

# ARCHITECTURAL RECORD



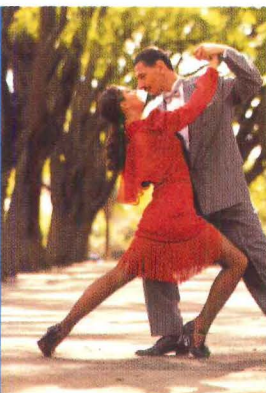
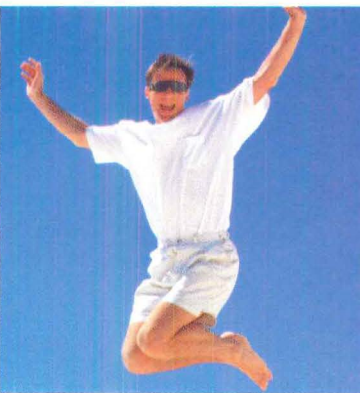
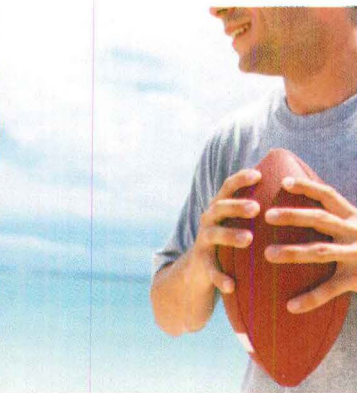
## Record Houses 2004

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## Indications and Usage

Do you experience a dull, throbbing sensation when performing boring, repetitive tasks? Do you become irritable when your drawings contain errors that require tedious and time-consuming revisions? Do you feel acute pain in the *gluteus maximus* region when you have to stay late to do your printing and plotting? If you answered "yes" to any of these questions, don't bother asking your manager: new AutoCAD 2005 is right for you.

## Dosage and Administration

New AutoCAD 2005 is potent medicine that relieves all of the above symptoms with a single application. How? you might ask. For the first time, new AutoCAD 2005 has Sheet Set Manager, which lets you create, manage, and share entire sheet sets simultaneously. It lets you work smarter and faster because it automates many of the tedious tasks that slow you down. Such as archiving, transmitting, creating, and updating the sheet index; creating tables, sections, and callouts; and placing and updating title block and page number. In other words, it lets you create intelligent sheet sets that automatically update themselves and radically reduce revisions.

There are many other cool features in AutoCAD 2005, like background printing and one-click publishing and plotting. These features alone are going to save you lots of time. Of course, since you'll be able to keep working while you're plotting, this may cut down on the number of coffee breaks. But the Surgeon General is asking us all to cut back on the caffeine anyway. Personally, after about four cups we can feel our scalp sweat, and we start to seriously lose our patience with others.

But we're getting ahead of ourselves. Chances are you're still using AutoCAD 2002 or an earlier version, so you've yet to experience the extraordinary performance of our last release, AutoCAD 2004. How good was it? Well, don't take our word for it. This is what Robert Davis of the Benchmark Group says: "AutoCAD 2004 . . . has the greatest and most compelling set of new features, functions, and enhancements of any AutoCAD release I have worked with. I think this release will be a must-have upgrade for every AutoCAD user." Taken together, the performance enhancement you'll get from these last two releases will blow you away. Almost every design and drafting task is simpler, easier, and faster, no matter what kind of work you do.

## Possible Side Effects

With new AutoCAD 2005, you're going to be finishing tedious tasks much faster, so you can spend more time on the more rewarding aspects of your work. That means you'll probably be happier. You'll also be more productive, so people might think you're taking one of the drugs they advertise in those weird pharmaceutical commercials on TV. How are you supposed to know if you need the stuff if they don't tell you what it's for? One more thing—if you're using AutoCAD 2005 and the people around you aren't, another side effect may occur: performance envy. Because when everyone else sees how much faster you're completing routine tasks, they can't help but be annoyed. Who could blame them?

## Precautions

Of course, there is the issue of what to do with your new free time. If you're the sort of person who gets into trouble easily, you may want to channel all your efforts into work. Who knows, you may be running the place in a couple of months. However, if you often find yourself choosing dinner from the office vending machine, we recommend you avoid the tuna sandwiches.

Perhaps you'd prefer to channel your newfound energy into home improvement. You could probably use a new redwood deck. Maybe a natural stone patio. You could redo the family room and make room for a big-screen TV. In the interest of fairness, you might remodel the kitchen and install one of those professional, stainless-steel stoves the size of an aircraft carrier. They're great for reheating pizza. Or you could dig up the entire backyard and turn it into a replica of Monet's Giverny gardens.

Or maybe you're an active, virile individual like Bob (shown in the photos at left) and will be spending a lot of time outdoors. If so, the Surgeon General recommends that you protect your skin from the sun's harmful UV rays. Use a sunscreen of SPF 30 or higher. Apply every three hours. When hiking, be sure to take along plenty of water and nutritious snacks. Some plants and roots are edible, but you have to know which ones. Generally speaking purple is good, red is bad. Unless it's the other way around. Nobody plans to get lost when they start out on the trail, but these things happen. So a compass might not be a bad idea and maybe a rain poncho, which can be used for shelter. And don't forget the snake bite kit. In any case, be careful out there. And if you've read this far, your persistence is remarkable. Either that or you have too much time on your hands already. So maybe you should get started on that deck right away.

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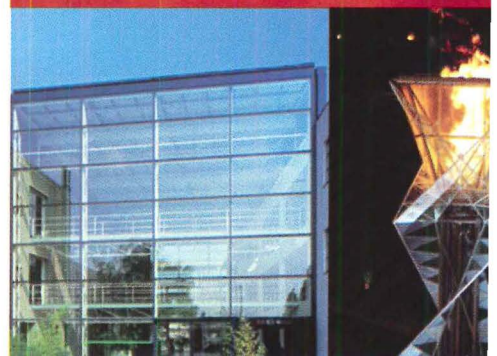
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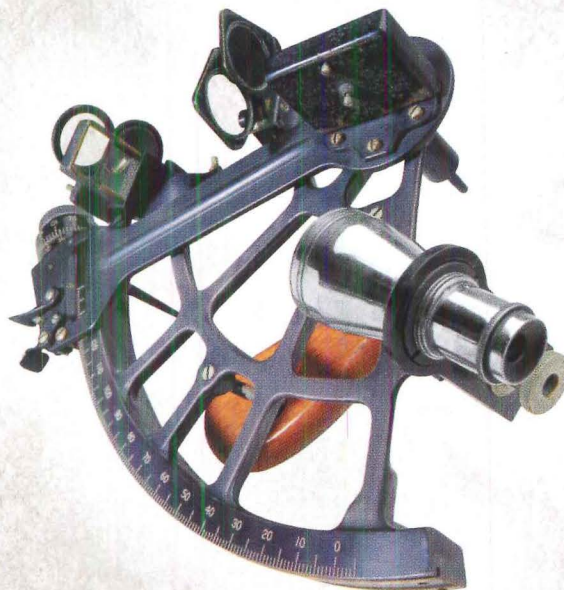
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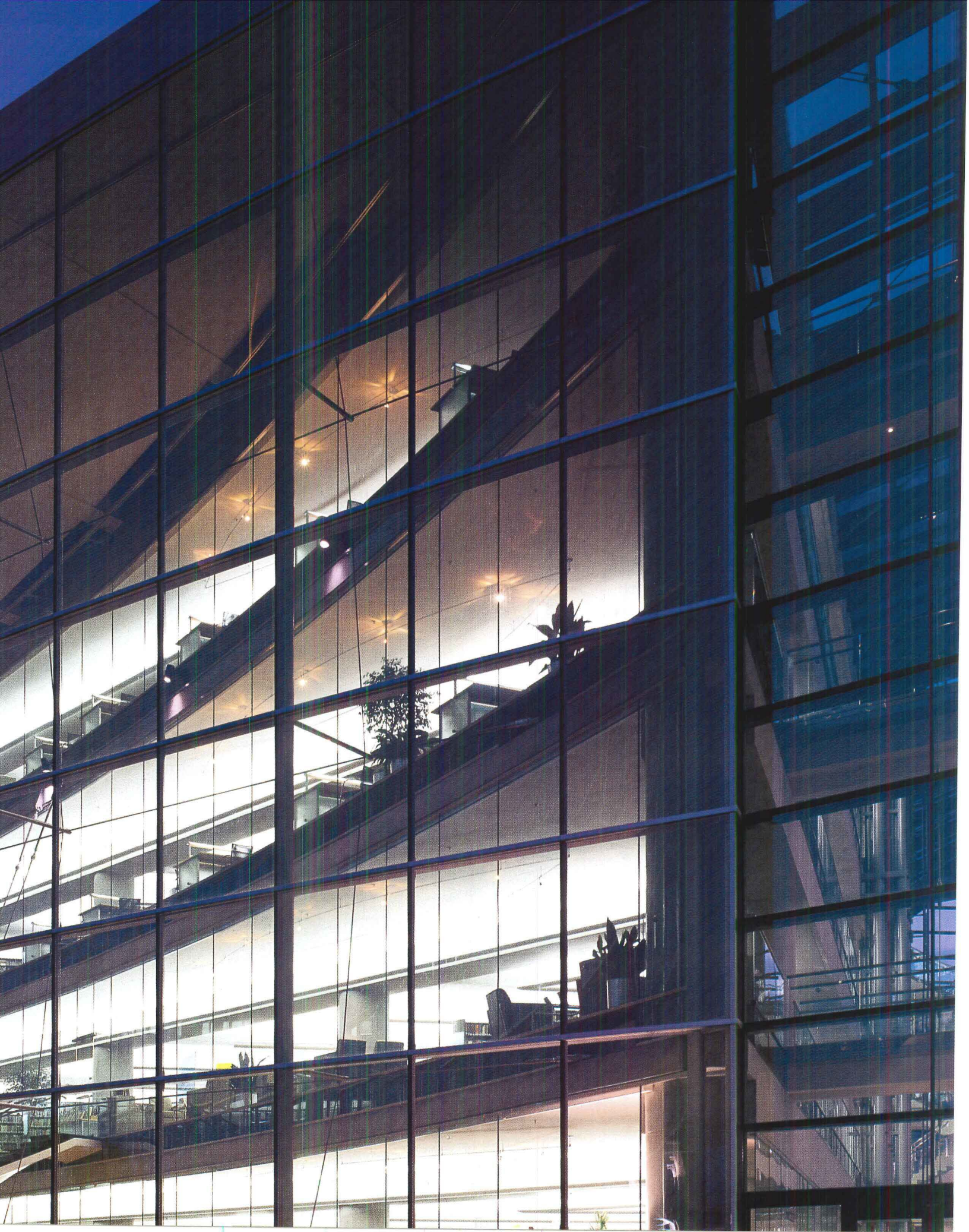
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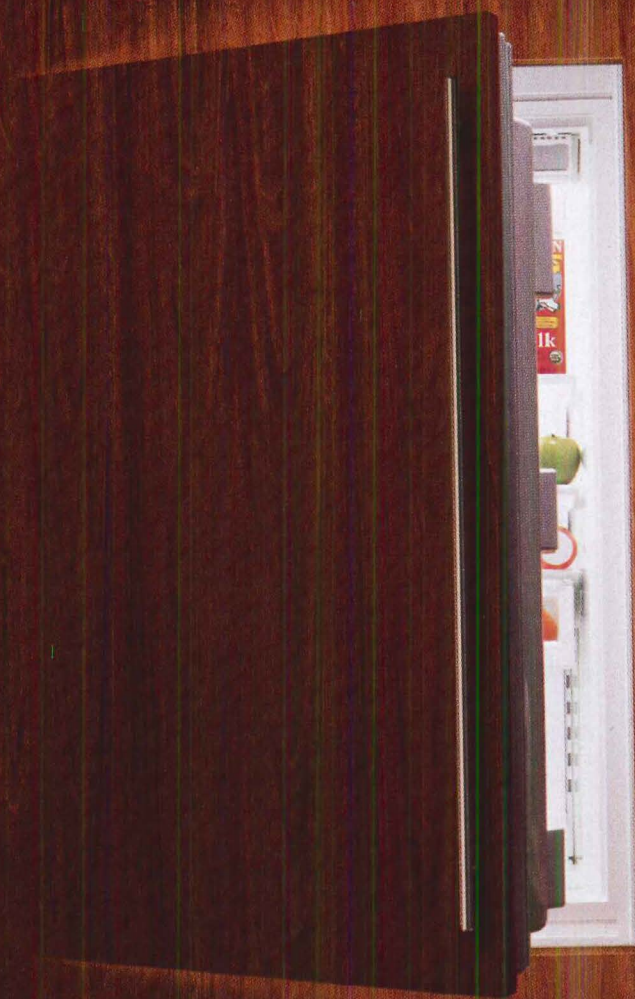
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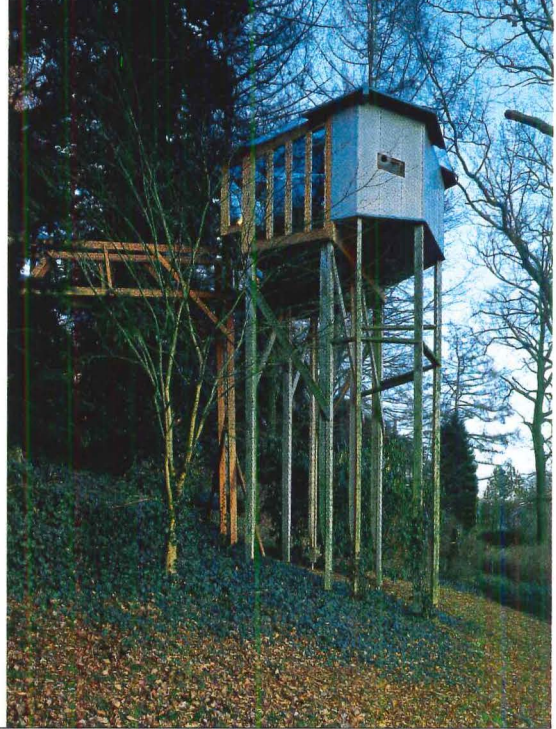


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The AIA/ARCHITECTURAL RECORD Continuing-Education Opportunity is "Aging Baby Boomers Want Smart Houses for Their Golden Years" (page 167). To find out about other Continuing Education opportunities in this issue, go to the box on page 167.

You can find these stories at [www.architecturalrecord.com](http://www.architecturalrecord.com), including expanded coverage of Projects, Building Types Studies, and Web-only special features.



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April 2004



Casa Equis / Photography © Jean Pierre Crousse

## Building Types Studies Record Houses

Make yourself at home in the 49th Annual Record Houses section. Experience the best in contemporary design from the coasts of Brazil and Japan to the wooded sites of Atlanta and Vienna. Find more plans, specs, and photos of these houses on our Web site.

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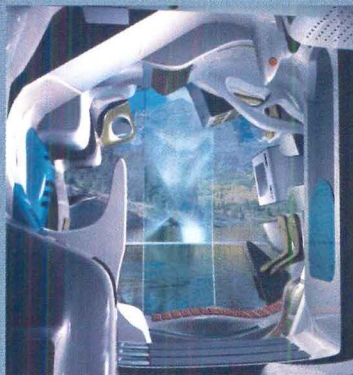
## Project Portfolio

This month, in a web exclusive, we feature unbuilt houses. All six residences will be built in the weekend retreat area of Sagaponac, NY. See what design-savvy architects like Shigeru Ban, Hariri & Hariri, and the late Samuel Mockbee have envisioned for future housing in Eastern Long Island

## Daily Headlines

Get the latest scoop from the world of architecture.

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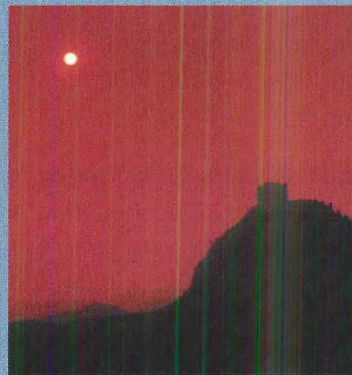


Courtesy of AllesWirdGut

## archrecord2

Continuing our Houses theme, this month we look at two concepts for truly alternative housing. In the RemoteHome, architect Tobi Schniedler connects two homes with internet-linked sensory and kinetic devices. Austrian firm AllesWirdGut has an altogether different spin on housing. On our site we have more photos and interactive features of these unique housing ideas.

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Photography © Sam Lubell

## China

Check out our special section dedicated to the recent surge of new architecture in China. Many Chinese cities are attracting locally and internationally known architects to enhance their skyline. We dig deep into our China coverage with young architects' projects and other firms' upcoming projects. Be sure to explore China with photo essays by editors of *Architectural Record*.



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## Products

This month come see what's new in our product focus on windows and doors. Also, read our trade show review of the Cologne Fair in Germany. You'll also find Product of the Month, more trade show reviews, and updates to our Green Product Guide.

## Receive CES Credits Online

Read *Record's* building science and continuing education self-study courses and file for CES credits. This month, learn the latest technology usage in university and industry research facilities.

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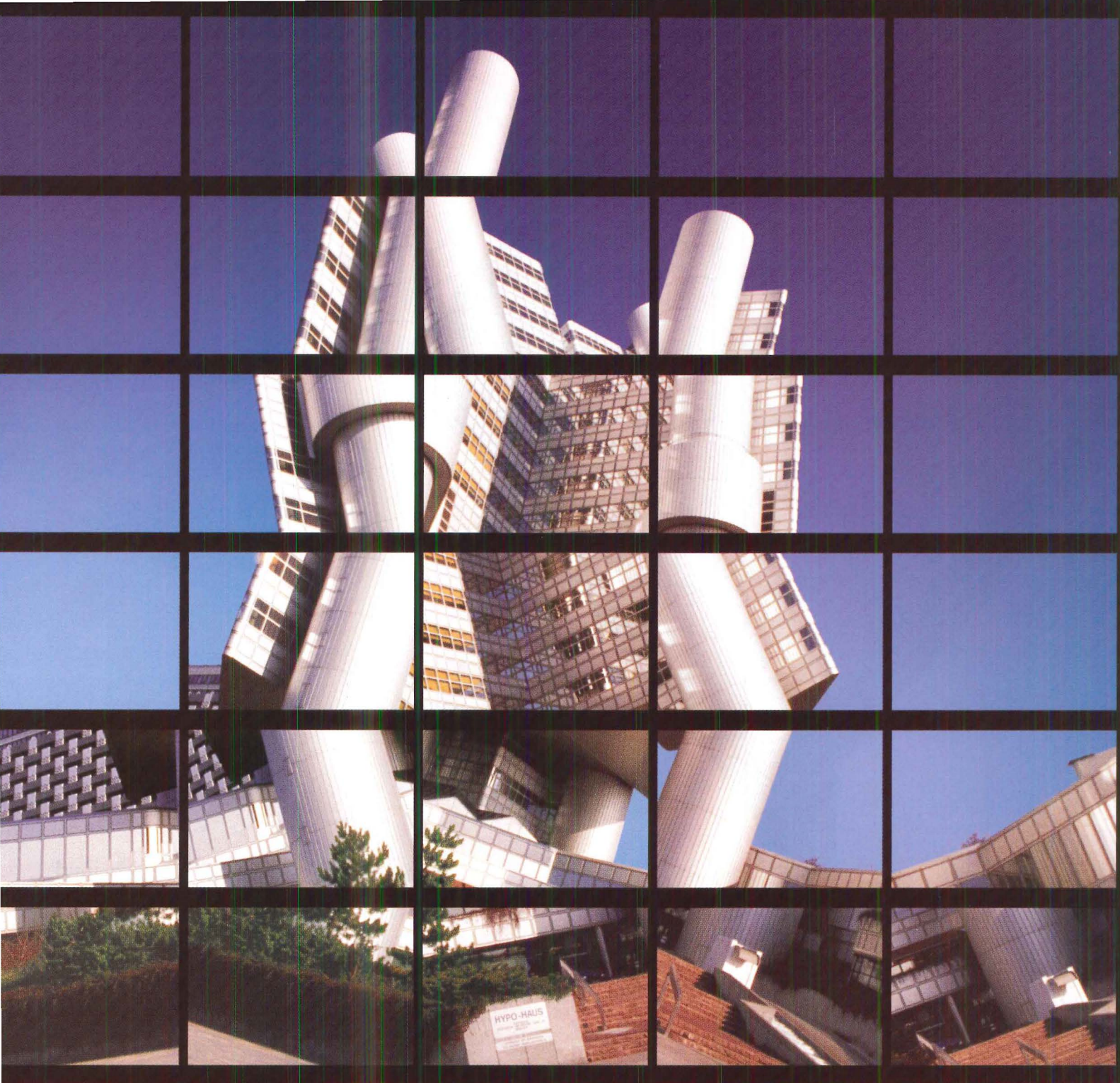
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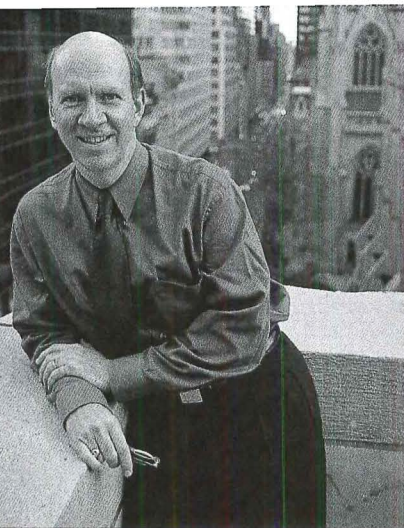
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## Editorial

By Robert Ivy, FAIA

**A**lthough architectural elements may constitute a language, strictly speaking, buildings cannot speak. That's why they make such poor characters for any movie or book—just standing there dumbly, emotionally inert, and only occasionally swaying about in a stiff wind. Imagine, however, an architectural subject striking enough to engage an educated reader with a gripping narrative, infinitely more compelling and commanding than, say, *The Apprentice*. Livelier than a Ken Burns documentary. As real, and as grand, as life.

It would take an epic. Fortunately, Daniel Okrent has ascended sky-high with his material, embracing the clutch of buildings forming Rockefeller Center as his protagonist, and weaving a tale as insistent as a Norse saga. If you read a single book about architecture during the coming months, or recommend a book for your banker or therapist, put away your Derrida this once and pick up *Great Fortune: The Epic of Rockefeller Center*. Who said architecture had to hurt?

Throughout its pages, the author conjures the soul of New York City. We all know the *mise-en-scène*, from the radiance of Radio City Music Hall to the heady, musical swank of the Rainbow Room, the articulated elegant cascade of the Channel Gardens to the Prometheus fountain. But how did such a coherent wonderment—limestone-sheathed, sculpturally insistent, tactile—come to be? Only in New York, says Okrent.

From the perspective of the architect-reader, the author tells a fully shaded tale. In a way that more ascetic architectural history cannot, Okrent casts a narrative thread for New York's and America's greatest urban ensemble that begins in fact, waffles through ironic twists, and builds in sonorous chords toward wholeness. Nary a pedantic whiff drags the edifice down. Instead, the author inserts a playbill filled with characters, coloring each scene with the moneyed and talented and peculiar folk who oversaw its birth: great designers like Raymond Hood, who forged the classic American Radiator Building (1924) and the turquoise McGraw-Hill Building (1931), and Wallace Harrison, who later planned the United Nations and Lincoln Center; Harvey

Wiley Corbett, who wrote for this magazine; and characters like S.L. Rothafel, aka "Roxy," the eponymous movie-palace czar; as well as great artists, including Diego Rivera and Georgia O'Keeffe. Along the ride, we encounter Depression-era architects—shoulder to shoulder in Manhattan's Graybar Building, churning out details—such as Edward D. Stone, who worked on Radio City but was fired on Christmas Eve for moonlighting while on the Rockefeller payroll. Who still connects Stone's name with Rockefeller Center?

Closest to a singular hero must be the client. The author offers an intimate a portrait of a shy John D. Rockefeller, Jr., thrust into a public role of gargantuan scope with structures that would eventually bear his family's name, and growing in calm assurance through the process. By contrast, his son Nelson emerges power-wired, it seems, and ready to charge.

Okrent washes this burgeoning mural with minute facts. Details both mammoth (556,000 cubic yards of Manhattan schist were removed before construction began) and granular (the actual bronzy color for the interiors of one building were derived from an ashtray handmade by an executive's daughter) complete the canvas.


The recorded tale has meaning from a contemporary perspective. Today, we confront a scenario in Lower Manhattan, where the scope of work on the former World Trade Center site suggests analogies, but no single family, institution, or personality holds sway. Without a didactic word, the Rock Center story portrays the intersection of human design and planning with fate, reiterating throughout the strength of willpower. Yet when the architectural stakes in the drama reach such heights, the author suggests, the protagonist overshadows and outlives the *dramatis personae*. Builders exit. Buildings remain.





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# Letters

## Welcome look at China

The March 2004 RECORD was one of the best issues ever. Coverage of the developing design and construction market in China was outstanding in every respect. A plus for me was your article about Brad Perkins and his current marketing efforts in China. When I first met and worked with Brad some 30 years ago, he was already showing great marketing promise. He obviously has improved and matured with the passage of time. Thanks for bringing me up to date on an old friend and marketing colleague.

—Gerre Jones, Hon. AIA  
Via e-mail

## Welcoming change in China

For a native of Shanghai, China, it's really special for me to see all the

changes that are happening in my hometown. As you said, "The international revolution has already taken place." Being the financial center of China, Shanghai has been through a lot of revolutionary transformation "affecting the country's social, political, cultural, and economic spheres."

I'm really glad that McGraw-Hill has not only seen that, but also stepped into the leading role of becoming a bridge between China and the rest of the world. I worked as an international HR consultant for the second-largest Chinese consulting firm for four years before I left for the U.S. I've helped many companies to understand Chinese history and culture so they could enter into the local market. China has opened her door to welcome friends all over the world and will pay back their hard

work with fruitful outcome.

—Rosy J. Zhang  
Via e-mail

## Leave China for the Chinese

Here's a novel thought: Leave China alone. Please. Leave China alone.

They were building places of great human scale, context, and beauty before the U.S. was discovered. They sure don't need us.

Chasing the work? Give me a break. I hope they chase all the blobs, twisted tubes, and glass boxes (and the architects who work 16-hour days to make even more money) back where they belong.

Did you really look at the "Projects Taking Shape" that you published? Based on your editorials, which I usually find enlightening, I am surprised.

Just because we can go into a country and rebuild it doesn't mean we should. Sound familiar?

—Ted Hoffman  
Labelle, Florida

## One for the rest of us

To defend RECORD's relentless overexposure of pop architects [Editorial, February, page 15] by stating that they "possess qualities we admire, including real talent, application of effort, organizational ability, savvy, media friendliness, and intellectual acumen," you are subjecting your readers to a ridiculous non sequitur. I thoroughly believe that there are scores of anonymous architects in this country and throughout the world who possess exactly those qualities you attribute to "our heroes," yet remain unheralded. RECORD is a fan-

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## Letters

tastic publication and is eminently capable of finding and illuminating the stunning work of architects such as Doug Garafolo or Krueck & Sexton. Yet work outside the elite bubble of famous names seldom graces your pages. Does possession of the above qualities lead to fame and a ubiquitous presence in your magazine or are there, perhaps, other factors at work? I'll admit, the work of our stars inspires me, and I buy RECORD to vicariously share their success. Yet I believe that the architectural community craves the work of good architects, not just famous architects. Going forward, I challenge you to take some risks. Do not eliminate, but rather tone down your coverage of the stars and increase your coverage of those architects who, while unknown, achieve greatness.

—Bryce Hanna  
De Stefano and Partners  
Chicago

### Remembering our influences

Throughout my architectural education (I am graduating in May), the learning process of “see, absorb, forget, create” was never directly referred to. After reading Robert Campbell's February Critique [page 57], I can now see that architectural education perpetuates that.

Primarily, an instructor's suggestion of precedents in studio projects, beginning in the first year, is based on this concept. Many buildings are looked at, and some resonate more than others do with the student. These combine and eventually formulate the basis of a future designer's architectural voice. This is how architecture becomes ingrained in the individual and part of an identity.

However, I am disillusioned with the idea that an architect must forget his most important architectural influences to validate

his own work. I believe that good architecture must be relevant to the current society. The most effective way to convince people of relevance is for the architecture to have a history.

Let the idea of a design stem from multiple established sources. Why are architects afraid of having a reference identified? It seems that if architects are proud of their work, they should be proud to identify their influences.

—Emily Stiene  
Bristol, R.I.

### Cut to the code

I would like to add my voice of full concurrence with Reginald Fuller [Letters, February, page 17] and Julius Pereira [Letters, March, page 19], who have spoken to the issue of safety in buildings and compliance with building codes.

I would like to see RECORD publish a full-scale article about architecture and codes; emphasis on and condoning of the AIA curriculum; and ongoing mini articles

about the codes, their changes, and methods for compliance. Of course, I would also like to see you publish, as examples to the youngsters, only compliant projects.

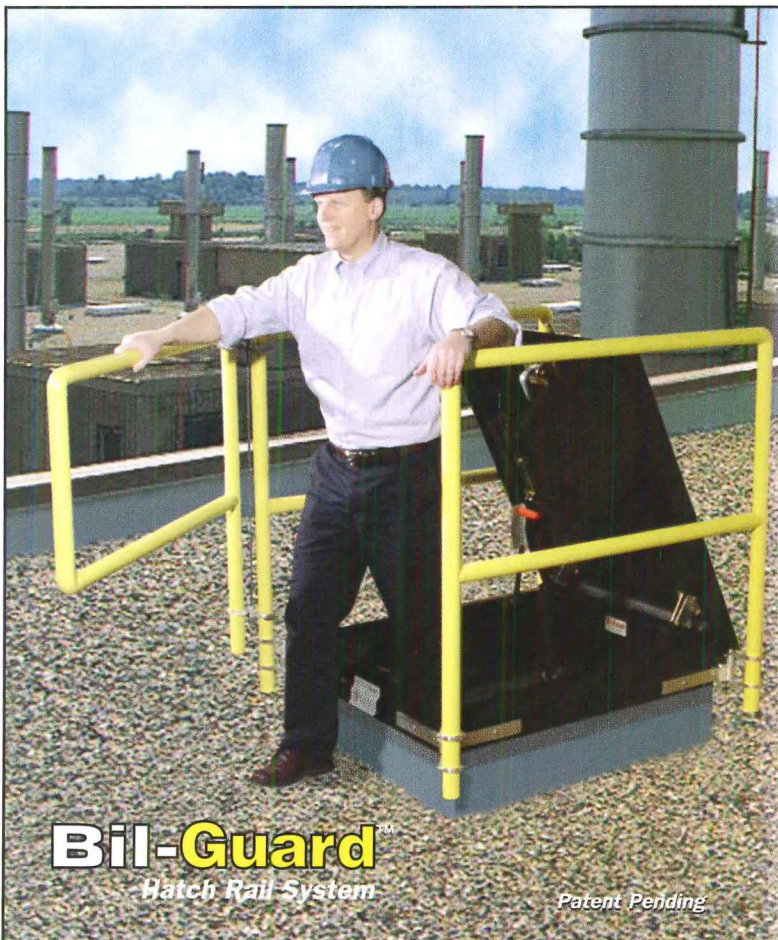
—Ralph W. Liebing  
Via e-mail

### Corrections

In the March issue [News, page 26], the list of AIA Honor Award winners in the Architecture category left out Steelcase's office building in Grand Rapids, Michigan, by Thomas Phifer and Partners. In the March issue's product section [page 210], the caption for Walker Zanger's Antium collection of micromosaics ran with an incorrect photo. The correct photo is shown below.



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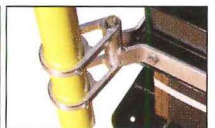
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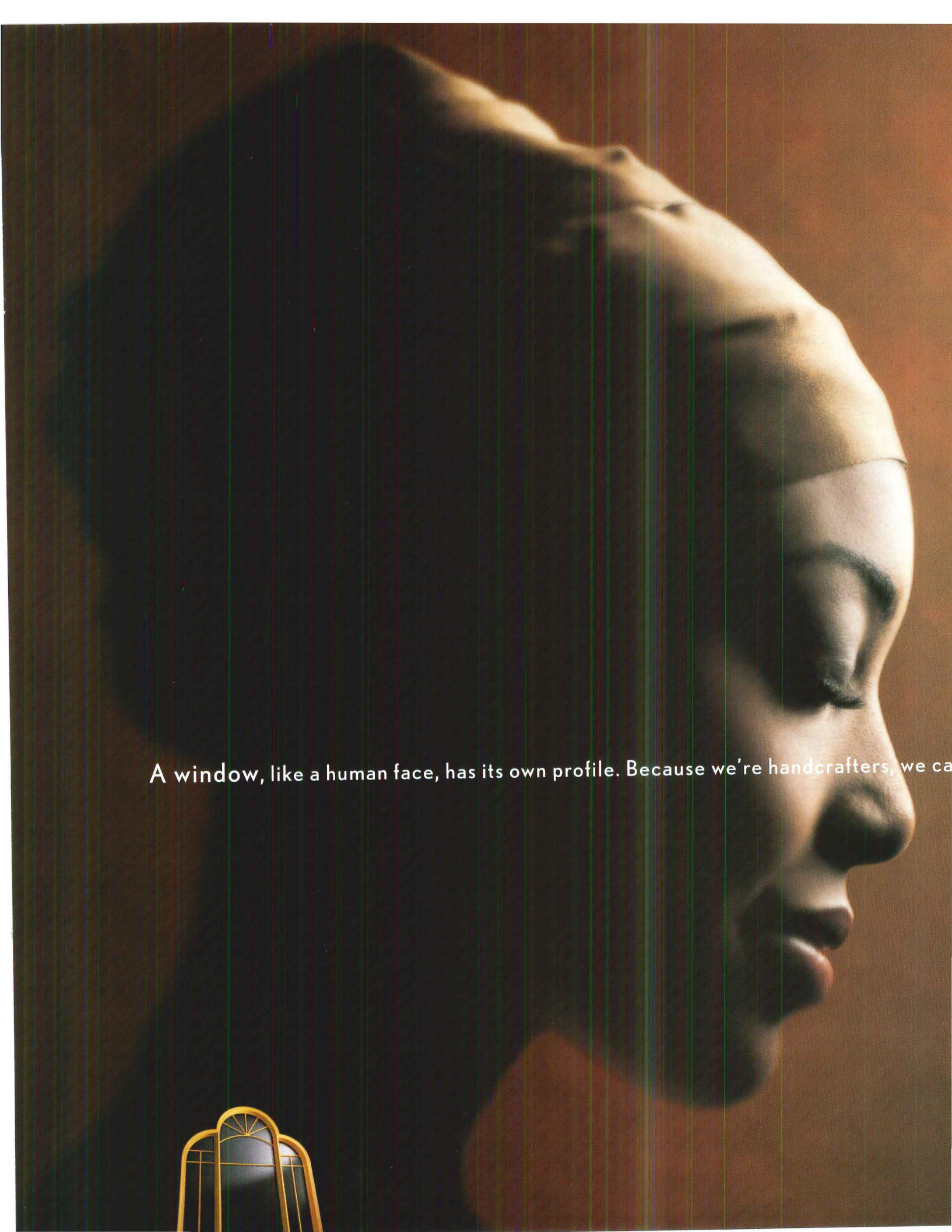


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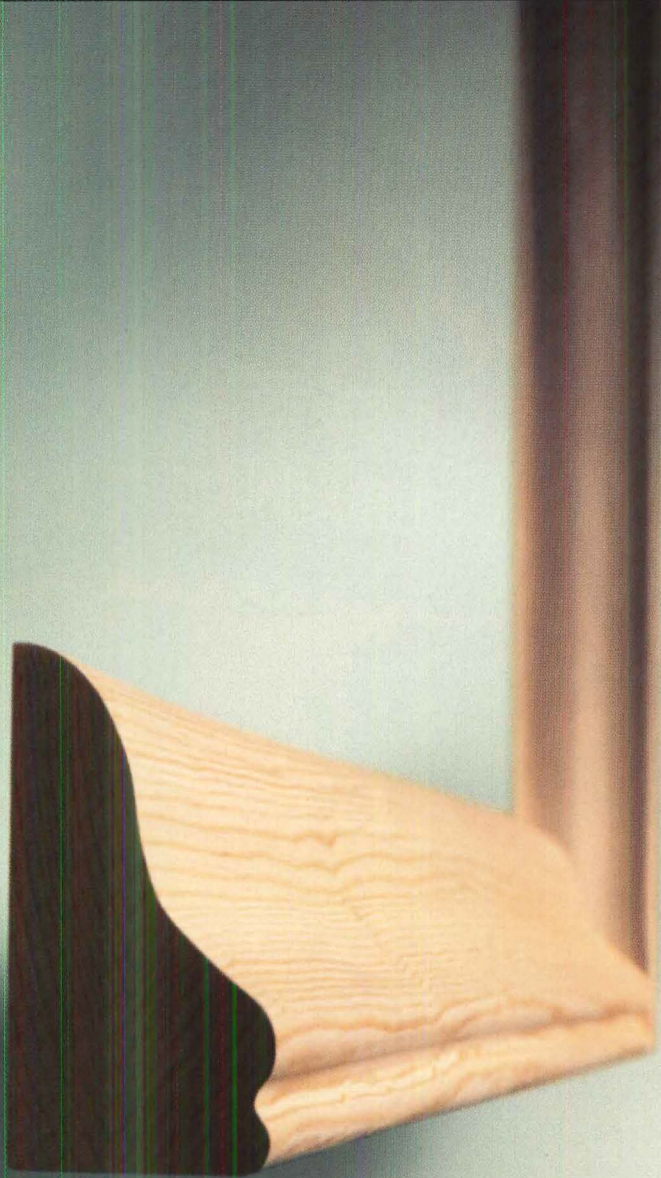




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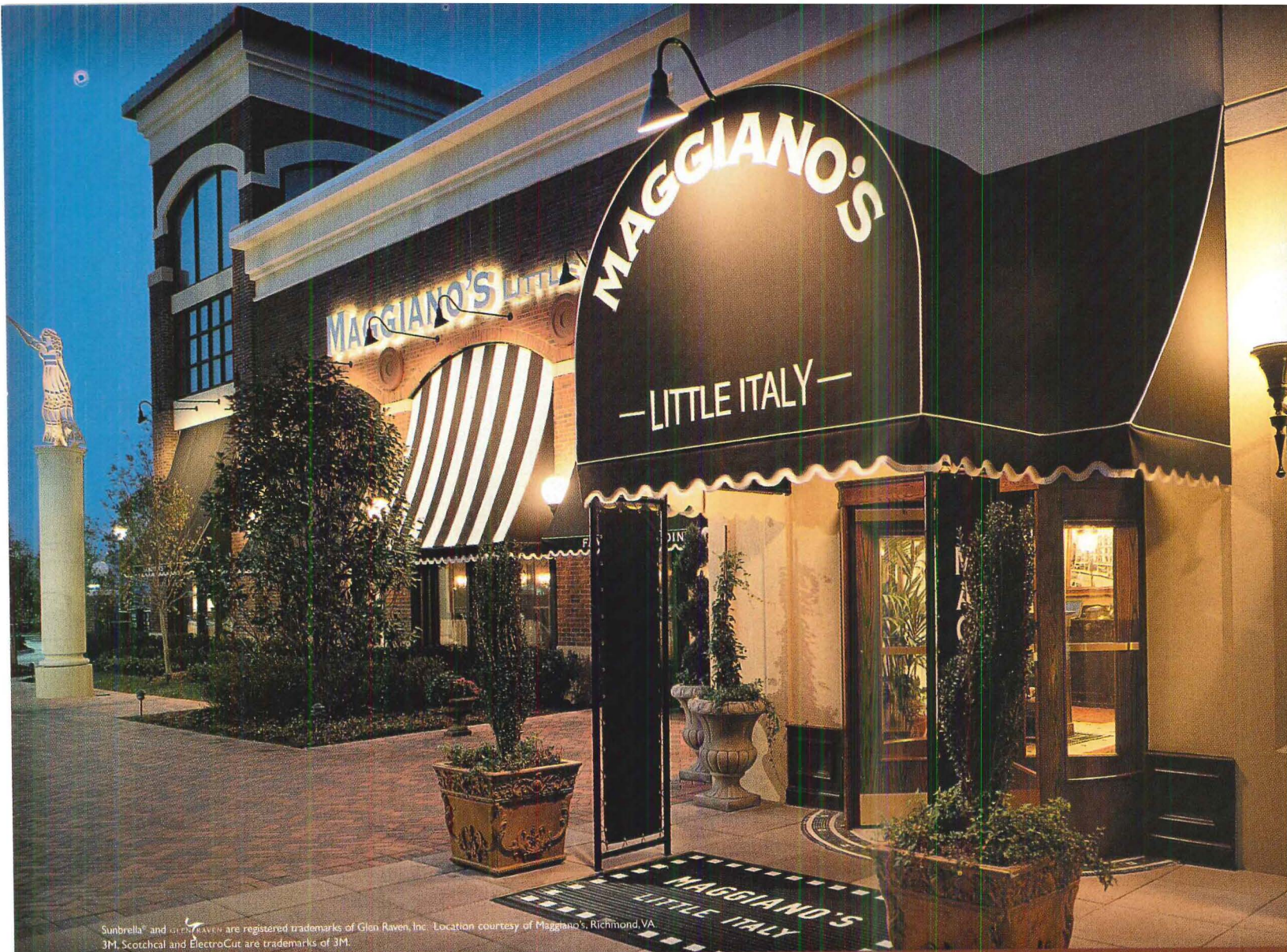
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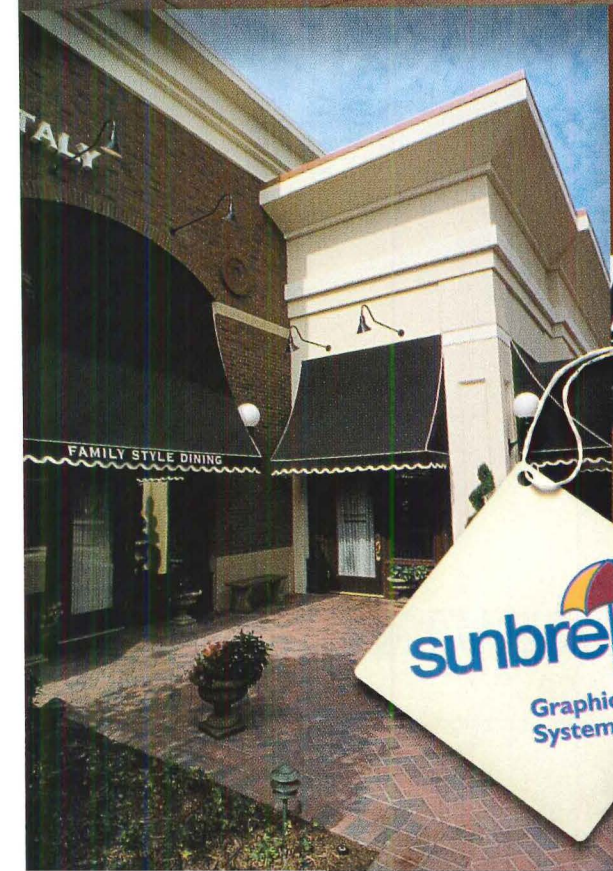
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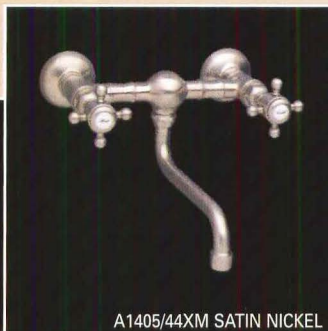


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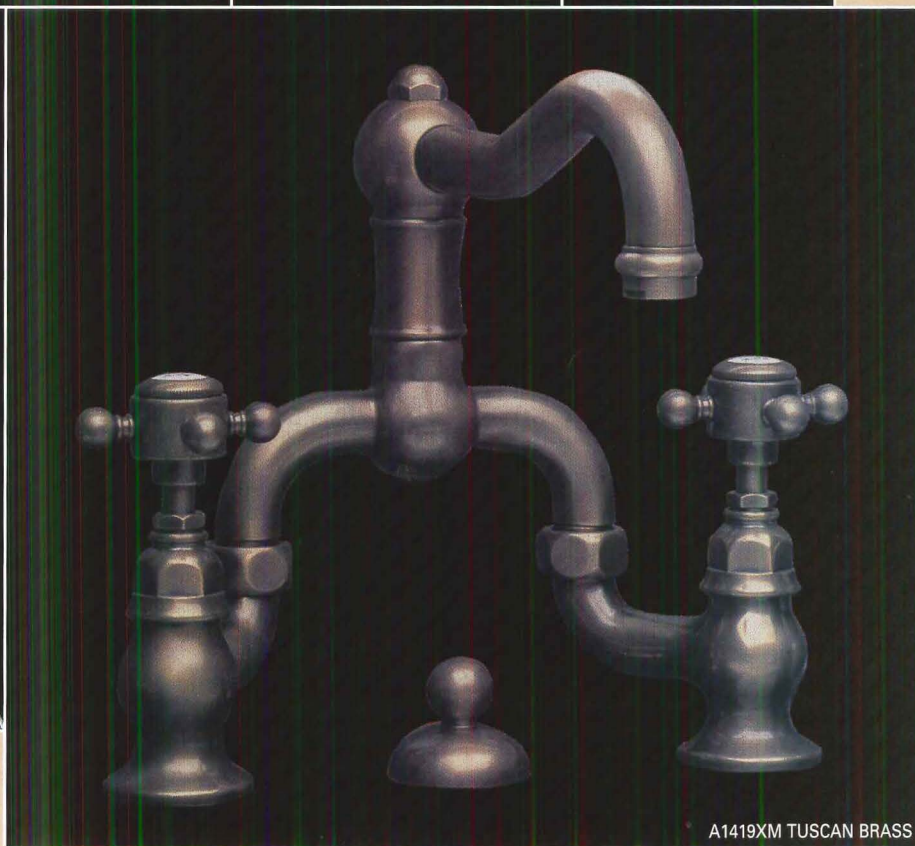
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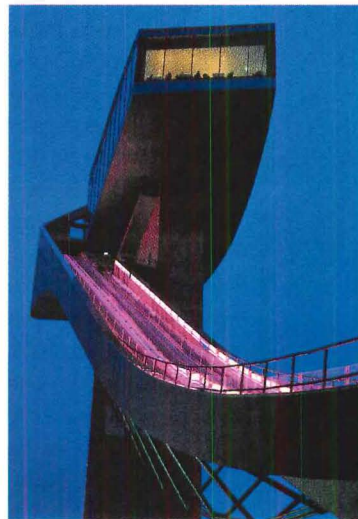
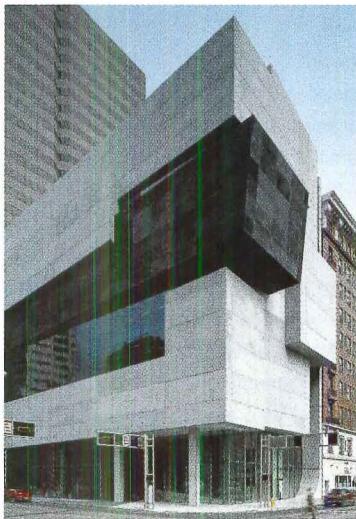
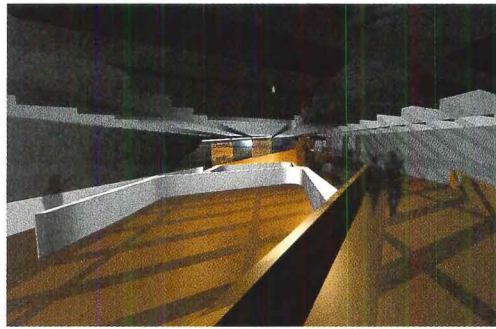
## Zaha Hadid becomes first woman to win Pritzker architecture prize

Zaha Hadid burst through architecture's ultimate glass ceiling last month, becoming the first woman, the first Arab, and one of the youngest architects ever to win the Pritzker Prize, the profession's most prestigious award. The 53-year-old, London-based architect, born in Baghdad, will accept the prize from the Hyatt Foundation in late May at the State Hermitage Museum in St. Petersburg, Russia.

Hadid studied at the Architectural Association in London and was briefly a partner in Rem Koolhaas's Office of Municipal Architecture. She has taught at Harvard, Yale, and the University of Chicago, among others.

Twenty years ago, she became a cult figure when she won first prize at the Peak International Design Competition in Hong Kong for her visually antigravitational design for a sports club. Cantilevered over the heights of Hong Kong, the entry introduced visual physics into the field that took new eyes to see. The design quickly proved a foundation for architecture, a precedent for shifting Modernism's paradigm from simplicity to complexity. Architecture has been catching up with Hadid ever since, and the Pritzker is the latest acknowledgment that this radically original architect has moved in from the avant-garde margins to occupy a central position in the field.

After a long gestation, she finally delivered her first major freestanding building, the Vitra Fire Station in Weil am Rhein, Germany, in 1993, and since then the commissions have accelerated, retiring the mistaken impression that her work was too difficult to build. The fluid contours of the



**Hadid (top)** has designed projects like the **Rosenthal Center for Contemporary Art** (above left) and the **Bergisel Ski Jump** (above right), and sketched future works like the **Price Tower Arts Center in Oklahoma** (top right).

Landesgarten Pavilion followed Vitra in the same city in 1999, and then the torquing Bergisel Ski Jump in Innsbruck, and recently, the triumphant Center for Contemporary Art in Cincinnati, whose unexpected geometries turned urbanity on its head. Projects now under construction include a huge BMW plant in Leipzig; the Price Tower Arts Center in Bartlesville, Oklahoma; a science center in Wolfsburg, Germany; the National Center of Contemporary Art in Rome; plus master plans for Singapore, Bilbao, and Beijing.

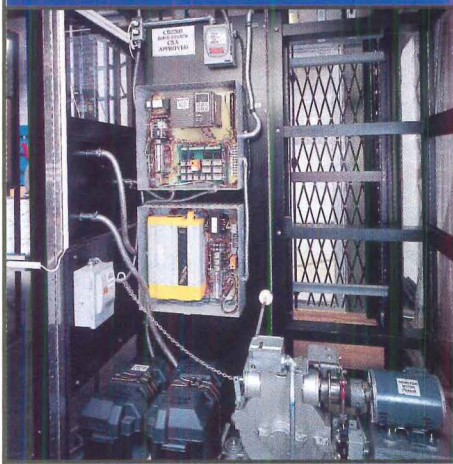
Each project has advanced what Hadid considers her ongoing architectural research, as she has explored issues like the multiple ground plane, sectional interconnectivity, occupied structure, and formal and spatial liquidity. Working with principal associate Patrick Schumacher, she has designed not blobs, but complex shapes integral and open to highly porous, layered interiors. Through all the projects, she remains an urbanist: The open geometries invite the city into her buildings in a reciprocal relationship. *Joseph Giovannini*

### PRITZKER PRIZE LAUREATES

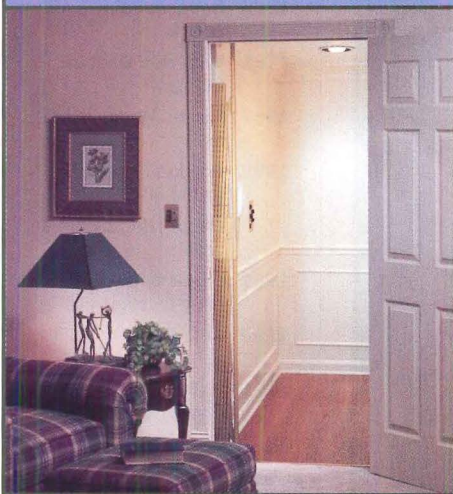
- 1979 Philip Johnson**  
United States
- 1980 Luis Barragán**  
Mexico
- 1981 James Stirling**  
Great Britain
- 1982 Kevin Roche**  
United States
- 1983 I.M. Pei**  
United States
- 1984 Richard Meier**  
United States
- 1985 Hans Hollein**  
Austria
- 1986 Gottfried Boehm**  
Germany
- 1987 Kenzo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

### REBUILDING LOWER MANHATTAN

## Families, community groups express concern at Ground Zero

Family and community groups involved in advocacy for the rebuilding of the World Trade Center site agree that the process is entering a new, more settled phase. For some this comes as a relief, but for others it's just the beginning of the battle.

Monica Iken, the founder and chairperson of September's Mission, an organization representing families of September 11 victims, feels comfortable with the current state of development. "Right now, I'm happy to be in this place, because it's been two years of nonstop fighting and proving to stakeholders that we can work together," Iken says. "I'm thankful now that I have the support of the governor and the LMDC, and I look forward to working with them."

Other groups, however, are not so content. The Coalition of 9/11 Families, a large advocacy group comprised of 9/11 family organizations, has polled victims' families and other interested parties and has found that many are unhappy about a number of matters, such as Michael Arad's design for the memorial. A major issue is the planned random listing of names.

"We can understand [Arad's] artistic motivation," says Anthony Gardner, a founding board member. "But we don't view this as a random attack; these people were killed as part of a calculated terrorist attack. For many people, my brother included, remains were never found, and the last thing we want to do is to come to the memorial and have to search for my brother's name on Tower Two, which would be inaccurate, since he was killed in Tower One."

Gardner also wants families to have access to 100 percent of both tower footprints at the bedrock level. His group is very concerned with the LMDC's handling of its section 106 proceedings, expected to conclude shortly, which examine federal construction projects that might damage historic properties. A finding of "no adverse effect" would essentially allow government agencies to proceed building on the twin towers' footprints unimpeded.

"Contrary to what the LMDC says, the outlines of the footprints are perfectly delineated on the site, an actual historic ruin," Gardner says. He also feels that the slurry wall that lines the west side of the site and the fragments of the structural box columns that remain on the site should be preserved.

Iken agrees that the names of victims should at least be listed in the correct tower's footprint, but she is less concerned than Gardner's group that families have access to the entire area of the twin towers' footprints. "Families understand that there is a PATH Station there," she says. She also differs on the proper use of historic artifacts above ground, such as the spherical Fritz Koenig sculpture that sat in the World Trade Center plaza or the remaining facades of the two towers. Gardner feels that those artifacts would help tell the story of what happened

on that day, while Iken believes that the families should have the choice to not be confronted with those reminders. "I don't think the site should glorify the destruction, since it doesn't allow people to have a choice about what they see," Iken says.



Box columns: historic artifacts?

Meanwhile, Beverly Willis, co-chairperson of Rebuild Downtown

Our Town (R.Dot), a community advocacy organization, is concerned with the LMDC's General Environmental Impact Statement (GEIS), which she says does not give a full idea of the impact that construction will have on the area. According to Willis, noise and street closings will surpass what the GEIS predicts, since it limits its scope to the boundaries of the 16-acre site itself. Projects such as the construction of a bypass for West Street, a proposed bus terminal, and the recently confirmed demolition of the Deutsche Bank building to the south of the site are not considered part of the construction. She also believes that there is no reason to allow the building of the project's office towers to last 15 or 20 years. She estimates a construction time closer to five years for a market-driven approach. "The environmental-impact process is beginning to force community groups to become militant," Willis said. "Up to this point, the attempt has been to cooperate fully in every which way, but it does not appear that the governor and his team are even listening." According to Willis, R.Dot also continues to worry about the privatization of the street in front of 7 World Trade Center, the "bland" memorial, and the large amount of subterranean retail planned for the site. "The next few months are critical," Willis said, "since there's still time to make changes that can improve on the present decision-making substantially." *Kevin Lerner*

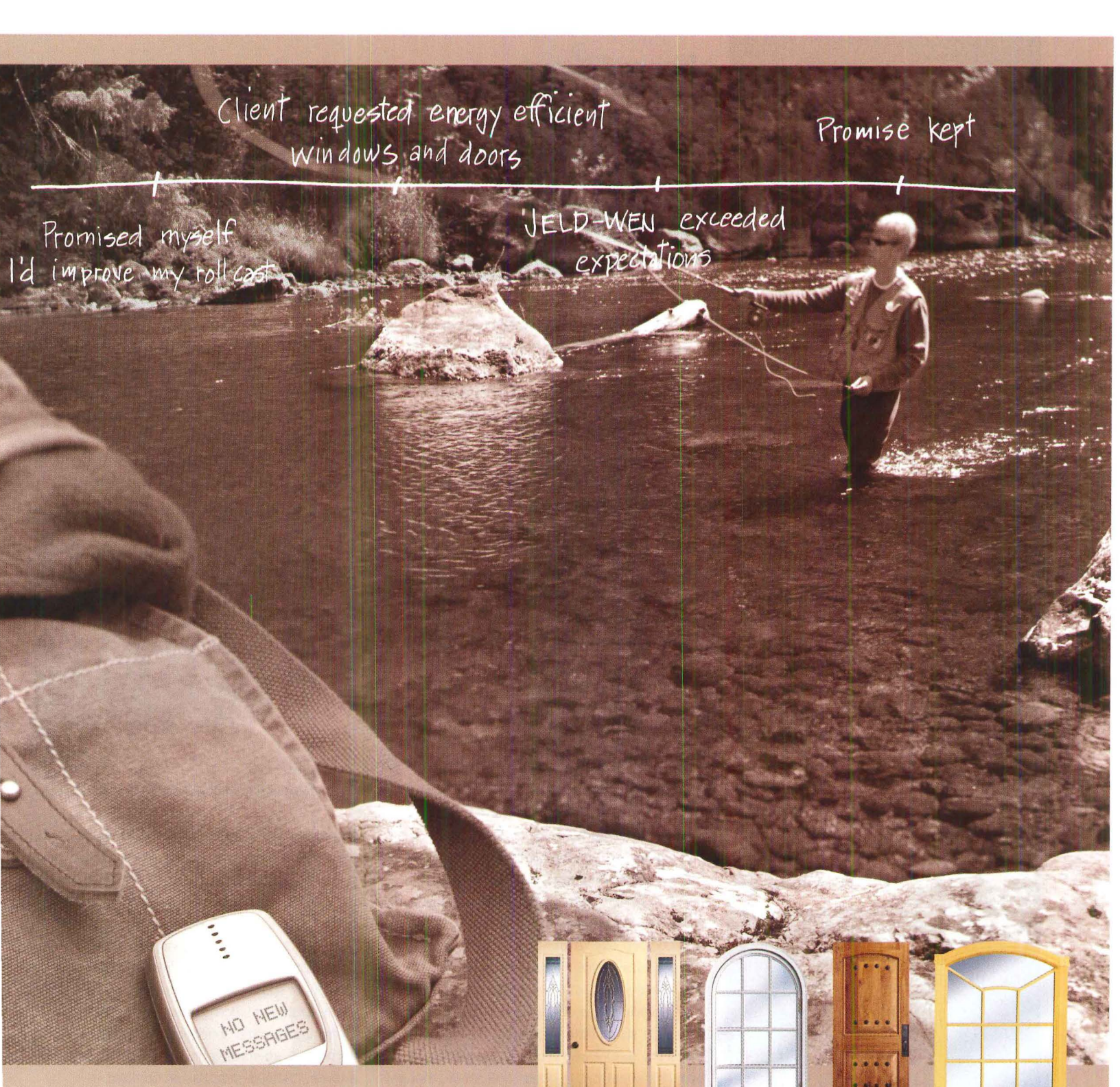


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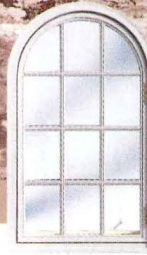
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## Record News

### REBUILDING LOWER MANHATTAN

#### Daniel Libeskind: Is his plan still around?

*Daniel Libeskind is the World Trade Center master planner.*

**ARCHITECTURAL RECORD:** Do you think your master plan for the World Trade Center still exists?

**Daniel Libeskind:** I think all of it is quite literally around. The Freedom Tower reaches to 1,776 feet. It has a garden. It is shaped to be part of an ascending spiral of skyscrapers. It fits into the master plan. The same is true for the memorial: The site goes 35 feet below street level; it has the slurry wall as an important design element; it has a waterfall and possesses space for cultural buildings.

Although it's not literally what was in my original images, it shows a robustness and a new kind of idea about a master plan. The master plan is not a bunch of lines on paper, it's about an idea. That's what has created the momentum and the consensus to let it be realized, rather than wind up in an archive. It's an evolution, not a compromise. It's the reverse of Potsdamer Platz in Berlin, which was just a bunch of architects following exactly what was on paper. This was a creative balance between the strength of ideas and a balance with individual pieces.

**AR:** Did you ever expect your drawings of the World Trade Center to be realized?

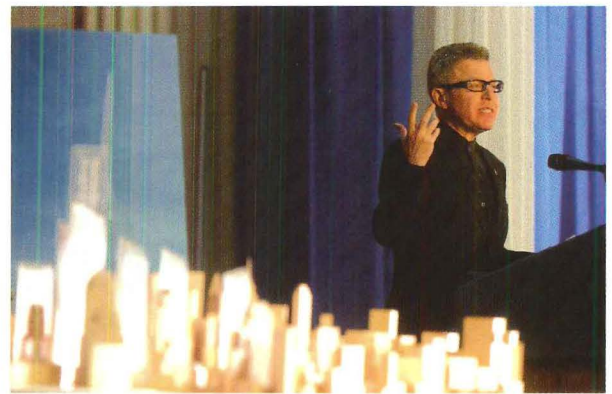
**DL:** Those were just the images, not the ideas. The superficial has changed, not the principles. There are some differences, but that's fine—that's the nature of the city. There were many opinions about it. I, in good conscience, thought I provided the maximum palate for the designers. You can say that's how a master plan becomes a reality. The boldness of it has to give way to all sorts of subtleties. This is the art of making a living master plan, rather than making an 18th-century plan that is obediently followed. We're living in a market economy. A plan that works is one that can unite all of those forces. A proscribed plan would have only been possible if I were hired as the sole architect. We're not living in Haussmann's Paris. We have a pluralist society.

**AR:** Do you have a bad taste in your mouth about the collaboration with David Childs?

**DL:** I'm not about to go into partnership with David Childs. But I did the best I could under the circumstances, which, given what happened, devolved to the point that I had to make sure that SOM would make a tower related to Ground Zero.

**AR:** Is the Freedom Tower design as inspirational as you had hoped?

**DL:** I'm not the architect. My role is very clear: To make sure the tower fits into the plan. I'm



Daniel Libeskind in front of a model of the WTC Freedom Tower.

sorry the collaboration didn't go further than that. It wasn't a team working on all aspects. It was really tough going. It wasn't creativity at its highest level—it was about other things. At some point, I gave up the idea of the architecture of the tower. My role was instead to make sure that whatever was designed was responsible to the concept of spatial relations, the right relationship to the Statue of Liberty, to the street grid, the roofscape, and the concept of spiraling towers. It's not an ego statement or a developer's idea of a tower. It should stand as an emblem.

**AR:** Did you expect so much struggle with your master plan?

**DL:** I'm not naive. I didn't think this was going to be easy. Why should it be easy? It's a complex process with many pressures and tensions, and you have to be part of it. There's something exhilarating about democracy; it has to be enjoyed and respected. I'm truly inspired by how the process has taken shape over such a short time. To do something like this in the public limelight, yet move forward so efficiently, is a testament to America. S.L.





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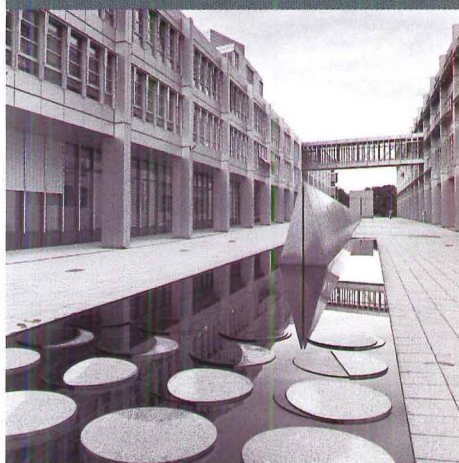


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## Record News

### REBUILDING LOWER MANHATTAN

## Virtual exhibition of all 5,201 WTC Memorial entries opens



(Clockwise, from top left): Richard Chambers's monument and aquarium; Temur Tailuri's spiraling "vertical town"; Yu Chen's hourglass and digital fountain; Nicholas Bessemer's arches.

artists' written statements as well as plans, sections, models, and renderings.

Entries range from the simple, such as Alistair Abernathy's radial plan, to the fantastic, such as Yu Chen's massive hourglass with a digitally enhanced reflecting pool that evokes the image of the twin towers, and Richard Chambers's futurist glass monument that includes a memorial aquarium. New York State

The Lower Manhattan Development Corporation has launched an online exhibition of all 5,201 submissions received for its World Trade Center Memorial competition. Located at [www.wtcsitememorial.org](http://www.wtcsitememorial.org), the virtual presentation allows visitors to search all entries by name, country, or entry number. Submissions include

had 1,755 submissions, by far the most of any area. Entries came from 63 foreign countries.

"This is an amazing collection of heartfelt contributions," said LMDC chairman John C. Whitehead. "A viewer is struck by the overwhelming task the jury faced in selecting the final design among so many outstanding entries." S.L.

