ TALES FROM THE DOWNTURN, PART ONE

# KERMIT BAKER

**THE ARCHITECTURE BILLINGS INDEX HAS HIT AN ALL-TIME LOW. WE ASKED THE AIA'S CHIEF ECONOMIST TO PUT THE NUMBERS IN PERSPECTIVE. HERE'S THE BAD NEWS: LOOKS LIKE WE'RE REALLY IN A RECESSION. THE GOOD NEWS? IT MAY NOT BE AS BAD AS THE LAST.**

**The billings index has hit a record low. Is that as scary as it sounds?**

It's too early to tell. What it's telling us is that design activity in a broad sense is slowing very sharply—more than in the 13 years we've been tracking it. We started in '95, well into a recovery. Then we hit a steep recession in 2000–2001, and we've been in recovery ever since. So we really only have one other downturn to compare this to.

**It sounds worse than the last downturn.**

We're heading into it a little more sharply, but, on the other hand, the economy seems on much firmer ground now than it did after 9/11.

**Despite consumer confidence reports that are pretty grim?**

Consumer confidence reports that are pretty grim. Business confidence reports that are pretty grim. A housing market in turmoil that's threatening to shut down credit markets. There are certainly more than a few challenges out there. The way I'm reading it (and I think the consensus now) is that we're probably in a recession. But it looks like it's going to be reasonably shallow: three quarters. I would say it's going to be a lot more mild than the last time.

In the late '90s, nonresidential construction was incredibly overheated. This environment is 180 degrees from that. Companies have been very cautious. The fundamentals here—office vacancy rates, hotel occupancy rates, retail rents—they're all at very healthy levels. Once the economy starts growing again, I think nonresidential construction will just click back into gear.

**Many of the architects I talk to say they don't feel the downturn at all.**

With a bit of luck, a lot of them won't. A midsized firm with four, five, six ongoing projects; a large-sized firm with 10, 15, 20 projects—they're not going to see a downturn at all. We're going to see a decline in nonresidential activity in the single-digit range, inflation adjusted: a 5 or 10 percent decline. A lot of firms are going to hold their own. Some are going to see a 15, 20 percent decline. It's certainly not going to be across the board. It's going to be regional, by sector.

**What sectors and regions?**

Institutional looks very solid across the board, and it will be unless this recession spirals out of control and starts affecting government revenues. If we went from a six- to nine-month recession to an 18- to 24-month

steep recession, the institutional market's going to get hammered. But if we don't, they may not skip a beat. Commercial looks weak.

Two-thirds, three-quarters of the country is seeing some broad economic slowdown. The other quarter to a third, it hasn't hit them yet, and it may not. Firms in the industrial Midwest started seeing weakness 12, 18 months ago. California is starting to get hit, Florida, to some extent up and down the Northeast corridor.

Areas that are doing well: Texas, oil economy; the agricultural Midwest north of Texas through Minnesota; the Pacific Northwest. South Atlantic, kind of mixed: Charlotte, I hear good reports; Atlanta seems to be overbuilt.

**Any advice for firms on how to weather the current economic climate?**

Try to diversify and develop strategic partnerships with firms in other areas or sectors. Get back to serious marketing. Now is probably not a good time to add staff. In general, they should hesitate to expand, stay close to the vest in terms of what they're doing, pay a lot more attention to current clients, and reconnect with former clients.

**Where do you fall along the spectrum of current economic forecasts? Are you being cautious? An optimist?**

Providing advice to architecture firms, I try to be cautious. If I say things look like they might be weak and it turns out they're pretty strong, that's an annoyance, but probably not fatal. If I say it looks like things are going to be strong and they turn out to be weak, that could be fatal. When I started at the AIA in the mid-1990s, there was a board resolution to get an economist on staff because of the severity of the downturn from the early '90s. I've heard stories—almost impossible to confirm—that 25 percent of architecture firms in the U.S. went out of business.

**Has the profession wised up, gotten better at business?**

Firms have gotten more sophisticated and, for that reason, more cautious. They've also got more arrows in their quiver to fend off problems. They're more diversified, they're bigger, they can cope with cycles better than 10 or 15 years ago. The flip side is that our memories tend to be short. There is a generation of architects that hasn't gone through a recession. A lot of folks I talk to say, "Things have been great for the last few years. Why are you bothering us with this stuff?" It's easy to understand that perspective. ☺

# positive energy

**Abu Dhabi's Masdar City promises to set a standard for sustainable urbanism. Its proposed centerpiece—a high-performance complex by Adrian Smith + Gordon Gill Architecture—could do the same for sustainable building.**

**IF THINGS GO ACCORDING TO PLAN**, it won't be long before Masdar City in Abu Dhabi is the undisputed pacesetter for sustainable design practices. The desert city—with its highly publicized master plan by Foster + Partners of London—broke ground on Feb. 9. Developed by the Masdar Initiative, a government program for “energy security, climate change and truly sustainable human development,” the project boasts a \$22 billion budget and the goal of being zero-carbon, zero-waste, and zero-energy.

Near the city center, the Masdar Initiative plans to build itself a headquarters that will be the world's first large-scale, mixed-use, “positive-energy” building. In other words, the 1.5-million-square-foot complex will aim to produce more energy than it consumes. The schematic design emerged from a two-stage international competition conducted at breakneck speed (about six weeks from start to finish) and won by Adrian Smith + Gordon Gill Architecture (AS+GG)—a Chicago architecture firm launched just 19 months ago by seasoned SOM alumni Smith, Gill, and partner Robert Forest.

The project brief laid out square footage requirements, a mix of office and residential uses, and an ambitious sustainability mandate. Beyond that, the competitors were given a height limitation of eight stories, an outline of infrastructure and mass transit concepts, and a site plan indicating where surrounding open space is planned. Gill maintains that the headquarters will change the way buildings are designed, constructed, and inhabited. “Philosophically,” he says, “we are seeking to absorb the environment and use it to its best advantage.”

