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On the Cover: *Wall House*, by Sean Godsell Architects. Photograph by Cristobal Palma.
Right: *Dairy House*, by Skene Catling de la Peña. Photograph by James Morris.



News

- 29 **Fire guts Villa NM**
- 30 **Graves tapped for “architectural Peace Corps”**
- 34 **Johnson’s Ball House to dodge wrecking ball?**
- 36 **Midcentury design at risk in New Orleans**

Departments

- 21 **Editorial: Record Houses 2008**
- 23 **Letters**
- 49 **Archrecord2: For the Emerging Architect**
- 53 **Critique: A look at two museums** by Robert Campbell, FAIA
- 57 **Commentary: The land of super plenty** by Elizabeth Farrelly
- 61 **Books: The evolution of the domestic landscape**
- 65 **Trade Show Review: Cersaie** by Julie Taraska
- 69 **Practice Matters: Taking on owner’s rep work** by Alec Applebaum
- 71 **Snapshot: Mimetic House** by Ingrid Spencer
- 185 **Dates & Events**
- 208 **Backpage: Max Levy, FAIA** by Jennifer Richter

Features

- 78 **True Green** by Alastair Gordon
Taking cues from counterculture architecture of the 1960s and ’70s.

Projects

- 87 **Record Houses 2008** by Christopher Hawthorne
- 90 **Glenburn House, Australia** by Leon van Schaik
Sean Godsell Architects
Like a ship, a rust-red steel box slices through swells of earth.
- 98 **Wall House, Chile** by Jeannette Plaut
FAR frohn&rojas
From rough core to fine shroud, four sets of walls enclose a house.
- 104 **Palmyra House, India** by Prathima Manohar
Studio Mumbai
Local resources and labor combine to make a sublime abode.

- 110 **Nora House, Japan** by Naomi R. Pollock, AIA
Atelier Bow-Wow
Drawing on tradition to find a suburban housing solution.
- 116 **Maltman Bungalows, California** by Christopher Hawthorne
Drisko Studio Architects
Reviving the timeworn “bungalow court” for the 21st century.
- 120 **H16 House, Germany** by Suzanne Stephens
Werner Sobek Engineering and Design
A Minimalist house carries forward a Modernist legacy.
- 126 **VH R-10 gHouse, Massachusetts** by Beth Broome
Darren Petrucci Architect
A “big little” residence redefines vacation guesthouse living.
- 134 **Rolling Huts, Washington** by Jane F. Kolleeny
Olson Sundberg Kundig Allen Architects
A colony of wheeled shelters dot the landscape like prehistoric RVs.
- 138 **Dairy House, England** by Diana Lind
Skene Catling de la Peña
A renovation and extension bring new life to an old cheese factory.

Architectural Technology

- 148 **Rapidly Renewable Materials’ Complex Calculus** 
by B.J. Novitski
The involved process of evaluating alternative building products.

Products

- 167 **Concrete & Masonry**
- 170 **Product Briefs**
- 178 **Product Resources**
- 192 **Reader Service**

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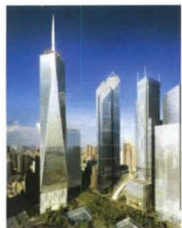
unbuilt houses

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videos

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archrecord interviews

We speak with Skidmore, Owings & Merrill's Carl Galioto and Paul Seletsky, two of the architecture profession's leading experts on building information modeling. The pair discuss how BIM facilitated a major redesign of the Freedom Tower (left), explain its potential benefits for smaller practices, and address common misperceptions.

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comments

"Like much modern architecture of late, there is no 'entry.' As soon as one arrives, one is exposed immediately to the 'money shot,' in this case a full view through the house out to the ravine in back."

and more ...

residential: house of the month

In this popular online section, we look at a beachfront home in California by the firm ARCHITECTS hanna gabriel wells. The house is designed to meld inside and out while maintaining privacy. Read the story, see a slide show, and comment on the project.



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View Web-exclusive slide shows of work by Bauenstudio (below), a Boston-based firm, and DesignBuildBLUFF, a learning lab that gives students the opportunity to create functional and beautiful houses on the Navajo Nation Indian Reservation.



continuing education



Get CE credits by reading editorial articles and sponsored sections online. This month, we look at rapidly renewable materials such as bamboo (below) and explore how to evaluate their benefits and environmental impact.



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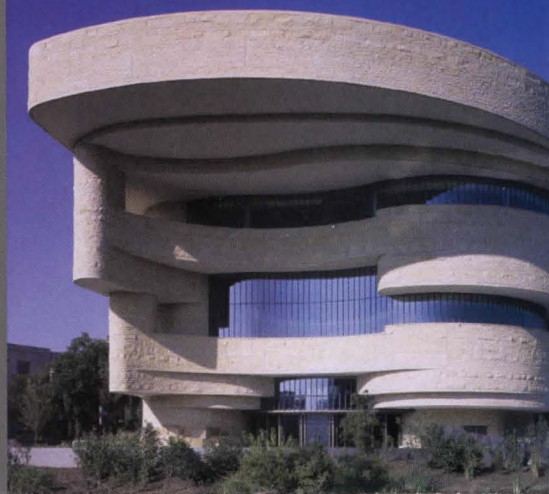
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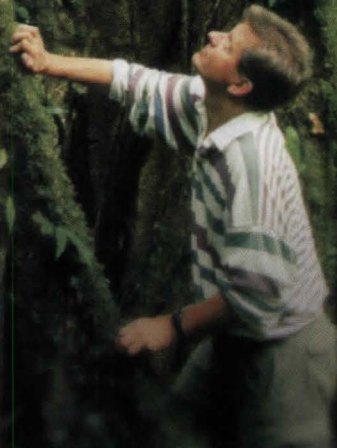
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Editorial

By Robert Ivy, FAIA

April 2008 counts as a transformative moment. In less than a year, oil, which had hovered around \$60 per barrel in 2007, has broken the \$100 ceiling and is still climbing. Global warming continues to wreak immense consequences on the planet. After more than 50 years of Record Houses, the time has come to consider how the individual house can help mitigate, if not solve, the problems it unwittingly helped to create.

Building on our determination last year to provide environmental assessments of the projects in ARCHITECTURAL RECORD, we now address Record Houses. The issue that you hold in your hand, or see on the screen, adds sustainability as a defining criterion for every Record House. However, the term sustainability shifts in meaning, depending on where you stand.

For some, a green house might have to meet highly defined criteria as enumerated by others, such as the LEED program promulgated by the United States Green Building Council. LEED for homes extends from market-rate houses through “affordable new single-family or low-rise multifamily homes,” according to the current literature. Renovations are included. Other programs are vying for attention, including that of the National Association of Home Builders, which has launched a National Green Building Standard, giving builders an online, points-based tool.

However you define the term, one fact is clear: More people care about making their own homes sustainable. A recent survey by the AIA found that “90 percent of respondents said they would be willing to pay \$5,000 more for a house that would use less energy and protect the earth.” But how to parse through the greenwash pouring in every day? A body of literature is growing to address the growing interest in sustainable housing.

Among the most helpful texts, and representative of the genre, the chockablock book *Ecohouse*, by Sue Roaf and others, now in its third edition, has helped give a rounded perspective to designers, builders, and owners for seven years. Filled with categorization, data, charts, and how-tos, Roaf’s work comprises a kind of granola textbook on the green house, while illustrating how systems within our homes work, from normal houses to the thermally layered igloo.

In its hefty pages, *Ecohouse* examines a variety of residential attributes, including environmental impact, building envelope, ventilation, as well as systems such as passive solar, photovoltaics, solar hot water, hydropower, small-

scale wind, groundwater heat pumps, and lime and low-energy masonry. Additionally, the author includes humane values such as “health and happiness,” a broader understanding of green houses than the pragmatic.

Roaf argues that we have evolved beyond the limitations of Modernism (as slick or chic as the houses in *Dwell* might seem). Seen through the filter of her understanding, we need to advance from the retro-worship of the “machine à habiter” of Le Corbusier to residential “adaptations” that meet today’s complex demands. “At the heart of all these ‘adaptations’ is the robust, resilient, and safely located ecohouse, powered by renewable energy and embedded in a strong community,” she notes.

And what defines the Record Houses 2008? Are they ecohouses, machines, or anomalies? For the April issue, we invited a guest curator, journalist Christopher Hawthorne, the architecture critic for the Los Angeles Times, who has written his own book on sustainable residences, *The Green House: New Directions in Sustainable Architecture* (with Alanna Stang). After scouring the best and most interesting ideas and houses from around the globe for ARCHITECTURAL RECORD, aided by contributor Diana Lind, Hawthorne arrived at his own point of view, represented here.

Still, we wondered, in focusing so intently on sustainability, would we be promulgating houses that violated our traditional notions of the beautiful? Or would we make unanticipated discoveries, such as houses that explored unique approaches to the vernacular? On this side of the process, we can admit that our own preconceptions shifted like a riverbank, away from assuming that we would be embracing houses shaped like yurts to a more sophisticated position—structures that combine sustainable characteristics within the fabric of real architecture. Ecohouses, if you will.

Record Houses began its own adventure more than 50 years ago in high optimism. We have been reenergized to think of alternative ways of living for a new generation that will enhance health, provide security, offer constant delight, and spark the joy of living, while leaving a minimal footprint on planet earth.

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Letters

Firm commitment

I was pleased to find B.J. Novitski's "Practice Matters" column [March 2008, "Opportunity is the key to hiring and retaining talented staff," page 71], sandwiched between critiques and narratives about numerous projects that we all know required many late nights, week-ends, and the occasional all-night charrette to accomplish.

Architectural firms committing resources to the intellectual and emotional development and well-being of their employees is a way to balance the commitment and personal sacrifice long expected in the field. Often it seems that architects are expected to be happy at their jobs because they love what they do. The trend toward firms providing such development programs, within and outside of the workplace, gives employees a sense of value, beyond pleasing the clients and meeting the deadlines and budgets. Fair salaries and benefits are crucial—and the fact that they have improved in our profession is positive—but seldom is money the reason that anyone stays in a position or pursues a new one.

Kudos to Perkins + Will, Cannon Design, Anshen + Allen, and the many unmentioned firms that are designing cultures that foster such camaraderie and inspiration. I just hope that these trends, which grew out of this tight market for talent, become the standard for our industry.

—Lisa Gallo
Manhattan

Inside Interiors

B.J. Novitski's practice column was a useful adjunct to your major project profiles and provided a compelling message to firm principals on how to address staff retention. In the same issue, Martin Filler ["Debunking a myth about muse-

ums that pay for themselves," page 53] and Joseph Giovannini ["Subject and Object: Museums After Bilbao," page 83] also both wrote coherent and comprehensible museum essays with well-turned phrases. Alas, writing in the issue became inscrutable toward the end of the book with "newspeak" in the Interiors section [page 171].

While I'm sure the writers and editors for the Interiors section think pretty clearly, I'd say fatuous (a word I rarely have occasion to use) best describes their convoluted museum pieces. Isn't there some disconnect between the headline: "FG Stijl creates coziness for the dining spaces of BMU Welt" and the accompanying photo of a cavernous restaurant interior? I've always expected writing to both inform and enlarge our understanding—these articles do not seem to accomplish this.

—Norman Rosenfeld, FAIA
Via e-mail

Two schools

Martin Filler's Critique on current museum design influences reminds us that in our constantly shifting world of art and architecture, we have room for all schools of design. Traditional and Modern buildings can both run over budget, and committees for both can be charged with picking the architect for the wrong reasons. The great part is that both design paths can also produce very successful and beautiful buildings. Filler's using the New Museum of Contemporary Art in New York as an example of success is telling only half the story—especially when the facility opened to lackluster reviews from many art-world critics (was it the art or the architecture?) despite SANAA's striking, bold exterior.

It would be a boring world if Renzo Piano designed all of our museums. I think we should relish

the diversity of current museum design around the United States and be happy that our museums don't reflect the banality that we have in our housing and commercial markets.

—Joseph A. Auld, Assoc. AIA
New York City

Congratulations to ARCHITECTURAL RECORD for adding the voice of Martin Filler to your fine group of columnists. I believe he will prove to be an influential voice in the profession, as it turns from its romance with fashion to confront the problems of our developing world. I look forward to reading his quarterly status reports.

—Jim Hadley
Orleans, Mass.

Museum form and function

Joseph Giovannini's piece on the community impact of new museums such as Frank Gehry's Guggenheim in Bilbao emphasized an issue that I've been attuned to over the past few years with museums designed by "star" architects: the apparent conflict between architecture as sculpture and architecture as a functioning enclosure. From the point of view of bringing outsiders to Bilbao, the Gehry building is a smashing success. Combined with Calatrava's wonderful curving bridge just upstream and the narrow and engaging streets of the old part of town, a visit to the city is well worthwhile. However, the museum also emphasizes the difference between a building as sculpture and a building as functional enclosure of usable space. In my view, the galleries in the Bilbao Guggenheim are not particularly good spaces in which to view art.

Similarly, Calatrava's sculptural addition to the Milwaukee Art Museum caused me to make the trip to experience this unique build-

ing. Interestingly, most of the art in this surprisingly eclectic collection is in the older building to which Calatrava's addition is attached. The galleries in the Calatrava addition were being used primarily for a special show.

On the other hand, Richard Meier's Getty Museum in Los Angeles is both a very interesting grouping of buildings (which create interesting exterior and interior spaces) and an effective facility for displaying art. For me, the upper, daylight galleries are some of the best spaces for viewing art that I've experienced, and I love the fact that the lighting is controlled by sensors that gradually and seamlessly turn on artificial lighting as the daylight wanes. One of my favorite combinations of iconic architecture and effective gallery design is Renzo Piano's addition to Meier's High Museum in Atlanta. Piano steps back, allowing Meier to have the signature building. Piano's addition is subdued, but again, a wonderful space for viewing art.

I'm all for good architecture that increases the stature of architects among the general public, and Gehry's sculptural works certainly have done that. But I also believe, in the words of my mother-in-law, "what good is architecture if the building doesn't do well what it was planned to do?"

—James T. Biehle, AIA
Kirkwood, Mo.

Corrections

A caption accompanying a photo of Randall Stout's Art Museum of Western Virginia in the essay "Subject and Object: Museums After Bilbao" [March 2008, page 53] mistakenly listed the museum's location as Roanoke, West Virginia. It should have read Roanoke, Virginia.

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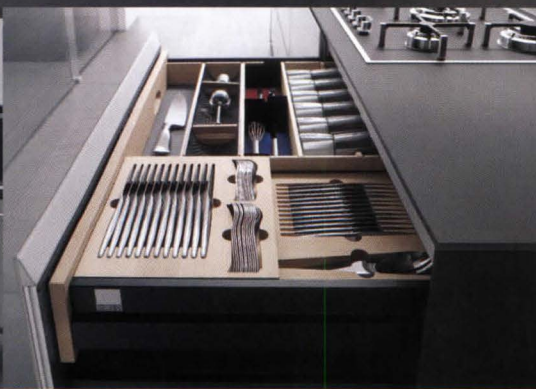
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p.30 HUD funding FEMA trailer research

p.36 New Orleans Moderns at risk

p.38 Architect of Capitol job still vacant

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Fire guts ViLa NM



ViLa NM (above) is now in ruins (right).

New York's Kenoza Lake is a sleepy Catskills hamlet where activity all but stops during winter. The seasonal quiet was broken on the evening of February 5, when fire engulfed ViLa NM, the first American building completed by the Amsterdam-based architects Ben van Berkel and Caroline Bos of UNStudio.

ViLa NM was one of Kenoza Lake's newest structures—and certainly its most daring. Despite its

relatively modest scale, the design is a bold ensemble that, in turns, cascades down a hillcock and projects from it,

its rectilinear volumes arranged around a twisting midpoint reminiscent of UNStudio's earlier Mobius House. The house featured a hybrid structure of steel studs mixed with wood rafters, joists, and studs, plus a concrete deck and foundations; the exterior skin was prefabricated contoured-steel panels and gold-tinted glass.

Covering ViLa NM for Record Houses 2007, Suzanne Stephens

wrote, "Not only does the new prototype assume a more complex spatial relationship to the land, it creates quite a different interior environment." The house's propellerlike pivot point expresses itself in the interior stairwell, and rooms taper like fins.

By the time neighbors reported the blaze, says Richard Martinkovic, the Sullivan County fire coordinator, ViLa NM had already neared total conflagration—and significant ice accumulation on the property's narrow, curving driveway prevented crews from arriving more quickly. The destruction of the residence, he says, "makes it that much harder to do a fire investigation. Nobody was in the structure when it started, and we have no eyewitness account of where it may have started."

Martinkovic adds that, to his knowledge, ViLa NM did not have a hard-wired fire alarm. Approximately 1,500 structure fires take place in the county each year, ranging from minor appliance fires to blazes involving entire buildings.

Art Hawker, a member of the Sullivan County Fire Investigation unit, says that his team is working with an insurance-company-provided electrical engineer to determine the cause of the fire. Arson has become less frequent in recent years, he adds, although "at this point, we're objective and will keep our minds open to any and all possibilities." As of mid-March, the investigation remained open, and the team had no further leads as to the fire's cause.

Asked in February whether he would consider rebuilding ViLa NM, the owner of the house declined comment. *Joan McNair*

Gehry's Winton Guest House finds new home

A whimsical guesthouse designed by Frank Gehry, completed in 1987, will be moved from its site in Orono, Minnesota, to the University of St. Thomas's Daniel C. Gainey Conference Center in Owatonna, Minnesota. Although preparations began in February, the move is scheduled for this summer and needs approval from Steele County officials, according to Kirt Woodhouse, a real estate developer who donated the residence to St. Thomas to ensure its preservation.

Gehry's innovative yet playful 2,300-square-foot house is composed of a series of diminutive spaces clustered together under various sculptural forms: a pyramidal roof defines an atrium; a wedge-shaped space shelters the bedroom and bath; a curving trapezoid

shapes an office; a cube encloses a cozy fireplace alcove; and a rectangle encloses the kitchen and garage. The exterior materials include a simple palette of brick, Finnish plywood, black sheet metal, Minnesota dolomite limestone, and galvanized sheet metal.

Mike and Penny Winton, the original clients who commissioned the guesthouse from Gehry, sold it as well as their main residence, a 1954-vintage house by the Philip Johnson, to Woodhouse in 2002. He divided the 12-acre property into three separate lots, selling the Johnson-designed residence soon after. Woodhouse decided to preserve Gehry's contribution, meant to complement that brick-and-glass structure, as a work of art and began to hunt for an appropriate public site.



A Gehry house will move to the U. of St. Thomas.

"Art of this caliber is meant to be enjoyed by the public. My hope is to inspire greater appreciation of modern art, which comes in many forms, including a house," Woodhouse says, adding that the St. Thomas purchase will secure his wish. The university will offer public tours of the building and use it for meetings and social gatherings.

Rolf Anderson, a past president of both the Preservation Alliance of Minnesota and the Minnesota

Society of Architectural Historians, notes that while it is remarkable to see two such iconic houses side by side at the former Winton property, "since the Gehry house is architecturally significant, it will retain its significance even if it is

moved." He adds that moving the guesthouse will be a major challenge, because each component has distinctive massing and materials.

The house will be divided into eight sections, each one trucked separately to the new site, 75 miles away. Costs of moving and reassembling will be paid for by Woodhouse; estimates have not been released. The guesthouse is appraised at approximately \$4.5 million. *Bette Hammel*

Graves tapped for “architectural Peace Corps”

Michael Graves, FAIA, has channeled many avatars during his career, from one of the academically minded New York Five in the 1970s to a populist product designer for the retailer Target. After a bacterial infection paralyzed him from the waist down in 2003, the now-wheelchair-bound architect seeks to be a champion of universal design, a movement that advocates creating spaces and products that any person, regardless of physical ability, can use.

The American Institute of Architecture Students (AIAS) recently appointed Graves as the honorary chair of its “Beyond

Architecture” campaign, which aims to establish a \$2 million endowment to support its Freedom By Design program (FBD), among other initiatives. FBD enlists architecture students to renovate houses for low-income and disabled people. The AIAS had already raised half of its goal as of January, when Graves joined, and it hopes that his affiliation will be a driving force in raising the remaining amount.

Since the AIAS launched six pilot FBD projects in 2004, the program has expanded to include participation from 55 AIAS chap-

ters, each expecting to complete between two and six projects a year. Teams of students from the chapters pair with architects and construction specialists. Graves volunteered to mentor five teams during 2008. Likening the FBD program to a kind of architectural Peace Corps, he says it is “high time that something like this happened.”

One of Graves’s teams is building the largest FBD project to date, pursued in conjunction with the American Association of Retired Persons: Nine students from the University of Maryland are renovating a vacant property in Washington, D.C., to house six low-income seniors. The students are transforming a below-grade, 19-foot-by-18.5-foot garage into a wheelchair-accessible, one-person living unit that includes a bedroom, bathroom, and laundry. “It’s

our first opportunity to do something real and basic,” says team leader Michael Langford, a senior at the University of Maryland. “We get to learn about the construction process by being a part of it.”

Having taught at Princeton University for 39 years, Graves knows that architecture-school curricula often have gaps regarding issues such as universal design. “It’s all about conceptual design at these schools. I think we’re barking up the wrong tree if we try to change it.” Instead, he hopes that programs such as FBD can begin to shift attitudes about designing for the disabled. “We need people to see this as an opportunity, not as a requirement. And we need people to take advantage of this opportunity.” *Henry Ng*

FEMA testing alternatives to flawed trailers

Some three years after hurricanes Katrina and Rita swept through the Gulf of Mexico, temporary housing provided by the Federal Emergency Management Agency (FEMA) remains in the news. This winter, the Centers for Disease Control and Prevention reported dangerously high levels of formaldehyde in some of the thousands of FEMA trailers sent to the Gulf, adding urgency to the agency’s efforts to resettle vic-

tims. As the fallout continues, federal and state agencies are weighing new approaches to emergency shelter.

FEMA’s Alternative Housing Pilot Program (AHPP), authorized by Congress in 2006, provides \$400 million to Gulf states for the development and testing of new forms of emergency shelter, some of which is designed to form the basis of permanent housing. The alternative shelters

represent a rethink of the standard-issue FEMA trailers, which were typically deployed in isolated camps, cut off from the communities they were meant to revive. Projects such as the Katrina Cottage and the Green Mobile emphasize modular construction, mobility, and sustainability. Some AHPP prototypes also address community building.

Among the hundreds of thousands of people displaced by the 2005 storms, several thousand are living in these new dwelling types. The Department of Housing and Urban Development (HUD) is sponsoring a pair of tracking studies of them: One is conducted by the National Association of Home Builders (NAHB) to assess the performance of the structures and materials; the other, conducted by Abt Associates, is monitoring how well people are served by the various designs. “This is the first significant, serious, systematic effort to look objectively at alternatives to the way we’ve handled disasters in the past,” says Mike Luzier, president of the NAHB Research Center.

The NAHB study will evaluate the alternative structures’ durability, indoor air quality, energy use, as well as resistance to pests, UV radiation,

and moisture, explains project manager John Peavey. Abt Associates, meanwhile, will survey residents to assess the quality of life in the units, according to company economist Larry Buron. Depending on the size, type, and grouping of units in a given project, Buron adds, “We’re going to ask things like, ‘Were you able to regroup as a family because you’ve got a larger unit, or access to services?’ and, ‘Will the transition be smoother if residents sense [the shelter] is permanent?’” Abt Associates will also rate the units’ physical accessibility.

Of the \$400 million total in FEMA funds, Louisiana, Texas, and Alabama all garnered a share, with Mississippi securing a hefty \$280 million. Critics suggest that Mississippi’s Governor Haley Barbour, the former chairman of the national Republican Party, was in a position to lock up more money for his state. FEMA officials, though, say that awards were based on the merits of each proposal and that an internal investigation found no undue political influence.

Both studies began last fall and will run for 42 months. HUD will report their findings to Congress and FEMA. *Ted Smalley Bowen*

After the Flood on view in Los Angeles



Maps depict NOLA’s socioeconomics.


Architecture and Design Museum on April 18. Curated by Christian D. Bruun, with the help of Jens Holm, the show explores the environmental, urban, and social history of New Orleans—as well as the devastation wrought by Hurricane Katrina [RECORD, November 2006, page 59]. *After the Flood* also presents proposals for replacement single- and multifamily housing. Since 2006, under the auspices of the U.S. State Department, the show has traveled to Thailand and Panama. It remains in Los Angeles until June 27. *James Murdock*

After the Flood: Building on Higher Ground, an exhibition organized by RECORD and Tulane University for the U.S. Pavilion at the 10th International Venice Architecture Biennale in 2006, opens at Los Angeles’s A+D

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The Sagaponac effect: Modern subdivisions multiply

Nilay Oza, a project architect for the well-known Houses at Sagaponac, in the Hamptons on Long Island, has found that real estate developers want to emulate this Modernist enclave. "I advise people about economies of scale, and finding constants between different designs," he says of phone calls he's fielded from throughout the U.S.