## Team unveils design for WTC similar to original

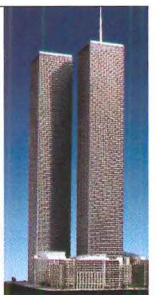
A team of activists, architects, and engineers who call themselves "Team Twin Towers" recently unveiled a design (right) for the World Trade Center that is an almost exact replica of the original twin towers. The team, led by journalist Randi Warner, with a design by engineer Ken Gardner and architect Herbert Belton, is lobbying aggressively for its design, called the "Plan of the People."

The idea consists of two towers whose sleek, rectangular forms are purposeful reminders of the original towers. In fact, one of the designers, Belton, worked on the twin towers' original construction drawings for New York firm Emory Roth and Sons. The towers are designed to be two stories taller than the originals, and the planned north tower is topped by a 500-foot-high mast to make it the world's tallest.

While similar in form to the twin towers, the new design, the team says, is built to be much safer. It has a steel skin built in two layers—a tube within a tube—that has much heavier columns and greater structural support. The design also calls for larger windows, much improved fireproofing, and two twelve-story memorials made of the original steel skin (along with replications of it).

The team says the design is a much more effective symbol than anything in the works right now. "It stands for resolve, it stands for strength, it stands for renewal," says Gardner. "To see the towers return would have an inspirational impact on the population. It's a living memorial, and I think it's more powerful than pretending 9/11 never happened."

But will it get built? "I think there's a pretty good chance," says Gardner. "We believe, based on polls, that the majority of people favor this." Gardner thinks WTC developer Larry Silverstein's plans won't go forward if he loses his upcoming insurance payment case. The team is now shopping its plan to corporations for possible funding. For more information, visit [www.teamtwintowers.org](http://www.teamtwintowers.org). S.L.



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## Record News

### Met and Uffizi undergoing major renovations and expansions

Two of the world's premiere cultural institutions—New York's Metropolitan Museum of Art and Florence, Italy's Uffizi Gallery—are expanding their gallery spaces to display art now left in storage.

The Metropolitan is undergoing a \$155 million renovation to the southeast end of its building. Designed by Kevin Roche, John Dinkeloo and Associates of Hamden, Connecticut, the project will create a new double-height, 46,000-square-foot Roman sculpture court with skylights and limestone columns where a restaurant once stood. First-floor and mezzanine-level offices and restrooms will become Etruscan, Hellenistic, and southern Italian art galleries. The 30-year-old Islamic galleries are also undergoing renovations, and a new, 9,000-square-foot gallery for 19th-century art is being added above the Oceanic galleries. Finally, the museum's education center will now have a new, 300-seat theater and more classrooms.

Scheduled for a late 2007 completion, the renovations, which will take place entirely within the museum's footprints, enable the museum to display 7,500 works, up from 2,500, says Harold Holzer, vice president of communications.

Meanwhile, the Uffizi Gallery is executing a \$75 million rehabilitation project that will allow it to display 800 additional works. This marks the first major renewal of Giorgio Vasari's 16th-century, U-shaped palace in decades. Planned



The Met's planned sculpture court (above). The Uffizi's "First Corridor" (left).



for a 2006 completion, some of the gallery's first-floor rooms opened in March. The project more than doubles the Uffizi's existing exhibition space, from 64,800 square feet to 140,400 square feet.

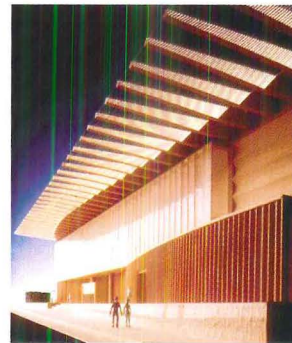
The expanded gallery surpasses "even the Louvre," says Giuliano Urbani, Italy's culture minister. Other upgrades include new staircases at the eastern and western gallery wings, plus more space between the artworks, improved lighting, and enhanced security systems.

However, a controversial new 78-foot-tall steel canopy exit by Japanese architect Arata Isozaki remains on hold after a public outcry over its design. The Postmodernist loggia scheme won an international design competition in 2001, beating submissions from Mario Botta, Norman Foster, and Vittorio Gregotti, among others. *Tony Illia*

### Austin's dreams of new art museum building dashed

Despite generous contributions from donors, plans for a new, \$43 million Austin Museum of Art building, designed by Gluckman Mayner Architects, have been abandoned.

While the museum, whose current building opened in 1995, has received more than \$14 million in donations, most of the money has been spent acquiring land and preparing construction documents, museum officials say. Ultimately, fund-raising for the project proved too difficult in the present economy, while the new building's annual maintenance expenses



Design for the Austin museum.

would have been three times more costly than the museum's current budget.

The proposed three-story, 141,000-square-foot building called for a design scheme of horizontal bands, running from north to south, with 25,000 square feet of galleries, a film theater, an education complex, and an outdoor sculpture garden. The concrete structure would have consisted of fluted precast

panels, terrazzo floors, a limestone interior, and polycarbonate/glass glazing. Museum officials say they are now exploring other options. *T.I.*





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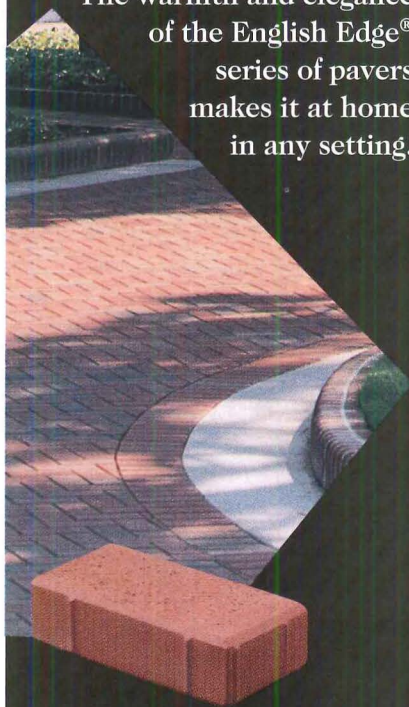
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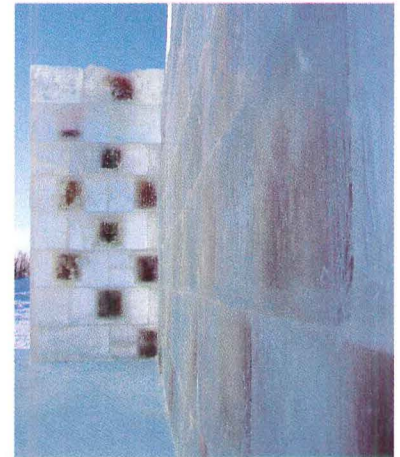
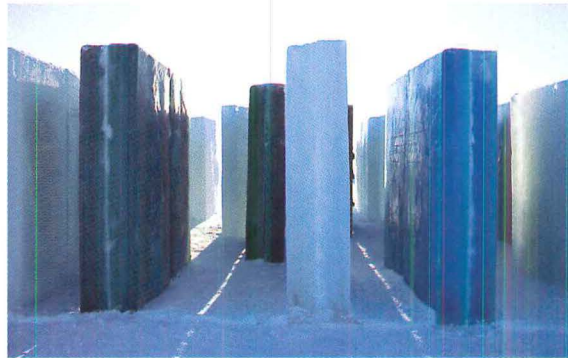
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## Record News

### The Snow Show: architects (and artists) build with ice



The Snow Show ([www.thesnowshow.net](http://www.thesnowshow.net)) was conceived four years ago by New York art curator Lance Fung, who wondered if architects and artists would collaborate in a novel medium at a remote location. The port city of Kemi and the provincial capital of Rovaniemi agreed to host and partially fund the event. Fifteen adventurous architects were paired with artists to create structures of ice and snow, which were exhibited in Finnish Lapland in February and March.

To test the feasibility of the project, two structures were commissioned in February 2003, one by Steven Holl and Jene Highstein, the other by Asymptote and Osmo Rauhala. Seductive images of these creations were flashed around the world, drawing positive responses. The Finnish government, corporations, the European Union, and UNESCO provided funds, but the \$1 million budget, plus a lot of volunteer labor, was only sufficient to realize 17 of the 30 projects Fung had hoped to include. Moreover, the Future Systems/Anish Kapoor entry imploded on the eve of the opening, bringing the total to 16.

Inevitably, in such a blue-sky project, the quality of the entries was uneven, but all gained from the pristine landscapes and the crystalline beauty of ice. A few of the collaborations were seamless, each enhancing the other. Tadao Ando designed an elliptical tunnel of clear ice blocks 14 feet high—a triumph of construction—into which Tatsuo Miyajima embedded bands of digital LED numbers, which glowed though the ice like tiny points of fire. Athens-based Anamorphosis found common ground between native rock and alien snow, arranging curved bleachers and blocks with



(Clockwise, from top left): Enrique Norton and Lawrence Weiner; Morphosis and Do-Ho Suh; Anamorphosis and Eva Rothchild.

a cascade of ice shards to evoke the ancient theaters of Attica. Yoko Ono imagined a penal colony of ice, and Arata Isozaki realized the concept in a labyrinth of four concentric walls.

Often the architect—or, more rarely, the artist—upstaged a collaborator by creating a self-sufficient work. To dramatize the transformation of water as it freezes, Thom Mayne of Morphosis planned a simple enclosure of clear ice blocks in which “fossils” of red liquid were embedded. That left little scope for Seoul-based artist Do-Ho Suh, whose proposal for an ellipse of sunken floor lights was rejected as too costly four days before the deadline. By contrast, Juhani Pallasma deferred to Rachel Whiteread, inviting her to model a staircase of compressed snow and providing a self-effacing enclosure.

In other projects, Enrique Norton translated his love of glass into totems of colored ice, which shimmered in the low winter sun and glowed with quiet intensity by night. Zaha Hadid designed two identical stepped forms, one of snow, the other of ice, although both were damaged on opening night by an overdose of flaming vodka poured on them in the name of art by Cai Guo-Qiang and his helpers.

Given the challenge of building so many innovative designs in record time (a mild winter delayed the start), the first Snow Show must be accounted a success. However, Fung had a falling-out with the Finns and now plans to reprise the Snow Show in St. Moritz next February, and near Turin, Italy, during the Winter Olympics of 2006. *Michael Webb*





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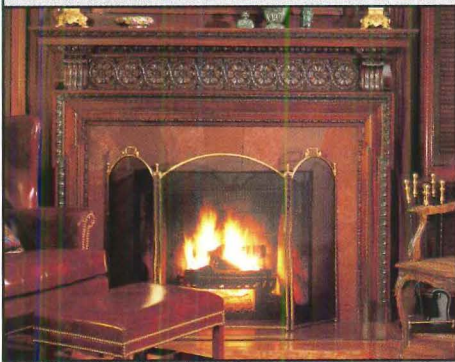
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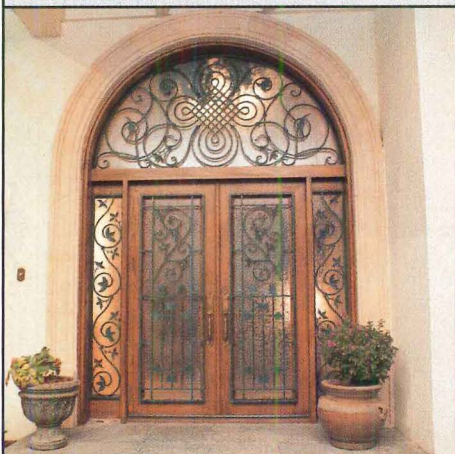
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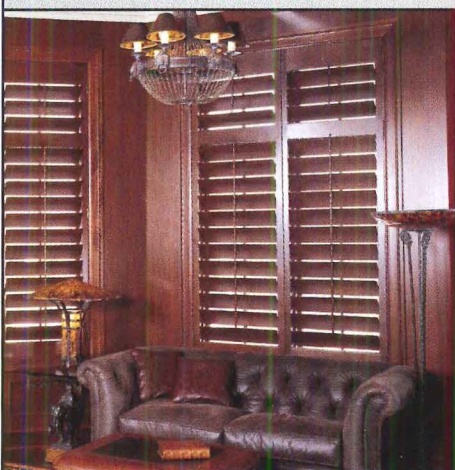
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## Record News

### Ever busy, Calatrava designs skyscrapers based on sculpture



Calatrava's new skyscraper in Manhattan (above) will be similar to his work in Sweden (right).

Weeks after revealing his plans for the World Trade Center Transit Hub, Santiago Calatrava has unveiled a design for a skyscraper that will make another major mark on Lower Manhattan's skyline. His sculptural, 835-foot residential tower will be called Townhouses in the Sky, and will be at 80 South Street, along the East River in the South Street Seaport District.

Calatrava's first residential project in the U.S., the building will be made up of 12 glazed cubes, each 4 stories high, cantilevered in ladder-like steps up a slim vertical core. The highly unusual building recalls Calatrava's own works of

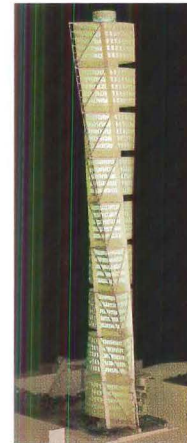
sculpture, including one standing in the architect's town house that looks almost identical to Townhouses in the Sky.

"This tower represents an opportunity to live in a work of art," said John Evans, vice president of Sciam Construction Company, which will build it.

In addition to the twelve exclusive town houses, the high-rise, its builders say, is planned to house a major cultural institution. Completion is set for late 2006 or early 2007.

"I feel very fortunate to have been asked to design a tower for New York City, which is the home of the skyscraper," the architect says.

Calatrava is working on an equally sculptural skyscraper in Malmö, Sweden, called Turning Torso, based on one of his sculptures by the same name. The building will feature nine cubes set around a core of stairs and elevators to produce a spiral structure. It is set for completion by summer 2005. S.L.



### Symposium showcases Japanese architecture

Several stellar Japanese architects recently converged on Manhattan for a symposium at the Japan Society called "Technology and Tradition in Contemporary Japanese Architecture," co-organized by ARCHITECTURAL RECORD. The conference was launched with a lecture by Fumihiko Maki, recently appointed architect for both a new United Nations building and a tower at Ground Zero. The

focus then passed to younger compatriots, including Waro Kishi (houses inspired by L.A.'s Case Study program), Kengo Kuma (a famous glass pavilion "floating" on water), and the ebullient Jun Aoki (Louis Vuitton stores in Tokyo's ritziest shopping districts).

Aoki, Shigeru Ban (his work shown at left), and Kazuyo Sejima are rising stars of this generation. Each has built or is about to build in Manhattan: Aoki's work for Vuitton on Fifth Avenue, Ban's Paper Arch at the Museum of Modern Art in 2000, and Sejima's New Museum



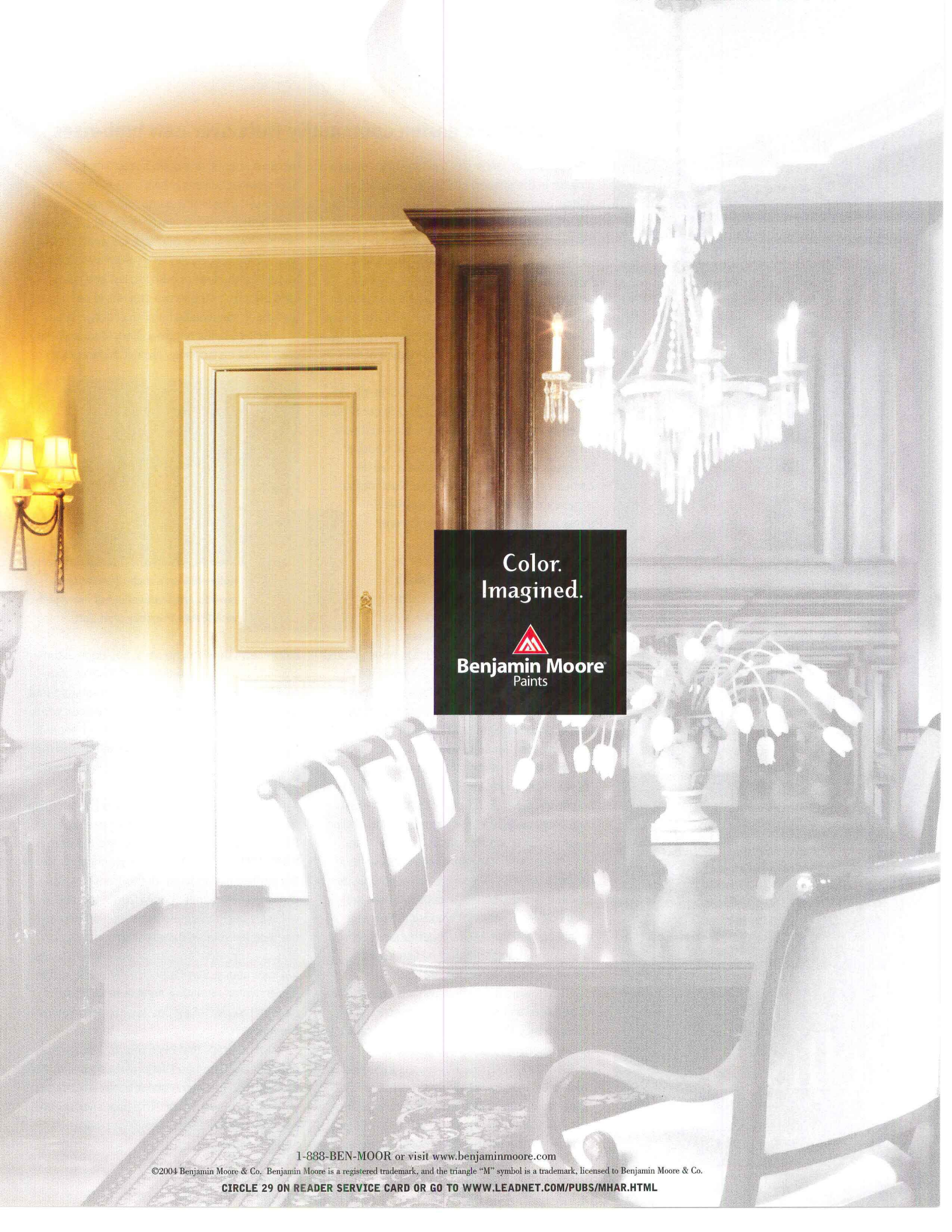
(with Ryue Nishizawa) envisaged for the Bowery. While Dana Buntrock, one of six moderators, emphasized the moderate means of many private Japanese clients, the most seductive projects presented by this trio are all museums: Aoki's in Aomori, Ban's for Metz in eastern France, Sejima's in Kanazawa Prefecture.

Meanwhile, engineer Masato Araya addressed the symposium's theme by describing his work both with Toyo Ito and in serene temple precincts—a characteristic duality of the hypermodern and the ancient. Projects by subsequent speakers Hitoshi Abe (at left in photo above) and Takaharu & Yui Tezuka address another important duality in the country: condensing formal gestures with a particular eye for nature. Raymund Ryan



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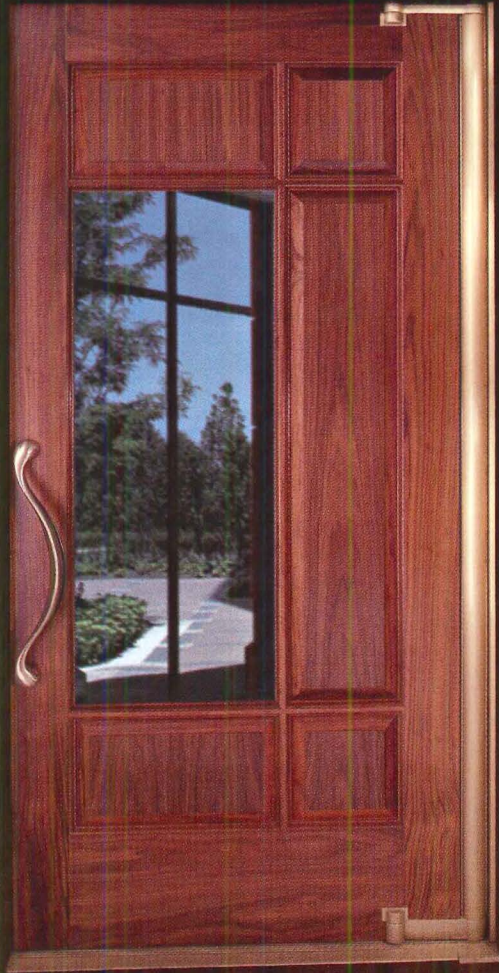
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## Record News

### San Francisco design community frets over new high-rises

The approval in January of two large condominium projects in the shadow of San Francisco's Bay Bridge, each designed by the San Francisco firm Heller-Manus Architects, will bring the city much-needed housing and density, elements long urged by the city's planning department. But some San Francisco architects and design experts argue that their uninspiring designs and skyline-blocking forms could negatively affect two newly developing neighborhoods, and even the willingness of the city as a whole to embrace dense residential development.

The 350- to 400-foot-high, 800-unit buildings at 201 Folsom Street and 300 Spear Street, which could break ground as early as next year, provide ample residential space and follow, in general terms, a so-called Vancouver-style combination of podia and towers. Such design is meant to ensure consistent and lively street fronts while creating density and maintaining light and views.

Jim Chappell, president of the San Francisco Planning and Urban Research Association, a prominent public policy think tank, supports the towers because of their utility. He explains: "San Francisco is 30,000 housing units short today, and for the past 20 years we've built an average of 1,000 units a year. These two projects alone provide a year and a half's supply and a huge shot in the arm that will get us a long way ahead of the game."

But critics insist that the buildings' bulk—85-foot-high podia, 115-foot-wide towers, and corner-to-corner separation of 82.5 feet—will both block sunlight in the area and blight skyline views of San Francisco, particularly from the Bay Bridge. John Parman, cochair of *Line*, the magazine of the AIA San Francisco, emphasizes that in this case, housing needs are trumping good design. "Because it's housing, they can building anything? You don't get urbanity by rolling over. You get urbanity by fighting for a decent building every time," he says.

The towers may affect two developing plans for adjacent areas: the San Francisco Planning Department's Rincon Hill Plan, and the Transbay Redevelopment Project Area Design for Development, completed by a consortium led by Skidmore, Owings and Merrill's (SOM) San Francisco office. Both plans, currently in draft form, stipulate high-density residential neighborhoods that achieve livability through sunlight,

dynamic streets, and open space. The Transbay plan dictates building proportions different from the Folsom/Spear towers, to maximize sky exposure: podium heights closer to 40 feet, producing slender towers up to 550 feet tall and 150 feet apart. Ellen Lou, a planner at SOM, is careful not to criticize the towers outright, but she notes, "The pattern for these two projects is not a pattern that's sustainable for a much larger area."

Heller-Manus principal Clark Manus, FAIA, claims that his buildings are not bulky enough to



Heller-Manus's high-rises (above) provide ample housing but may clash with SOM's Transbay plan (left).

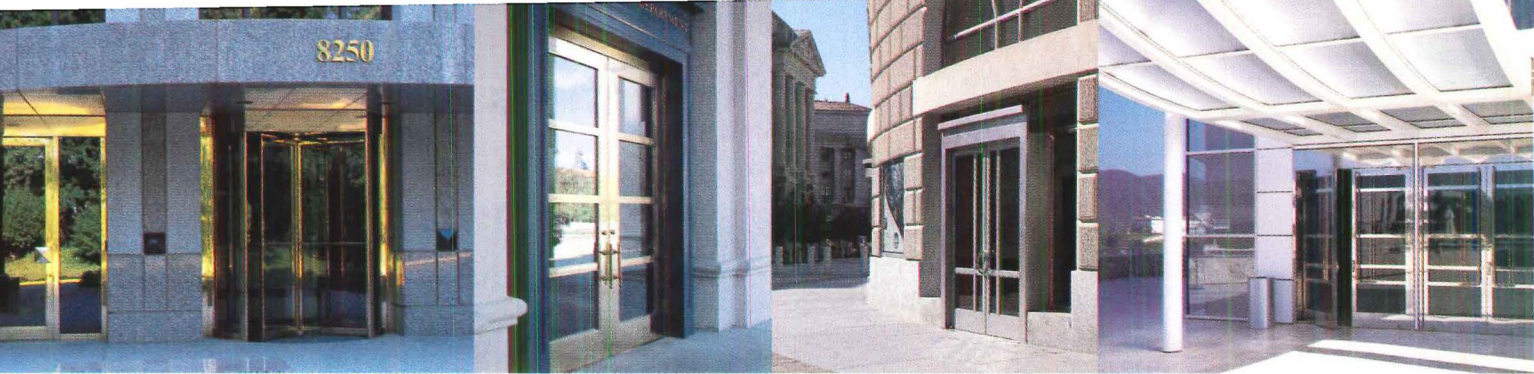
block views (his firm, he says, has done extensive studies to ensure this), and that his plan meets or exceeds all of Transbay's requirements, save for building separation, which he considers an ill-planned requirement. "Any further separation would not permit people to see through the site, because it would force an awkward reconfiguration of the towers," he rebuts.

Meanwhile, the approval of the Folsom/Spear towers before the approval of the Transbay and Rincon Hill plans seems to some like the cart leading the horse in the area's planning. While the earliest construction of the Transbay plan is not expected until at least 2008, the towers will likely begin to define the shape of the neighborhood far sooner, threatening, some say, efforts to create a consistent downtown residential community. *San Francisco Chronicle* urban design writer John King argues, "It all goes back to the city telling potential buyers: Ignore the rules."

Manus says that his firm's designs far predate any neighborhood schemes, and claims that the situation has come about because of delays in the local bureaucracy. "This plan should have been completed a decade ago," he says.

Andrew Blum





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## Record News



**The U.N. Building, seen here from the East River, will have company.**

2008, while the U.N.'s subsequent renovation is tentatively set for 2012.

Not surprisingly, the expansion project will focus on secure design. While competition finalists Maki, Norman Foster, and Kevin Roche, FAIA, all heeded the project's security require-

### Maki to design new United Nations building

New York City officials have confirmed that the United Nations Development Corporation (UNDC), the nonprofit benefit corporation set up to provide the U.N. with space and facilities, is talking with Pritzker Prize-winning architect Fumihiko Maki about designing an additional building for the U.N. in New York.

The building, on First Avenue between 41st and 42nd Streets, will become the organization's temporary headquarters while the current building, to its north, is renovated and enlarged as part of the U.N.'s Capital Master Plan. Eventually, the new building will house U.N. employees who are now scattered throughout the city.

While no design has been unveiled, officials familiar with Maki's plan say the roughly 900,000-square-foot, 35-story gleaming new office tower, adjacent to the Secretariat, will rise without setbacks from a base of about 30,000 square feet. Its foundation will occupy part of what is now the Robert Moses Playground. According to one official, the building's geometry will be simple, though subtly varied, with a slight angling of the facade on the upper floors and a glass curtain wall with a light-colored frit. Maki, meanwhile, said he could not comment on the design until it is formally unveiled, which he said may happen later this month.

Construction of the new building is expected to begin sometime in late 2005 or 2006, wrapping up around

ments, the U.N. will also work closely with city, state, and federal governments in examining further security measures, according to Toshiyuki Niwa, outgoing director of the Capital Master Plan.

Meanwhile, the prospect of losing the paved playing area of the 1.3-acre Robert Moses Playground has spurred neighborhood groups to demand equivalent open space. U.N. and city officials have proposed the construction of an esplanade along the East River in front of the U.N. complex. This would also help fill a gap in the public path snaking around Manhattan.

But it appears doubtful that the esplanade alone would satisfy residents.

"An esplanade is a walkway and bikeway; it's not a park," said Bruce Silberblatt, vice president of the neighborhood's Turtle Bay Association. "We do not want a shovel in the ground unless an equal park, in form and function, is in place." Community groups are eyeing a Con Ed parking lot nearby on First Avenue, urging the city to acquire it through eminent domain.

Money for the \$320 to \$350 million U.N. project is expected to come through bonds issued by the UNDC. The U.N. will rent the space in a lease-purchase agreement. Funds for the Capital Master Plan are expected to come in the form of a \$1.2 billion loan from the U.S. government. *Ted Smalley Bowen and S.L.*



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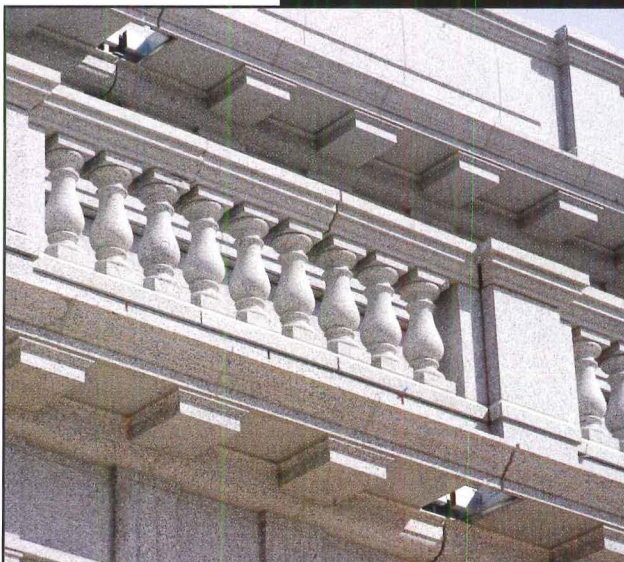


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## Record News

### California assemblyman proposes resolution that promotes building with feng shui

California State Assemblyman Leland Y. Yee proposed a resolution on March 4 encouraging the state legislature to urge the state architect, local planning commissions, local design review boards, and other agencies responsible for design to consider feng shui—a Chinese practice in which a structure or site is chosen or configured so as to harmonize with the spiritual forces that inhabit it.

As Yee's spokesperson, Adam Keigwin, makes clear, the resolution (amended from a January 5 pro-

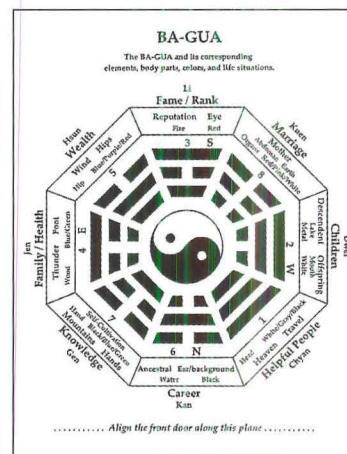
sense: "When you're sitting at a desk in an office, you don't want to have your back to the door, you want to be facing it," he says. Feng shui also encourages the cultivation of oxygen-producing plants, and advocates keeping entryways clear of posts or other objects that obstruct the flow of movement.

According to the resolution, residential design enhanced by feng shui has already taken hold in California: "Developers and realtors have responded to the rise in Asian home ownership in various California communities by applying feng shui design principles to properties being built or sold to meet the demands of the consumer." As Keigwin notes, "It's what the market wants."

While many architects consult with environmental and disability-compliance experts when designing a project, this resolution encourages architects to collaborate with feng shui experts as well. Seann Xenja, a California-based feng shui consultant with a background as a contractor and a certified interior designer, applies feng shui to correct problematic spaces that, as he says, "shouldn't have left the drawing board" in the first place.

Yet for many, the line between where common design sense ends and feng shui begins is a fluid one. As Stan Nishimura, executive director of the California State Building Standards Commission, notes: "Feng shui is about how you design with the environment. Most architects practice it to some degree, but not the way it may have been developed in China." And still, as the spokesperson for another California assemblyman, Kevin McCarthy, suggests, there is a question of legislative priorities. "We should be working on things that Californians are demanding," he says.

*Diana Lind*



The Ba-Gua Octagon, used in feng shui to find preferred locations for certain functions in a home or office.

posal) "is not a mandate," just a suggestion to make local municipalities more culturally sensitive about feng shui when deciding to accept or decline projects. "We're not experts in feng shui here," Keigwin reiterates. "We're focused on the design aspects [that are not] grounded in superstition, religion, or spirituality."

Keigwin hopes to foster design principles as simple as "openness, clean air, good lighting," and more general concepts such as feeling "comfortable rather than boxed-in" at work or at home. Keigwin gives an example of how feng shui placement is a matter of common



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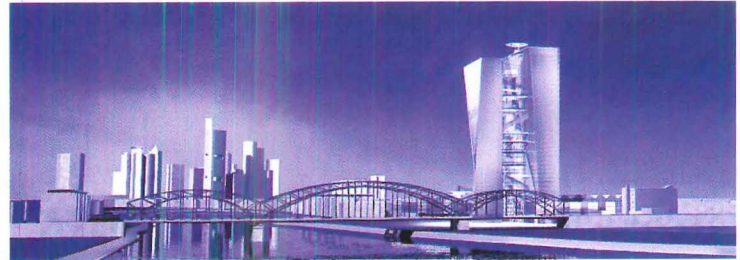
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## Record News On the Boards



### Coop Himmelb(l)au planning European Central Bank Headquarters

Coop Himmelb(l)au has won a competition to build the new European Central Bank Headquarters in Frankfurt, Germany. The firm beat out about 300 architects for the project, including Frank Gehry, FAIA, Thom Mayne, AIA, and Ken Yeang.

The 2.2 million-square-foot building, scheduled to begin construction in 2005, will take the form of a double-slab tower that twists and changes form as it rises, a

shape that firm principal Wolf Prix says not only lends dynamism to the bank's image, but increases wind flow into the building. Inside, an atrium known as the "vertical city" is connected by large platforms and includes skylighted "hanging gardens," adding green to the interior.

The project will take shape on the river in the east part Frankfurt. It is expected to be completed by 2008, and will open in 2009. S.L.

### Stern designing American Revolution Center

Robert A.M. Stern's design for the \$100 million, nearly 108,000-square-foot American Revolution Center in the Valley Forge National Historic Park in

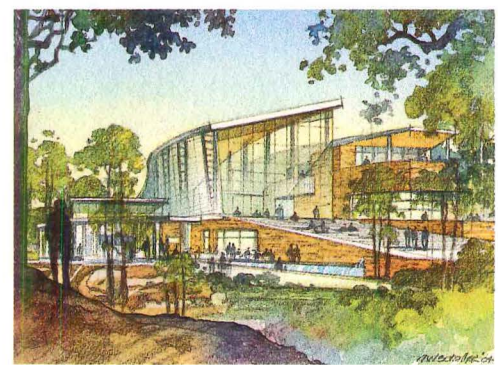
Pennsylvania will be the first museum to tell the full story of the American Revolution.

The museum will include the largest assemblage of documents and artifacts related to the Revolution, while its design—nestled into the landscape—incorporates the hilly topography of the site. "Landscape is an important part of our [nation's] experience as a political entity," Stern says.

About two thirds of the serpentine structure is underground, while a 3-story, glass-enclosed entry foyer provides dramatic vistas of the parade ground on

which President Washington hardened his troops into an army during the harsh winter of 1777-78.

The design features an easy-



Stern's building will fit into the landscape.

to-navigate visitor circulation system and symbolically conveys continuity and permanence. The museum, designed over a six-month period—and Stern's, as well as the client's, favorite of the three concepts he developed for the site—is slated for a 2006 opening. Joseph Dennis Kelly II



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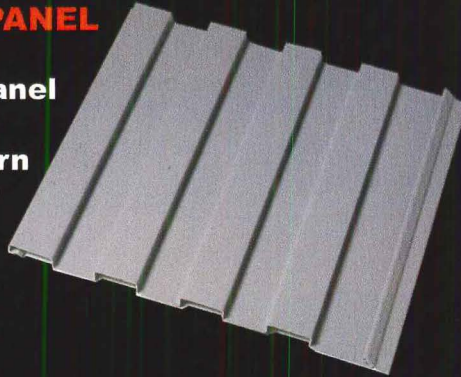
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## News Briefs

### AAF hosts "Accent on Architecture" Awards

The American Architectural Foundation hosted its annual "Accent on Architecture" Gala on March 3 at the National Building Museum in Washington, D.C.

The black-tie event, with an audience approaching 1,000 (up from about 650 last year), included the presentation of the AIA Firm Award to Lake/Flato of San Antonio; the 25-year Award to I.M. Pei, FAIA, for his East Wing of the National Gallery of Art in Washington, D.C.; and the AIA Gold Medal to the late Samuel Mockbee.

David Lake, FAIA, and Ted Flato, FAIA, gracefully shared the firm award with their coworkers, asking every firm member to stand, and bringing several associates to the stage. Later, a tearful Pei stunningly said he considered the 25-year Award for his revered East Wing more important than any other he had received. "I am lucky; 25 years is a long time," he commented. Moments later, Mockbee's widow, Jackie, spoke on behalf of her husband before the Gold Medal was handed to Mockbee's 16-year-old son, Julius.

The evening's events also included the presentation of the Keystone Award, which recognizes design leadership outside the design professions, to the General Services Administration for its highly successful Design Excellence program. Additionally, the American Architectural Foundation launched its "Great Schools by Design" initiative to encourage citizen involvement and cutting-edge design in creating new K-12 schools in the U.S. S.L.



Pei (left) and Julius Mockbee (above), accept awards.

### Sydney Opera House to get alterations

A new \$6 million colonnade is being built on the western side of Jørn Utzon's Sydney Opera House. It marks the first exterior alteration since the building's opening in 1973. Designed by Utzon with his son, Jan, and Sydney architect Richard Johnson, the 148-foot-long, 16-foot-wide colonnade consists of nine large windows and doorways, connecting the western theater foyers. The addition will complete Utzon's original concept for the Opera House; the existing foyers were designed and built after he left the project in 1966. The new colonnade will be completed in July 2005. It is part of a \$69 million Opera House improvement project

now under way that includes, among other things, a refurbished reception hall. T.I.



The Sydney Opera House.

### Daniel Kiley dies

Landscape architect Daniel Urban Kiley, whose work ranged from the New York Botanical Gardens to the John F. Kennedy

Library in Dorchester, Massachusetts, died on February 22. He was 91. Kiley worked with I.M. Pei, Louis Kahn, and Philip Johnson, among others. He helped shape the area around Independence Hall in Philadelphia, the Arch in St. Louis, Lincoln Center in New York City, and the Ford Foundation Building and National Gallery in Washington, D.C. He also helped sculpt landscapes at art centers in Detroit, Milwaukee, and Chicago. T.I.





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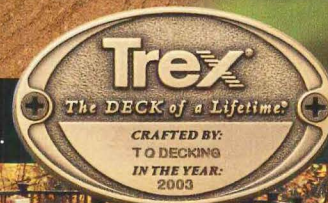




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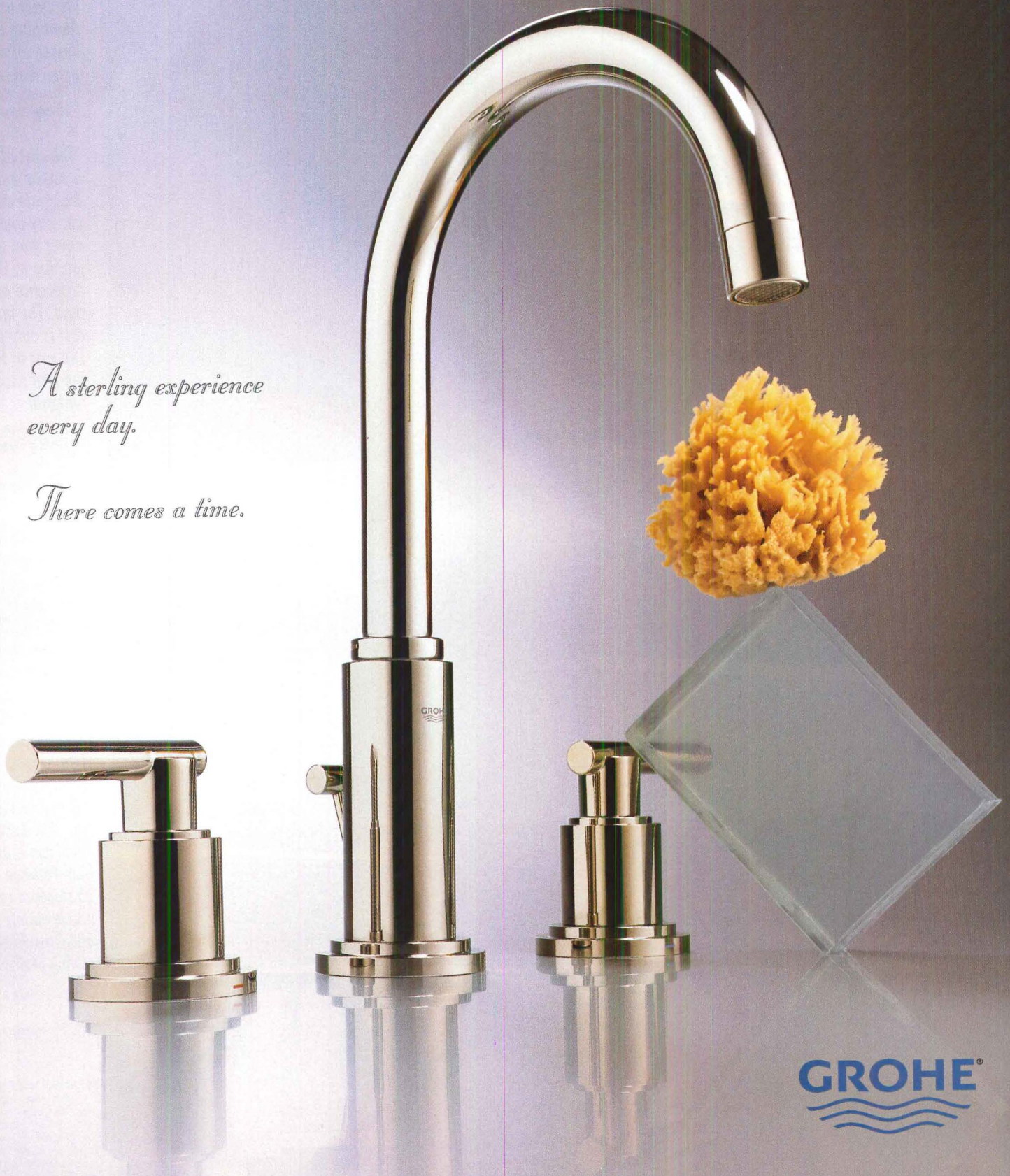
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# Dates & Events

## New & Upcoming Exhibitions

### City Works

#### Los Angeles

April 15–July 1, 2004

An exhibition organized by Cityworks Los Angeles Communities Under Construction with participation by all L.A. design and architecture schools. At A+D Museum. Call 310/659-2445 or visit [www.AplusD.org](http://www.AplusD.org).

### Yves Klein: Air Architecture

#### Los Angeles

May 12–August 29, 2004

This exhibition will feature drawings, texts, photography, sculpture, and film from the Yves Klein Archive. It was curated by architect François Perrin, who is also designing a site-specific installation for the Schindler House. At the MAK Center for Art and Architecture at the Schindler House. Call 323/651-1510 or visit [www.MAKcenter.org](http://www.MAKcenter.org).

### Ronan and Erwan Bouroullec

#### Los Angeles

June 20–October 18, 2004

The first North American exhibition to focus on the work of French designers Ronan and Erwan Bouroullec. The brothers have burst upon the international design scene in the past few years with their futuristic furniture, products, and interior designs. At the Museum of Contemporary Art. For information, call 213/621-2766 or visit [www.MOCA-LA.org](http://www.MOCA-LA.org).

### Beyond the Box—The Architecture of William P. Bruder

#### Los Angeles

July 15–October 14, 2004

An exhibition of Will Bruder's work will be on view at A+D Museum. For more information, call 310/659-2445 or visit [www.AplusD.org](http://www.AplusD.org).

## Ongoing Exhibitions

### D.C. Builds: The Anacostia Waterfront Washington, D.C.

Through May 23, 2004

This exhibition examines the great potential of the Anacostia waterfront to become a valued civic amenity. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### Cecil Balmond

#### Bordeaux, France

Through May 25, 2004

This show celebrates Balmond's inspiring solutions, which fuse architecture and engineering. Visitors can view the engineering of contemporary buildings designed by revered Modern architects—Koolhaas, Ito, Libeskind and Siza—with whom Balmond has collaborated. At arc en rêve centre d'architecture. For information, visit [www.arcenreve.com](http://www.arcenreve.com).

### Italian Mosaic Design

#### Brooklyn, N.Y.

Through May 31, 2004

The history, innovation, and contemporary uses of glass mosaics will be the subject of this exhibition at UrbanGlass. The show focuses primarily on Italian mosaic design, in particular the creations of Vicenza-based Bisazza Mosaico, considered to be the world's leading producer. At the Robert Lehman Gallery. Call 718/625-3685 or visit [www.urbanglass.org](http://www.urbanglass.org).

### Envisioning Architecture: Drawings from the Museum of Modern Art, New York Washington, D.C.

Through June 20, 2004

The broad spectrum of 20th-century architecture and the depth of its artistic expression are revealed in this selection of works from MoMA's extraordinary collection of architectural drawings. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### Affordable Housing: Designing an American Asset Washington, D.C.

Through August 8, 2004

This exhibition demonstrates that low-cost housing need not be of low quality and explores the potentially far-reaching benefits of good design for residents and their broader communities. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

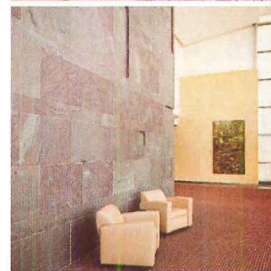
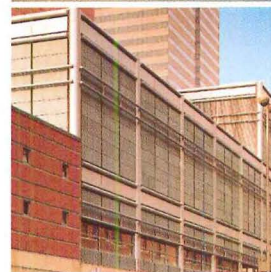
### Symphony in Steel: Ironworkers and the Walt Disney Concert Hall Washington, D.C.

Through August 22, 2004

This exhibition presents more than 100 compelling photographs by Gil Garcetti, including

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## Dates & Events

spectacular images of the completed building. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### **Jorn Utzon: The Architect's Universe Humblebaek, Denmark**

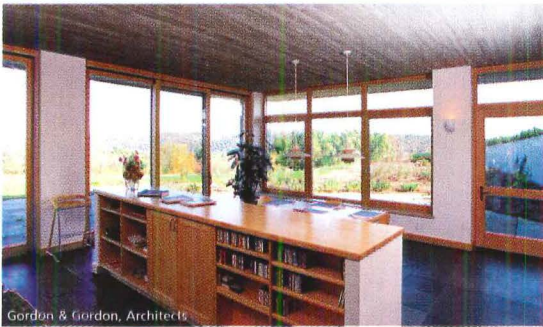
*Through August 29, 2004*

This is a show illustrating Utzon's working method—his process—focusing both on the work and its sources of inspiration. At Louisiana. Call 45/4919-0719 or visit [www.louisiana.dk](http://www.louisiana.dk) for more information.

### **a\_show: Austrian Architecture in the 20th and 21st Centuries Vienna**

*Through 2005*

Due to the expansive nature of its contents, a\_show is subdivided into three sections and presented in three stages. It provides a ramble through historic and contemporary Austrian architecture and explores the most essential factors in establishing a cultural identity. At Architekturzentrum Wien. Call 431/522-3115 or visit [www.azw.at](http://www.azw.at).



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## Lectures, Conferences, Symposia

### **National Landscape Architecture Month: Design for Active Living Washington, D.C.**

*April 2004*

The American Society of Landscape Architects (ASLA) has declared April 2004 as National Landscape Architecture Month. The theme highlights ways community design affects residents' daily activities and overall health. Call 202/898-2444 or visit [www.asla.org](http://www.asla.org).

### **Green Building Technologies Pomona, Calif.**

*April 6–8, 2004*

A conference sponsored by the Association for Efficient Environmental Energy Systems. For information, call 530/750-0135 or visit [www.aeees.org](http://www.aeees.org).

### **Richard Haag Washington, D.C.**

*April 12, 2004*

The designs of landscape architect Richard Haag have focused on the redemption and reuse of forgotten landscapes. Recipient of the 2003 ASLA Medal, the Seattle-based designer will discuss his career. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### **Frank Lloyd Wright's Auldbrass Washington, D.C.**

*April 13, 2004*

Among his 1,000 buildings, Frank Lloyd Wright designed one southern plantation, Auldbrass, located in Yemassee, South Carolina. David De Long, professor of architecture at the University of Pennsylvania, will discuss how Wright reconfigured an entire building type, seeking to revitalize a lost lifestyle. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### **Resonating Frequencies: Dialogues on Architecture and Music New York City**

*April 14 and 21, 2004*

The Irwin S. Chanin School of Architecture of the Cooper Union presents "Dialogues on Architecture and Music," curated by Christopher Janney. The program will feature Laurie Anderson and Martha Schwartz on April 14, and MOBY and Bernard Tschumi on April 21. At the Great Hall at the Cooper Union. Call 843/902-0526 or visit [www.thekitchen.org](http://www.thekitchen.org).

### **Professional Development New York City**

*April 15, 2004*



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## Dates & Events

The Society for Marketing Professional Services is holding a symposium, "Clients Talk Back About Construction Companies and Their Image," at The General Society of Mechanics and Tradesmen. Call 212/921-0061 or visit [www.smpsny.org](http://www.smpsny.org).

### **The Philadelphia Furniture and Furnishings Show Philadelphia**

*April 16–18, 2004*

This show offers the finest in handmade objects for the home and office, presenting a gathering of the work of decorative artists from all over the world. Call 215/440-0718 or visit [www.pffshow.com](http://www.pffshow.com).

### **The 48th Annual CSI Show & Convention Chicago**

*April 21–23, 2004*

The Construction Specifications Institute is holding its annual show and convention, which will include the debut of two special sections of the exhibition hall: the New Product Showcase and the Product Demonstration Area. Visit [www.theccsishow.com](http://www.theccsishow.com).

### **EnvironDesign8 Minneapolis**

*April 21–23, 2004*

A conference sponsored by *Interiors & Sources* magazine. For information, call 561/627-3393 or visit [www.environdesign.com](http://www.environdesign.com).

### **The Farnsworth House: Preserving an Icon Washington, D.C.**

*April 26, 2004*

The recent acquisition by the National Trust for Historic Preservation (NTHP) of the Farnsworth House in Plano, Illinois, ensures a secure future for this Mies van der Rohe masterpiece. Richard Moe, NTHP president, and Mies's grandson, architect Dirk Lohan, FAIA, who restored the house in 1997, will discuss the significance of the house and its history. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

### **Solar Century Washington, D.C.**

*April 28, 2004*

Glen Hamer, executive director of the Solar Energy Industries Association, will discuss the history of the solar-energy industry and its explosive growth, innovative residential and commercial projects, and the policies and practices that will make the sun one of the most important energy sources of the



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21st century. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

**The Daring Men Who Built the World's Greatest Skyline**  
**Washington, D.C.**

April 28, 2004

Author Jim Rasenberger will address the dramatic history of New York's ironworkers, who risked their lives to build the city's vaulting steel bridges and skyscrapers. At the National Building Museum. Call 202/272-2448 or visit [www.nbm.org](http://www.nbm.org).

**Building with Stone: Granite and Marble for Architectural Exteriors and Monuments**  
**Cambridge, Mass.**

May 8-9, 2004

This symposium will explore technical and practical issues involved in the use, performance, and care of granite and marble in buildings, monuments, outdoor sculpture, tombstones and grave markers, and similar structures. Lectures will focus on quarrying, selection, specifying, evaluating, fabrication, detailing, and repair and maintenance of stone. Call 617/623-2253.

**The 30th Annual Wright Plus House Walk**  
**Oak Park, Ill.**

May 15, 2004

Featuring Frank Lloyd Wright's Harry S. Adams House, visitors will also have access to seven other private residences designed by Wright and renowned contemporaries, as well as three architecturally significant public structures: the Frank Lloyd Wright Home and Studio, Unity Temple, and the Frederick C. Robie House. Call 708/848-1976 or visit [www.wrightplus.org](http://www.wrightplus.org).

**The International Contemporary Furniture Fair (ICFF)**  
**New York City**

May 15-18, 2004

*Raw: The Next Generation* is an exhibition of emerging designers that will highlight many of the most promising talents to recently appear on the international design landscape. At the Jacob K. Javits Convention Center. Visit [www.icff.com](http://www.icff.com).

**Great Chicago Places and Spaces**  
**Chicago**

May 21-23, 2004

The weekend celebrates Chicago's renowned buildings, structures, homes, parks, landscapes, neighborhoods, and hidden treasures with more

than 160 free tours and programming geared to the city's architecture and design. Call 312/744-3315 or visit [www.cityofchicago.org/specialevents](http://www.cityofchicago.org/specialevents).

**The 16th Montreal International Interior Design Show**  
**Montreal, Canada**

May 27-29, 2004

This show (SIDIM) will bring together the whole Quebec interior design community, as well as architects, engineers, contractors, developers, buyers, retailers, business people, government representatives, and a contingent of upscale consumers. Visit [www.sidim.com](http://www.sidim.com).

**On Both Sides of the Wall**  
**Berlin and Potsdam, Germany**

May 27-29, 2004

The Berlin Wall is perceived around the world as an icon and metaphor of the cold war. This symposium aims at fostering a wider awareness of the diversity and significance of monuments of the cold war in countries that belonged to NATO and to the Warsaw Pact, as well as in neutral states. At Cecilienhof Palace, Potsdam. For information, visit [www.tu-cottbus.de/coldwar/](http://www.tu-cottbus.de/coldwar/).

**International Greening Rooftops for Sustainable Communities**  
**Conference, Awards, and Trade Show**  
**Portland, Ore.**

June 2-4, 2004

Experts in diverse fields from around the globe will network and share knowledge about the benefits of green roofs, new research findings, policy developments, and the latest in green-roof products and services. Topics covered in panel discussions will include LEED, plant performance, policy initiatives, smart growth, biodiversity and agriculture, storm-water issues, and design. At the Hilton Hotel. Call 416/686-5887 or visit [www.greenroofs.ca/grhhc/conference.htm](http://www.greenroofs.ca/grhhc/conference.htm).

**PCBC: The Premier Building Show**  
**San Francisco**

June 15-18, 2004

Named one of the 50 fastest-growing trade shows in North America, PCBC gives home builders the chance to learn the latest trends in single-family and multifamily construction and design. Attracting over 25,000 home builders, developers, architects, and other professionals, this trade show will be held at the Moscone Center. Visit [www.pcbc.com](http://www.pcbc.com).

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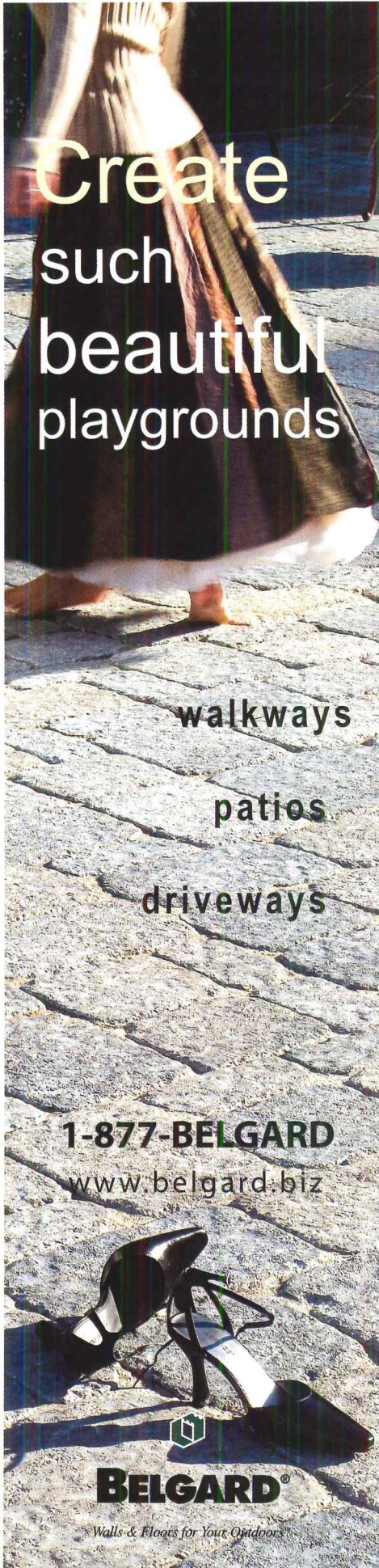
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## Dates & Events

### Competitions

#### **International Ideas Competition 2004: Shrinking Cities—Reinventing the City Berlin**

*Deadline: April 15, 2004*

The objective is to identify innovative approaches capable of qualifying the urban transformations associated with the phenomenon of shrinkage, and to develop new ideas about the city based on the specific qualities of shrinkage itself. Visit [www.shrinkingcities.com](http://www.shrinkingcities.com).

#### **ASLA 2004 Awards Call for Entries**

*Deadline for entry form: April 30, 2004*

*Submission deadline: May 14, 2004*

The ASLA Awards program honors the best in landscape architecture from around the globe. Visit [www.asla.org/awards/2004/brochure.htm](http://www.asla.org/awards/2004/brochure.htm) for more information.

#### **2004 Marketing Communications Awards Competition**

*Deadline: April 9, 2004*

The Society for Marketing Professional Services (SMPS) is accepting entries for its MCA competition, which recognizes excellence in marketing communications by professional-services firms in the design and building industry. Visit [www.smps.org/awards/mca.htm](http://www.smps.org/awards/mca.htm).

#### **Norwalk Housing Design Competition Norwalk, Conn.**

*Deadline: August 13, 2004*

In response to the need for below-market-rate housing in the city of Norwalk, the Housing Authority of Norwalk is sponsoring a housing design competition for exemplary site and unit plans for first-time home buyers, entry- and mid-level professionals, and fixed-income seniors. Call 203/857-0200 or visit [www.swinter.com/NorwalkHousingDesignCompetition.html](http://www.swinter.com/NorwalkHousingDesignCompetition.html).

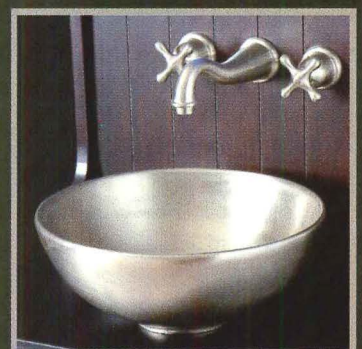
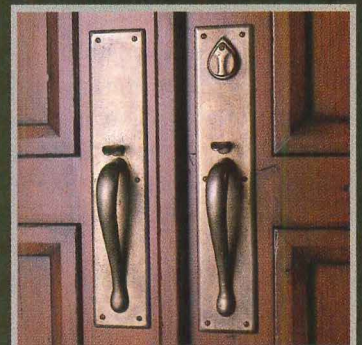
#### **The New Home on the Range: A Housing Ideas Competition**

*Deadline April 23, 2004*

A competition to challenge architects and students of architecture to design the 21st-century seminal house. For more information, visit [www.aia.org](http://www.aia.org).

E-mail events and competitions information to [ingrid\\_whitehead@mcgraw-hill.com](mailto:ingrid_whitehead@mcgraw-hill.com).