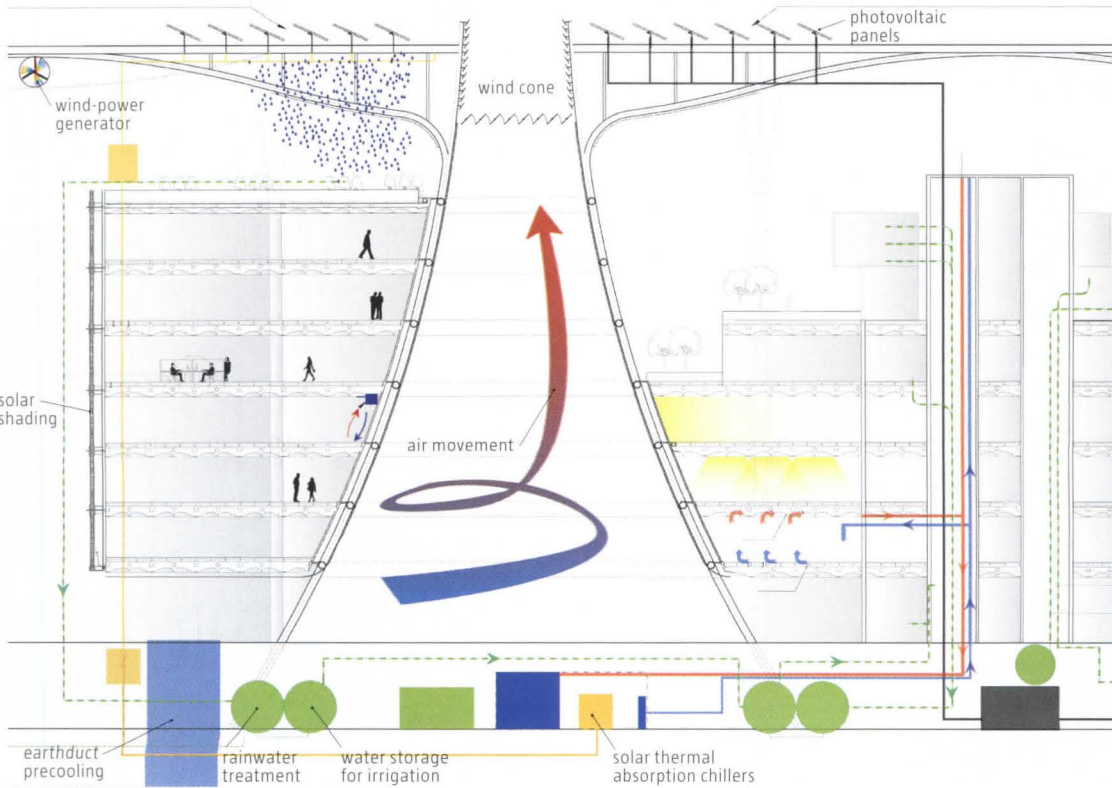




# building section



# environmental systems





## wind cones

**ELEVEN TOWERING**, glass-enclosed wind cones perform many critical functions. At the top, they provide the structural support for the building's curvilinear roof. At the ground plane, they delineate courtyards that serve as entrances, orientation points, and giant intakes to bring ground-source cool air into the building. In between, they siphon warm air up and out of the building and allow diffused daylight from the roof-top into the office floors below.

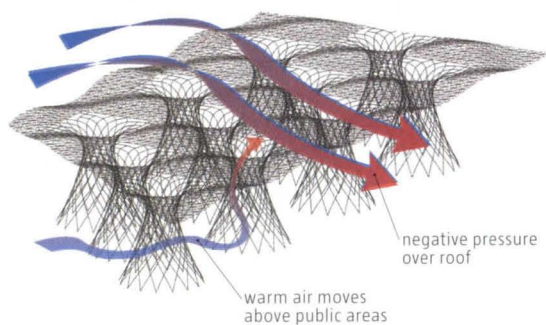
To aid pedestrian movement, the cones are placed at strategic locations connecting with paths penetrating the site. Some cones serve as entries or gardens on the grand plaza to the west. Others are cut into the building, forming negative space on the east façade. Interior courtyards vary—some are landscaped, some have water features, others have suspended artwork or pedestrian bridges overhead. “We want to make each one memorable, to not be confusing or disorienting as one moves through,” says Gill. The overall layout is regularized to move people efficiently through the building.

While the exact number of cones may vary in the final design, the choice of 11

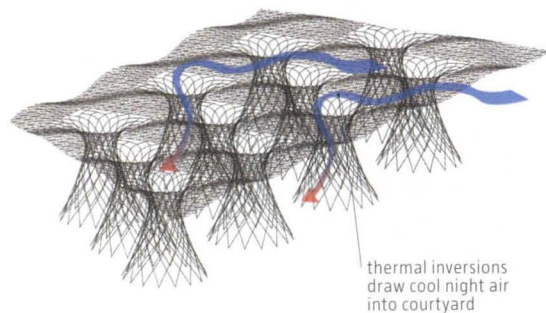
during the competition phase was based on pragmatic concerns, such as spacing, structure, and projected volume of air movement. The geometry resembles that of a nuclear plant cooling tower, promoting wind movement while preventing sunlight from shining directly on the interior glass surfaces below the narrow neck of the cone. Cones are organized in the core to optimize the penetration of diffused daylight into the office interiors. Workers adjacent to a cone will enjoy views into the courtyard, and operable windows would allow for cross-ventilation.

The design team is exploring the use of operable louvers at the top of the cones to close off the neck during dust storms. Caps on the top of the cones could also help in balancing horizontal air movement through the office space, says Gill, because one cone could be closed off and the next one opened to shift the pattern of air flow. Engineers tested different orientations and forms for the tops of the cones, settling on a chamfered top with the high point facing toward the prevailing wind. This resulted in the most negative pressure at the top of the cone, promoting the greatest draw.