Although only seven of the 32 planned Houses at Sagaponac are finished, developers are citing that and other precedents, including the New Urbanist community Aqua, in Miami, Florida, and Prospect New Town, in Colorado, for their own projects. American Institute of Architects chief economist Kermit Baker, Hon. AIA, calls these schemes "very 2003 or 2004, in that they express this sky's-the-limit mentality that as opposed to today's realities." Yet he and developers believe this extremely small niche could better withstand the housing downturn than more traditional single-family products.

Dallas is home to two such clusters. Matt Holley, C.E.O. of the company Skymodern, which is developing a Modernist subdivision just south of the Trinity River called Kessler Woods, says that when, in 2002, he began purchasing the parcels that comprise the project's 18 acres, his research showed that "midcentury houses were on the market for the shortest period, and they were selling at the highest price points." Of the 30 lots in Kessler Woods' first two phases, nine houses are occupied and five more were scheduled for completion in March. Skymodern's in-house architects began working with Hammers + Partners: Architecture and Clifford Welch Architect to design house concepts and tailor them to presale buyers, and it has since expanded its roster of collaborators. "I believe a variety of architects is better for a project than one—you get a broader array of designs—as long as every-



one is guided in the same direction," Holley says. Residences range in size from 2,100 square feet to 4,300 square feet, and the designs are ensembles of mostly rectilinear volumes that emphasize courtyards and other outdoor areas; they sell for as much as \$400 per square foot.

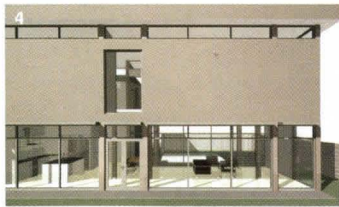
On the opposite side of Dallas, Diane Cheatham assembled 14 neglected, hilly acres to create Urban Reserve. Cheatham, owner of Urban Edge Developers and CCM General Contractors, in 2005 determined to "create a neighborhood where the common thread between residents is a passion for Modern architecture," explains Urban Edge vice president Rick Fontenot. Half of the 50 lots are presold, and 12 residences are either already finished or under construction. When the project began, purchasers could choose to commission one of 20 approved architects; Fontenot says that now the company also is offering lots for sale as well as developing eight Collection Homes at the site. These spec projects, by both national and local firms, have adventurous moments: Color Clock House, by Max Levy, FAIA, is topped by five colorful light monitors oriented to different directions; and for the Go-Go House, KieranTimberlake designed a tessellated stairwell volume. Houses range from 2,164 square feet to 3,927 square feet, and start at \$699,000.

Unlike its Texas peers, Sarasota's forthcoming Houses of

(1) Kessler Woods; (2) 12 Houses; (3) Urban Reserve; (4) Houses of Indian Beach.



ate Modernist subdivisions in the marketplace, Baker says, "and there is a lot of talk that that niche works when the market is soft." While Baker imagines sales slowing as buyers wait out the current devaluation trend, he does think that America's small number of Modernist subdivisions will endure the popping of the housing bubble. "After all, this is an audience that likely has a good credit history and no financing problems,"



Indian Beach will be designed solely by Guy Peterson, FAIA, who is also co-developer of the 23 lots. In addition to sharing similar

material palettes and low-slung compositions, each house will relate to the next to achieve privacy, and every structure incorporates mostly passive sustainable design features. "It's hard to find a neighborhood that's not heavily deed-restricted from doing a Modern home," Peterson says of the challenge.

A major characteristic that differentiates the new crop of Modernist subdivisions from predecessors such as the Houses at Sagaponac is their adherence to green principles. Kessler Woods residences feature Minimal west-facing glazing, foam insulation, and low-emissivity window glass; more recently, Holley says he has incorporated native drought-tolerant landscaping and rainwater-capture features, and worked with community officials to revive a trolley line to serve the subdivision. Urban Reserve's streets are narrower so there is less storm runoff, and all houses are required to achieve at least basic LEED certification.

Besides the obvious ethical responsibility of going green, these requirements further help differenti-

he notes. "They're not going to be stretching themselves to buy this home." For his part, Holley has faith in consumer preference: "People are willing to spend money for something that's distinctive and special."

The exceptional aesthetic and durability of these projects would explain why, even though the economic mood has shifted dramatically since 2004, developers are still moving forward with Modernist subdivisions. In Oklahoma City, for example, Lorcan O'Herlihy has begun the initial phases of designing an ecologically minded subdivision that creates diversity from just several prototypes. The project is based on 12 Houses, a 2006 concept for a rugged site in Los Angeles featuring four prototype residences boasting low-water usage, xeriscape rooftops, and minimal foundations, but which was not realized when the developer sold the land for unknown reasons.

In Miami, developer Craig Robins imagines soon embarking on a venture even more ambitious than his Aqua concept, this time featuring freestanding residences and "more architectural freedom and diversity." Of Modernist subdivisions' durability during a recession, he says, "Nothing completely overcomes the market. But when there is a heightened sensitivity to place, quality, and community, there will always end up being more value over time." *David Sokol*



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Johnson's Ball House to dodge wrecking ball?



Johnson's other New Canaan house.

Philip Johnson was perhaps the most famous of the Harvard Five and the only one of these noted midcentury Modernists whose entire residential oeuvre remains standing. That distinction looked like it would change in January when a stay of demolition expired on his 1953 Alice Ball House, in New Canaan, Connecticut. In mid-March, the town agreed to a proposal that would allow owner Cristina Ross to build a new residence on the property in return for preserving the Johnson house—but this needs court approval and consent of a neighbor.

Ross bought the property in 2005 intending to use it as a pool house to accompany a new main residence that she hopes to build on the 2.2-acre lot. After the New Canaan Wetlands Commission denied her plans in 2006, she acquired the right to demolish the Johnson house; she finally won permission for a new residence last

month, provided that she agrees to save the Ball House. Prudy Parris, the Sotheby's broker for the property, says that Ross is anxious to find a buyer who will preserve the house. "[It] is a work of art and needs someone who will appreciate it as such," she says. Located on Oenoke Road, one of New Canaan's ritziest streets, the 1,700-square-foot residence is offered at \$3.1 million.

Stover Jenkins, author of *The Houses of Philip Johnson*, says that Johnson's design for Alice Ball, a single woman in the conservative 1950s, was influenced by Mies van der Rohe's unbuilt Resor House. It features 10-foot-high ceilings, glass-enclosed living areas, and private bedroom and service areas. "It's not one of Johnson's masterpieces, but it's part of a collection of houses he designed in New Canaan. That collection is unique. When you start demolishing parts of a group, it's like taking apart a community," he says.

Others disagree. "We shouldn't preserve these houses in amber; what's more important is the spirit in which they were built," says William Earls, AIA, author of *The Harvard Five in New Canaan*. "What are we doing now that will interest people in 50 years?" *Diana Lind*

Young residential architects invade Mongolia

The Chinese tycoon Cai Jiang has enlisted 100 of the world's most promising emerging architects to design a villa each for his new real estate development in Inner Mongolia, in the desert near the city of Ordos, some 400 miles west of Beijing. As part of a larger effort to establish an independent urban district on the outskirts of Ordos, he also has plans to build cultural venues and administrative buildings designed by celebrated architects.

Jiang has assembled an impressive group of advisers to help realize his goals. Jacques Herzog, a partner in Switzerland-based Herzog & de Meuron, consulted in the selection of the young architects. Ai Wei Wei, an artist and principal of Beijing-based FAKE Design, oversaw the master plan and the project's conceptual framework. And Xu Tiantian, of the firm DnA Beijing, designed an art museum, which opened in 2007. Among the 23 American architects chosen are WORKac, Teddy Cruz, LTL, nARCHITECTS, MOS, and Lyn Rice.

The master plan sets aside 100 residential lots, each of which will accommodate an approximately 10,000-square-foot, single-family house intended for buyers with a lot of disposable income and an appetite for contemporary arts. Although Jiang has provided a specific program—including the number of bedrooms per house, Western-style kitchens,

quarters for housekeepers, and indoor pools—designers are free to experiment within those guidelines.

The so-called Ordos 100 will be executed in two stages. The first group of 28 participants traveled to the site in January, while the second group will make their way to Mongolia in early April. They will be accompanied by the first group, who will present their schematic designs and, four weeks later, complete design development drawings. Chinese architects will generate construction documents, and Jiang's organization anticipates that construction on the first houses will finish by late 2008.

New York City-based Lyn Rice, who visited the site in January, is optimistic about the project's potential. Although he and others initially feared it "could turn into a bunch of architects trying to out-form-make the other, and that it could become a new type of gated community," these concerns vanished after his first visit. "These are thoughtful architects who are doing thoughtful projects, and none of us wants to see competitive form-making," he says, adding that the architects and developers agreed not to build any perimeter barriers in order to maintain a sense of openness. "This is something that belongs very much in the realm of experiment. It's going to be an especially interesting record of contemporary architecture." *John Gendall*

AIA names 2008 Housing Awards

The American Institute of Architects (AIA) named 19 recipients of its eighth annual Housing Awards program in March. The AIA recognizes outstanding projects in four categories: one- and two-family custom housing; multifamily housing; one- and two-family production housing; and special housing. Visit architecturalrecord.com for the names and images of the winning projects, and look for full coverage in RECORD's July 2008 issue. *James Murdock*

High society outshines high Modernism

When housing prices seemed like they'd never stop climbing, developers were using architects' names as selling points. Now they're hoping that Hollywood and royalty will lend a dependable air of glamour even in a down market. For instance, when Brett Buehrer and Jeremiah O'Connor brought to market their litigation-strewn, rental-to-condo conversion of Manhattan House, a Modernist



Grace Kelly

apartment block on New York City's chichi Upper East Side, they promoted it not as a masterpiece designed by Gordon Bunshaft, but as the one-time home of Grace Kelly.

The 1950 design by Skidmore, Owings & Merrill's Gordon Bunshaft and Mayer & Whittlesey stands as New York's most extensive effort to apply Le Corbusier's doctrines about vertical living to a luxury building. Although it has been declared a city

landmark, the building went through a whipsaw of suits and buyouts that left tenants angry and its public image bleak. So developers used Kelly's connections—a short residency and a family business that laid the original bricks—as the foundation for a new image. (Bunshaft lived there, too, but nobody's talking about that.) "A purchaser comes into Manhattan House and they sense quality," Buehrer asserts. He'd certainly hope so. After a \$150 million outlay on upgrades alone, the owners have more than 500 apartments to sell and are asking up to \$14 million apiece. *Alec Appelbaum*

FRUSTRATIONS OF A SCENT STICK

Being modern isn't as easy as it used to be. My friends and I used to qualify. I mean, our form meets our function, right? But no, that's not enough anymore. Now you're expected to last longer than the style movement you belong to. And you're not stylish unless you can help the environment. You're basically asked to be more modern than modern. Which grammatically I didn't think was possible.



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Can trim McMansions fatten architect wallets?

In a ruling that could help bolster the enforcement of zoning ordinances that cap house size, the Massachusetts Supreme Judicial Court recently upheld the authority of local communities to restrict overbuilding. Although the case is one of a handful around the nation to take up the issue so far, interest in smart growth and sustainability is increasingly focusing regulators' attention on house size—and this could ultimately accrue to the benefit of architects.

"It's a very telling sign that the court is addressing the significance of mansionization," says Lora Lucero, a staff attorney with the American Planning Association. "The justices focused on the negative impact on the neighborhood."

The Massachusetts court, rul-

ing in January, sided with the town of Norwell's zoning board in denying a developer's application to replace an existing house with a new one more than twice as large. The town had rejected the proposed teardown as a means of preserving the neighborhood's character, and to maintain its stock of affordable housing. The court affirmed the power of local authorities to restrict land use on the basis of such priorities.

The case dealt with a nonconforming lot, one that predates but does not meet current zoning criteria. As in some other states, Massachusetts law makes provisions for such properties, generally grandfathering the original lot and use but subjecting post-ordinance changes to review. The ruling has

implications for states whose laws don't directly address nonconforming lots and uses but, among other measures, provide grace periods for bringing properties into conformance or rely on case law. "This case does show that communities could look to their [inherent] police power," Lucero says.

For their part, property rights groups and many developers argue for a more laissez-faire regulatory approach. "You've got to have some balance between what's reasonable for the community and what the owner of the property could be allowed to do," says David Crowe, senior staff vice president at the National Association of Home Builders. If there's demand for larger houses near business districts or public transportation and greenfield development is restricted, for example, he suggests that property owners ought to be granted more latitude in expanding or rebuilding.

One market that could benefit from curbing supersize houses is the

design profession. Ordinances that steer developers and individuals away from cookie-cutter McMansions, or that require home builder's to finesse smaller footprints on oddly shaped lots and expand existing houses more tastefully, could increase demand for the services of an architect. "I have worked on projects where I've been hired because the zoning is too complex for the homeowner to work through, and going for a variance is too big a risk to take," says Frank Shirley, a residential architect based in Cambridge, Massachusetts.

Other observers caution that it takes more than regulations to encourage quality architecture. "It's not really about size, it's about design," says Jeremiah Eck, FAIA, a partner at Boston-based Eck/MacNeely Architects. "It has to be about artful decisions based in the craft of architecture with full participation by homeowners, designers—I didn't say just architects—an builders." *Ted Smalley Bowen*

Midcentury design at risk in New Orleans

New Orleans's 20th-century architectural heritage is at risk due to the public's desire to see the storm-damaged city rebuilt quickly and a general disregard for structures of the Modern era. That warning came from a panel of architects, critics, and preservationists who gathered in February for a public forum titled "At Risk: 20th-Century New Orleans Urban Design and Architecture." The event drew an audience of roughly 150 people largely sympathetic to the premise that many 20th-century structures are worth saving because of their architectural significance.

Several panelists noted that the city lacks a set of design standards that would improve the stature of Modern architecture. Jack Davis, a trustee of the National Trust for Historic Preservation, said that 20th-century architecture is vulnerable because the public lacks the protective impulse for contemporary buildings that it has for older build-



Whither Louisiana's Supreme Court Office Building (top)? R.I.P., St. Francis Cabrini Church (above).

ings in the French Quarter, Garden District, and other neighborhoods. And, he added, "the momentum since Katrina is pro-demolition because it's a sign of progress, a sign that something is being done."

Among the 20th-century edifices being demolished or proposed

for demolition are Charity Hospital, a 1930s Art Deco building; four of the city's largest public housing complexes, including the 1940s St. Bernard Houses; and the Louisiana State Supreme Courthouse and adjacent Supreme Court Office Building. Designed by the local firm of August Perez & Associates, and built in 1958, the courthouse was relegated to store-room status in 2004 when the state court moved to a Beaux-Arts building in the French

Quarter. At the time, the state government planned to renovate and upgrade the complex, but this changed after Katrina, which flooded mechanical systems in the basement and made renovations more expensive, says Jerry Jones, director of the Louisiana State

Office of Facilities Planning. He says that demolition is expected to begin by the end of 2008. Holly & Smith Architects, of Hammond, Louisiana, is designing a new state office building for the site.

Wayne Troyer, principal of Wayne Troyer Architects, is cofounding a New Orleans chapter of the preservation group DOCOMOMO, to help educate the public "on the importance of Modern buildings and how they interact with the fabric of the city." He is also urging the state to adaptively reuse the courthouse.

Another Modernist landmark already razed was the St. Francis Cabrini Church, in Gentilly. Completed in 1964, it was demolished last year to make way for a new campus for Holy Cross School, whose Ninth Ward campus was destroyed by Katrina. The church's architect, Arthur Q. Davis, added a personal note to February's forum when he described the distress that demolition causes architects: "We are outliving our buildings, and that's not right." *Shawn Kennedy*



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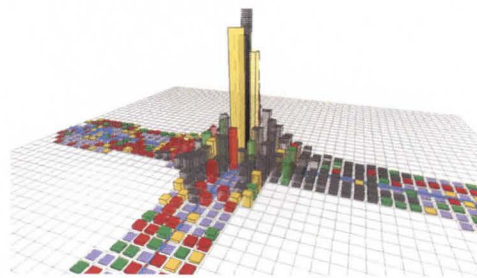
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GenerativeComponents comes of age

With the official release of GenerativeComponents as part of Bentley Systems' MicroStation platform late last year, this parametric design tool could be poised to move beyond its traditional user base at technologically advanced design firms and in academia. The shift from a long-gestating research project to a commercial product seems not to have diminished enthusiasm for parametric design tools, if this year's Bentley-sponsored Smart Geometry Conference is any indication. Roughly 400 people attended the March 5 event in Munich, at Coop Himmelb(l)au's BMW Welt [RECORD, March 2008, page 88], where designers from Grimshaw, Schlaich Bergermann, Zaha Hadid Architects, and others presented computationally driven work.

Manfred Grohmann, a partner of Frankfurt-based Bollinger + Grohmann and structural consultant on the BMW project, explained the design process for the cloudlike roof form, which involved applying virtual forces to its space-frame structure. Grohmann has been criticized by some of his peers for designing an interior foot bridge that snakes above the Welt's main level because part of this element pulls away from the load-bearing girder that makes up its structure. It may seem "absurd" from a structural standpoint, Grohmann said, but the bridge "achieves an optimization for the whole building" since it acts as a platform where visitors can take in the vast main hall.

Computational tools promise to make fabrication almost automatic for formally complicated projects like



Aedas's model explores how supertall towers relate to infrastructure.

A few speakers discussed the use of parametric tools for urban-scale design

and analysis. London-based Judit Kimpian, head of sustainability and advanced modeling at the multidisciplinary design firm Aedas, presented a dynamic model it developed in collaboration with the cost-consulting firm Davis Langdon. The model can be used to explore the impact of tall buildings on their environments. It shows that if mass transit infrastructure is not developed in tandem with a supertall building, much of the surrounding space must be devoted to parking. Kimpian hopes that the tool will help Aedas work with clients to make critical early design decisions. "The decisions that most effect sustainability are typically made in the first 1 percent of the project," she said. Joann Gonchar, AIA

the BMW Welt, but the construction industry isn't there yet. "The decision about how to fabricate [now] comes at the end of the process," said Fabian Scheurer, cofounder of Designtoproduction, a Zurich-based firm that helps designers realize geometrically complex projects. Scheurer worked on Hadid's Nordpark funicular stations in Innsbruck, preparing data for the computer-controlled machines that manufactured the 2,500 different polyethylene profiles that connect the stations' doubly curved glass cladding to steel substructures. "There is not enough research. Designers should understand manufacturing, but manufacturers should also understand the design process in order to exploit new markets."

With the AOC slot still open, AIA urges action

After a year has passed without a permanent replacement being named for the Architect of the Capitol (AOC), the American Institute of Architects (AIA) has stepped up lobbying to have the slot filled. Former AOC Alan M. Hantman retired in February 2007 after serving for 10 years. As required by law, Congress recommended three candidates to President Bush last summer. One, a controversial non-architect, has reportedly dropped out. Christine McEntee, the AIA's chief executive officer, wrote to Speaker of the House Nancy Pelosi in February urging that she "take the next step by ensuring the prompt nomination and confirmation of a qualified candidate."

Andrew L. Goldberg, senior director of federal relations at the AIA's national component, explains, "We believe that one of those two candidates should be nominated and confirmed so long as it's a licensed professional architect with good facility management experience—that's what's necessary."

Sources close to the process say that Stephen T. Ayers, the acting AOC, and Donald H. Orndoff, director of the Office of Construction & Facilities Management at the Department of Veterans Affairs, are the two contenders Bush is considering. But the president is not bound by law to choose either one. He could select someone else, or Congress could submit a new third candidate. The candidate who dropped out, sources tell RECORD, is Kemeil Dawkins, Duke University's vice president for campus services. Reached in February, he would neither confirm nor deny this, saying only "I'm not in a position to comment."

The AOC oversees nearly 2,200 employees and a \$414 million budget for fiscal 2008. The position includes managing food services and gift shops to overseeing construction and maintenance of the Capitol, congressional offices, the Library of Congress, the Supreme Court, the Capitol Visitor Center, and

other facilities covering 370 acres.

Both candidates are experienced managers and registered architects. Ayers is a former Air Force lieutenant who holds a B.S. in architecture from the University of Maryland and an M.S. in systems management from the University of Southern California. Orndoff, meanwhile, holds a B.Arch. from Virginia Tech and an M.A. in engineering science in construction engineering from the University of California, Berkeley. He worked for 29 years as a Naval officer, overseeing construction and facility management at navy bases.


The candidates were nominated by the Senate Committee on Rules & Administration and the AOC Commission, which includes Pelosi and other congressional leaders. That committee, charged with filling the vacancy, consulted with the AIA and the headhunter Heidrick & Struggles International before sending its three recommendations to the White House in August.

Hantman, the former AOC, says it took two years after he first applied

for the job until he was appointed by President Clinton. While presidential appointments account for roughly 500 jobs in the executive branch, the AOC position is just one of four such appointments in the legislative branch, including the Librarian of Congress, the Public Printer, and the Comptroller General.

Paul C. Light, a professor at New York University and a nonresident fellow at the Brookings Institution, says that a one-year delay in presidential appointments is not unusual and that the wait could even extend into next year and a new presidency. "This was the slowest administration in filling jobs since I started tracking the process looking back to the Kennedy administration," he observes. "This administration right now is locked in a war with Congress over appointees."

For its part, the AIA hopes that the process of filling the AOC slot will escape such deadlock. McEntee wrote in her letter to Pelosi that delays could hurt a number of important AOC projects. Barbara J. Saffir

A woman with long, wavy brown hair is standing in a bathroom, leaning against a white vanity. She is wearing a sleeveless, knee-length pink lace dress with a large white bow at the waist and a long, multi-strand pearl necklace. The vanity has a white sink and a chrome faucet. A large mirror is mounted on the wall behind her, and a vase with purple flowers sits on the vanity. The overall atmosphere is elegant and sophisticated.