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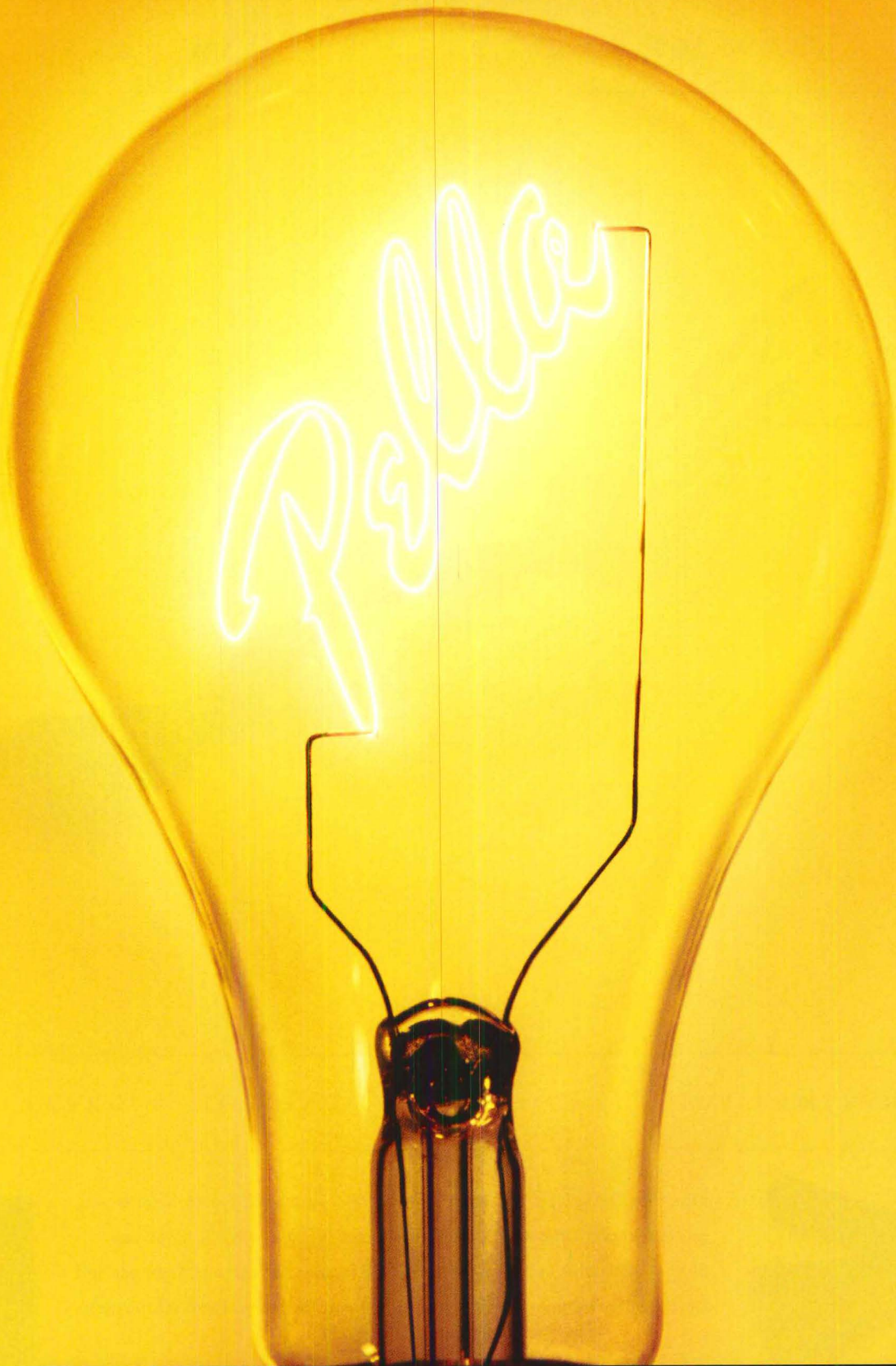
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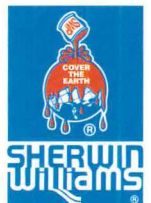


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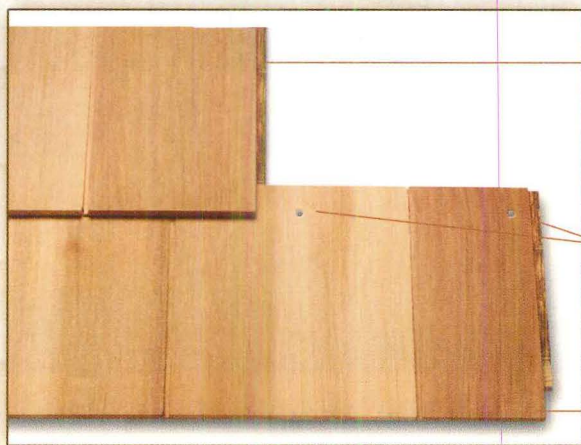


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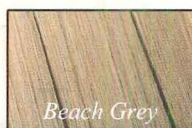
*Concealed nailing*

*Tapered panel has thick 3/8" butt*

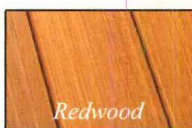
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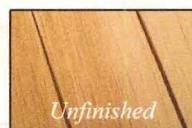
*Beach Grey*



*Redwood*



*Natural Beige*



*Unfinished*

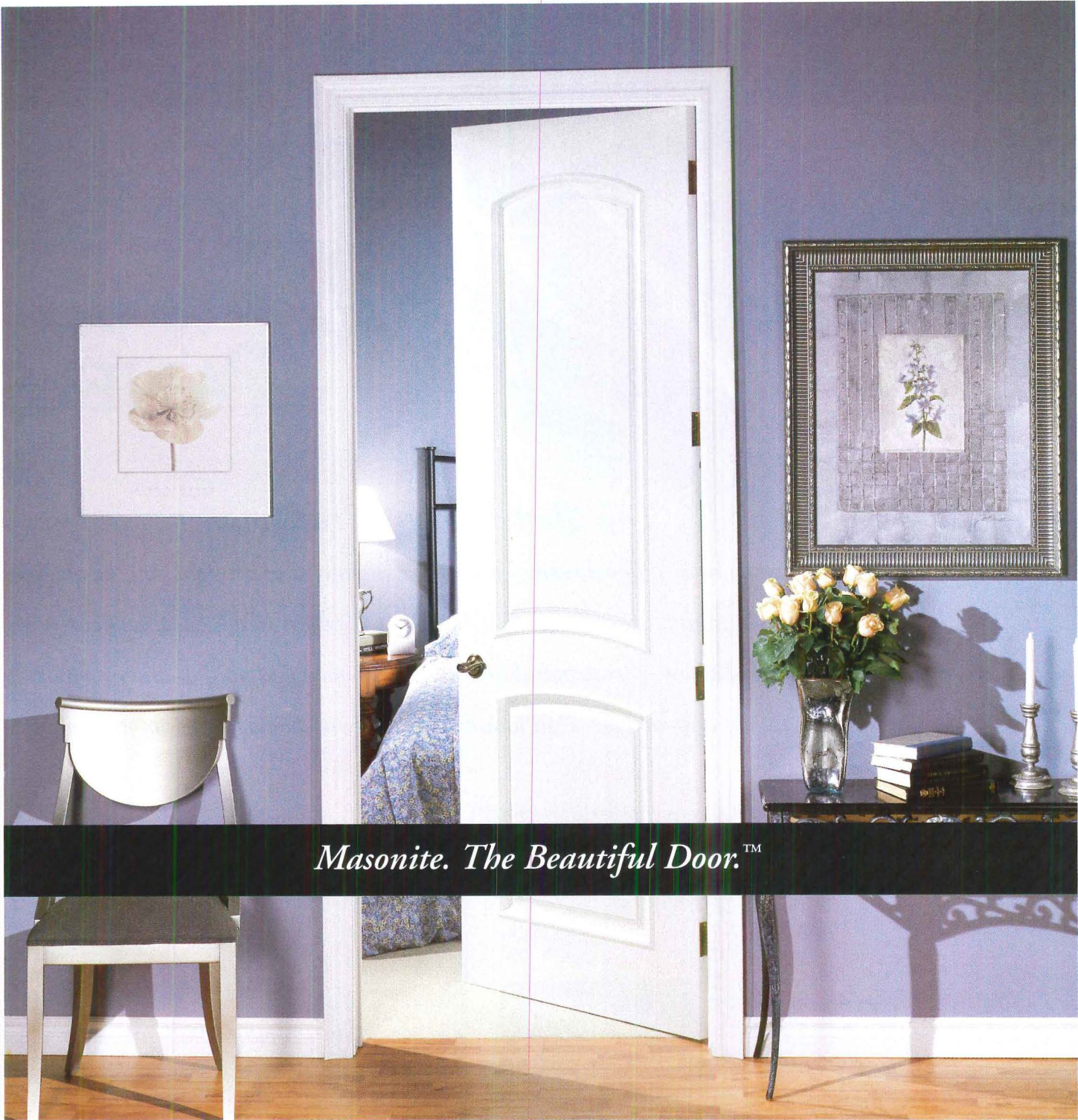
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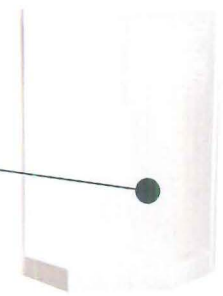
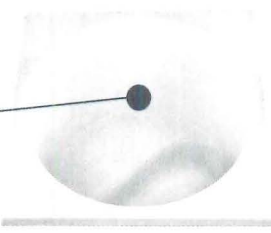
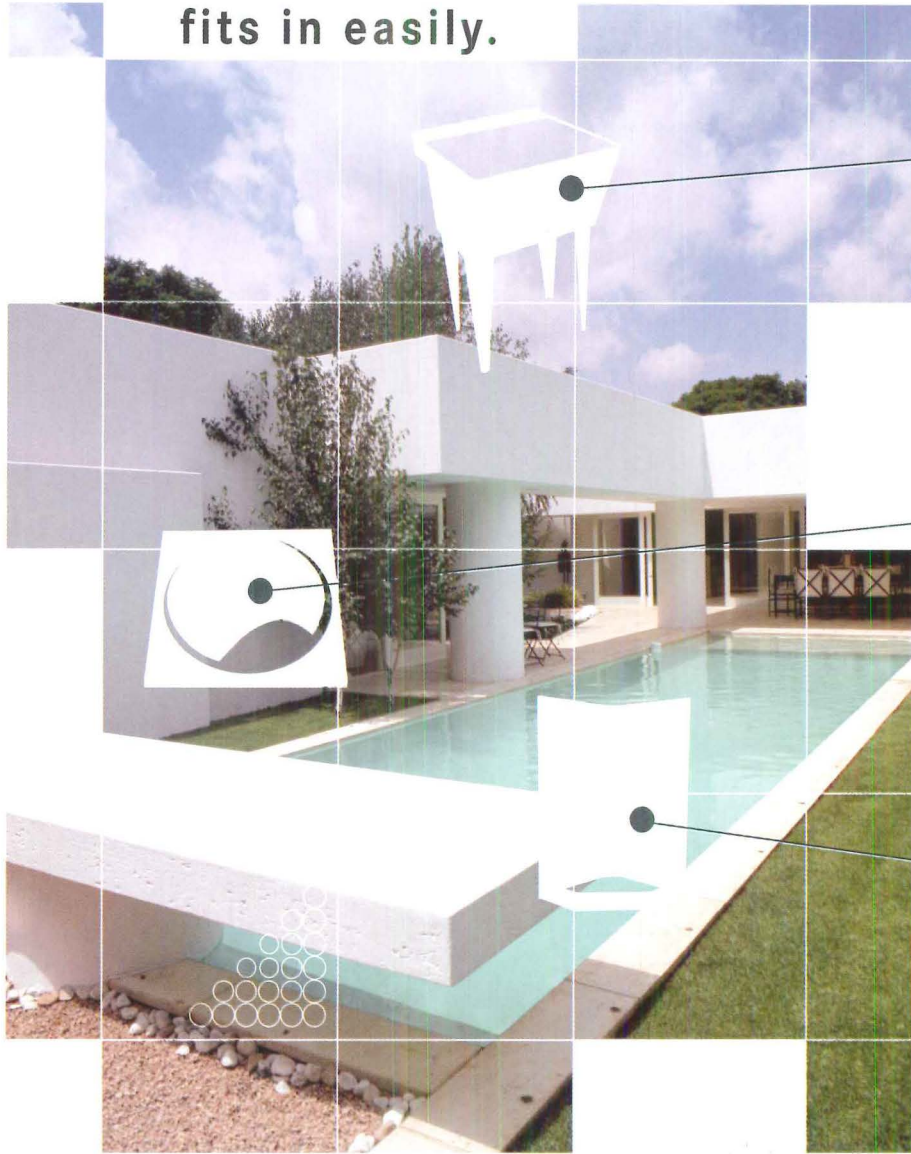
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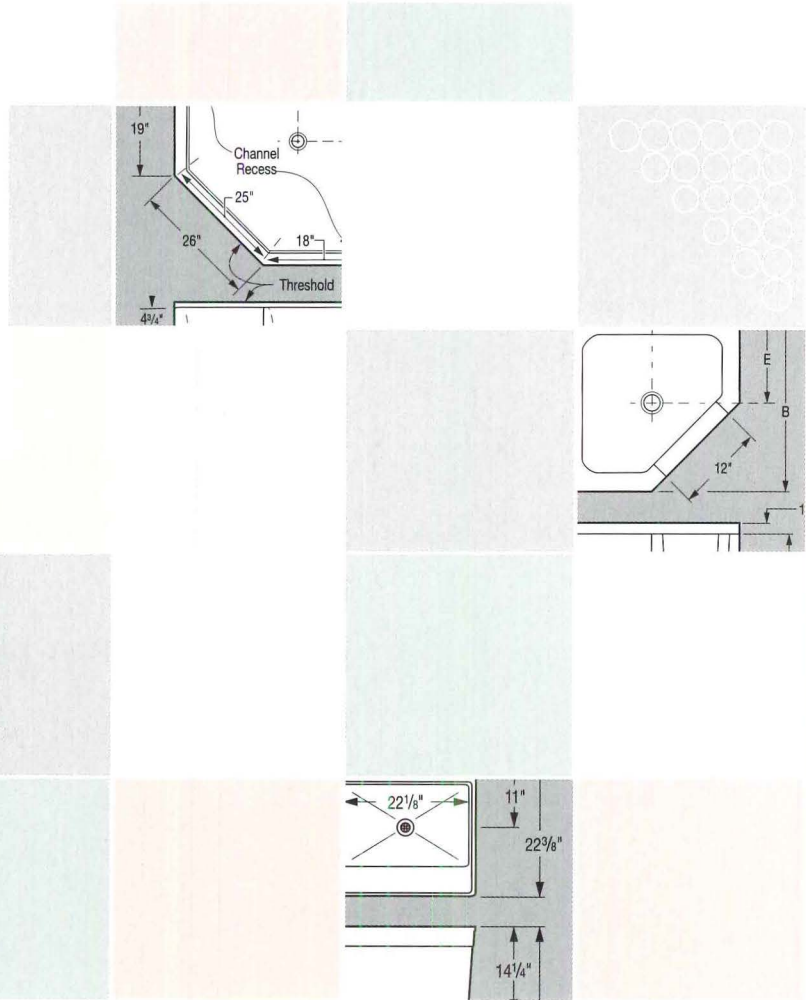
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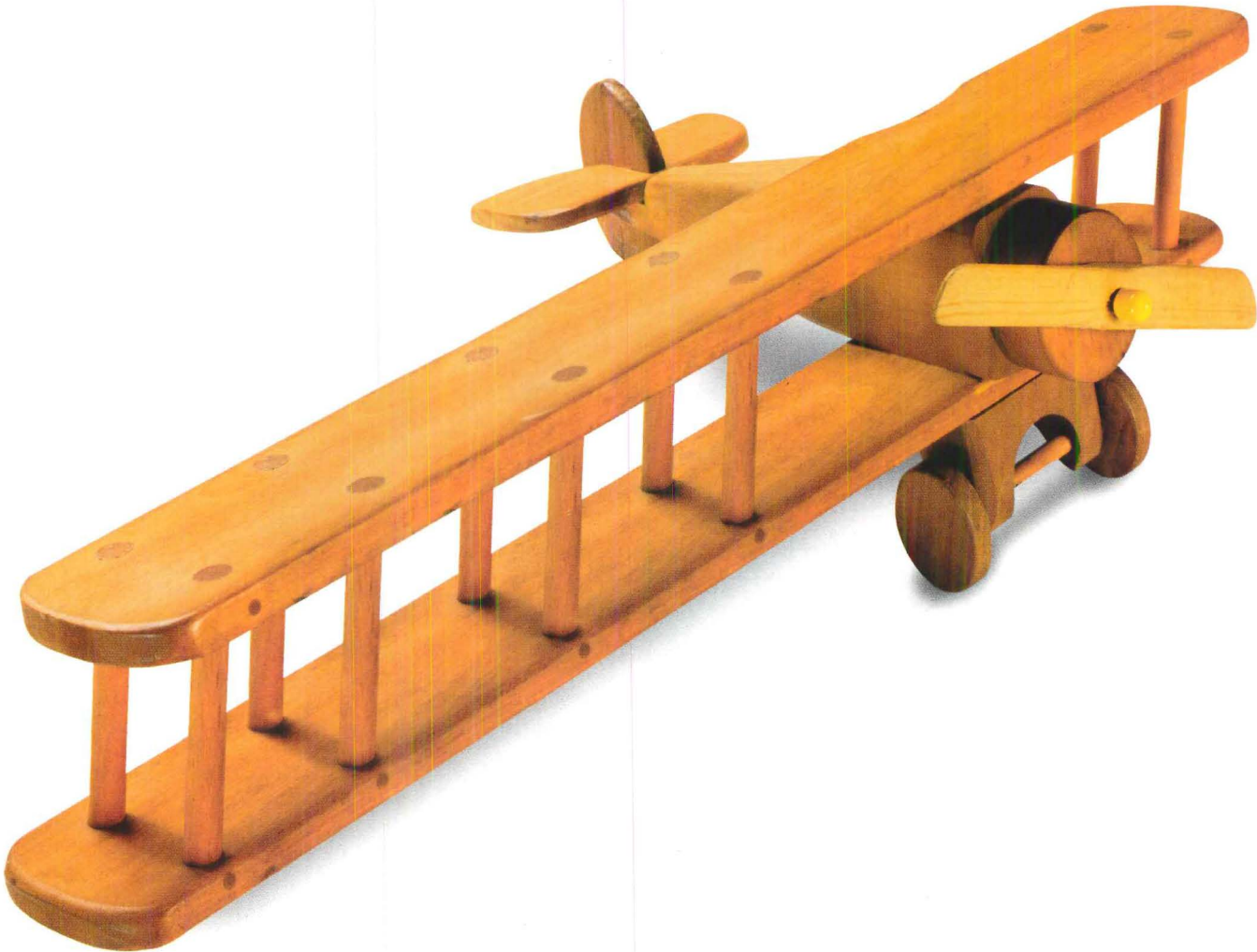
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# For and about the new generation of architects

## archrecord 2

### FOR THE EMERGING ARCHITECT

DEPARTMENTS

This month ar2 takes a look at two types of futuristic alternative housing. The projects are on opposite ends of the spectrum. In **Design**, architecture firm AllesWirdGut takes the concept of housing to a compact circular level, whereas in **Work**, architect Tobi Schneidler connects two houses set apart by long distances. Visit [architecturalrecord.com/archrecord2](http://architecturalrecord.com/archrecord2) for a more in-depth and interactive look at these novel housing ideas.

#### DESIGN

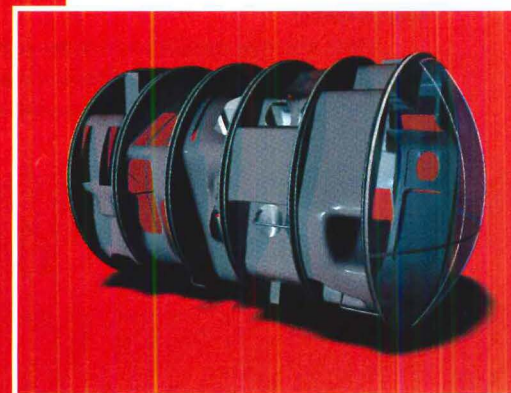
### A house that rolls with the changes

Since 2001, the Austrian architecture and design firm AllesWirdGut ("everything will go well," in German) has sought to explore less conventional ideas of housing. Invited to participate in a young-designer's exhibition on living space in Vienna, the five-person firm began to rethink the idea of housing, ridding themselves of the typical blueprint of a ceiling, floor, and 4-walled structure. "We wanted something that was not only new but that would also be interactive and fun for the audience of the exhibition," explains architect Herwig Spiegl.

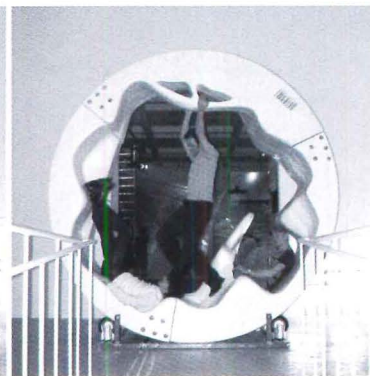
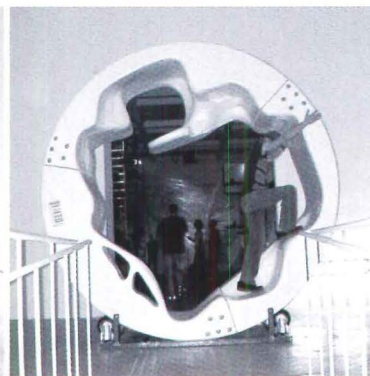
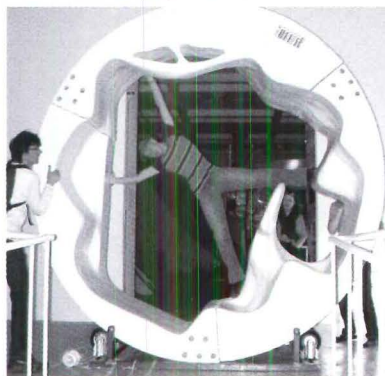
What AWG came up with was the housing concept called "TurnOn." It originated from scenes in the film *2001: A Space Odyssey* mixed with a desire to be as forward-thinking as the automotive industry. Spiegl states, "Carmakers join networks and share ideas, and because of that they have been able to make advances to create cars that at one time would be considered 'science-fiction' into a reality. But in the field of architecture, we rarely collaborate on new ideas and designs, and we are still using old ideas. We use the same parameters for housing that we did a thousand years ago—plane floors surrounded by edged corners." Straying from this configuration, AWG envisioned a more compact and more circular plan.

At first glance, TurnOn is reminiscent of a human-size hamster wheel. The arrangement would consist of several revolving modules linked together. Each module's interior would be outfitted for a specific room or function, such as a kitchen, bedroom, or exercise room. The wheel literally turns, and as the positioning of the module changes, so does its function. Spiegl explains, "For instance, while cooking, the couch becomes the ceiling, the dining table a wall." The Wet Cell, as AWG refers to it, is the module that would house the bathroom, including the toilet, shower, and bath. One would simply rotate the module to utilize one of the facilities.

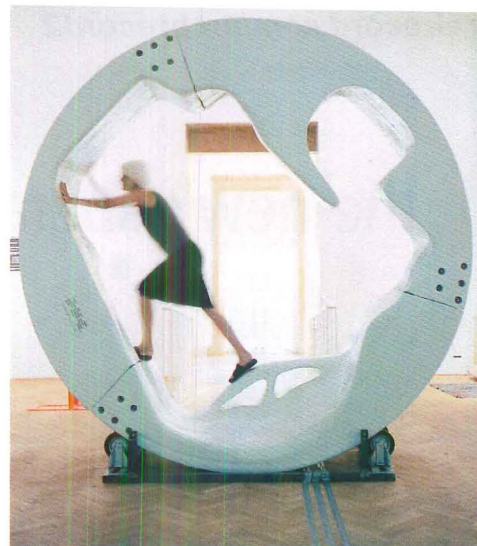
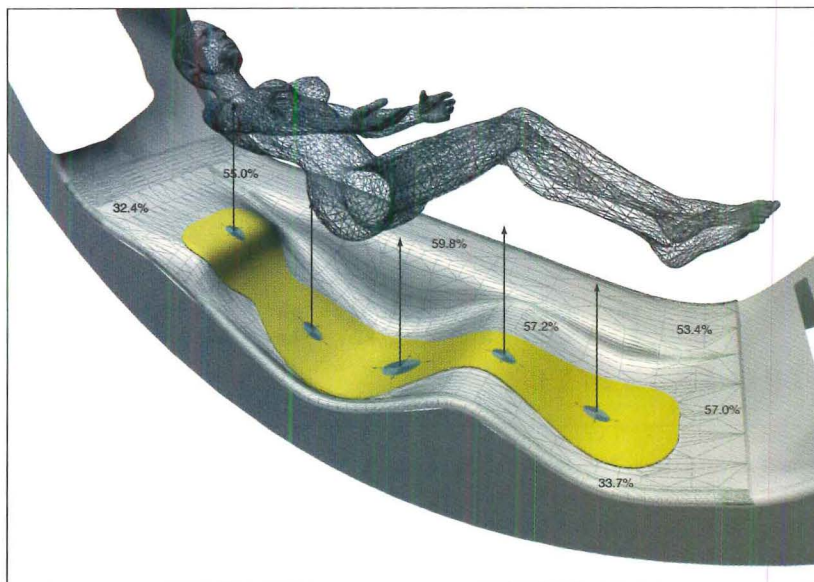
The automotive industry's



In AllesWirdGut's TurnOn scheme, different configurations to create these space-efficient, single living units could be made available. Interaction with the TurnOn prototypes have been popular with audiences at several exhibitions (below).







As in car manufacturing, the TurnOn could be customized for the buyer. The topography could be manipulated to "support the relaxation of the body."

ability to prefabricate, mass-produce, and tailor its products for customers could be realized in the fabrication of TurnOn. "Just like customizing a car, the buyer could customize and accessorize to their own tastes and price range. Colors can be chosen, accessories such as flat-screen monitors could be added," says Spiegl, "and the modules could be arranged in infinite combinations."

AWG's idea has struck a chord in the architectural community and the general public. Since the first exhibition in Vienna, TurnOn has been featured in other showcases, including Archilab in Orleans, France, and the Vitra Design

Museum in Berlin. Both home owners and club owners have made inquiries into having TurnOn installed as a functional, albeit irreverent, discussion piece. Spiegl is aware that TurnOn is a slightly far-fetched concept, but he stresses, "TurnOn is based on a very serious idea. Everyone talks about revolutionizing the way we live. There is definitely room to compromise between the housing being created now and what we propose." *Randi Greenberg*  
Go to [architecturalrecord.com/archrecord2](http://architecturalrecord.com/archrecord2) for more on AllesWirdGut's TurnOn, including more photos and interactive animations. Also find out how to submit your own projects.

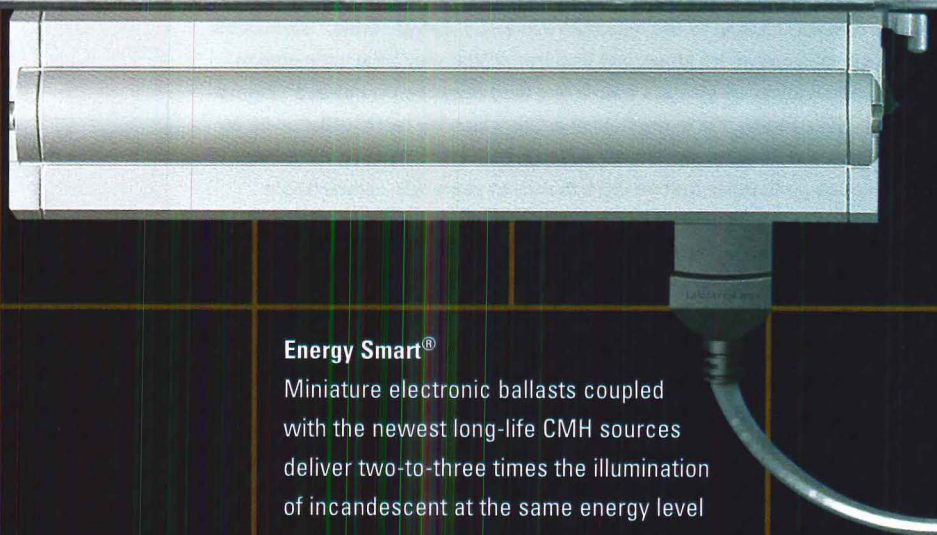
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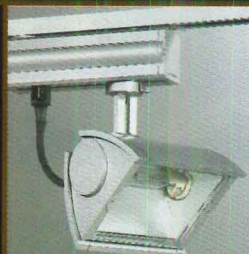
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## WORK

### A tale of two-city living

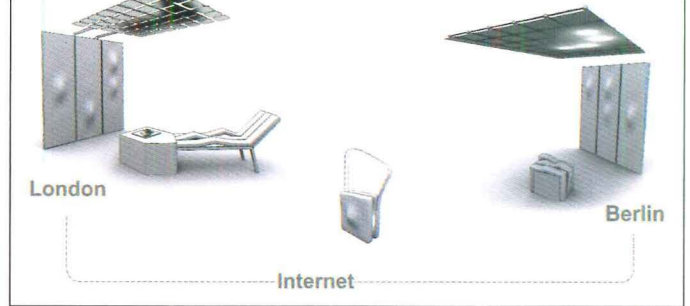
After graduating from the Architectural Association in London, German architect Tobi Schneider found a new interest in digital media. While teaching courses in both England and Sweden, he began researching and directing projects at the Interactive Institute Smart Studio in Stockholm, where he honed an interest in interactive technologies. The architect's projects explore this interest at different scales, and it soon grew into the idea of interaction between two homes, dubbed the RemoteHome.

The RemoteHome is a communication system that connects homes in two different cities. Schneider describes the project as "a home that stretches beyond borders and helps friends to stay in touch, literally, through tangible and sensual communication." Discreet sensors are placed in objects around the house and transmit messages to users at the other end through the Internet. Schneider explains, "These messages subsequently surface on the opposite end as tactile and visual cues on furniture and other physical surfaces." For instance, "ambient scribbles" on an interactive light table will affect a wall of lights placed in the alternate apartment.



In 2000, apartment models were set up simultaneously at the Science Museum in London and at the Raumlabor in Berlin. At these exhibitions, distant audiences were able to interact with each other in real time. Schneider says that audiences liked the idea of being connected and "appreciated that communication is built into the tactility of objects instead of through intrusive items such as video walls or cameras."

In time, Schneider expects that the residents of the RemoteHome will begin to recognize the nuances in the signals sent back and forth. "The artifacts



In the RemoteHome, manipulation of items, like movement on the "lounge table" (left), creates music that can be heard through the "SoundShaft" (far left).

respond to the way they are used," he explains. "The devices react to a combination of different effects and are not simply an on/off transmission." For instance, the force with which one resident sits on the couch in one apartment will be able to be felt and interpreted by

a resident on the couch in the other apartment.

This year, Schneider intends to take the showpieces from the exhibitions and implement them into the apartments he shares with friends in London and Stockholm. "Basically," laughs Schneider, "I will become my own guinea pig." R.G. For more on the RemoteHome, go to [architecturalrecord.com/archrecord2](http://architecturalrecord.com/archrecord2)

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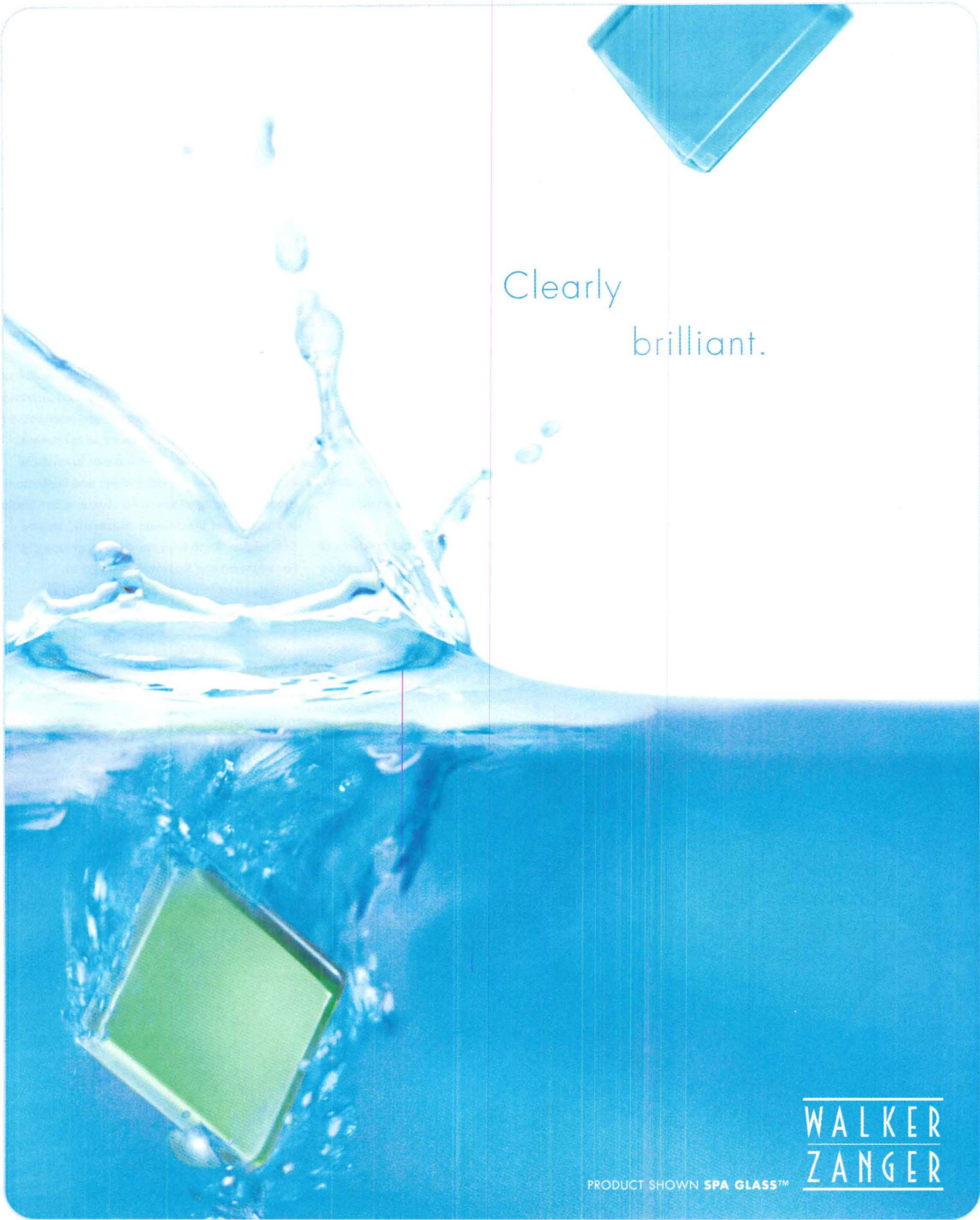
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# Toronto's architecture has long been criticized for being solid but boring. Not anymore

## Correspondent's File

By John E. Czarnecki, Assoc. AIA

DEPARTMENTS

Perhaps it's no coincidence that the master plan for the Daniel Libeskind-designed addition to the Royal Ontario Museum (ROM) in Toronto is being called Renaissance ROM. It is just one of many major architectural projects that are transforming Canada's largest city, long characterized by healthy neighborhoods but somewhat drab architecture, in a renaissance of intelligent, urbane, and unapologetically Modern buildings.

Decades after construction of the groundbreaking Skydome (1980s), CN Tower (1970s), and City Hall (1960s), Toronto's urban landscape has remained fairly stagnant, prompting critics to deride its clean but boring sterility. In January, arts writer Martin Knelman commented in the *Toronto Star*: "For decades, Toronto has taken a rap for settling for second-rate architecture. Toronto might be lively, comfortable, livable, and sophisticated. But you had to forgo the thrill of looking up and expecting to see one of the world's great skylines."

But increased private and public funding, a stable economy, and a newly restored appreciation for urban design have brought about significant cultural and university projects that not only enliven the city's design spirit but, taken together, would be the envy of any other North American city. Major

*John Czarnecki, an acquisitions editor for John Wiley & Sons, was formerly an associate editor at ARCHITECTURAL RECORD and urban designer for Urban Strategies in Toronto.*

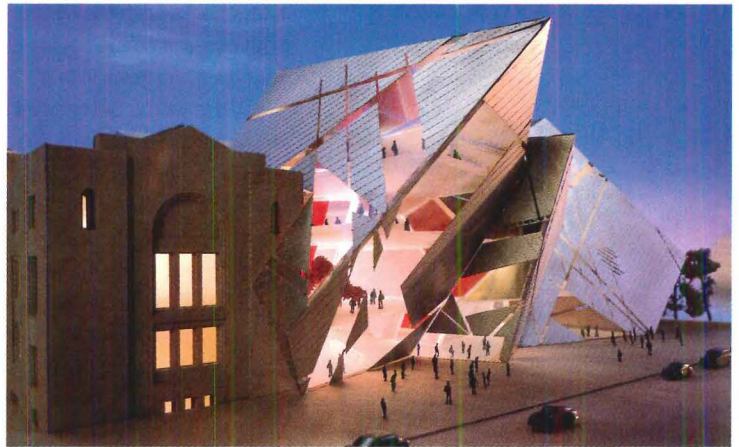
buildings are either completed or under way by Libeskind, Frank Gehry, Will Alsop, Norman Foster, Behnisch Behnisch & Partner, and Montreal-based saucier + perrotte.

"In four to five years we'll look back and see a renaissance," says Larry Richards, dean of the Faculty of Architecture, Landscape, and Design at the University of Toronto. "The general consciousness of architecture and design has been raised. I would not have said this three or four years ago." In his January article, the *Star's* Knelman also noted: "This city is in the midst of a cultural building boom, and that is something to celebrate."

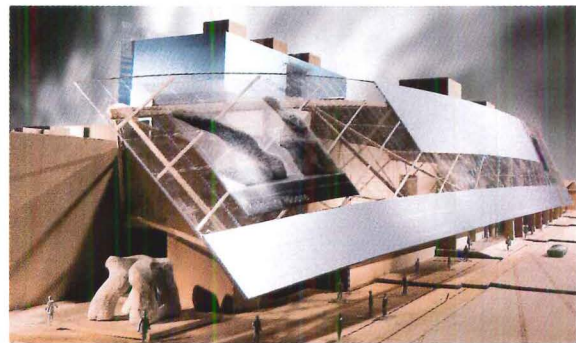
Indeed, the announcement of such high-profile projects has garnered significant attention among Toronto's architects, press, and public, fostering an awareness of architecture that has enabled Toronto architects to have a more informed dialogue with clients. Whether people approve of the architecture or not, they are certainly taking notice, and most would no longer describe the city's design spirit as boring.

Meanwhile, a handful of Toronto firms, such as Diamond and Schmitt Architects, Teeple Architects, and architectsAlliance, are producing some of their best work. Diamond and Schmitt's Donald Schmitt says of the Toronto firms: "I think there's been an emergence of a Toronto school of architecture. It's not American; it's of this place, with projects that are grounded in urban form with intelligent use of detailing and materials."

**Support for cultural projects**  
Starting at the national level,



Upcoming cultural projects set to enliven Toronto's architecture include Daniel Libeskind's Royal Ontario Museum addition (above), Frank Gehry's Art Gallery of Ontario project (right), and Diamond and Schmitt's Four Seasons Opera House (below).



Canada's new prime minister, Paul Martin, who was inaugurated in December 2003, has touted "a new deal for cities" and established an advisory committee to develop national strategies for urban issues. In Toronto, Mayor David Miller, also

inaugurated in December, said in a mayoral debate: "Urban design matters; architectural excellence matters; public art matters." Meanwhile, in a powerful statement of commitment to urban improvement, author and urbanist Jane



## Correspondent's File

Jacobs has joined Miller's mayoral transition team, and architect Jack Diamond of Diamond and Schmitt was a Miller campaign cochair.

One government program already benefiting Toronto's infrastructure is Ontario's SuperBuild Growth fund, which has allocated \$15 billion since 1999 for capital improvements and construction for colleges, univer-

sities, and cultural and civic projects.

One of the larger cultural beneficiaries of SuperBuild is the Art Gallery of Ontario (AGO), which, in one of the most publicized architectural events in Canadian history, unveiled its Gehry-designed expansion in late January [RECORD, News Briefs, March 2004, page 38].

Gehry, a Toronto native who moved to California in 1947, grew up a few blocks from the AGO. With construction to begin next year and finish in late 2007, this will be Gehry's first major project in Canada. The \$146 million expansion is funded in part by \$18 million from SuperBuild and \$38 million from Canadian media magnate Kenneth Thomson. Gehry's design does not appear to have the sculptural exuberance of the Guggenheim in Bilbao or

Disney Hall in Los Angeles (in part because the AGO project is a renovation and addition to an existing museum on a landlocked urban site), but its whimsical features clearly lend a great deal of excitement to the design community. Gehry includes a sculptural staircase that soars from the second floor, linking the AGO's Walker Court to a new center for contemporary art, as well as a promenade and new entrance under a curving 600-foot-long glass-and-titanium facade and a new four-story south wing adjacent to Grange Park. Significantly, the Gehry design calls for the disassembling of a major expansion designed in the 1980s and completed in 1993 by another former-Torontonian-turned-Californian, Barton Myers.

Further raising the level of Toronto's architectural fervor, and literally up in the air from the AGO, is perhaps the most controversial new structure in Toronto since the CN Tower: the \$32 million Sharpe Center for Design addition to the Ontario College of Art and Design (OCAD) by

British architect Will Alsop with Toronto firm Robbie Young + Wright Architects. In a daring move, Alsop, in his first North American commission, placed the majority of the new building on 85-foot-tall steel stilts high above the existing OCAD campus. Besides the stilts, the only connections between the two-story, 52,000-square-foot rectangle, dubbed the "flying rectangle," and the existing buildings, are an elevator/stairwell shaft and an emergency stairwell. The building is due for completion at the end of this summer.

Nearby, another boldly innovative cultural project is under construction: the \$130 million addition to the Royal Ontario Museum (the largest museum in Canada) by Libeskind, called the Michael A. Lee-Chin Crystal after its donor. Libeskind, with Toronto firm Bregman + Hamann Architects, has designed 220,000 square feet of new and renovated space, including galleries, studios, workshops, and two theaters, to open in December 2005. The addition's angular, crystalline metal and



Alsop's addition to the Ontario College of Art and Design.

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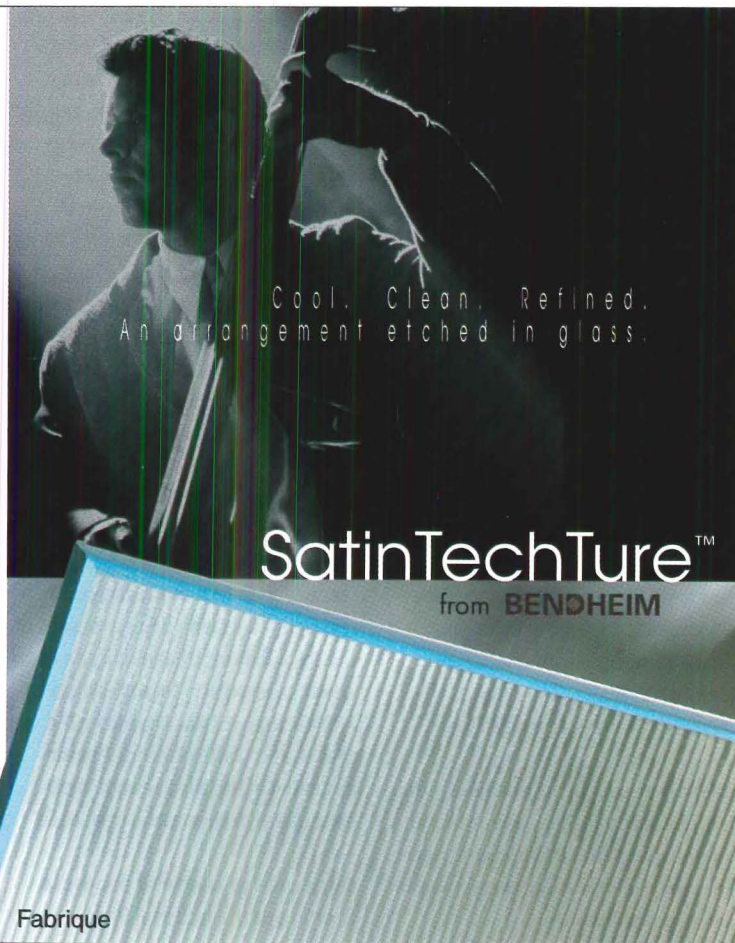
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## Correspondent's File

glass forms present a sharp contrast to the museum's traditional exterior and have turned more than a few heads in Toronto's design community.

ROM is part of a cultural precinct with the nearby Royal Conservatory of Music and Gardiner Museum of Ceramic Art, both of which are undergoing major expansions and renovations by Kuwabara Payne McKenna Blumberg (KPMB), one of Toronto's busiest firms. KPMB is also designing Festival Centre and Tower (a permanent home for the Toronto International Film Festival) to open in 2008, and a new campus for the National Ballet School that will open this December.

Adding to the fast-growing cultural mix is the \$113 million Four Seasons Centre for the Performing Arts, a new opera house under construction by Diamond and Schmitt. Sponsored largely by Four Seasons Hotels and located on the prominent

corner of Queen Street and University Avenue, the Four Seasons Centre will feature a five-story, glass-enclosed "City Room" lobby that will have dramatic views of the streetscape below. The 2,000-seat home of the Canadian Opera Company will open in fall 2006.

### University projects

Cultural development is not limited to public buildings. At the heart of the city, the University of Toronto's St. George campus is also undergoing a dramatic transformation, with multiple contemporary building projects by notable architects comprising approximately \$800 million in total construction at the campus and at two smaller suburban campuses. At press time, the university had 33 buildings in design or construction. Highlights include the \$55 million Leslie L. Don Pharmacy Building by London's Foster and Partners due to



Leslie L. Don Pharmacy Building.

open in fall 2005; the \$80 million Centre for Molecular and Biological Research by Behnisch Behnisch & Partner of Stuttgart, Germany, with Toronto's architectsAlliance, opening in fall 2005; the \$24 million Woodsworth College Residence by architectsAlliance opening this year; a 277-unit college residence by saucier + perrotte completed in 2003 for \$21 million; and a \$3.5 million day-care center by Teeple Architects completed last year. Diamond and Schmitt also recently

completed the \$83 million Bahen Centre for Information Technology.

Richards says the university did not have prescriptive guidelines for the new structures. Although all share a Modern aesthetic, "It's evolved organically," he says. "I think the eclecticism of this campus suits this city and suits this university."

And the architecture graduates of the University of Toronto and nearby University of Waterloo, many of whom are now seasoned designers with their own firms, do not seem to be hampered by their city's historic context in designing contemporary architecture. Adrian DiCasteri, a partner in the firm architectsAlliance, one of the newer and fastest-growing firms in the city, notes that the refined design quality among Toronto architects can be attributed to the "maturation of young firms now doing institutional work in the past five years." Toronto architects, with a few visiting star architects, may soon offer the rest of North America lessons in contemporary architectural practice and city building. ■



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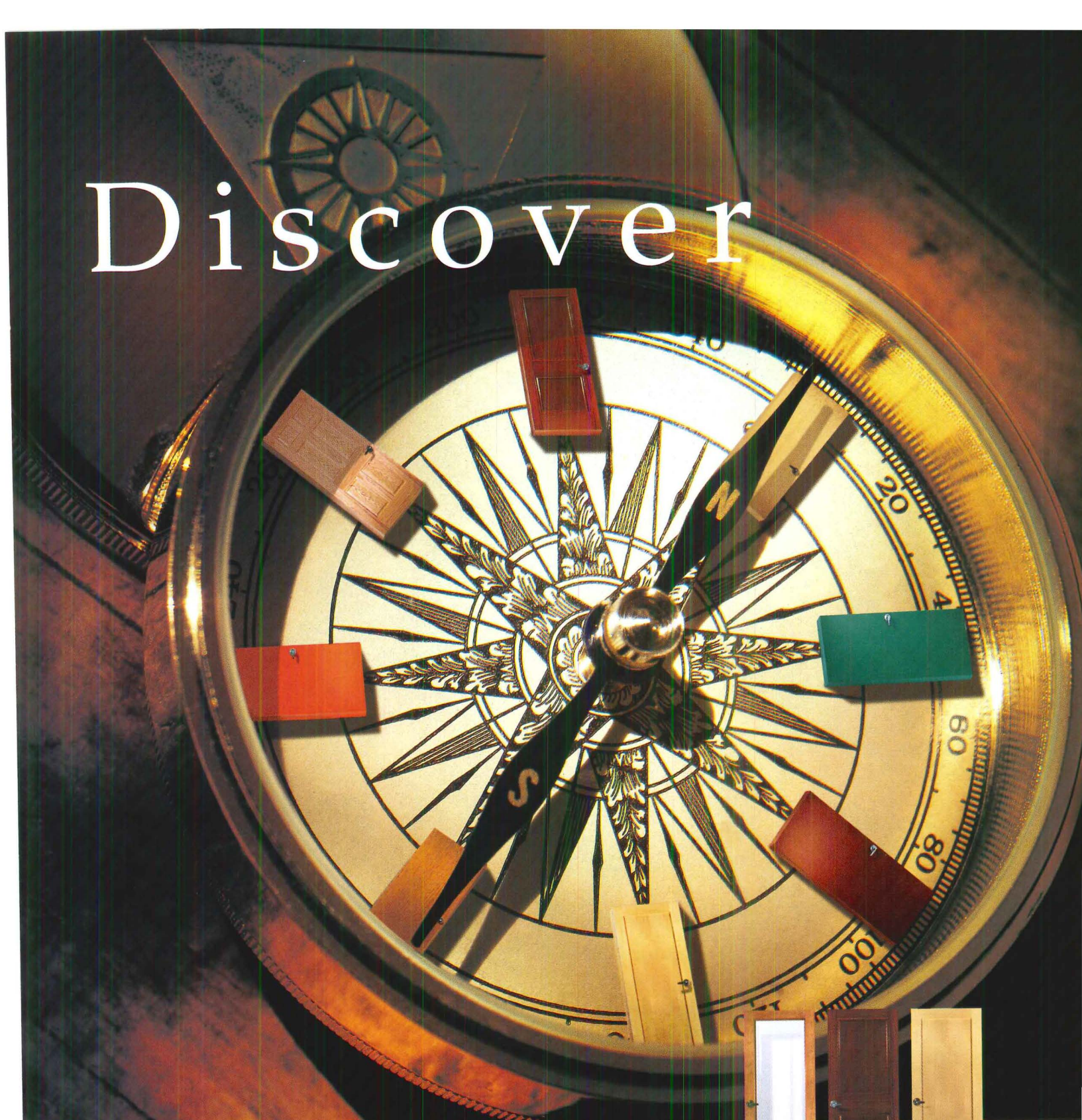
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# Limping our way to universal design: Everything looks different on crutches

## Critique

By Michael Sorkin

We cripples see the city a little differently. Where two months ago I bestrode New York like a colossus, roaming freely, scampering up stairs, jaywalking with the best of them, I now find the city reorganized as an obstacle course. The accident that precipitated this was the result of what turned out to be a needless trip uptown. It had been snowing, and my wife cautioned me as I left home about slipping on the ice. This is a frequent wintertime comment of hers, signifying both familial concern and a critique of the fact that I feel that Top-Siders are appropriate year-round for flâneurs like me, assuming sufficient care and grace are displayed.

Her cautions also had more serious credibility in that we had both suffered fractures from falls on the ice the previous two years, hers more recently. To cut to the chase, I slipped on the ice as I was heading down 145th Street to the A train and badly broke my ankle. As I lay on the sidewalk, looking at my dangling foot and at the bone poking at the skin, trying not to pass out from the pain, I knew things were going to be different for a while.

Two passersby dragged me to an adjacent stoop and spoke comfortably. Cell phones were whipped out up and down the block and 911 was quickly dialed. Within five minutes an ambulance had arrived and I was being loaded in. The first truth of the experience emerged: Faced

with the suffering and incapacity of a stranger, most citizens behave with kindness and appropriate dispatch, although there are still those who let doors slam in my face or who honk impatiently as I've struggled out of a cab.

### Warning: uneven surfaces

Mobility is, of course, the primary issue for a handicapped person negotiating the city. I got my first dose of the fresh contingencies I now experience on the ambulance ride to the hospital. While delays in traffic were no surprise, the pain transmitted to my leg from the rutted roadway of the East Side Drive was awful: What is annoying on a cab ride can be torture in an ambulance. As I came to learn, the unevenness of surfaces is a major issue for urban mobility. This can be encountered riding in the street; walking down the sidewalk and negotiating curbs; or within buildings where loose stair treads, missing tiles, unsecured carpet, and a thousand other perils present themselves.

The range of barriers is great. Heavy doors are tough. Revolving doors are too fast and too small. Narrow spaces are challenging. Even the office of my crack orthopedic surgeon is filled with obstacles, especially for those in wheelchairs. The sharp and narrow corner between the receptionist and the waiting room is daunting. The bathroom door is too heavy to be easily opened with one crutch-holding hand while balancing on one foot. Even the entry to the building—

filled with orthopedists—requires descending a series of steps with no handrail, risky in the rain. Only on my second visit did I discover the handicapped ramp. As it turns out, these are often installed in a spirit that is short on convenience, longer on the letter of the law. At the surgeon's building, the ramp is located so far off to one side of the entry plaza as to effectively double



the distance from the curb to the front door. What is gained in easy inclination is lost in the extra exertion of length.

### How about a crutch clip?

The instruments of mobility are themselves fraught and amazingly underdeveloped. My lightweight, Chinese-manufactured aluminum crutches are well made and easily adjustable. I am now pretty fast on my foot but sometimes forget to be vigilant about watching the ground in front of me for obstacles, which are profuse. The nightmare, for me, is at the end of the day when

I return to our fifth-floor walk-up apartment. Climbing up is slow and tiring, and it's all I can do to propel myself to the horizontal when I finally arrive. To keep my balance on the stairs, I hold on to the railing. This raises the question of what to do with the second crutch. I have learned, when on the stairs, to hold the unnecessary appliance in the same hand as the crutch being

used. Indeed, I have now become sufficiently adept to hold the mail as well. Might it be possible to include a crutch clip on each crutch to enable its mate to be carried during one-crutch excursions?

At the other end of the spectrum of mobility are the cabs that are now central to my movement in the city. The standard-issue American backseat is extremely unfriendly to those of us with boots and casts, who lack the ability to turn our feet or

ankles to fit into the contracted legroom or to get down to or up from low-lying seats. As I wait for a cab, I mutter my silent appeal that one of the new "stretch" cabs—a few extra inches make a tremendous difference—or a minivan will come my way. That after all these years—with the vanished example of the Checker or the sensible London taxi in mind—our cabs remain so poorly designed is a tribute to the stupidity and greed of the auto industry and the indifference of public regulators. In a city where the cost of a taxi medallion approaches \$200,000—and their

*Contributing editor Michael Sorkin heads the urban planning program at the City College of New York.*



## Critique

number is artificially limited—it would seem a slam dunk to require accessible design (and let's add safety and zero emissions to the basic requirements).

### (Re)construction drawing

My ankle, however, has become a fabulous piece of design. As I was wheeled into the operating theater to have my bones repaired, I noticed a wonderful drawing on the wall. It had been done by the surgeon on tracing paper, laid over an X-ray of my fractures. The work depicted the various screws and plates he was intending to implant, a working drawing. As I succumbed to the anesthesia, a couple of thoughts drifted into my head. First, that the surgeon was a kindred spirit, working in the same representational medium we do. And second, wondering what was going to happen when I first confronted an airport

magnetometer.

A couple of weeks ago, I found out. My ankle, previously no more than the connection between my leg and foot, had been transformed into an object of suspicion, and I joined the queue of the lame, halt, and blind who were getting the extra once-over from security, immobility compounding itself, insult added to injury. My scar was probed with care lest I was carrying an ankle bomb. The airport was a giant ordeal, partly overcome by navigating it in a wheelchair. Of course, one would not ask for a wheelchair if the infirmity were not highly and legitimatingly visible. What, I wonder, will I do when the boot comes off and a cane substitutes for crutches. I will certainly walk the concourse miles, bucking crowds and distance, as I slowly make my way to my connection.

The plane itself is even worse.

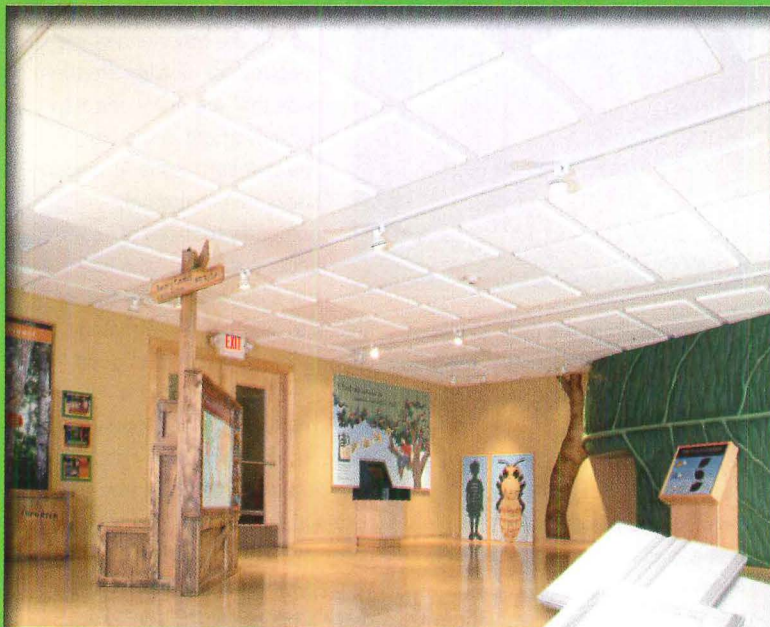
My injury had forced the cancellation of trips to Taiwan and South Africa (not wanting to risk deep vein thrombosis, infection, and various other ailments), and my maiden journey was a shorter one, although requiring a change. The seat pitch was impossibly narrow, and I began the dance of stretching my bad foot out in the aisle and removing it for passing passengers and flight attendants and their beverage trolleys. Having put my crutches in the overhead bin, going to the bathroom became a big issue. With the crutches unavailable behind piles of luggage, I was forced to hop my way to the back of the plane on my good foot, risking a fall on every turbulent bump.

### A new perspective

In the great scheme of things, my injury is not so serious, and I will eventually resume walking. But my designs and my reading of the accessibility of the city will be affected permanently. Looking at the ADA infrastructure with which the city is being retrofitted, I can't

help but get the feeling that all of this work is generally treated as an afterthought. Of course, it is an afterthought and a necessary one. But the spirit appears equally in refits and new construction in which a person's fitness remains the default for participation. The idea of reducing barriers is simple and elegant, one that should spark invention, not snide remarks or resentment.

I will also be cautious about the appealing surgical metaphor for our profession. My excellent surgeon reflected the doctor's view of the body, formed from the inside out, ending at the membrane of the skin. Architects, to successfully house us, must come from the other direction. Along the seam of capacity, the two professions meet. Our job, after all, is accommodation, and that means everyone, not some statistical modular or formal abstraction. The profession needs to overcome its indifference to this very real difference among us. Architecture will be better for it. ■



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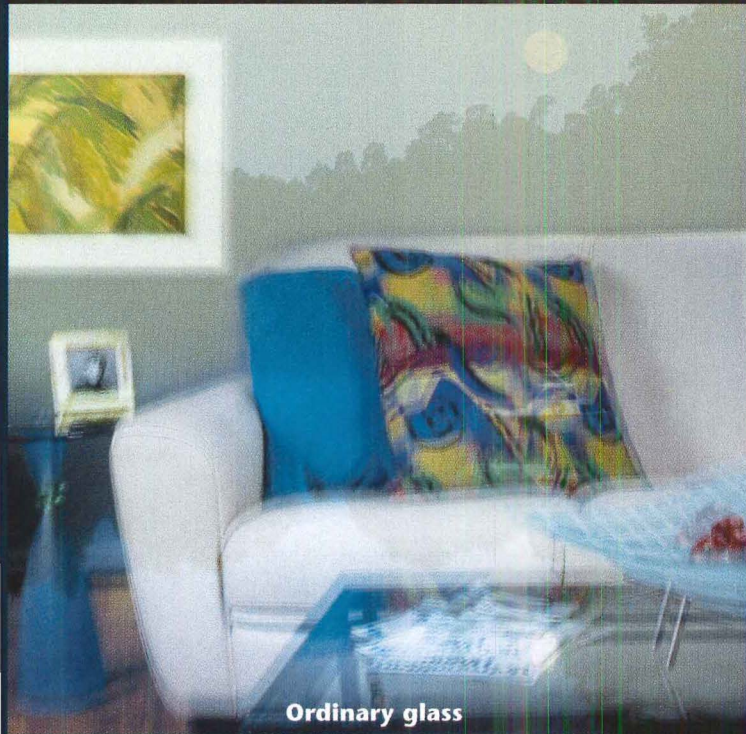


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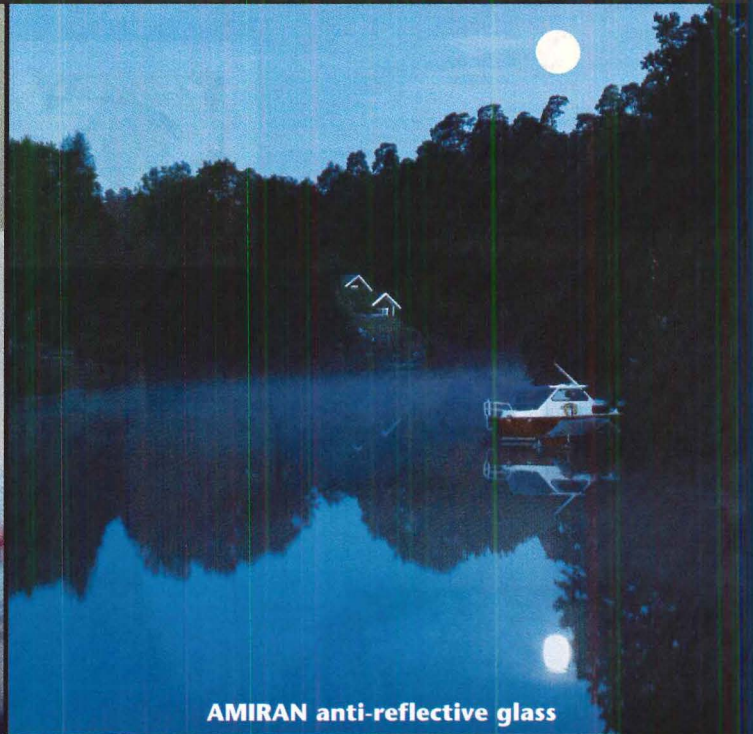
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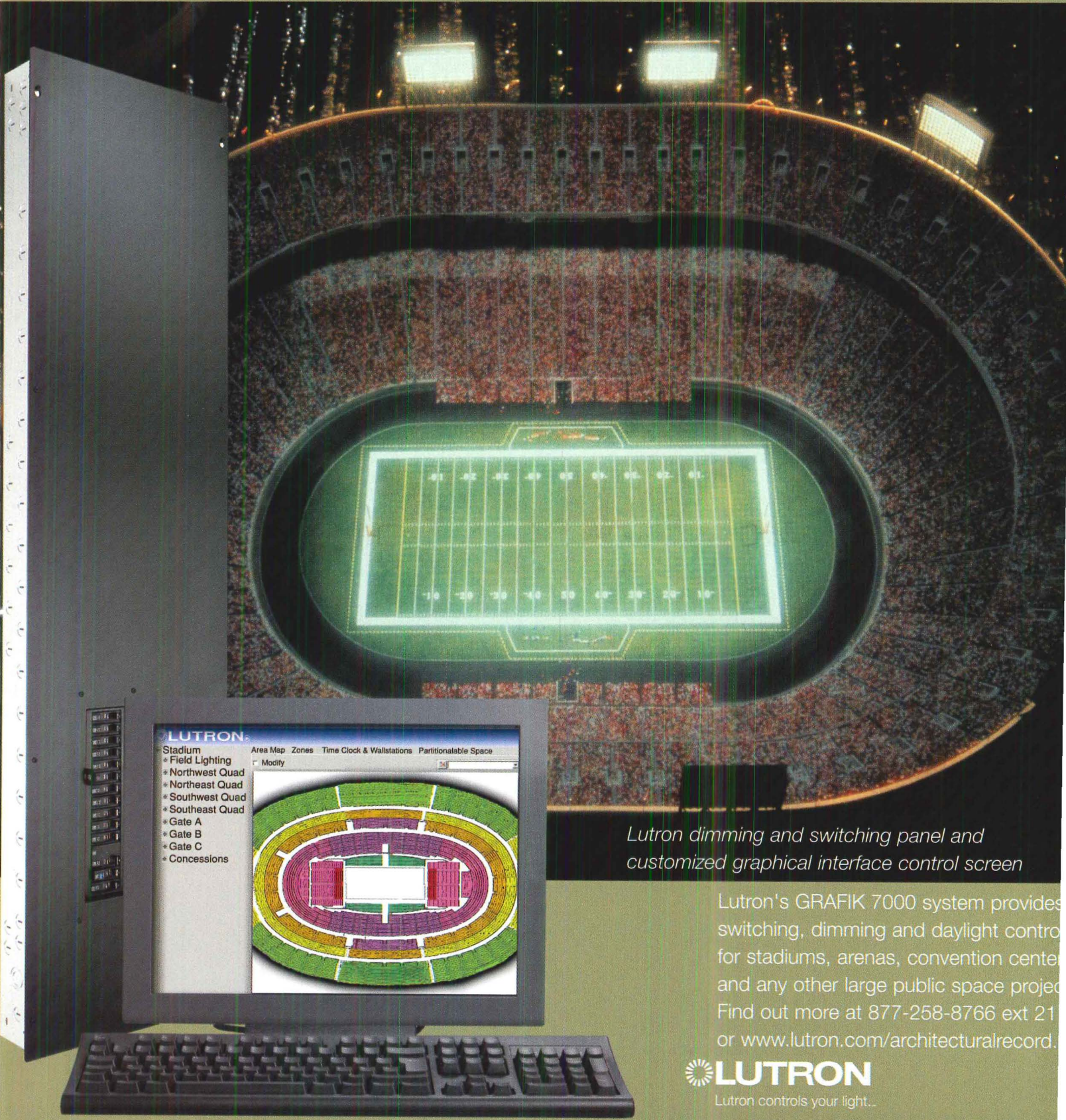
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# Collecting their thoughts: Two important writers select highlights from their careers

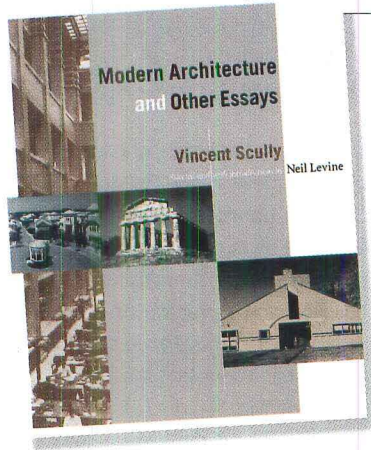
## Books

**Modern Architecture and Other Essays**, by Vincent Scully, selected and with introductions by Neil Levine. Princeton, N.J.: Princeton University Press, 2003, 400 pages, \$45.

Vincent Scully is easily the most famous architectural historian of the last half of the 20th century, and among the most influential. What other architectural historian received a profile in *The New Yorker* and front-page treatment from *The New York Times* on the occasion of his retirement? Legendary for his dramatic lectures at Yale, where he began teaching in 1947, Scully introduced several generations of students to art and architecture. His appeal lay not just in dramatizing history, but, in his words, showing the importance of architecture as “creating forms of permanent humanity out of the utter impermanence of the human situation.”

Best known as a historian of American architecture, Scully first drew attention in 1955 with his book *The Shingle Style*. His other writings were broad in subject matter, which included Greek temples, French gardens, Le Corbusier, pueblos, and European Modernism. However, the American condition always came first for him. Scully was one of the first to recognize Louis Kahn, and he wrote the introduction to Robert Venturi's *Complexity and Contradiction in Architecture* (1966).

Over the years, Scully grew disenchanted with certain aspects of Modern architecture and planning



and embraced Postmodernism—which his Shingle Style writings helped to create—and more recently the New Urbanism of Andres Duany and Elizabeth Plater-Zyberk and others. This shift has dismayed some orthodox Modernists, but it illuminates Scully's willingness to reassess and calls to mind Emerson's famous observation: “A foolish consistency is the hobgoblin of little minds.”

*Modern Architecture and Other Essays* consists of 20 essays and articles written between 1954 and 1999. The book, edited by Neil Levine, who teaches at Harvard and is a former Scully student, also includes a biographical sketch and a bibliography of Scully's writings. The essays cover topics ranging from American wooden houses of the 19th century to recent town-planning issues and Frank Gehry's Guggenheim in Bilbao.

Scully admires Bilbao as reproducing “the shapes of the conical hills,” and writes that it has “sailed boldly up the river, and rammed into the main highway bridge, buckling under the impact, ... lunging at

passersby like a monster fish with silver scales.”

The book also includes numerous essays about Greek, Roman, and Classical art and architecture. At bottom, no matter how much Scully admires Wright, Le Corbusier, and American suburban houses (of a certain period), he has shown a lurking Classicism and an empathy with ancient ruins. This comes forth frequently, and in the case of Kahn, it is how many of us—through Scully—understand him. “Kahn provided a kind of primitive new beginning for architecture,” says Scully, and discovered “how to transform the ruins of ancient Rome into modern buildings.”

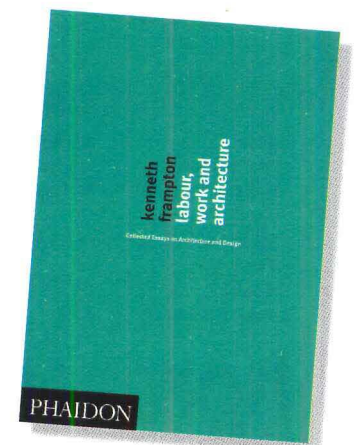
Some of the essays in this book refer to controversies long past, and some have the heavy hand of academia, but overall they provide wide-ranging insights into the architectural thought of the past half-century by a central figure. Despite their sometimes pessimistic air, most of the essays end with uplift or an appeal. Scully concludes with a consideration of American city planning and attempts at public housing, declaring, “Once we did this right in the United States, and with the help of the Almighty, we'll do it again.” *Richard Guy Wilson*

**Labour, Work and Architecture: Collected Essays on Architecture and Design**, by Kenneth Frampton. New York: Phaidon, 2002, 352 pages, \$50.

In these collected essays, Kenneth Frampton provides a chronological

overview of his career, placing each essay in a historical context. Frampton divides his anthology into three parts: theory, history, and criticism. This allows many potential overlaps, as he notes in his preface.