### daytime effect



### nighttime effect



## roof and garden

**AS+GG COLLABORATED CLOSELY** with its consulting engineers from the early stages of the competition. Gill says the fundamental idea of wind cones supporting a broad roof was no more than “a simple little section drawn on a piece of paper about three inches square” before the M/E/P and structural engineers were brought in to react. “With the idea of the cones and the roof, the structural engineers were important,” says Gill. “And that curve in the roof provides structural integrity.”

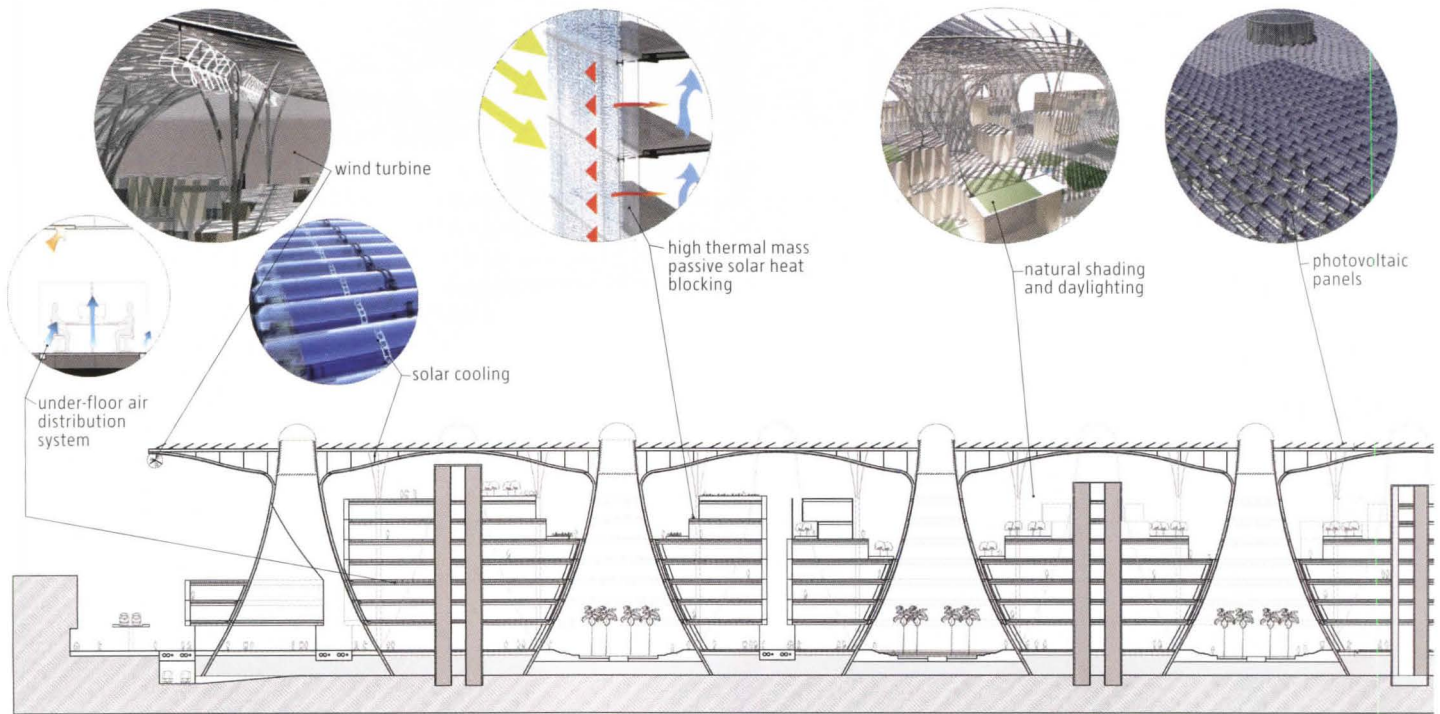
Gill likens the project to an oasis—a fragile microclimate in which a pool of water provides nourishment to palm trees, which in turn shade the water and keep it from evaporating too quickly. “So you end up with a canopy structure there that’s protecting the very source that allows the canopy to exist in the first place,” he muses. “It’s totally symbiotic—they coexist in this kind of equilibrium.”

Likewise, Masdar’s floating roof literally translates that idea by shading the building and creating a cool environment beneath, reducing the demand for air con-

ditioning. Plans call for the roof to be covered with a 290,000-square-foot photovoltaic array that will harvest the intense solar energy in the Abu Dhabi desert and convert it to power for the building. Beneath the curving roof, which articulates and promotes the pattern of air movement, is a vast garden space—what Gill refers to as “a displaced ground plane.” Residential units with human-scale massing are organized around the perimeter of the garden. Residents will enjoy views of the shaded courtyard or the city, which is limited to a height of six stories (two less than the Masdar headquarters). “It gives one a very unique perspective,” Gill says.

In keeping with its desire to build humane environments, AS+GG has already asked the client to consider the possibility of building the roof and cones first, which would allow the photovoltaics to provide energy for constructing the rest of the building while at the same time shading the construction site so that the workers aren’t toiling in the hot sun. The proposal’s practicality is still being evaluated.

## energy generation systems



## sustainable systems and materials

**THE BIG IDEAS AT WORK** in the building won't succeed without a nexus of sustainable systems and materials. "It's a tightly woven relationship between environmental systems, building performance, and usability," says Gill. If properly implemented, the latent systems and new technologies should produce 3 percent more energy than the building will use. And because of Masdar's central political control, excess energy can be transferred to the grid.