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Record News ON THE BOARDS



Containers and cranes are being shipped out to make way for residents and workers in the **Light*house** district, a \$361 million waterfront redevelopment in Århus, Denmark. The Dutch practice **UNStudio** and the Danish firm **3XN** have designed a 15-acre, bicycle-friendly neighborhood

of apartments, single-family residences, offices, and shops. The project's most distinctive visual feature is its homogenous facade design. A branching network of balcony rails and sunscreens makes up the buildings's skin; these elements will be made of fibrous concrete or fiberglass. Jan Gehl, of local collaborator **Gehl Architects**, says that in creating the district, the designers attempted to create a fine city, not a collection of "single buildings yelling at each other." Light*house's iconic symbol will be a 466-foot-high apartment tower capped by a restaurant with a 39-foot-high glass canopy. The overall harbor redevelopment, master planned by Danish architect **Knud Fladeland**, will create 7.5 million square feet of new space for a residential and working population of 20,000. The tentative move-in date for residents is 2010. *Robert Such*

When the first phase of New York City's elevated High Line park opens in 2009, so will one of its most spectacular neighbors: **HL23**, a 14-story, 11-unit condo building that abuts the railroad-turned-greenway at 23rd Street. HL23 is the first freestanding building by Los Angeles-based architect **Neil Denari**. For a first, it presented a difficult site condition. The High Line runs over the plot on which HL23 will be erected, casting 8,000 of its 12,500 square feet in shadow. Denari ostensibly poured his design around the tracks. Evoking, vertically, the railway's subtle



curves, the building defies the traditional 15-foot setback from the railway in a reverse taper. Its apex measures 45 feet in width, cantilevering slightly over the park, and then narrows to 32 feet in its lower midsection; the base widens again to 40 feet. Glazed, spandrel-free north and south elevations are composed of window panels that reach to 11.5 feet in height and feature a ceramic frit pattern that echoes

Tempe, Arizona, doesn't have a lot of historic buildings, so with two new, mixed-use projects it is taking care to build on two of the city's oldest structures without obliterating them. **One Hundred Mill Avenue** (below) calls for three



the steel diagonal-perimeter bracing behind it. "The design has a Modernist toughness, but is trying to be very elegant at the same time," Denari says of these "active" elevations. *David Sokol*

steel-and-glass, 25-story towers—one of which will cant 12 feet over La Casa Vieja, an adobe house built in the 1870s by city founder Charles Trumbull Hayden, which is the oldest continuously occupied structure in the Phoenix area. The \$300 million redevelopment, designed by **Davis**, includes a hotel, shops, and 300 condo units. Developer 3W hopes to start construction by 2009. Across the street, Avenue Communities is remaking the 5-acre site of **Hayden's Flour Mill**, which opened in 1873 and is Tempe's oldest cast-in-place, reinforced-concrete building. A \$500 million project, by **Meyer, Scherer & Rockcastle** and **Substance Design Consortium**, will add 50,000 square feet of shops and offices, and an archeological garden revealing the old canal that fed the mill. *David M. Brown*



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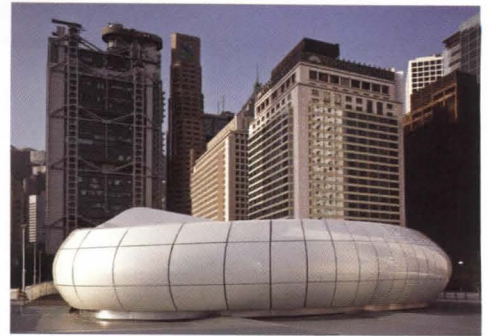
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News Briefs architecturalrecord.com/news/

Zaha Hadid has designed a movable art gallery for Chanel. Karl Lagerfeld, the company's director of collections, gathered 20 artists—including Wim Delvoye, Stephen Shore, and Yoko Ono—to create unique installations for the project. The Mobile Art Pavilion resembles a space capsule and opened in Hong Kong last month. It will touch down over the next two years in Tokyo, London, Moscow, and Paris, landing in New York City this September. Hadid's design was inspired by a quilted bag, one of Chanel's signature creations. The pavilion's form follows the parametric distortion of a torus. It is clad in fiber-reinforced



plastic: a strong, lightweight material easily molded into complex contours. *Josephine Minutillo*

Edward A. Feiner, FAIA, who *Esquire* hailed as the "most powerful architect in America" when he was chief architect of the General Services Administration, is on the move—again. Feiner left the GSA in 2005 to manage the Washington, D.C., office of Skidmore, Owings &

Merrill. Then, this past February, he moved to Las Vegas, taking a job as senior vice president and chief architect at one of SOM's clients: the Las Vegas Sands Corporation, a casino and resort developer best known for its Italian-inspired property The Venetian. *Barbara J. Saffir*

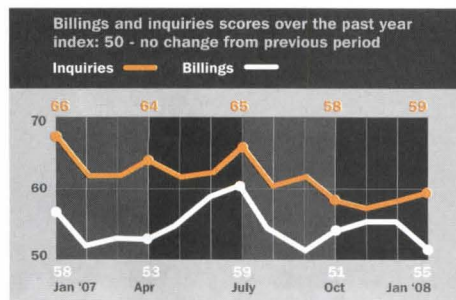
Denver's Clyfford Still Museum will be a "a series of spaces that provide moments for introspection and repose," says architect Brad Cloepfil, principal of Allied Works Architecture. The



31,500-square-foot, \$33 million project will sit in the shadow of Daniel Libeskind's addition to the Denver Art Museum. In contrast to that building's jutting titanium, the Still museum is a two-story rectangle of textured concrete with glass clerestories. Cloepfil hopes visitors will form an "intimate relationship" with Still's paintings and drawings; the walls' texture of crushed quartz or obsidian, which diffuse and refract daylight, should aid this effect. Construction could begin in 2009. *David Hill*

Thomas Krens, director of The Guggenheim Foundation, is ending a 20-year tenure as one of the most celebrated and criticized museum directors in the world. In 1991, he negotiated a partnership with the Basque Regional Government that produced the Guggenheim

Museum Bilbao, designed by Frank Gehry, FAIA, and opened to wide acclaim in 1997. Krens will continue with the foundation as senior adviser for international affairs, overseeing all aspects of the Guggenheim Abu Dhabi, also designed by Gehry. *Josephine Minutillo*



The Architectural Billings Index lost 4.4 points

in January, for a score of 50.7. Although anything above 50 indicates growth, this sharp fall suggests that broader concern over the U.S. economy is affecting commercial construction. The American Institute of Architects compiles the index from surveys sent to 300 mainly commercial architects. It also tracks new business inquiries—which proved a bright spot, rising 1.4 points for a score of 59.5. *James Murdock*

ENDNOTES

- FMI, a construction management consultant and investment banking firm, bought the Advanced Management Institute, which offers leadership development and training to architects and engineers.
- Random House has purchased The Monacelli Press, a publisher that specializes in architecture, fine arts, interiors, and photography. Monacelli will remain an independent imprint.



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ally returned to his earlier interests and convictions: "Apparently, my roots are more powerful than my professional training," he wrote. After working in Eero Saarinen's office for four years and teaching for two, Bosworth settled at the University of Washington in Seattle, from which he recently retired.

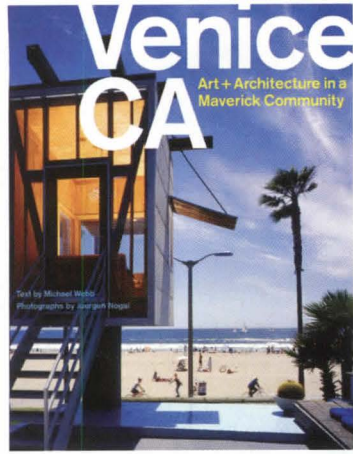
Bosworth's peculiarly Pacific Northwest architecture came to national attention in 1980, when he completed 15 structures for the Pilchuck Glass School outside Seattle. Between 1980 and 2004, he undertook more than 60 residential projects, the subject of this handsome volume.

In a telling introduction, Max Jacobson calls Bosworth a Palladio of the Pacific Northwest. He likens Bosworth's country homes, many overlooking the sea, to gabled temples oriented to the view with deep sheltered porches. As in Classical architecture, Bosworth's floor plans balance rooms along an armature of pathways and functions. Big and numerous windows bring light deep into houses often wrapped by tall trees and gray skies. Bosworth's interiors, writes Jacobson, are "generous, balanced, settled," and Bosworth typically paints all interiors white, "so that structure and materials are arranged primarily for human comfort and peace of mind." *Andrea Oppenheimer Dean*

Venice, CA: Art + Architecture in a Maverick Community,
by Michael Webb. New York:
Abrams, 2007, 190 pages, \$40.

Michael Webb's ongoing documentation of contemporary domestic architecture, which has carried him through books on beach houses and Southern California living, continues in *Venice, CA*, a svelte and colorful real estate supplement for Los Angeles's storied bohemian enclave.

The book is complemented fore- and afterward by brief profiles of prominent artist-residents such as Ed Ruscha and Billy Al Bengston, and "Creative Spirits," a select band of talented types who call Venice home. It is a portrait of a thriving community



of extraordinary verve, even if its treatment here threatens to make it look more "artsy" than artistic.

But the meat of the book is the middle: tours of 38 almost invariably gorgeous Modern houses springing from the former industrial slough. Each one is filed under a taxonomic heading ("Canal Houses," "Oceanfront Living") and subheading ("Corrugated Cube," "Glass and Fashion"), accompanied by a brief passage from Webb and explored inside and out by Juergen Nogai's capable lens. Featured homes range from Gonzalo Duran and Cheri Pann's DIY mosaic-tile house to the trim geometry of David Herz's seaside box for client Thomas Ennis. There are old chestnuts: Gehry's "lifeguard" house and his "three little pigs," retooled by designer Brian Murphy for actor Dennis Hopper; even a domesticated Gold's Gym, once Schwarzenegger's sweat house, puts in an appearance. The last section, "Living with Art," calls attention away from the walls to what's hanging on them.

It is a rare genius loci at work in these spaces. In a conventional city—in the other Venice, say, or Haussmann's Paris—public monuments are strung like pearls along the canals or boulevards; here, little jewels stud the streetscape and seaside with discreet grandeur. Yet there's no consideration in *Venice, CA* for what this kind of urbanism might mean. The introduction, which purports to examine the city's history, does it short shrift. Likewise, the book has no bibliography, though it does have a gazetteer with restaurants, clothiers, and perfumeries. *Ian Volner*



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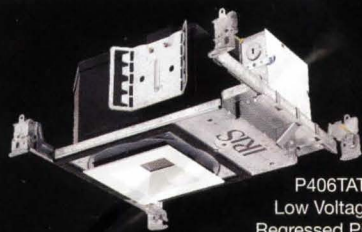
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Trade Show Review Bologna • Cersaie

Here is the thing at Cersaie, the ceramic-and-bath trade's annual exhibition in Bologna, Italy. For its 25th anniversary, held October 2-6, 2007, more than 1,000 exhibitors displayed such diverse trends as super-size formats, black-and-white motifs, metallic accents and—of course—faux stone. *Julie Taraska*

1 Feel the heat Reminiscent of a rippling waterfall, the Caleido Skin radiator is a variation on an age-old staple. Designed by James di Marco for Co.ge.in, the 8" x 20" hydronic unit is made of steel and comes in nearly two dozen colors with a wall-installation kit and air valve. Bristol & Bath, King of Prussia, Penn. www.caleido.bs.it **CIRCLE 200**

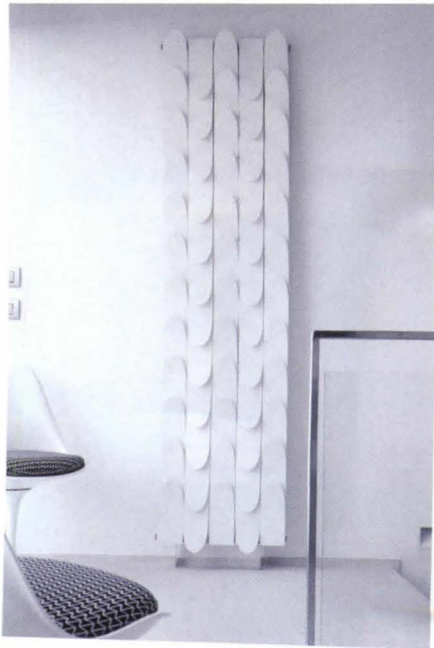
2 Guiding the lily Hand fabricated, Refin's Tagli d'Autore tiles are decorated with rich enamels, precious oxides, and various cracked and metallic glazes. Measuring 12" x 48" they come in such patterns as wavy stripes and abstract lilies. Specialty Tile Sales, Norcross, Ga. www.refin.it **CIRCLE 201**

3 Warm play Form meets function with the Add On tubular radiator system, a series of 5" x 10" modules that link horizontally or vertically. The steel-and-aluminum units, hydronic and electric, come in a host of standard and custom colors. Tubes Radiatori North America, Corona Del Mar, Calif. www.tubesradiatori.com **CIRCLE 202**

4 All that glitters The spiraling motifs of Tagina's Fucina gold-and-bronze-look porcelain tiles differ from piece to piece. Available in six colors and five sizes, ranging from mosaics (6" square) to wall panels (22" square). Allstate Tile Center, Ghendora, N.J. www.tagina.it **CIRCLE 203**

5 Asian therapy This elegant shower tray comprises a resin pan with ridged, nonslip ceramic panels snapped into it that channel water toward the drain. Lacava Design, Chicago, Ill. www.ceramicaflaminia.it **CIRCLE 204**

6 Quick fix Avoid typical landscape installations with Provenza's Supra Floating Floor System. Its durable, 12" x 24" nylon-and-fiberglass frames connect easily and support a selection of the company's outdoor porcelain lines. Corda Tile, Natick, Mass. www.ceramicheprovenza.com **CIRCLE 205**



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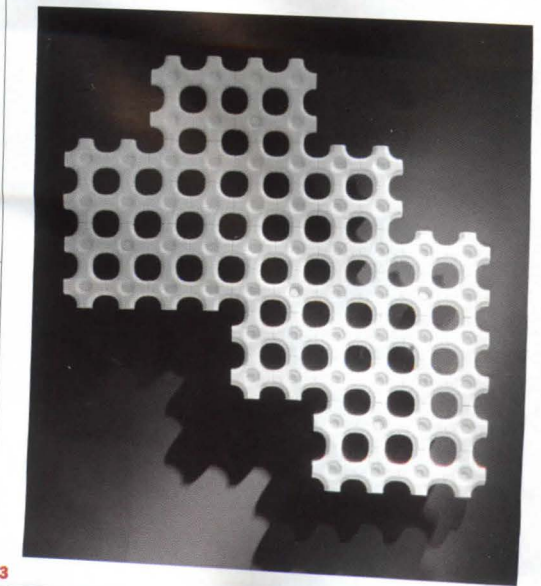
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Trade Show Review Bologna • Cersaie

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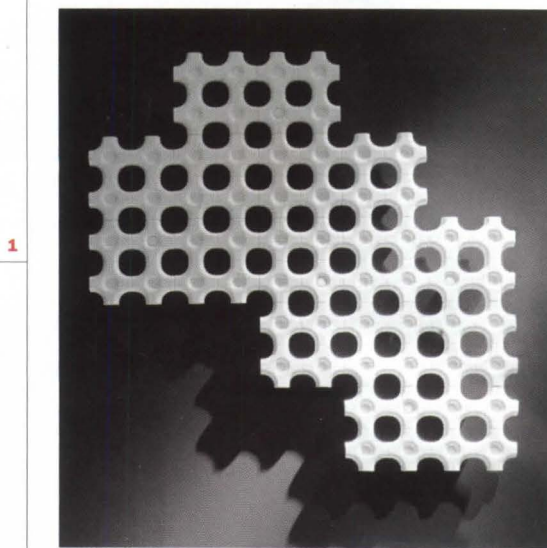
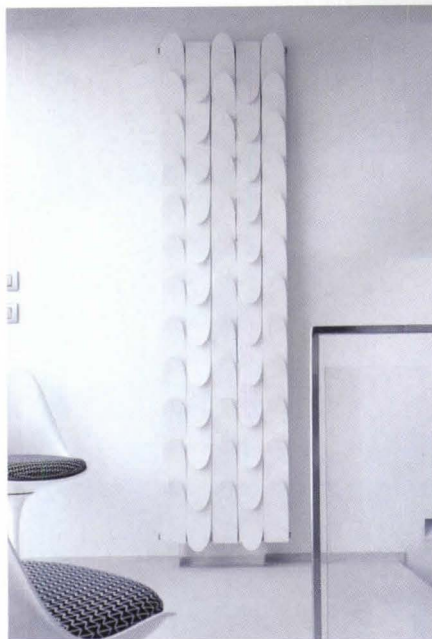
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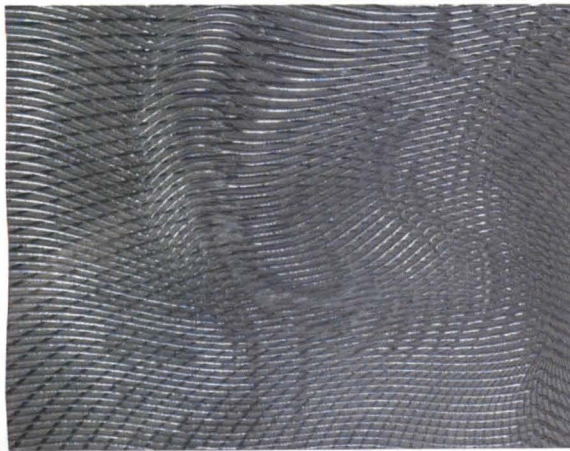
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Trade Show Review Bologna • Cersaie



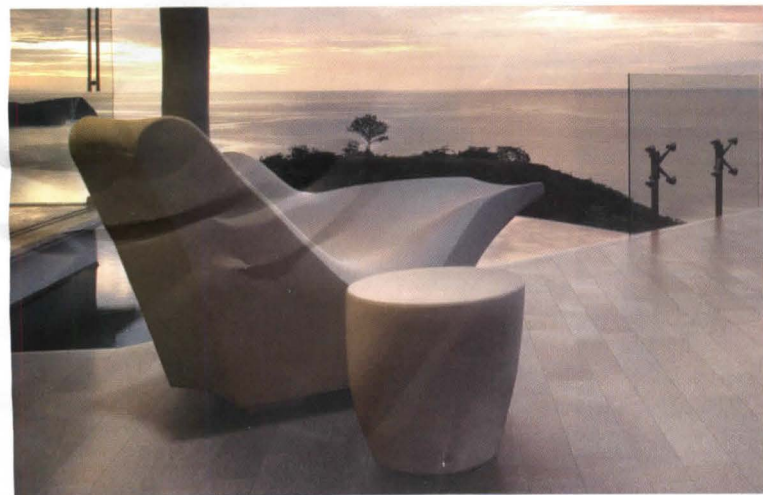
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7 Op art Imbued with dazzling optical patterning, the richly hued Assenzio full-body, color-through porcelain tile from the Boudoir series comes in 12.5" x 38" and 6" x 38" formats. Red, black, and white field tiles complement the mix. Settecento, Fiorano Modenese, Italy. www.settecento.com **CIRCLE 206**

8 Slim line A mere 3.5 mm thick, Kerlite Plus porcelain panels are backed with fiberglass mesh and install directly over such existing floors and wall materials as wood and ceramic. Fire-, UV-, scratch-, and frost-resistant, sizes include 20" square, 39" square, and 39" x 118". Cotto d'Este, Sassuolo, Italy. www.cottodeste.it **CIRCLE 207**

9 In the groove This light-reflecting porcelain tile looks like luminous grooved metal. Suitable for floors and walls, the collection is available in four basic hues (white, black, gray, and blue) and two large formats (24" square and 12" x 24"). Cancos Tile & Stone, Farmingville, N.Y. www.majorca.it **CIRCLE 208**

10 Mark of industry Suitable for paving or cladding, Marca Corona's C10 Project is inspired by the texture of carbon fiber. The 4"-square porcelain tiles come in a glossy black or white and three surface patterns: smooth, mini, and maxi. Optional accents include metallic blue, red, and silver. Westchester Tile & Marble Corp., Scarsdale, N.Y. www.marcaconora.it **CIRCLE 209**

11 Photorealism These porcelain tiles realistically simulate the random patterning and textures of natural stone thanks to a new coloring process based on ink-jet printing. With this cutting-edge technology, manufacturer Del Conca is able to virtually "tattoo" the design onto the tiles, extending it to their typically elusive outer edges. Fade- and stain-resistant, the tiles can be used indoors or out. Del Conca, San Clemente, Italy. www.delconca.com **CIRCLE 210**

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Could taking on owner's rep work be a good move for you?

Practice Matters

By Alec Applebaum

You trained as an architect, so you work as an architect, right? Maybe not all the time. Some architects are hiring themselves out as owner's representatives or going to work for salaried jobs at owner's rep firms. What an owner's rep does can be subtle, but architects who have tried it say the experience sharpens their ability to steer a project from brief to move-in. That can be of value later on.

Consider the job as the assumption of an identity: You're playing the idealized owner. You hire the architect and general contractor. You set the full project budget. You manage weekly meetings of the entire team. You tag along, perceptively but unobtrusively, on site visits. You catch problems architects unwittingly miss or contractors unintentionally cause. You make the architects feel they can solve these problems. All the traditional liability remains with the architect. All the flak for a failure rests with you. Regardless, whatever goes wrong, your job was to see it coming—and knowing how to solve the problems that arise.

By assuming the role of the owner—on a freelance basis or forever—the architect can venture into a realm beyond design. And trading construction administration for broad strategic responsibility can bring higher paychecks for the firms that do it right. “We can insert our value early on, prior to architects getting onboard,” says Linda McCracken

Alec Applebaum is a freelance writer based in New York City.

Hunt, who has led the owner's rep practice at St. Paul's Studio Five Architecture since 1998, “by really framing a project and its budget.”

Some architect/owner's reps, like the national Jonathan Rose Companies, follow a detailed protocol that begins with hiring the architect and ends with testing carpets and HVAC after move-in. Others, like Studio Five, review construction documents before bid and provide written comments. Still others take the work only occasionally. Markus Dochantschi, who runs StudioMDA in New York City, got an owner's rep job for a vacation home after the client met him at a design competition; he handled the budget but also discussed design choices with the interiors architect. Jared Della Valle, a cofounder of Brooklyn, New York-based architecture/development firm Della Valle Bernheimer, says he's taken owner's rep jobs on crumbling projects, when real estate lawyers call him to clean up a mess.

Typically, reps work for a client with a complex hierarchy, like a hospital network, or a client too busy or inexperienced to cope with the details. Sarah Haga, who has worked as a project manager for Jonathan Rose in New York and Atlanta, stresses the importance of ensuring harmony. “Architects might not have the background to figure out details of the budget outside construction—when we come on later, everyone has to go back to square one, which for an architect is so frustrating.”

The responsibility for financial management distinguishes an owner's rep from a traditional

“master-builder” architect. It means worrying about issues beyond an architect's ken, like an owner's creditworthiness or local real estate trends.

Reps do not formally sign off on construction documents or oversee contractors, but they do help assure that the owner will bless every outcome. An owner's rep who knows architecture can bring legitimacy, when an architect might otherwise resist suggestions from someone who doesn't understand design.

“We can query your window detail and see weaknesses in it that are not yet developed, and because of our experience in construction administration, we can see things in the documents that are going to become weaknesses later,” says Hunt. “We can point that out to the architect and tell them to look at it again. Many times in the field, we will have conversations that are really private from the owner.”

An architect-turned-rep can avoid seeming like an enforcer for real estate lawyers who want architects to concentrate on keeping costs under control. Property lawyer Barry LePatner notes: “An owner's rep is going to be talking to the design team about preordering long-lead items, like a private elevator in a residence or materials from overseas.” This illustrates the distinction. An architect knows what materials cost; an owner's rep knows how badly the owner wants that luxurious lift. And how to make architects and contractors feel like they are the ones finding the solution.



Budget management is one of the owner's reps' many roles.

This tightrope management brings higher pay. Hunt says she can bill at a 30 to 40 percent premium in St. Paul. Della Valle, in Brooklyn, says the work lets an architect “bill like a lawyer.” When he's an owner's rep, he charges \$350 per hour in a way that would be harder to compute if he had full architectural obligations. Discussants on an Archinect message board in 2007 said they'd seen salaries \$10,000 to \$25,000 higher than what a typical architect makes at owner's rep firms, including \$95,000 salaries in northern California. Haga calculates a rough 10 to 15 percent pay bump for architects in New York and Denver who work as owner's reps.

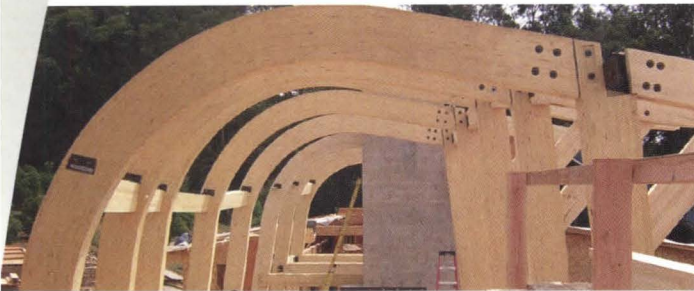
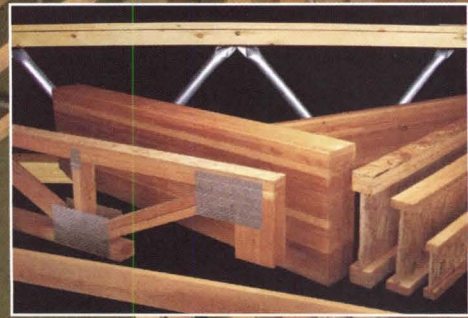
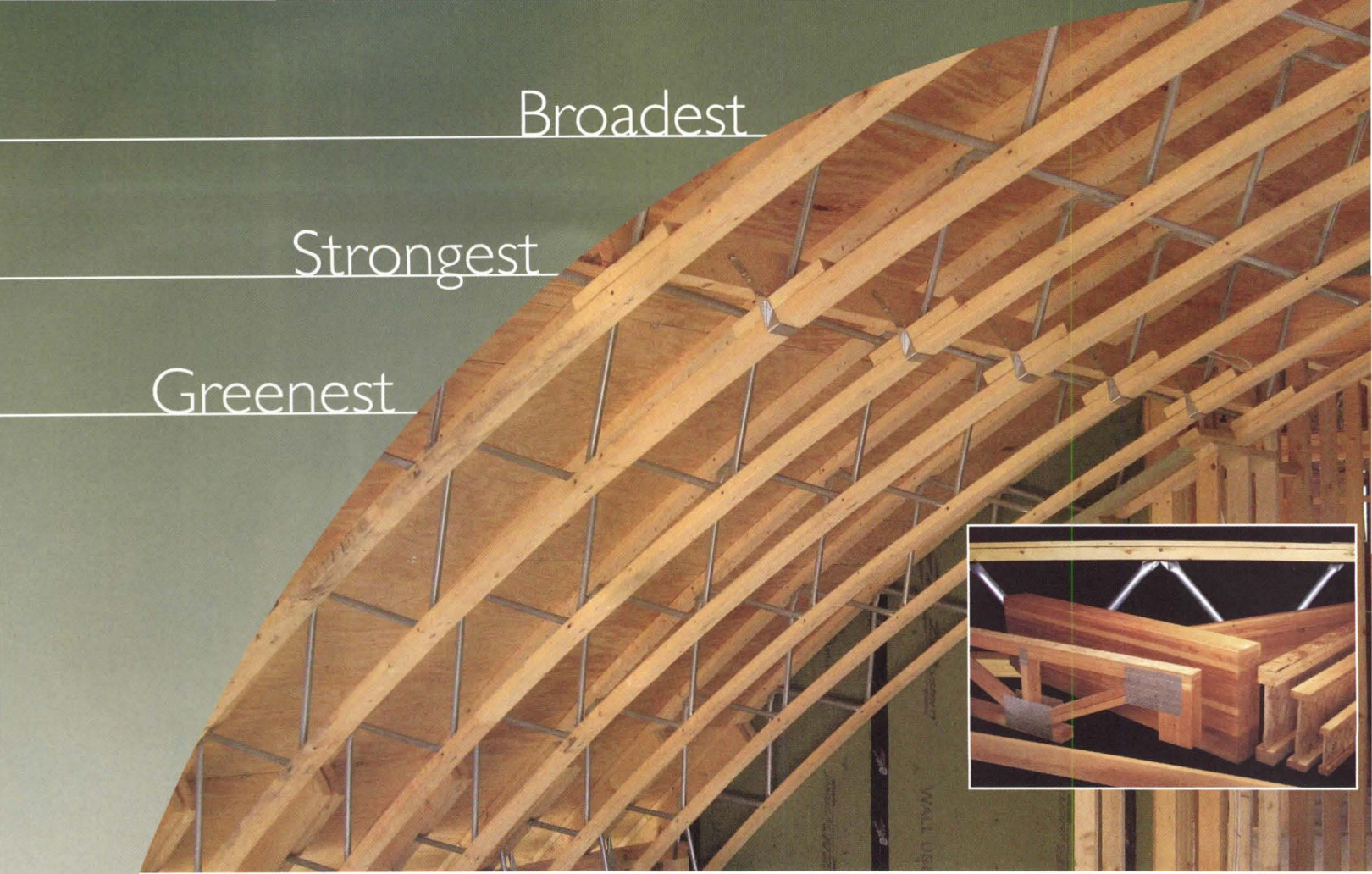
Look to the future

Also, taking the job can be a way to learn skills you'd like to add to your architectural practice without liability. That can help make architects tackle future work with more foresight. Dochantschi says, “When you see how people present themselves, that teaches you to understand priorities and anxieties.” ■

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Snapshot



Mimetic House straddles a small ravine (right). On the upper-level pavilion, reflective glass panels tilt outward, mirroring the land rather than the sky (above).