The selection unfolds with a clear logic. In the introduction to the theory section, the author explains the enormous impact Hannah Arendt's *The Human Condition* had on him as he left London for Princeton in 1965. The result was his essay, “The Status of Man and His Objects,” in which he sought an engaged autonomy descended from the Frankfurt School's critique of modern industrialism, Marxism, and totalitarian regimes. Paul Ricoeur's 1961 essay “Universal Civilization and National Cultures” prompted his next seminal leap, “Towards a Critical Regionalism: Six Points for an Architecture of Resistance.” The theory section of the book ends with “Rappel à l'Ordre: The Case for the Tectonic,” an attack on the scenographic in Postmodern architecture and a plea for a return to tectonics as the key to an autonomous archi-





## Books

tectural culture rooted in both global and local traditions.

The history and criticism sections trace Frampton's writings from Modernism to Postmodernism and beyond. Included are essays on Russian Constructivism, El Lissitzky, Team X, Louis Kahn, Loos, Le Corbusier, and finally, "The Legacy of Alvar Aalto." The reprinting of such classics as "The Humanist versus the Utilitarian Ideal" and "Maison de Verre as a Bachelor Machine" is a reminder of Frampton's deep passion for a machinelike beauty in architecture.

In the introduction to the last section, Frampton confesses to practicing what Manfredo Tafuri deplored as "operative criticism," a form of critical advocacy for preferred architects. The book includes early essays on Stirling and Gowan's Leicester Laboratories (1964) and Hans Scharoun's "equally canonic"

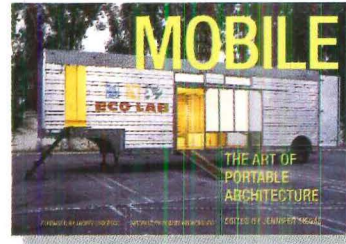
Philharmonie Building in Berlin (1965), then ones on Herman Hertzberger, Alvaro Siza, and Tadao Ando. The surprise of this section is a previously unpublished 1981 appreciation of Rafael Moneo's stern, geometric, brick Bankinter Building in Madrid, which opened in 1973.

Through his artful selection and new introductions, Frampton gives unity to his critical voice, which has spanned the shift from Modernism to Postmodernism. This is a magisterial summation of a life's work that is far from over, as the new essay, "On the Predicament of Architecture at the Turn of the Century," makes clear. *Grahame Shane*

**Mobile: The Art of Portable Architecture**, edited by Jennifer Siegal, foreword by Andrei Codrescu, preface by Robert Kronenburg. New York: Princeton Architectural Press, 2002, 128 pages, \$20.

At first glance, this book has the air of the ridiculous (a personal island attached to a rowboat, a car that lifts

itself to become a four-story mini-hotel). But closer reading reveals a serious, if abbreviated, study of how architects, engineers, and designers interpret the eternal human condition of nomadism in the Information Age, when home and work can be anywhere at any time. Modern portable structures, it turns out, date back to



1830, when Londoner John Manning invented the Manning Portable Colonial Cottage; the editor of *Mobile* brings us up to date with illustrations of reusable, high-strength-fabric buildings and interactive structures with parts that move according to outside conditions and the inhabitants' behavior.

True, some of the examples in the book are still only conceptual, but

others, notably the amazing portable rock concert venues by The Mark Fisher Studio and FTL Happold, are already icons of a new generation. Other examples include Festo's pioneering Airitecture, an exhibition hall with air-filled, load-bearing structures, and LOT/EK's Mobile Dwelling Unit, which fits in a shipping container for transport but expands with pullout segments for living and work space. Editor Jennifer Siegal's own firm, Office of Mobile Design, has produced portable homes and buildings whose expanding and contracting spaces give a loftlike feel to structures the size of old mobile homes.

The "art" in the title is an integral part of the book's message. Apart from some hard-to-read pages using white type on a chartreuse background, the graphics are terrific. And the small size makes *Mobile* a perfect travel companion—witty and thought-provoking. Ideally, the book might pry some architects out of the safe and sure and get them looking at new ways of building. *Nan Chase*

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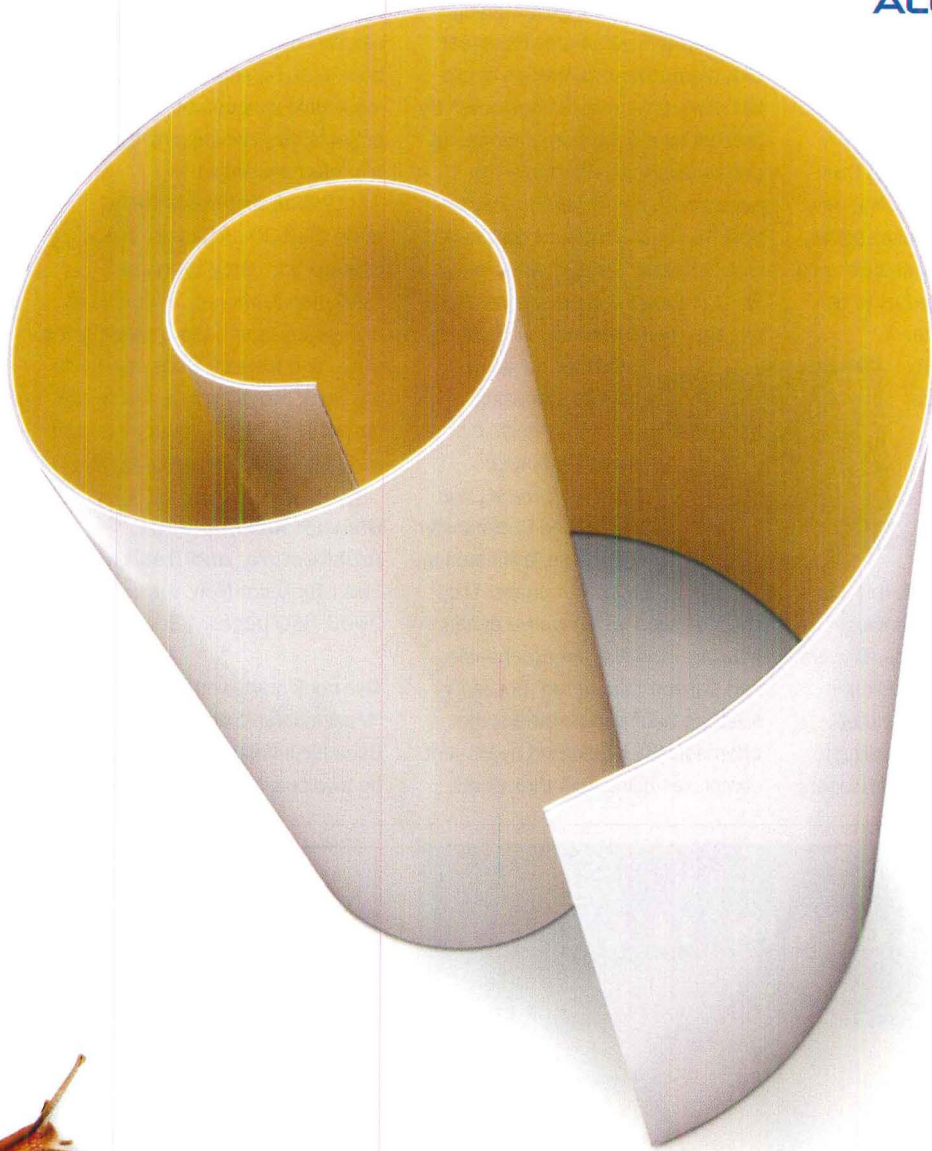
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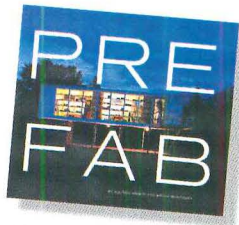


## Books

**Prefab**, by Allison Arieff and Bryan Burkhart, Kaysville, Utah: Gibbs-Smith Publishers, 2002, 160 pages, \$40.

Say "prefab" and most people think "cheap and ugly." The prevailing view is well-earned: Prefab houses usually mimic old-timey, stick-built styles and are so poorly constructed as to be destined for early transfer to the dump. Meanwhile, prefab Blockbuster Video buildings, Holiday Inn Express motels, and McDonald's franchises are transforming varied landscapes into homogenous mediocrities. Why is this so, with all the vision and technology available today? Among the answers given by Allison Arieff, the editor in chief of *Dwell* magazine, are that financial institutions are unwilling to finance innovative prefab, developers

are unwilling to change a winning formula, "and some architects fear that the further proliferation of prefab will put them out of business." By presenting a collection of intriguing prefab dwellings, Arieff and the book's designer, Bryan Burkhart, hope to show what can be achieved with "this much-maligned building type." A change in perceptions of prefab, they think, can help fill a gaping



need for attractive, low-cost housing.

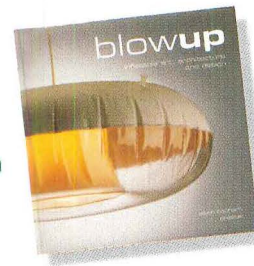
They begin by revealing how Le Corbusier, Frank Lloyd Wright, and Buckminster Fuller were fascinated by prefab structures. They show a gallery of innovative prefab housing, including the expandable and transportable "Fred" house by Austria's Kaufmann brothers, the affordable IKEA-designed apartment complexes being built throughout

Sweden, and First Penthouse, luxurious rooftop apartments assembled in Sweden and craned into place in central London. The book then presents innovative conceptual projects that are shaping the future of prefab housing.

*Prefab* features work by more than 30 architects, including Shigeru Ban, Greg Lynn, and Heikkinen Komonen, in places as diverse as Japan, the United States, Chile, and Iceland. Does one finish the book believing in a new future for custom, mass-produced prefab housing? Well, almost. *A.O.D.*

**Blowup: Inflatable Art, Architecture, and Design**, by Sean Topham. New York: Prestel, 2003, 160 pages, \$30.

This book starts with the statement, "Most inflatable design is rubbish." Because inflatable technology can be frivolous, cheap, and disposable



but has the potential to create monumental structures and preserve whole ecosystems, our reactions to it are all over the map. That's precisely what makes the subject so fasci-

nating, according to author Sean Topham. Recalling the history of inflatable design and pneumatic technology (from children's toys and home furnishings to lunar habitats and military decoys), Topham reminds us that contemporary inflatables took form in the 1960s, when radical architecture collectives such as Archigram, Utopie, and Haus-Rucker-Co mapped out plans for inflatable cities. At the same time, such artists as Andy Warhol and Claes Oldenburg used air-filled objects to bring art out of galleries and into the streets. Topham examines all manner of air-filled objects, practical and absurd, boring and fascinating, and he writes about this often-silly art form with suitable irreverence. *A.O.D.*

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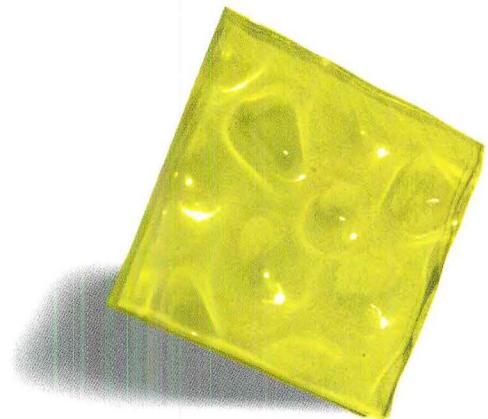
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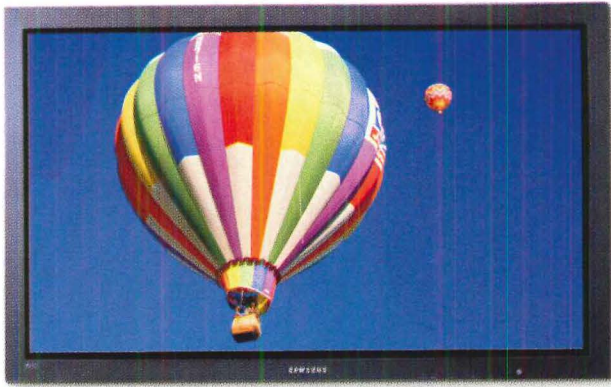
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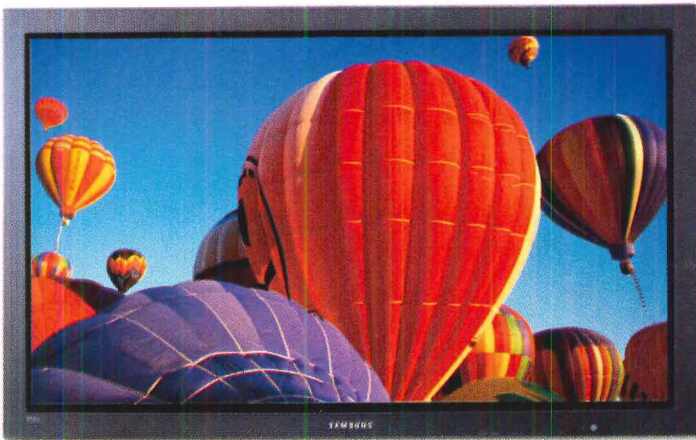




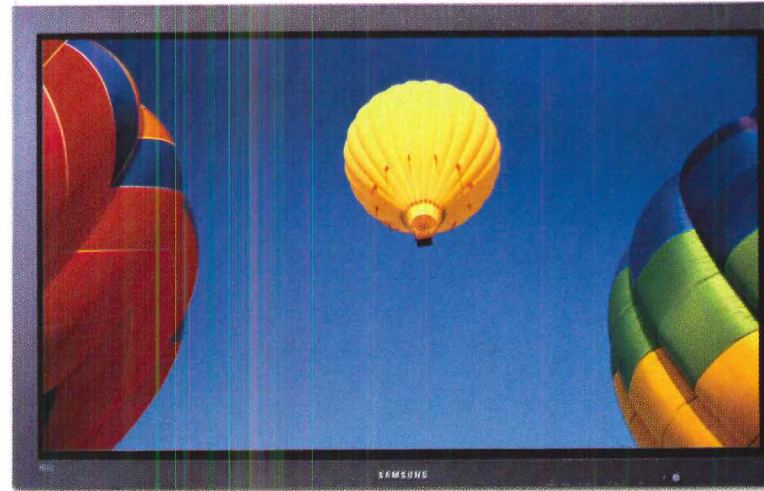
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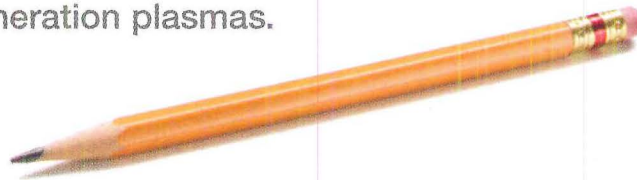


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# Snapshot



By Tracy Metz

Evoking not merely a domestic lounge area, the house's name, Living Room, refers to a space for living—or a room that's alive. An abstract object designed by Frankfurt-based architects Gabriela Seifert and Götz Stöckmann, this project will appear in the upcoming Venice Biennale. In an unusual move, the designers convinced the town of Gelnhausen, some 25 miles north of Frankfurt, to let them demolish a dilapidated 300-year-old house in the medieval town center and erect a new building—a home and studio for Stöckmann—that replicates the volume and geometry of its predecessor. The architects then invited five artists and one poet to integrate site-specific work—painting, sculpture, poetry, and light and sound installations—including Charly Steiger's images on the outer wall, showing the site's earlier structure.

The new house, like the old, covers the entire 20-by-33-foot lot, but unlike its predecessor, features a semi-mobile facade. Remarkable as it may seem, a motorized section of the front elevation rolls out like a drawer, windows and all. Cantilevering 10 feet over the road, it serves as a retractable balcony and open-air sleeping nest.

## A semikinetic facade turns a bedroom into a balcony

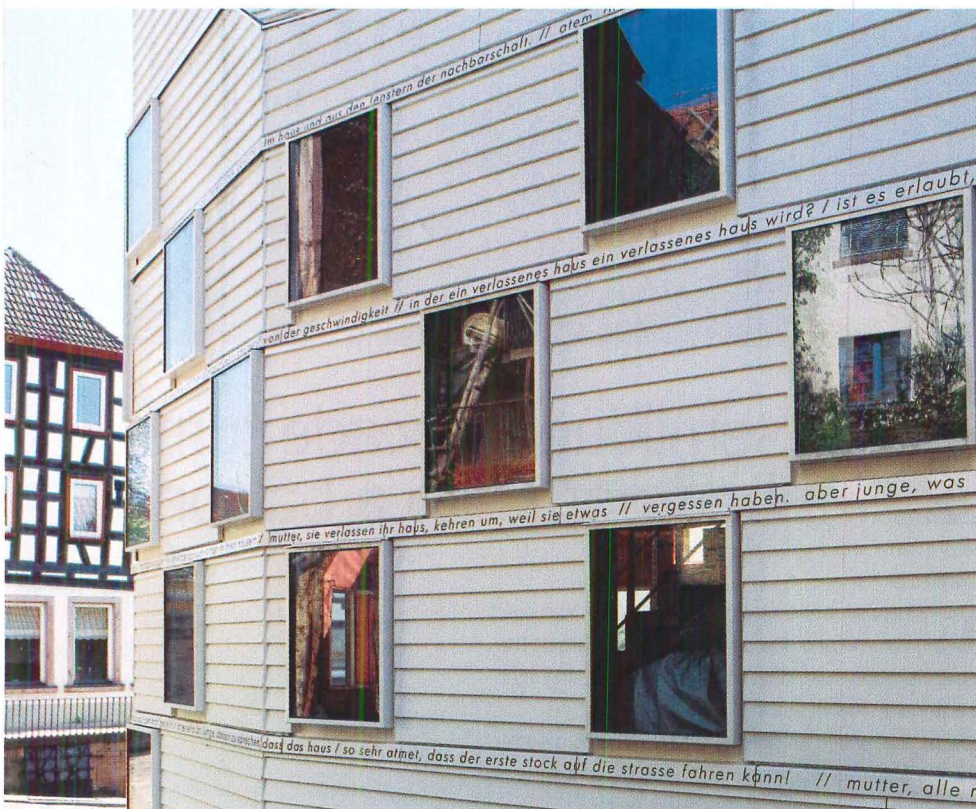


# Snapshot

Dividing the facade into checkerboard squares, Seifert and Stöckmann left one-third open, with 52 windows, and two-thirds closed. Ironically, the house's details render it abstract. The roof and exterior elevations form a continuous, seamless surface, covered in aluminum with punched windows. Rain flowing down the outer walls drains into metal gutters and through laser-cut letters spelling out a quote from Hans von Grimmelshausen's novel *Simplicissimus* (1669). Every few years, the building will change skins, as if donning a new ornamental jacket. Next time, a thin membrane of eggshell-white aluminum will make the windows completely flush.

"We think of the Living Room as a fundamental house, the minimum protective shell," Stöckmann asserts. Its balloon frame surrounds a massive 40-ton rock, set amid boulders and gravel like a dry riverbed. This internal garden negates distinctions between inside and out—as does the whole building. Upon entry, one can descend to this "riverbed" or ascend along a series of ramps and platforms. With functional areas—pantry, heating system, toilet, and bath—compressed into a deep back wall, the rest of the volume remains free.

Complex in its simplicity and vice versa, the Living Room offers a three-layered cosmic metaphor: Rock=Earth, Drawer=Journey of Life, and the Uppermost Level=Heaven. ■



When the great "drawer" closes (top), the facade gives no hint of its kinetic potential. Words and images by artists and a poet are integral to the architecture (top and left). The drawer provides its bedroom with built-in storage (above).



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# A Smithson house evolves over decades

By Andrew Mead

**N**ot long before his death in March 2003, Peter Smithson completed a glazed pavilion set among ancient oaks on a hillside in central Germany. It was the last major element in a 19-year project: a series of accretions and interventions that transformed the Hexenhaus, home of furniture manufacturer Axel Bruchhäuser.

Smithson and his wife, Alison, who died in 1993, were dominant figures on the postwar British architectural scene. As “New Brutalists” (a term they reputedly coined), they opposed picturesque Modernism in the 1950s and ’60s, advocating instead the unremitting rigor, honesty, and puritanical expression of materials, structure, and function. Their Miesian-style Hunstanton School (1954) and urbane Economist Building (1964) brought them acclaim for toughness, while their controversial Robin Hood Gardens in East London (1972) demonstrated a concern for high-quality social amenity in mass housing.

Today, some of the most thoughtful young practices in the U.K. and elsewhere are looking closely at the Smithsons’ work, but in the 1970s and ’80s, when Britain succumbed to Postmodern historicism, the couple was largely sidelined. So, in 1984, they welcomed Bruchhäuser’s first modest Hexenhaus commission. The irony, of course, is that many a Postmodernist would have coveted the opportunity to work on this project.

Axel Bruchhäuser owns Tecta, which manufactures “classic” Modern furniture by such designers as Marcel Breuer and Jean Prouvé. He initially approached the Smithsons with a view to producing their

*Andrew Mead, a London-based architectural writer, is review editor for The Architects’ Journal.*





The Smithsons, pioneers of Brutalist Modern architecture in postwar Britain, renovated a picturesque German cottage. The quirky mix of additions and outbuildings evolved into a 19-year creative effort.





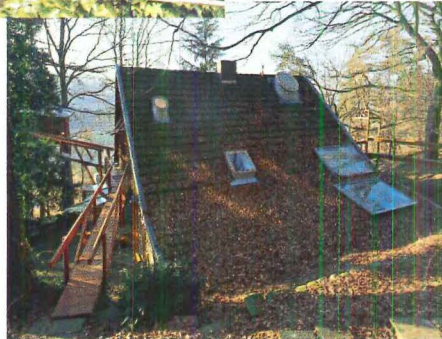
Trundling Turk chair. But once he got to know them, he intimated a yet-undefined dissatisfaction with his house.

The Hexenhaus—built soon after World War II in the local vernacular of sandstone and half-timber, with a steeply pitched roof dipping low in the back—stands near the end of a narrow lane outside the small Baroque town of Bad Karlshafen. Set in the German region that had inspired the Brothers Grimm, the house impressed Alison Smithson right away with its “Hansel and Gretel” quality.

The property had acquired the local nickname of *Hexenhaus* (or Witch’s House), which Bruchhäuser adopted when he bought the place in 1978 as a home for himself and his cat, Karlchen. The house was compact (just 1,950 square feet) but had 1.75 acres of grounds, mostly wooded hillside. Bruchhäuser saw it principally as a refuge from work: a place where contact with nature could revitalize him. At first, though, the building’s introverted character impeded such direct contact. “I just told Alison I needed a new door,” he recalls of the initial commission. But he soon realized that the structure was too enclosed and what he really desired was a place simply to “enjoy the views or sit when the rain comes.”

Alison proposed adding a porch at the structure’s southwest corner as a “calm cell in nature.” This modest beginning would eventually lead to a series of Smithson commissions at Hexenhaus and the client’s nearby Tecta factory. The process became “like working on a big estate, where the owner says, ‘This year hasn’t been bad—let’s do so-and-so,’” recalled Peter. “Axel initiated all the changes from a problem he’d identified or an observation he’d made.”

As built, the southwest porch reuses the house’s originally paired French doors, now in two separate locations. Next to them, the architects placed new glass panes divided by wavy pine lattices, lyrically echoing tree branches. The lattice was already emerging as a recurrent Smithson theme, featured in such projects as St. Hilda’s College Garden Building at Oxford (1970)—prompting Peter to comment on how this form affects views in and out. Lattices, he said, make us “conscious of seeing segments that isolate objects or collections of them, [causing us to] see strongly.”



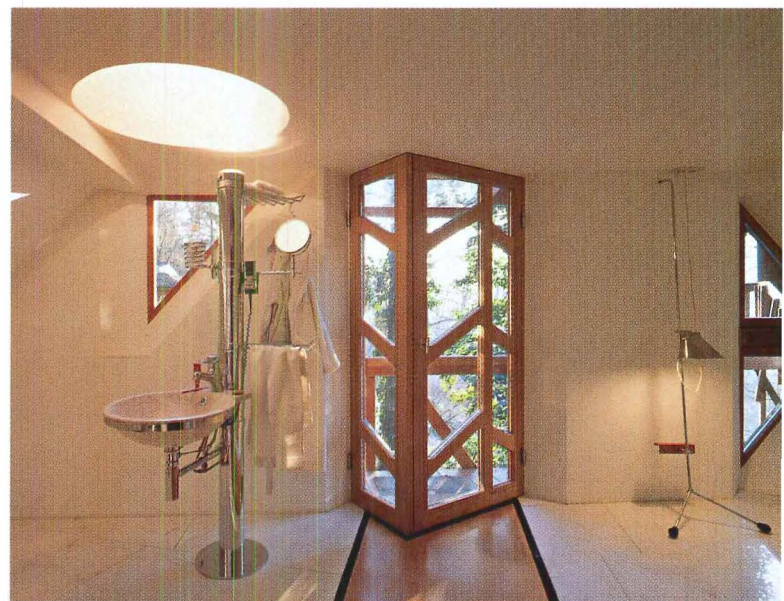
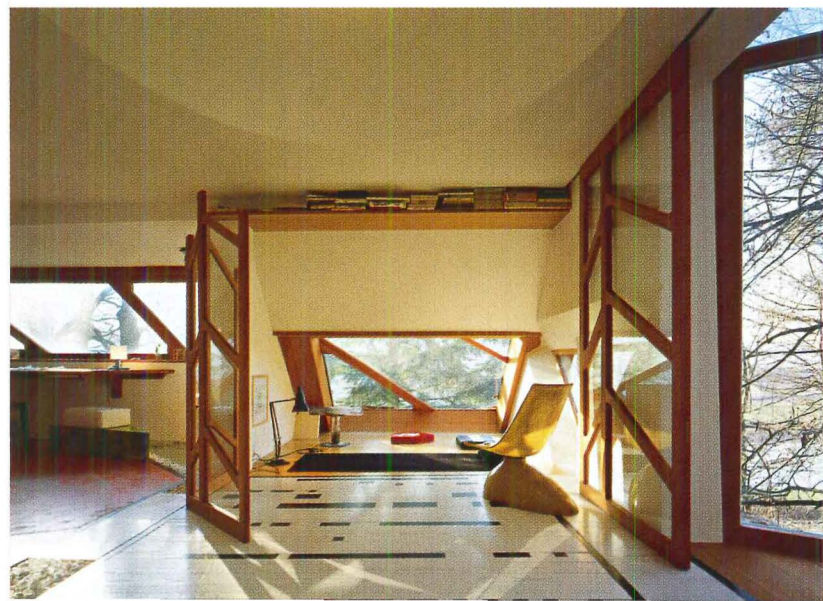
By contrast, the rectilinear glazing bars of the original French doors impose a rigid grid on any scene. One door now opens onto stairs down to a grassy terrace. From the interior travertine floor, you step onto slatted timber, then concrete block, and finally rough stone, before reaching the grass—a subtle visual and tactile transition from “culture” to “nature.”

Establishing a vocabulary for the evolving Hexenhaus, this porch was the first “encrustation,” as the Smithsons called it. Their idiosyncratic grafts onto the house would eventually include another porch at the entry, an extension of the first porch, a glazed bay for the bedroom, and a glass-floored bay window, looking toward the nearby River Weser. The river-view projection was angled to hold a seat for Bruchhäuser facing a perch for his cat.

The alterations do not merely change the building’s overall ratio of glass to stone, but form pockets of space at its perimeter, intensifying the client’s contact with nature. As Alison put it, the changes added “a layer of air” to the existing fabric, “a delicate tuning of the relationship of persons with place.”

Along with the outgrowths came the “Hexenhaus holes”—excisions into the existing walls and ceilings that link inside and out in multiple directions. For example, from across the living room, through a semicircular cut in the kitchen wall, you see first one lattice screen and then another—successive frames through which, finally, segments of trees and foliage appear. From a Smithson Popova chair in the living room, Bruchhäuser can turn a complete circle to point out 10 separate vistas from inside to out, where new, glazed apertures puncture the once-solid wall. He explains, “I don’t want the exposure of the Farnsworth House. I want to see out, but I need a sense of protection, as well.”

Upstairs, the architects made primarily triangular cuts, taking cues from the house’s original half-timbers. At this level, the low ceiling suddenly surges upward like a lopsided cone, with tree branches overhanging the skylight at its apex: “They’ve given me a cathedral dome,” says Bruchhäuser. Here, the Hexenhaus seems to swell beyond its physical

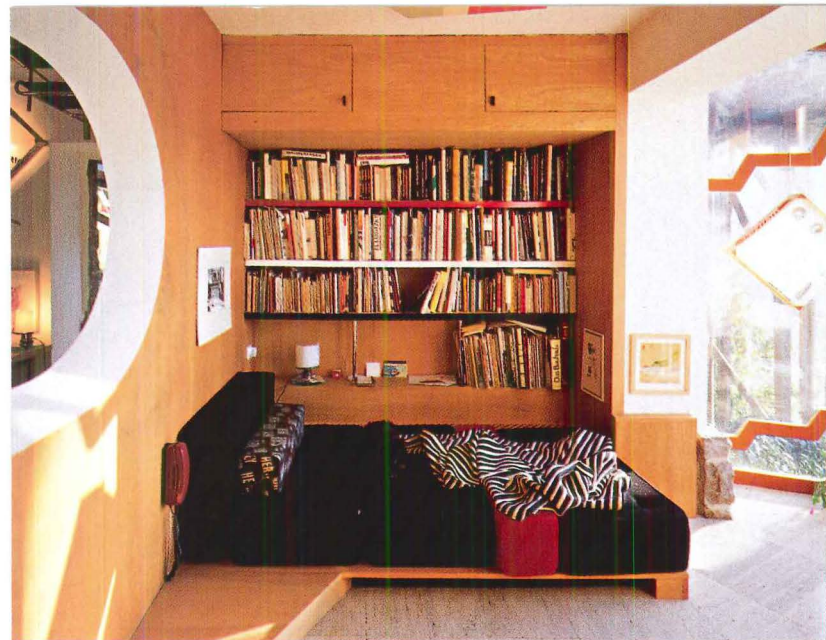




The client, Axel Bruchhäuser (kneeling in photo opposite, above middle), discusses future renovations with the Smithsons. The original gable-roofed house (opposite, above top) would later receive a series of “encrustations,” including a walkway and skylights at the back (opposite, above bottom). Glazed protrusions and excisions now bring light and views to a work area (opposite, bottom left) and large bathroom (opposite, bottom right). The Smithson outbuildings—such as the Witch’s Broom Room (right)—combine a Modernist idiom with a German Expressionist sensibility.

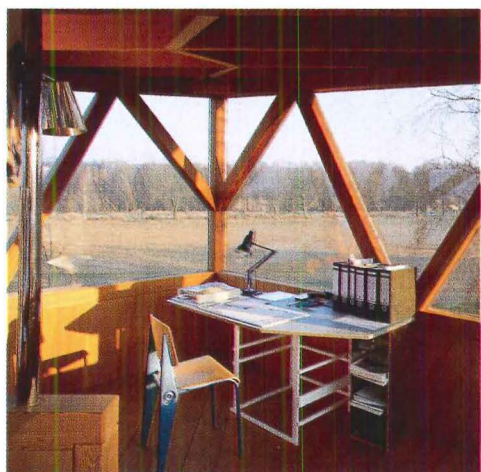






By carving openings and pushing out wall planes, the Smithsons expanded the sense of space in the house's sleeping alcove (above). The architects concurrently transformed Bruchhäuser's Tecta furniture factory (below).

The existing 1960s concrete building now features various accretions, including the glass-and-wood lookout (bottom, left), with its expressively timber-framed panoramic window (bottom, right).



boundaries, dispelling any sense of confinement.

Elsewhere on the site, the Smithsons more literally exceeded the Hexenhaus's original limits. They positioned new timber bridges and walkways in relation to existing paths and terraces, extending like arms into the landscape. These elements lead to satellite structures: a skylit tea-house, thatched with reeds, on a stone platform northeast of the house, and the Lantern Pavilion to the northwest, glazed on all sides and its roof, completely immersing its occupant in the woodland setting.

The Lantern Pavilion's floor is white marble, enhancing the sense of lightness by day and the glow from within by night. The architects gave its outdoor terrace irregular sandstone paving, providing another culture-to-nature transition. A place for contemplating the outdoors, the pavilion has two "halfmoon" windows set at an angle, echoing cuts inside the Hexenhaus and framing the landscape in a slightly unorthodox way.

But the most singular element of the whole project is another satellite, designed by Alison: the Hexenbesenraum (Witch's Broom Room), which Bruchhäuser also calls his "holiday home." A finely crafted pavilion (built by the local master carpenter who worked with the Smithsons throughout their time at Hexenhaus), it sits on stilts—nine 36-foot-long oak legs reinforced with steel—allowing it to sway gently, like a tree, in the breeze. Presenting a blank face to the lane, it has full-height windows on its other sides, a glass floor, and a partially glazed roof, providing an aerial observatory. Lying on a couch here, the owner can contemplate overhead trees in summer or falling leaves in autumn. Below it, reflections and reality fuse optically. "It's fantastic during storms," says Bruchhäuser. "The rain, the snow, come directly at you. Like a theater—it's so dramatic."

The Smithsons' prolonged and gradual transformation of the Hexenhaus and its site recalls their approach to campus expansion at the University of Bath (1978–90)—a process they likened to adding "tassels to the edge of an existing mat." There, they proposed 14 component buildings that could be constructed in any order as funds became available—a scenario that approximates the process at the Hexenhaus and, during the same period, at Bruchhäuser's Tecta furniture factory, where porches, pathways, and a timber lookout tower radically reconfigured a boxy, 1960s concrete-block building. At both Hexenhaus and Tecta, unlike Bath, the architects generated additions step by step over the years, rather than envisioning an overall scheme in advance. Like an organism, the Hexenhaus slowly took possession of its site, with the client emerging as a fully engaged patron. The house, including its satellites, now comprises 2,815 square feet. Bruchhäuser values not just the increase in space and amenity, but the greatly enhanced sensory engagement with nature and the feeling of rootedness in this particular place.

In achieving this end, the Smithsons worked mostly with traditional forms, which might almost make the project seem Postmodern. But whereas many Postmodernists were happy just to quote historic precedent, the Smithsons sought to reinterpret and revivify it—whether in dealing with a window, a porch, or a pavilion. This thinking can be traced back to their Sugden House (1957), which deftly subverted a suburban norm, while their Upper Lawn Pavilion (1962), incorporating the remains of an old stone cottage, anticipated the concept of "encrusting" an existing building. The Hexenhaus suggests, you could say, a softening of the puritanism of the couple's Brutalist period, but unlike most Postmodernist work, it maintains the integrity of architectonic expression.

"The Smithsons understood my needs exactly. To take such serious care for one person—for his soul—is unbelievable," says Bruchhäuser, who forged not just an unusually enduring working relationship, but also a firm friendship, with his architects, as surviving correspondence makes clear. What began as a request for a new door became a profound response to the real imperative of domestic design—to enrich everyday life. ■



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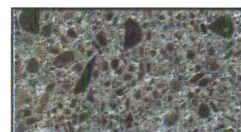
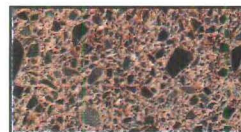
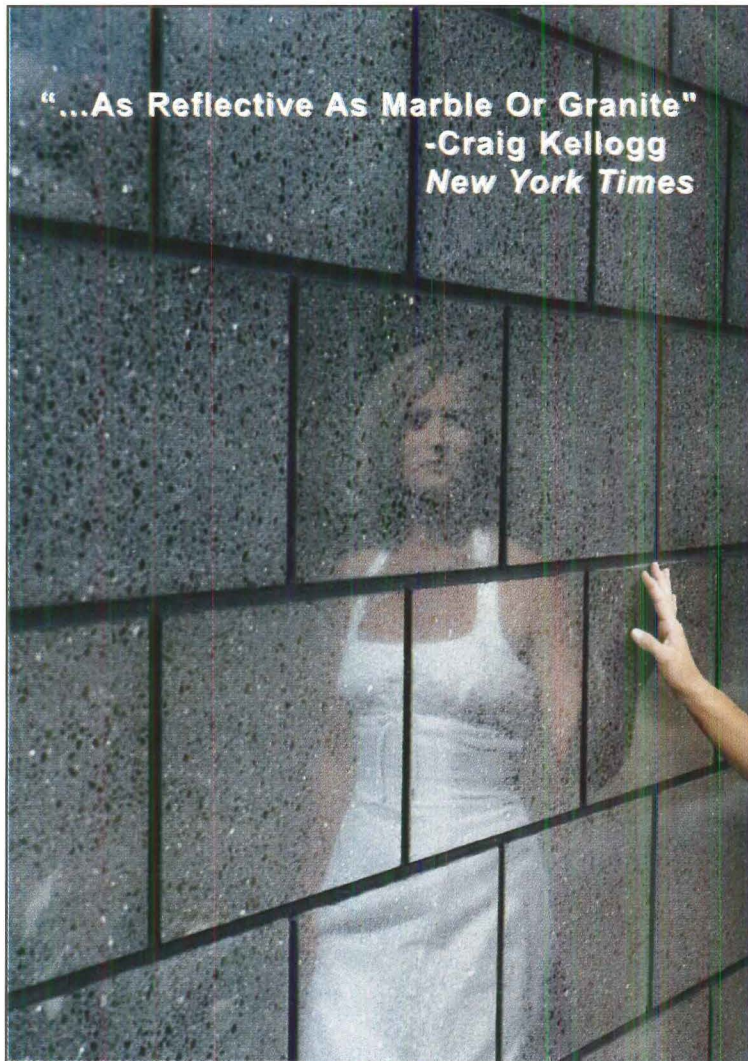
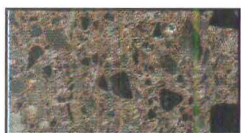
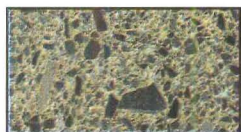
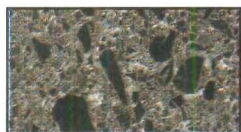
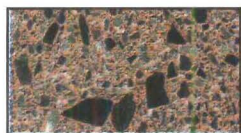
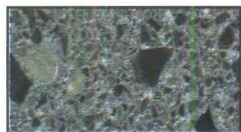
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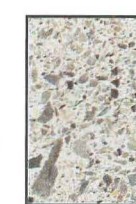
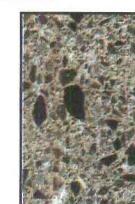
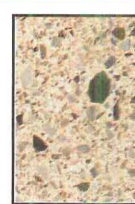
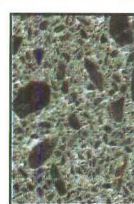
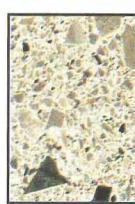
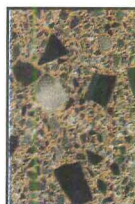
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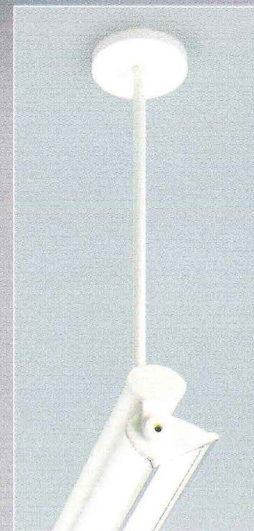
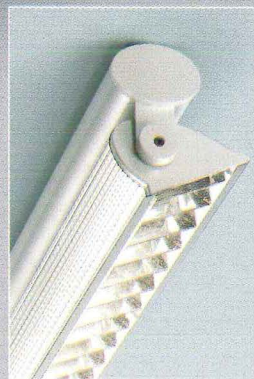
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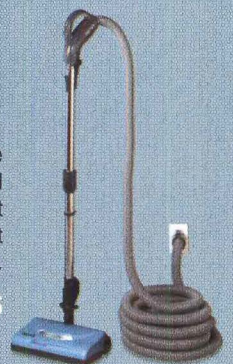
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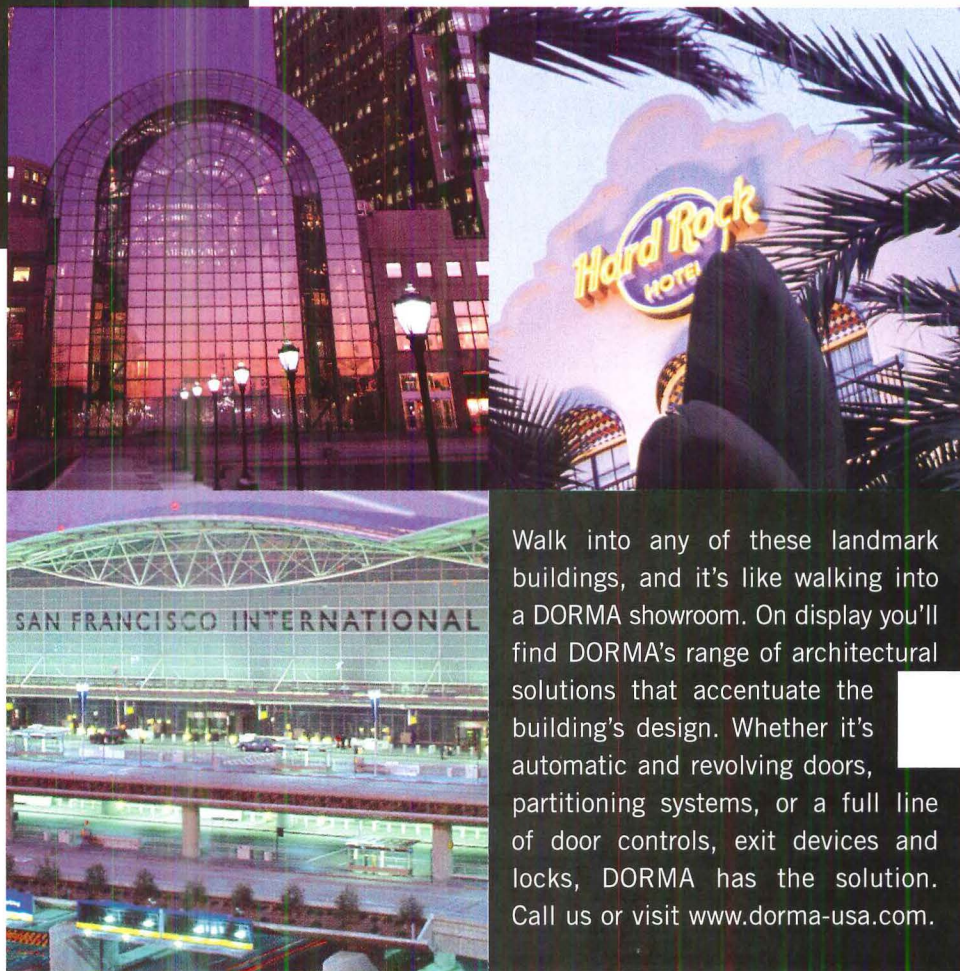


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# Record Houses

# 2004

**T**he dialogue between materials and place can be powerful, even palpable. The textures and hues of a house may merge with its landscape through elements that literally come from the natural setting. Or a design may respond more to a man-made context, either echoing or remaining distinct from it. In other scenarios, a truly stark contrast, a sense of purposeful opposition, may be at play.

Record Houses 2004 delves into the range of possibility. Along a gritty waterfront in Kobe, Japan, for example, the smooth concrete and pure rectilinear geometries of Tadao Ando's 4 x 4 House elegantly distill the industrial character of its setting. In coastal Brazil, Marcio Kogan's Du Plessis House appears completely unlike, but remarkably compatible with, the ersatz haciendas around it, combining a clean-edged Modernism with the rich tactile features and color variations of local mineira stone.

Meanwhile, the exposed and bolted cementitious board of Mack Scogin Merrill Elam's Bailey House Studio forms a light-handed juxtaposition with its woodland site, near Atlanta. In the Solar Tube House, on the outskirts of Vienna, Georg Driendl responds to another forest setting with glass and curved stainless steel, generating a shift-

ing interplay between transparency and reflection.

By contrast, matte materials, caught in the sun's intense rays, contribute to a luminous effect at the Crowley House in Marfa, Texas. Here, amid expanses of dry tumbleweed, Carlos Jiménez draws on an intentionally ordinary and durable material palette (including concrete block) capable of withstanding the harsh climate while resonating with the plain, hardscrabble qualities of Marfa's typical sheds.

In upstate New York, Thomas Phifer's Spencertown House has the character of a low-slung, permeable earthwork, allowing views to "flow" through it. The building's fine tracery of structural members, painted white, suggests metaphoric trees, subtly framing and veiling, rather than blocking, panoramic Catskill Mountain vistas.

And on Peru's arid coastal desert, Barclay & Crousse devise a language of concrete, stone, glass—and water. In the firm's three houses at Cañete, desert-toned concrete mimics the parched dunes, while a glass swimming pool, cantilevered over a walkway and view corridor, contrasts with the terrain, echoing sky and sea. Vividly colored exterior walls, some in saturated pimento red, enrich the sensory dialogue.

Whether by camouflage, contrast, or any variation in between, the projects in this collection engage materials to intensify the sense of place. We offer you a feast of houses, as varied as their venues and surrounding landscapes. ■

1. Barclay & Crousse
2. Thomas Phifer
3. Mack Scogin Merrill Elam
4. Tadao Ando
5. Marcio Kogan
6. Carlos Jiménez
7. Georg Driendl





# Barclay & Crousse speaks to the arid landscape of coastal Peru with three houses—**CASA EQUIS**, **CASA M**, and **CASA B**—carved into a steep hillside

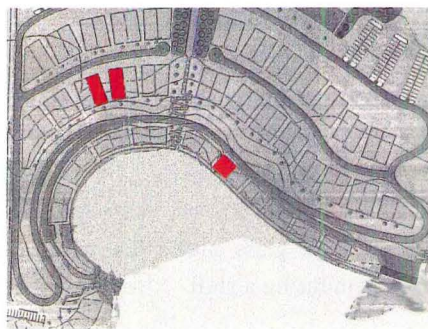
By Raul A. Barreneche

**P**eru boasts one of the most arid landscapes on earth: the Atacama Desert, stretching from the Andes to the Pacific and south into Chile. Hardly the lyrical desert of Georgia O’Keeffe and Jack Kerouac, this brutal terrain rolls on for hundreds of miles without any gnarled sagebrush or stout cacti to break up the monotony of sculpted dunes and barren mountains. Inhospitable as they may seem, the desert beaches south of Lima fill with day-trippers and the well-heeled Limeños who summer in gated coastal communities.

Near the town of Cañete, about 85 miles south of Lima, Peruvian businessman Edward Barclay developed one such high-end enclave: La Escondida. The horseshoe-shaped tract comprises 70 oceanfront lots, terraced on three levels along a precipitously steep sandy cliff cradling a secluded beach. The developer hired his daughter, Sandra Barclay, and her husband, Jean Pierre Crousse, partners in Paris-based Barclay & Crousse Architecture, to design a prototypical house here, with the aim of persuading homeowners to build Modernist structures instead of the area’s typical whitewashed villas. Barclay & Crousse eventually designed three houses at La Escondida, expanding on the ideas of the original scheme.

The architects, who were raised and educated in Peru and have practiced in Paris since 1990, thought all three houses should first address the desert’s scale and emptiness, a condition they say most of the surrounding architecture negates. “People build as if this were Miami,” observes Crousse. “The desert’s an absolute void. The question for us became how to domesticate and live with it, existentially speaking, without destroying it.” Barclay & Crousse turned to the play of abstract volumes as a basis for the design. “It’s really the best way to deal with the desert, which is itself abstract,” affirms Crousse. Their abstraction took cues from such sources as indigenous Peruvian textiles and the nearby adobe and stone ruins of pre-Incan Pachacamac, dating from 200 B.C.

The architects also looked to *ranchos*, Neoclassical seaside summer homes outside Lima built during the late 19th and early 20th centuries (though largely forsaken after a devastating 1940s earthquake). The boxy,



brightly painted *ranchos* filled out their urban lots with shallow entry courts and internal peristyles, opening the interiors to the dry, mild coastal climate. Barclay & Crousse drew on the *ranchos*’ spatial organization—without the symmetry and formality—as well as an Inca temple addition at Pachacamac. As a result, the team excavated the entire 3D volumes of the houses’ hillside sites, instead of perching objects on the sandy cliffs.

The construction vocabulary of these buildings appears resolutely modest. To minimize costs and ease site supervision from Paris, the architects stuck to basic, locally produced materials, from doors and windows to ceramic tiles and bathroom fixtures. All three houses feature concrete painted in muted desert tones. “A lot of builders here favor all white, as in Greece. For us, white houses pollute such a fragile landscape,” explains Barclay. “We prefer colors that make the architecture look like it was always here.”

The couple designed Casa Equis, the last of the three houses, as a sequence of open-air spaces, slowly revealing views of the rocky cliffs and cool Pacific. Every vista appears framed—whether by thick planes of concrete or the unexpected cantilever of a glass-enclosed pool over the main stair. “The views are nice, but the house makes them even better,” suggests

Raul A. Barreneche is a contributing editor to RECORD.

**Project:** Casa Equis, Casa M, and Casa B, Cañete, Peru

**Architects:** Barclay & Crousse Architecture—Sandra Barclay, Jean Pierre Crousse, partners in charge

**Associate architect:** Edward

Barclay, site supervision

**Structural engineers:** Luis Flores (Casa Equis and Casa M); Carlos Casabone (Casa B)

**Lighting:** Barclay Consultores

**General contractor:** Edward Barclay



## CASA EQUIS

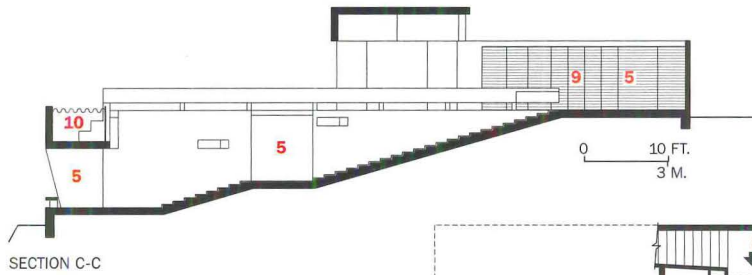
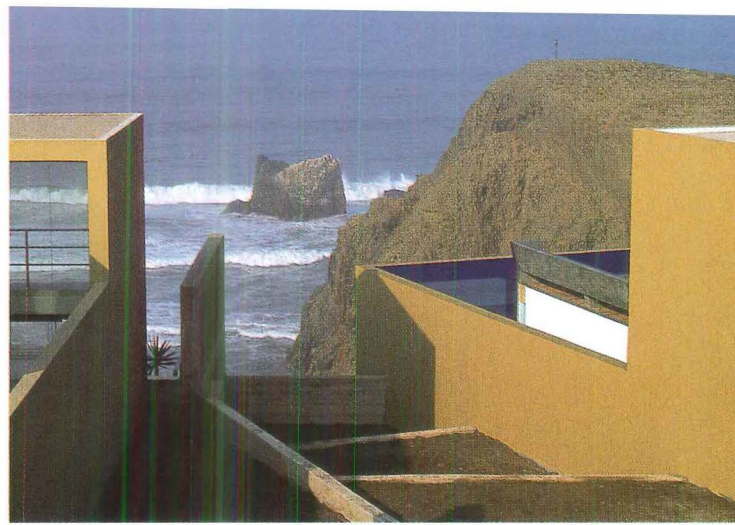
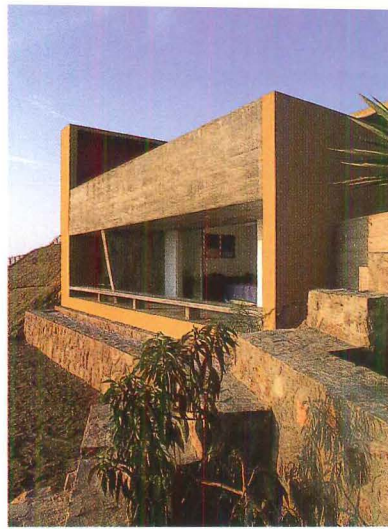
The most recent of the three houses, Casa Equis (opposite, top, far left house, with Casa M in the middle and Casa B at right) offers a sequence of open-air spaces that reveal cliff and ocean views framed by concrete planes and the cantilever of a glass-enclosed swimming pool (this page).



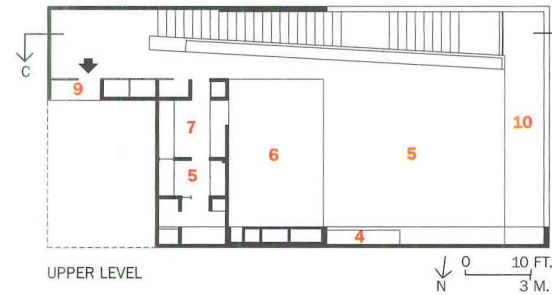


# CASA EQUIS

Desert-toned concrete plays against the arid landscape (near right). The geometrically complex view corridor between Casa Equis and Casa M points down toward the sea (far right). In this warm, dry climate, the architects blended indoors with out—as in the living room (below), which flows into an exterior deck. In place of windows, the house has sliding glass panels, opening up large expanses of wall.



- 1. Entry from beach
- 2. Children's room
- 3. Master bedroom
- 4. Open to below
- 5. Terrace
- 6. Living/dining
- 7. Kitchen
- 8. Guest room
- 9. Entry from road
- 10. Swimming pool







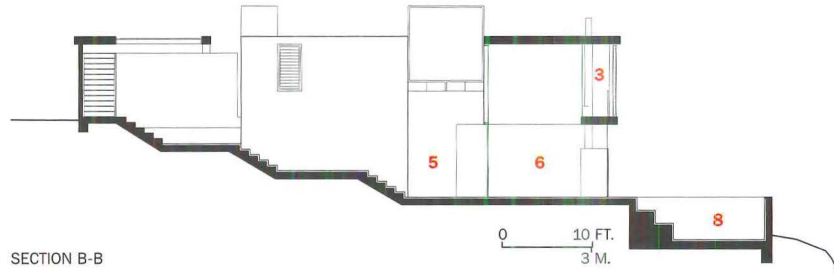
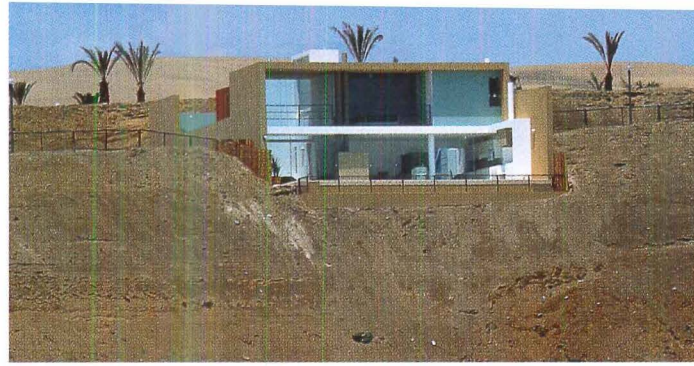
Beneath a sunshade, the deck extends like an outdoor living room to the edge of the swimming pool (above). The architects play the vibrant, transparent blue volume of the pool against the sky and sea (right). The vertical circulation—a straight stair descending toward the water—runs alongside the house. Following the sloping topography, it ascends from the private sleeping area, up past the more open public zone, to the parking level with access to the road (far right).





# CASA M

Separated from Casa Equis by a narrow yard, Casa M (right) inverts its neighbor's sectional organization with glassy, public spaces at its base and darker private areas at the top. Before reaching the entrance to the house, you step down through a walled court to the lower level, where views open up straight through the sheer volume of the living, dining, and kitchen areas to a terrace, pool, and the ocean (below right and opposite, bottom two). The vivid colors (opposite, top) were inspired by the region's brightly painted ranchos.



SECTION B-B

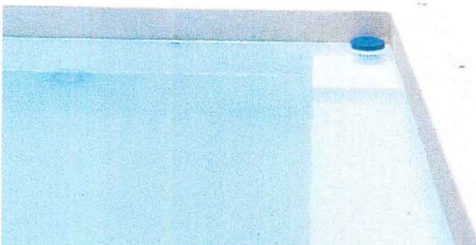
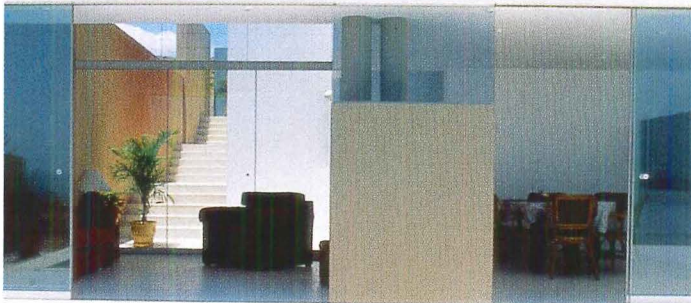
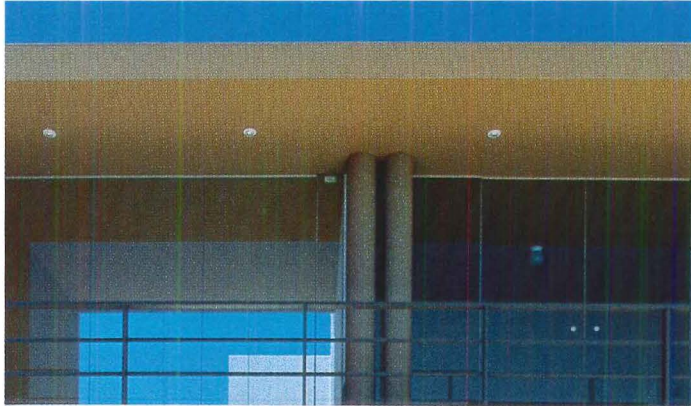
1. Master bedroom
2. Children's room
3. Balcony
4. Open to below
5. Terrace
6. Living/dining
7. Kitchen
8. Swimming pool
9. Service bedroom
10. Guest room



LOWER LEVEL



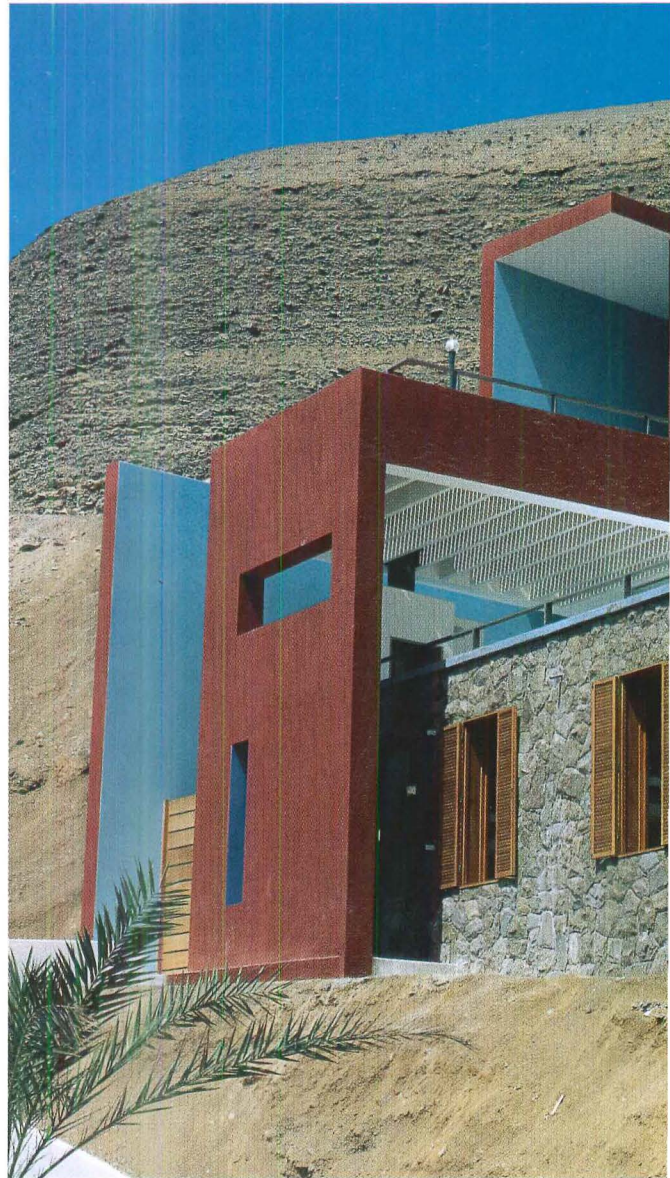
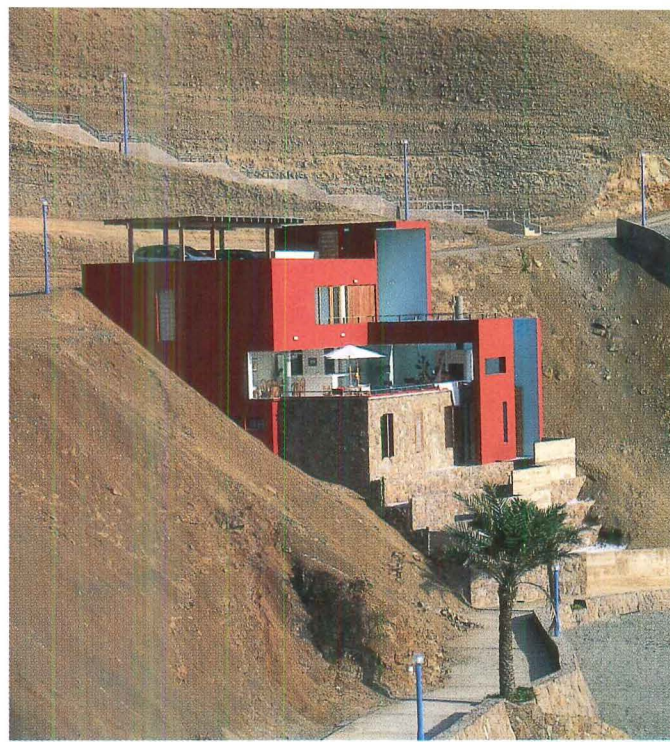
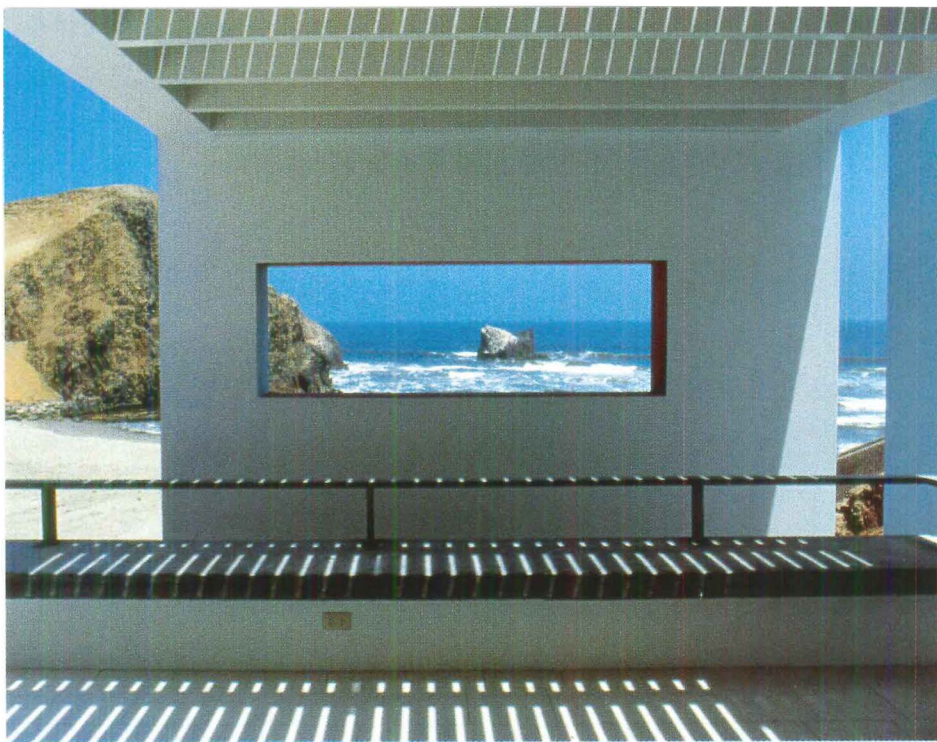
UPPER LEVEL















Crousse. Rain doesn't exist here, so the architects eliminated divisions between indoors and out, opening circulation to the elements. Shade and seismic stability were the only real exigencies.

Perched high above the sea, the 1,800-square-foot Casa Equis has frameless sliding glass doors in place of windows, spatially connecting inside and out—as in the living/dining area, which flows onto a terrace, dubbed the “artificial beach” by the architects.

You enter the house on the top floor, which provides for daytime needs: kitchen, living/dining area, terrace, pool, and service quarters. The lower level, reached by a long concrete stair descending beneath the glass pool, feels like a grotto or an ancient temple's inner sanctum, unlike the bright, permeable spaces of the upper level. The lower floor contains two children's bedrooms bermed into the hillside, with a master suite and guest room open to the sea. Gaps between the planks of the terrace above allow sunlight to pierce the open-air vestibule between

bedrooms, casting pinstripes of light on the pebble-studded concrete floor.