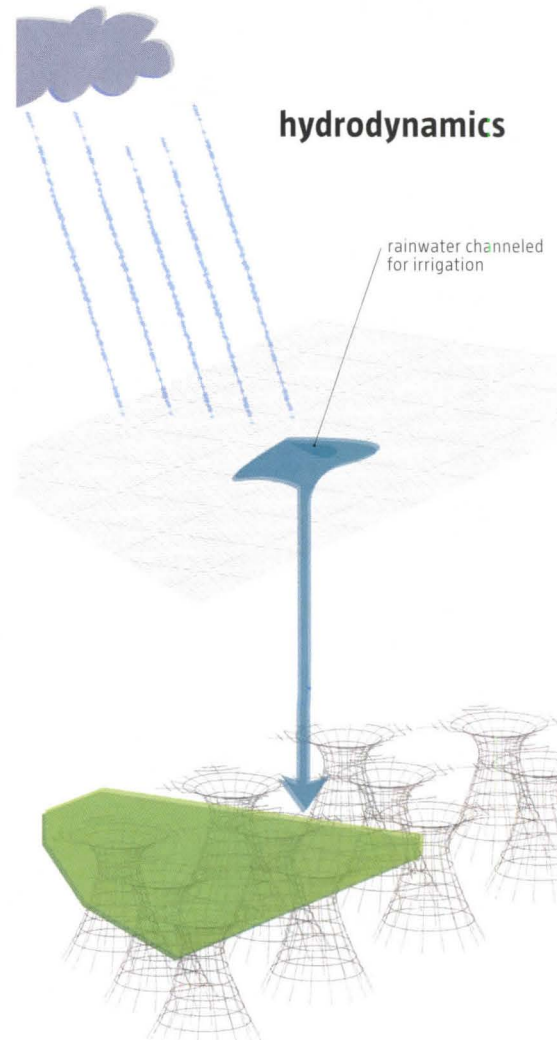
In addition to generating its own power with photovoltaics—envisioned now as polycrystalline cells on the roof surface—the building uses solar vacuum tubes for air conditioning. Plus a geothermal system is being explored for additional cooling.

The architects also are proposing the use of wind turbines for power generation, a technology they used in a Chicago high-rise. Gill says the inclusion of wind turbines is conjectural at this point, awaiting further analysis of economic feasibility. But if the turbines become a demonstration project, they may be justifiable simply for data collection, he adds.

As the project moves forward, a key area for research and development will be the exterior wall, a critical component in minimizing the building's thermal load. "During the competition, we were thinking in terms of a masonry wall, eight sto-

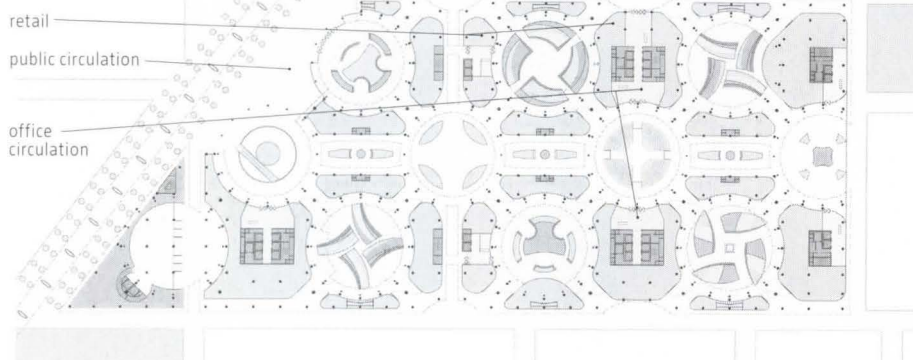
ries tall and solid, with maybe 30 percent open," Gill recalls. The ultimate goal is to thermally shield the building while allowing controlled daylight in to reduce the lighting load, and the design team is working with a manufacturer to develop a high-performance wall system.

Building materials will be evaluated with respect to what Gill calls "global environmental contextualism"—a phrase he uses to describe how a building should relate to its local environmental context while respecting its global context in terms of developing and available technologies. "What we are finding in terms of the sustainable performance of buildings is there can be a much greater global influence on the building," he asserts. "It can be winds. It can be solar patterns. But, especially in today's market, it can also be materials. One can look at a bigger pattern of access to material or at sustainable processes and bring those to the project in order to increase performance." In the case of Masdar, the client is demanding cradle-to-cradle office interiors. But Gill says that seemingly simple performance standard raises a host of other questions. Where do the products and raw materials come from? What manufacturing processes are involved? And how do those factors impact zero-carbon and zero-waste goals?