By Ingrid Spencer

When your clients are conceptual artists, as Irish architect Dominic Stevens's were for the Mimetic House, ordinary is out of the question. But commonplace is not Stevens's bag, anyway. The architect lives on a farm in the Irish countryside and runs his one-person studio out of a converted truck, designing a couple of singular projects each year.

Part earthwork, artwork, functional cavern, and mirror for the landscape, the Mimetic House, according to Stevens, "sits in its surroundings like a passing shadow." Poetic? It is. Built in, above, and under a marshy field surrounded by a ravine and lush hills, and just a 30-minute walk to the village of Dromahair in western Ireland's County Leitrim, the 1,292-square-foot house comprises a partially buried, cast-concrete volume with bedroom and office spaces all painted starkly white, and an above-ground, open-plan living area with tilted-out walls of semireflective glass panels. A wood-burning stove (backed up with gas-fired central heating) provides the primary heating source and, when temperatures climb, natural ventilation keeps both levels cool, as air comes in above the front door and achieves a stack effect up the spiral stairway.

The reflective life, with earth and mirrors



A crisp, white living area greets you at the top of a spiral staircase (left). At times barely perceptible, Mimetic House makes its presence known as dusk sets in and light glows through the vertical apertures (above).

With its gently pitched, grassy roof, Mimetic House is disguised from above—just a bump in the landscape if you're searching for it on Google Earth. For its owners, it's a place to inspire their work. More than that, it's home. "You can buy a house, but a home is a hard-won thing," says Stevens. "I try to work with people who want to build their own house, and in this house, my clients built all the fitted furniture and did all the painting."

While his clients, a couple, got physically connected with the architecture and construction of their home, Stevens says he got cerebrally involved with the artistic and philosophical aspects of the spaces, as well. One of the owners, Grace Weir, did a series of video works involving filming 360 degrees around a cloud. "Mimetic House, like a cloud, is an ambiguous object," says Stevens. "It is difficult to judge its size and shape externally, and difficult to judge the shape and scale of the main room [upstairs], making it quite an active space to inhabit compared to the tranquility of downstairs."

Named for the way it imitates its environment, the Mimetic House was built for about \$138 per square foot. It was a small price to pay for Stevens's clients, who come home to their lush, green, sometimes wet and muddy field wherein, describes Stevens, "lies their crisp, white, secret room that only reveals its nature when you come up the stairs." And the results are priceless: The couple can track the movement of the earth, moon, and planets by following the path of the sunset as each day it glows on a different spot along the facade. "The house," says Stevens, "becomes a celestial viewing machine." ■

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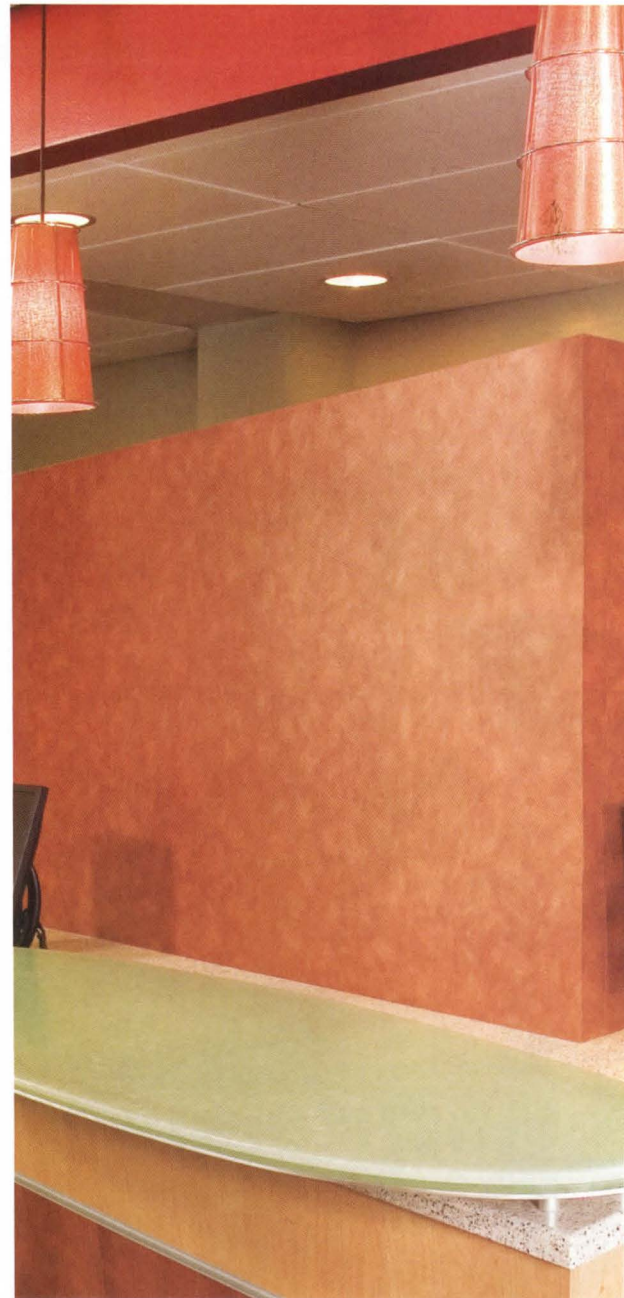
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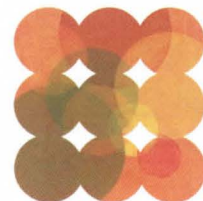
I am Anne Sherwood from Anderson Brulé Architects, and I bring new ideas to fruition. Tully Library is now part of my life.

ANNE SHERWOOD

Anderson Brulé Architects ✨ San José, California

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Architectural Record



Lessons from 1960s'-70s

By Alastair Gordon

So much depends on the perception of a post-petroleum future, a single tree, melting ice caps, Al Gore's waistline, innovations in alternative energies, and C.E.O.s who convince their boards to go green or, at least, adopt the rhetoric of green. Meanwhile, Americans are consuming more, driving bigger SUVs, buying more needless stuff, living in denial, and dumbing down. So can we still look to architects and planners for new attitudes and new paradigms? Good architecture, like some of the freestanding houses in this issue, can help shape our expectations and give us an idea of what the future might bring, truly sustainable or not. "Green" may be a pill that's harder to swallow than one imagined, and maybe it's not so bad to talk about aesthetics after all: Are we still waiting for the green version of the Villa Savoie or the Farnsworth House? There is no unity or single direction apparent.

It's a good time to look back to the originating seeds of green, to the anarchic

Alastair Gordon's book, Spaced Out: Radical Environments of the Psychedelic Sixties, will be published by Rizzoli in June.



The domes of Drop City, an experimental community formed in southern Colorado in 1965.

Counterculture Architecture



1960s and Bucky Fuller's philosophy of "ephemeralization" (doing more with less.) Conspicuous similarities can be detected between then and now, certainly a general ennui and loss of confidence in the status quo, along with the urge to save our planet. Conventional parameters of city, community, family, and housing were all thrown out in the psychedelic era, seen as part of the same mind-set that brought carpet bombing to Vietnam.

In 1965, a group of art students founded Drop City, a domed commune in Colorado. "Houses in our society are walls, blocking man from man, man from the universe, man from himself," wrote Bill Voyd, one of the founders. Paolo Soleri was preaching *arcology*, a combination of architecture and ecology, back in the early '60s, and instead of just theorizing, he went into the Arizona desert like an Old Testament prophet and began to actually build Arcosanti, the prototype for a new kind of organic, high-density city (without cars) surrounded by natural wilderness.

Anything seemed possible since young people were willing to give up the comforts of affluence.

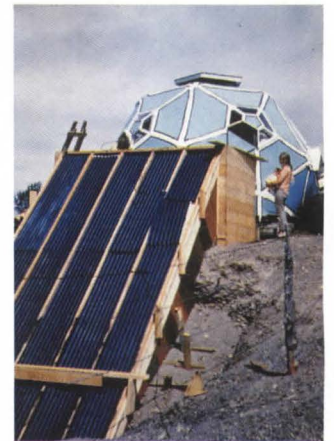
It still thrives today, 38 years later. Steve Durkee and other members of USCO ("Company of Us"), a multimedia collaborative formed in New York in 1964, conjured up the idea of "Solux" in early manifestos and then went forth and built their "spiritual

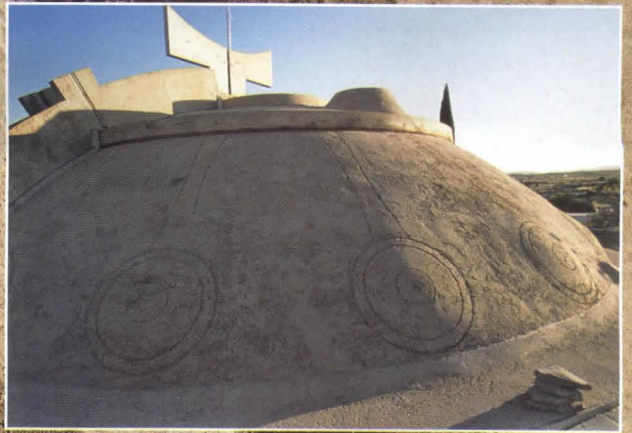
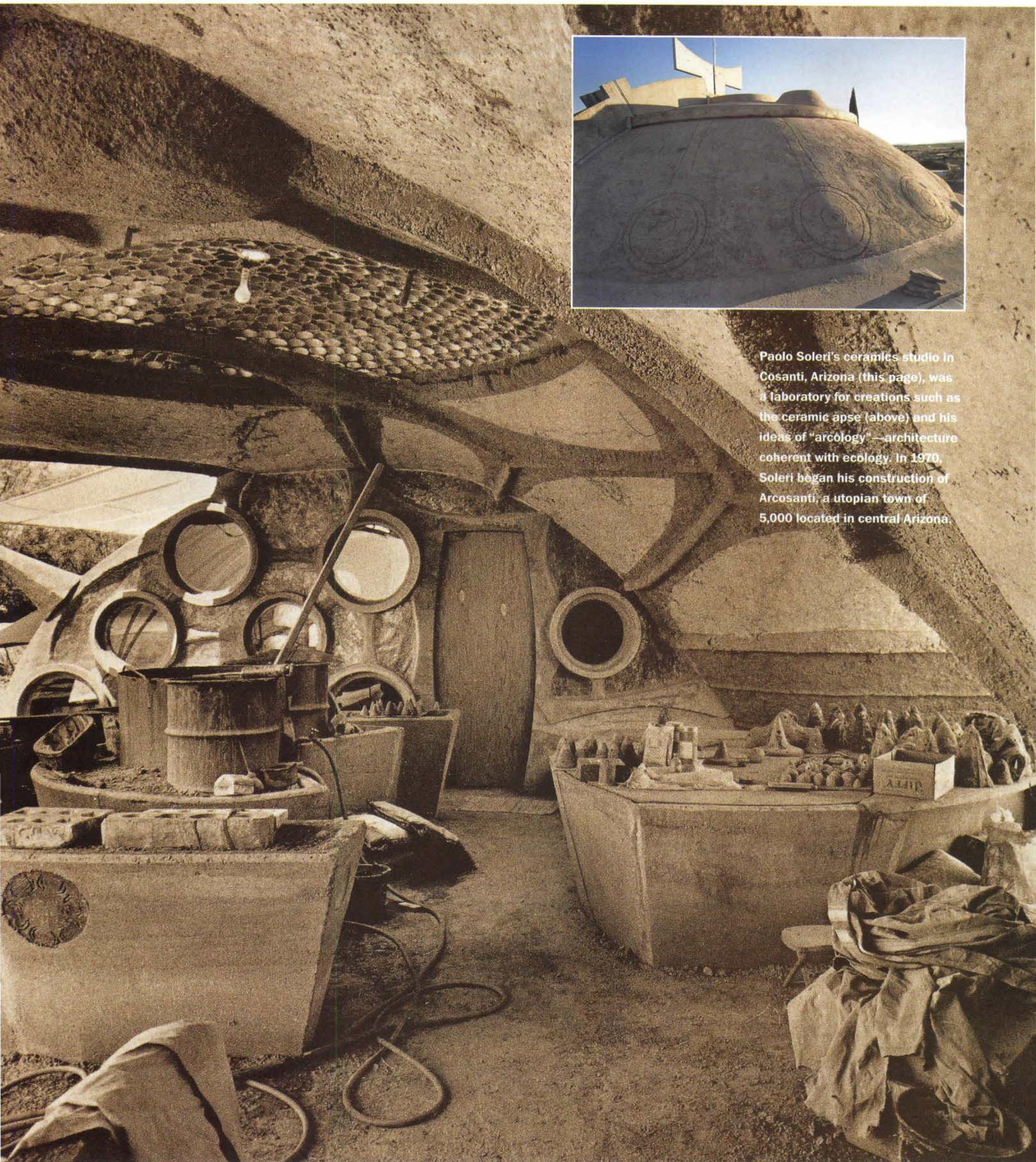
dude ranch" on a mountainside near Taos, New Mexico. (The name changed from Solux to Lama.) Anything seemed possible since young people were willing to give up the comforts of middle-class affluence and live in a state of what Ivan Illich, Austrian philosopher and anarchist, called "voluntary primitivism." They did without television or plumbing or central heating while learning the ways of the compost heap, the privy, and the communal washtub.

With hallucinogenic drugs as lubricant, college dropouts who had never built much of anything felt empowered to move into the wilderness and create whole new communities. A group of Yale architecture students, led by Dave Sellers and Bill Rienecke, were sick of Modernist theory, moved to Prickly Mountain, Vermont, in the mid-'60s and started building houses with their own hands. A group of Princeton students, led by Steve Badanes, called themselves Jersey Devil and followed suit.

For many New Age utopians, Fuller's geodesic dome offered the greatest promise, with its single embracing space, ideal for collective living, maximum enclosure constructed from minimum material. There seemed to be an inherent magic in all things circular. "Corners constrict the mind," wrote one hippie builder. "Build circular musical structures and help destroy rational box-reality," declared another who believed that the square had contaminated every aspect of Western civilization from the sandbox to the grid of corporate Modernism. While hundreds

A 1967 dome at Drop City is among the first solar-panel-heated homes (below). Domes (above) from the 1960s and early 1970s served as their builders' personal manifestos and demonstrated their connection to the environment.





Paolo Soleri's ceramics studio in Cosanti, Arizona (this page), was a laboratory for creations such as the ceramic apse (above) and his ideas of "arcology"—architecture coherent with ecology. In 1970, Soleri began his construction of Arcosanti, a utopian town of 5,000 located in central Arizona.

of domes had been built by 1959, Fuller's vision flowered in the mid-to-late '60s when the children of the counterculture adopted the dome as a symbol of both resistance and solidarity. Indeed, it could be seen as the seed for a whole new civilization, one that

In the self-build revolution, making shelter was an act of personal transformation and revelation.

was communal, self-supporting, nonhierarchical. Its simple geometry suggested a multifaceted crystal, the eye of God, a circle of fellowship, and the mysterious oneness that so many had experienced on LSD and Psilocybin. "You merge with the dome; its skin becomes your skin," said one geodesic convert.

Modernism and the cult of the machine seemed corrupt. Who wanted to live in a soul-withering box? Who really wanted to live in Corb's *machine à habiter*? Instead of steamships and airplane fuselages, young architects were studying bird's nests, honeycombs, bowers, anthills, and beaver dams while condemning the monuments of the modern movement as so many "architectural bombing runs." One long-haired builder explained, "We want our homes to spring from the soil like trees." (Bernard Rudofsky's 1964 *Architecture Without Architects* and D'Arcy Thompson's 1917 *On Growth and Form* were popular sources of inspiration.) In his fervently utopian proposals for Mesa City (1955–60), Soleri was studying

seedpods and stamens. Others, borrowing Soleri's silting techniques, built mounds of earth, covered them with concrete, and scooped out the dirt when the concrete had set. In 1972, Aleksandra Kasuba created a cocoon dwelling in the woods of Woodstock,

New York, by pulling stretch fabric between the branches and trunks of different trees. "The approach was spontaneous throughout," she said. Fourteen people lived inside the ghostly membrane during Whiz Bang City East, an alternative gathering held that summer.

In 1970, Charles Harker and members of the Tao Design collaborative—most of them disillusioned students from the architecture program at the University of Texas, Austin—built "Earth House" working without plans, improvising as they went, weaving strands of PVC piping into nestlike configurations and then spraying the structural skeleton with polyurethane foam. "All design is spontaneous," said Harker, who compared the process to the metamorphosis of a butterfly. Around the same time, Bob de Buck built a house that resembled a giant anthill in the desert near Truchas, New Mexico, using scrap wood scavenged from building sites around Albuquerque. "Tools not to have: straight-edge, square, level, plumb," advised de Buck. Steve Baer, itinerant hippie builder and inventor of the "Zome," drove by one afternoon and mistook it for a heap of garbage until he got closer and began to see the beauty of its weird, fractured anatomy.

In the funky, self-build revolution, making



Followers of the 1960s green movement wanted to "get centered." The Om Dome (below left) and other models (above and below) were seen by some as an architectural form of yoga.



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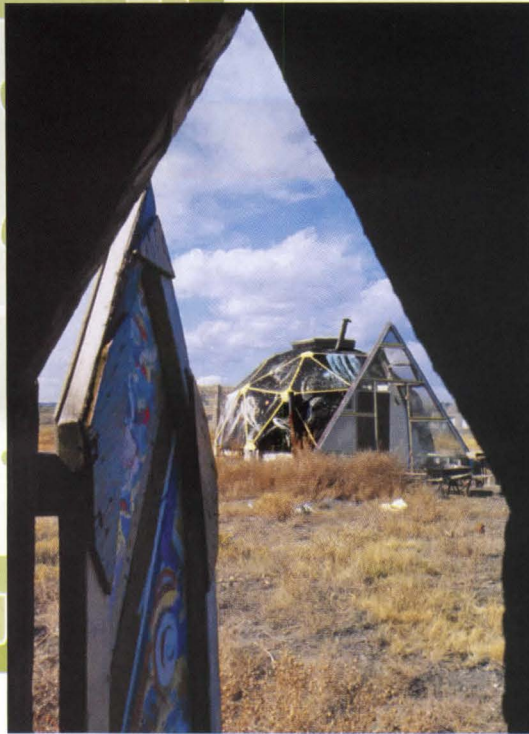
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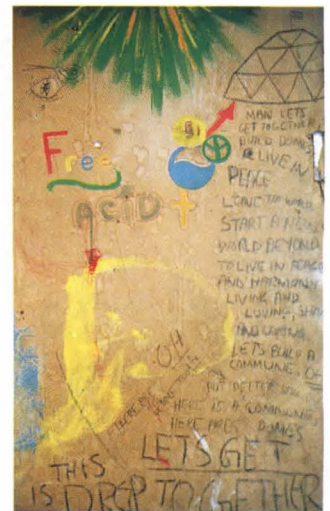
The spirited, do-it-yourself writing was literally on the wall (below). The dome's popularity, propelled by a funky, self-sufficient ethos as well as drugs, free love, and community, was soon derided as uncool and out of touch with Modernism. Drop City was eventually abandoned (left two).

shelter was seen as an act of personal transformation and revelation. This credo was spread by word of mouth, by contact high, by a kind of telepathic interconnection that was also known as *grokking*. It was just there, somehow, in the air, the back-to-nature vibe, the need to make shelter, the need to uncomplicate one's life. There was scrounging and recycling of old materials, living off the spoils of straight society. "Trapped inside a waste economy, man finds an identity as a consumer," wrote Bill Voyd. "Once outside the trap, he finds enormous resources at his disposal—free." Voyd and other pioneers at Drop City learned to chop the metal tops out of junked cars and shape them into building panels. Other free-form builders learned to work with bottles, mounds of earth, mud bricks, old tires, and bales of hay. Hippie surfers in Big Sur, California, fabricated driftwood houses and lived there happily until the Coast Guard bulldozed the funky structures into the sea. A more permanent

ment as a whole, the urge to build like beavers, was later dismissed along with LSD, tie-died T-shirts, and free love. Ronald Reagan, when running for Governor of California in 1967 said, "There will be no more Morning Stars," referring to the infamous free-land commune in Sonoma County. He rode the reactionary upswell all the way to the White House. The proverbial genie somehow was put back into the bottle. By the late '70s and early '80s, architects started talking more about Palladian villas than biodegradable privies. Domes were dissed. (They leaked.) Walls and doors were seen as good things. People wanted privacy, not the communal bean pot. Hollow Corinthian columns and faux facades filled the architecture magazines while talk of solar, sustainable, or recycled design was shrugged off, seen as something of an embarrassment, a holdover from funky, Birkenstock-wearing hippies.

Notions of sustainability, ephemeralization, simplifying life, and reducing our carbon footprint have come full circle and seem more urgent today than ever before. But while the shaggy '60s may be up for review, they come with a haircut, shorn as they are of the social/cultural revolution that drove them. And the question remains, can you have one

without the other? True sustainability without sweeping social change? True green without revolution? Consumers beware: When one hears companies like Exxon, General Motors, and Merck Chemical talking green, then you know it's probably time to check in with Alice and slide back down the rabbit hole. ■



The question remains, can you have true sustainability without sweeping social change?

community was established across the border on Hornby Island, British Columbia, by U.S. draft dodgers and self-build architects who fashioned surprisingly sophisticated shelters using only driftwood.