Separated from Casa Equis by a narrow yard, Casa M inverts its neighbor's sectional organization with glassy, public spaces at its base and darker private areas at the top. Here, you step down through a walled court to the lower level and look straight through the sheer volume of living, dining, and kitchen areas to a terrace, a pool, and the ocean before entering the house. A central stair ascends to three bedrooms fronting the entry court and a master suite overlooking the sea. Barclay & Crousse contrasts the transparent public zones—focusing attention more on views and outdoor space than the architecture—with the private quarters, walled in concrete.

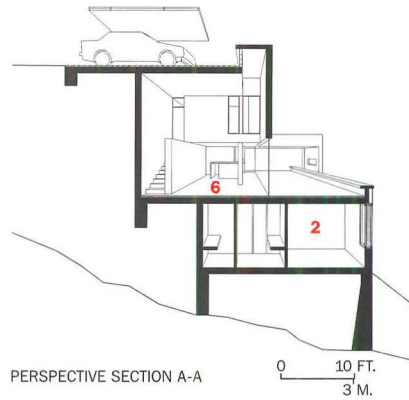
Located at the base of the cliff, Casa B predates the other two projects. The tri-level, 2,100-square-foot house stands as the largest of the three. Rather than sequestering bedrooms on one floor, this place offers a more striated section programmatically, with a public level separating the children's rooms at the bottom from the master suite at the top.

As in the other houses, the architects pulled vertical circulation to one side, framing it with a solid concrete wall. At Casa B, however, the height evokes an open stair tower rather than a quarried path. Compared with the other two, this house reads less as a spatial sequence hewed from a cliff and more as a traditional structure—albeit with a brightly colored, contemporary top—planted at the foot of a 45-degree slope. The shuttered, stone-clad children's wing has the character of an older building expanded over time—reminiscent of the Inca foundations throughout Peru, which support colonial structures erected by Spanish conquerors.

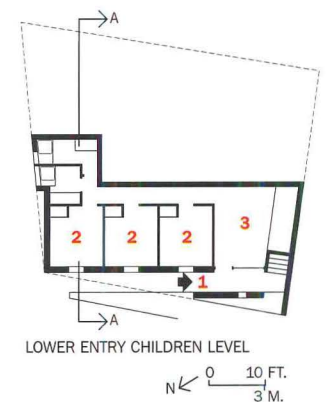
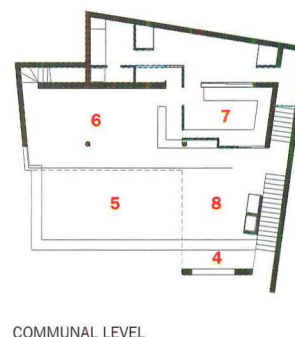
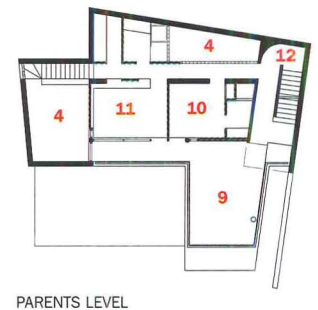
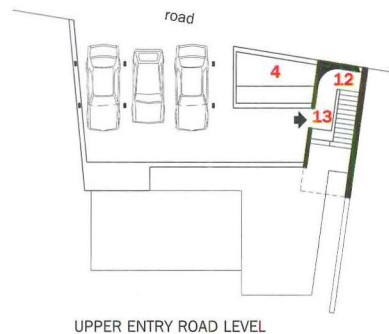
In France, Barclay & Crousse has produced predictably Modernist buildings of glass and steel, including an addition to the André Malraux Museum in Le Havre. At Cañete, the team opted for an unexpected modernity spun from ancient tradition. This architecture offers an abstraction of site and historical precedent, in contrast to the painterly Latin American Minimalism of Barragán and Legorreta. Barclay & Crousse's design approach yields a series of sophisticated shelters tailored to the precarious meeting point between desert and sea. ■

## CASA B

Like Casas Equis and M, this earlier, tri-level structure (opposite, top right) places vertical circulation to one side and frames spectacular views (opposite, top left). Here, too, outdoor lounge and dining areas (opposite, bottom left) play integral roles. But compared with the others, this house appears traditionally sited—at the base of the slope, rather than carved high into it. And the shuttered, stone-clad section (opposite, bottom right) suggests an older building expanded over time—like Inca remains beneath Spanish colonial structures.



1. Entry from beach
2. Children's room
3. TV
4. Open to below
5. Terrace
6. Living/dining
7. Kitchen
8. "Pergola" summer dining
9. Solarium
10. Guest room
11. Master bedroom
12. Outdoor stair
13. Entry from road



### Sources

**Glazing:** Vencedor

**Locksets:** Schlage

**Wall coverings:** Miyasato

For more information on this project, go to Projects at

[www.architecturalrecord.com](http://www.architecturalrecord.com).



Aluminum tubes arc over the entry court (this page). Elegantly slender roof-support columns stand apart from nonstructural mullions (opposite).





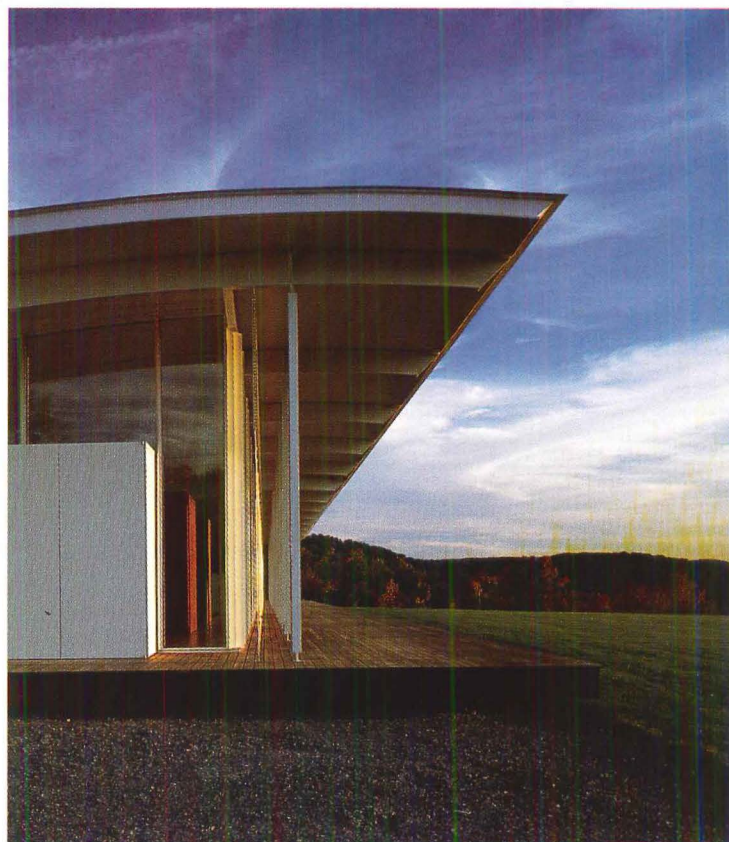
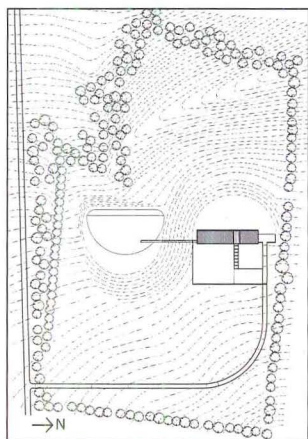
# In upstate New York, Thomas Phifer creates his finely articulated **SPENCERTOWN HOUSE**, a low-lying earthwork through which the landscape flows

By Fred Bernstein

**F**or Thomas Phifer, AIA, welcoming collaborators isn't about making friends, but about creating a particular kind of architecture. "If you want a building to be really spare," he says, "you can't have people coming to you, once it's been designed, saying, 'Add this' or 'Where can we find room for that?'"

Since leaving Richard Meier's office as a design partner seven years ago, Phifer has established his signature aesthetic: Delicate tracteries of articulated structural elements, usually steel painted white, against the sky and landscape. But what he's really established, he maintains, is a signature style of working, involving full collaboration with consultants from the first moment his pen touches paper. His aesthetic and method go together. As he puts it, "You need to have all the disciplines together at the table, working to achieve the same idea."

For the Spencertown House, in New York's Columbia County, the collaborators included Charlottesville landscape designer Julie Bargmann, whose D.I.R.T. Studio is known for reconfiguring vast, postindustrial tracts. Bargmann isn't about to landscape a project that has already been designed. She was involved here from the earliest stages—as were Mahadev Raman, the mechanical engineer who helped make the house energy efficient, and Guy Nordenson, the New York structural engineer currently working on Ground Zero's Freedom Tower. "If a build-



PROJECTS

ing has already been thought out, and they're just looking for a way to hold it up," Nordenson says, "then we're the wrong people to call."

The Spencertown site, a 14-acre slope with the Catskill Mountains looming in the distance, lay treeless except at its perimeter. To Phifer and Bargmann, a small, mid-slope plateau suggested the house's location, as well as its concept: a low-lying earthwork, extended to take in westward views. In its unadorned simplicity, the building would stand in counterpoint to the region's multigabled McMansions. (Both he and Bargmann compare the design to a Richard Serra sculpture.) Geometrically, as the landscape designer points out, the project would be strong enough to "respond to the scale" of its site.

To give a house of merely 3,000 square feet a significant presence in the landscape, Phifer stretched the form into a narrow rectangle, more than 100 feet long and only 28 feet wide. A retaining wall of reinforced concrete, with transom windows facing east, forms the uphill edge, while the downhill side is glass. To support a standing-seam tin roof, Nordenson designed steel beams that curve up and over like the top of an airplane wing.

Over a central entry court, spanning between the "main house" and its guest quarters, the roof becomes a series of bowed tubes—set close enough together to maintain the reading of this building as a single linear

*Fred Bernstein, who studied architecture at Princeton University, contributes to Blueprint, World Architecture, and The New York Times.*

**Project:** Spencertown House, N.Y.S.

**Architect:** Thomas Phifer and Partners—Thomas Phifer, AIA, principal; Greg Reaves, Victor Druga, project architects

**Engineers:** Guy Nordenson and Associates (structural); Arup—

Mahadev Raman mechanical/environmental/climate control)

**Landscape designer:** D.I.R.T. Studio—Julie Bargmann

**General contractor:** Quadresign—David Haust

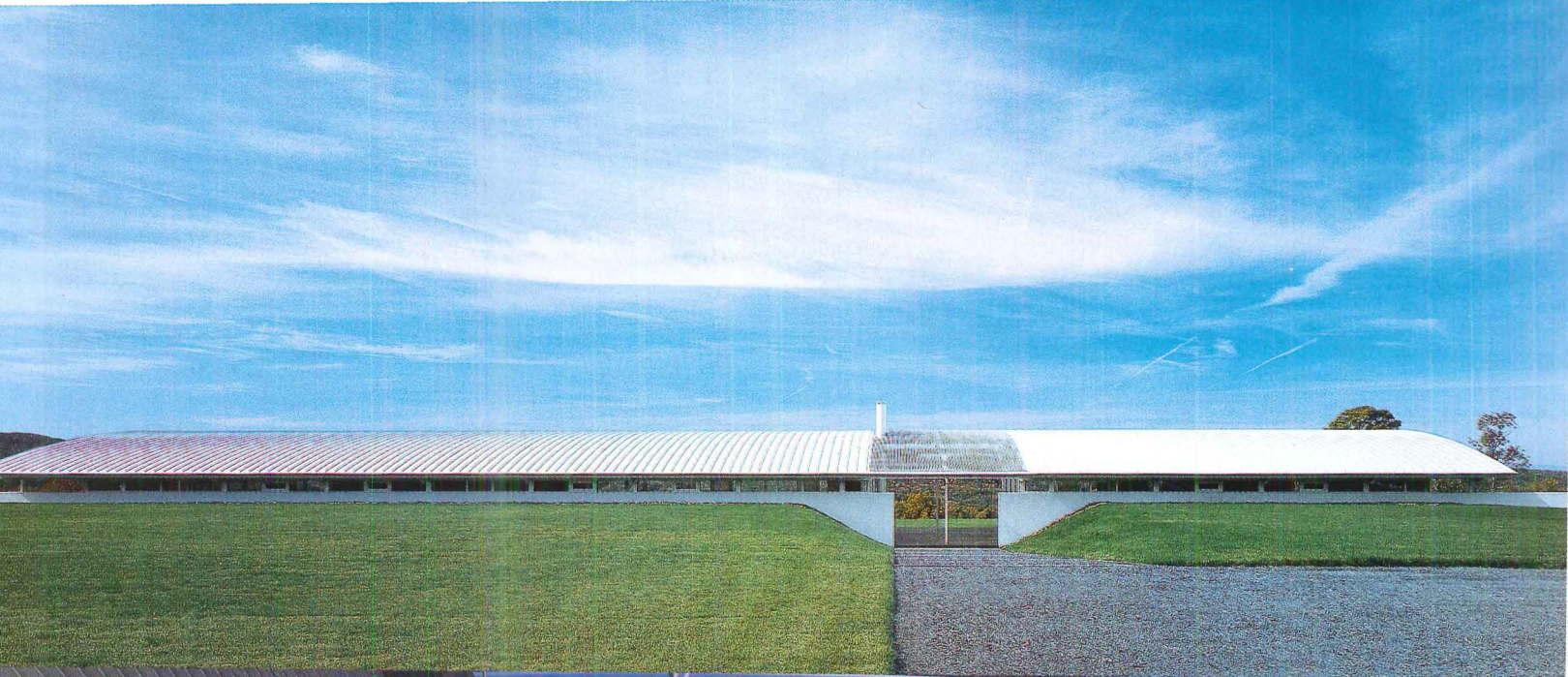


Even the slotted canopy screening the entry court (opposite, bottom) remains subtle enough to retain the reading of the house as a single,

linear form (top and opposite, top). Though virtually treeless, the generous 14-acre site allows for a transparent master-bedroom enclosure (below).





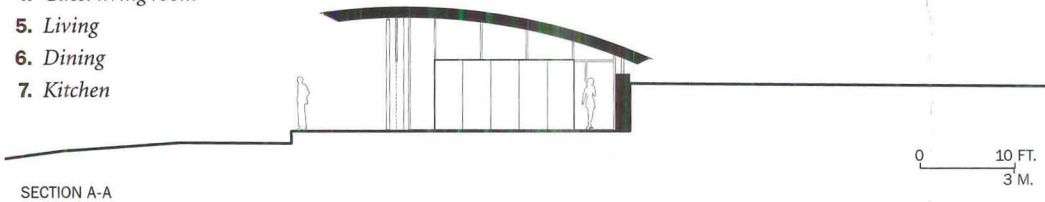




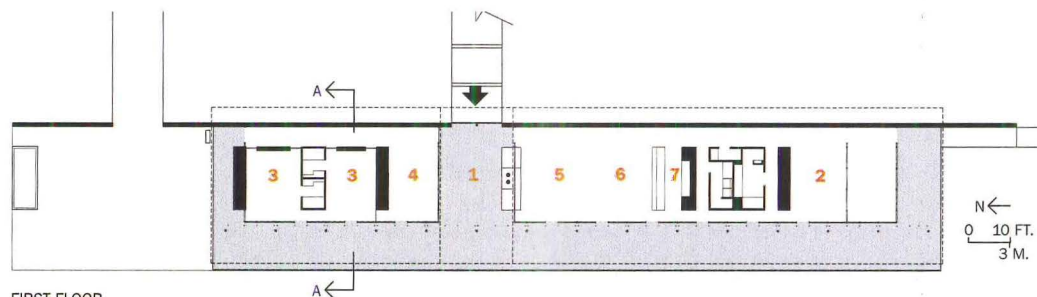


The roof configuration opens up toward the views, while dipping lower on the entry side uphill (above). Spectacular vistas flow through this entire house—as in the extensively glazed living room (opposite).

1. Entry court
2. Master bedroom
3. Guest bedroom
4. Guest living room
5. Living
6. Dining
7. Kitchen



SECTION A-A



FIRST FLOOR





volume. Its main section contains living and dining areas, along with the master bedroom, while the guest wing houses two suites.

Phifer executed the interiors with Miesian discipline, never allowing partitions to touch the arcing 12-foot ceiling or the exterior walls, while tucking the bathrooms, closets, and laundry room into windowless cherry wood boxes. In exchange for spatial flow, the owners, a retired couple with grown children, paid a price. With no partitions reaching the ceiling, the bedrooms are anything but soundproof. But what the owners—weekday residents of a modest Westchester County home—gain is a dramatically expansive space, without the lamentable grandiosity of so many new houses.

Keeping the building diagrammatic required extraordinary detailing. Just having to expose the thermostat “almost killed us,” recalls project architect Gregory Reaves. To keep the walls pure, the designers hid switches inside an ersatz kitchen drawer. Light fixtures shine up from floor cutouts; and except for smoke detectors, the ceilings remain unencumbered.

Phifer wasn’t interested in hiding the structure. The tapered, square steel columns, painted white, supporting the roof could have been disguised as mullions, but instead they stand 2 feet outside the curtain wall. “Each part should be allowed to tell its own story,” says the architect. “We didn’t want to blur [the reading of] how the house is held up.” Along with the mullions and steel rods holding elegant, fixed brises-soleil, the slender

columns create a structural filigree. On the treeless site, which Bargmann kept as a clearing, the architecture metaphorically evokes a forest.

But the house stands as more than an exercise in aesthetic refinement. The roof, which swoops down over west-facing windows “like the brim of a baseball cap,” according to Phifer, keeps summer sun off the glass until late in the day. And when rays do reach it, the brises-soleil reduce the impact. Operable windows, including the uphill transoms, provide for cross ventilation. By burrowing the house into the earth, which remains at a relatively constant 55 degrees, Phifer says he’s made it energy efficient.

In so doing, the architect has advanced environmentalism—and Modernism. “A building can respond to nature without trying to look like nature,” he points out. Working in the tradition of Mies and Meier, while staying low to the ground and providing for shade with breezes, Phifer has found a way to make white green. ■

#### Sources

**Doors:** Marvin

**Plumbing:** Kohler (toilets); Franke (sinks); KWC, Speakman (faucets)

**Appliances:** Gaggenau (stove); Amana (refrigerator); Thermador (oven); Asko (dishwasher)

**Countertops:** Corian (bathroom vanity); custom stainless steel (kitchen)

For more information on this project, go to Projects at

[www.architecturalrecord.com](http://www.architecturalrecord.com).







# In an unusual scenario, Mack Scogin & Merrill Elam joins forces with a volume builder for a one-of-a-kind project: the **BAILEY HOUSE STUDIO**

By Sara Hart

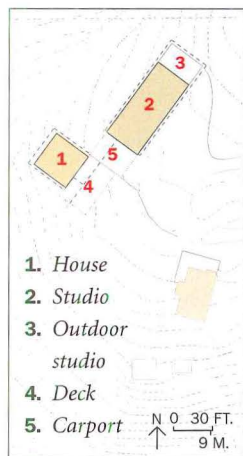
**T**he back story of the Bailey House is as intriguing as it is unlikely. In the beginning, the project seemed to have all the right ingredients—an exceptional site, talented architects, and a client with vision. Radcliffe and Loran Bailey bought 7 acres of heavily wooded, rolling land, which backs up to a nature conservancy but also sits just a few yards off the blacktop winding through a middle-class neighborhood in suburban Atlanta.

The young couple, parents of two children, approached Mack Scogin Merrill Elam Architects to design a house with a studio for Radcliffe, an artist gaining national prominence with his large, colorful paintings that mingle African-American historical vignettes with his own family photographs. The work appears at once studied and—inspired by the artist’s lifelong obsession with jazz—improvisational.

The architects’ parti proposed a square and a rectangle (a 2,000-square-foot house and 2,000-square-foot studio, respectively) linked by a bridge element (a deck with a 200-square-foot library or family room). The scheme remained straightforward as the architects strove to keep costs down, but bids came in way over the clients’ budget. “At that point—a dark moment in any project,” explains project architect Brian Bell, “we all realized that if the house and studio were going to get built at all, the Baileys might have to give up program.” (In the end, it wasn’t necessary.)

Then, the story takes an unconventional turn. Loran Bailey called the Atlanta Housing Authority, a public-housing agency, and requested a list of local builders. This was, as the architects admit, “a suspect proposition, full of risks.” On the list, she recognized John Wieland, head of an eponymous company—one of the Southeast’s largest private-home builders—and a patron of the arts. He contributes generously to area art institutions, and his extensive collection includes Radcliffe’s work. So, it hardly seemed farfetched that the two would know of each other—and not surprising that Wieland would agree to an unusual project for a rising artist.

Two potentially deal-killing stipulations existed, however. First, the contract would be between the owners and Wieland, relieving the architects of fiduciary obligation, but also limiting their control. Second, and most vex-



**The Bailey House Studio sits on 7 heavily wooded acres, just minutes from downtown Atlanta.**

ing, all building materials, including finishes, would have to come from “supply-fabrication” subsidiaries of John Wieland Homes and Neighborhoods. These companies provide everything from foundations and exterior-cladding options to plumbing fixtures, window treatments, and kitchens.

John Wieland has erected 20,000 homes in his company’s 30-year history. Such success requires an economically dependable, albeit rigid, system of building, offering the consumer a catalog of options not unlike those of automobile manufacturers. This approach may seem antithetical to the architect-designed, one-of-a-kind residence, which eschews economies of scale in favor of often expensive, unique materials and meticulous detailing. Certainly, the dangers of rendering the adroit Modernism of Scogin and Elam in clapboard and shutters may have been real, but by the architects’ own admission, Wieland’s agreement to take on the project proved critical to getting it built.

The contractual agreement had one clear advantage. The architects could keep their fees low because they wouldn’t need to issue change orders or detailed construction documents. In the end, Bell, representing

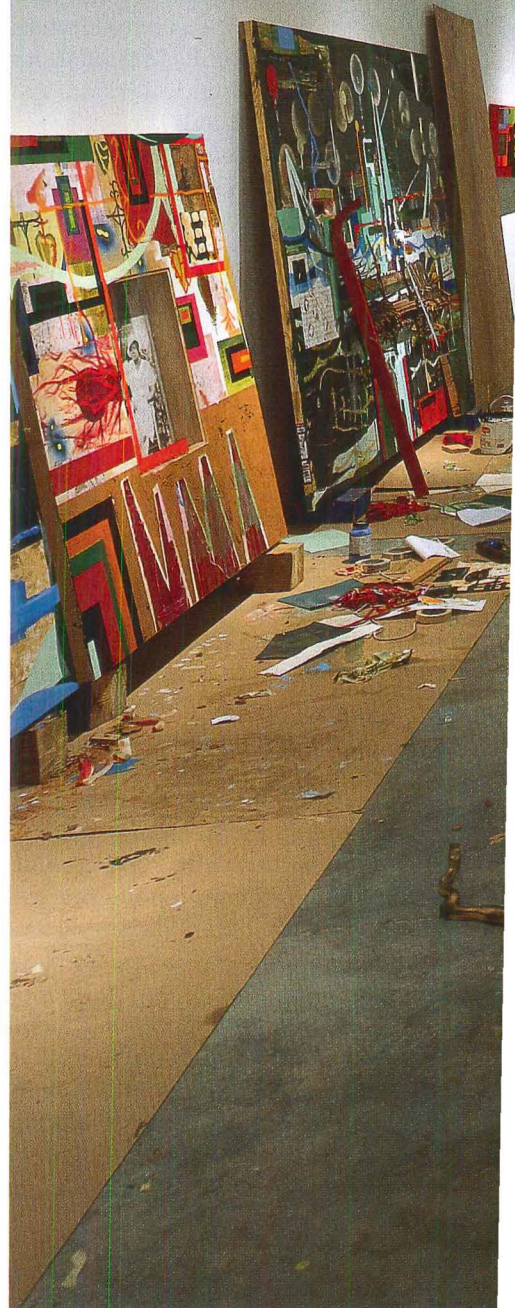
**Project:** Bailey House Studio, Atlanta  
**Architect:** Mack Scogin Merrill Elam—Merrill Elam, AIA, principal in charge; Mack Scogin, AIA, collaborating principal; Brian Bell, project

architect; Barnum Tiller, John Trefry, Denise Dumais, Charlotte Henderson  
**Engineer:** Palmer Engineering  
**General contractor:** John Wieland Homes and Neighborhoods






Radcliffe Bailey's 2,000-square-foot studio (right, with artist seated center) receives muted sunlight via eaves, sealed with clear plastic sheeting—an alternative to expensive skylights. The artist can also work in the covered outdoor studio (bottom left). For the two-story living room, the large picture window is a composite of smaller units ganged together and set within the fiberglass-clad facade (top left).











The interior drama comes from the form of the vertical circulation, rather than exotic materials. Like a tower, rotated 45 degrees within the cubic volume, the sculptural stair (this page and opposite) plays closed nooks against open balconies, where one can survey the indoor space and woodland views.

Mack Scogin Merrill Elam, and Doug Tolleson, Wieland's builder, negotiated the design and execution verbally and with sketches. "Getting Tolleson's feedback was crucial to keeping costs down and achieving a buildable project within Wieland's framework," recalls Bell. "We had to be flexible, and they had to allow themselves to be stretched."

Scogin and Elam finessed the limitations in several ways. Knowing that Wieland typically clads houses in cementitious boards—wood-grain textured and then painted—the architects took the raw, unprocessed panels and bolted them to most of the exterior walls. Elsewhere, as on the living room elevations, they included translucent, corrugated panels of fiberglass bolted over reflective insulation. Light filtering in shines back out, so under favorable conditions, the facade glows.

Wieland's limited window offerings tend to be small and rectangular. Given the beautiful wooded views, though, the architects wanted large expanses of glass. Bell and Tolleson figured out a way to gang several units together, with the architect negotiating the only variant—a lightweight horizontal structural member.

The studio is a tall rectangular box—all function, few amenities. But the architects inserted a particularly clever detail, where exposed wood

trusses extend beyond the exterior walls, forming a typical overhang. They sealed it with clear plastic sheeting, in place of an opaque soffit. Artists need daylight, but with a budget prohibiting such extras as skylights, the determined designers improvised, instead of deleting. Radcliffe now gets that shadowless sunlight preferred for painting—at no extra cost.

Most mass-production home builders use forgiving techniques, concealed by ornament—so they're unaccustomed to Modernism's tight tolerances. Rather than fight a losing battle against the builder's standards, Scogin and Elam deliberately sought an unfinished, yet consistent, look throughout, and reinforced the strategy with off-the-shelf fixtures and hardware applied inventively. Over time, the Bailey family will fill out the house and studio by improvisation in much the same way that Radcliffe approaches his canvases. Here, the high-design architect and the volume home builder both learned that their cultures needn't be incompatible. ■

#### Sources

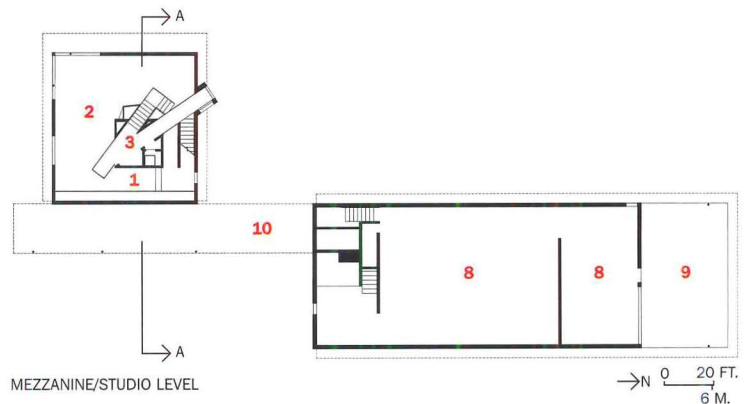
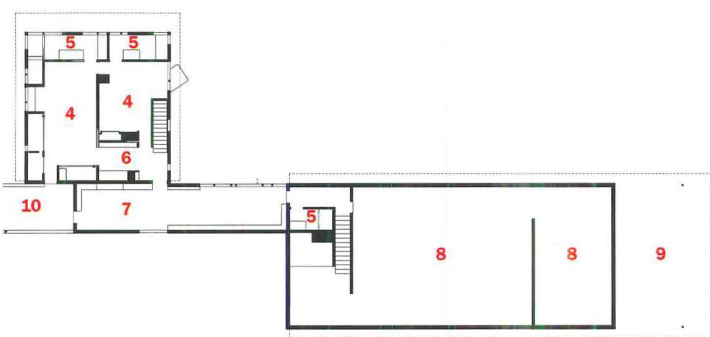
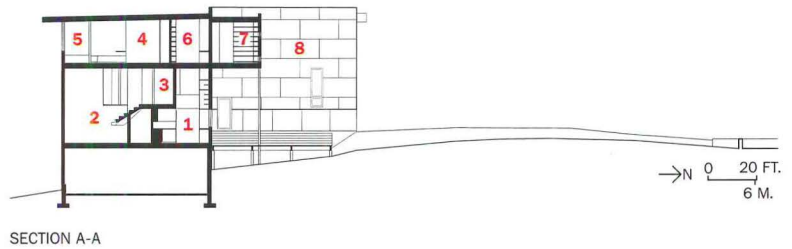
**Cementitious panels:** *Hardipanel*  
**Fiberglass:** *Resolite*  
**Windows:** *Peachtree*

For more information on this project, go to Projects at [www.architecturalrecord.com](http://www.architecturalrecord.com).

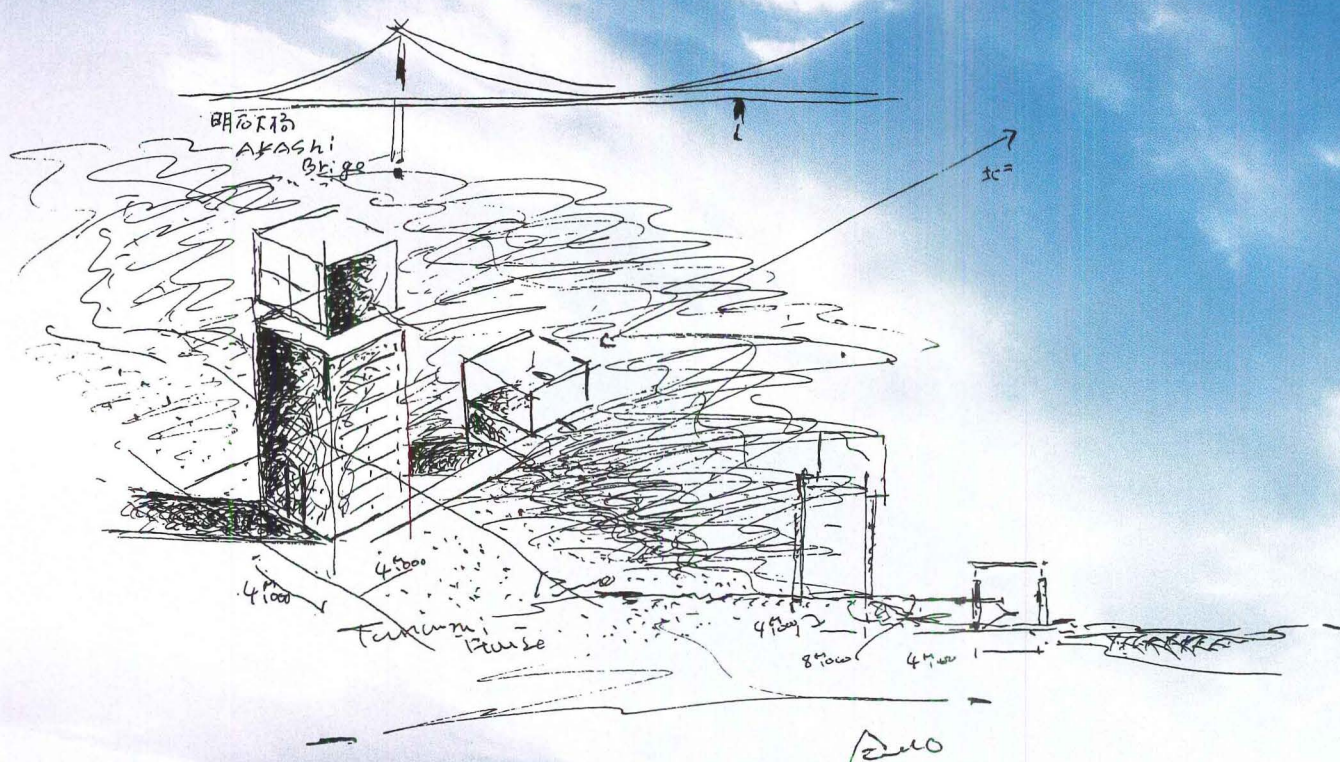




- 1. Kitchen
- 2. Living room
- 3. Mezzanine
- 4. Bedroom
- 5. Bathroom
- 6. Office
- 7. Library
- 8. Studio
- 9. Outdoor studio
- 10. Deck







Amid rail tracks, a roadway, and a bridge, Tadao **Ando** creates the **4x4 HOUSE**, a tiny tower that quietly bows to the memory of an earthquake



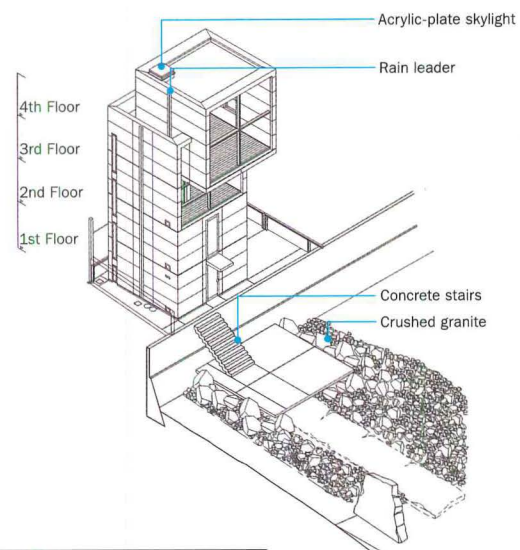
The diminutive, geometrically precise tower, cast in concrete, stands nobly amid the surrounding architectural hodgepodge, which features faux-Tudor "half-timber" and quasi-pagoda styles (this page). As sketched, Ando entertained the idea of adding a small, cubic outbuilding (opposite).







The architect plays his tower against the form and scale of the Akashi Strait Bridge (opposite, bottom). From inside the building's crowning cubic room (opposite, top), expansive views of bridge, sky, and city appear at once—in multiple directions. At night, when lit from within, the house reads as glowing volumes (above).



By Naomi Pollock

Imagine if *GQ* offered its readers a chance to have a dream house designed by Frank Gehry. In effect, that's what Japan's *Brutus* magazine did when it hooked up world-famous architect Tadao Ando with a 31-year-old construction company executive, a bachelor from Hyogo Prefecture. This pairing came about after the magazine, a trend-setting monthly geared toward men, invited readers to choose one of 10 architects, including Toyo Ito and Shin Takamatsu, and submit a brief description of their ideal home on a tear-out postcard. The one catch: Valid submissions had to be backed by an actual budget with land to build on. From its 120,000 readers, *Brutus* received 200 responses. Playing the good matchmaker, the magazine routed the postcards to the respective architects and then waited to see what would happen.

To no one's surprise, Ando received 80 requests. The construction executive's site immediately struck a chord with the architect, who lives and works in nearby Osaka. Set along a commercial strip on the outskirts of Kobe, where sandy beach meets the Seto Inland Sea, the 700-square-foot property faces a two-lane artery and train tracks on one side and, on the other, the Akashi Strait Bridge, Japan's longest suspension span. But what riveted Ando's attention was the view: directly across to Awaji Island, the epicenter of the 1995 Great Hanshin Earthquake. The architect knew the island well as home to his Yumeibutai and Water Temple, but firsthand impressions of the earthquake's massive destruction remain seared in his memory.

In personal remembrance of the devastation, Ando proposed a four-story concrete tower—pointed toward the island. "It was so simple and looked completely different from what I thought Ando's work would be like," recalls the client. To convey his vision of the house, the construction executive made a model of a low-slung building over piloti parking, and brought the maquette to a meeting with Ando. But the architect had in mind an entirely different strategy: 4-by-4-meter (13-by-13-foot) rooms, stacked one atop the other like blocks. Mandatory setbacks, height restrictions, and off-street-parking needs determined the building's footprint, leaving a small buffer zone between the house and its neighbors.

Modest in his programmatic requests, the client had hoped for a flexible space that might one day accommodate a family and other life changes. "In Japan, the life cycle of houses is very short," he points out, "and I wanted a place I could stay in until I die." Though the house's stairs seem less than user-friendly for the very young or old, the study, bedroom, and living areas remain intentionally free of fixed elements, ready to accommodate future functional changes—a very realistic scenario, given the lack of emphasis on personal space in Japanese culture.

The tiny tower rises (above a basement storage room) from an

Naomi Pollock is *RECORD's* Tokyo-based correspondent.

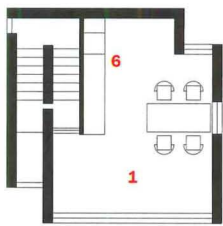




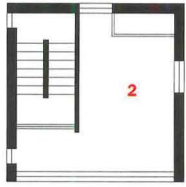




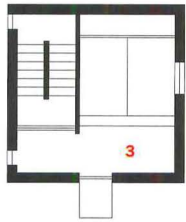




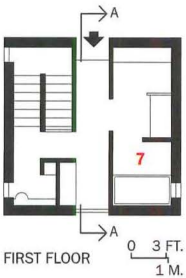
FOURTH FLOOR



THIRD FLOOR

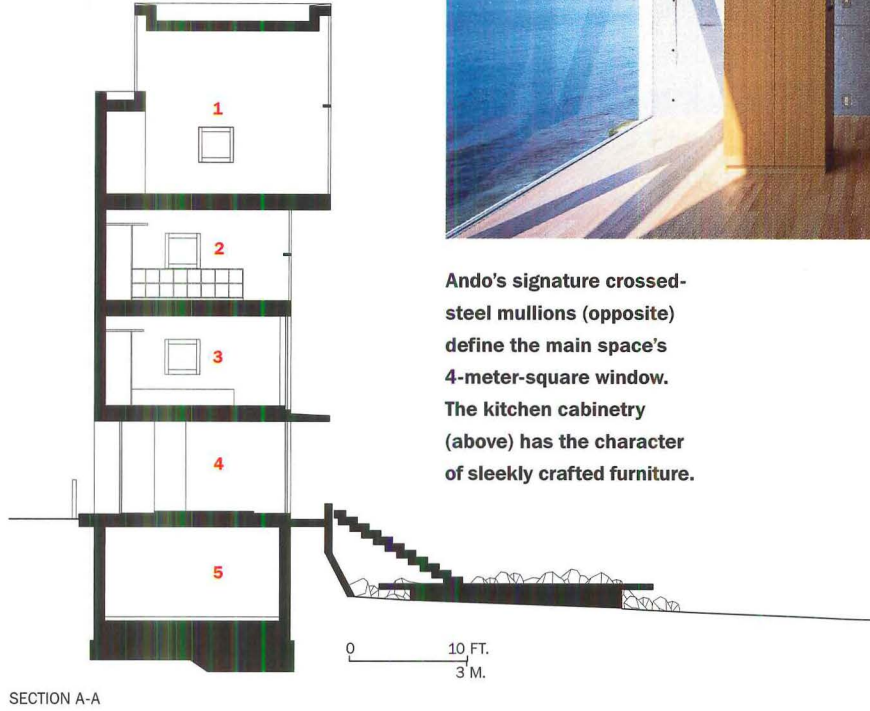


SECOND FLOOR



FIRST FLOOR

1. Living/dining
2. Study
3. Bedroom
4. Entrance
5. Storage
6. Kitchen
7. Bath



Ando's signature crossed-steel mullions (opposite) define the main space's 4-meter-square window. The kitchen cabinetry (above) has the character of sleekly crafted furniture.

entry-level foyer to the bedroom on the second floor and a study on the third. On the fourth level, a combined kitchen, living, and dining area forms the house's focal point: a 4-meter cube with a glazed south elevation jutting out toward the water like a giant (albeit square) telescope lens capturing the views. Although stairs take a bite out of each floor, the decision to slide the crowning cube to one side gained a bit of usable space.

While the top room does not exactly evoke a Western ideal of comfort, its volume more than compensates for the small floor area. Taking full advantage of the height, the south-facing floor-to-ceiling window offers panoramic vistas. Opposite it, a large clerestory frames a patch of sky, but edits out the nearby grilled-octopus stand, scuba shop, and busy artery.

Ando enclosed the building in concrete, his favored material, and for privacy, kept windows, especially on the land sides, to a minimum. Even the front facade, recalling his 1976 Sumiyoshi Row House, presents a wall of concrete with just one small window and a door. Yet the architect could do little to muffle traffic and train noise or mollify the site's harsh natural conditions. "When it's really windy, I'm scared the house will topple over or the glass will blow out," frets the client. Fortunately, his concerns remain more imagined than actual, as Ando has securely anchored the reinforced-concrete shell below grade, strengthening its resistance to lateral forces. Besides coating the cube's thick glass in a shatterproof film, he braced the glazing with his signature crossed-steel mullions.

Not to say the wind and sea don't take a toll. In addition to a waterproof sealant on the concrete's outer surface, Ando provided supplemental piping to bring water up to the roof, so that the client (after ascending a ladder through a small kitchen hatch) can hose off the salt-

water and seaweed that spray up with rough waves.

On calm days, though, the beach is the place to be. A conduit from street to sand, the foyer leads directly to stairs descending to a concrete platform that hovers above the shore: an ideal spot for barbecues and sunbathing. Ando entertained the idea of building an addition on the beach, but it's unlikely to come to fruition unless the building code changes. Though the property stretches out to the water, legal restrictions prevent the construction of anything but public amenities beyond the existing seawall. But apart from questions of expansion, Ando considers the house a complete entity as built.

An unusual site—on a narrow, chaotic strip of land so near the epicenter—with an owner willing to follow his architect's lead, enabled Ando to turn a magazine survey into a radical house, quietly memorializing the earthquake. It's a wonder that a designer of palatial homes for the rich and famous would participate in a media gimmick (of which the financial arrangements remain confidential). But Ando explains, "I wanted to know what the average person thinks about houses." If the owner of 4 x 4 represents the norm, then modest architectural clients in Japan may be ready to take big risks—once given the chance. ■

**Project:** 4 x 4 House, Kobe, Japan  
**Architect:** Tadao Ando Architect & Associates—Tadao Ando, principal; Masataka Yano, Tatsuhito Ono  
**Engineer:** Ascoral Engineering—Naoto Kashimoto (structural);

Shinmei-kyusetu—Takao Mizogushi (mechanical); Kurozumi (electrical)

For more information on this project, go to Projects at [www.architecturalrecord.com](http://www.architecturalrecord.com).







# Within a simple box, Marcio Kogan unfurls a complex architecture at the **DU PLESSIS HOUSE**, set between Brazil's sandy coast and its lush rain forest

By Sarah Amelar

**A**lthough Marcio Kogan would describe himself foremost as an architect, the Brazilian practitioner has also designed stage sets and completed as many films (if you count short ones) as he has houses. During an architectural career now spanning 25 years, he's made more than a dozen brief films and one full-length feature—in an absurdist, Jacques Tâti-esque mode with a Brazilian twist. Currently he's planning a movie about the city of São Paulo, where he lives and works. So, not surprisingly, his recently built Du Plessis House, about 150 miles southwest of Rio de Janeiro, reveals subtle theatrical and even cinematic qualities.

Here, in a wealthy, gated leisure community (with its own golf course and helipad), set between sandy coastal coves and the steep, lush hills of the Mata Atlantico rain forest, Kogan has gently inverted expectations, taking evident pleasure in the play of contradictions. Though his Du Plessis House stands only a few yards from its encroaching neighbors to either side, it manages to create a world apart, both indoors and out, all contained within a literal white box—a relatively neutral theater for the *mise-en-scène* of its inner realm.

From the outside, this simple, rectilinear volume appears simultaneously still and dynamic. Though its precise form remains grounded and calm, its visually charged cladding evokes motion through thin, stacked, blade-cut slabs of local mineira stone. Small irregularities in the masonry's strong horizontal rhythms, and color variations streaking through it, produce an optical effect—a slight kinetic blur, as if this surface were filmed in a long panning shot.

And though the house's exterior masquerades as a work of pure Modernism, it actually harbors traditional architectural elements within its outer walls. Kogan's earlier work, including the glassy, white Gamma Issa House of 2002, established him as a nontraditionalist. But here, he responded in an unorthodox way to the community's zoning requirement for pitched, ceramic-tile roofs. Overturning straightforward logic, he placed the required elements where neighbors and passersby could barely see them, if at all. His rectangular, stone-clad—apparently flat-roofed—"white box" turns out to be a partially roofless shell, entered sideways into a courtyard. Once inside this outdoor room, a narrow volume off to one side (containing three bedrooms with baths) comes into view—capped with, yes, the obligatory canted, terracotta roof. It seems extraordinary that a building-review board would



**A stone-clad, white box (opposite, top), the house's exterior shell frames views into its courtyard (opposite, bottom) and out onto a golf course (above).**

have accepted such an inside-out interpretation of its guidelines, but the resulting structure—so pure, quiet, and completely unlike any of its neighbors—appears remarkably compatible with the faux haciendas and other *nouvea-riche* villas around it.

Just one step into the forecourt, and it's clear you've entered another realm. Here, a ground plane of pale concrete, studded with small, smooth river stones, is punctuated by three native jaboticabeira trees, each on its own square, carpetlike swatch of lawn—a surreal landscape worthy of Kogan's own absurdist films. But at the same time, the courtyard conveys a poetic sensibility, akin to a Japanese rock garden, with an abstract play of light and shadows casting the trees' silhouettes against the textured, silvery stone walls.

And within its white-box enclosure, the 4,380-square-foot

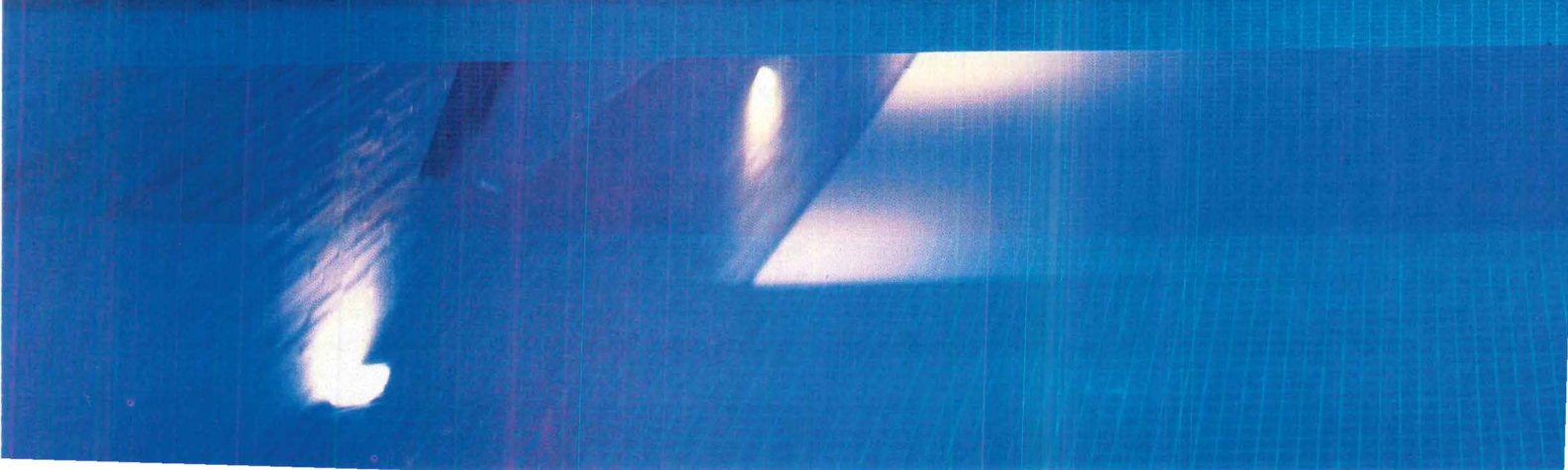
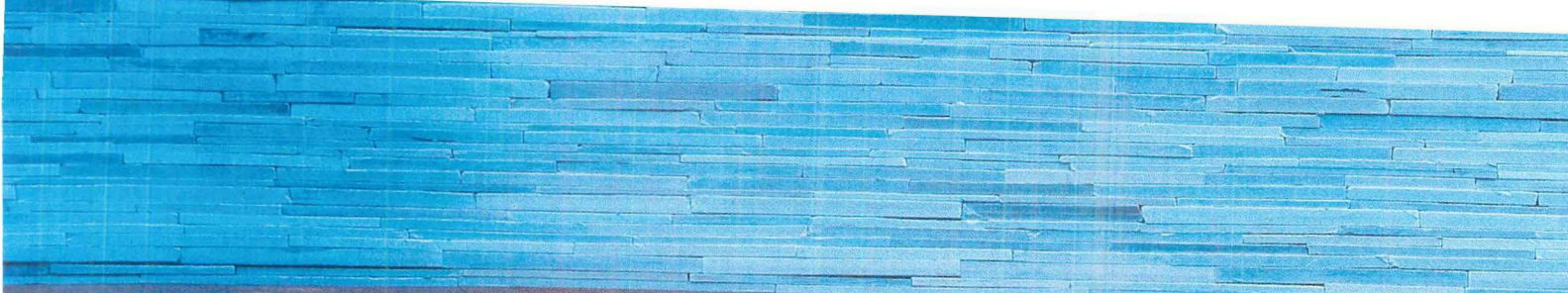
**Project:** *Du Plessis House, Paraty, State of Rio de Janeiro, Brazil*

**Architect:** *Marcio Kogan Architect—Marcio Kogan, principal; Diana Radomysler, Cassia Cavani, project architects; Bruno Gomes, Oswaldo*

*Pessano, Paula Moraes, Regiane Leão, Renata Furlanetto, Samanta Cafardo, Suzana Glogowski, project team*

**Engineers:** *Fernando Vasconcellos, Francisco Vasconcellos, Alberto Du Plessis*  
**Landscape architect:** *Marcelo Faisal*





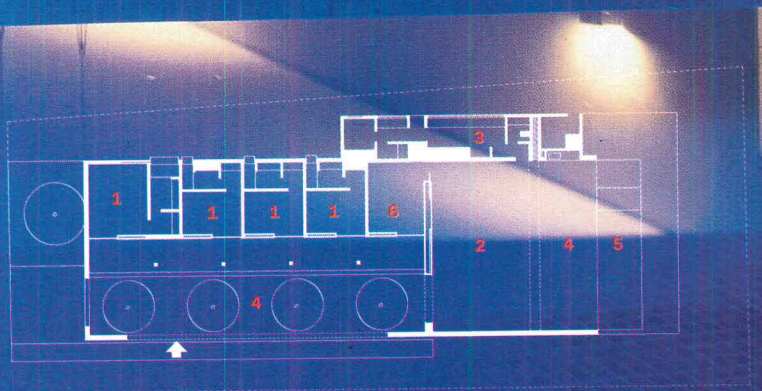




The terrace—extending from living/dining area to glass-tiled swimming pool—occupies a transition zone between indoors and out. Shaded

overhead by a screening layer of bamboo under transparent, operable louvers, it can be open to—or sheltered from—the elements.

- 1. Bedroom
- 2. Living/dining
- 3. Kitchen
- 4. Terrace
- 5. Swimming pool
- 6. Den





The bedroom wing (this page, top and bottom; opposite, bottom), along one side of the court, rises to a pitched, ceramic-tile roof. An array of sliding panels—

including glass and a frameless wood grille (below)—can screen or enclose the sleeping areas, as desired. In the court, each tree occupies its own discrete square of grass (opposite, top and bottom).



house, all on one level, feels incredibly open, yet casually private. Like the lens of a skilled filmmaker, the stone-clad container, with its well-placed apertures, performs almost imperceptibly as an editing device—deftly framing, masking, cropping, and otherwise controlling views to the outside. The nearby houses seem to drop away, no longer visible, in favor of the idyllically landscaped golf course fronting the flat Du Plessis site and the steeply sloping rain forest behind it.

The Du Plessis family—a São Paulo-based banker, her engineer husband, and their two young children—wanted a weekend/holiday place of easy maintenance and relaxed living in this mild climate. Kogan responded, in part, by fusing indoors and out. The pale, stacked-stone walls and concrete-and-riverstone floors run seamlessly from outside in (so even sandy feet would pose no problem here). An array of sliding pan-

## THE STONE-CLAD CONTAINER PERFORMS ALMOST IMPERCEPTIBLY AS AN EDITING DEVICE — DEFTLY FRAMING, MASKING, AND CROPPING VIEWS OUTSIDE.

els or screens—including light-filtering grilles of indigenous muxarabi wood—sleekly stowed in hidden wall pockets, allow the three bedrooms to open up to the garden, sunlight, and/or fresh air to varying degrees, as desired. And just past the bedrooms, the courtyard flows into an indoor living/dining area, which, in turn, continues—through a simple portal spanning the entire 38-foot width of the room—onto a covered terrace, which then meets water's edge at the swimming pool.

With the length of the pool matched to the width of the opening, and all materials meeting cleanly without a wrinkle or snag, the continuity feels effortless. But on closer inspection, the mark of a perfectionist at the controls lies everywhere beneath this relatively simple scheme: in the precise band of smooth black stones (drainage) extending across the courtyard; in the absence of visible mortar between the stone slabs (actually a stacked cladding over a brick substructure); or in the surgically incised stripe of wood planks (a path) alongside the building.

Yet the house has an ease about it: a place of deep, cushiony chairs and long, languid vistas, which penetrate the length of the structure and its courtyard to a pastoral landscape at one end and a rain forest at the other. Simultaneously part of the building and part of the backyard, the terrace occupies a semienclosed transition zone just inside the white box, capped overhead by a layer of bamboo screens beneath operable, transparent louvers. At times, entirely open to the elements and cast in slivers of sunlight, this space can also become a dry, though breezy, lounge from which to hear and watch the rain (perhaps as good as a movie).

Precise yet relaxed, private yet open, Modern yet traditional, in motion yet still, the Du Plessis House hovers comfortably amid the many sides of its personality. While reminiscent of a stage set, it's hardly a flimsy backdrop, but a very real and grounded venue, serenely contained within the texture and weight of authentic masonry. Sure, an absurdist filmmaker could try to roll up the garden, à la *Tâti*, and pack it away like a set of carpet samples, but the grass would stay rooted in place—leaving the stark, shadowy poetry that Kogan has created. ■

### Sources

**Stone cladding:** *Belas Artes*

**Windows:** *Kiko Esquadrias;*

*Zeca Cury*

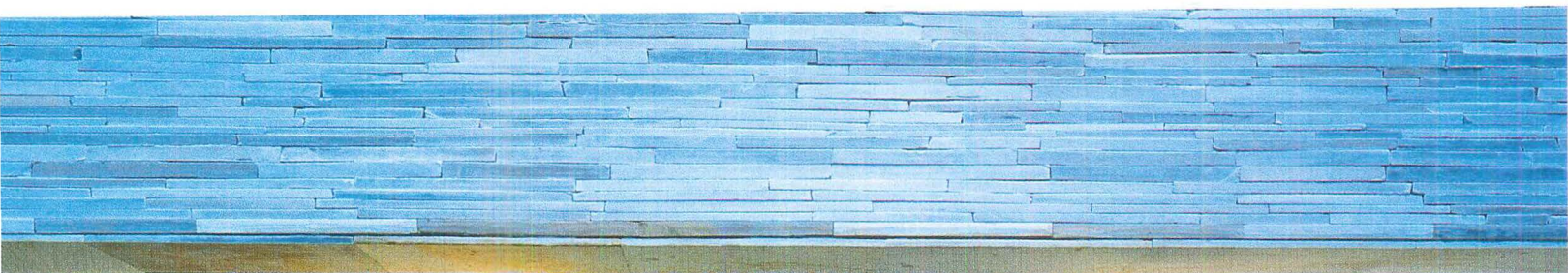
**Plumbing:** *Deca (sinks, faucets, and toilets)*

**Glass tiles:** *Colortil (in swimming pool and bathrooms)*

For more information on this project, go to Projects at

[www.architecturalrecord.com](http://www.architecturalrecord.com).







The house wraps around a terrace and pool (this page), forming a protected refuge while addressing West Texas's harsh, high-desert climate (opposite, top and bottom). A windmill on the property (opposite) powers the flow of water to the house and its plantings.





# Against the rugged landscape of Marfa, Texas, architect Carlos Jiménez gives his sprawling **CROWLEY HOUSE** a plainspoken beauty

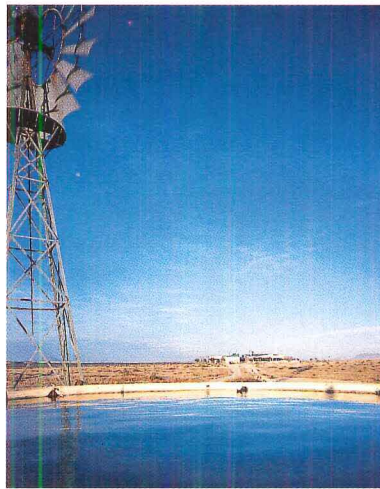


By Michael Benedikt

**M**arfa: far from everywhere, in the high desert of West Texas, where the altitude deepens the blue of the sky, and the shadows of the land stretch improbable distances at dawn and dusk; where industrial and farm buildings along the railroad appear as dignified as they are worn, simple but no two the same. It was here, in 1978, that the late New York Minimalist sculptor Donald Judd chose to acquire and upgrade several utilitarian buildings to house his own art and collection, and in which to work and live. The town has been transforming itself ever since. Judd died in 1994, but with his Chinati Foundation at its cultural base, Marfa has become a high-art pilgrimage destination and settlement for artists, writers, architects, and art patrons entranced by the mix of sparseness, sophistication, serenity, and extraordinary qualities of light.

Two such patrons, Tim and Lynn Crowley, longtime friends and previous clients of architect Carlos Jiménez, asked him to design a house for them in Marfa. The Crowleys—a lawyer and a gallery owner—had been “commuting” here from Houston by private jet for several years. Owners of a good deal of land in the area, they also operate the Marfa Book Company, a wonderfully urbane bookstore and coffee and wine bar, that has become the meeting place, message station, and gossip-exchange

*Michael Benedikt is the director of the Center for American Architecture and Design at the University of Texas at Austin.*



center for the local art set and visiting pilgrims.

The 8,000-square-foot house they built spreads out on the highest rise of a 3,000-acre, antelope-crossed desert plain outside of town, but seems remarkably modest, almost fragile, on approach. The impression continues as one comes closer. With pale, concrete-block walls almost disappearing into the landscape, the low, flat-roofed building responds to the arid climate with slender shading roofs and slatted walkway coverings, recalling elements added and adapted in an as-needed way. The plan (exclusive of outbuildings and shaded areas) extends into three wings, each one-room wide in the ranch-house tradition. As both clients come from large families, the layout reflects a need to accommodate visitors for weeks at a time. Sunlight enters major

rooms on at least two sides, and every window can open to the breeze.

This one-story home will remain accessible as the owners age.

**Project:** Crowley House, Marfa, Texas

**Architect:** Carlos Jiménez Studio—Carlos Jiménez, principal; Brian Kelly Burke, associate; Leslie Witt, Cris Ruebush, Brett Zamore, Assoc. AIA, project team

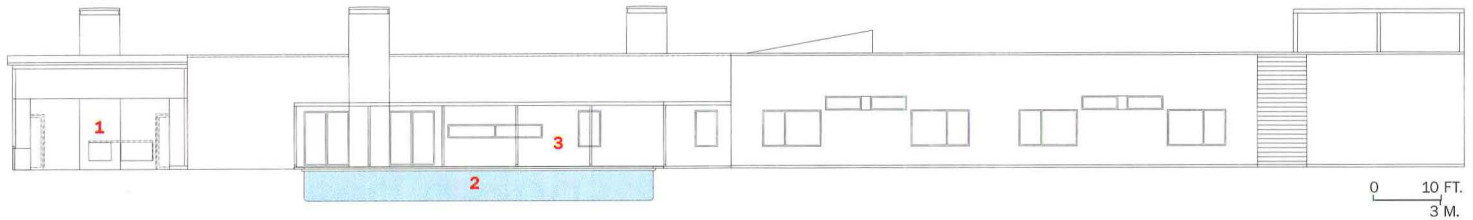
**Engineer:** Dan Ray

**Consultant:** Tokerud (furniture)

**Trades:** R&B Welding, Hendi Enterprises (metal fabrication); Lippe's A/C & Refrigeration (HVAC); Barmore Plumbing (plumbing); Dave Howard Electrical (electrician)

**General contractor:** Cook Construction





SOUTHEAST SECTION AND ELEVATION

1. Pool room
2. Swimming pool
3. Courtyard

Unlike the traditional ranch house, however, its plan has almost no radial component, no center, no attempt to minimize circulation. The building's rectilinear S-footprint creates two courtyards: an inner, private one, and an outer, public one. The outer yard must be crossed to gain access to both the front and kitchen doors. Around the two courts, all movement happens, inside and out. The house's *corredor*—its outdoor passageway—and high pool-house porch shelter the pool and garden of the inner court on three sides. Without such protection, a vulnerable garden could not survive the area's brutal wind storms. This inner realm provides a refuge: paradise.

The living room, on the other hand, looks out rather than in. Blocky, unapologetic in scale, it juts into the barren landscape at its own powerful angle, offering an untoppable view of the Davis Mountains. A terrace over the carport provides another view outward—up to the heavens for stargazing. (The region's dry, clear, and intensely dark night sky also provides the setting for an important observatory nearby.) The upper

## FOR ALL ITS SIZE AND SPREAD, THE HOUSE REMAINS MODEST, COSTING FAR LESS THAN IT COULD HAVE.

deck, framed with steel columns and beams, but not enclosed, hovers above the house as a lightweight, almost ethereal element.

Marfa's remoteness made it difficult to obtain work crews and materials, "which is why the house took three years to build," says Jiménez. The architect tailored certain construction and material decisions to the skills of available builders. (Since wood framing, for example, was not an option, he specified aluminum-stud walls.) In plan, the house's exterior walls look thin relative to the scale of the rooms. In reality, they are remarkably thick: 16 inches almost everywhere, with the concrete-block exterior given a terrazzolike finish. Inside, the walls show off their dimensions with deep sills and hefty aluminum window sections. One can see why Jiménez gave the building's envelope such depth. A spatially extended building with a visually modest roof and delicate shading appurtenances needs thick walls to establish its seriousness, its strength against the desert and time.

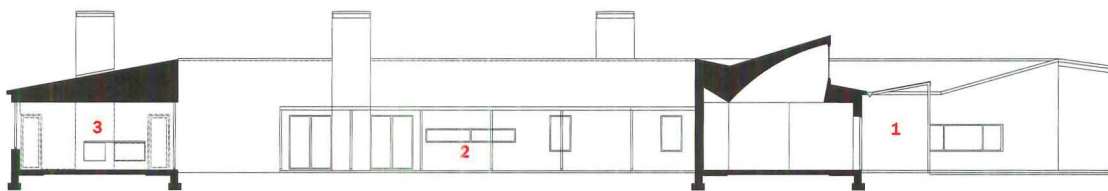
For all its size and spread, this project remains modest, costing far less than it could have. Standing-seam, galvanized-aluminum roofs meet the observatory's local restrictions on reflectivity. Floors are pine, and walls gypsum board, ready for art. (The Crowleys have begun to install their collection, but given the setting, it's hard not to see almost every window as framing a work of art.) With cabinetry of painted, medium-density fiberboard; windows of commercial-grade aluminum; bathrooms sleekly compact; and hardware and appliances tasteful, but not the absolute best, the house exhibits an economy of materials and means. This modesty did not result from any budget problem but was motivated by a preference, on the part of both the architect and his clients, for simplicity, a desire to avoid pretension. As a result, the Crowley House is a Modern home consistent with Jiménez's earlier work: trim, spacious, economical at its core,







The 8,000-square-foot house stretches out on one floor with access to most rooms from covered walkways (top and opposite, top and bottom). A viewing terrace sits on the carport (below).



- 1. Main entry
- 2. Courtyard
- 3. Pool room

SECTION THROUGH COURTYARD





Daylight plays an important role in animating the spacious interiors. For the two-story entry foyer (left and opposite), the architect brought in sun-

light from a clerestory, a skylight, and a glass door. Deep sills reveal the depth of the house's exterior walls, while the architect brought in sun-

light from a clerestory, a skylight, and a glass door. Deep sills reveal the depth of the house's exterior walls, while a palette of simple materials expresses the clients' sense of restraint (bottom). A large bathroom window brings a piece of the desert inside (below).







FLOOR PLAN

- 1. Main entry
- 2. Living
- 3. Dining
- 4. Kitchen
- 5. Bedroom
- 6. Garage
- 7. Media
- 8. Library
- 9. Master bedroom
- 10. Pool room

sharply composed, poised, and urbane. Minimalist? Yes. But painlessly so.