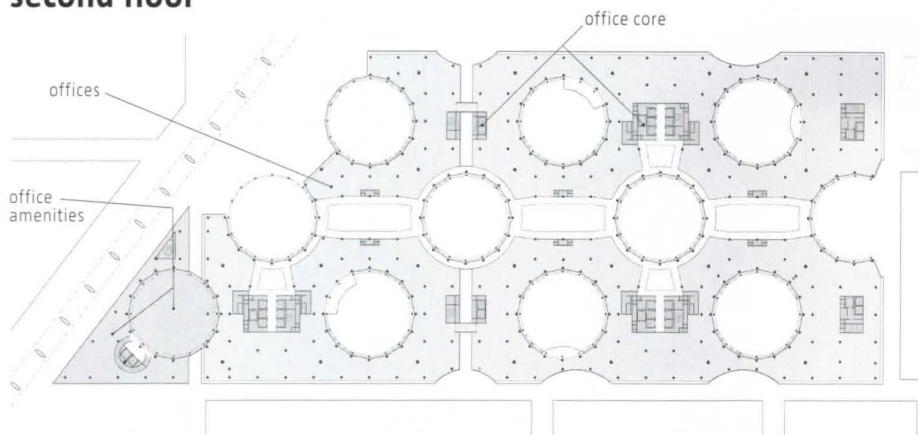




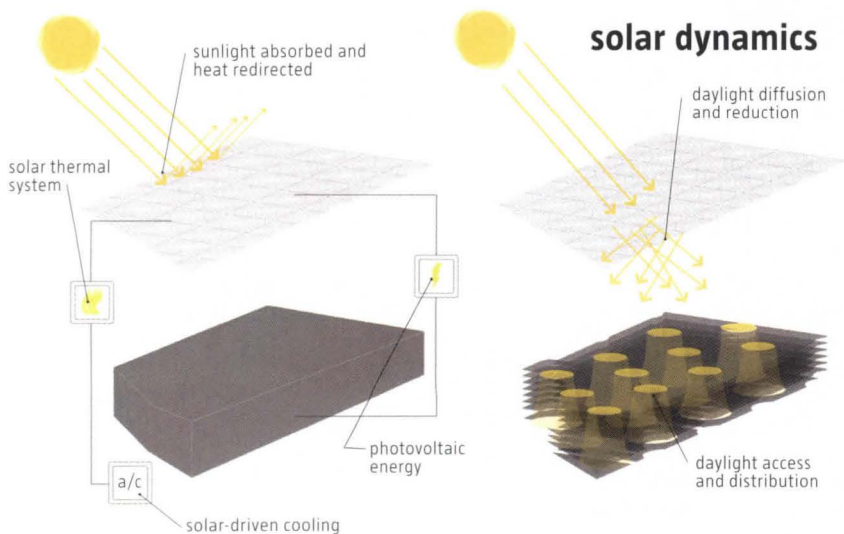
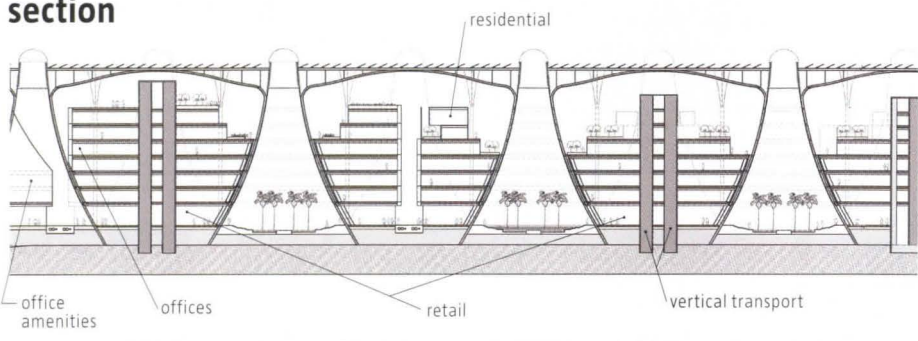
## first floor



## second floor



## section



# toolbox

## design and presentation

Adrian Smith + Gordon Gill Architecture designed the Masdar headquarters using **AutoCAD**, **3DS Max**, and **Rhino 3D**. This software combination allowed the architects to analyze the building in three dimensions.

### design concept



In the competition process, AS+GG also created 3-D fly-through simulations for the jury to consider. Most of the modeling was done in-house before being turned over to an outside consultant for material-specific rendering. Gordon Gill explains: "The final product is out-of-house; the process is in-house." Renderings are available for viewing on AS+GG's website, [smithgill.com](http://smithgill.com).

### solar studies

Once the basic design was in place, the architects uploaded the information into **Ecotect** ([squ1.com/products/ecotect](http://squ1.com/products/ecotect)), a building-design and environmental-analysis tool developed by Square One Research. Gill recalls that this particular program was very useful in planning the energy-generation tactics that will make the Masdar headquarters a positive-energy building. "We use Ecotect to run radiosity performance diagrams," he says. "In other words, you could run a solar study on it, which allows you to see where the greatest heat is occurring on your wall surfaces. You can begin to see where it protects it and where it does not."

### wind studies

The architects used other types of models, such as CFD or **computational fluid dynamic models**, to analyze the effect and performance of the wind cones. The engineers also used these models in more directed and specific tests on the wind cones. "They ran wind speeds of 3.5 meters per second to see what kind of negative draw they were getting on the cone vertically," Gill says. "So they knew what kind of wind they were creating."

**PROJECT** Masdar Headquarters, Masdar City, Abu Dhabi, United Arab Emirates

**CLIENT** The Masdar Initiative, Abu Dhabi, United Arab Emirates

**ARCHITECT** Adrian Smith + Gordon Gill Architecture, Chicago—Gordon Gill, Adrian Smith (design partners); Robert Forest (management partner); Les Ventsch (director of design); Gail Borthwick, Ying Liu (senior designers)