While ideas from the outlaw architects would filter quietly into the mainstream, the move-



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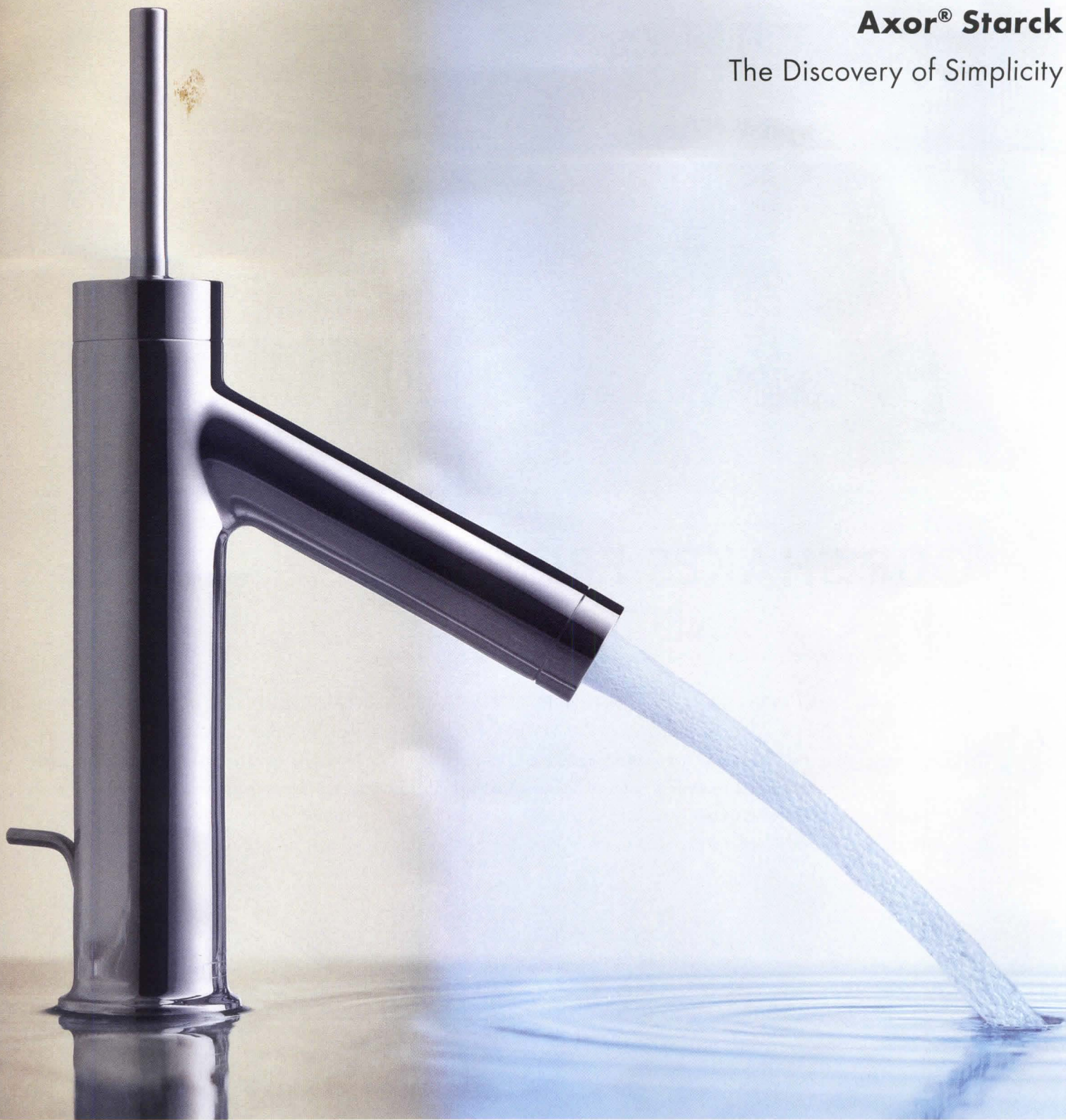
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Record Houses

2008

Guest editor, Christopher Hawthorne

Editor in charge, Diana Lind

For this year's Record Houses, we selected projects that demonstrate innovative approaches to environmental sustainability. In his introduction, guest editor Christopher Hawthorne explores the motives and results of this focus. The Editors

It was just about five years ago that I sat down with my colleague Alanna Stang to begin work on a survey of ecoconscious residential design, ultimately published as *The Green House: New Directions in Sustainable Architecture* (Princeton Architectural Press, 2005). The book's thesis was straightforward: The green-design and high-design wings of the architecture profession, which had looked at one another for so long across a chasm of mutual disdain, were beginning to find common ground.

The result of that confluence was a new kind of green house, one that saw no barrier between architectural ambition and environmental conscience. It could even quite confidently employ the crisp formal language of Bauhaus Modernism—long seen as the very opposite of earth-friendly architecture—as its lingua franca. After scouting for more than a year around the world, we settled on a group of 35 projects by architects including Steven Holl, Werner Sobek, Jennifer Siegal, and Shigeru Ban.

Fast forward to the fall of last year, when my phone rang one morning with a call from RECORD editor Robert Ivy. He wanted to rethink the popular Record Houses issue, he explained, and one of his first ideas along those lines was to give it a green focus. In asking if I would be interested in overseeing it, he was careful

not to identify what did and didn't qualify as sustainable architecture. He was smart enough to leave it to me to get a fix on that always slippery term.

In some ways, the task he set before me was similar to the one Alanna and I took on at the start of our research. In both cases, the goal was to find a group of residential designs that pursued ecoefficiency and architectural excellence, even innovation, with equal vigor. Still, it seemed foolish to ignore the fact that the way Americans think about sustainable design has shifted dramatically in the intervening period. Five years ago, there were still many leading architects who equated green architecture with communal, back-to-the-land efforts of the movement's earliest days. Now it is impossible to walk through the offices of a corporate firm without viewing a model for a green building. And thanks to the U.S. Green Building Council's LEED ratings—which have caught on with remark-

FEATURED FIRMS:

1. Sean Godsell
2. FAR frohn&rojas
3. Studio Mumbai
4. Atelier Bow-Wow
5. Werner Sobek
6. Drisko Studio Architects
7. Darren Petrucci
8. Olson Sundberg Kundig Allen
9. Skene Catling de la Peña



able speed since their introduction in 2000—architects, contractors, and clients alike have a baseline standard for measuring a building's commitment to the environment.

Meanwhile, green design has gone mainstream.

Vanity Fair and other mass-market magazines rushed to get special green issues on newsstands, filling them with stories about Hollywood celebrities outfitting their Venice bungalows with solar panels and gray-water systems. Al Gore won an Oscar, then a Nobel Prize, for his work on global warming.

It didn't take long, though, for what's been dubbed "eco chic" to tip into excess. In some cases, it has headed straight toward parody. Earlier this year, the *Robb Report*—a glossy lifestyle magazine aimed at readers with assets of \$5 million and higher—published a special Green Living issue, featuring "Homes That Tread Lightly on the Land." Those homes, of course, were in each case about the size of a college dorm and executed in a buttery, grandiose, marble-heavy style that might be called Château Vert.

Part of the problem is simply defining something as amorphous as living or building in an environmentally friendly way. The LEED program, for example, has come under heavy scrutiny lately; architects, including Thom Mayne, whose 2007 San Francisco Federal Building pursues a number of innovative green-design strategies, have complained that it promotes a checklist mentality and pays too much attention to how buildings are constructed and not enough to how they perform over time.

To which I would add: The problem in this country with any rating system is that once our responses to a problem can be quantified and ranked—as with LEED points—it is only a matter of time before they're wielded primarily as marketing tools.

By contrast, the coverage of sustainability that I find myself learning the most from these days moves away from a

promotional or self-satisfied tone. Consider Michael Specter's essay in a February issue of *The New Yorker*, which reports that "the calculations required to assess the full environmental impact of how we live can be dazzlingly complex." Specter points out that the concept of the "food mile"—a measurement of how far a banana or potato has to travel to reach your local grocery store—can be highly misleading, because it relies on overly simplistic assumptions about what's good and bad for the environment. "The environmental burden imposed by importing apples from New Zealand to Northern Europe or New York," Specter writes, "can be lower than if the apples were raised fifty miles away." What matters is not just distance, but other factors such as how efficiently the apples are grown or whether they are shipped or trucked to their destination. Like a LEED rating, the food mile is an attempt to measure something very complicated in very simple terms, and results, perhaps, in a kind of reductionism.

Similarly surprising was Brandon Koerner's recent dispatch on *Slate.com*, asking whether it's more ecofriendly to read your morning newspaper in print form or online. It turns out there isn't much difference in terms of total energy consumption: Powering your computer and its monitor burns nearly as much carbon as the printing plants and delivery trucks that get the old-fashioned newspaper to your front door.

These articles suggest that the best way to understand and pursue green strategies, whether political or architectural, is to dispense with the bromides and the easy labels and to start recognizing that the answers are more complicated.

Ultimately, we decided to approach this year's Record Houses in the same spirit. Every architectural movement gets less coherent and more fascinating as it evolves; architects have always found opportunity in the cracks that appear as the edifice of theoretical certainty begins to crumble. That was true



Record Houses

for the Gothic, the Baroque, and Classicism. It was certainly true for Modernism. And it's becoming truer every day for green design.

There are many architects who feel strongly that cities, with their density and shared infrastructure, should be the centerpiece of any budding green culture. Others see more opportunity in an effort to live holistically, with an efficient little house perfectly sited on a piece of land just big enough for a vegetable garden. Still others see aggressive government action—here and in the developing world—as the only path to sustainability.

All of them deserve to be called green architects. It is in the aggregate of these various approaches that real progress will emerge. Taken as a group, the projects we ultimately chose suggest not only that sustainable architecture is getting harder to define with any precision but also—and here's the key—that we should find that difficulty encouraging. To put it another way: Disagreements are good. So are factions. Instead of charting a confluence, as our book did five years ago, the goal here is to document a rich and growing variety of approaches to sustainability—and maybe complicate the definition of green architecture along the way.

Those approaches can be sorted into four rough piles. The first makes a point of turning compactness to architectural as well as ecological advantage. The Rolling Huts, in Washington State, by Olson Sundberg Kundig Allen, come in at 440 square feet apiece, while Darren Petrucci's VH R-10 gHouse, in Massachusetts, has a 600-square-foot footprint. They likely rank as the two smallest projects ever featured in a Record Houses issue.

The second strategy answers sustainability's challenge with technical innovations. Hi-tech green design—exemplified in this issue by Werner Sobek's sleek, remarkable H16, near Stuttgart, Germany—puts a premium on materials

and systems to make houses hyperefficient. Sean Godsell's Glenburn House, in Australia, also uses a matrix of sophisticated green systems, though importantly without compromising its elegantly latticed, low-slung form.

The third approach has its roots in organic architecture and the Arts and Crafts movement: It's powered by old-fashioned, low-tech solutions like siting, passive heating and cooling, local materials, and general economy. Rather than aiming for a kind of spare, Modernist universalism, in the manner of Sobek, it takes its formal cues from its region, landscape, and context—and then, significantly, coats it with a sheen of sophistication that reflects the challenges of building locally in a globalized world. This sensibility is illustrated by Studio Mumbai's stunning Palmyra House on the Indian Ocean, Nora House by the endlessly creative Toyko firm Atelier Bow-Wow, and Wall House, outside Santiago, Chile, by FAR frohn&rojas.

The fourth and final approach focuses on preservation and community. As Richard Moe, president of the National Trust for Historic Preservation, put it recently, "The bottom line is that the greenest building is one that already exists." The Maltman Bungalows, a preservation project by Drisko Studio Architects, promotes history, density, neighborliness, and walkability—all in the middle of a city, Los Angeles, that isn't known for any of those things. Skene Catling de la Peña's Dairy House, in England, meanwhile, not only brought a 1902 structure back to life but did so using local materials, craftsmen, and know-how, expanding the notion of green design to include what the client calls "social sustainability."

By defining sustainability in such a broad and thoughtful way, the Dairy House also offers a way to summarize the attitude of this year's Record Houses as a whole. As Diana Lind writes in her description of the project, "When you get down to it, whether a work of architecture is green is usually a shade of gray." *Christopher Hawthorne*





Half of Australian houses sit within 8 miles of a beach. The Glenburn House reverses the house/water relationship, looking like a ship slicing through swells of earth.

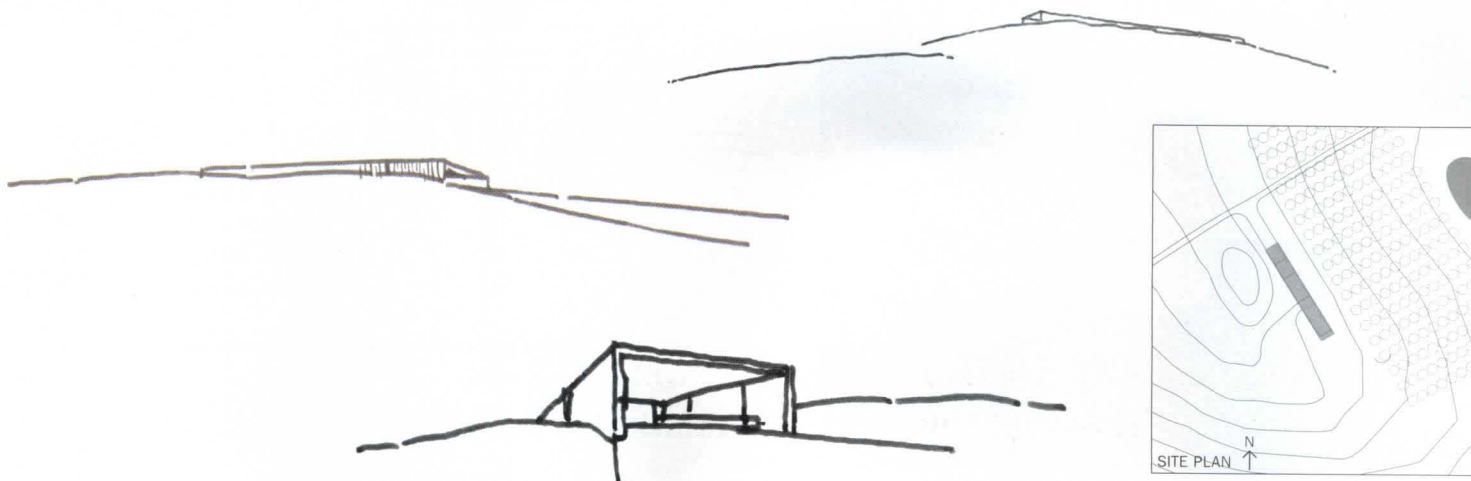
With the **GLENBURN HOUSE** in rural
Australia, **Sean Godsell** perfects
an ecofriendly prototype

PHOTOGRAPHY BY EARL CARTER





The house can be entered via the garage or through the formal entry (this page), which cuts through the plan along a central axis and leads to another opening on the other side of the building.



By Leon van Schaik

Eighty percent of Australians live within 80 miles of the sea; 50 percent of the country's houses sit less than 8 miles from a beach. When Sean Godsell Architects began its latest experiment with an ecofriendly, rectangular residential form, the Glenburn House, it naturally built a first prototype on the coast. The precursor to this scheme, the St. Andrews Beach House, located on a peninsula south of Melbourne, is raised up on stilts above the dunes, oriented at right angles to the sea, and acts as a telescope to the horizon, where sky and ocean meet.

At Glenburn, a rural area 90 minutes northeast of Melbourne, the relationship between the house and the water is reinterpreted. The box is presented as a ship slicing through swells of earth. Instead of facing water, here the house's long, northeastern flank provides views from the living areas and the guest room to the distant heights of Australia's Great Dividing Range—the mountains that separate the populated eastern littoral from the desert interior of the island continent.

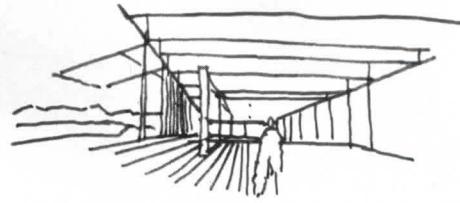
In contrast to the house's straightforward shape, a looping, picturesque arrival route from the Melba Highway (named for a 19th-century opera star from Melbourne, Dame Nellie Melba) leads you to the building through a valley to the northeast of the site. Viewed from a distance, the rust-red steel box looks huge as it breasts the slopes. The winding road, however, leads to high ground behind the house, where, down a long gully, you see the volume's midsection opening to the southwest. Parking the car, the house has remarkably shrunk to the size of a two-car garage.

You can enter the house through the garage via a mudroom, or stride along the northeastern front to the formal entry placed mid-

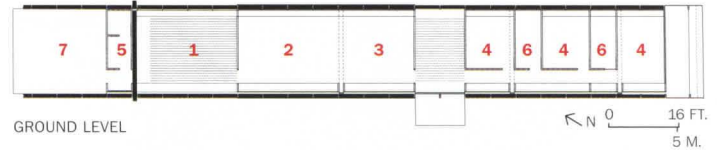
Sean Godsell is revered for creating perfect boxes and then wrapping them in a second skin of slotted wood or steel. Here, flexible steel grilles, which can be adjusted to balance insulation and views out, attain a rich, rusted patina.

Leon van Schaik is professor of architecture and innovation chair at RMIT University in Melbourne, Australia.





1. Deck
2. Kitchen/dining
3. Living room
4. Bedroom
5. Laundry/storage
6. Bathroom
7. Garage



way along the box. This entrance cuts through the plan along a central axis and leads to another opening, which allows access to that long gully earlier glimpsed. Inside, the program of the residence should be simple—the living, dining, sleeping, and bathing areas are meted out within a rectangle—and yet, much as the procession to the house plays with your perception, the interior is equally surprising.

In addition to solar photovoltaics and hot water collectors, the house's ecofriendly attributes include mounds of earth (above left) that deflect warm wind, and hand-operated grilles (left). A foyer separates public from private spaces (opposite).

The combined reception and living area is a handsome space defined on its northern side by the grilles of the building's outer skin (a characteristic of Godsell's residential designs), and on its southern side by white-painted wood panels. Partially banked in the earth, this latter elevation affords not only psychological security, but protection from extreme heat during the summer. Thus, the house features two double skins: a flexible exoskeleton of grilles, which occupants can adjust to balance insulation and views out, and the panels, which conceal kitchen, laundry facilities, storage, and the entrance to the guest bedroom and bath.

The clients desired an environmentally sustainable design, and the hand-operated grilles supported on hydraulic pistons enclose double-glazed window walls that allow a passive cooling system. Solar photovoltaics and hot-water collectors are supported within the outer skin on the roof plane. The inner roof plane catches rainwater, which is stored in a 26,400-gallon inground tank and filtered for later use. Landscape design included only drought-resistant plants to minimize water consumption. Mounds of earth on the house's northwest side act as a berm and provide natural evaporative cooling effects as they intercede between the building and the prevailing summer wind.

The layering of partitions and concealed entrances, and the house's symbiotic relationship to the earth, are not innocent architectural ploys. Godsell is becoming increasingly well known worldwide,



The living and dining space faces the landscape on its northern side. The southern side is partially banked in the earth to shield it from the sun.





and he situates his architecture by referring to the work of both traditional and contemporary architects. He admires the temples at Kyoto and the Japanese architectural tradition that finds authenticity in the ideal rather than in the contingent realizations of that ideal. Thus, he admires Kazuo Shinohara and Tadao Ando for the continuity of their search for the orchestrated plan, and Kazuyo Sejima for the brave ethereality of her designs. He positions himself alongside Peter Zumthor in the quest for what each building needs to be. He compares his situation in “remote” Melbourne to that of Will Bruder, Rick Joy, and Wendell Burnette in “remote” Arizona, and operates similarly in a loose alliance with some of his colleagues.

Godsell engages the world, and yet his work is inevitably best known through photography. Photographer Earl Carter works in sympathy with Godsell’s ambitions and has documented the evolution of his oeuvre. Pictures, however, impart a gloss that his work almost superstitiously avoids in real life. A rawness characterizes his buildings, which is essential to his belief that the ideal can be strived for, but never attained. This gap between the idea and its realization prevents Godsell’s work from being allied with the surface glamour of neo-Modern Minimalism, such as that in the work of John Pawson. Godsell’s buildings thus resemble his drawings, all done in pencil, deliberately jettisoning the perfections of computer-aided drafting systems. ■

The house blurs the boundaries between indoors and outdoors (right and above right), as well as between concealed and open space. Panels in the main living area (above left two) hide kitchen, storage, and laundry, and the entrance to the master and guest bedrooms and bathrooms.



Project: Glenburn House,
Glenburn, Australia
Architect: Sean Godsell
Architects—Sean Godsell,
principal; Hayley Franklin
Engineer: Felicetti

ESD consultant: SBE

SOURCES

Steel: Shush Industries;
Connected Living

Seen from the yard at dusk (opposite), the house comprises four layers bounded by a concrete core, bookshelves, a "milky shell" of glass panels, and a "soft skin" membrane. At one of the building's openings, the latter two overlap (this page).



In suburban Chile, **Marc Frohn** and **Mario Rojas** experiment with four sets of enclosures in the **WALL HOUSE**

PHOTOGRAPHY BY CRISTOBAL PALMA



By **Jeannette Plaut**

With a limited budget of \$147,000 and a 1.25-acre parcel of land in the suburbs of Santiago, Chile, a retired couple approached Marc Frohn and Mario Rojas of the firm FAR frohn&rojas to design a house for themselves and their son. While the couple initially imagined a building with strong interior/external separation, defined windows, and explicit door openings, FAR rejected this scheme and instead proposed a design based on a gradual transition between indoors and out, as well as a unique spatial hierarchy.

As Frohn explains, the house's design was partly inspired by the ambiguous nature of the couple's plot of land. While technically

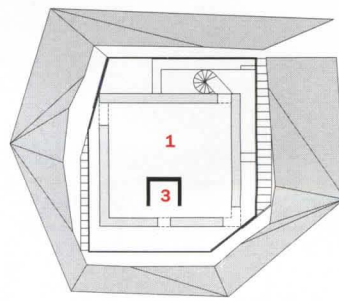
Jeannette Plaut, an architect and teacher in Santiago, Chile, is the architecture editor of Ambientes Magazine.

part of a subdivision, the site has a rural character, with dirt roads and mature trees that form hedges. "The hedges, while blocking off any visual connection to the immediate suburban context, opened to the views of the distant Andean mountains," says Frohn, "which could easily be understood as the ultimate outer layer, in terms of building skin. And so this became the starting point for the project concentrating on the idea of a house based on a series of separated layers capable of structuring volume and, at the same time, fading it out, starting from its rough, intimate core to its delicate encasing."

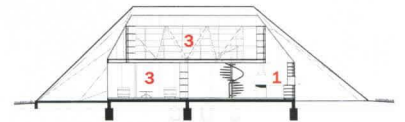
Opposed to the assumption that our living environments must be separated into discrete spaces with defined functions, the residence, dubbed the Wall House, investigates how the qualitative aspects of the wall, conceived as a complex membrane, structure our interactions with others and ourselves. The layers provide an attractive range



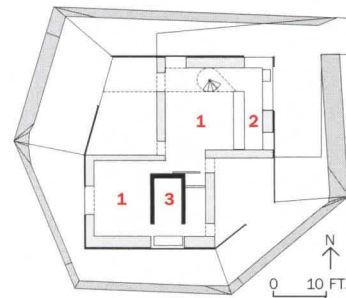
The soft skin (right) can be adjusted to admit either more or less daylight. Open windows (left) allow for natural ventilation during the summer.



SECOND FLOOR

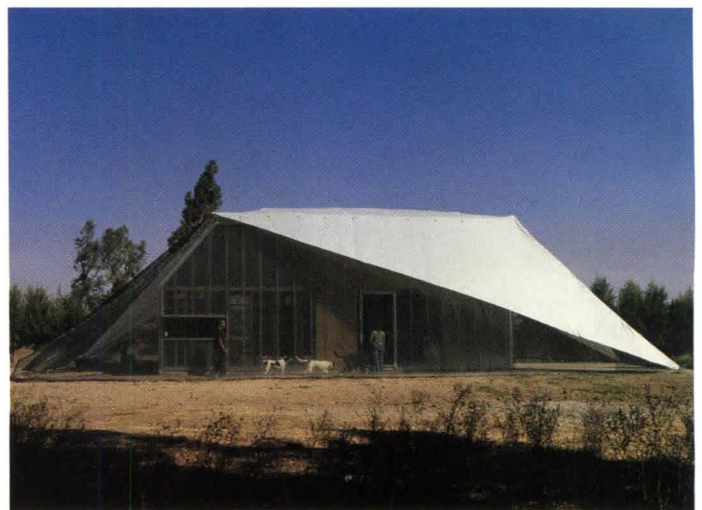


SECTION A-A



FIRST FLOOR

- 1. Living space
- 2. Kitchen
- 3. Bathroom



of experiences, playing with a visitor's perception of space. The house's boundaries of the indoors and outside are blurred as one moves deeper into or farther away from the structure: Here, one doesn't just move from room to room, but through different climatic zones.

Cheekily named, the house does not have just one set of walls enclosing a single space, but four, each with different structural, functional, atmospheric, or climatic qualities affecting the interior areas. At the building's center is a rectangular concrete core and the ground-floor concrete slab containing gas-powered radiant heating that calibrates the house's climate, as well as PEX hoses that cool down the house in summer. (This system uses far less energy than conventional HVAC.)

Surrounding the core, and its ceramic-tiled bathroom, is the building's second layer, comprising the kitchen, dining area, and guest room, separated from each other by bands of wooden shelving designed

by the architects. Some of these plywood bookcases feature triangular forms that mimic the composition of the house's angular exterior.

The third layer consists of a translucent skin, or "milky shell," enclosing two light-filled, double-height areas along the outer corners of the house that contain both the living room and master bedroom. The shell is made of high-insulation polycarbonate panels that filter the harsh Chilean sun while still registering on its surface the changing shadows of trees and outside elements. The panels work together with the soft, fabric membrane that demarcates the fourth and final layer.