This project struggles nobly, and with some success, to emulate the straightforwardness of Marfa's sheds—and to respond to Judd's silent, enigmatic sculptures. "In the astonishing, fast-changing light here, a repetitive piece—with just a slight variation—by Judd can become pure music," observes Jiménez. "And those rays can make even the most everyday structure or object poetic." This house inspires us to search through the multiple meanings of the word *light*—from illumination to nonheaviness to levity to the heavens. Here, a deep and unresolved tension remains between the ordinary and the exalted, the humble and the grand, the material and the immaterial. Bringing all these qualities together, at peace, in a single building is a difficult quest. Its full resolution might require the passage of time. ■

**Sources**

**Roof:** Berridge

**Windows and doors:** Kawneer

**Cabinetry and woodwork:**

Alpine Contracting; Silla; Houser Group

**Paints and stains:** Kelly-Moore

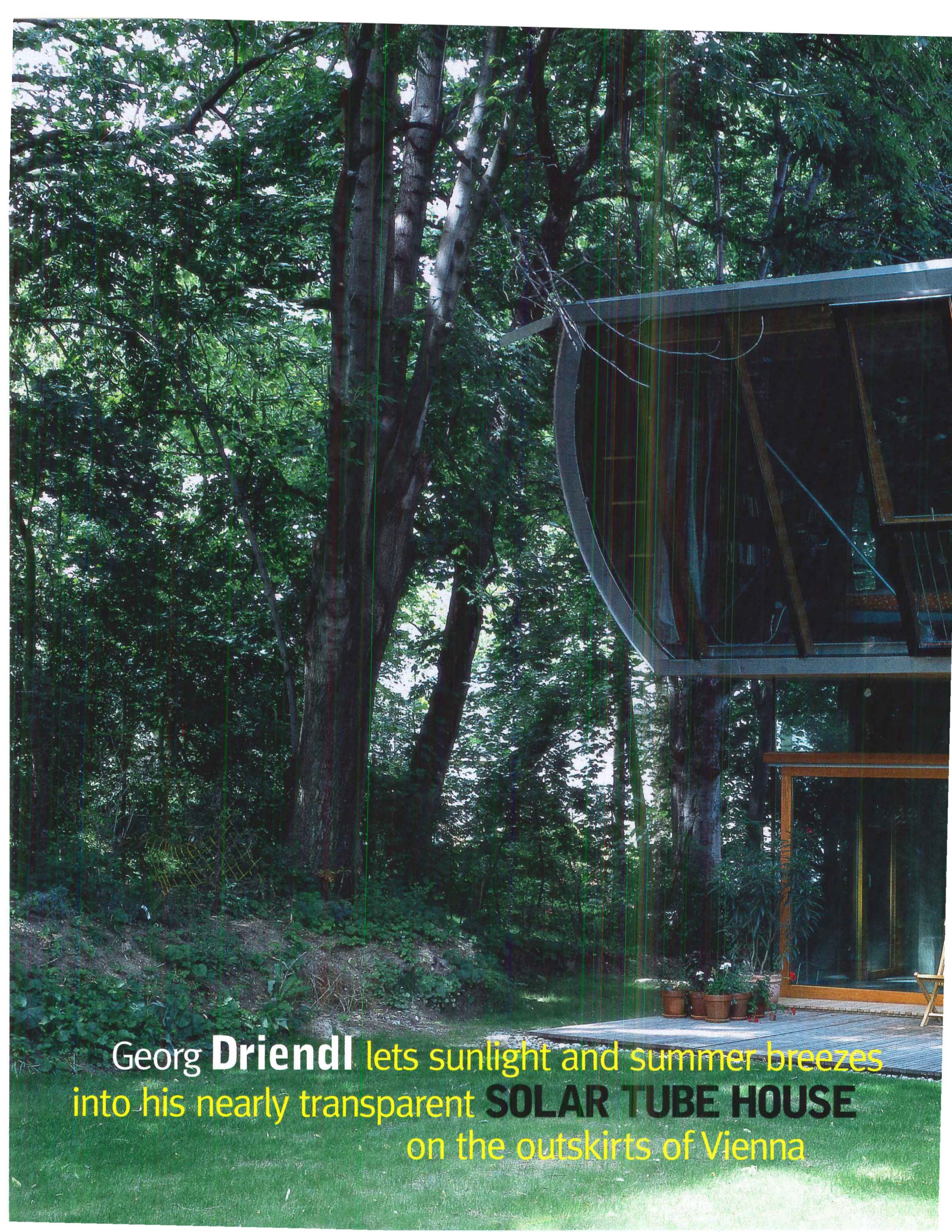
**Tile:** American Olean

**Lighting:** Lightolier; Bega; Hubble; Norber Belfor; Neidhardt

For more information on this project, go to Projects at

[www.architecturalrecord.com](http://www.architecturalrecord.com).





Georg **Driendl** lets sunlight and summer breezes  
into his nearly transparent **SOLAR TUBE HOUSE**  
on the outskirts of Vienna



The Solar Tube House, designed for energy efficiency, was inspired by tubular skylights popular in residential construction. This bowed form shades the glazed rectangular

volume beneath it. In warm weather, the owners can open the enormous sliding-glass door and wander freely from the living room to an on-grade backyard deck (below).



PROJECTS



By Deborah Snoonian, P.E.

Viennese architect Georg Driendl likes to name the houses he designs after the sun. His Solar Box, for instance, combines an orthogonal, glazed section with a 19th-century home. Solar Deck, a concrete-and-glass structure, has wraparound balconies on two levels. The Solar Tube House, in the northwest outskirts of Vienna, stands out as the most inventive and visually intriguing of the series. Rising to a metal-clad, glass-fronted tubular form, like a telescope topping an amply glazed rectangular volume, the house offers a singular presence among the traditional homes it rubs shoulders with—though it has also rubbed a few locals the wrong way. “One woman across the street complained that it ruined the neighborhood,” Driendl reports cheerfully.

Neither its name nor form are frivolous. Driendl was inspired by the humble tubular skylight, a device that channels sunlight indoors by means of a rooftop collector, reflective pipe, and diffuser. His novelty was to envision the entire house as a solar collector, one that needs little heating, cooling, or electric illumination. From that starting point, he resolved issues of form, structure, and material.

The family that commissioned the project, a couple with two young children, had bought a narrow, wooded lot, sloping up from the street. Midway up, a view of the Alps’ foothills—several miles to the north—appears. Driendl sited the house at the bottom of the slope, elevating the main living spaces above street level to capture the vista. By placing Solar Tube at the lowest point, he was able to take full advantage of natural ventilation and the shade provided by surrounding trees.

Some houses seduce by their mystery; the Solar Tube’s allure comes instead through transparency, openness, and warmth. Driendl glazed nearly the entire facade to dissolve boundaries between indoors and out, an especially pleasant effect in summertime, when a leafy tree canopy

**Project:** *Solar Tube House, Vienna, Austria*

**Architect:** *Georg Driendl Architekt—Georg Driendl, principal; Franz*

*Driendl, Franz Bergles, Reinhard Weber, Christian Formann*

**Engineer:** *Ernst Illetschko*

**Landscape:** *Schumacher · Schindl*

A low concrete retaining wall wraps the site, following its grade.

The upper floor’s steel frame, placed inside the structure, protects against thermal bridging (above). Upstairs, bedrooms lie hidden from view behind the steel cladding of the “tube,” but the bathroom gets daylight (below).





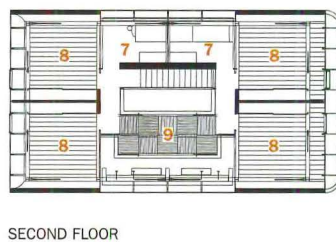
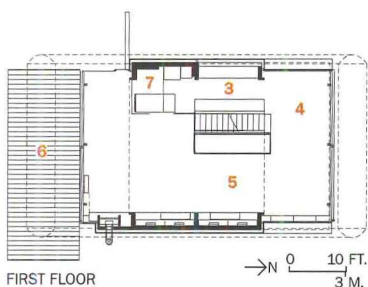
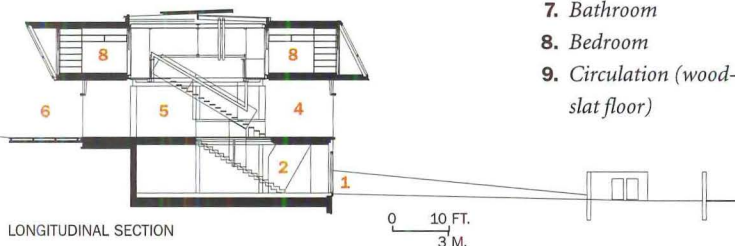


As dusk falls, the Solar Tube House glows from within, its interior spaces clearly visible from the street. Its transparency bothers some neighbors, but the owners enjoy the sense of openness.





- 1. Entry
- 2. Ground floor
- 3. Kitchen
- 4. Dining area
- 5. Living room
- 6. Deck
- 7. Bathroom
- 8. Bedroom
- 9. Circulation (wood-slat floor)



practically nestles the house among its branches. A neutral, quiet interior of polished granite floors and concrete built-ins, designed by Driendl, doesn't compete for attention with the views, while open stairwells allow glimpses throughout the house from many vantage points. In winter, when the canopy sheds its leaves, sunlight provides passive heating, augmented by efficient radiant heating in the floor slabs of the ground and main levels.

The lowest floor consists of two main spaces: a foyer containing a concrete stairwell, flooded with daylight from above, and to its left, a large room with a separate entrance from the outside. The original owner, a doctor, used the space as an office for a home-based practice. (But his family enjoyed the Solar Tube only briefly, selling it after he and his wife divorced.) The new owners are turning this ground-floor space into a playroom for their children.

It might be tough to keep the kids downstairs, though, because the main level has the character of a tree house. "Children love the Solar Tube because they absorb information constantly from all places," Driendl says. "It feels like play to them." (Adults are by no means immune to this effect. A visitor's temptation is to run toward the view of the Alps and then slide across the floor in wool socks—indoor skiing!) Here, a continuum of kitchen, living, and dining areas, all on grade, extends onto the back deck





Driendl designed the concrete bookshelves, cabinets, and fireplace (opposite). Upstairs, in the “tube” (above and right), the owners can browse two-story sliding bookshelves while standing on a floor of wood slats that filters overhead light to the main level. Late-day sunlight warms the dining area (left).







**A rolling skylight (above) lets excess heat escape. A glass-and-wood stair rises gracefully alongside the kitchen (top right). The upper-floor bathroom has its own skylight and concrete built-ins (bottom right).**

and garden. Enormous sliding glass doors allow cooling breezes (and probably a few birds) to sweep through the interior. When the weather gets too cold to open the doors, transom windows beside the sliders and a rolling skylight create a chimney effect to vent excess heat.

If the main level evokes a tree house, the top floor suggests a cozy perch. The marriage of form and function becomes most apparent in this flattened-tube structure, where north and south sides overhang the lower levels to provide shading.

Four modest bedrooms occupy these “corners,” collecting warm air from the floors below. The children’s bedrooms face the mountains, with curved walls and sloped windows offering the pleasures of tents and high-rent views. The back bedrooms provide for more privacy and tranquility.

The tube’s structural system, a steel endoskeleton, obviates the need for supporting columns. With a nod to Driendl’s insistence on a transparent aesthetic, walls of colored paper, sandwiched between translucent composite panels, divide the rooms. Semitransparency also appears in the circulation pathways: part glass and part an open system of

wood slats, spaced nearly two inches apart and arranged in a parquet pattern. This “floor” must be negotiated with the care of a balance-beam gymnast. Those who fear heights or twisted ankles will feel more comfortable reaching the bedrooms via the bathroom instead.

The current owners have quickly come to treasure the house’s uniqueness. The husband has even proposed a round of “trading spaces,” in which owners of Driendl’s eight or so Vienna houses would swap homes for a day and meet that night to discuss them. He lays out his vision: The Solar Tube would serve as the party space, its beaconlike street presence enticing reticent neighbors to join the party for a drink—openness, after all, always seems warmer from the inside. After the last guest leaves, the family would retire to the treetop retreat, its bowed walls like a set of parentheses safely enclosing them as they slumber. ■

**Sources**

**Structural system:** *Holzbau Berlinger*

**Concrete:** *Wagnerbau*

**Metal-and-glass curtain wall:**

*Foidl Glasbau*

**Steel cladding:** *Stauber*

**Windows and doors:** *Gruber*

*Tischlerei*

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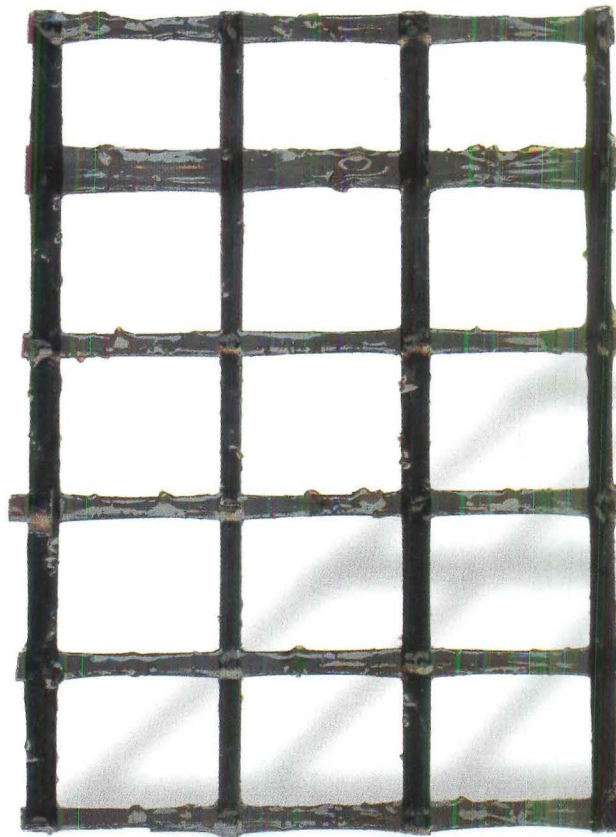
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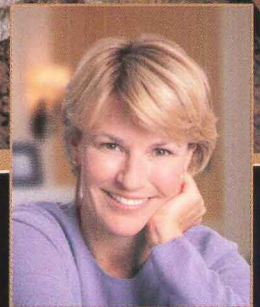


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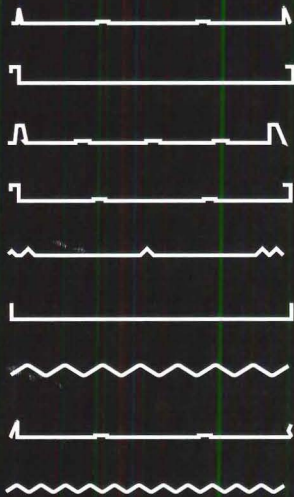
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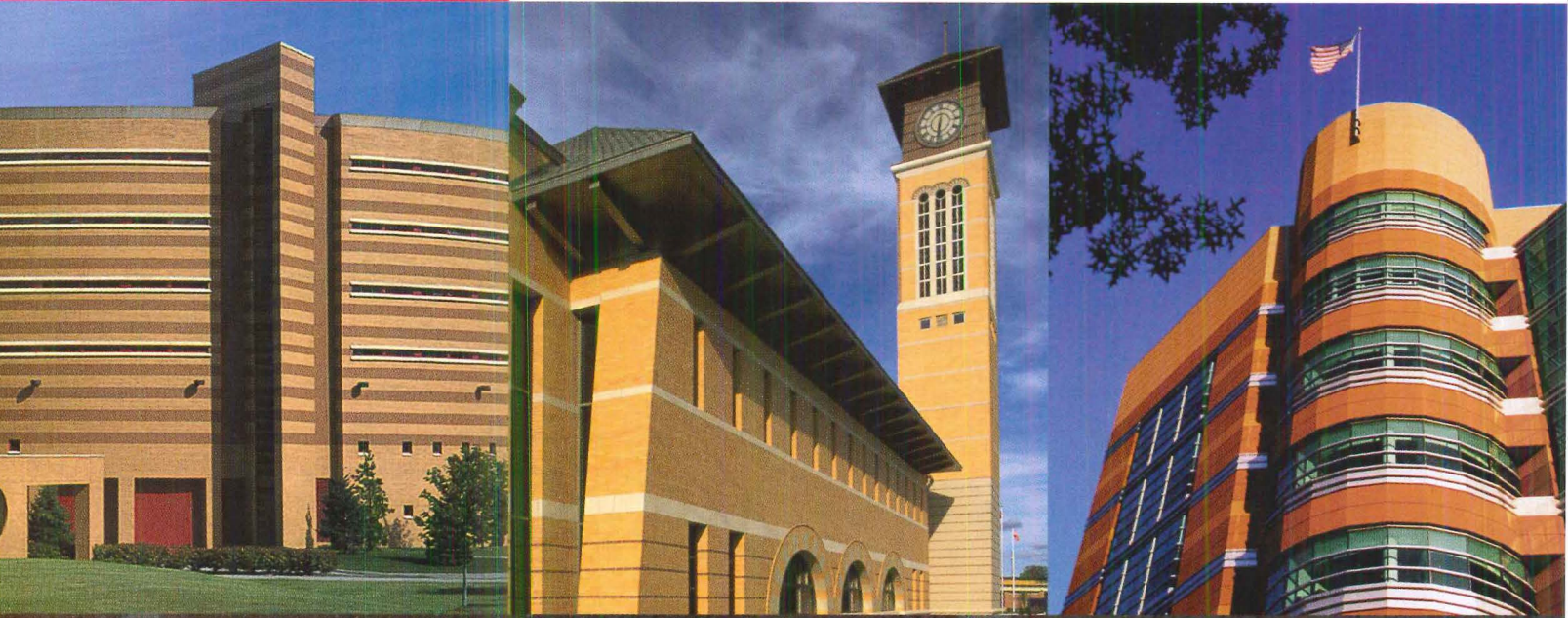
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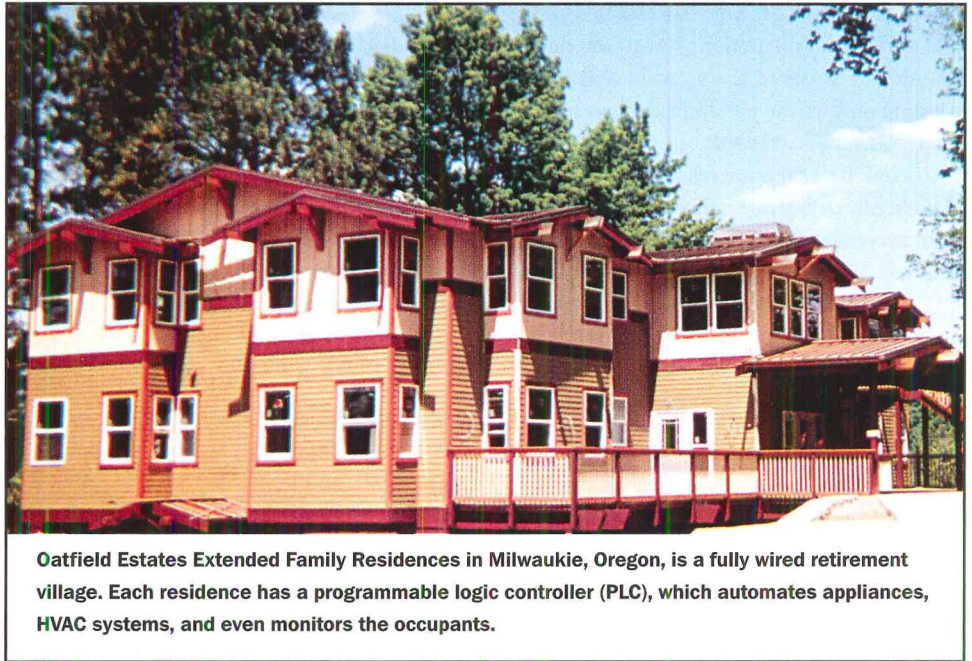
# Aging Baby Boomers Want Smart Houses for Their Golden Years

UNIVERSITY RESEARCHERS ARE DEVELOPING INTELLIGENT ENVIRONMENTS FOR AGING IN PLACE

By Barbara Knecht

The average middle-class house today is about as smart as the original Volkswagen Beetle when it was introduced 55 years ago. But whereas cars have gotten very smart, houses have not. As evidence, compare the VW Phaeton with the Beetle, a shell on four wheels with manually operated windows and a gaugeless gas tank. The Phaeton electronically conveys the owner's personal information to the car; opens the door, adjusts the seat, seat belt, mirrors, steering wheel, and air-conditioning to the preferred settings; and starts the car without the driver ever having to put the key in the ignition. The interior of this automobile has four climate-controlled zones and 28 solar cells in the sunroof to power a ventilation system that cools the car when it is parked in the sun. The interior humidity is automatically controlled to prevent the windows from fogging up. At the touch of a button, the automatic-leveling air-suspension system can be reset for different driving conditions. The satellite navigation system will

Barbara Knecht is an architect and writer based in New York and Boston who writes regularly about housing issues and building technology.



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These functions are part of integrated systems, working together, not a collection of expensive accessories. If just a collection of gadgets defined a smart house—infotainment systems, radio phones, personal computers, wireless baby monitors, high-speed Internet connections, programmable heating, cooling, and cooking systems—then the concept of integrated systems would have no relevance. The problem is that the gadgets people buy aren't that smart. Individually, they have some intelligence, but they don't automatically cooperate with one another to simplify home life, and they clutter tables and floors, stick to the walls, and overload outlets.

While there is no shortage of high-end houses that are on their way to integrated and centralized control of HVAC, entertainment, communications, security, and lighting systems, they still require the owner to instruct the controller about desired actions. The smart house of the future will be an integrated system of electronics, sensing equipment, and other home technologies that communicate with one another and a central controlling computer. The system will know or sense things about the occupant and the environment and will be able to make adjustments and offer reminders without human intervention.

## "Smart" labs for living

Several universities are developing smart houses, or "intelligent environments," as they are sometimes called, that go far beyond the state of the luxury market. And like so many other things, it is the aging boomers who are driving that research. There are nearly 80 million of them, and as

## CONTINUING EDUCATION



Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ AIA Continuing Education article. To receive credit, turn to page 176 and follow the instructions. Other opportunities

to receive Continuing Education credits in this issue include the following sponsored sections: "Impact-Resistant Systems: Windows and Doors Take The Coast by Storm," sponsored by Weather Shield Windows & Doors, page 187, and "The Greening of 'White Goods'—Environmental Considerations When Specifying Appliances," sponsored Whirlpool, page 193.

## LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Describe the meaning of the term "smart house."
2. Explain the importance of system integration.
3. Discuss the effect smart houses can have on medical home care.

For this story and more continuing education, as well as links to sources, white papers, and products, go to [www.architecturalrecord.com](http://www.architecturalrecord.com).



everyone knows, they are living longer, healthier lives than any previous generation. Now they are poised to flood the health-care and social-security systems. Smart-house technology is one way to respond to diminishing cognitive and physical functioning, which currently lands people in assisted-living and nursing homes.

The state-of-the-art technology today straddles what is and what will be. The basic tools of smart houses exist: sensors (audio, motion, and biological); video cameras; wiring (Category 5, coaxial, fiber optic); wireless (radio frequency [RF] and infrared [IR]) communications; devices (appliances, interactive monitors, speakers); and computers. The sensors collect information. Communication lines route data and information among the devices and the computer. The computer analyzes data and sends instructions out to the devices. This is basic technology that already exists in the security and HVAC systems in many houses. Building on this, the possibilities envisioned in these research centers are much more sophisticated.

Researchers are reaching for *pervasive or ubiquitous computing*, wherein tiny devices are invisibly embedded in the environment and seamlessly integrated with one another and the humans who benefit from them. They will fit in so naturally, be so intuitive and effortless, that people will no longer be aware that they are using computers. Instead of humans learning

and adapting to computers, the computers will adapt to humans.

Researchers at the University of Rochester, Georgia Institute of Technology, University of Colorado at Boulder, and the Massachusetts Institute of Technology (MIT), among others, are experimenting with sensors, cameras, and monitors installed in house labs to learn about physical and social environments and the patterns and habits of the occu-

**RESEARCHERS ARE REACHING FOR PERVASIVE OR UBIQUITOUS COMPUTING, WHEREIN TINY DEVICES ARE SEAMLESSLY INTEGRATED WITH ONE ANOTHER.**

pants. The information is stored and analyzed by a computer (hidden or displayed) that can then use it to help people with preventive health care, alert remote family members to changes in living patterns, or remind the occupant to take medication or feed the fish.

The mission of the Smart Medical Home at the University of Rochester's Center for Future Health ([www.futurehealth.rochester.edu](http://www.futurehealth.rochester.edu)) is to study how a smart house can aid in the prevention and early detection of disease. According to Cecilia Horwitz, the center's associate director,

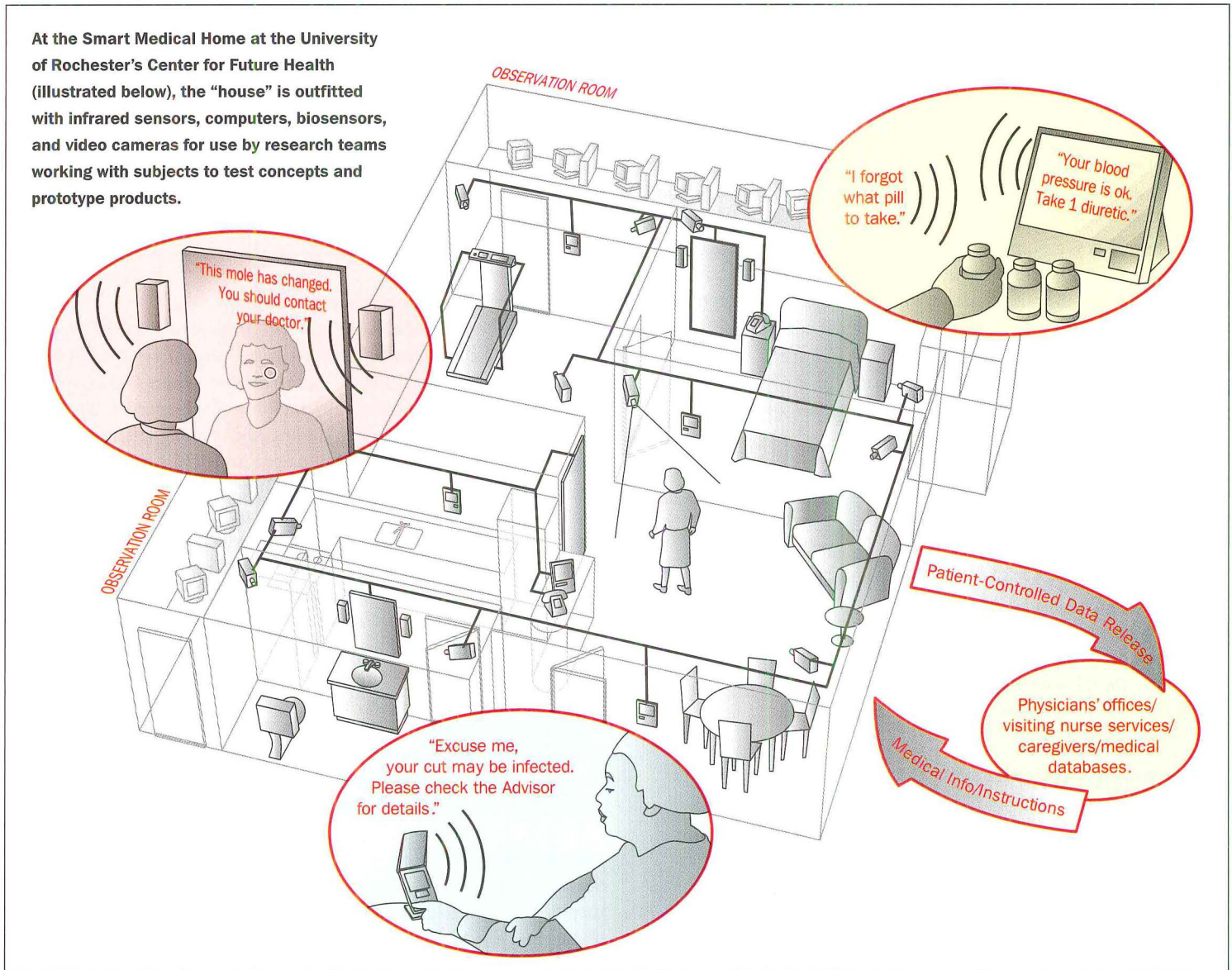
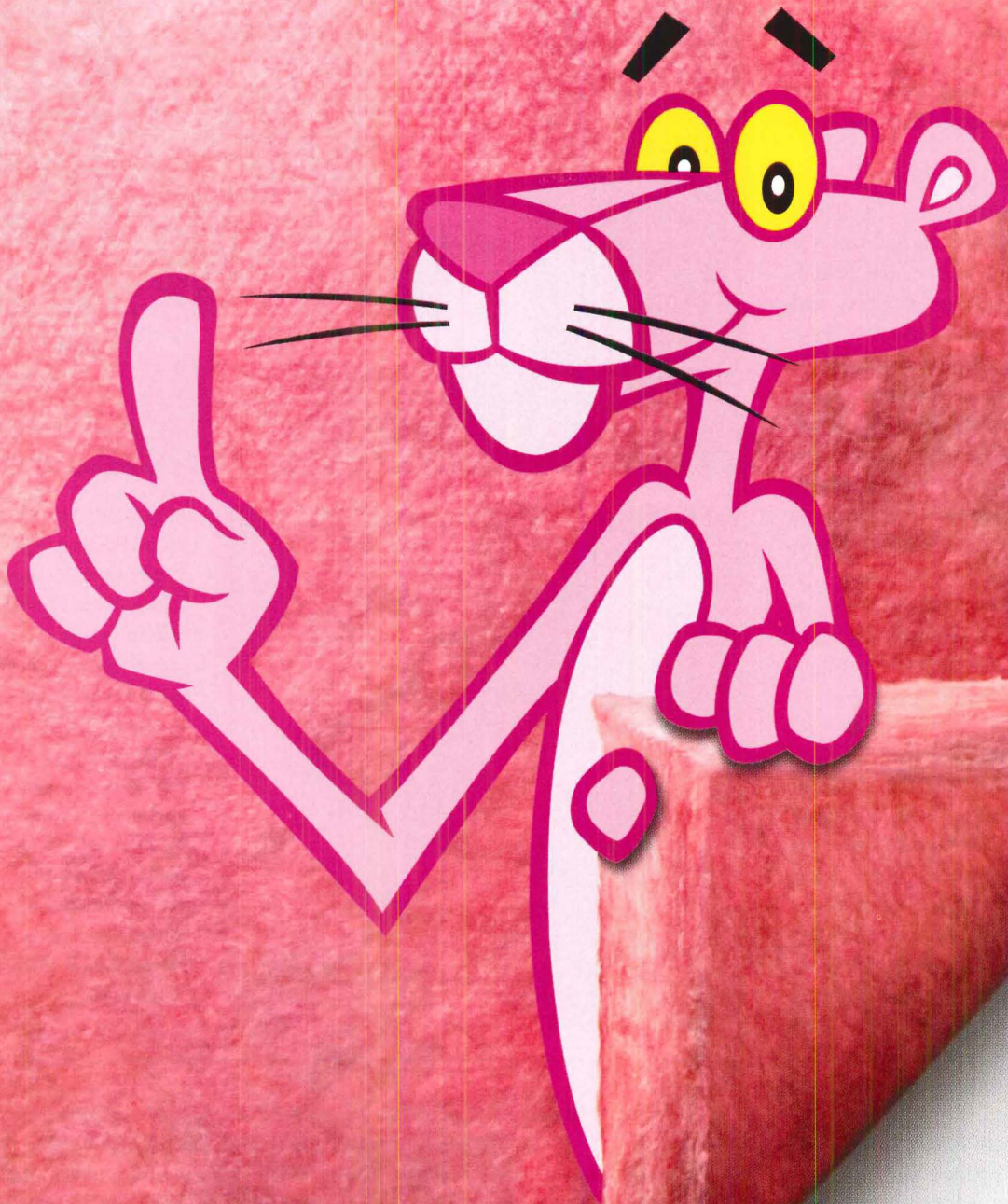


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"Today, people over 65 use the health-care system six times more often than those under 65. We need to figure out ways, beyond diet and exercise, to keep people healthier longer. When a person visits a doctor, what can he or she really tell the doctor about their vital signs over the previous six months?"

In the Smart Medical House, the sensors and monitors can keep data on traditional vital signs, such as blood pressure and pulse and respiration, but will also measure the "new" vital signs, such as gait, behavior patterns, sleep patterns, general exercise, and rehabilitation exercise, among others. "Do you know that a change in gait can be an indicator of neurological disease or an oncoming stroke?" asks Horwitz. "Eventually 'Chester,' a computer that is an interactive medical-advising system, will be able to ask the occupant about that limp the sensors picked up and suggest a visit to the doctor if necessary. In theory, we should be able to catch a stroke three weeks before it happens!"

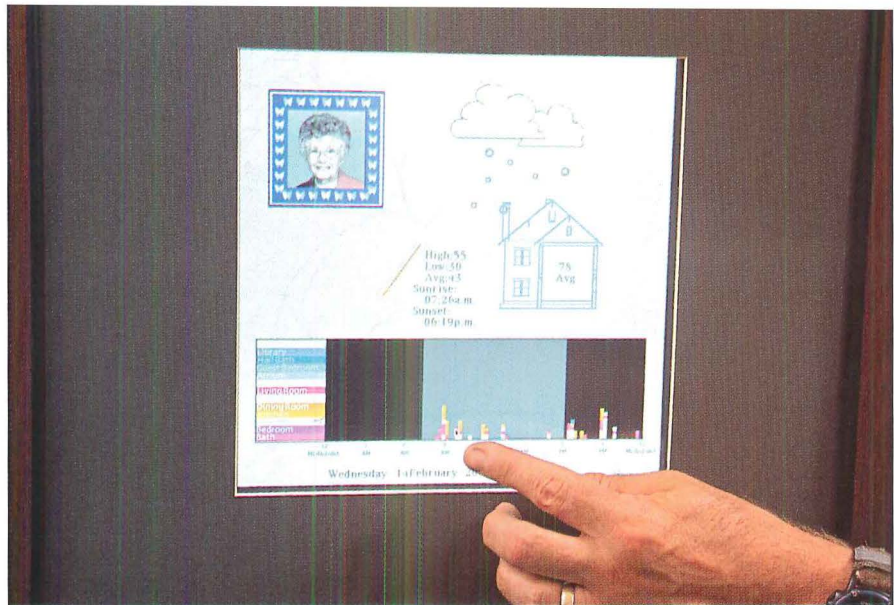
Not everyone reacts well to the prospect of "surveillance," but for many, the advantages of aging in place will vastly outweigh the alternative of going to assisted care before it is necessary. Gregory Abowd, associate professor at the Georgia Institute of Technology College of Computing in Atlanta and former director of its Aware Home Research Initiative ([www.cc.gatech.edu/fce/ahri/](http://www.cc.gatech.edu/fce/ahri/)), offers this approach: "We are starting with the first challenge: to create an 'aware' environment that is autonomous. Then, if you are able to make an environment that is aware of activity and occupant location, what valuable services can you build to support human need?" An aware environment is one that knows who is in the house, where they are, and perhaps what they are doing. Abowd observes that the current focus is on personal health, but the applications will be used for safety, security, and sustainability throughout the house.

The Georgia Tech Aware Home is a laboratory in a conventional-looking house, which opened in May 2000. The array of experiments in the Aware Home is designed to support everyday activities and, more specifically, the cognitive changes that happen with

## AN AWARE ENVIRONMENT IS ONE THAT KNOWS WHO IS IN THE HOUSE, WHERE THEY ARE, AND PERHAPS WHAT THEY ARE DOING.

aging. Diminishing short-term memory may be the most noticeable symptom of aging. With memory-aid technologies, it will be possible for people to look back to see if they have added sugar or salt to a recipe, to find where they left their keys, or to see if they took their medicine. Tracking activity by camera is one method, and one that we undergo so often in the public domain that it may eventually become more pervasively acceptable at home. "The playback may be still shots, for example, that are taken when the sensor identifies that a relevant activity has taken place," explains Abowd, "but we don't yet have the full refinement of the sensing activity."

"The key is that the user controls the information," explains Rochester's Horwitz. "The information is captured on a computer within



At the Georgia Tech Aware Home, a Digital Family Portrait (above) hangs on the wall like a painting and reports occupant activities and weather reports while displaying images of family members. With the "Gesture Pendant," containing a wireless camera (left), occupants can control ordinary household devices by making hand gestures in front of the lens.

the house." How and to whom it is distributed is the consumer's choice.

Motion sensors are the typical way to track a person's activity, but several years ago, Abowd began experimenting with a load sensor (that records pressure caused by a person's weight) in a floor tile to see if it could characterize and then follow a person through the house. While it worked to a degree, it was very difficult to scale it out over the whole house. More recently, he has been experimenting with Radio Frequency Identification (RFID), the technology that is used to track your car and deduct toll road payments. A tag on your shoe sends a signal to the computer through antennas in mats on the floor. Eventually, molecular nanotechnology (MNT) will allow these antennas to be fabricated at the nanoscale and embedded into building materials.

### Getting smarter

Oatfield Estates Extended Family Residences in the Portland, Oregon, suburb of Milwaukie is a retirement home proving the use of RFID technology. The system is not as intelligent now as it will be, but it already allows people with cognitive disabilities to live much more independently. Bill Reed and Lydia Lundberg are the founders of Elite-Care residential care facilities ([www.elite-care.com](http://www.elite-care.com)) and the owners and developers of Oatfield, which has just opened its sixth 15-person building.

Reed explains some of the system functioning: "Each 'house' is



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hardwired into the central computer, which is a programmable logic controller (PLC), a microprocessor used to automate machinery. We don't have smart gadgets, we have a smart controller. For example, let's say 'Joe' goes into the kitchen. The location-tracking technology is constantly relaying where Joe is, and the motion sensors provide the computer with the information that he is there by himself. The computer already knows that if Joe is alone in the kitchen, it needs to turn off the power to the microwave because Joe is unable to remember that cans should not be put into the microwave." The central controller must be programmed with the facts about Joe's propensity to put cans in the microwave. However, as the system becomes more robust, it will be able to learn resident habits.

Michael Mozer, professor of Computer Science and Cognitive Science at the University of Colorado in Boulder, outfitted his own home, a 19th-century schoolhouse, with 75 sensors to detect motion, light, sound, temperature, and window and door openings, plus actuators to control heating, lighting, fans, and water heating. The system he and his research students designed controls basic residential comfort systems: HVAC, lighting, and water heater. The research question he set out to answer in the Adaptive House ([www.cs.colorado.edu/~mozer/house/](http://www.cs.colorado.edu/~mozer/house/)) was whether there are significant regularities in a person's behavior that a system can exploit to make the occupant's life more comfortable.

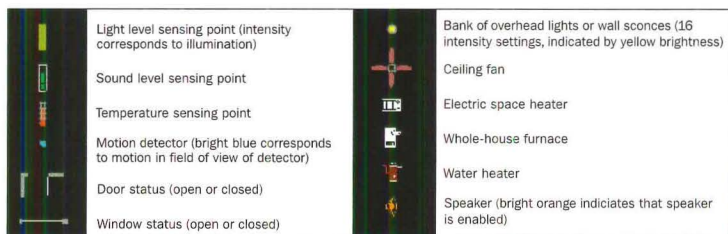
"In most research settings, there is little concern about the invasive nature of the devices. But because I live here, this issue had high priority. On the other hand, we had to do this with readily available materials that were much cruder just six or seven years ago," explained Mozer. "You could do an even less obtrusive installation now, and have much more sensitive and sophisticated sensors."

What makes his system intelligent is that it can learn and adjust actions accordingly. "Over time, the system learns more about you and can pick up subtle patterns in your behavior. The more variables you give the system, the smarter it becomes. It learned that when I come home late at night, I usually stay at home longer the next morning, so on those days, it sets the thermostat to keep the house warm longer in the morning. It learned that I sit at a particular table in the great room to read. After a few times of manually turning the light up when I sat down

## THE SYSTEM LEARNS MORE ABOUT YOU AND CAN PICK UP SUBTLE PATTERNS IN YOUR BEHAVIOR. THE MORE VARIABLES YOU GIVE THE SYSTEM, THE SMARTER IT BECOMES.

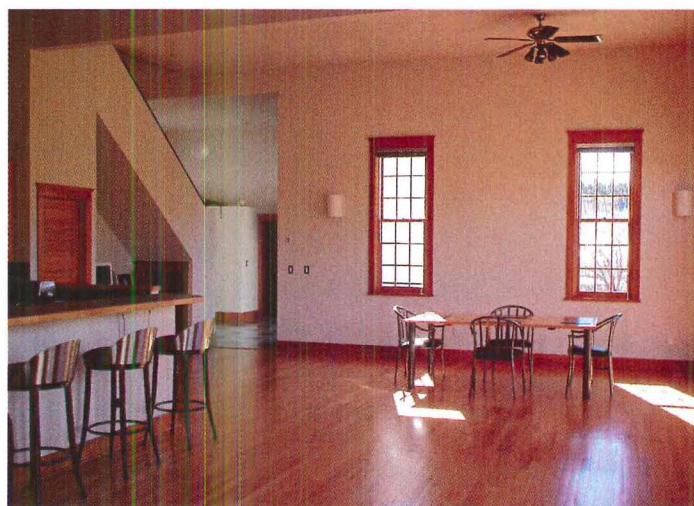
there, it was trained to do it automatically when the sensors picked up that I was at the table."

Systems that can learn will improve on those like Honeywell's Hometronic ([content.honeywell.com/uk/Press/hometronic\\_online.htm](http://content.honeywell.com/uk/Press/hometronic_online.htm)) system that can manage your HVAC, lighting, window shades, home appliances, and more, even when you are away. This one and others like it can be programmed to take advantage of periods when utility rates are lower. There is even a way for communications to take place with the utility companies to take advantage of fluctuating pricing tiers. The final responsibility, however, remains with the user, who still has to set up and choose the programs. Systems that learn are supposed to eliminate or significantly reduce that burden. Further, current stand-alone HVAC and security systems, smart appliances, and controls will have seamless communication among



The control systems in Michael Mozer's residence (below and left) are based on neural-network reinforcement learning and prediction techniques. Seventy-five sensors provide information about the environ-

tal conditions being monitored—temperature, ambient light levels, sound, motion, door and window openings—and actuators control the furnace, space heaters, water heater, lighting units, and ceiling fans.





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themselves, learn about what the others are doing, and compare new information with what is going on in the environment. The potential for energy and resource management applications seems limitless.

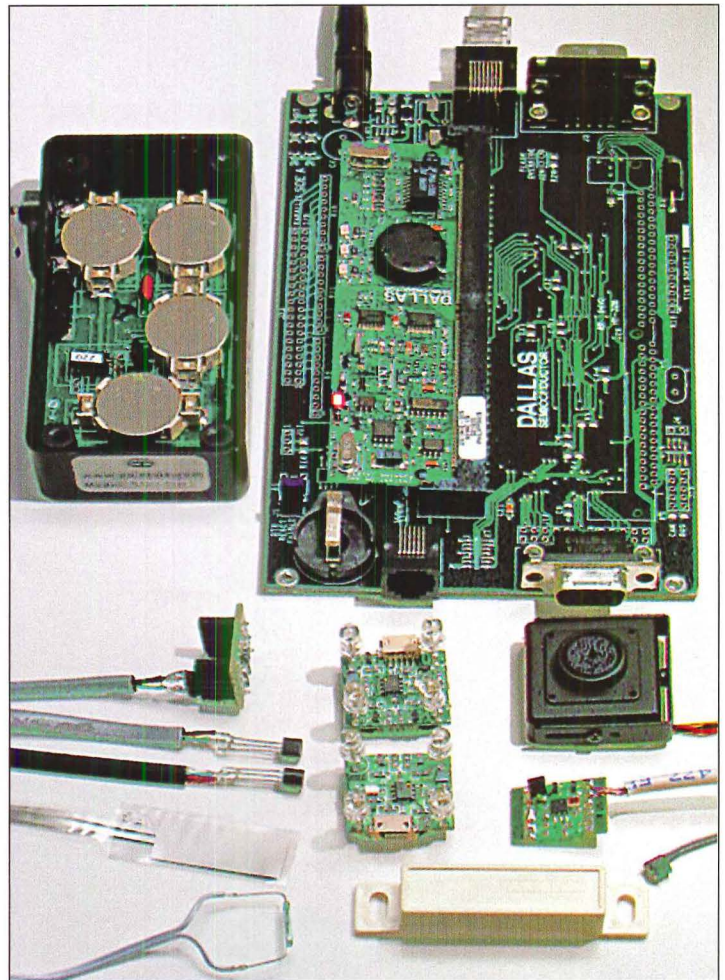
Electrical and computer engineers, scientists, behavior specialists, psychologists, medical researchers, medical doctors, and industry are experimenting with sensing technology, computer algorithms, human behavior, and medical science to sort out the pieces and figure out how all this comes together in a usable integrated system that can be installed in a new or existing house. Architects, with the exception of Kent Larson, director of MIT's PlaceLab ([architecture.mit.edu/house\\_n/web/place-lab/livinglaboratory.htm](http://architecture.mit.edu/house_n/web/place-lab/livinglaboratory.htm)), are absent from the university research centers.

MIT has a network of related initiatives undertaken by partnerships of the Department of Architecture, the Media lab, TIAX (an independent R&D company), and a variety of corporate sponsors. PlaceLab, a smart-living laboratory, is due to open this year. It is a two-

**EVEN AS WE BECOME MORE USED TO THE IDEA OF PERVASIVE COMPUTING, THE QUESTION FOR ARCHITECTS REMAINS, WHAT DOES IT MEAN FOR BUILDING?**

bedroom condominium in a residential building outfitted with hundreds of sensors to monitor the environment and activity within it. "The purpose of this lab, which will be inhabited by people going about their daily lives, is to study human behavior to influence design and technology," explains Larson. "No one has ever built a lab to study humans and technology in the context of real life. This is not a demonstration house; it is a laboratory of human behavior to inform, not to demonstrate, design."

The ambitious research agenda includes proactive health care and monitoring of daily activities, as well as indoor air quality, information technology, appliance design, energy management, and construction. Even as we become more and more used to the idea of pervasive computing, the question for architects remains, What does it mean for building? With this project and a related consortium, the Open Source Building



The PlaceLab, an apartment-scale research facility operated by MIT and TIAX, will test and evaluate new technologies for the home. A microcontroller and light, motion, humidity, CO<sub>2</sub>, and barometric pressure sensors will be embedded in upgradable cabinetry.

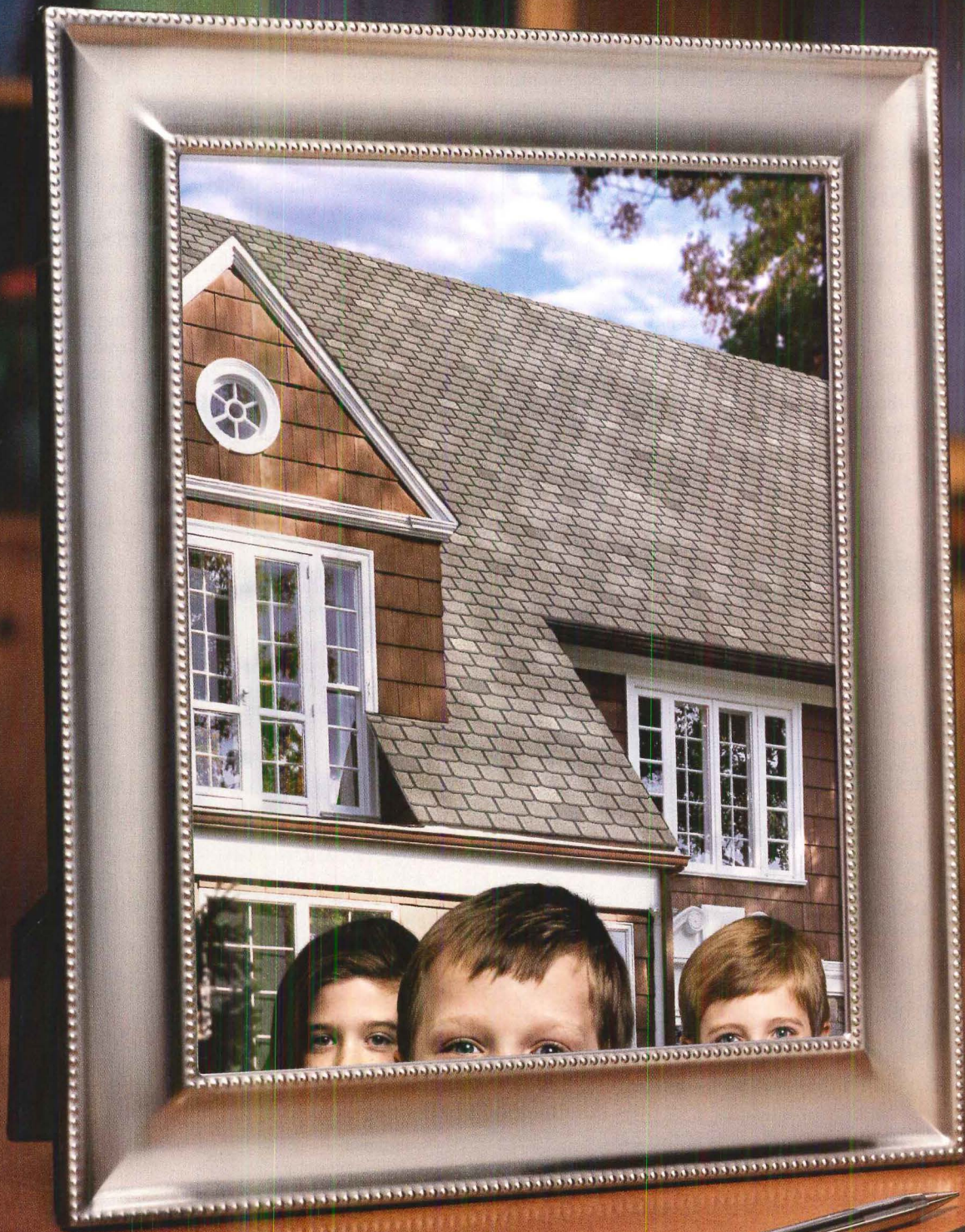
Hometronic is a home-automation system from Honeywell. The diagram at right shows which functions can be controlled by a single, wall-mounted unit. The system is wireless and uses a multifrequency transmission radio frequency (RF) to regulate heating, monitor energy consumption, and control lights, shutters, curtains, and appliances.



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Alliance ([architecture.mit.edu/~kll/OSBA\\_faq.htm](http://architecture.mit.edu/~kll/OSBA_faq.htm)), Larson is teaming up with computer scientists and the technology industry to tap the explosion of creative advances to improve human environments and building technology. Larson and his colleagues have added to the research agenda serious thinking about the application of these technologies to the making and maintaining of buildings.

Returning to the comparison between the automotive and building industries, it is hard to dispute the technological backwardness of the latter. Automobiles and computers are an assembly of compo-

## IN THE FUTURE, WE'LL DECOUPLE SYSTEMS AND STANDARDIZE INTERFACES. WE'LL PREDICT THE LIFE CYCLES OF COMPONENTS AND REPLACE THEM AS NECESSARY.

nents that work together because the industries have developed robust compatible interfaces. Buildings are put together by a range of specialties that recoil from crossing the line to others, and yet they need to be interconnected in the final product. Larson explains, "We currently build buildings the way we build the space shuttle: one change and it ripples through the entire system. In the future, we will decouple the systems and standardize the interfaces. We will be able to predict the life

cycles of individual components and replace them as necessary. Avoiding unnecessary construction demolition is a significant contribution to sustainability."

Larson's work is likely to yield some answers to the question of how houses may be retrofitted to accept new technology. It is easy to see how devices can be integrated into walls and fixtures. Georgia Tech's Gregory Abowd speculates that progress in wireless and nanotechnology should eventually mean that high-powered sensors and display technology should be allowed to be embedded at will in nearly any material.

The prospects are amazing, and the technology is evolving quickly. Sensors will differentiate between strangers and friends entering your house. Protocols will make sure that your neighbor's controller doesn't interfere with yours. Better interfaces and standards will develop between technologies so that devices will recognize one another the way computer peripherals do now. More complex computer algorithms will process more information, improving the data and making it more useful. Still, for some people, the Big Brother nature of ubiquitous surveillance and continuous collection of personal data will conjure up images of the lip-reading, murderous computer Hal in *2001: A Space Odyssey*. The truth is that the Hal of the future smart house will be a homebody devoted to predicting when the hot-water heater will fail, and doing other mundane tasks. ■



### AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

#### INSTRUCTIONS

- ◆ Read the article "Aging Baby Boomers Want Smart Houses for Their Golden Years" using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers (page 222).
- ◆ Fill out and submit the AIA/CES education reporting form (page 222) or download the form at [www.architecturalrecord.com](http://www.architecturalrecord.com) to receive one AIA learning unit.

#### QUESTIONS

1. Which is an example of integrated systems?
  - a. Programmable HVAC
  - b. Electronics that communicate with each other
  - c. Security and lighting systems
  - d. High-speed Internet connections
2. Another term for smart house is which?
  - a. Luxury homes
  - b. Assisted-living homes
  - c. Security houses
  - d. Intelligent environment
3. The basic tools of smart houses include all except which?
  - a. Sensors
  - b. Wiring
  - c. Cognitive changes
  - d. Interactive communication
4. The purpose of embedded or mounted sensing devices in smart houses is which?
  - a. To collect data
  - b. To route data
  - c. To analyze data
  - d. To send instructions to devices
5. A goal of researchers is to embed tiny computing devices in an environment for which purpose?
  - a. To secretly gather information
  - b. To spy on the occupants
  - c. To be more obtrusive in the environment
  - d. To require less effort on the part of the occupants
6. Eventually, information will be gathered and sent by antennas embedded into the building materials using what technology?
  - a. Molecular biology
  - b. Molecular nanotechnology
  - c. Programmable HVAC
  - d. High-speed Internet connection
7. The array of experiments in the Georgia Tech Aware Home are designed to support everyday activities and, more specifically, the cognitive changes that happen with aging. An aware environment is one that knows all except which?
  - a. What people will do in the house
  - b. What people did in the house
  - c. Where people are in the house
  - d. Who is in the house
8. The term "learn" when used to describe intelligent systems refers to which action?
  - a. Compute data
  - b. Adjust actions to behavior
  - c. Store data
  - d. Recall data
9. A major advancement of the automotive industry over the building industry is the result of which?
  - a. Robust compatible interfaces
  - b. Subspecialties
  - c. Decoupled systems
  - d. Smart gadgets
10. In the Smart Medical House, the sensors and monitors can keep data on traditional vital signs such as blood pressure and respiration, but will also measure the "new" vital signs such as?
  - a. Behavior patterns
  - b. Sleep patterns
  - c. Exercise
  - d. Brain activity



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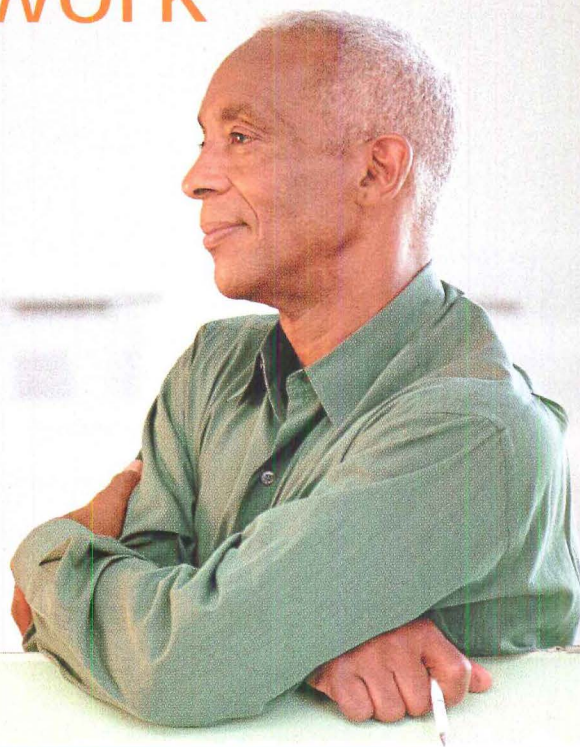
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# Tech Briefs

Materials: Mini measuring devices can unlock the complex chemical secrets of concrete • Energy: A decentralized model for energy services heats up the power-grid debate

## Nanometers? Tiny sensors embedded in concrete will collect physical and chemical data

The National Science Foundation has awarded a grant to Advanced Design Consulting (ADC) of Lansing, New York, to develop tiny passive sensors that can be mixed into concrete to collect data on the physical and chemical characteristics that affect its strength and performance.

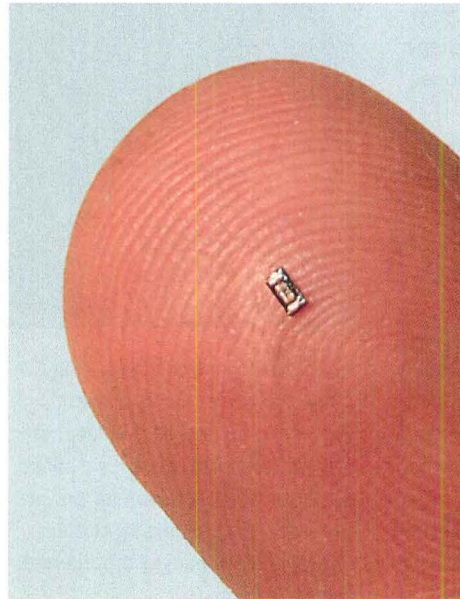
The company will build the sensors using a silicon-based nanotechnology known as a micro-electromechanical system (MEMS). Each device will consist of four or five MEMS sensors that measure information such as pH, moisture, temperature, and concentrations of chloride, sodium, and potassium ions within the concrete. It will be paired with a radio frequency identification device (RFID) for ID and measurement purposes. The devices would then be encapsulated within a durable, noncorrosive material, similar to a pill, that would allow them to be mixed into concrete bridge decks, walls, or forms. ADC will manufacture the MEMS devices at nearby Cornell University's NanoScale Science and Technology Facility.

By detecting physical and chemical changes in concrete as they occur, engineers can head off rebar corrosion and cracking before they become a critical problem. Steel rebar in concrete is protected

against corrosion by the high pH of Portland cement. But deterioration is kick-started when deicing salts penetrate concrete, or when carbon dioxide permeates through concrete's pores and combines with the lime in cement to create calcium carbonate. Both of these processes upset the pH balance of the mix, which makes the steel vulnerable to decay and compromises concrete's long-term compressive strength. "These devices will provide critical data for evaluating concrete performance from its freshly mixed stage to its casting, through the concrete's service life to its period of deterioration and repair," says Eric Johnson, vice president of research at ADC.

The company also aims to displace shopworn practices in construction. "We want to get rid of the slump test and the cylinder test," says Johnson, referring to two long-used, low-tech physical methods to predict performance before—or while—concrete is poured, not during its service life.

Researchers have previously developed moisture sensors for concrete, but they have limitations when embedded in the material, says Alex Deyhim, president of ADC. Most sensors need external power,



**These mini measuring devices need no external power source—they're powered by radio waves.**

for instance, which increases their size and shortens their life span.

Within the first six months of the grant period, ADC will demonstrate that the sensors can be manufactured and data collected from them without an external power source. The sensors will be in "off" mode when buried in the concrete, until a handheld monitor emitting radio waves passes over them—then they will "kick on," take measurements, and reradiate the

information back to the monitor. "The low cost and ability to send real-time data will make this system particularly useful," says Deyhim. The devices could be mixed randomly within a road deck or form during a pour, says Johnson, but for easier data collection, they would likely be placed along a linear or known distribution pattern (parallel to rebar, for instance).

ADC's work adds to a growing body of non-destructive inspection and measurement technologies in construction, which assess the condi-

tion of in-place materials without the need for collecting cores or samples that break the material apart. Reinforced-concrete bridge decks will serve as the first case studies for evaluating the viability of the MEMS sensors; in the future, ADC expects tiny sensors of all stripes to be viable for buildings, roads, and other types of infrastructure. Good things, it seems, will come in small packages. *Deborah Snoonian, P.E.*

## Companies can build a power plant for free right in your backyard ... if the price is right

Rolling blackouts in California. The Northeast Blackout of 2003. Incentives and tax rebates for sustainable-energy initiatives. These wake-up calls have cast attention not just on renewable-energy sources, but also alternative delivery strategies, such as distributed power generation (DG), where small-scale power plants, typically powered by natural gas, are located at or near the buildings they serve.

Though attractive in the abstract, the high cost of constructing DG plants, and the challenges of operating and maintaining them, have sent potential customers running for cover.

A new business model for energy delivery might reverse the trend, however. Several providers now offer to build and operate DG plants at no cost when facility owners sign a long-term service contract. Companies offering

what's been termed "DG-for-free" include RealEnergy ([www.realenergy.com](http://www.realenergy.com)), DG Energy Solutions ([www.dg-energy.com](http://www.dg-energy.com)), OfficePower ([www.officepowerllc.com](http://www.officepowerllc.com)), and Hess Microgen ([www.hessmicrogen.com](http://www.hessmicrogen.com)). Not surprisingly, the coastal areas of the U.S., where energy costs are highest, have driven the market for this service.

Typically, a DG-for-free firm will offer an owner a contract to supply

power and heat to a facility (either a single building or group of buildings) at a guaranteed 6 to 9 percent discount off current and future energy prices. In exchange for a 10- to 20-year supply contract, the DG firm handles design, permits, construction, operation, and maintenance for the plant. To determine the feasibility of installing DG-for-free, companies usually offer to analyze a building's power

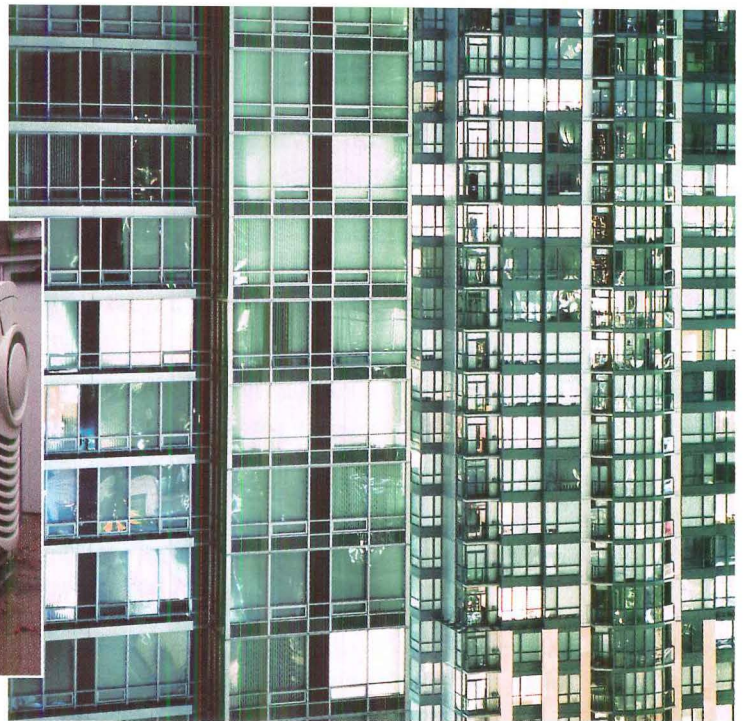


## Tech Briefs

needs and systems (whether new or existing) at no charge. It's a bit like getting a free mobile phone when signing up for a two-year calling plan, which itself evolved from Gillette's pioneering profit strategy: Give away the razor, make money on the blades.

Typically, DG-for-free is not offered as stand-alone, off-the-grid power. For the most part, these services can supply from 40 to 75 percent of a building's energy needs, with the remainder and peak loads still covered by a local utility, or the facility's own boilers or steam services.

For owners, the economic benefits of DG-for-free seem too good to turn down at first blush. Those who occupy their own buildings can bolster their bottom lines by saving energy, or invest these savings elsewhere. Owners of commercial buildings could pocket extra profit



**On-site power plants with natural-gas-powered turbines (left) give juice to single buildings or multibuilding facilities, such as apartment complexes.**

while passing along typical utility rates to tenants. In the wake of the blackouts and 9/11, decentralized power gained sway as a safer, more sustainable option for power generation in the long term than linking to an already overburdened, vulnerable grid.

Despite its inherent benefits, several technical and logistical chal-

lenges remain hurdles to its widespread adoption, say energy experts. What provisions for backup power exist, for instance, if a DG plant goes down? Does the plant create new, hidden operating costs,

like greater water consumption, or does it trigger the need for additional emissions permits? Does the plant's installation require new, and perhaps costly, fire-code upgrades? Will a DG plant raise insurance rates if fuel is stored on-site? Will power quality be as reliable as with utilities, and how would providers handle potential damages caused by power spikes—say, if a tenant company loses critical computer data during such an event?