**STRUCTURAL ENGINEERING CONSULTANT** Thornton Tomasetti

**M/E/P ENGINEERING CONSULTANT** Environmental Systems Design

**SIZE** 1.5 million square feet



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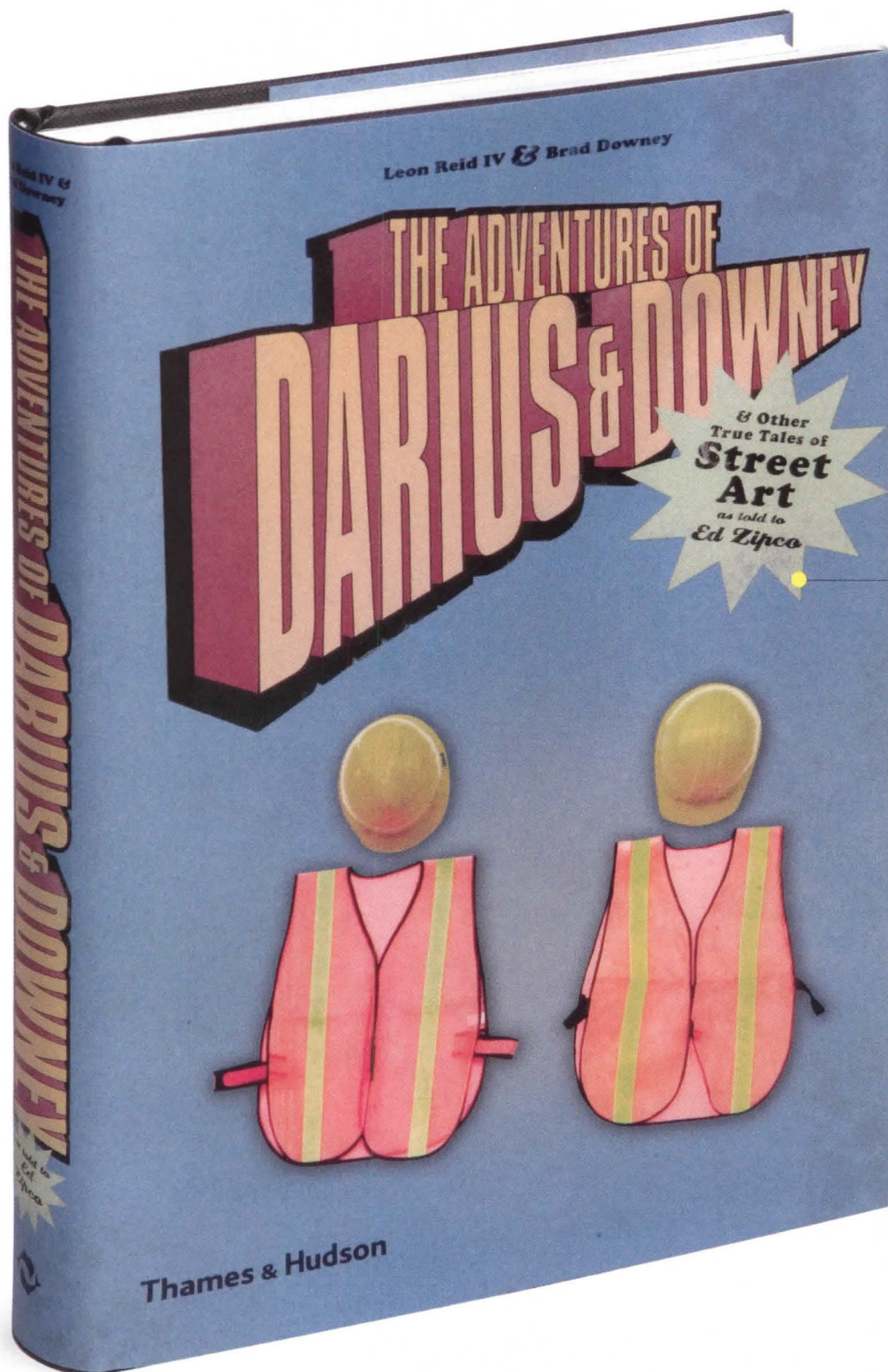
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Text Hannah McCann

# CULTURE

BOOKS, EXHIBITS, TRAVEL



## BOOK

**The Adventures of Darius & Downey & Other True Tales of Street Art •**

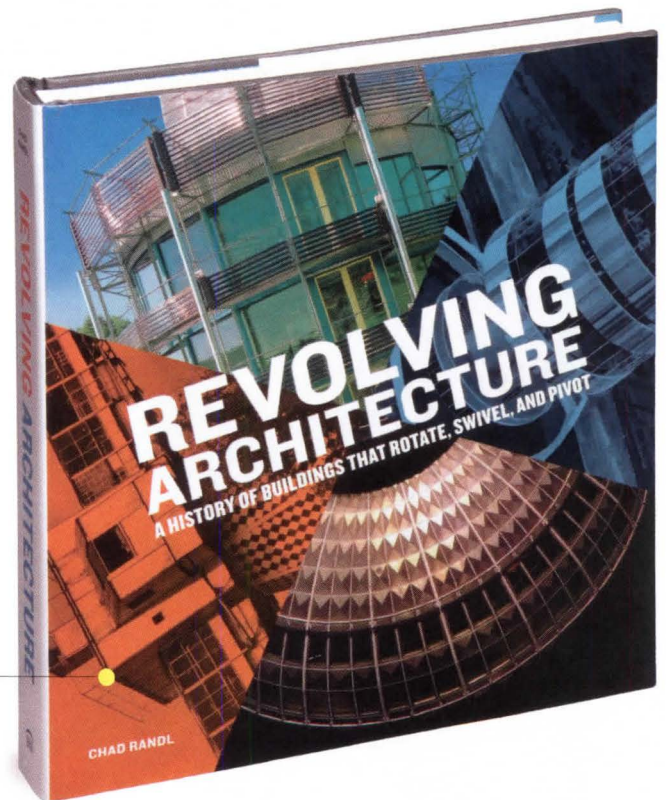
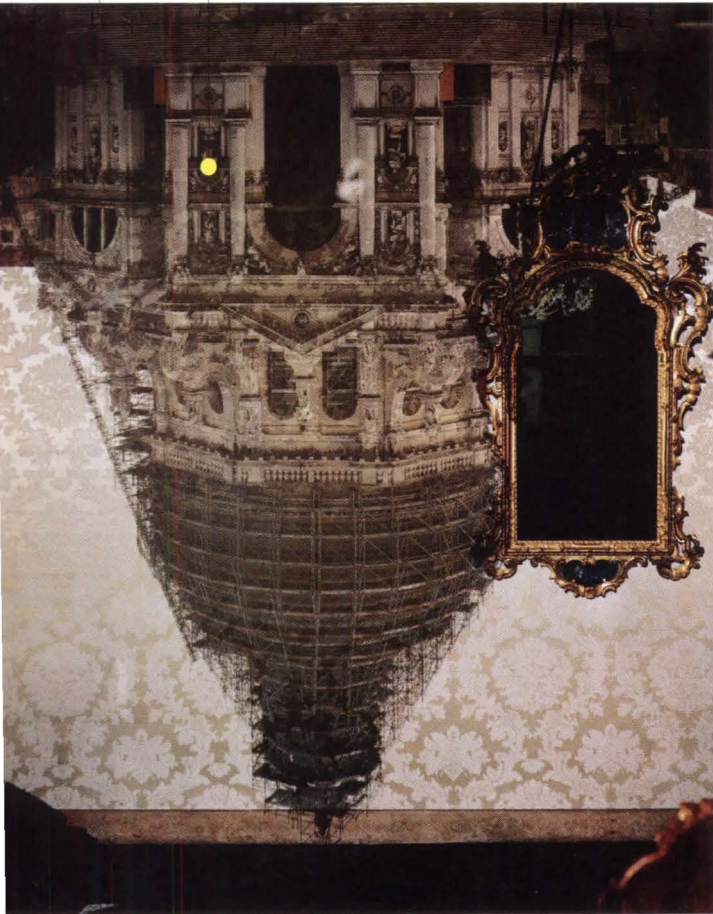
*As told to Ed Zipco by Leon Reid IV and Brad Downey* • With the heft of a respectable tome on art theory comes a true-crime story with two lovable vandals as the villains. Darius and Downey met in 2000 while students at Pratt and quickly evolved from graffiti taggers to masters of surprise who work by the light of day. Dressed as city workers, they calmly swap messages on street signs or bend poles into a delicate kiss. A photo gallery of projects illustrates their works' shelf life, sometimes as brief as an hour. *Thames & Hudson; \$29.95*