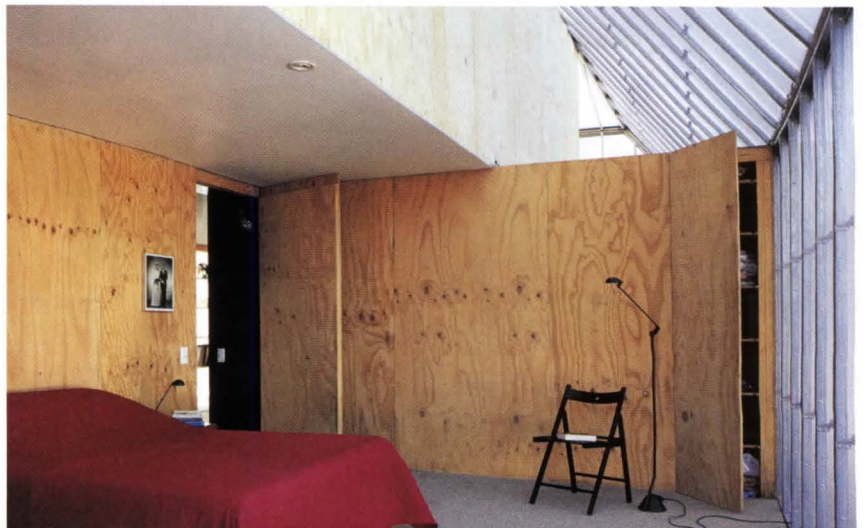
This membrane acts as an energy screen, reflecting almost 70 percent of the house's UV intake, while air pockets in the polycarbonate panels insulate the building. The two layers are spaced apart from each other at varying distances (at the roof, just 15.7 inches) so that warm air passes through the shell and out the membrane.

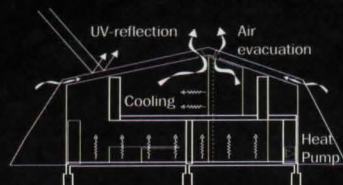
To maximize the house's square footage, the architects placed bedrooms and an additional living room on the second level.



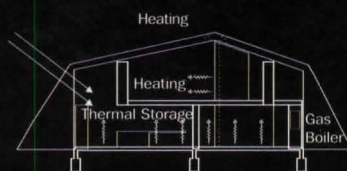


The bathroom (below), bedroom (below right), and public space are roughly hewn from a palette of wood, concrete, and glass with varying degrees of privacy.





SUMMER CONCEPT



WINTER CONCEPT

In addition to creating a unique aesthetic for the house, each layer mitigates the effects of the natural environment and lessens the house's energy use.

Usually found in greenhouse constructions, this membrane repels mosquitoes and shapes the building into an unusual cut-diamond figure that echoes the pointy peaks of the nearby Andes. The soft casing, wrapped entirely around the house and flexible to the demands of its inhabitants, creates a tentlike screened porch that can be opened to allow for breathtaking views of the mountain range. The varied characteristics of the three transparent wall elements permit changes in luminosity to adapt to different seasons or times of day.

Starting from a simple, rectangular core, the house's layers build upon one another, creating increasingly complex geometries. Thus the passage from inside to outside the house describes several transformations: from dark, heavy interiors to light, ethereal living spaces; from the centuries-old concrete material to the modern, ecofriendly soft skin; from the simple, private functions of the body to

the complex interactions that occur in public spaces.

Questioning the usual aesthetics of Chile's modern housing, Wall House offers an experimental approach to contemporary problems of architecture and the environment. It is as much an acute inquiry into structure as it is a comment on social relations. By delaminating the building's structure, the architects have embodied a rough-hewn, inexpensive ethos that challenges the most traditional concept of residential architecture, the wall, and breaks through it. ■

Project: Wall House, Santiago de Chile, Chile

Architects: FAR frohn&rojas—Marc Frohn, Mario Rojas, principals

Engineers: Ingewag Limitada;

Mario Wagner; Ernesto Villalon

SOURCES

HVAC: Central TechnoPlus/Vaillant building technology

The Palmyra House is set in a working coconut plantation. So as not to disturb the land, much of the house was built by hand by the architect's longstanding team of carpenters.





Studio Mumbai names two louvered
boxes **PALMYRA HOUSE**
after a popular Indian tree

PHOTOGRAPHY COURTESY STUDIO MUMBAI

It is said that the Palmyra tree can be used in 800 different ways. Its leaves make fine hats, thatching, umbrellas, mats, and baskets; its fruits and their sap, popularly called toddy, are a local delicacy. Architect Bijoy Jain, however, is perhaps the only person who has named a house after it. He designed the Palmyra House with signature louvers made from the tree's cut, dried, and locally harvested wood, setting a course of using sustainable, regional materials to guide the project.

Located in the Alibaug area of India where this hardy species grows in abundance, the house evokes an amalgam of vernacular architecture and contemporary design. Jain relied on his intuition to guide his process. "There is a constant struggle to understand the sense of that intuition and finding a method within myself to be as honest to it as possible. In this case, it was about a light, air-filled volume," he says.

In the end, the architect built not just one volume, but two louvered wooden boxes in a functioning coconut plantation in Nandgaon, a quiet, sun-drenched land of palm trees where time seems to stand still and the natives go about their daily chores as they did ages ago. However, given that India's restless financial capital, Mumbai, sits just an hour across nearby Mandwa Bay, the area has long been favored by wealthy Mumbaiers seeking weekend homes and a place to relax. Not surprisingly, the region is dotted with exciting new architecture commissioned by some of India's richest clients. Palmyra House serves as a vacation home for a Mumbai-based entrepreneur and his family.

Accessed by foot, roughly 165 feet from the road, the house's two rectangles encompass 3,000 square feet and are anchored to a stone plinth. A 25-foot-wide open court separates the buildings, with a pool that alludes to the plantation's 80-year-old system of stone aqueducts. The house offers dramatic views of the Indian Ocean and was situated to disturb as little as possible the densely planted palms on the 1-acre plot.

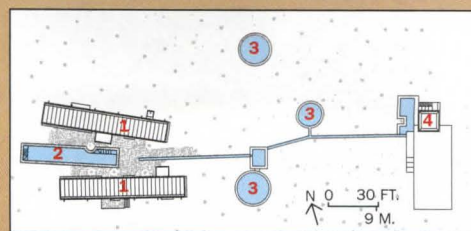
Jain split the house's program between the two building volumes, placing the living room, study, and master bedroom in the north block and the kitchen, dining room, and guest bedrooms in the south block. An open-to-the-sky copper shower enclosure with a small window offering a peek at the ocean is the highlight of the master bath. By dividing the living spaces among the two blocks, the architect forces residents to engage with nature as they walk through an outdoor plaza from one pavilion to another. Louvers, large openings, and floor-to-ceiling windows weave fascinating stories by framing ever-changing images of the sky, palms, ocean, and everyday and seasonal transformations.

The louvers, which enable passive cooling, help dematerialize the structures when they're open. From inside the house, one can experience the breezes, smells, sights, and sounds of the tropical plantation. As Jain says, "The house engages; it breathes; it is porous." Nonetheless, there are intimate sanctuaries, like a window seat in the living room where one can retire to escape inclement weather.

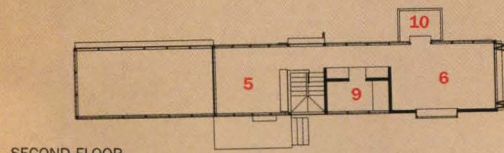
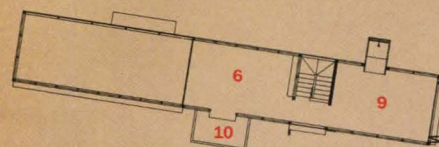
Jain chose a local hardwood, *ain*, for structural framing and recycled burma teak for door frames and windows. Interior finishes draw inspiration from the environment; for instance, the gray-green Indian patent-stone flooring (hand-finished, pigmented cement plaster) echoes the tone that coconut bark attains during the monsoon season.

Jain believes the building process is an extension of the area's ecosystem, and each element of the structure affects the environment. He has always approached his practice as an architect-builder, prefer-

Prathima Manohar, an architect and writer living in Mumbai, is currently at work on a book about contemporary Indian houses.

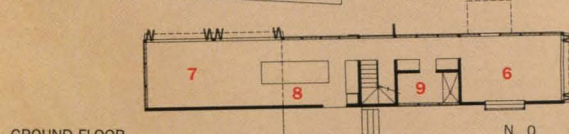
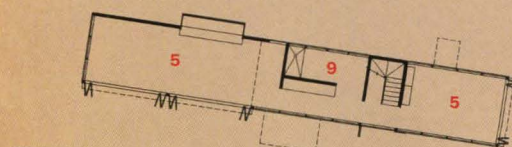


- 1. House
- 2. Pool
- 3. Well
- 4. Garage
- 5. Living

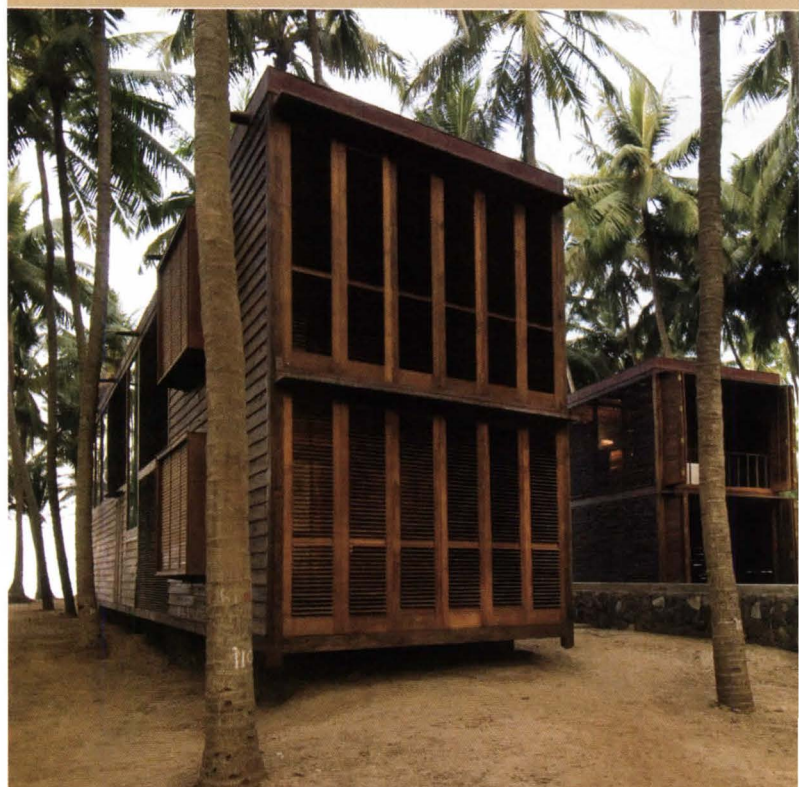


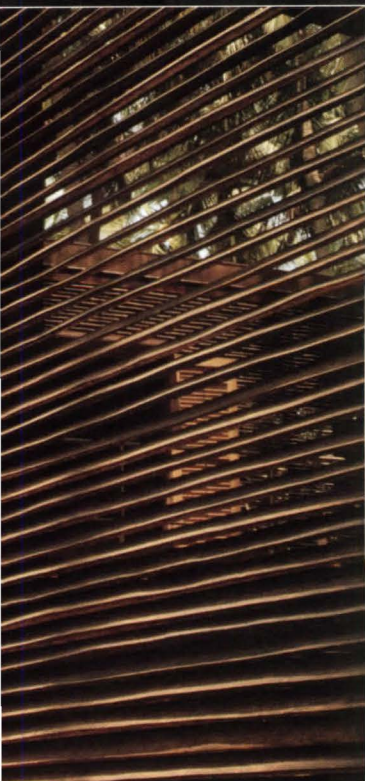
SECOND FLOOR

- 6. Bedroom
- 7. Dining
- 8. Kitchen
- 9. Bath/shower
- 10. Balcony



GROUND FLOOR





Divided into two volumes, the house forces its inhabitants to be engaged with nature (above). The dining area faces the pool sitting in the middle of the 25-foot-wide court (right) and the living room beyond. Palmyra, a very popular local palm tree, was dried and cut to make the house's ubiquitous louvers (left and right) that let in air and light. Large openings and window walls (opposite) further dematerialize the house and allow for passive cooling.





The northern volume features a master bedroom overlooking a living area. Gray-green Indian patent-stone flooring (hand-finished, pigmented cement plaster) echoes the tone that coconut bark attains during the monsoon season.



The master bedroom (top right) features an open-to-the-sky copper shower enclosure with a small window offering a peek at the ocean (above left). The stairs (left), like much of the house's interior, are made from ain wood, another local species. The study (above right) is one of the house's many spaces that open entirely to the outdoors.

ring to have a hand in the construction of his work. The team of nine carpenters who built this residence has worked with him for 11 years. The structure took eight months to build, beginning with work at Jain's workshop in Alibaug. There, he experimented with a range of materials and developed his ideas about construction detailing. He and his team fabricated the house's framework and other parts of its structure in his workshop and later assembled these pieces on the building site.

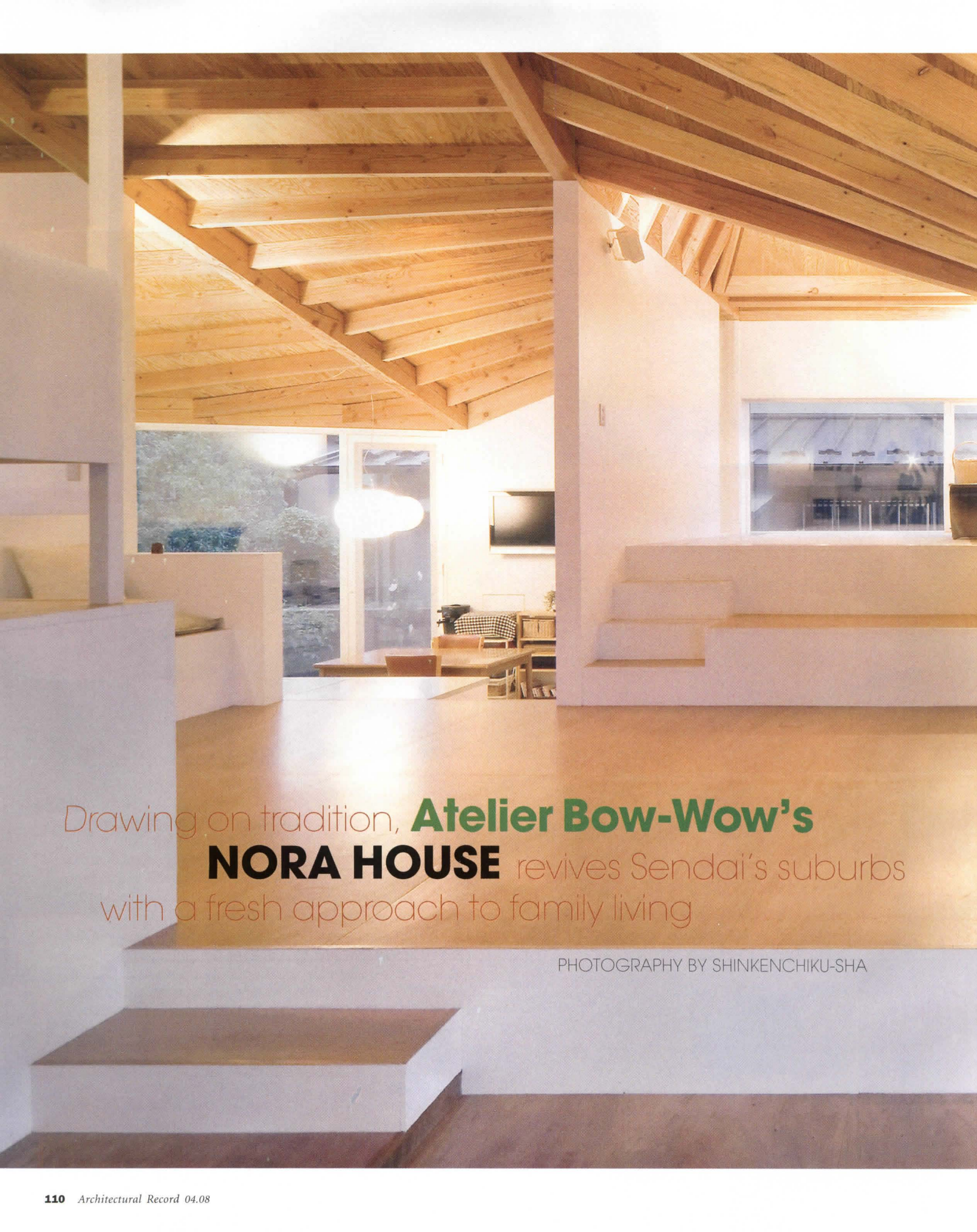
Jain's design took into account that the house is occupied mostly on weekends or often for only a week at a time. So the building expresses a certain temporality. But its tryst with nature and the traditional techniques used in its construction bestow an eternal quality on the architecture. One longs to watch it age—to see its wood acquire a lush patina, its rooms grow rich with memories, and its surrounding foliage mature into wild glory. As Jain puts it, "It's just the beginning." ■

Project: Palmyra House, Nandagaon, India

Architect: Studio Mumbai

Architects—Bijoy Jain, principal; Jeevaram Suthar, Mangesh Mhatre,

Roy Katz, Samuel Barclay, Faheem Khan, Mohammed Nizam, Punaram Suthar, Jean Marc Moreno, project team



Drawing on tradition, **Atelier Bow-Wow's**
NORA HOUSE revives Sendai's suburbs
with a fresh approach to family living

PHOTOGRAPHY BY SHINKENCHIKU-SHA



Inspired by the traditional south-facing *engawa*, the Nora House's west-facing porch extends the family's living space and brings light into its open interior.

To the casual observer, Japan may seem slow in catching on to the current ecofriendly trend that has taken the architectural world by storm. But an awareness and appreciation of the environment has been ingrained in its house construction for centuries—for example, the natural ventilation and illumination that has become so fashionable nowadays has always been practiced in urban and rural Japanese architecture. Faced with a site where single-family homes coexist amiably with small fields of cabbages and carrots, Yoshiharu Tsukamoto of Atelier Bow-Wow unsurprisingly turned to traditional know-how for inspiration.

The goal of the architect and his student collaborators from the Tokyo Institute of Technology was not just a new house but a new house typology tailored to the typical suburban-agricultural site ringing the periphery of many Japanese cities. Situated on the outskirts of Sendai, a city of 1 million located 190 miles north of Tokyo, this 2,500-square-foot property belongs to a residential community that sprouted in the 1960s when the area was mostly farmland. One by one, houses cropped up, but as in many comparable neighborhoods, that growth slowed in recent years as the country's population dropped, the appeal of suburban living diminished, and young Japanese began migrating to the city center or Tokyo.

Swimming against the current, Tsukamoto's clients, a couple with a young child, decided not just to move back to the suburbs, but to build on family-owned, cultivated land directly across the street from the wife's childhood home. Expressive and open to the street, their custom home does not exactly blend with its staid surroundings. Though it looks out toward a large cultivated lot, Nora House stands between pitched-roof residences clad with metal siding or stucco. But it is not entirely out of place, either. Comfortably familiar without being nostalgic, Nora House, or "house in the fields," shares many features with Japan's traditional *minka* farmhouses—a covered porch, fluid interior space, timber construction, and above all, a magnificent roof that hovers protectively over the entire building.

Though modestly scaled in comparison with its historic antecedents (while contemporary urban houses tend to be small, historic *minka* farmhouses are usually huge), Nora House reads as a single-story, barnlike building. In keeping with this exterior, the interior is essentially one big space. "In Tokyo, we have done a lot of one-room living, but in a more vertical way," explains Tsukamoto. "Here, we developed the idea horizontally." Spanning a height differential of 9 feet—the walk-in storage area marks the house's lowest point, and the daughter's play area the highest point—the functional zones within this house are spread out over nine distinct levels. Fulfilling the client's request for a house with continuous interior space without many partitions, short runs of stairs distinguish areas without separating them completely. Three freestanding partitions function as dividers and additional lateral bracing.

The first set of steps connects the ground to the covered porch that forms the facade. Thanks to full-height sliding-glass doors, the porch opens effortlessly onto the foyer, where one riser leads up to the modest living area in the middle of the house. From there, stairs take off in multiple directions, connecting up to the study, play, and tatami-floored rest areas, and down to the combined kitchen and dining area. Still more stairs descend from the kitchen to the bathroom and a storage area, followed by the master bedroom partially embedded



The Nora House looks out on a large, cultivated lot surrounded by conventional suburban houses (opposite, inset). The house's unusual roof line hints at its daring interior.

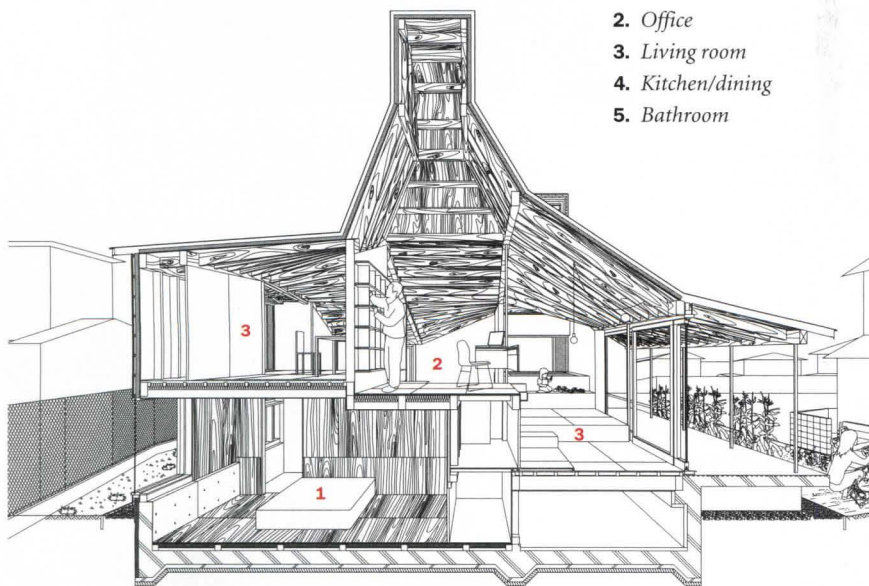
Naomi R. Pollock is RECORD's Tokyo-based special international correspondent.





The architect maximized the house's floor plate by creating nine separate levels distinguished by short runs of stairs.

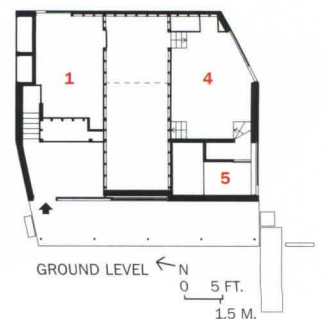
1. Bedroom
2. Office
3. Living room
4. Kitchen/dining
5. Bathroom



SECTION



UPPER LEVEL



GROUND LEVEL



The office—up-close (above) and at a distance (near right)—receives an abundance of light from the chimney set above it. Stairs lead from the office down through the kitchen to the bedroom (far right), which is partially embedded in the earth and is the only fully private room in the house.



in the earth for privacy. Tucked beneath the study, the parents' cozy retreat is just about the only place that can be sequestered behind closed doors. But additional stairs link it back to the foyer, completing the house's circulation loop.

Paralleling the dynamic floor plane, the roof rises up, peaking where its asphalt-shingled surface surges dramatically to form two chimneylike protrusions above the study and tatami-floored areas, respectively. Like an ocean wave, each asymmetrical projection emerges gradually out of the main roof but ends abruptly in a sheer, north-facing wall topped with a squarish window. While the windows' clear glass admits soft daylight into the shadowy heart of the house, crank-operated hardware enables the client to draw hot air up and out.

The chimney windows' high position was one factor that determined the roof's unique shape; the 3-by-4-foot rectangular openings at the base of both chimneys were another. While correlating with the level changes inside, the roof also had to conform to the horizontal line of the eaves. And valleys where rainwater could collect had to be avoided altogether. Fulfilling these myriad conditions led to the roof's complex geometry. But the house's wood-frame construction accommodated the unusual form. Left exposed, the structural plywood sheets and undulating Douglas fir beams animate the interior and enrich its white walls with their pronounced grain.

At the front of the house, the roof cantilevers gracefully over the porch. Though inspired by a traditional, south-facing *engawa*, Tsukamoto's deck opens to the west, where it overlooks the remaining vegetable patch and the road beyond. "Most suburbs are lifeless," laments the architect. "All the houses have gardens but nothing happens there. I think it is better to open life inside the house to the streetscape." Though this comes at the cost of privacy, the clients reap the benefit of the porch's extended living area, which also lets in plenty of fresh air and natural light. And, truth be told, the clients do not really mind the exposure. "The only people out there are old ladies taking walks, and they've known me all my life," says the owner, smiling.