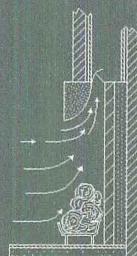
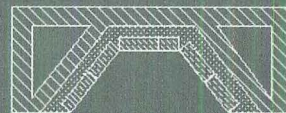
Also, because DG-for-free companies aren't regulated like public utilities, customers of their services may relinquish many of the legal supports and protections they're normally entitled to when using traditional utility companies. Owners need to weigh those risks carefully when considering DG-for-free, especially if unforeseen events like an extended loss of service or damage caused by a surge, fire, or other accident could bring their operations to their knees.

Service providers are working to address these challenges, though, and the life-cycle savings DG-for-free offers makes it worth a look for new construction or buildings undergoing system upgrades. In time, these nimble companies will be able to beat the utilities at their own game. *Lindsay Audin/D.S.*



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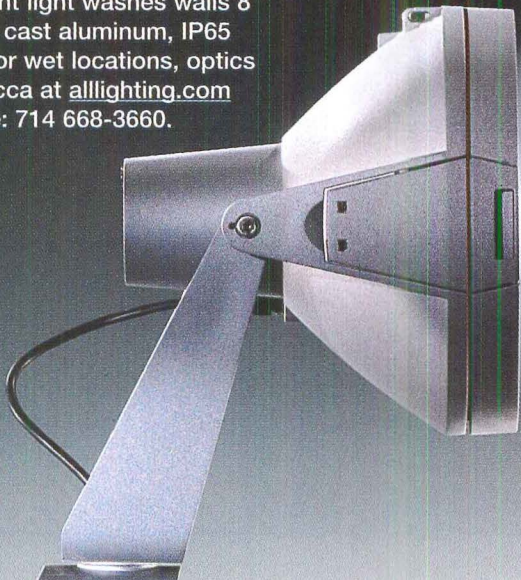
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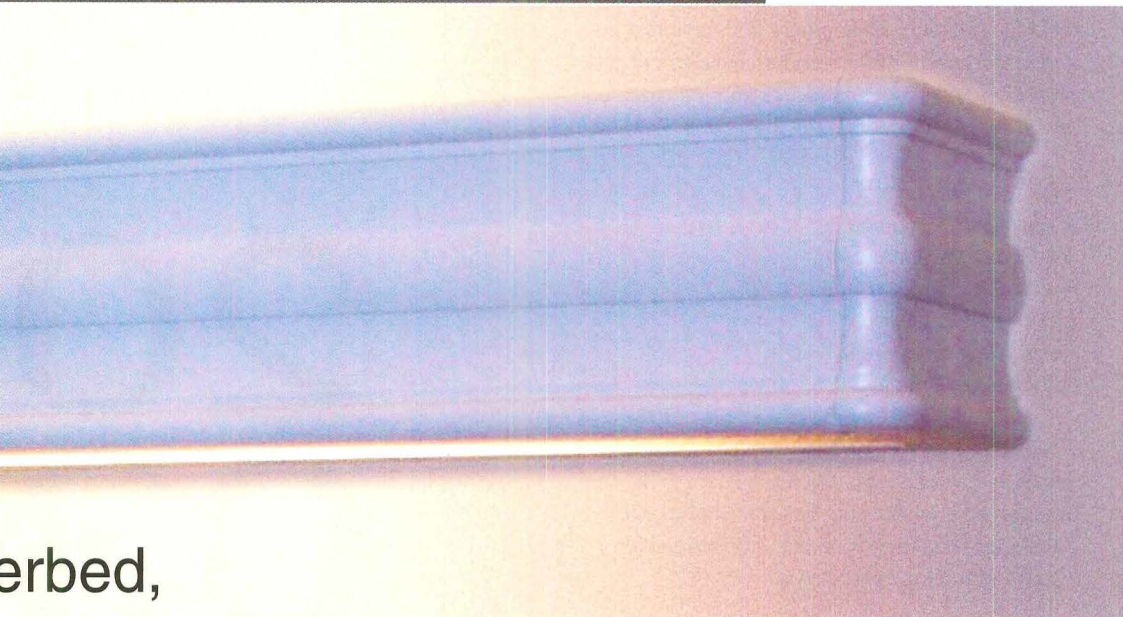
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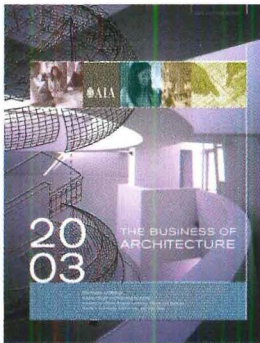
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## Impact-Resistant Systems: Windows and doors take the coast by storm.

**It has been a decade. Still, we are talking about Hurricane Andrew.**

Andrew, upgraded last month by federal researchers from a Class 4 to a Class 5 storm, was the costliest natural disaster in U.S. history. In the past century, only two other hurricanes of similar magnitude have struck the U.S. mainland: Camille in 1969, the unnamed storm that hit the Florida

Keys in 1935.

Andrew packed winds of 165 mph and came within 20 miles of a direct strike on downtown Miami. It was directly responsible for \$26.5 billion in damage. More than 135,000 single-family homes were destroyed or damaged; 160,000 people were left homeless.

Subsequent analysis yielded the observation that up to a quarter of the losses attributed to Andrew were attributable to construction that failed to meet codes, poor enforcement of codes, and deficiencies in the codes themselves.

In the 10 years since Andrew, building codes in Florida, Texas, the Carolinas

and other coastal states have undergone significant overhauls, many of them focused on vulnerable window openings.

Windows and doors were universally found to be the weakest building link, and their failure has been shown to lead to a domino effect that ends in catastrophic losses during major storms.

The highest priority amendment for all retrofits and new construction, according to code officials from Florida to New York, are impact-resistant windows and doors.

This continuing education section is intended to familiarize readers with the new code demands and details of a new generation of impact-resistant glass products with which to meet the new codes.

### Florida Led the Change

Florida recently implemented the nation's first statewide building code. The most dramatic change: the new Florida Uniform Building Code requires approved impact-resistant glazing in windows and doors (or other protection devices).

Just a few months later, the Falls Church, Va.-based International Code Council, a body created in 1994 by officials of Building Officials and Code Officials International, Inc. (BOCA), International Conference of Building Officials (ICBO), and the Southern Building Code Congress International (SBCCI), developers of the three model codes used throughout the U.S., issued a similar mandate: windows and doors would be required to be assembled using impact-resistant glazing or shutter systems to lessen the hurricane threat.

Fourteen Texas counties also have adopted the stricter codes, and they are expected to be implemented statewide by the end of the year.

The strengthened codes are intended to improve construction techniques in order to prevent losses during natural disasters.

### CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Impact-Resistant Systems: Windows and doors take the coast by storm.**

To earn one AIA/CES Learning Unit including one hour of health safety welfare credit, answer the questions on page 191, then follow the reporting instructions on page 226 or use the Continuing Education self report form located at [architecturalrecord.com](http://architecturalrecord.com).

### LEARNING OBJECTIVES

At the end of this article you will be able to:

- Understand the codes that apply to hurricane and other severe weather regions
- Identify the features and benefits of a window system compared to shutters
- Know how to correctly select and specify impact-resistant window & door systems



The new impact-resistant glass, developed specifically for the Southeast—the region of the U.S. most vulnerable to hurricanes—has recently become, or soon will become, a dictate of local codes in coastal regions from Texas to New York. Manufacturers are finding architects specifying it in Kansas, Iowa and other Plains states to help combat tornado disasters.

### The Case for Impact-Resistant Glass

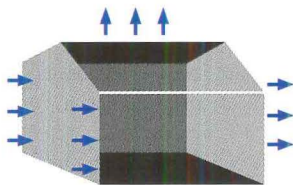
Hurricane-force winds create tremendous pressures on a building: a 140-mph wind (a hurricane accompanied by wind of this speed would be classified a Class 4 Saffir storm), generating 80 pound per sq ft (psf) of wind load on a 4-x-8-ft window, translates into a total load of 2,560 pounds of pressure on the window. No annealed glass pane can withstand that kind of pressure.

Although hurricane winds, themselves, exert tremendous damaging pressure, a large percentage of hurricane damage is not from the wind itself, but from airborne debris that, in severe cases can include entire roofs, tree limbs, etc.

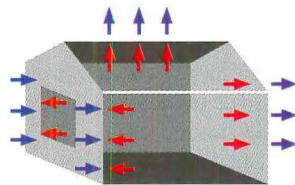
When windows fail, as a result of either wind pressure or breakage by flying debris, there is a near-immediate escalation of pressure within the structure as pressurized outside air rushes to find a low-pressure pocket and expand. The action causes tremendous lift on the roof, frequently of sufficient force to lift the roof from the house. Once exposed, interior walls and ceilings, not designed to withstand such forces, are overturned.

Building failure during Andrew, according to a 1996 study by The Johns Hopkins University, was primarily a result of negative pressure and/or induced internal pressure overloading the building envelope. Entry doors, especially French doors (and wood and metal double doors) were prone to failure. Windows, especially sliding glass doors were susceptible to failure from wind pressure and the impact of debris. (In most cases frame systems were found intact, but only because the glazing had already failed.)

### WHY IMPACT-RESISTANT GLASS IS SO IMPORTANT



**FULLY ENCLOSED BUILDING**  
.090" gauge and .100" gauge interlayer laminated glass windows and doors are tough. Their durable interlayer can withstand tremendous blows from flying debris, thus reducing the likelihood of an impact fracture. With reduced inward rush of air on the windward wall, the likelihood of a structure attaining a volatile internal pressure is reduced.



**OPENING IN WINDWARD WALL**  
In the midst of a high-winded storm, structural openings like failed doors or windows compromise a home's structure. When pressurized outside air rushes to find low-pressure pockets of air and expand, the force may be enough to physically blow off a roof.

When window and door loss occurred, interior damage from wind and rain intrusion was substantial. Even where structural systems were intact, many homes were uninhabitable for long periods of time because of water damage to interiors. Nearly two-thirds of all homes damaged by Andrew suffered damage to windows. The Johns Hopkins study suggests that an opening of only five percent on the windward side of a structure will allow full pressurization of the interior, exerting uplift pressure on the roof and lateral pressure against interior walls.

Storm shutters—from sheets of plywood to electric retractable systems, were shown to reduce the impact of the storm, by 30-to-50-percent, but shutters are not guaranteed to protect windows from hurricane-force winds.



During Andrew, metal gratings and shutters were severely bent, even penetrated by wind-born debris.

The use of storm shutters to protect the windows and doors requires a homeowner to physically activate the retractable systems or to engage the non-mechanical systems. One of the benefits of using an impact-resistant glazed system vs. a shutter system is the “no-worry, always-ready-to-protect” feature. Impact-resistant windows offer other advantages:

1. 24-hour protection, seven days a week. Whether home or away, the window is protecting the home. Shutters need to be closed or added before the storm.
2. If you are out of town, it may cost money for the homeowner to contract someone to put shutters up – or every single time the homeowner leaves during the storm season, the shutters will need to be put up.
3. Panel shutters or plywood take up valuable storage space when not in use.
4. Many roll-down shutters operate on electricity. If the power goes out, shutters may not be able to be put in place.
5. No unsightly shutter components are visible on the home or business.
6. If the homeowner puts up shutters or boards, when away from the home, it is evident the homeowner is absent. Security issues may arise as a result.
7. Many shutters can be labor intensive, and therefore costly, to install.
8. A family remaining in the house during a storm, is not forced to be in a dark, enclosed, shuttered environment.
9. If the window were to be broken, glass tends to adhere to the interlayer. This reduces the potential for serious injury.

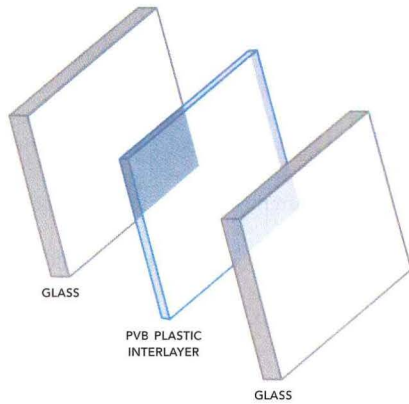
Often, the effect of a hurricane is not unlike an explosion. Nearly three-quarters of the injuries from the 1995 bombing of Oklahoma City's Alfred P. Murrah Building were caused by flying glass.

Since Oklahoma City, glass manufacturers and structural engineers have worked to develop a new generation of heat-hardened and chemically treated glass, experimenting with new interlayers and completely new impact-resistant window systems, including mullions, frames and anchors.

The new impact-resistant residential glass, similar to car windshields and aircraft windows, is now making its way to the retail marketplace. Typically, the new impact-resistant laminates contain at least a .090" gauge layer of polyvinyl butyral (PVB) or a similar type interlayer sandwiched between two sheets of at minimum 1/8-in annealed glass.

Impact-Resistant Systems: Windows and doors take the coast by storm.





The “glass sandwich” will break upon a severe impact, but it will not allow the flying object to enter through the glass. The interlayer can withstand tremendous blows from flying debris, and will even resist the impact of a driven golf ball (Tiger drives the ball at about 140 mph). If the glass is broken, the laminate interlayer is designed to remain intact. The adhesion between the interlayer and the lites of glass keeps the broken fragments relatively intact, thus maintaining the internal pressures.

Window manufacturers have engineered systems to meet local codes still evolving in Florida, Georgia, Texas, the Carolinas, New York and other eastern states. These new protective opening systems in many cases include not only impact-resistant glass, but also corrosion resistant hardware.

#### Glass Alone Does Not a Defense Make

“Many different factors influence the required design load,” says the testing and certification coordinator for a major manufacturer, including the wind zone, the mean roof height, whether units are glazed within three feet of the corners of the building, the size and quantity of doors and windows being installed, etc. Please refer to additional online material for greater detail and charts.

Architects must determine design pressure needed for each window in a building, then check sizes and configurations tested by the manufacturer to ensure that the products meet the expected design pressures.

The adequacy of the engineering design and method of attachment of windows and sliding transparent doors of all types is critical to the performance of window and door systems for applications in areas subject to wind exposure. Wind loads should be adequately transferred to the supporting structure.

Some multiple wide/high combinations will require a structural mull or can be framed into a separate opening. Designers must note differences in performance levels of various glass types and select the glass make-up that meets the required pressure.

Designers should note that heat-or-chemically strengthened glass will be required for picture units or large fixed lites in order to achieve passing performance levels.

“Do not make the mistake of believing that because you order a window or door with laminated glass, that it is necessarily impact-resistant. In order for a product to be certified as impact-resistant, it must be tested in a complete window/door system. The design of the overall sash/frame greatly affects the outcome of the testing,” says the source.

Architects should look for laminated-glass systems engineered specifically to comply with coastal building codes. New code-compliant window systems feature added mass to carry the heavier weight of a laminated glass sash. Foam-filled-center weather stripping creates airtight seals. Frame corners are reinforced with structural corner keys and injected with silicone for added durability and resistance to water infiltration.

In tests conducted in accordance with ASTM E-1886 and ASTM E-1996, Metro-Dade County Protocol PA201 and PA203, SSTD 12-97 and TDI 1-98, some new laminated window systems have been shown to withstand winds up to 205 mph winds and 65 mph driving rains. In addition, laminated glass products provide nearly 100% resistance to harmful UV rays. The added protection of the interlayer gives the homeowner peace of mind in knowing that their draperies, floor coverings, furniture, etc. will not fade.

#### Are My Design Options Limited?

Over the past two decades, populations along high-risk coastlines have increased significantly. The population of Florida, alone, has increased by more than 50 percent since 1988.

The Oceanic and Atmospheric Administration estimates that by the year 2010, the population of Southeastern coastal areas and other hurricane-prone areas of the country (18 states are regarded as “hurricane-prone”) will have grown to 73 million people.

At the same time, Hurricane Andrew redefined the way the public and public agencies view the risk of hurricane damage to homes. The size of losses from Andrew proved that hurricane damage estimates have, historically, been seriously underestimated.

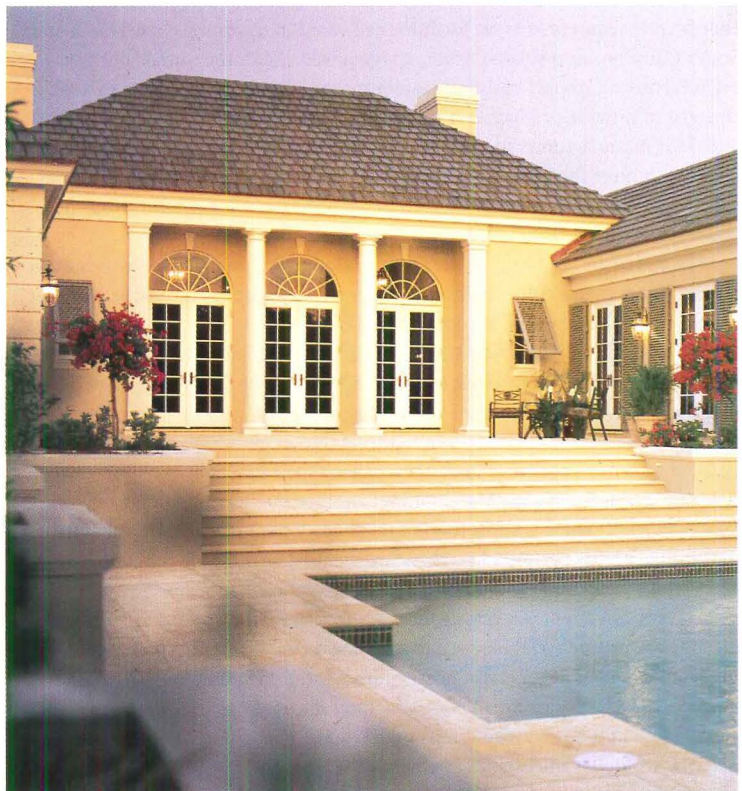
In the wake of Andrew, unprecedented code changes occurred. Those code changes, in concert with technological leaps in glass design, pushed forward-looking manufacturers to essentially recreate their entire product lines and seek certification of new hurricane-resistant systems for a residential market in which homes were growing larger and more grandiose. Some manufacturers retrofitted existing product lines and offer a limited range of certified impact-resistant products; others have created new code-compliant lines that include a full range of window types and sizes in impact-resistant glass.

The result is a new generation of window products that meet virtually all the design options available with non-laminated windows.

“There are now vast product options available in impact-resistant product lines, with a tremendous variety of custom shapes, sizes, trim and hardware options,” says a manufacturer’s representative. “The bottom line: builders will be able, in these markets, to construct virtually any look they want.”

A common characteristic to be aware of, however, is that while annealed-glass laminates are virtually distortion-free, heat-strengthened glass will exhibit some distortion due to the process of heating the glass to achieve the benefits of added strength.

It should also be noted that monolithic (non-insulated) glass, although not providing the same insulating value of a standard dual-pane insulated product, can be manufactured with a gray or bronze tint to provide added benefits for solar heat gain reduction or to meet the well-known “turtle code” now applicable in many coastal areas.







With many state and/or local codes now requiring compliance with the IECC (International Energy Code Congress) as well as the windborne debris requirements, manufacturers have scrambled to come up with a product that gives the consumer the best of both worlds.

However, this was easier said than done. In order to meet the stringent energy code requirements set forth in many coastal regions such as North and South Carolina, an insulated product is required. With the initial “push” to manufacture an impact-resistant system for the Florida market, there wasn’t a concern to provide product that met stringent insulating values. Thus, window and door manufacturers focused on the monolithic (single-pane) laminated product to meet the impact-resistant codes. This product works for Florida (where energy codes are not enforced at this time), but it does not meet the codes mandated in some other coastal areas.

The use of an approved shutter system along with an insulated window or door product meeting the design pressures required for the coastal areas does meet both the energy and windborne debris codes.

Knowing this is not always the choice of a homeowner, window and door manufacturers have worked hard to develop an impact-resistant insulated glazing system to comply with both of these codes.

Because of the larger sized units requiring thicker glass to meet the impact and cyclic tests, it was a challenge to design a glazing shelf sufficient to handle thicker laminate, an insulated glass spacer and yet another 1/8" lite of annealed or tempered glass. There is also a minimum air space required to be able to obtain the optimal energy performance; therefore manufacturers are required to redesign an existing impact-resistant system to be able to gain all of the benefits.

Another constraint was getting the insulated laminated product to withstand the intense pressure cycles required to meet the codes. The addition of a glass spacer and another lite of glass typically causes the glazing unit to “roll” while under heavy loads. This makes the use of a structural silicone critical in most applications.

As more and more jurisdictions mandate the energy requirements along with the windborne debris requirements, the need for low-e insulated impact-resistant glazing has become a key issue.

### Assessing Code Compliance

The Miami-Dade protocol (PA 201, PA 203), considered the most stringent in the nation, has become the optimal standard for testing of impact-resistant glazing systems. Window systems are subjected to an impact of a nine-pound 2X4 projected at a speed of 50-ft-per-second, and are then subjected to 9,000 positive/negative pressure cycles.

This testing meets the requirements of SSTD 12-97, TDI 1-98, ASTM E1886 and ASTM E1996.

The IBC references ASTM 1886 and ASTM E 1996. BOCA and UBC fall under the IBC.

The IBC references the ASCE 7-98 standard to determine wind loads, thereby requiring a combination +/- dual-performance grade. The positive pressure required is typically lower than the negative pressure. The reason for the positive pressure being lower than the negative pressure is due mainly to the characteristics of dynamic air flow and the effect it has around a building or structure. The water performance is only required to meet the positive pressure requirement.

Certified new laminates not only meet or exceed the toughest code requirements for hurricane protection, but also offer these additional benefits:

- **Safety:** laminated glass resists penetration from accidental impact, and, if broken, glass fragments adhere to the interlayer, thereby reducing the danger of serious injury. Certified products meet CPSC, CFR 1201 and ANSI Z97.1 safety glazing standards.
- **Sound control:** the new laminates are effective in controlling sound transmission.
- **UV protection:** laminates screen out 99 percent (up to 380 nanometers) of the sun’s most damaging rays, reducing glare, fading of carpets, draperies and furnishings.
- **Security:** they protect against forced entry and resist repeated blows from hammers or thrown rocks and meet the ASTM F-1223 (Class 1) forced entry standard.

Code-approved window systems can be less expensive to install than windows protected by shutter systems—about 17 percent less expensive than windows with accordion shutters; up to 50 percent less expensive than windows with roll-up shutters.

A study conducted by Orlando, Fla.-based Associated Cost Engineers compared laminate windows with regular wood-shuttered windows. It found that a system of laminated glass (for a home in the \$100,000-\$120,000 range) cost about \$12,500 for materials and labor. Regular glass windows with roll-up shutters cost more than \$25,000, according to the study, and regular glass windows with accordion shutters cost nearly \$16,000. (The study was based on a theoretical, code-approved model home in Dade County with 1,632 sq. ft. of living area.)

### The Threat Is Growing

The risk of property damage and loss in hazard-prone areas grows along with population, and as noted earlier, coastal populations are on the rise.

Florida, the state most at risk from hurricanes, accounts for the largest share of insured coastal property exposure. From 1988 to 1993, the value of insured property in Florida went from \$565.8 billion to \$871.7 billion and at the current rate of growth will soon surpass \$1 trillion, according to the 1996 John Hopkins study.

### The physical properties of impact-resistant glass with a .090-in PVB interlayer are as follows:

Refractive Index: 1.48

Visible light transmittance, clear: 0.88

Shading coefficient, clear: 0.88

UV Screening, up to 380 nm: 0.99

Solar transmittance: 0.69

Solar heat gain coefficient: 0.75

Relative heat gain: 189



While one does not usually think of New York as a state exposed to hurricanes, Long Island is a highly exposed region. Coastal property exposure for New York increased from \$301.7 billion to \$595.6 billion between 1988 and 1993.

Concurrent with population increases in hazard-prone areas, there is evidence that the future will bring more intense hurricanes (Saffir-Simpson Categories 3-5) In the wake of Andrew, researcher and forecaster William Gray said in a Time magazine interview "We're going to see hurricane damage like we've never seen it before."

Indeed, there is strong evidence that intense hurricane formation is cyclic, and that we are entering a high-incidence swing of that cycle.

Climate studies, Gray says, indicate we are returning to a period of greater African rainfall, which may cause a return to the more active hurricane seasons typical of the 1940s and 1950s, when 10 major hurricanes struck the continental U.S.

In addition to a greater number of intense Atlantic hurricanes as a result of the rainfall cycle, there is growing concern that global climate may be changing in ways that could increase hurricane frequency and intensity.

We may, however, be able to reduce the level of damage resulting from major storms. Architects now have the tools to combat hurricane-force winds, and they need not sacrifice warmth and clarity of vision to do so.

Today's wind-borne debris resistant systems offer security and attractiveness. Now, you can have both. ■

### Click for Additional Required Reading

As part of this CES learning activity, you are required to read some additional material. Some of the test questions below will relate to the additional reading material. Go to [archrecord.construction.com/resources/conteduc/](http://archrecord.construction.com/resources/conteduc/) to access the material online. To obtain a faxed copy, contact Corinne Liske at 800-222-2995 ext. 3716 or [cliske@weathershield.com](mailto:cliske@weathershield.com).

### Learning Objectives

At the end of this article you will be able to:

- Understand the codes that apply to hurricane and other severe weather regions
- Identify the features and benefits of a window system compared to shutters
- Know how to correctly select and specify impact-resistant window & door systems

### Instructions

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 226. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—[architecturalrecord.com](http://architecturalrecord.com)—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

### Questions

- Q: 1. Analysis of Hurricane Andrew yield that up to how much of the losses were attributable to inadequate construction codes.
- A: a. 1/4  
b. 1/3  
c. 1/2  
d. 2/3
- Q: 2. In studies, what was shown to be the weakest building link in a hurricane:
- A: a. Windows and doors  
b. Roof structure  
c. Interior walls
- Q: 3. A large percentage of hurricane damage is not from the wind itself, but from
- A: a. Driving rain  
b. Air pressure  
c. Windborne debris
- Q: 4. The action causes tremendous lift on the roof is:
- A: a. Pressurized outside air rushing in to find a low-pressure pocket and expanding  
b. High winds blowing up and through building  
c. Pressurized inside air rushing out to find a low-pressure pocket and accelerating

- Q: 5. Even an opening of only \_\_\_ percent on the windward side of a structure will allow full pressurization of the interior, exerting uplift pressure on the roof and lateral pressure against interior walls.
- A: a. 5 %  
b. 10 %  
c. 15 %
- Q: 6. The new impact-resistant laminates contain a .090" layer of \_\_\_\_\_ sandwiched between two sheets of at minimum 1/8 in. annealed glass.
- A: a. Polyisocyanurate  
b. Polyurethane  
c. Polyvinyl butyral  
d. Polycarbonates
- Q: 7. The sash/frame must be included in the testing of a product to be certified as an impact-resistant window door system.
- A: a. True  
b. False
- Q: 8. Code approved window systems can be about \_\_\_\_% less expensive than windows with accordian shutters.
- A: a. 12  
b. 17  
c. 27  
d. 32
- Q: 9. Category 4 hurricanes can cause "extreme" damage with winds at:
- A: a. 111 – 130 mph  
b. 131 – 155 mph  
c. Greater than 155 mph
- Q: 10. When determining exposure categories, shorelines in hurricane prone regions are included in which category:
- A: a. Exposure A  
b. Exposure B  
c. Exposure C  
d. Exposure D



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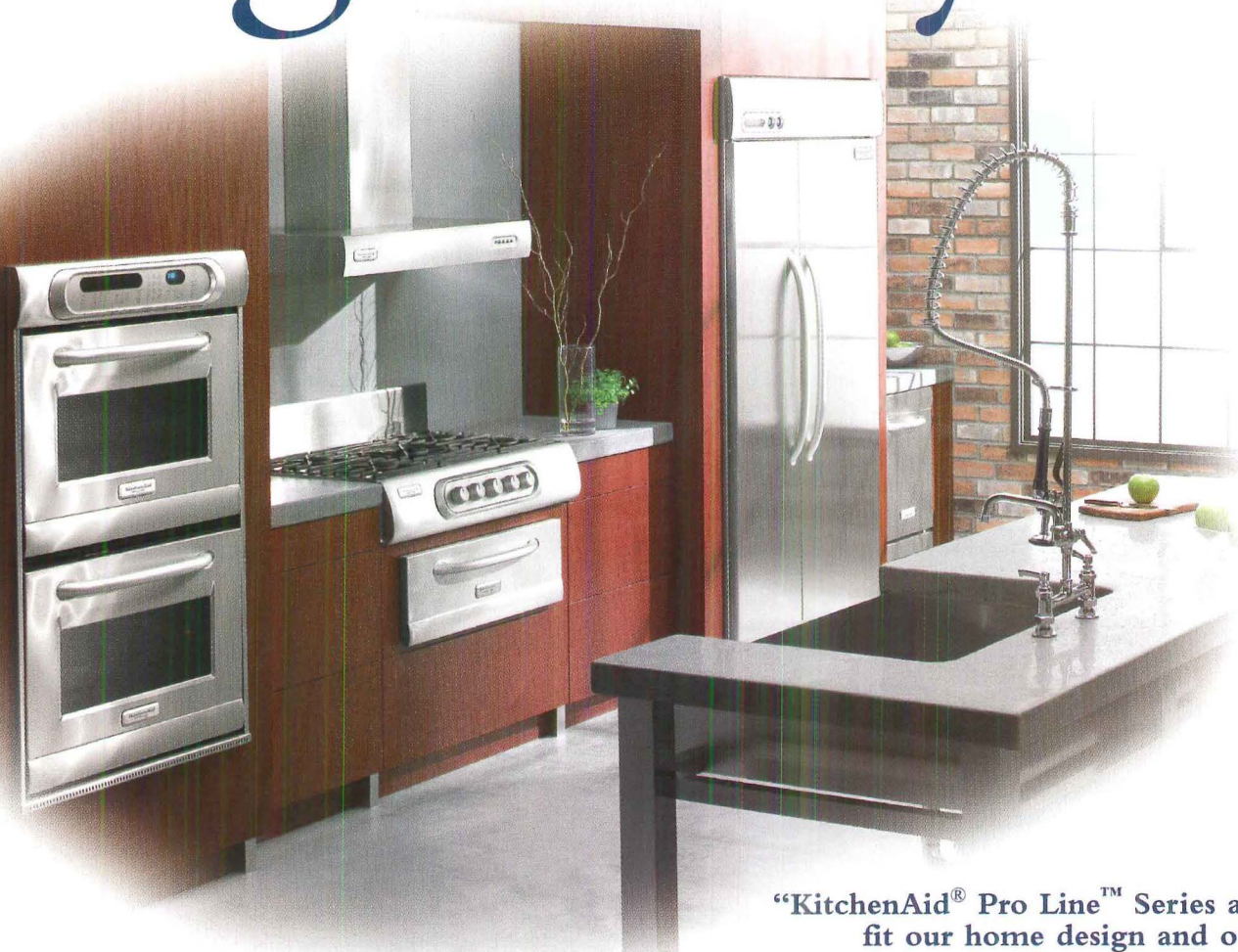


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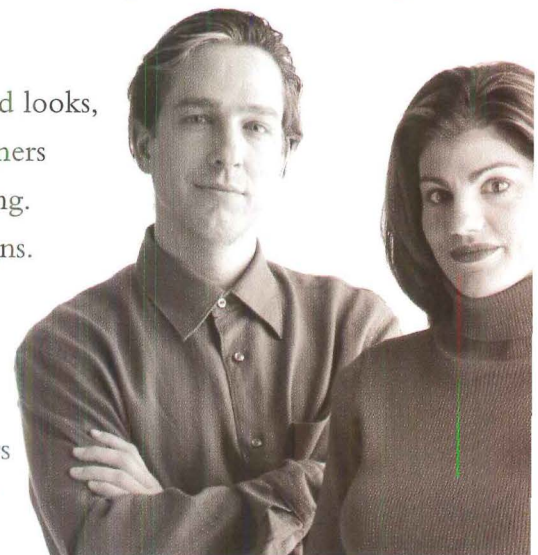
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WHIRLPOOL CORPORATION  
PRESENTS

## The Greening of "White Goods": Environmental considerations when specifying appliances

### CONTINUING EDUCATION

Use the learning objectives below to focus study as you read **The Greening of "White Goods": Environmental considerations when specifying appliances**. To earn one AIA/CES Learning Unit, answer the questions on page 197, then follow the reporting instructions on page 224 or go to the Continuing Education section on [archrecord.construction.com](http://archrecord.construction.com) and follow the reporting instructions.

### LEARNING OBJECTIVES

After reading this article, you should be able to:

- Describe the contribution of energy-efficient appliances in the goal of sustainable architecture.
- Explain the driving forces behind the development of energy-efficient appliances.
- Compare appliances using the life-cycle cost formula.

**R**ecent indicators suggest that energy-efficiency is now a preference for consumers when buying appliances. This major shift in attitude may fluctuate as the availability and cost of energy resources do. It's more likely, though, that this reflects a much deeper cultural understanding of the need and benefits of conservation in all aspects of home living. And, too, it encourages manufacturers of appliances and architects, interior designers, and homebuilders who specify appliances to consider the implications of sustainable architecture.

Look at the results of two recent studies. Primen, an energy market intelligence company in Madison, Wis., surveyed 500 households in 2001 and found that energy-efficiency replaced price as the top appliance-purchasing consideration in all regions of the U.S.

A recent survey of new homebuyers by the Cahners Residential Group found 89 percent willing to spend additional money on energy efficiency and other environmentally friendly upgrades. Of those surveyed, 28 percent indicated a willingness to spend an extra \$2,500 and 27 percent up to an extra \$5,000. Even more surprising, energy-efficiency was rated by 87 percent as the most important upgrade to make.

For any environmentally concerned prognosticator this consumer trend is extremely heartening. The potential energy-savings are huge. Think of it this way. The 1999 Census counted 120 million households; by 2010, the Census predicts 135 million. The Association of Home Appliance Manufacturers (AHAM) suggests that each household has a refrigerator and range. More than 90 percent own clothes washers and dryers. Many have dishwashers, microwave ovens, freezers, and dehumidifiers. The typical life of these appliances can range from 10 to 18 years, so replacements are staggered. So, obviously, energy savings vary with each new appliance, but it's astounding to consider that the annual operating costs of refrigerators built to meet current Department of Energy (DOE) standards are 60 percent less than a unit produced in 1980. Consider also the resource potential that



could be tapped in recycling. Discarded appliances are second only to used automobiles as a source of recycled metals, particularly steel. These figures represent a tremendous amount of embodied resources that otherwise would wind up in landfill. AHAM reports that U.S. manufacturers ship nearly 54 million major home appliances annually.

The concept of “green” architecture conjures up wide-flung ideas such as daylighting, passive solar designs, natural ventilation systems, geothermal heat pumps, green roofs, and much more. Solutions in the appliance category may be less daunting. As defined in 1987 by the United Nations World Commission on Environment and Development, sustainable design “meets the needs of the present without compromising the ability of future generations to meet their own needs.” A close examination of the goals of sustainable architecture suggests that the pursuit of energy-efficient appliances can make a large contribution.

Four key areas of sustainability, as relates to appliances, are:

- Energy consumption — not only how much energy a product may use, but also the energy consumed to produce it.
- Recycled content — recycled in terms of how much recycled material goes into the product and how much is taken out.
- Life-cycle costs — what is the cost/value relationship? Is the extra energy or environmental savings really worth a sustainability driven specification and higher initial cost for building components?
- Quality of life — does the product enhance the quality of life beyond energy savings?

### Energy Consumption

A major force behind development and availability of energy-efficient appliances is the federal government’s ENERGY STAR® program. In 1992, the Environmental Protection Agency (EPA) introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products in an effort to reduce greenhouse gas emissions. Computers and monitors were the first labeled products, followed by additional office equipment products and residential heating and cooling equipment. In 1996, EPA partnered with DOE to promote the ENERGY STAR label on major appliances, lighting equipment, home electronics, and more. ENERGY STAR consists of 8,000 private and public sector organizations and guides more than 40 product categories.

It should be noted that government standards have also promoted the development of energy efficient appliances. In 1987, Congress passed the National Conservation Act, under which DOE issued the first efficiency standards for 12 types of appliances in 1988 and 1990. More recently new federal minimum efficiency standards were issued for refrigerators in 2001. And in 2004, clothes washers will have to meet new federal minimum efficiency standards. Participants in the ENERGY STAR program have, however, designed appliances that surpass these efficiency standards. For example, an ENERGY STAR rated appliance reported meeting the following qualifications:

- Clothes washers — 50 percent more efficient than minimum federal government standards and use 30 percent to 50 percent less water per load and offer better water extraction, which means less dryer time.
- Dishwashers — at least 25 percent more efficient than minimum federal government standards. They have washing systems that eliminate pre-rinsing, and less energy is used to heat the water that cleans the dishes.
- Central air conditioners — approximately 20 percent more efficient than minimum federal efficiency standards.

### Recycled Content

Major home appliances, often referred to collectively as “white goods,” have long lives, typically 10 to 18 years. When the useful life as an appliance is over, the materials are still valuable, particularly the steel for scrap. Steel is the most abundant recyclable component in appliances. Other recyclable materials include metals like aluminum, copper, plastics, and chlorofluorocarbon (CFC) refrigerants.

Scrap steel can be processed and repeatedly remelted to manufacture new products. According to the Institute of Scrap Recycling Industries, Inc., more than half of all the steel produced in the U.S. today is made from recycled material. The same steel products can be manufactured from iron ore, recycled scrap, or a

combination or both, and provide identical performance. Once again consider the numbers. The Steel Recycling Institute reported 45 million white goods recycled or disposed of in 1996. At that time, the steel from major home appliances made up about 10 percent of the total recycled steel scrap.

It’s also interesting to note that chlorofluorocarbons (CFCs) are a recyclable material of obsolete refrigerators and freezers. Although the Clean Air Act Amendments of 1990 ban the manufacture of CFCs after 1994, they can still be legally recovered and used to maintain and repair existing refrigerators, freezers, and air conditioners.

### Life-Cycle Costs

Evaluating the life-cycle cost when specifying a building material is not a new exercise for the designer. The upfront costs of using a certain product chosen for the purposes of energy-efficiency are amortized against the long-term energy savings. It has been more difficult for consumers to grasp that concept in a buy now, use now society. The shortsighted consumer might say, “I want a 100 percent return on my investment in an environmental product upgrade in five years (the average number of years a homeowner occupies a house).” This consumer might balk at paying anything extra for an appliance for less than a five-year payback on the upgrade. A more holistic view would be based on the appliance’s projected life, which may be as long as 15 years. So then the question might be, “What is the best product choice to maximize the return on investment vs. initial cost, not only in monetary terms but also in sustainability achieved?”

## “Green Design” Considerations

Following is a list of topics to inquire about as you begin evaluating and comparing appliance specifications for sustainability:

- Water Usage
- Energy Usage
- Use of Recycled Content
- Fossil Fuel Emissions
- Use of Chemicals
- Post-Use Recycling
- Compliance beyond ENERGY STAR minimum standards
- Corporate commitment to sustainability

### Lifecycle cost formula:

$$\text{Sustainability Upgrade Cost} \leq \frac{\text{Energy-Savings Cost Over Lifespan of the Product}}{\text{Lifespan of the Product}} + \text{Value of Environmental Stewardship Through Sustainable Design}$$

Perhaps, though, the message is getting through. As early as 1992, *Better Homes and Gardens* published the following advice: “Add up the figures and it’s shocking. The sticker price is only a small part of the cost of any appliance. The energy you use — electricity, natural gas, or heating oil — over the life an appliance often costs double or triple the retail price. And wasted energy creates needless pollution: smog, greenhouse gases, acid rain, and nuclear waste. By adding energy efficiency to the checklist of features to shop for on your next appliance purchase, you can save money and help clean up the environment. A house with the most efficient appliances could save up to \$5,000 over 20 years.”

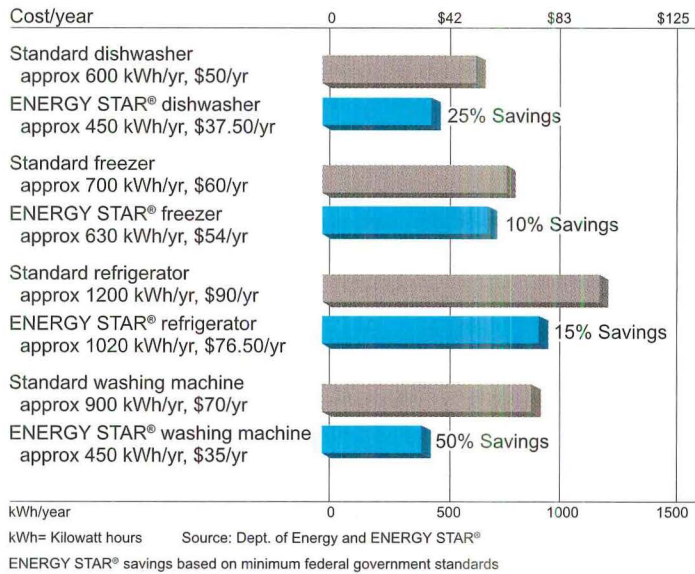
### Quality of Life

Look beyond just energy-efficiency and consider quality of life issues. A few issues to consider are:

- Does a product help homebuyers increase productivity?
- Does a product increase comfort — for example, air quality, or noise reduction?
- Can a product address the temporal and physical limitations that are becoming more important to aging adults through universal design?
- Does a product recapture more time to do other things, including the enjoyment of the natural environment?



## Energy Consumption



Consider the thoughts of architect Dennis Wedlick in his foreword to the book on eco-houses entitled *Hot Dirt Cool Straw*. Over the last four decades, designers and builders have experimented, and succeeded, in producing excellent examples of new methods of construction that could be classified as environmentally friendly. Today, we realize that to be truly sustainable, it is not enough to imagine methods of minimizing damage to the environment; instead the results must have a positive impact on it. In other words, the construction of a new house needs to provide a net improvement for the environment, to offer more than if no construction took place. The repurposing of the time saved using more efficient appliances in a higher and better use can be instrumental in achieving this net improvement.

### Designing Energy-Efficient Appliances

New technologies to meet more stringent efficiency standards have emerged and will continue to do so, although bringing radically new developments products to the market is no simple task. In 1993, for example, a consortium of 24 utilities challenged manufacturers to design a refrigerator that would be as much as 50 percent more efficient than current-day models — and free of ozone-ravaging CFCs. The contest spurred manufacturers to put their energy-saving technologies and ideas into production. Since then the designs of many of these companies have progressed even further.

In 1997, DOE's Oak Ridge (Tenn.) National Laboratory in a cooperative R&D agreement with AHAM's Appliance Research Consortium unveiled the "Fridge of the Future" prototype. The concept here was to take a standard 20 cubic foot refrigerator with a freezer on top and slice its energy consumption in half, from 2 kilowatts per day to less than 1 kilowatt per day. Its technology included:

- Vacuum insulation panels used around the freezer section to reduce heat transfer.
- Polyurethane foam added to the doors, doubling insulation thickness.
- Replacing three motors operating on alternative current to drive two fans and the compressor with three direct current, electrically commutated motors.
- Replacing the automatic defrost control, which daily removed ice from refrigerant coils to improve heat transfer, with adaptive coils. It relies on fuzzy logic and sensors to make sure defrosting occurs only when needed, depending on humidity and number of door openings.

New engineering concepts in clothes washing and dishwashing have led to significant savings in energy and water usage. Manufacturers report that front-loading clothes washers, which are more commonly used in Europe, save thousands of gallons of water each year. One model boasts 67 percent energy savings and 68 percent water savings compared with conventional units, while another promises 50 percent energy reduction and up to 10,500 gallons of water saved per year. And although front-loading (also known as horizontal-axis) machines are typically considered most efficient, top-loading machines are now being equipped with sensors that detect the amount of dirt and the size of the load and adjust water levels accordingly. Some decrease wash time without decreasing cleaning. Several dishwasher models also conserve water through dirt sensors that adjust cycle water levels. The overall message is that energy and water conservation do not compromise performance.

A newly introduced product category is the clothes vitalizing system, which smoothes wrinkles and helps remove odors in clothing, thus reducing the number of trips necessary to the dry cleaners. And the first washer that washes wool in a machine with water was certified by The Woolmark Company. Other important factors are low-noise requirements and longevity promises.

### Architect's Evaluation

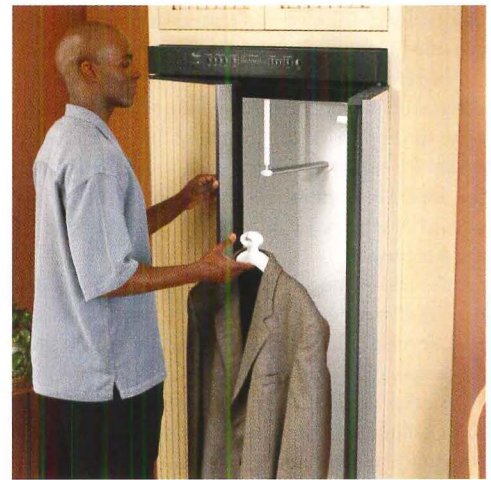
When a consumer turns to an architect for help in evaluating, comparing and specifying home appliances that are environmentally friendly the following questions will provide insight:

- *What is the energy consumption — both in terms of how much energy it uses, and all the energy that goes into making the product?*
- *What about recycled content?*
- *How long will the product last?*
- *How will the product contribute to my client's quality of life?*
- *Ultimately, what is the overall payback, both monetarily and in terms of environmental stewardship?*

There will still be choices to make, weighing costs against features and benefits, but at least the opportunities to go eco-friendly in appliances are growing and providing architects with better options for their clients.



A front-loading washer is just one way families can save energy and water doing household chores. One model is reported to save 67 percent energy savings and 68 percent water savings compared to conventional washers.



To save energy and time by reducing the number of trips to the dry cleaners, many homeowners are installing a clothes vitalizing system that smoothes away wrinkles and helps remove odors in clothing.



## CASE STUDIES

CONSIDER THE FOLLOWING EXAMPLES OF ARCHITECTS SPECIFYING HOME APPLIANCES:



The first project involved a new residential design for a young family. The family chose to build a new house in a golf community setting, yet in a development approved by the Audubon Society for its eco-sensitive environment. In this household, the father worked, the mother was a homemaker and cooking and entertaining was of great importance to her, as was efficiency. She very conscientiously recycled as much of the family's consumables as possible. The architect presented the life-cycle cost formula: that the upgrade cost of sustainability (the extra costs associated with an energy efficient product) would far outweigh the ultimate energy savings over the lifespan of the product plus the extra value of their stewardship as contributors toward the goals of sustainable design. In simpler words, you may spend more up front to save more later and become a friend of the environment.

For this family's home, the architect recommended an ENERGY STAR-labeled dishwasher, refrigerator, and clothes washer. The reasons were obvious.

**Dishwasher.** The ENERGY STAR-qualified models reportedly save in energy and water usage. These dishwashers:

- Use 25 percent less energy than the federal minimal standard for energy consumption.
- Save approximately \$30 a year on energy costs compared to older models.
- Save approximately \$300 over a lifetime — twice the cost of the sustainability upgrade cost.

The family was pleasantly surprised that the specified dishwasher was even more eco-friendly than anticipated; when in operation it was extremely quiet (the typical noise level was reduced), which allowed for other simultaneous activities in the kitchen, such as television viewing.

**Refrigerator.** The refrigerator models labeled ENERGY STAR are designed to be more efficient while providing more cubic feet, and at the same time better extend the life of the food. One example of a change in design for energy efficiency is the placement of the water/ice component in the door. This minimizes the amount of energy lost when the refrigerator is opened to retrieve ice or water. Overall ENERGY STAR-labeled refrigerators are designed to:

- Use half as much energy as a 10-year-old model.
- Use 40 percent less energy than conventional models sold in 2001.
- Use high-efficiency compressors, improved insulation, and a more precise temperature and defrost mechanisms to improve energy efficiency.

**Clothes washer.** The ENERGY STAR label can translate to the use of 18 to 25 gallons of water consumed compared to 40 gallons used by a standard machine. For an average family, the annual savings are huge: two loads per day X 365 days per year = 700 loads per year X 20 gallons saved = 14,000 gallons per year. Some energy efficient washers detect the amount of dirt and the size of the load and adjust the water accordingly.

The second specification example involves the design of a room added to a garage of a house in an historic district. The owner is a couple, each of whom has a professional career and likes to lead an active outdoors life in their free time. The addition was to contain a laundry area, in which were placed new appliances that could add efficiency to the couple's lifestyle as well as save energy and water consumption. The appliances specified here included a washer/dryer and two relatively new categories — a clothes vitalizing system and clothes drying cabinet.

**Washer/dryer.** Very popular in Europe, front-loading washers are designed to consume less water, can handle greater capacity, and are considered to be more gentle on clothes. An ENERGY STAR-label front-loading washer is designed to use 76 percent less energy and 69 percent less water than the traditional top-loading washer. The washer and dryer feature a matched cycle time to economize on space needed for staging laundry.

**Clothes vitalizing system.** Avoiding trips to the dry cleaners yet having fresh, clean clothes to wear is a pleasure — and an efficiency. The system smoothes wrinkles and helps remove odors in clothing — and saves wear and tear on clothing.

**Clothes drying cabinet.** The drying cabinet dries outerwear and shoes moistened by inclement weather as well as delicate items. This appliance interested our couple, who often went jogging in rainy weather.

Higher efficiency in appliances doesn't need to come at the cost of lost aesthetics. In fact, much emphasis has been placed on the appearance of energy-efficient appliances. The dominant aesthetic is slick, high-tech. Stainless steel is very popular as well as a new generation of virtually maintenance-free metallic finishes. Dishwashers and refrigerators are often fronted in wood panels that match kitchen cabinets. Ovens can be installed separately from stove tops, allowing for more creative kitchen designs. Operating panels are more discretely integrated in the overall appliance design creating a softer image.

There can be no doubt that in the future the drive toward energy efficiency will continue and increase. Consumer interest is growing. Government standards may tighten, but in the meantime, manufacturers will pursue even greater savings. Architects can join in this contribution to sustainable design by considering the specification of energy-efficient appliances.





**Click for Additional Required Reading:** The article continues online at [archrecord.construction.com/resources/conteduc/](http://archrecord.construction.com/resources/conteduc/). To receive AIA/CES credit, you are required to read this additional text. The quiz questions below include information from this online reading. To receive a faxed copy of the material, contact Mark R. Johnson, FAIA, AIBD, e-mail [Mark\\_R\\_Johnson@whirlpool.com](mailto:Mark_R_Johnson@whirlpool.com).


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CONTINUING EDUCATION Series
**LEARNING OBJECTIVES**

After reading this article, you should be able to:

- Describe the contribution of energy-efficient appliances in the goal of sustainable architecture.
- Explain the driving forces behind the development of energy-efficient appliances.
- Compare appliances using the life-cycle cost formula.

**INSTRUCTIONS**

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 224. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self report form on *Record's* website—[archrecord.construction.com](http://archrecord.construction.com)—to receive one AIA/CES Learning Unit.

**QUESTIONS**

1. In recent studies when purchasing appliances, consumers rated energy-efficiency as:
  - a. the most important upgrade.
  - b. important but not worth the extra cost.
  - c. somewhat important.
  - d. not important.
2. When were the first federal efficiency standards issued by the Department of Energy (DOE)?
  - a. 1964
  - b. 1975
  - c. 1984
  - d. 1988
3. Manufacturers reported that some clothes washers labeled in the ENERGY STAR program were how many percentage points more efficient than federal minimal standards?
  - a. 20 percent
  - b. 30 percent
  - c. 50 percent
  - d. 60 percent
4. What is the typical life expectancy of “white goods?”
  - a. 2–9 years
  - b. 10–18 years
  - c. 1–5 years
  - d. 7–11 years
5. How many “white goods” were reportedly disposed of in 1996?
  - a. 45 million
  - b. 30 million
  - c. 45,000
  - d. 3,000
6. The concept of life-cycle cost analysis is generally unfamiliar to consumers.
  - a. true
  - b. false
7. The purchase of energy-efficient appliances can affect quality of life.
  - a. true
  - b. false
8. If the U.S. Census predicts 135 million households by 2010, how many will have refrigerators and ranges, according to the Association of Home Appliance Manufacturers?
  - a. 100 million
  - b. 110 million
  - c. 120 million
  - d. 135 million
9. What material was added as insulation to increase the insulation value of the doors of the DOE's Fridge of the Year?
  - a. rubber
  - b. paper-wrap
  - c. plastic
  - d. polyurethane foam
10. What is a useful formula for evaluating the life-cycle cost of energy-efficient appliances?
  - a. Sustainability Upgrade Cost  $\leq$  Energy Savings Cost over Product Lifespan  $\div$  Average Years of Use
  - b. Sustainability Upgrade Cost  $\leq$  Energy Savings Cost over Product Lifespan  $\times$  Time Value of Money
  - c. Sustainability Upgrade Cost  $\leq$  Energy Savings Cost over Product Lifespan + Value of Environmental Stewardship through Sustainable Design
  - d. Sustainability Upgrade Cost  $\leq$  Energy Savings Cost over Product Lifespan – Product Initial Cost

**ABOUT WHIRLPOOL CORPORATION**

Whirlpool Corporation is the world's largest manufacturer and marketer of major home appliances. Headquartered in Benton Harbor, Mich., the company manufactures in 13 countries and markets products in more than 170 countries.

Whirlpool Corporation's longstanding partnership with the Environmental Protection Agency (EPA) and the Department of Energy (DOE) was recently highlighted when Whirlpool received its fifth ENERGY STAR Partner of the Year award. This recognition is largely attributable to Whirlpool's accomplishment in manufacturing more ENERGY STAR qualified home appliances than any other appliance manufacturer. Whirlpool took its leadership to a new level in 2003 by becoming the first major appliance company to announce a global greenhouse gas reduction target that will be achieved in substantial part through the indirect emission reduction effect of producing ENERGY STAR qualified appliances. This reduction is equivalent to eliminating the carbon emissions from 10 million cars annually.

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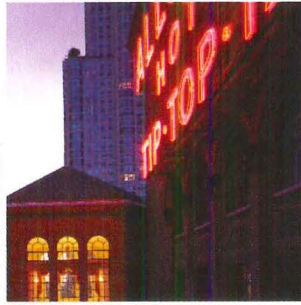
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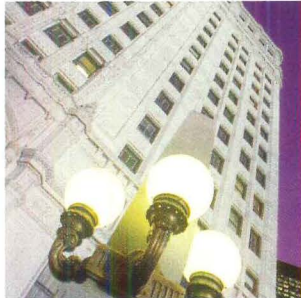
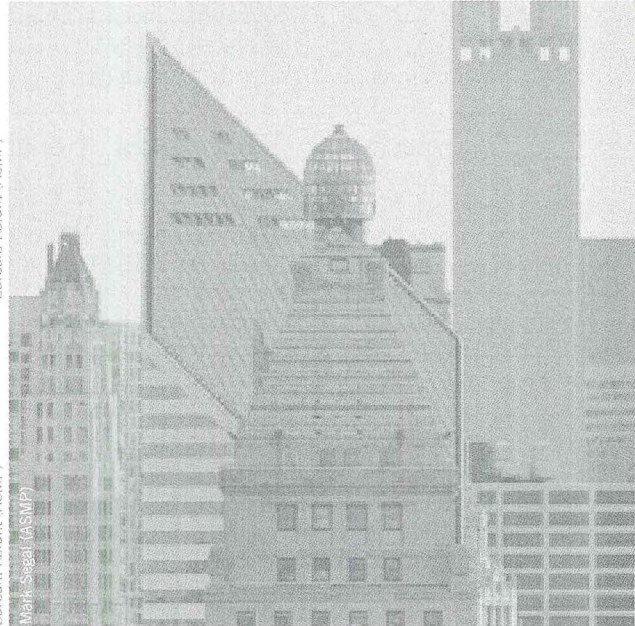
Barbara Karant (ASMP)



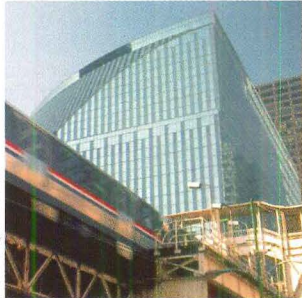
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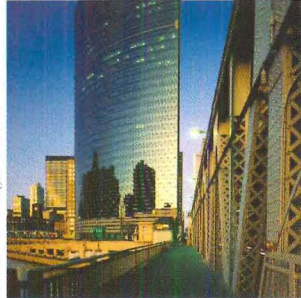
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Mark Segal (ASMP)



Bruce Van Inwegen (ASMP)



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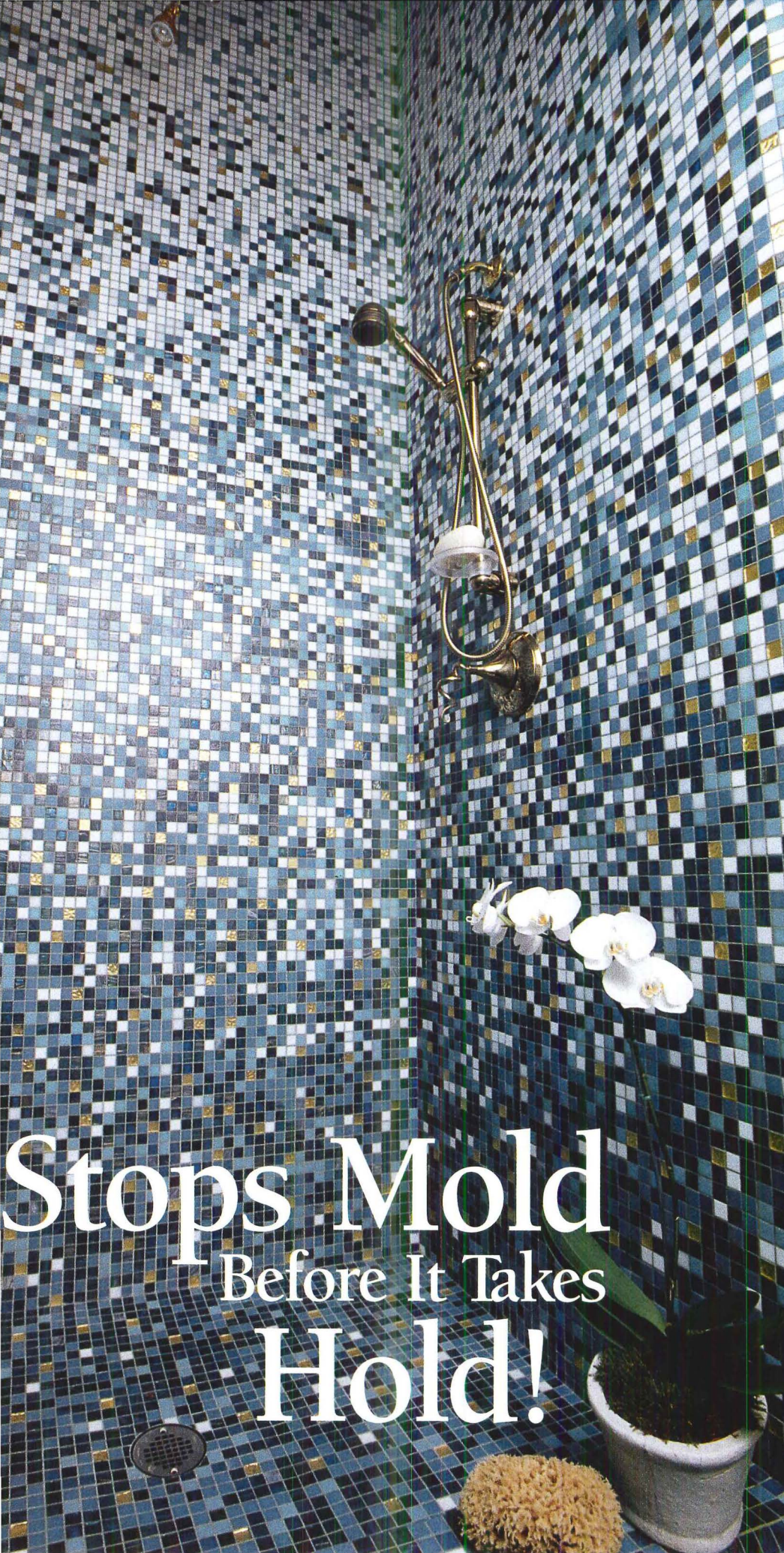
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# Products **Doors & Windows**

While most of the **door and window** offerings reviewed this month are for the residential market, there are a few notable commercial offerings, including an **aluminum door and window system** now available in the U.S. Building code issues, energy efficiency, and low maintenance remain hot topics. *Rita F. Catinella*

## Concept home showcases the potential of windows beyond the traditional expectations

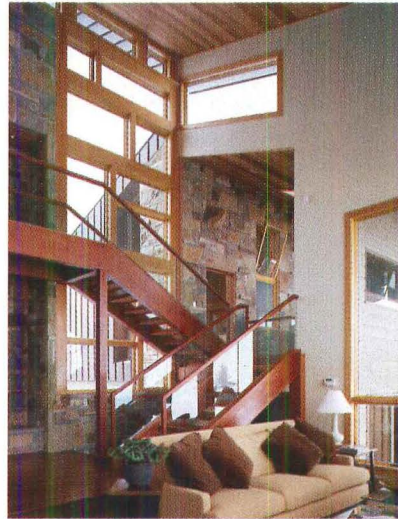
Andersen Windows' 6,000-square-foot, four bedroom concept project—the Andersen “inHOME”—serves as a test lab for new window technologies and a showcase for windows that perform beyond the traditional expectations of providing light, vision, and ventilation. Designed by architect Michael Plautz, AIA, principal of Minneapolis-based RSP Architects, the home is anchored on a rocky ridge overlooking the mountain slopes of Park City, Utah, site of the annual Sundance Film Festival.

The project team took a window-centric approach, integrating window systems into the entire design rather than treating them as mere openings in outside walls. Technology-driven window ideas integrated into the home include “switchable” electrochromic glass in

various window locations and other prototypical concepts from Andersen.

Utilizing a wide range of window sizes and shapes, the interior elevation of each wall was carefully considered as a floor plan. Each of these “wall plans” studied not only the windows’ proportion, arrangement, and view, but how they influenced each room. Interior windows extend light and views to rooms that are not located on an outside wall—for example, several of the bedrooms share views and light with more public spaces while still maintaining privacy. Windows on two or three sides of virtually every room offer the spaces a more even light level.

Serving as an organizing ele-



ment, a 4' thick stone wall runs from south to north, topped by a row of 15 clerestory windows that bring in morning sun and ventilation while dissolving the line between the roof



**InHOME's switchable glass technology and use of interior windows allow for optimal light and privacy control.**

and wall outside. The extensive use of indigenous rock and timber and a roofline that echoes the rise and fall of the mountains help the home blend into the dramatic surrounding landscape. Andersen Windows, Bayport, Minn. [www.andersenwindows.com](http://www.andersenwindows.com)

**CIRCLE 200**



**Marvin customized more than 315 windows for the home, including 162 operating and stationary double-hung chain-and-pulley units.**

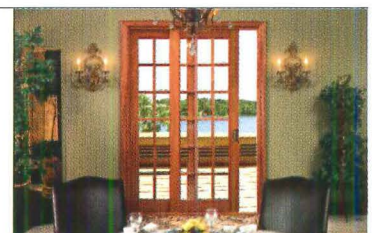


## A team effort results in hundreds of custom windows for a country home

When Cincinnati-based RWA Architects was hired to design an estate-size country home in the farmland of southwest Ohio, they needed a partner to help customize 315 windows, including 242 old-style, chain-and-pulley windows that met the firm's criteria. Based on a long-term relationship with Marvin Windows and Doors, the team provided the company with developed drawings and details and asked them to turn around a prototype of an old-style, chain-and-pulley double-hung window that incorporated mahogany species, custom simulated

divided lite (SDL) bars with unique curves, and energy efficiency. After two prototypes, the teams were satisfied with a historic-looking design that achieved a high design pressure rating. Marvin's largest residential order to date, the project required the company to create 160 CAD drawings that detailed all the parts, pieces, and processes necessary to manufacture the windows, including elevations, cross-sectional details, and glass sizes. All of the windows are made entirely of solid mahogany with custom-casing exteriors, custom-crown molding, and details such as pocket tenons. The project, still under construction, is expected to be complete next year. Marvin Windows and Doors, Warroad, Minn.