## EXHIBIT

**Behind the Seen: The Photographs of Abelardo Morell**

• Yale University Art Gallery • June 24 through Aug. 10 • Contemporary photographer Abelardo Morell explores the camera obscura, in which light enters a room through only one small opening and superimposes an inverted image of the exterior world on the opposite wall. See the effect in 40 of Morell's displayed photographs and in a specially created room in the exhibition. [Artgallery.yale.edu](http://Artgallery.yale.edu)



## BOOK

**Revolving Architecture: A History of Buildings That Rotate, Swivel, and Pivot**

• By Chad Randl • What makes people spin? The author of *A-Frame* writes a new chapter on the underdogs of architectural history, this time exploring the futuristic appeal, practical challenges, and spatial possibilities of rotating buildings. Applications throughout history include jails, hospital wards, theaters, and, of course, restaurants. Finding the rare surviving examples, Randl gets underneath to show the gears. *Princeton Architectural Press; \$35*



## TRAVEL

**Dig This** • Steamboat Springs, Colo. • Serious about breaking new ground? Architects can take a spin moving earth at Dig This, a "heavy equipment play arena" that opened last November in Steamboat Springs, Colo. New Zealander Ed Mumm launched the business after he discovered how much fun it was to use the heavy equipment he rented to build his new house. "The fact is a lot of us, subconsciously, have never left the sandbox," he explains. At Dig This, the grown-ups' sandbox is a 10-acre site in the Yampa Valley, a ski area about two and a half hours northwest of Denver. For either a half or whole day, supervised participants run the equipment: bulldozers, excavators, and skid loaders. You can doze or excavate dams and ponds or move rock around to different "work areas." "There's a lot of concentration involved," says Mumm. "After half a day, people generally have sensory overload." Corporate exercises are available for groups up to 30. \$350-\$650; [www.digthis.info](http://www.digthis.info)

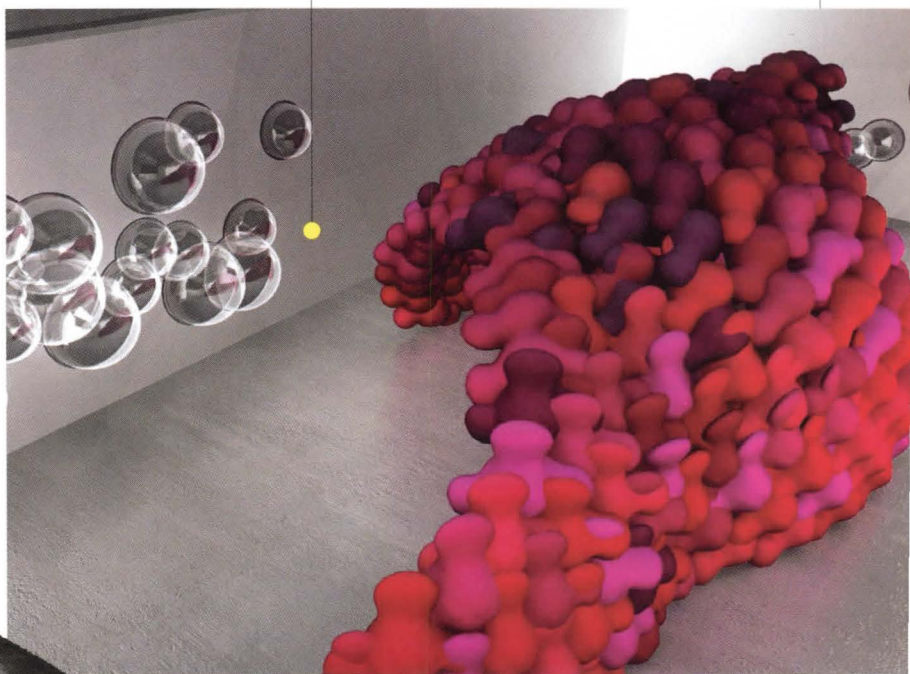


## EXHIBIT

**Designed by Architects: Metalwork from the Margo Grant Walsh Collection** • The Museum of Fine Arts, Houston • Through Aug. 3 • In 1981, the New York headquarters for Goldman Sachs was getting fitted out, and one of the company's partners was getting a new private office. He asked SOM interior architect Margo Grant Walsh to design a pedestal to showcase a collection of antique silver. Smitten, she started her own collection of metal goods that now numbers over 800 and includes copper, white metal, mixed metals, and jewels. On show are 50 works Grant Walsh owns by late 19th and early 20th century architects. [mfah.org](http://mfah.org)

## EXHIBIT

**Greg Lynn FORM: Blobwell Pavilion** • SCI-Arc, Los Angeles • Through July 13 • Working with polymer manufacturer Panelite, architect Greg Lynn has rethought the brick. His roto-moted plastic units are low-density, recyclable, and impact-resistant. In this site-specific installation, the blobs interlock to form a freestanding wall that takes on varied hues and curvy shapes. [sciarc.edu](http://sciarc.edu)