Tsukamoto's new house type suggests that younger, design-savvy families can live well in Japan's suburbs. But it is the architect's intuitive strategy of working with and not against natural forces that has worldwide appeal. ■



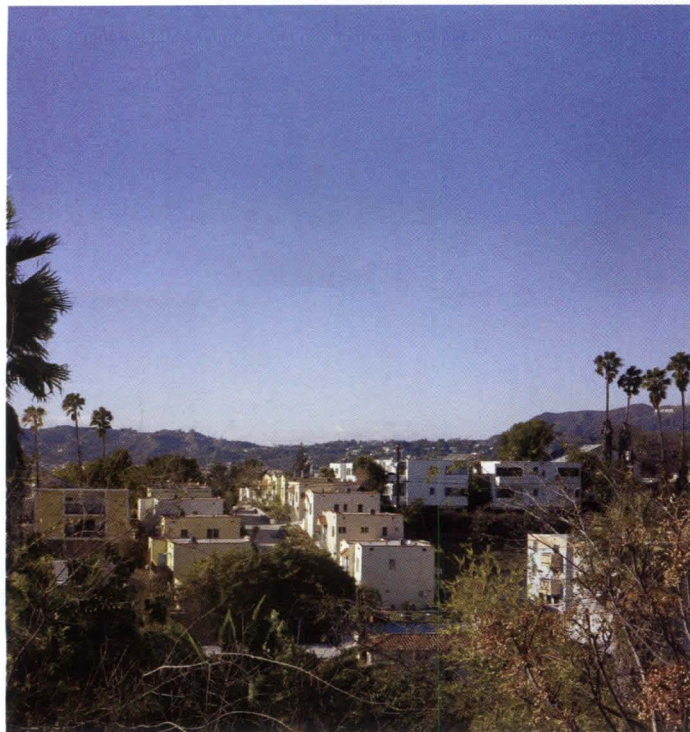
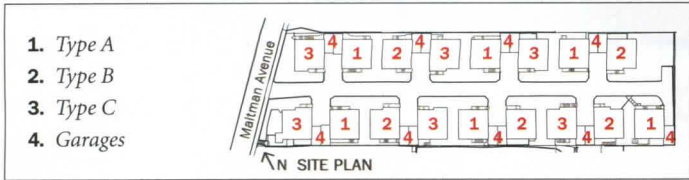
Project: Nora House, Sendai, Japan
Architect: Atelier Bow-Wow—
 Yoshiharu Tsukamoto, Momoyo
 Kaijima, principals; Fuminori
 Nousaku, Atsuko Koyama, Takuya

Yoshida, Chie Konno/Tokyo
 Institute of Technology Tsukamoto
 Lab, project team
Engineer: Kanebako Structural
 Engineers

In sprawling Los Angeles, **Drisko Studio Architects** reinvent a vintage typology for the **MALTMAN BUNGALOWS**

PHOTOGRAPHY BY BENNY CHAN

The bungalows are situated in the Silver Lake neighborhood of L.A., not far from a walkable stretch of Sunset Boulevard.



The 17 bungalows were left in disrepair by the 1990s. Renovated, each encompasses approximately 700 square feet

(left). In 2004, L.A.'s city council passed the Small-Lot Subdivision Ordinance allowing for greater density in the city (above).

By Christopher Hawthorne

You can find pretty much anything in the Silver Lake neighborhood of Los Angeles: a pair of limited-edition sneakers, an obscure gourmet cheese, or a copy of *The Da Vinci Code* in Mandarin. What hasn't been available for much of the past decade, as gentrification took full hold of the area, is a single-family house with any architectural appeal for less than about \$800,000.

Thanks to a unique effort by the city's planning department, a local developer, and a pair of preservation architects, that finally changed late last year with the opening—or rather the reopening—of the Maltman Bungalows, on Maltman Avenue, near the neighborhood's southern edge. Built in 1926, the 17 bungalows line up in two neat rows on a moderately hilly piece of land less than ¼ mile from a lively and walkable stretch of Sunset Boulevard. They make up one of the many “bungalow courts” built in and around Los Angeles in the early part of the 20th century.

Executed in a streamlined Spanish style by way of Irving Gill, with red-tile parapets and simple, elegant profiles, the one-bedroom bungalows measure roughly 700 square feet each. (There is a single two-bedroom unit.) Each has a modest front stoop, a tiny private yard, and an attached garage barely big enough to hold a Mini Cooper. The skyline of downtown Los Angeles, about 5 miles to the southeast, peeks over a nearby hill.

Designed as rental units by an architect whose name is lost to history, the Maltman bungalows had lost a good deal of their original charm by the 1990s. The same was true of other bungalow courts

across the city. As Los Angeles grew denser during the past decade, however, and as apartment living grew more popular as an affordable alternative to soaring home prices and long commutes, officials in the city's planning office started looking for ways to bring them back to life. The effort got a big boost when the city council, in late 2004, passed something called the Small-Lot Subdivision Ordinance. In certain neighborhoods already zoned for multifamily housing, the ordinance allowed single-family houses to be built—or existing rental units like the ones on Maltman to be converted to single-family status—on individual lots smaller than 5,000 square feet.

Though the ordinance was written partly to promote construction of new bungalow courts, it has been slow to catch on with developers. That sluggishness prompted planning officials to start encouraging a few open-minded developers to scout for existing courtyard complexes that might be converted into collections of modest single-family houses.

Enter Civic Enterprise Development, founded by the young developers Mott Smith and Brian Albert. Encouraged by the planning office, Smith and Albert began touring bungalow courts, searching for an appropriate conversion guinea pig. Smith knew as soon as he saw the Maltman property that it could qualify. Though the 17 little houses “hadn't been maintained in a way that was sensi-

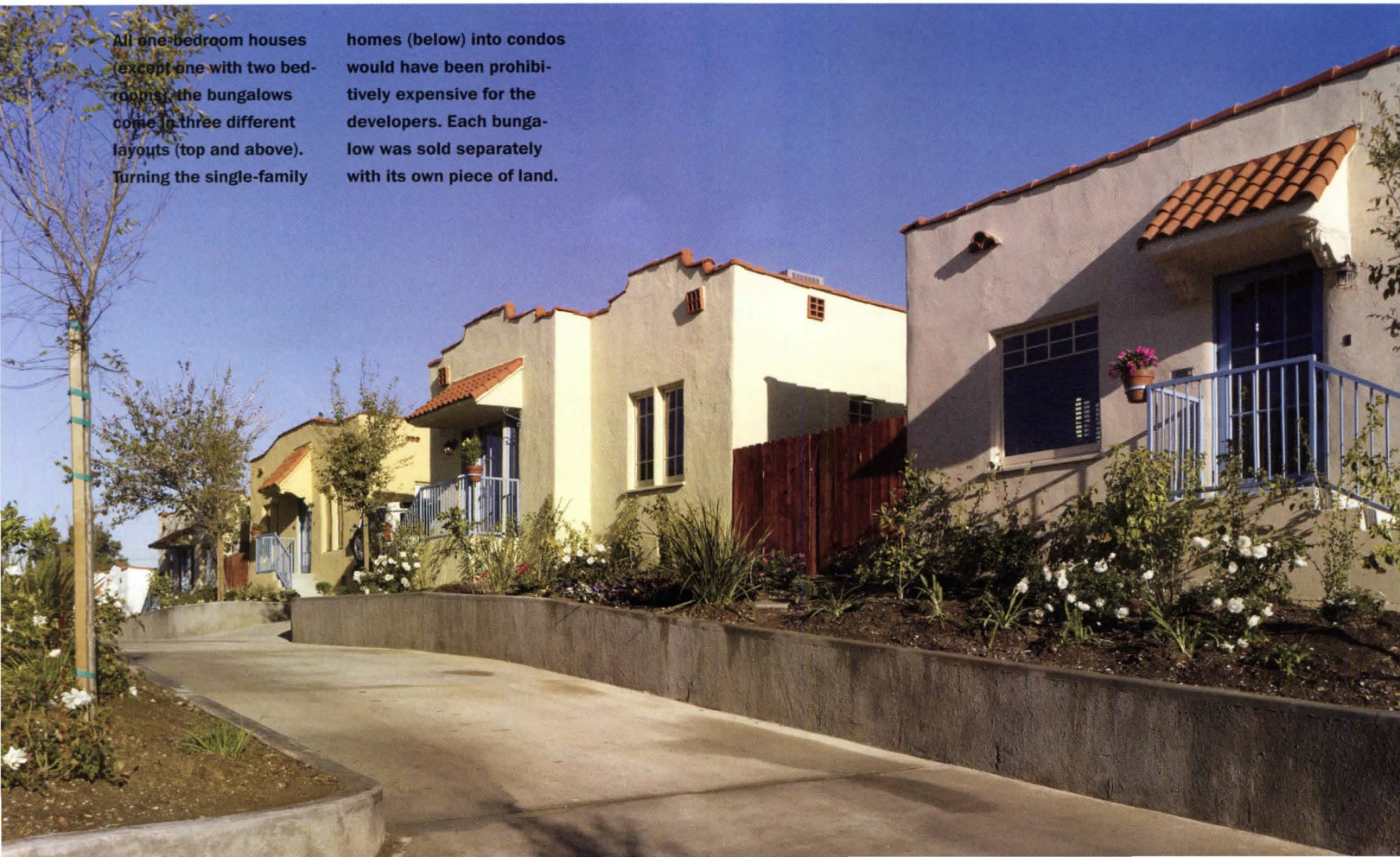
Christopher Hawthorne is guest editor of this issue and the architecture critic of the Los Angeles Times.

1. Kitchen
2. Living/dining
3. Bedroom
4. Garage



All one-bedroom houses (except one with two bedrooms), the bungalows come in three different layouts (top and above). Turning the single-family

homes (below) into condos would have been prohibitively expensive for the developers. Each bungalow was sold separately with its own piece of land.





With their shared driveways and dense siting, the bungalows have an authentic urban feel while creating a sense of community.

tive to their history,” he says, “you could still see through that damage to their beautiful bones.”

Smith and Albert hired the preservation firm Drisko Studio Architects, based in Santa Monica, to oversee the rehabilitation. The architects were able to salvage the original stucco walls, the parapets, the doors, the decorative fireplaces, and much of the hardware. They also reconfigured the kitchens and baths in each unit.

The goal was a solution that, as Smith puts it, “tries to balance past, present, and future values. This isn’t a museum piece.”

Bob Knight, who led the design team with his partner, Kaitlyn Drisko, saw the rehabilitation of this particular court as a symbolic as well as a practical effort. “There are many, many sets of these bungalows all over Los Angeles,” he says, “just waiting for some care and attention. I do think this could really be a model.”

Though the permitting process, even on a project many city agencies were rooting for, was full of headaches, work was finally completed last fall. Aiming at first-time buyers, with prices between \$499,000 and \$559,000, the property has sold well even in a very slow market; as of early March, just one bungalow remained available. (Three of the buyers are former tenants.) The new residents, Smith says, “care about history and architectural character, and about living in a walkable neighborhood. They look at gated communities as aberrations. They actually want to be in a community rather than retreat from one.” Indeed, the siting of the bungalows, rising on each side of a shared driveway, does suggest a kind of urban village, but with an

authentic rather than a cloyingly ersatz feel.

Though the units themselves are hardly groundbreaking architecturally, the process that has brought them back to life is a hugely important milestone for a city struggling to define how to evolve and mature in a sustainable way. Los Angeles, still a young city, is enduring serious growing pains as it takes on more density, builds more multi-family housing, and tries to put a comprehensive mass-transit system in place. Though famous for sprawl—and for a particularly showy brand of conspicuous consumption—the city is working to change its reputation. The new planning director, Gail Goldberg, is pushing for pedestrian-friendly development and land-use policies.

But too often even the biggest green proponents in the city forget that Los Angeles built a whole network of bungalow courts that were sustainable *avant la lettre*. Not only are they often situated in the city’s most walkable neighborhoods, but they combine density and shared, efficient infrastructure with private space and immediate access to gardens, light, and air. Preserving them is a way for Los Angeles to embrace its future as well as its past. ■

Project: Maltman Bungalows, Los Angeles
Architect: Drisko Studio Architects
Developer: Civic Enterprise Development
Engineer: Structural Focus

SOURCES:
Windows: Paramount Windows
Doors: T.M. Cobb
Floors: Forbo Marmoleum
Paints and stains: Dunn-Edwards
Cabinetwork: Cabinets Unlimited

Werner Sobek's explorations in sustainability
maintain the elegance of a Minimal design
for the **H16 HOUSE** near Stuttgart

PHOTOGRAPHY BY ZOOEY BRAUN

A glass volume for living and dining spaces perches serenely atop a black-concrete-paneled base (opposite). The two are linked to a third volume, a garage, by a roof deck and are backed by a limestone retaining wall.



By Suzanne Stephens

It's hardly a secret that Germany has long been at the forefront of energy-saving design. Even back in the early Modern days, its health-oriented obsession with getting natural light and cross ventilation into living quarters paved the way for later passive-energy-saving strategies. In the 1920s, "*zeilenbau*" planning principles, calling for long, narrow housing blocks to be placed in parallel rows on a north-south axis, allowed sun and air to easily penetrate interior spaces. Although the idea itself was not new, the urban scale of its application offered a model for future problem solving.

Today, German architects and engineers are advancing strategies for sustainable design that go far beyond the *zeilenbau* thinking, as demonstrated by the efforts of Werner Sobek. A structural engineer famous for such adventurous mega-schemes as Sony Plaza in Berlin (2000) and the Suvarnabhumi International Airport in Bangkok [RECORD, August 2007, page 108]—both designed by Murphy/Jahn—Sobek also runs the Institute for Lightweight Structures and Conceptual Design in Stuttgart.

Since Sobek was trained as an architect as well as an engineer, he also likes to design buildings on his own. In 2000, he built a house for himself, named R128, in Stuttgart, that explored a number of sustainable strategies. In 2006, Sobek completed his latest house, H16, for a young family in the village of Tieringen, not far from Stuttgart. The house, which he maintains is fully recyclable with zero emissions and zero energy use, sits atop a knoll, on a 17,028-square-



Thin chords and triple glazing with silicon joints allow a panoramic view of the village from the kitchen, dining, and living spaces (above).

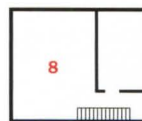
foot site overlooking the picturesque village. The owner, Helmut Link, whose family business, Interstuhl Büromöbel, a furniture manufacturer, is located in Tübingen, wanted a Modern, flat-roofed house, with a full south-facing view—and no curtains. The town authorities favor the more *gemütlich* gabled-and-stuccoed residential architecture. But Link, his wife, Georgia, and Sobek persevered. It got approved.

From the slope to the south of the house, one immediately apprehends its straightforward parti. A glass-and-steel volume, approximately 23 feet deep and 56 feet long, devoted to the living, dining, and kitchen areas, rests on a deeper, steel-framed base, containing bedrooms, roomy baths, and an office. Enclosed by charcoal-black, non-load-bearing, precast-concrete panels, this volume is about 31 feet deep and 54 feet long. Operable, double-paned, narrow windows, between 16 inches and 3 feet in width and a little over 8 feet high, bring light and air into these lower-level quarters. A third, beige-precast-concrete volume, linked by a terrace and roof deck, contains the garage and service equipment for the 4,200-square-foot residence.

Like Sobek's earlier R128 House, the steel frame of the H16 design could be erected in five days. It can be dismantled, as well, and either reused in a new structure or sent to the recycling factory. To keep the house's energy use at zero, Sobek installed a geothermal heating and cooling pump system that takes advantage of the soil's temperatures—warmer than air in cold weather, and cooler than air in the summer. Sobek also put 41 photovoltaic (PV) panels on the



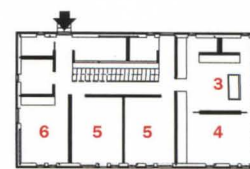
- 1. Living area
- 2. Dining/kitchen
- 3. Master bath
- 4. Master bedroom
- 5. Bedroom
- 6. Office



UPPER LEVEL (detached)



LOWER LEVEL (detached)



- 7. Garage
- 8. Building services

To foster the house's light-weight quality, Sobek connected the lower-level terrace to the roof deck with an open-riser stair and cable balustrade. Bankirai wood clads the deck's surfaces.





A stainless-steel stair with a fanfold pattern connects the private spaces to the upper-level living areas (left). A red composite-wood cabinet flanks the stair

(above and opposite). Vertical windows in the lower level (below left) are operable. The expansive bathing room for the master bedroom (below right) opens to a small terrace.





roof, with a 9.02 kilowatt-peak yield. Except for the winter, the house needs little utility-company-supplied power. In the summer, Sobek explains, the PV panels produce more energy than needed, so that surplus is fed back into the grid.

Because of the mountain location, air-conditioning is not much of a problem, although in hot weather water from the soil is pumped to the roof to cool it off. But to make sure that cross ventilation will quickly keep the upper level comfortable in warm weather, Sobek designed the glass panels, 7 feet 8 inches by 11 feet, to slide back on three sides. The panels' triple glazing, with a metal-coated plastic film and argon-gas filling, ensure that the interior stays cozy in the winter. Yet the transparency of the glass is not diminished, as is the case with fritted glass, and light transmission is limited to 64 percent, which mitigates annoying glare.

In many ways, the design of the house and its site on the crest of a slope overlooking the town brings to mind Ludwig Mies van der Rohe's Tugendhat House (1930) in Brno, Czech Republic. The Tugendhat parti called for private areas to be level with the road, so that visitors descended a stair down to the living and dining areas opening onto the garden view. Mies designed the window wall, facing the downward slope of the garden, to slip into the ground so as to bring in cool air during warm weather. The H16 House, however, reverses the placement, and it is not built into the slope: "We didn't want to disturb the ecosystem," says Sobek. "And if the house is surrounded by soil, you

can't control humidity." So Sobek created a retaining wall of limestone and detached the house from the hillside with a moatlike space.

Even with these differences between Sobek's design and Mies's more lavish masterwork, the clarity and simplicity of Sobek's concept, and its integration with nature, bolster the lineage between the two. And although the house doesn't feature Mies's famous furniture, it does include pieces selected from the Interstuhl Büromöbel office lines, strikingly Miesian in their own right. Clearly, the clients of H16, who knew of the R128 House, supported Sobek's progressive intentions. With one exception: Sobek did not want to install a wood-burning fireplace, since it emits carbon dioxide. The Links, however, argued that on a cold, wintry day there is nothing better than to snuggle up in front of a warm fire. So Sobek created a nonstructural, cylindrical column to contain a fireplace in the living room. And the clients are right: Going green shouldn't be too punitive. ■

Project: H16 House, Tieringen, Baden-Württemberg, Germany
Architects: Werner Sobek Engineering and Design—Werner Sobek, principal; Sven von Boetticher, Alexandra Sixt, Markus Buschmann, Hormoz Houshmand, Rüdiger Engelhardt, design team

SOURCES
Steelwork, facades, roof, metal-and-glass curtain wall: Basler Metallbau BmBH
Concrete: R. Bayer Beton and Terrazzogruppe
Chairs, tables: Interstuhl Büromöbel



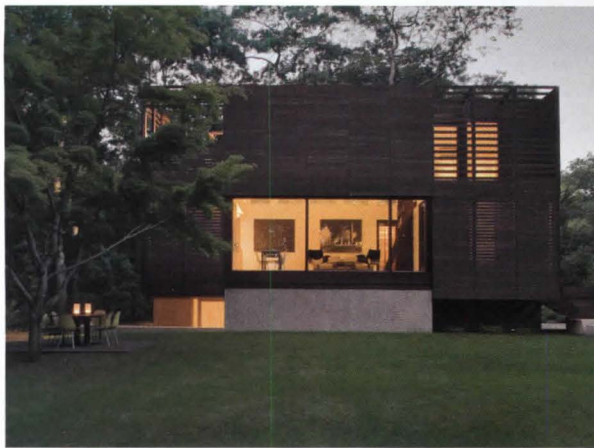
Pushing the envelope: **Darren Petrucci**
reinvents the vacation guesthouse with
the **VH R-10 GHOUSE** on Martha's Vineyard

PHOTOGRAPHY BY BILL TIMMERMAN



Compact and spare, the VH R-10 gHouse, created by the architect for himself and his wife, is full of personal touches. Drawings, photos, and a table by the late architect John Hejduk are visible through the window.



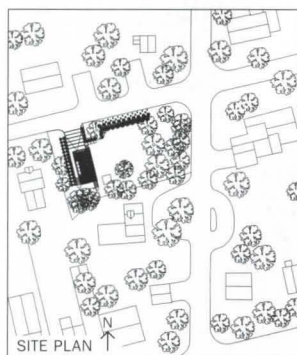


By Beth Broome

Restrictive zoning, rather than necessity, is often the mother of architectural invention. Made to withstand the harsh winters of Martha's Vineyard while treading lightly on the island, the VH R-10 gHouse, designed by architect Darren Petrucci, AIA, was so profoundly shaped by local restrictions that it adopted the zoning district—R-10—as part of its name.

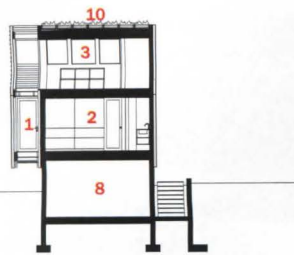
Even though Martha's Vineyard was originally (and still is) home to the Wampanoag Indians, it put itself on the map in the 19th century during the rise of the whaling industry. Today, the island is best known for its pristine beaches and quaint New England villages, and has firmly established itself as a summer colony and magnet for the rich and famous. Petrucci and his wife, Renata Hejduk, an assistant professor of architectural history and theory at Arizona State University, in Tempe (and daughter of the late John Hejduk), were drawn to the Vineyard for the same reasons that have attracted other vacationers. The couple, who spend most of their time in the Phoenix area, were not interested in a beach house or isolated retreat, however. Petrucci, the director of Arizona State University's School of Architecture + Landscape Architecture, where he also runs a research and design lab that focuses on urban amenities and infrastructures, hoped to build a high-performance prototype house incorporating contemporary building techniques within walking distance of one of the island's towns. When he and his wife learned of a lot for sale on the outskirts of Vineyard Haven, a community of traditional 19th- to mid-20th-century wood-shingled buildings, they jumped on the rare find.

The gently sloping corner property was appealing on a number of counts. At 12,518 square feet, it just met the zoning requirement



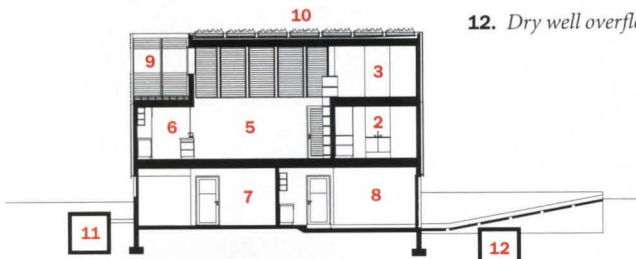
A driveway is made of the same bluestone gravel and concrete used on the oriented-strand-board-patterned foundation (opposite). Rain-screen panels on the lower front facade slide on a cannonball track, allowing the owners to increase shading or privacy as desired (top two). The front entrance (right) is seen here behind a closed screen.



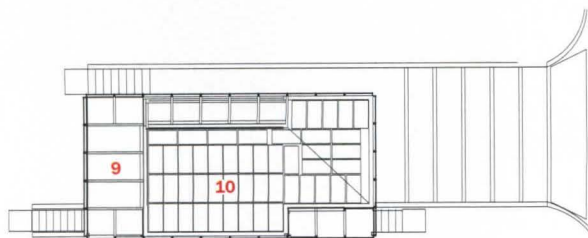


SECTION A-A

1. Main entry
2. Bedroom
3. Loft/office
4. Open to below
5. Living/dining
6. Kitchen
7. Guest room
8. Garage
9. Roof deck
10. Green roof
11. Rainwater cistern
12. Dry well overflow



SECTION B-B



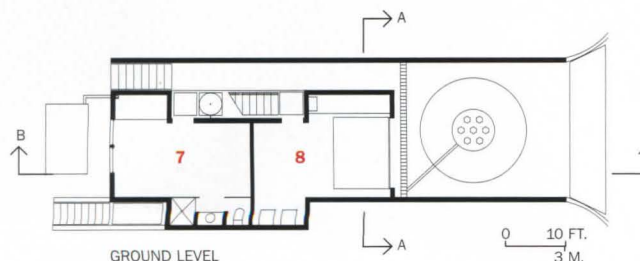
ROOF



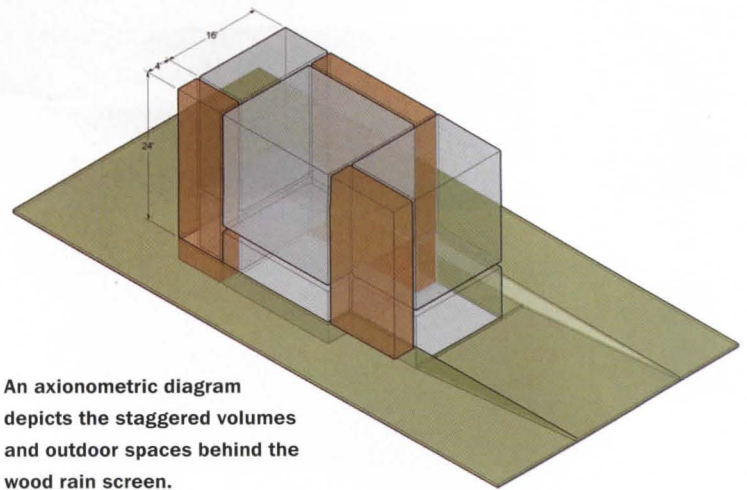
THIRD LEVEL



SECOND LEVEL



GROUND LEVEL



An axonometric diagram depicts the staggered volumes and outdoor spaces behind the wood rain screen.

to legally accommodate both a main house and a guesthouse. With economy and the future value of the lot in mind, the couple opted to build a guesthouse first, reserving the right to build a larger main house later. However, local zoning restrictions are rigid: Guesthouses in the district, for example, may encompass no more than 600 square feet, their height may not exceed 24 feet, and a particularly ornery clause stipulates that the basement may not be accessed from the building's interior.