[www.marvin.com](http://www.marvin.com) **CIRCLE 201**



## Heavy-duty sliding-door options

Weather Shield's new sliding patio door and French sliding door feature a standard design pressure rating of DP-35, with a DP-50 upgrade available that complies with some of the strictest building code requirements in the country. The doors feature a 1¾" thick jamb, approximately 25 percent heavier jamb components, an improved slider system, and a new door-channel design that guides the moving panel. Weather Shield, Medford, Wis. [www.weathershield.com](http://www.weathershield.com) **CIRCLE 202**



## Products Doors & Windows

### ▼ Horseless carriage-house doors

Inspired by the doors that graced the carriage houses of fine homes past, the Classica collection of garage doors are manufactured in pinch-resistant, precision-shaped steel with carriage-house design embossments. An optional factory-installed polystyrene insulation provides an extra thermal barrier against inclement weather and reduces noise. Each door comes with heavy-duty hardware galvanized to protect against rust. Amarr Garage Doors, Winston-Salem, N.C. [www.amarr.com](http://www.amarr.com) **CIRCLE 203**



### ▲ Rated aluminum systems

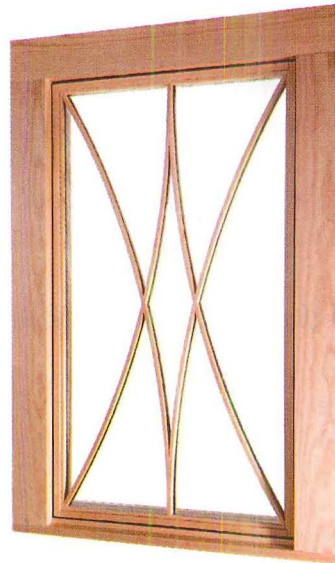
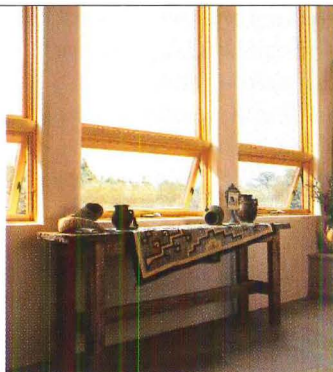
Aluflam has successfully completed fire testing of its aluminum door and

window systems for the North American market. Originally developed and proven in Europe, the Aluflam system is comprised of custom-extruded and -filled aluminum framing combined with a clear, wire-free glass laminate. The glass is supplied by

Vetrotech Saint-Gobain of Auburn, Washington. Aluflam N.A., Huntington Beach, Calif. [www.aluflam-usa.com](http://www.aluflam-usa.com) **CIRCLE 206**

### ► Climate-controlling glazing

Hurd has added three new glazing options to its ComfortGlaze system. Sun Blocker is formulated to keep homes cooler in southern climates, Climate Control keeps homes warm in northern climates, and Super Sun Blocker (right) is for locations with strong or extreme sunlight. All Hurd windows feature high-performance glass from Guardian Industries. Hurd Millwork, Medford, Wis. [www.hurd.com](http://www.hurd.com) **CIRCLE 207**



### ▲ Will last for decades

AuraLast wood protects wood windows and patio doors against wood decay, water absorption, and termite infestation. AuraLast's water-based-treatment process is not compromised by nail or screw holes, and results in a significant decrease (96 percent) of VOCs during production. Jeld-Wen offers a 20-year warranty against decay and/or infestation for Pozzi Custom Collection products with AuraLast. Jeld-Wen, Klamath Falls, Ore. [www.jeld-wen.com](http://www.jeld-wen.com) **CIRCLE 205**

### ▼ The unseen screen

Pella offers Vivid View screens as a premium option on select Pella Designer Series and Architect Series windows. Vivid View screens are made with a patent-pending transparent screen fabric developed by W.L. Gore & Associates. The screens are less obtrusive from the exterior of the home and allow for greater airflow into and out of the home, reducing energy bills. Pella, Pella, Iowa. [www.pella.com](http://www.pella.com)

**CIRCLE 204**



### ▲ VIP design awards

The winners of Vetter Window & Door's annual national design contest, the Vetter Inspired Project (VIP) Awards, include a mixed-used commercial

property in Market Square in Amesbury, Massachusetts (top) designed by Woodman Associates Architects, and a 6,000-square-foot lakeside retreat in Lake Geneva, Wisconsin, designed by McCormack & Etten Architects (above). The awards honor design excellence in projects that use Vetter windows and doors. Vetter Windows & Doors, Mosinee, Wis. [www.vetterwindows.com](http://www.vetterwindows.com) **CIRCLE 208**





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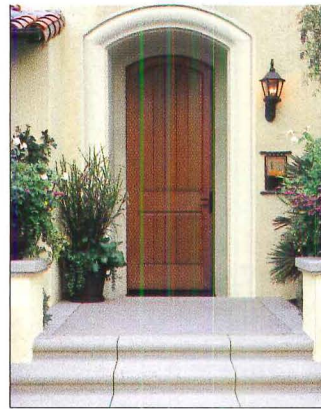
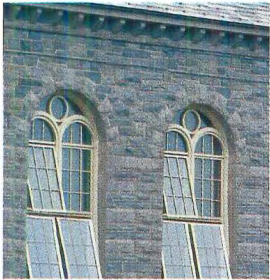
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## Products Doors & Windows

### ▼ New windows help keep prison secure

The renovation of the 140-year-old ACI Maximum Security Prison in Cranston, Rhode Island, designed by William Kite Architects of Providence, included the replacement of 61 windows, each measuring 8' x 18'. Moduline Window Systems supplied its Signature Series windows with a 1" setback, security screens, and bullnose-profiled exterior subframe. The windows are fixed, top-hung, outswing vents, factory-glazed by Moduline with 1" insulating glass. Moduline Window Systems, Terrell, Texas. [www.vistawall.com/moduline](http://www.vistawall.com/moduline) **CIRCLE 209**



### ◀ Rustic-look fiberglass door

The Classic-Craft Rustic collection features the look of real wood graining, natural stained wood, authentic detailing, and the performance of Therma-Tru's fiberglass door systems. Initially available in 8' heights and 3' and 3'36" widths for today's larger entryways, the collection has been popular in the western and southwestern states. For 2004, Therma-Tru is introducing a 6'8" high door. Therma-Tru, Maumee, Ohio. [www.thermatru.com](http://www.thermatru.com) **CIRCLE 210**

### ▶ 45-minute composite-core fire door

VT Industries offers a new 45-minute fire approval using a Structural Composite Lumber (SCL) core door. The approval is based on Intertek/Warnock Hersey Category A guidelines in accordance with the UBC standard 7-2-1997. The SCL core door meets positive pressure approval for both wood veneer and high-pressure decorative laminate-faced doors and can also be used when neutral or negative pressure doors are allowed. VT Industries, Holstein, Iowa. [www.vtindustries.com](http://www.vtindustries.com) **CIRCLE 211**



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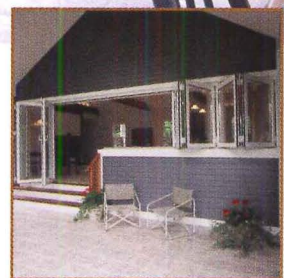
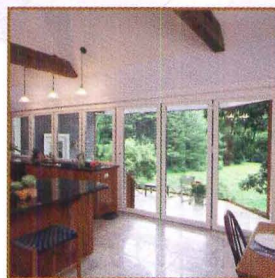


2003 MCA President's Award Winner, commercial category: Reliant Stadium, Houston, TX  
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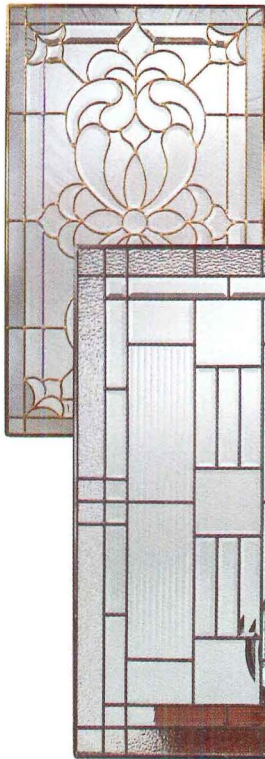
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## Products Doors & Windows

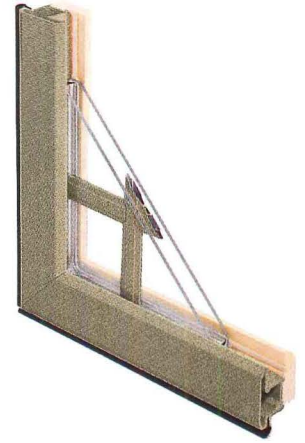


### ▶ Decorative glass panel designs

Peachtree Doors and Windows recently expanded the company's entry door system offerings to include new panel designs and decorative options and an improved frame and sill. The company introduced five new decorative-glass patterns, including the Bouquet (far left) and Mission (near left) patterns. Mission features clear and v-groove rectangular beveling and a granite-glass border treatment, with either zinc or the new patina caming. Including more than 100 glass pieces with curved and rectangular beveling, the Bouquet pattern features Baroque glass and clear bevels that have a gray ripple-glass border. Peachtree Doors and Windows, Gainesville, Ga. [www.peachtreedoor.com](http://www.peachtreedoor.com) **CIRCLE 212**

### ▶ Another grille option

Integrity Windows and Doors has introduced a two-tone, Pebble Gray grilles-between-the-glass option, in addition to its existing Stone White offering. The broader color selection enables specifiers to achieve color consistency between their grilles-between-the-glass and the window or door's exterior. On the interior, the grille bar comes in a neutral white to complement window treatments, wall coverings, and interior decor. Integrity Windows and Doors, Fargo, N.C. [www.integritywindows.com](http://www.integritywindows.com) **CIRCLE 213**



### ▲ California greening

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Sacramento's Capitol Area East End Complex needed to comply with, or exceed, the standards set by California Building Code Title 24 for energy efficiency and green buildings. To help achieve the state's goal, the design-build team integrated Wausau's energy-efficient windows and curtain wall into the facade to maximize the use of daylight. Wausau Window and Wall Systems, Minneapolis, Minn. [www.wausauwindow.com](http://www.wausauwindow.com) **CIRCLE 214**

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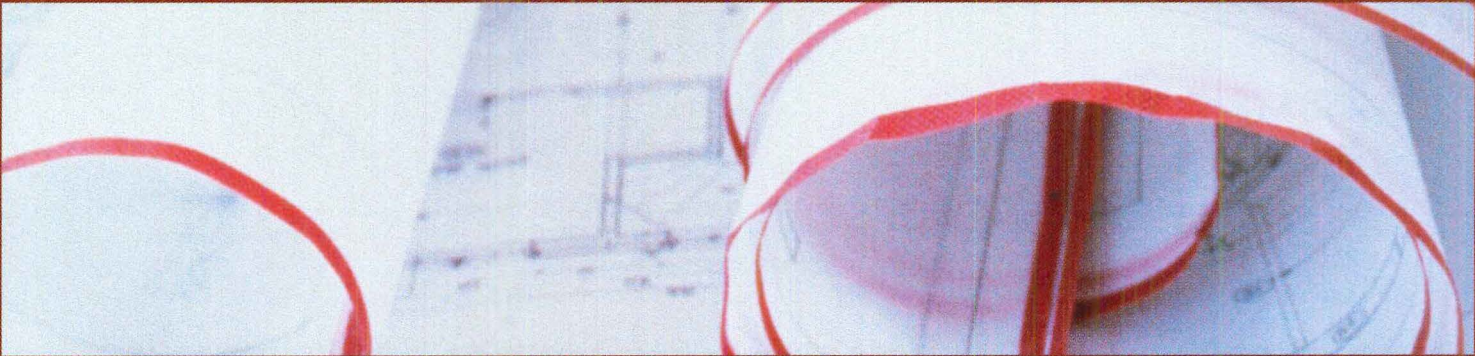
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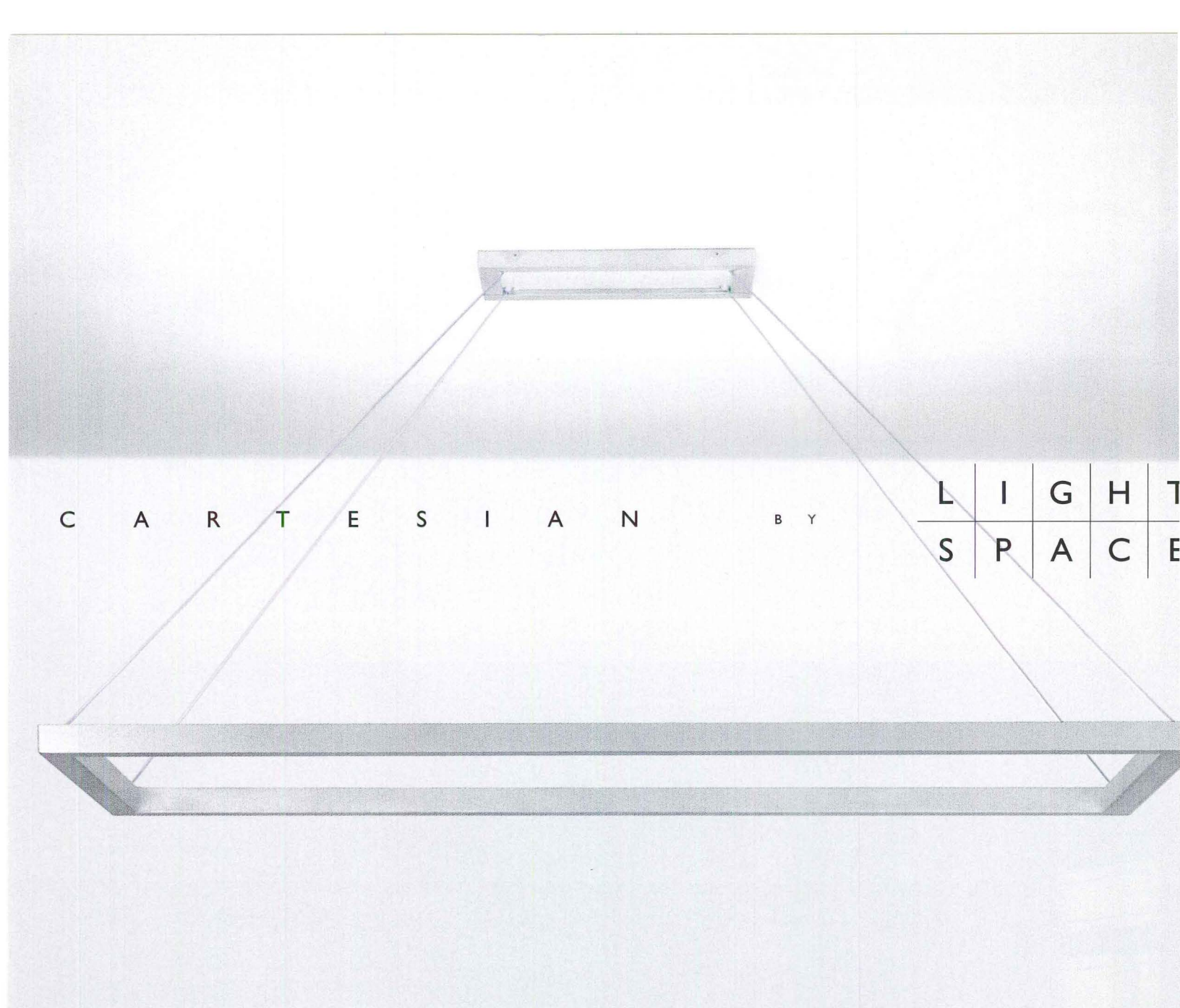
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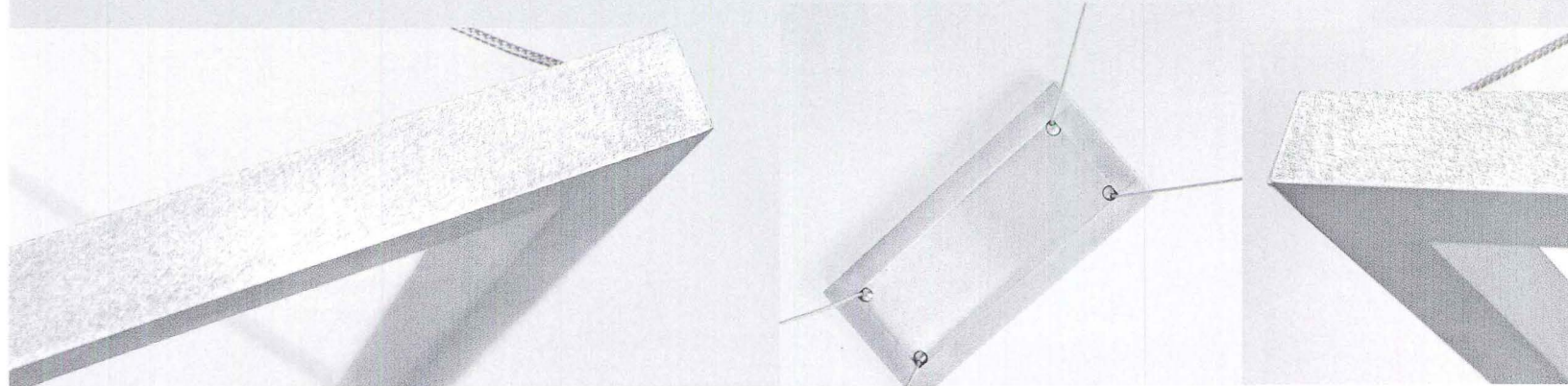
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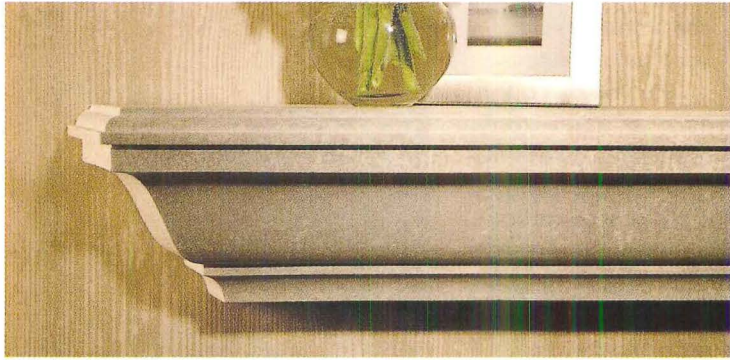


## Product Briefs

### ▼ New material for hearth designs

Doverra is a new noncombustible hybrid of fiberglass-reinforced cement. Unlike traditional glass-reinforced cement, Doverra's formula and processes incorporate an unusually high ratio of advanced fibers into the mix design and, when cast at  $\frac{3}{8}$ " thick, give the material a light weight of 4.4 pounds per square foot. Doverra offers a complete line of hearth and mantel shelf products (classic mantel shown below).

Doverra, Schaumburg, Ill. [www.doverra.com](http://www.doverra.com) **CIRCLE 215**



### ► Strong, squeak-free floor

Introduced at this year's International Builders' Show in Las Vegas, the FrameWorks Floor System features Weyerhaeuser company's Trus Joist's Silent Floor joists, TimberStrand LSL rim board and beam products, TJ Performance Plus panel, and the TJ-Pro Rating system, a design tool used in evaluating the factors that contribute to floor performance. Trus Joist, Boise, Idaho. [www.weyerhaeuser.com](http://www.weyerhaeuser.com) **CIRCLE 217**



### ► Icy hot designs

More than 200 objects designed by Scandinavian women will be on view from April 23 to September 12 in the exhibition *Nordic Cool: Hot Women Designers* at the National Museum of Women in the Arts (NMWA). The show includes designers who have changed the course of decorative arts and those currently making contributions to the industry. Bench for Two, by Nanna Ditzel, and Grön Lampa, by Anna Forsling, shown. NMWA, Washington, D.C. [www.nmwa.org](http://www.nmwa.org) **CIRCLE 219**



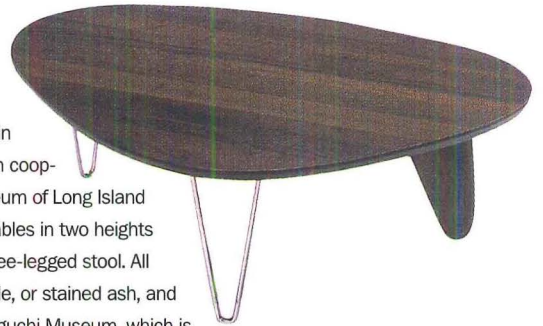
## Product of the Month ISIS Elevator

ThyssenKrupp claims the company's new ISIS elevator saves, on average, 60 square feet of building space per elevator. A geared traction system that will serve two to six stops, the first generation ISIS product is currently available and priced to compete with other low-rise products. The second generation ISIS product, expected to be available in the second quarter of 2004, will serve two to 50 stops. At the heart of the ISIS system is a patented synthetic lift system that includes K-Core, a synthetic hoist rope made of Dupont Kevlar that is stronger and more flexible than traditional steel rope, and an advanced set of synthetic modular traction sheaves. The sheaves are one third the size of typical steel sheaves, allowing for reduced machine and motor sizes and for ISIS to be contained completely within the elevator shaft. ThyssenKrupp Elevator, Frisco, Texas. [www.thyssenkrupp.com](http://www.thyssenkrupp.com) **CIRCLE 216**



### ► Noguchi reedition and exhibition

The latest reedition of Isamu Noguchi's designs, the 1944 Fin Series, is available from Vitra in cooperation with the Noguchi Museum of Long Island City, N.Y. The series includes tables in two heights (coffee table shown) and a three-legged stool. All are made of solid walnut, maple, or stained ash, and chromed tubular steel. The Noguchi Museum, which is currently under renovation, will reopen June 12, 2004, with the exhibition *Isamu Noguchi: Sculptural Design*. Vitra, New York City. [www.vitra.com](http://www.vitra.com) **CIRCLE 218**



### ◀ For high-turnover positions

The Cristallo office sign system allows businesses to change the copy on their signs themselves with a Windows-based software program that prints a transparency to slip between the sign's nonglare security glass. The system features stainless-steel hardware and can be attached to interior walls, doors, or tables for a range of wayfinding applications. Topdeq, Cranbury, N.J. [www.topdeq.com](http://www.topdeq.com) **CIRCLE 220**



# Product Briefs **Cologne Fair** imm cologne, Germany's leading furniture fair, fell victim to the sluggish economy this year with fewer exhibitors and visitors. Showcased here are some surprising standouts. *Josephine Minutillo*

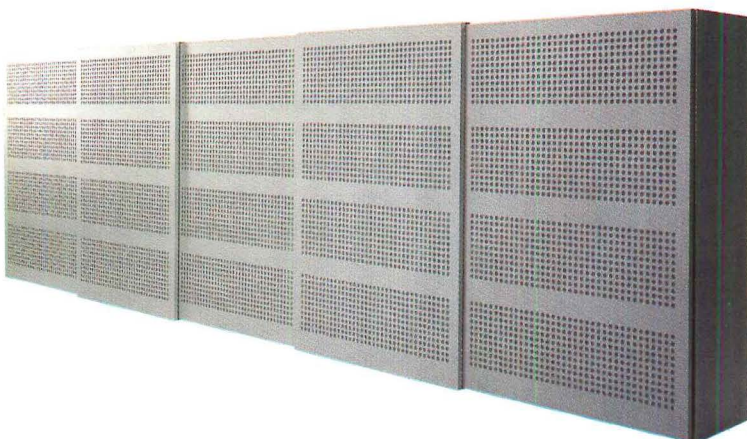
## ▼ Plastic perches

Italian furniture leaders Driade moved what is typically an off-site exhibition to the fairgrounds this year with one of the more interesting display booths showing off some of the fair's best new introductions. English design duo Peter Emrys-Roberts and Christine Harvey brought Phantom to life. The sofa's chromed steel structure supports a fluorescent PMMA plastic seat and down cushion in cotton fabric. Easy Pieces, by French star Christian Ghion, is a series of rigid polyethylene stacking stools featuring a softer swivel seat. Available in four designs ranging from curvy to angular, Easy Pieces is intended for use indoors or out. Centro Modern Furnishings, St. Louis. [www.centro-inc.com](http://www.centro-inc.com) **CIRCLE 221**



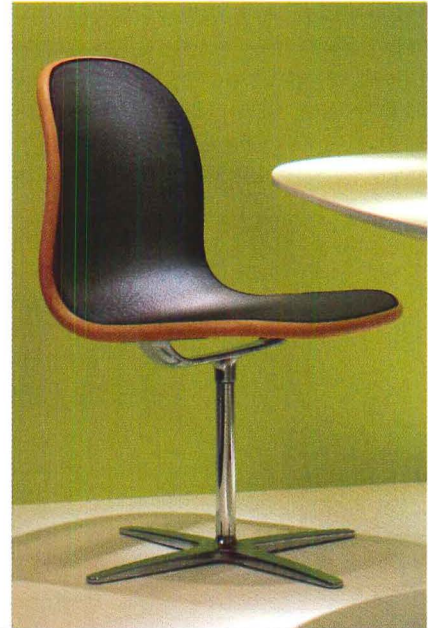
## ▼ Storing secret documents

Known for his spare, austere forms, Dutch architect Wiel Arets's work has been referred to as "industrial poetry." Lensvelt, the Dutch manufacturer of office furniture dedicated to contemporary design and production methods, enlisted Arets to design both its headquarters and a new product line. Echoing the rigid geometric forms of his buildings, the Stealth collection incorporates conference furniture, storage, and benches. The storage system was specifically designed to divide space while maintaining acoustic integrity to the open plan. Lensvelt, Breda, the Netherlands. [www.lensvelt.nl](http://www.lensvelt.nl) **CIRCLE 223**



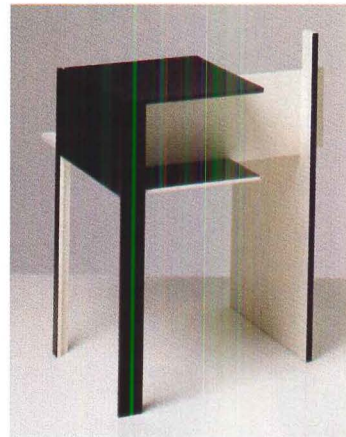
## ► Modern within the tradition

The fair's most exciting new introduction emerged from a product steeped in tradition. The Loop chair was designed by James Irvine for Thonet, original producers of bentwood furniture dating back to 1819. Composed of a single loop of bentwood, the chair's design combines traditional bending techniques with ultramodern 3D CNC machining. The seat swivels and is available with armrests and a disc base. ICF Group, Taftville, Conn. [www.icfgroup.com](http://www.icfgroup.com) **CIRCLE 222**



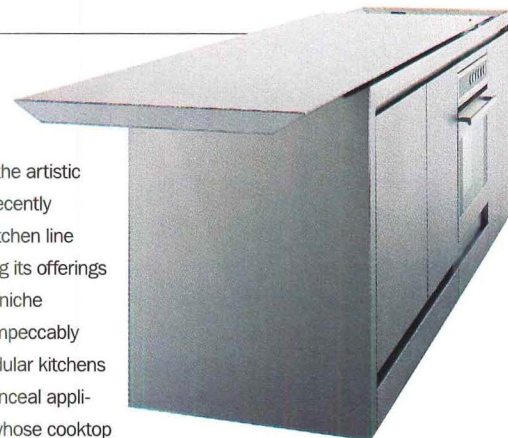
## ◀ Celebrating an icon

On the 125th anniversary of Eileen Gray's birth, ClassiCon paid tribute to her with a breathtaking gallery exhibition in the city and a series of new introductions. Gray designed this small table (left), called De Stijl for the compositional features it shares with the famed art movement, in 1922. Her classic Bibendum seat is now available in fabric finishes as well as leathers, and her Roquebrune chair has a new powder-coated finish. M2L, New York City. [www.M2L.com](http://www.M2L.com) **CIRCLE 224**



## ► Kitchen counterparts

Boffi, creator of high-end kitchens and baths under the artistic direction of Piero Lissoni, recently acquired the prestigious kitchen line Norbert Wangen, expanding its offerings to an even more exclusive niche market. The line features impeccably crafted stainless-steel modular kitchens notable for designs that conceal appliances. Shown here is k2, whose cooktop and sink are located beneath the mobile worktop/table. Wangen, himself an architect and designer, will continue to collaborate with Boffi as the division's designer. Luminaire, Chicago. [www.luminaire.com](http://www.luminaire.com) **CIRCLE 225**





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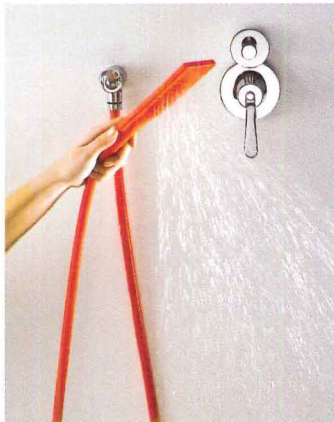
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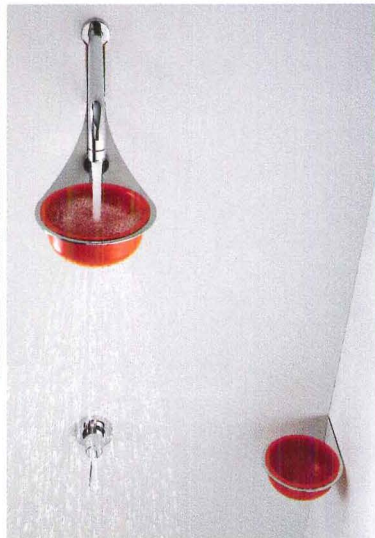


## Product Briefs Cologne Fair



### ▲ Shower with a splash of color

Away from the fairgrounds on the opposite side of the Rhine was another major exhibition space organized by Stylepark and featuring both well-known designers and up-and-comers. Agape introduced several new fixtures for the bathroom, including Al Dente, a line of showerheads and soap dishes inspired by a common fixture in the kitchen—the colander. Also new was Kaa, a soft, flexible, handheld showerhead made from anti-allergy silicone rubber. Moss, New York City. [www.mossoonline.com](http://www.mossoonline.com) **CIRCLE 226**



### ▲ Fostering good design

German furniture makers Walter Knoll have added a new series of upholstered seating designed by Norman Foster to their collection. Following on the success of the Foster 500 and 501 ranges, Foster 505 comprises armchairs and sofas in various sizes with add-on and corner modules as well as chaise longues. Cubic armrests and generous seats rest atop a minimal metal base. M2L, New York City. [www.M2L.com](http://www.M2L.com) **CIRCLE 227**

### ► Design within reason

Kant was designed by Patrick Frey and Markus Boge as a clever and attractive way to keep an organized desk. Made completely of wood, Kant's folded rear section offers an easily accessible place to stow books and files. Kant is available in a variety of sizes and heights and with several accessories, including bookends, hanging files, a selection of drawers, and an additional magazine shelf positioned at the intersection of the legs. Nils Holger Moormann, Aschau im Chiemgau, Germany. [www.moormann.de](http://www.moormann.de) **CIRCLE 228**



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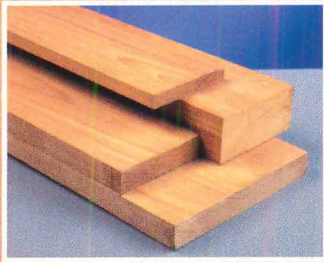
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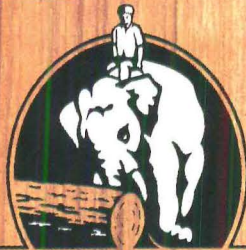
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## Product Literature

### Furnishings overview

Wilkhahn's new 66-page 2004/2005 catalog offers readers a general overview of the company's furnishings and its corporate philosophy. Wilkhahn is distributed in the U.S. through Vecta. Vecta, Grand Prairie, Texas. [www.wilkhahn.com](http://www.wilkhahn.com)

CIRCLE 235

### Stair-tread catalog

Musson's new catalog focuses on solid, heavy-duty rubber, vinyl, or aluminum stair treads for interior and exterior use. The catalog illustrates fire-safety, grit-strip, and glo-strip stair coverings, and those for the visually impaired, with matching floor systems. All products are displayed in Musson's expanded color line with related accessories. Musson Rubber, Akron, Ohio.

[www.mussonrubber.com](http://www.mussonrubber.com) CIRCLE 236

### Curtain-wall showcase

One of two new brochures from Wausau Window and Wall Systems showcases the company's full range of curtain-wall and window-wall products for multistory buildings or low-rise projects. Also available is the Advantage Wausau brochure, which features Advantage casement,

fixed, single- and double-hung, horizontal-rolling, and projected windows. Wausau Window and Wall Systems, Wausau, Wis. [www.wausauwindows.com](http://www.wausauwindows.com) CIRCLE 237

### Hardwood molding data sheet

Junckers Hardwood introduces a new molding data sheet that showcases detailed profile illustrations of the various moldings offered by the company. Moldings are 100 percent solid hardwood, available in a multitude of species, and designed to blend with every flooring product offered by the company. Junckers Hardwood, Anaheim, Calif. [www.junckershardwood.com](http://www.junckershardwood.com)

CIRCLE 238

### Causes of cracking

The Stucco Manufacturers Association (SMA) offers technical information on the issue of cracking in Portland cement plaster finishes and 3-coat stucco. The SMA "Stucco Crack Policy" includes information on causes, prevention, and remedies. SMA offers the design industry a variety of education materials on stucco. SMA, Newport Beach, Calif. [www.stuccomfgassoc.com](http://www.stuccomfgassoc.com)

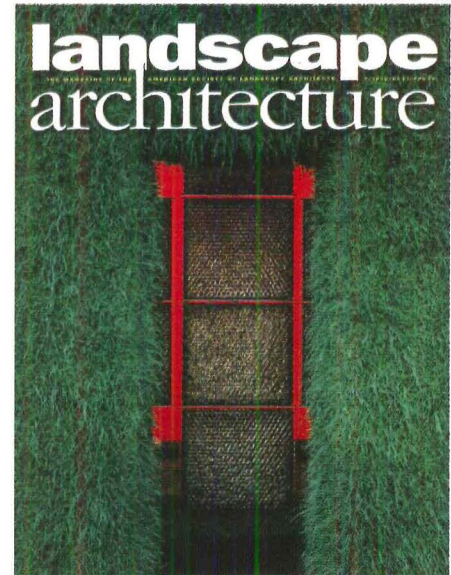
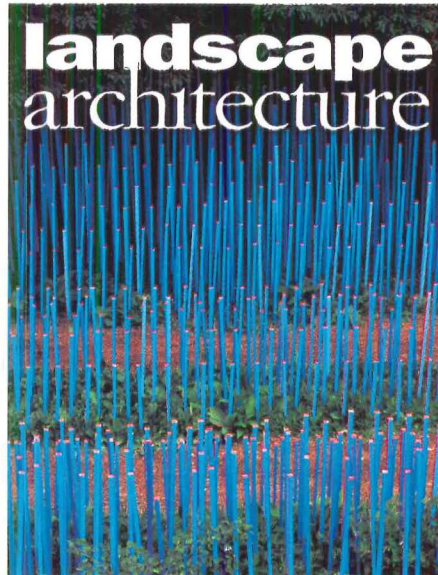
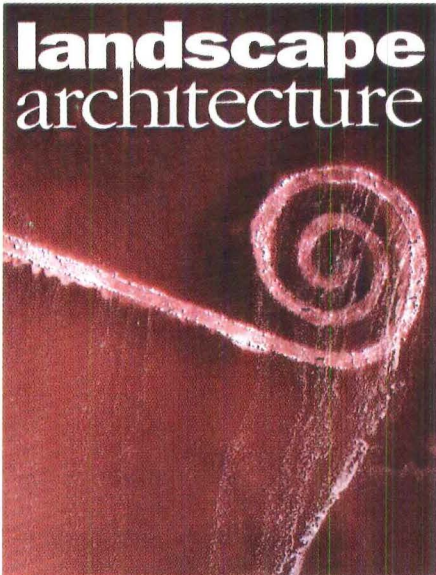
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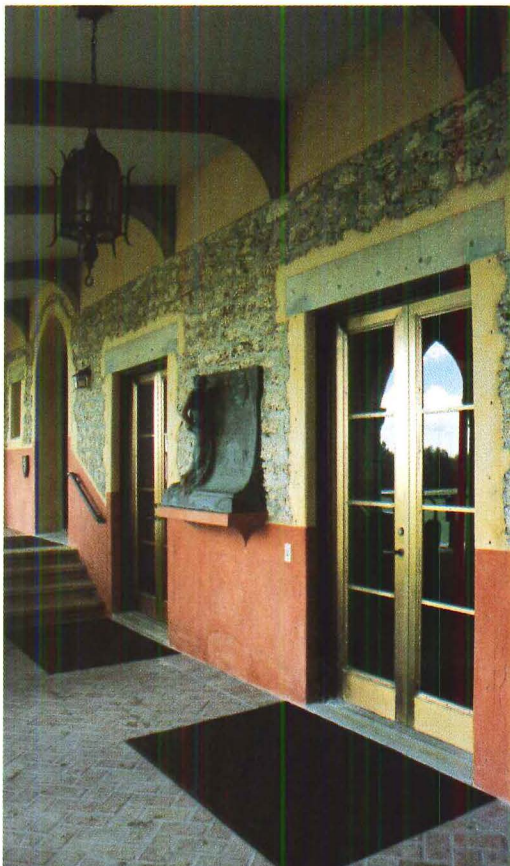
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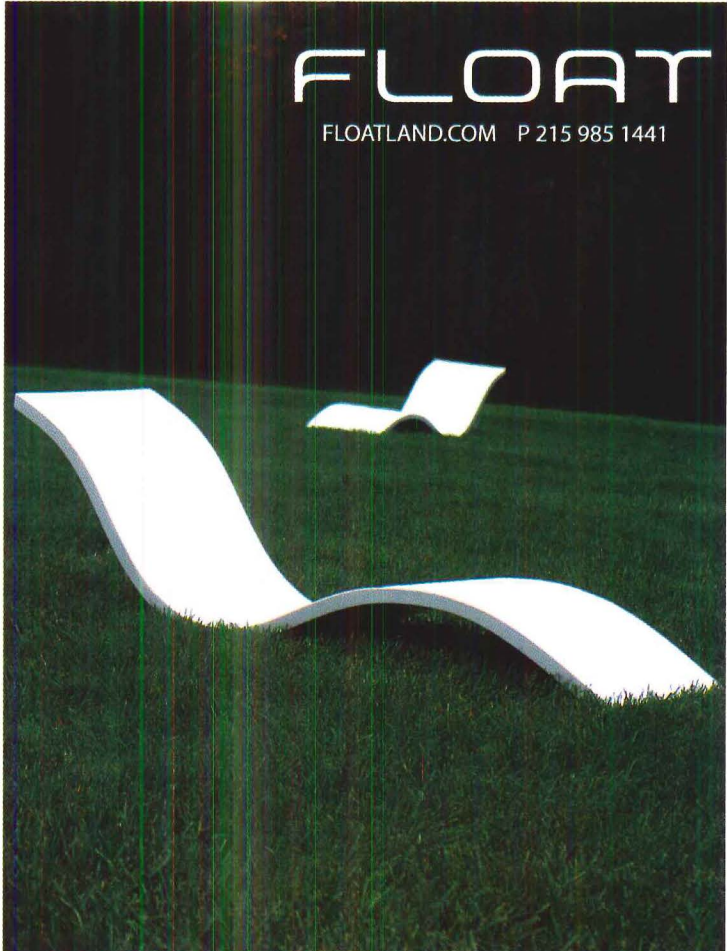
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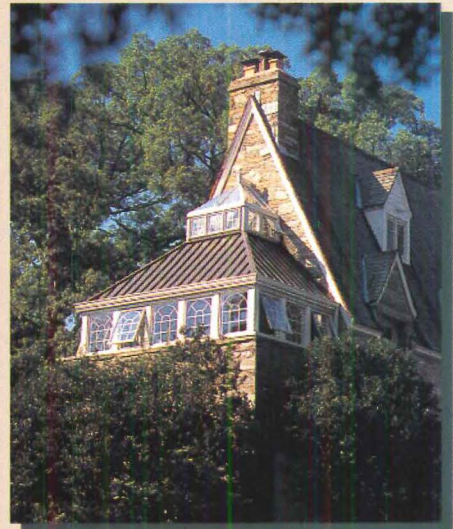
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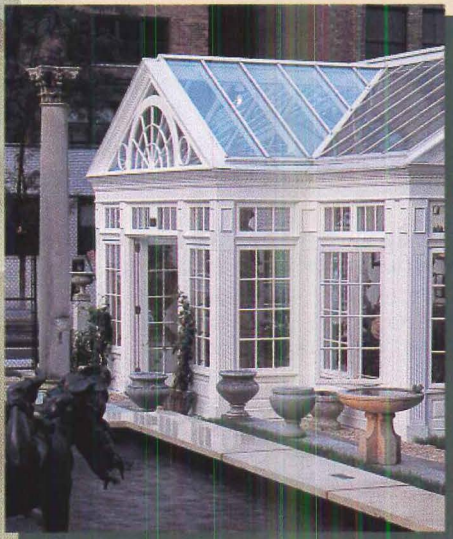


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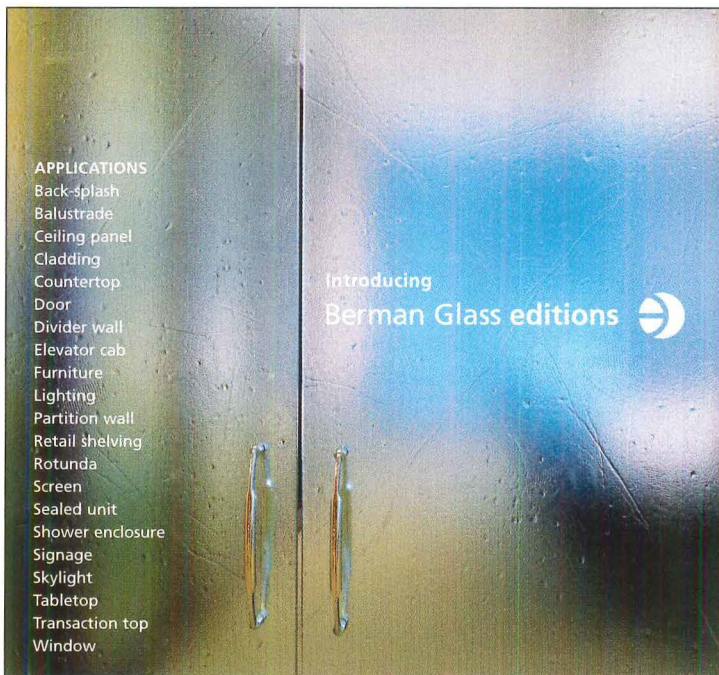
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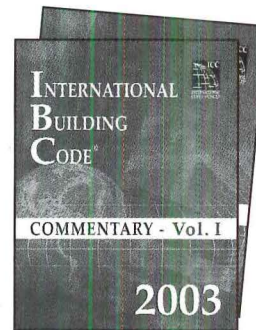
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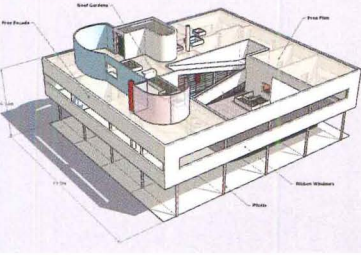
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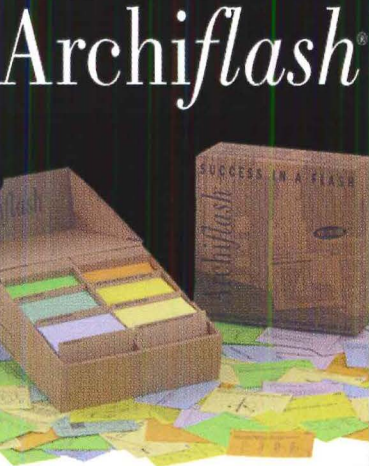



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	<p>www.sketchup.com</p> <p style="text-align: right;">150</p>

FAAC International, Inc.	
Gate Operators	
	<p><b>2 Site construction</b></p> <p>FAAC is the world's largest specialized manufacturer of automated operators for swing, slide, and barrier gate systems. FAAC hydraulic operators meet or exceed strict European safety requirements as well as UL325 and CSA standards in North America. FAAC received ISO-9001 certification in 1996. Swing gate operators for residential and commercial applications include on-gate and in-ground versions that are famous for being small, but powerful. Barrier gates versions include a high-speed model (.8 seconds) for freeway use and a special model designed for use with heavy traffic wide entrances that require long beams (up to 23-ft.).</p>
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Residential CAD Software	800-248-0164
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	<p>www.softplan.com</p> <p style="text-align: right;">152</p>

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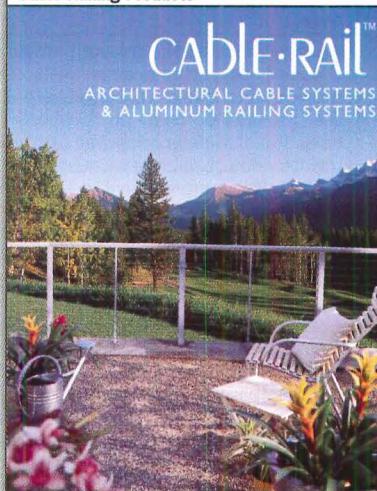
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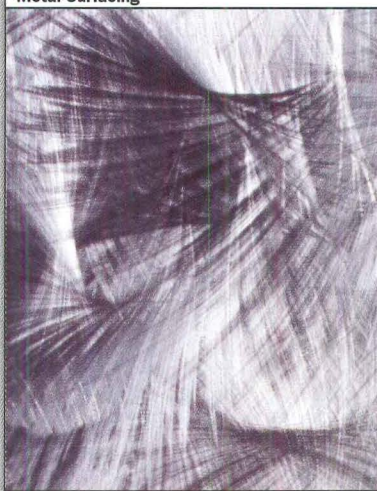
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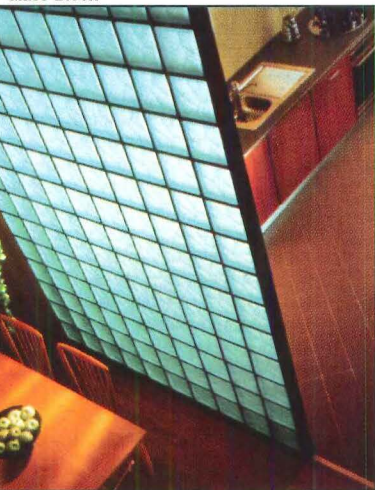
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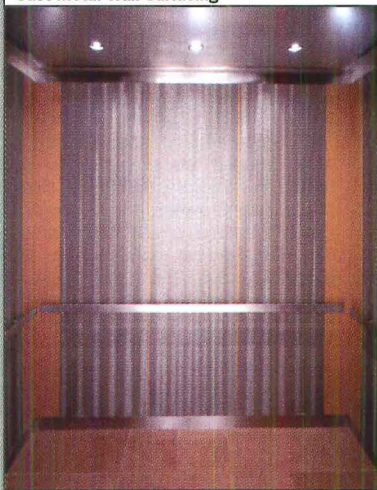
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**Gage Corporation, Intl.**

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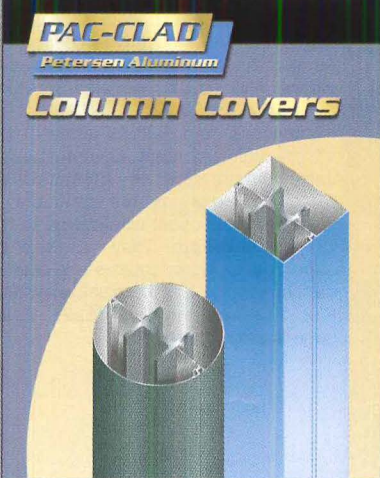

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	<p>www.meltonclassics.com</p> <p> 162</p>

<b>Bear Creek Lumber</b>	
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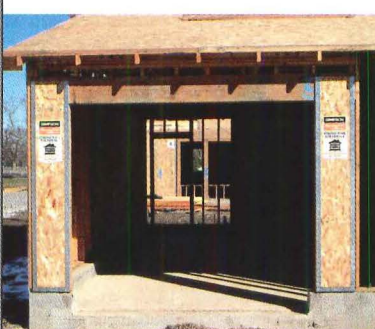

<b>Petersen Aluminum Corp.</b>	
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<b>Laser Precision Cutting, Inc.</b>	
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	<p>www.meltonclassics.com</p> <p> 167</p>

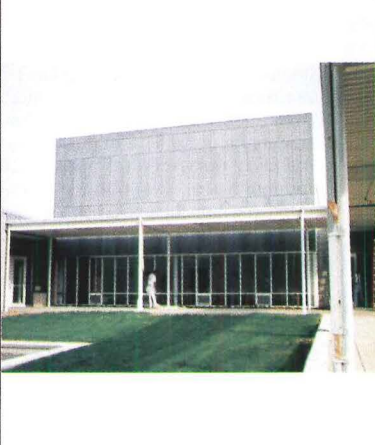



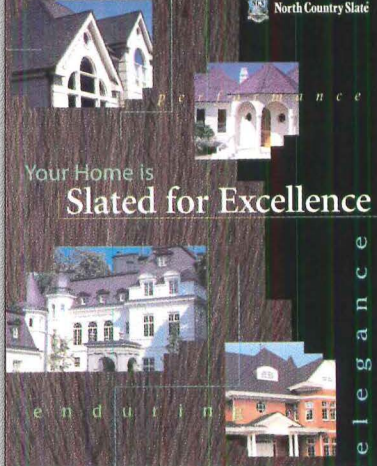

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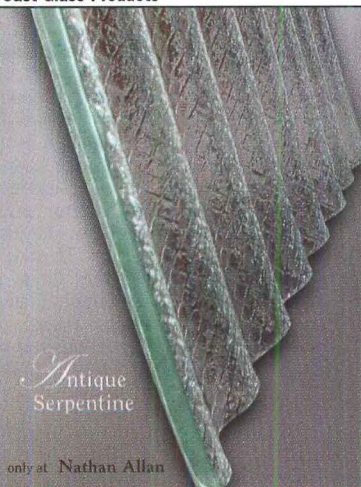

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Cement Board Fabricators	
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North Country Slate	
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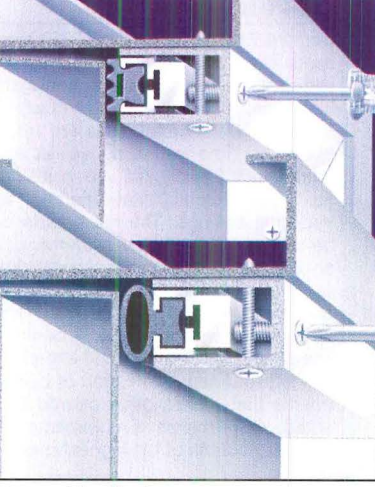

<b>Nathan Allan Glass Studios Inc.</b>	
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<b>Superseal Mfg. Co. Inc.</b>	
<b>Vinyl Windows</b>	<b>888-NEW-VINYL</b>
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<b>Oldcastle Glass</b>	
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<b>Woodfold-Marco Mfg., Inc.</b>	
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<b>Panelfold®</b>	
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	<p><b>8 Doors &amp; windows</b></p> <p>Panelfold doors are made to fit the openings so floor to ceiling and wall to wall access is available without costly stubbing in or heading down for conventional closet doors. Complete information on Panelfold folding partitions, accordion folding partitions, operable and relocatable partitions, and acoustic panels is available in their Architectural Products Catalog and from Sweets and Sweets CD. Interactive CD-ROM also available.</p>
	 176

<b>Zero International, Inc.</b>	
<b>Acoustical Door Seals</b>	<b>800-635-5335</b>
 <p>www.zerointernational.com</p>	<p><b>8 Doors &amp; windows</b></p> <p>Zero's acoustical door seals and systems are designed with top-quality materials and adjustable features to guarantee easy installation, reliable performance, and sound transmission class ratings up to 51 STC for the most demanding noise-control applications. Engineered to function efficiently through millions of cycles. Vision-light systems available. Zero's adjustable gasketing systems lower noise levels and provide privacy in office buildings, apartment houses, hospitals and doctors offices, churches, and schools. For more information and a copy of Zero's 20-page "Sound Solutions" brochure contact Zero International.</p>
	 179



**Crossfield Products Corp.**

Architectural Floor Surfacing

9 Finishes

Dex-O-Tex Micro-Topping is a thin-section, seamless polymeric floor surfacing that offers years of durability and low maintenance costs. The protective surfacing is less moisture sensitive than conventional sheet and tile flooring, and provides an attractive, wear-resistant finish. Micro-Topping can be applied over a wide range of surfaces, eliminating the cost of expensive removal. It can be antiqued or chemically stained with many beautiful colors to create a variegated shading of hues and allows the application of stencils and saw-cuts for limitless design options. A wide range of polyurethane sealers with varying degrees of gloss or slip-resistance will stand up to repeated floor cleanings.

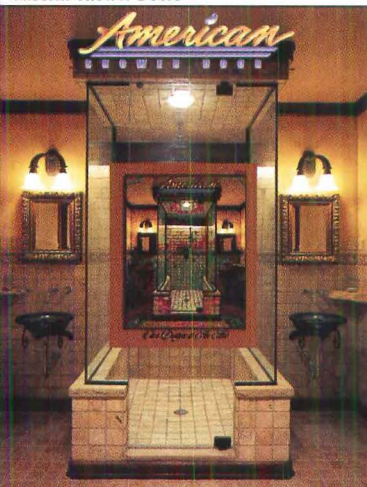
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Custom Shower Doors

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10 Specialties



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**L. M. Scofield Company**

Concrete & Cementitious Flooring

800-800-9900

9 Finishes

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181

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10 Specialties



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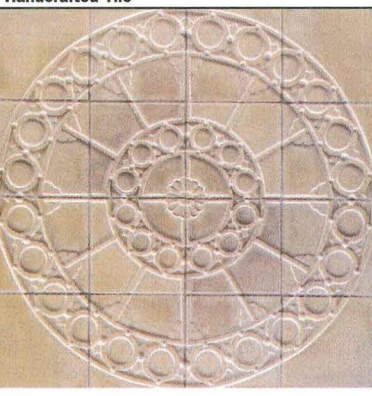
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**Pratt & Larson Ceramics**

Handcrafted Tile

9 Finishes

Pratt & Larson Ceramics manufactures a versatile handcrafted tile line that includes design traditions from Arts & Crafts, classical, and contemporary styles. They are a leader in the industry, creating and producing 14 style design lines and four distinctive glaze lines, as well as several specialty glaze surfaces. Any tile can be ordered in any of the 300 standard glaze colors. Decorative tile may also be ordered hand painted to accent the relief designs. With over 20 years of experience, Pratt & Larson will make your tile as special as your home and your ideas.



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www.prattandlarson.com

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**Custom Home Accessories, Inc.**

Decorative Cluster Mailboxes

10 Specialties

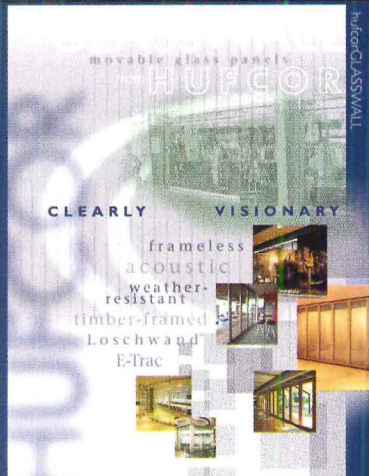





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www.customhomeaccessories.com

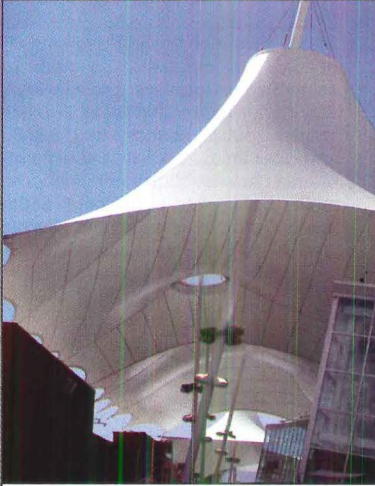

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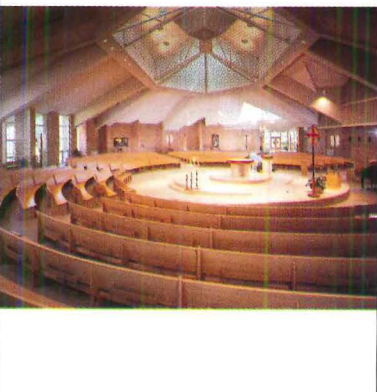





<b>Hufcor, Inc.</b>	
<b>Movable Glass Partition Systems</b>	<b>800-542-2371</b>
 <p>10 Specialties</p> <p>Hufcor introduces a complete new line of movable glass partition systems featured in a new brochure. The line features frameless storefront style panels with patent-pending batwing pass-doors, acoustic and weather resistant glasswalls without floor tracks, wood-clad products, and electrically controlled E-Trac tracking system and Loschwand overhead systems. Call or visit the Web site.</p>	<p>www.hufcor.com</p> <p> 186</p>

<b>Smith &amp; Hawken</b>	
<b>Lounging Furniture</b>	<b>800-423-0117</b>
 <p>12 Furnishings</p> <p>Like all of its famous Premium Teak™ furniture, Smith &amp; Hawken crafts new Avignon™ Lounging with traditional mortise-and-tenon joinery that stays rock-solid. Though patterned after formal indoor pieces—with gentle arches, rounded fin edges, and scrolled arms—Avignon's weather-deflecting teak construction allows it to remain outdoors year-round without care. Whether specified for a residential patio or commercial hospitality setting, the extra-thick, Sunbrella®-covered cushions provide guests with a luxurious level of comfort. Premium Teak is ecologically harvested from Javanese plantations—making it a sound environmental choice. Ask about substantial discounts offered to Trade customers.</p>	<p>SmithandHawkenTrade.com</p> <p> 189</p>

<b>Gaggenau</b>	
<b>Built-In Kitchen Appliances</b>	<b>800-828-9165</b>
 <p>11 Equipment</p> <p>Five-star restaurant cooking capacity, cutting-edge design, and Gourmet Spa Cuisine—Gaggenau embodies every gourmet's fantasy through innovative built-in kitchen appliances. AH 600 Kitchen Hood: Exclusive Coanda Effect ventilation technology silently eliminates virtually all vapors and odors. Experience ultimate cooking results with Gaggenau's KG 291 36-in. stainless steel gas cooktop: Five high-performance precisely controllable brass burners, a three-flame ring wok burner with 17,000 powerful BTUs, and a spacious workspace with 15-in. pan capacity. Professional technology—optimally controlled heat and super-sensitive calibration.</p>	<p>www.gaggenau-usa.com</p> <p> 187</p>


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<b>New Holland Church Furniture</b>	
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<b>Finlandia Sauna Products, Inc.</b>	
<b>Precut Saunas</b>	<b>800-354-3342</b>
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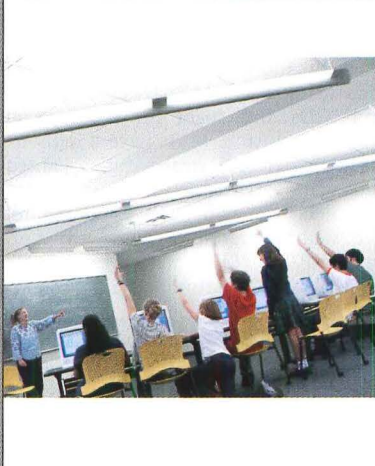


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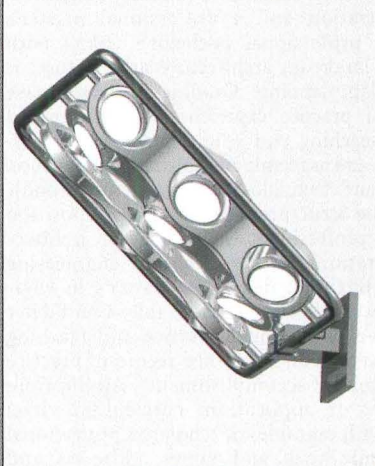


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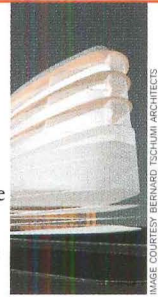
The United States Army Corps of Engineers-Baltimore District is soliciting for a Design Architect for the National Museum for the United States Army, which has an estimated Construction value between \$250 to \$300 million. Forms 254 & 255 are due from interested firms No later than 16 April 2004. For details see solicitation number W912DR-04-R-0029 in the Federal Business Opportunities posted 17 March 2004.

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William J. Mitchell, professor of architecture and media sciences, Massachusetts Institute of Technology



**April 8  
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Principal of Bernard Tschumi Architects, New York

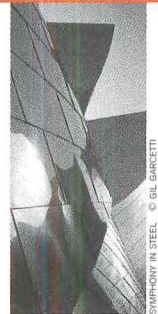
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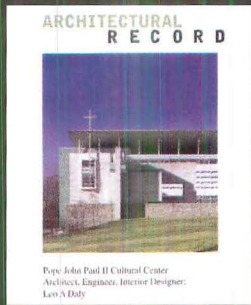
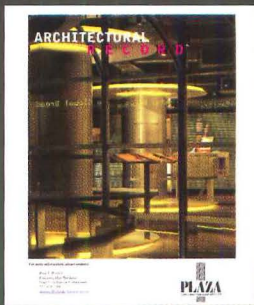


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## The Campanas: Designing objects with tropical influences and universal appeal

Interviewed by Josephine Minutillo

*RECORD caught up with designers Humberto and Fernando Campana inside their Ideal House exhibition at the Cologne International Furniture Fair this past January. (For more on the Cologne fair, see page 214.) The Brazilian brothers created a house that, like much of their work, drew inspiration from the streets of their native São Paulo. The simple structure reflects the spontaneous architecture of Brazilian cities by combining organic materials and found objects into an edifice that springs to life seemingly effortlessly. The Campanas' bold furniture designs, particularly for the Italian manufacturer Edra, combine everything from garden hoses to scraps of wood into unexpected but visually stunning forms. A major exhibition of their furniture and object designs will be presented this summer at the Design Museum London.*

**Q:** Briefly describe your approach to designing the Ideal House.

**HC:** Our concept for much of what we design is to take something that looks very poor or banal and give it nobility. We observe how some communities in Brazil, although economically poor, are creatively wealthy, making beautiful yet useful objects. We also try to point out different possibilities and ways of creating. For example, the straw we used in this house is an alternative material to wood—to cutting down the noble trees of the Amazon.

*How did you come to work together, and what is the relationship like?*

**FC:** I began as an architect, but my eyes were always more focused on objects than buildings. **HC:** I was a lawyer, but I was fascinated with design.

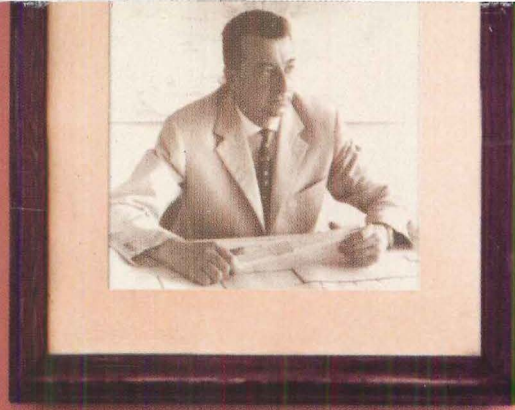
Back in the 1970s, there were incredible design exhibitions in the art museum in São Paulo curated by Lina Bo Bardi and Pietro Maria Bardi. Those shows moved me. When my brother graduated, I had already started a small studio making sculpture and jewelry. He came one day to give me a hand and saw opportunities to express himself. Since then, we have worked side by side. What's really strange is that we've developed this sort of mimetism. It happens frequently that we'll arrive at the studio wearing the same thing.

*Can you describe the process involved in creating your designs for Edra?*

**HC:** We have a creative relationship with Massimo Morozzi, the art director at Edra, where we are always exposing each other to visually stimulating and inspirational environments. It's a simple process, really. With the garden hose chair, for example, we made a prototype and sent Edra the pictures, showing step by step how to weave it together. **FC:** This also brings humanity to the design. The Favela chair is being made here in Brazil, so it's a social project, as well. It was funny explaining to the factory workers the chaos we wanted to translate into that chair. We took them to the garbage area where all the scraps of wood were chaotically piled and told them it was this disorder that we wanted to recreate. We asked them to be imprecise when building it and to exert their own creative freedom. We showed them the shape we wanted, and they put it together with the recycler slats of wood. Each one is unique in that way.

**Photograph by Adriana Zehbrauskas of Humberto Campana (left) and Fernando Campana (right) seated in their Vermelha chair for Edra**





“...AFTER SOME COAXING  
HE KINDLY AGREED.”

- ann sacks



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Last fall I was in a bit of a conundrum. I needed to add some warmth and character to my glass programs, but the trend in glassmaking had long been away from the rustic and towards the highly refined. So I went to the Bisazza family of Vicenza, Italy, for advice. Marco Bisazza's family founded its prestigious glass company in 1956 just outside of Vicenza in the romantic town of Alta di Montecchio—the purported home of Romeo and Juliet—where they started out hand-pouring glass into handmade molds. Over the years they had evolved their process to become

world-renowned for vibrant glass tile manufactured to perfection. But I was interested in their past. I wanted handcrafted edges and a more translucent color. Always the gentleman, Marco listened attentively and after some coaxing, he kindly agreed. I was ecstatic. He arranged for the original Bisazza equipment to be unearthed and its founding artists to be called in. I couldn't wait to see the samples, and when I did, it was love at first sight. I named this lustrous program Loom because you can see the gentle movements of its colors as if woven by hand.

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