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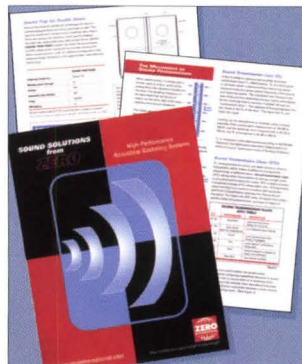
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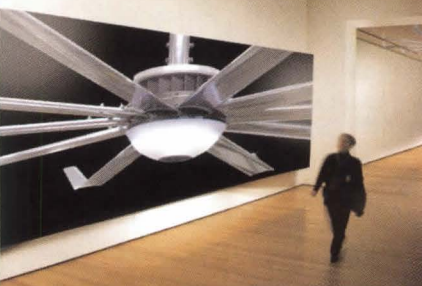
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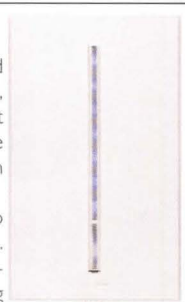


ARCAT is also the creator of SpecWizard, the automated online specwriting tool. All this and more is available free of charge at [www.arcats.com](http://www.arcats.com)

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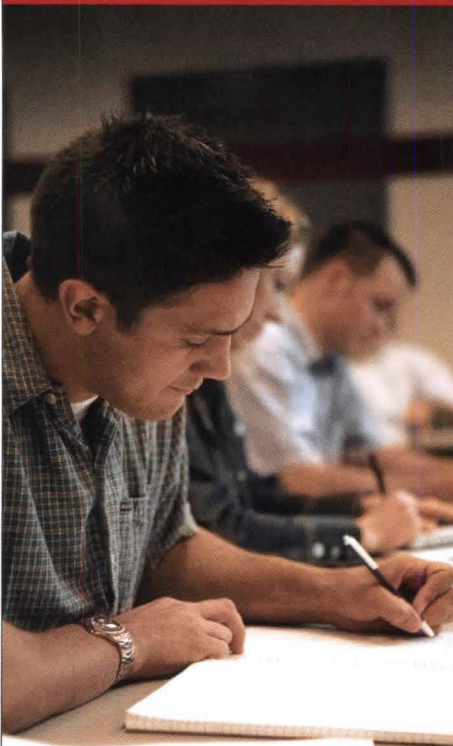
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## Q&amp;A



Caroline Harrison

# THE FILMMAKER

Interview Edward Keegan Photo Anne Hamersky

WHAT ARE THE PROBLEMS WITH SUSTAINABLE CONSTRUCTION IN CHINA? AND WHAT ARE THE POSSIBLE SOLUTIONS? A NEW DOCUMENTARY AND COMPANION WEBSITE ATTEMPT TO ANSWER.

#### AGE 30

**POSITION** Creative director, The Green Dragon Media Project, greendragonfilm.org

**FYI** Harrison has been making films for more than a decade, for both the BBC in England and the ABC in Australia. She spent nine weeks last summer visiting nine cities across China.

#### What background brought you to this project?

I met Max Perelman, the project's research director, at a café. He was off to China to do a research project, talking to government officials and top developers to find out what was going on with China's green-building industry. He was going to produce a PDF for the Monterey Institute of International Studies that nobody was going to read. This is a subject that a lot of people have questions about, and there's very little out there. I said, "Let's make a film about it." Three weeks later, we were on a plane.

#### Who is the film's audience?

There were two: Architects, consultants, and green-building professionals in the USA, people who are asking, "Is it time for my technology or service in China?" The other was the more policy-related, in the States and in China, who are trying to understand how best to accelerate that industry by hearing what business leaders are talking about and the barriers that they're facing.

**Recycling in China involves individual entrepreneurs gathering materials on bicycles. But if you want to bring**

**green building products to China, you probably have to be an 800-pound gorilla, right?**

As a small player, if you're foreign, it's going to be very difficult for you to find an edge in the China market. You will be copied if you have a successful product, and Chinese developers work with foreigners that are established and big. Because there are a flood of small entrepreneurial companies who have fantastic products that have a place in China, they're starting to form consortium groups where they join forces under one name, they have a series of products represented by one agent, and they sell group products rather than individual products.

**Arup partner Jean Rogers says in the film that once these consortiums are set right, the Chinese people will mass-replicate them.**

There are optimists across China who really believe this is possible. China is set up in a very different way than we're used to. A common misconception is that the Chinese government can snap their fingers and make anything happen because it's a one-party state. There is a lot of disconnect between the central government and what the local governments do. It's not just about going green; it's about saving a huge amount of infrastructure costs. They're spending \$35 billion a year on infrastructure costs for new second- and third-tier residential developments, and if they can save by building off the grid, then it gives them a huge incentive.

**One person in the film states, "We need to go back into Chinese history and retrieve good ways of living."**

Jason Hu, deputy general manager of China Merchant Property Development Co., is a visionary developer. He is in touch with true sustainability. It's not just about using the latest technologies; it's about reconnecting with a cyclical philosophy, something that they have lost in the last 20 years or so. The majority of the Chinese people still live in a very low-tech way. Traditional Chinese architecture is in tune with its environment, from ventilation to the type of clay that they use in the roof for heat exchange. It minimizes resources. China has a great thing on its side—the fact that they have such a strong and ancient culture rooted in that type of philosophy.

#### Is the film being shown in China?

We hope so. We have a distributor selling the film internationally, and we sent several copies to CCTV and Phoenix TV in China. If we did broadcast it in China, we have to cut a few sections that have any negative reference to the government because they're very sensitive to that.

#### What's your next step?

China's committed to reduce energy consumption by 20 percent of GDP by 2010. The local governments have to prove they're meeting certain goals. There is a mandatory course that every mayor in China has to attend. A group working with the Central Party School to form the sustainability curriculum has asked us to produce a series of films to understand some of the pioneering projects in China and in other countries.

→ Audio of this Q&A is available online at [www.architectmagazine.com](http://www.architectmagazine.com).

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