To maximize the allowable envelope, Petrucci drew a 16-by-40-by-24-foot box based on a 4-foot construction module. Structurally insulated panels (SIPs) enclose three staggered, rectilinear volumes for cooking, living, and sleeping. Though the center volume is shifted out 4 feet to accommodate an exterior stair, a mahogany rain screen unifies the volumes, enveloping the stair and blurring the line between outside and in. The program called for a kitchen, living area, and master bedroom on the main level. The small loft and spacious lower-level guest suite do not count toward the square footage allotted by zoning so, cleverly, 600 technical square feet become 1,000 square feet of livable space. A raised deck, accessed by the exterior stair, creates a secluded aerie in the tree canopy.

The house's small footprint is just one of its many sustainable features. Petrucci compensated for the ground displaced by the house with a green roof sheathed in EPDM (ethylene propylene diene monomer) rubber and covered with succulent plants, which creates a heat-absorption-reducing canopy, and buried a 1,000-gallon cistern for capturing rainwater from the roof runoff to be used for irrigating the garden below. A porous driveway also channels water back into the ground. The house is heated with a radiant-hot-water system powered by an on-demand boiler. A concrete foundation and floor increase thermal mass. Strategically located operable windows increase passive air movement for cooling, and ample fenestration (with insulated low-E glass) limits the need for artificial lighting. Building-information-modeling software and prefabricated SIPs and rain-screen panels are some things that helped streamline the construction process for Petrucci, who acted as his own general contractor while managing most of the project from more than 2,000 miles away.

Despite the complex demands of the program, the architect desired a modest, quiet house. Acknowledging that many designers make the mistake of inserting all their ideas into their first building, Petrucci took a more pared-down approach for his: "With the exception of the bedroom ceiling," he says, "there's nothing in this house that you don't need." From its rain-screen cloak to its spare interiors, the

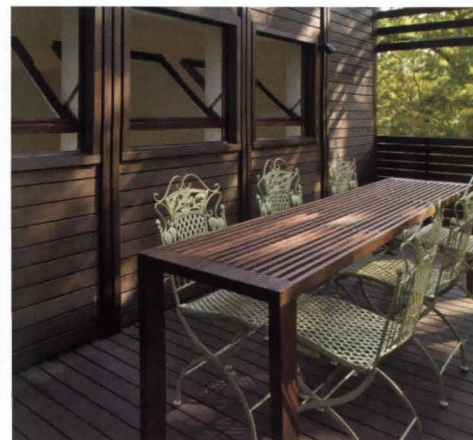
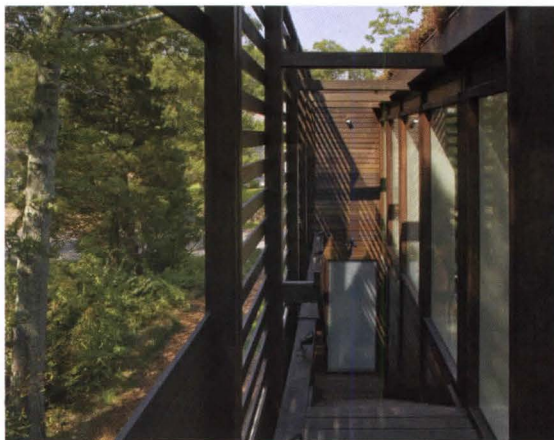


For the bedroom ceiling, the architect photographed the shadow of an old maple tree in the yard, converted it to a digital drawing, and had the pattern laser cut out of medium-density fiberboard (far left). The loft/study is accessed by a ladder from the living room (left and below). The stairway leads down to the lower level and up to the roof deck (below, at the left).





The rain screen shields structurally insulated panels, which are sheathed in EPDM (top). No fasteners are visible, lending the house a furniture-like quality. An exterior stair (right) leads up to a crow's-nestlike roof deck nestled in the tree canopy (far right). Succulents cover the green roof (opposite).





house's clean lines and uncluttered sensibility have a calming effect, creating a meditative refuge in the midst of a residential neighborhood.

While the VH R-10 gHouse is currently the only one of its kind, the architect developed it as a prototype for an affordable-housing model for service industry workers and others on Martha's Vineyard who cannot pay the island's astronomical housing costs. Petrucci says his hope for his optimized guesthouse "is to demonstrate how this synthesized approach produces a 'big little' house that can serve year-round living." While exhibiting all the compactness of an urban apartment, the house succeeds in transcending its economy of means and exudes the expansive feelings one looks for outside the big city.

One of the most visible Modern houses on the Vineyard, VH R-10 gHouse, says Petrucci, has become a lively topic at cocktail parties. However, "while it is distinctly an object, it dematerializes in

the shadows and becomes part of the landscape," he points out. It will be intriguing to see how the architect's less-is-more approach serves as a model in an enclave that, with each passing year, seems to be increasingly associated with restrained excess. ■

Project: *VH R-10 gHouse, Vineyard Haven, Massachusetts*

Architect: *Darren Petrucci Architect*

Owners: *Renata Hejduk and Darren Petrucci*

HVAC: *Lowe Energy Design*

Consultants: *David Knauf (concrete); Don Keller, Scott Elsasser (cladding, woodwork); Will Parry (wood windows)*

SOURCES

SIP panels: *Insulspan*

Green roof: *GreenGrid*

Glazing systems: *Falmouth Glass*

Cabinets: *Luxor Cabinets*

Flooring: *Expanko cork flooring*

Locksets: *Baldwin*

Garage door: *Kolpay*

Roofs set atop each hut form an inverted asymmetrical V with overhangs to protect the interiors from the relentless desert sun in summer and snowdrifts in winter.



Olson Sundberg Kundig Allen
evokes Thoreau's simple cabin in the woods
with **ROLLING HUTS** in rural Montana

PHOTOGRAPHY BY TIM BIES



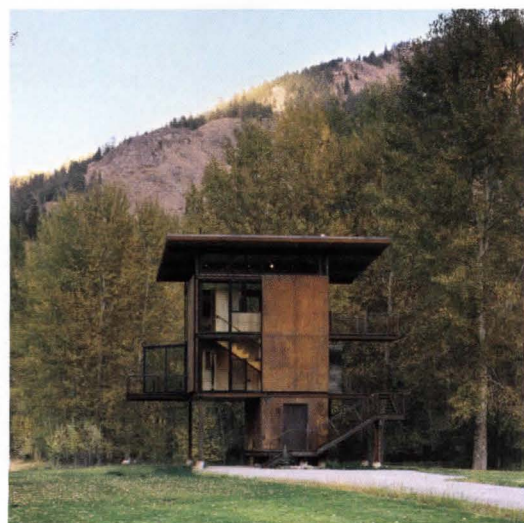
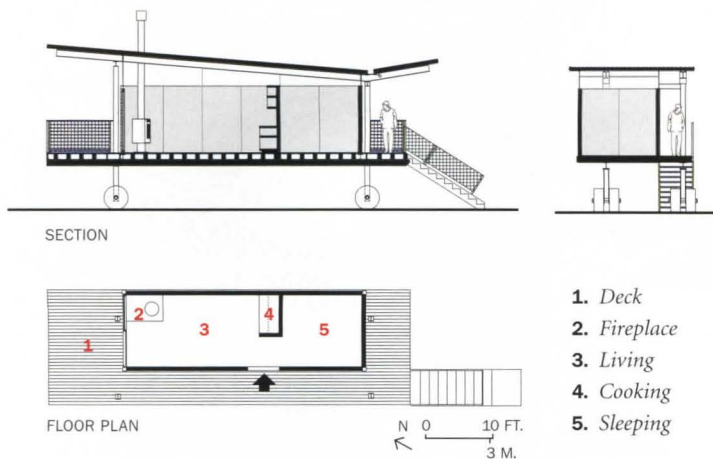
While Henry David Thoreau's solitary sojourn at Walden Pond lasted two years, two weeks, and two days, it took Michal Friedrich, owner of Delta Shelter, also known as Stilt Cabin [RECORD, April 2006, page 92], in Mazama, Washington, only a year and a half to realize he wanted visitors to his secluded mountain retreat. To accommodate them, he commissioned the same architect who designed Delta Shelter—Tom Kundig, FAIA, of Olson Sundberg Kundig Allen Architects—to design six Rolling Huts. The huts, set on short, wheeled legs, look like the baby chicks of Mother Delta, with the same rudimentary, pared-down style and materials, a treatment that speaks to Thoreau's philosophy of self-reliance and simplicity, which Kundig has admired since his youth.

The owner's cabin and the huts perch on a high-altitude flood-plain meadow in the Methow Valley, a 40-acre plot in the tiny village of Mazama in Washington State's Cascade Mountains, an area covered with Douglas fir and Ponderosa pine. There are no ski lifts here; instead, it is home to one of the world's longest cross-country ski trails and a place for deep-snow helicopter skiing. In this high-desert elevation, cold winters follow the intense heat and aridity of summer. Such a climate helped determine Kundig's choice of materials for Rolling Huts—steel, plywood, and car-decking on the exterior; cork and plywood on the interior. The raw materials at once respond to the rugged setting, allow natural weathering, and require almost no maintenance.

"In Sun Valley, I saw Basque huts on wheels that looked like covered wagons that people parked on their properties to accommodate visitors," says Kundig, explaining in part the origin of his idea. That the property was licensed for 14 parking stalls for recreational vehicles (RVs), allowing Kundig to construct the buildings on wheels and get permits for them as RVs, also contributed to the plan. In addition, the huts' wheeled underbellies raise the dwelling units high enough to offer 360-degree views of the surrounding landscape, in much the same way that Delta Shelter's thin columns elevate it. Lastly, lifting the huts above ground preserved the meadow terrain, which had been damaged by 80 years of overgrazing by horses. Each of these gestures reveals the architect's and owner's mutual desire to create a highly sustainable and noninvasive ecodevelopment.

While the huts look toward Goat Peak Mountain in the north and west through double-paned, low-E sliding-glass doors, steel walls on the back and side establish privacy from the other members of the "herd," as Kundig calls the group. In Japan, windows often look onto private gardens and away from neighboring houses, recalls Friedrich. "You know there are other people around, but you can't see them."

A band of clerestory windows wraps around each unit just below a structurally insulated panel roof (below). The owner's primary vacation residence, Delta Shelter, sits in the meadow nearby (below left).





Essentially elegant camping accommodations, the 200-square-foot huts include only a bedroom separated by a wall of shelves from a sitting area with a woodstove. Decks with 240 square feet of space expand the inside out.

at Rolling Huts demands that visitors rough it, engaging directly with nature. Economy and spareness guide the program, from the materials, orientation, and tiny footprint to the renovation of a barn to serve as a central gathering place containing the bathrooms, meeting areas, and kitchen. While the huts could be completely “off the grid” once photovoltaic panels are installed on the roofs (a future plan), today they use preexisting RV hookups for electricity and water. Indeed, when the PV panels are installed, the huts could easily be rolled into the meadow and moved around to take advantage of seasonal changes.

The site, to be called Wesola Polana, which means “happy

Kundig’s design exercises a similar response to the need for privacy.

Friedrich jokingly suggests that staying a week in one of the huts might not be for everyone: “In the confines of such a small space, true feelings come out; you get a good look at each other. It could perhaps be a good premarital test for visiting couples.” Staying

meadow” in Polish (Friedrich’s native tongue), will be ready to receive guests this April in time for the many warm-weather activities in the area. Kundig and Friedrich seem to be on the same page as Thoreau, who believed that spiritual reality is thoroughly embedded in physical phenomena, rightly seen. Says Kundig: “I always felt Thoreau’s place of refuge and reflection was a metaphor for the artist’s brain considering the relationships we experience in life—existential, intimate, cultural, universal.” Friedrich adds, “Some people are so tied up they don’t know where they are. Here, you can hear the silence; here, there exists a great escape from daily life.” ■

Project: *Rolling Huts, Mazama, Washington*

Architect: *Olson Sundberg Kundig Allen Architects—Tom Kundig, FAIA, principal; Jerry Garcia, Kenny Wilson, design team; Debbie Kennedy, interior designer*

Engineer: *Monte Clark Engineering*

General contractor: *Tim Tanner*

SOURCES

Glazing: *Milgard*

Prerusted corrugated metal: *Recla Metals*

Exterior lighting: *Stonco*

Woodstoves: *RAIS*

Skene Catling de la Peña combines sustainability and seduction at the **DAIRY HOUSE** in Somerset, England

PHOTOGRAPHY BY JAMES MORRIS



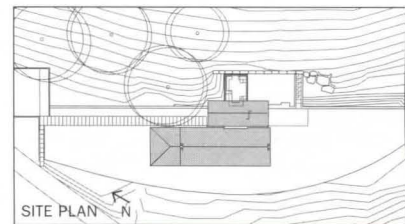
By Diana Lind

The new buzz words of the 21st century—“organic,” “ecofriendly,” “sustainable”—have inundated today’s architectural vocabulary despite their indifference to definition. When you get down to it, whether a work of architecture is “green” is usually a shade of gray.

Architect Charlotte Skene Catling, principal of the firm Skene Catling de la Peña, shrugs off any hard-and-fast characterization of the environmental principles that guided her renovation of and addition to a 1902 building in the historic, 850-acre Hadspen estate in Somerset, England. Although demolishing the old building and replacing it would have been much less expensive, she and her client saw the value in maintaining the integrity of the timeworn masonry structure and its role in the estate as a whole. Catling gutted and renovated the building from roof shingles to reclaimed wood floorboards, adding an extension clad in sheets of glass and oak that houses circulation space between the first and second floors, as well as three bathrooms. An attached, 215-square-foot pool acts as a heat sink for a biomass power source in the summer.

Diana Lind is editor in chief of Next American City magazine. Her book, Brooklyn Modern: Architecture, Interiors, & Design, was published by Rizzoli this month.

But more than just keep the house’s size small (just over 2,000 square feet) and minimize energy use, Catling sought to keep the project local. The oak, with matching layers of float glass that



clad the extension’s second floor, come from cords stored in sheds opposite the Dairy House. Catling hired regional workers who live less than 20 miles from the site: a local cabinetmaker, who constructed the extension; a glass laminator responsible for joining the extension’s layers of glass; and a stonemason who restored the brick facades and fashioned pathways and the pool from locally quarried slate. These moves represent an equally important side of sustainability—what her architecture-savvy client, Niall Hobhouse, calls “social sustainability.”

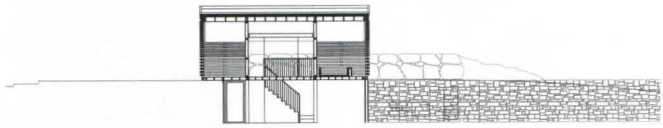
Hobhouse sought out Catling, an old friend, to help him redesign the dairy with the intention of renting the house out. However, once work began on renovating the building, which had been a working cheese-making facility until the 1960s, the client saw an ideal



Seen from both sides along its main circulation axis (this page and opposite), the house's modern extension completes the original structure's connection to the landscape.



SOUTHEAST ELEVATION



SECTION A-A



- 1. Bedroom
- 2. Bathroom
- 3. Landing
- 4. Pool
- 5. Study
- 6. Living room
- 7. Kitchen



retreat for himself, friends, and family.

Hobhouse—whose commissions of a Robert Smithson folly on the grounds and a design competition to reimagine the estate’s beloved Hadspen Parabola garden have created controversy in the landscape design field—was intrigued by the question of how to insert modern architecture in old houses. In England, where many old buildings are “listed,” or landmarked, the issue is particularly fraught. Often houses are either restored to look like period pieces, or modern extensions overwhelm and undermine the old structure. For this project, Catling proposed something in between—she discreetly inserted the addition, using transparency to dematerialize its bulk.

Catling found inspiration for the project in an unlikely source: an 18th-century novella, *La Petite Maison*, written by Jean-Francois de Bastide (reissued in an English translation in 1996 as *The Little House: An Architectural Seduction*). The book’s odd combination of erotica (very tame by today’s standards) and interior design treatise supplied the project’s sensual tone.

Approached from a gravel road that meanders through the estate and passes sheep grazing in a field, the house sits in a valley among green slopes, beside a retaining wall of Hadspen sandstone uncovered

during the extension’s excavation process. Nearing the door, visitors face a two-way mirror, causing them to question whether they have come to the right place. Indeed, part of Catling’s scheme was to ensure privacy by making the house “slightly hostile” to visitors—the mirror teases.

Inside, the glass-walled addition provides a needed circulation space and brings light into the straightforward set of public rooms: a foyer, small library, living area, and kitchen with a farmhouse-style eating area. To the back, a small room that once served as storage now functions as an office with a sleeping loft. Catling introduced intermediate stories here and in another bedroom upstairs to emulate the sense of discovery one often finds in the nooks of old houses.

Upstairs, three tiny bedrooms (two of which Catling shrewdly connected by a sliding wall) and a master bedroom face a shared foyer and, through another large glass wall, the jewel of a pool. The pool bridges the house to the landscape, giving the impression from the exterior that it had always been part of the house. The bathrooms that flank the stairs and pool also reference the house’s context: After witnessing the traditional method of layering wood to store and dry it, Catling concocted a modern interpretation of this formation, alternating bands of wood and glass. Thicker at the bottom than at



On the first floor, Catling calls attention to the beams that join old and new structure (above and opposite, bottom) while on the second floor (right), she filled their cavities with two-way mirror glass, poetically imitating the pool's reflections and allowing views up to the sky above and the entry below. The farmhouse-style kitchen (left) recalls the function of the original dairy (opposite, top).



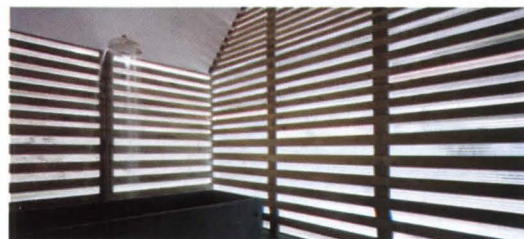
Catling constructed the second floor from glass, donated by Pilkington, and local oak wood. Epitomizing the house's marriage of materials and mystique, the bathrooms (bottom two) are theatrical spaces, day or night.



the top, the layers give the extension a sense of weighted rusticity and echo the nearby farmhouses while at the same time revealing only a tantalizing amount of their occupant's figures.

Both bathrooms lead to the pool and the yard beyond. Walking around the addition, one finds that the wood and glass, which were sanded and polished indoors, are left rough outside. It is the accumulation of such small moments of surprise, of sensing how architect and client revel in the tactility of every object, that lends the project much of its sensuality.

Unfortunately, sustainability has often been equated with a bleak, survivalist style—houses that are off the grid appear disconnected not only to utilities, but to history and architecture's aim of improving the visual environment. The Dairy House proves that a more humane aesthetic is achievable at the same time as mindful work. ■



Project: Dairy House, Somerset, England

Architect: Skene Catling de la Peña

Lighting: Claire Spellman

Engineer: Anthony Ward Partnership

SOURCES

Cabinetry: Paul Longpré Furniture

Glass: Pilkington

Paint: Farrow and Ball

Custom hinges: Frank Allart



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window
cabinet
grips
sinks
faucets
towel bars
hooks
hinges
lighting
tile
green

Roswell knob shown on rectangular escutcheon



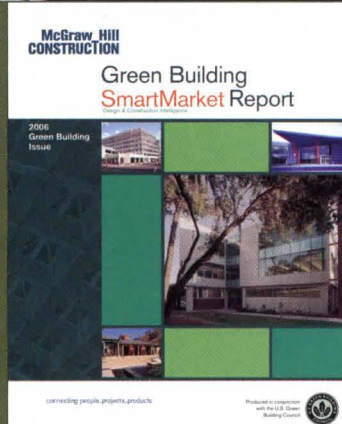
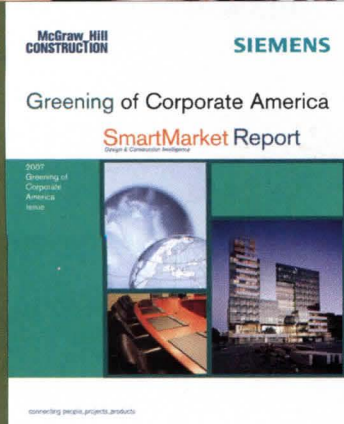
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Siegel & Strain's Oak Lodge is built with highly insulating straw bales (this page and opposite). The bales are held in place with rebar and heavy wire mesh.

Rapidly Renewable Materials' Complex Calculus

EVALUATING THE ENVIRONMENTAL IMPACT OF ALTERNATIVE BUILDING PRODUCTS IS MORE INVOLVED THAN A STRAIGHTFORWARD EXAMINATION OF THE LENGTH OF PLANTING AND HARVEST CYCLES

By B.J. Novitski

To make construction practices more sustainable, many architects have begun specifying “rapidly renewable materials.” Unlike products made from petroleum, which is nonrenewable, or old-growth timber, which takes centuries to renew, these raw materials have very short harvest cycles. The LEED system of building certification from the U.S. Green Building Council (USGBC) offers points for rapidly renewable materials that regenerate in 10 years or less, such as bamboo, cork, wool, and straw. To qualify for the credit in a new construction project, the value of these materials must represent at least 2.5 percent of the cost of the products used in the building.

The council is continually considering adjustments to these and other credits that are part of the rating system. “People who have been doing LEED for six or seven years probably think some credit achievement percentages are a bit on the easy side,” says Brendan Owens, USGBC vice president of technical development. “But we try to maintain a balance between technical rigor and market accessibility to encourage participation.”

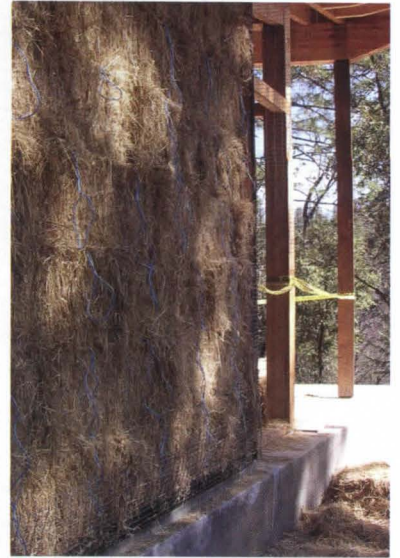
But probe beyond the concept of quick regeneration and you'll find caveats that make some rapidly renewable materials more green than others. The circumstances of production may cast a shadow on the sustainability of an agricultural product: Are fossil fuels, irrigation, or harmful chemicals used in its cultivation or manufacturing? Is the crop diverting acreage from food production? Are natural forests being destroyed to produce raw materials for construction? Does transportation consume inordinate amounts of fossil fuel?

Bamboo is a case in point. This fast-growing grass is hard enough to be used as a replacement for wood in applications such as flooring and furniture. However, most bamboo is grown and processed in China, and there are concerns about forestry practices, the toxicity of binders, and worker safety. A few bamboo plantations have earned certification from the Forest Stewardship Council (FSC), which accredits forests managed “to meet the social, economic, ecological, cultural, and spiritual needs of present and future generations.” However, certified bamboo products are still not widely available in the U.S. And even though bamboo plantations sequester as much carbon as native forests, they do not support the same wildlife. What is more, while ocean shipping consumes less fuel per mile than overland trucking, the fuel used in shipping is more polluting. Clearly, the environmental balance is more difficult to calculate than by simply examining the length of a harvest cycle.

Given such complex questions, it's worthwhile to reconsider whether materials now deemed rapidly renewable are as green as those derived from well-managed forests of fast-growing trees, say some sources. Well-managed forests can be relatively healthy ecosystems, while agricultural fields are essentially clear-cut every year, exposing soils to erosion, and they are often treated with chemicals and irrigated, says Alex Wilson, who heads BuildingGreen, publishers of *Environmental Building News* and the *GreenSpec Directory*, and is consulting editor of *GreenSource*, which like ARCHITECTURAL RECORD, is published by McGraw-Hill. Until now, the

USGBC has awarded LEED points for wood only if it comes from FSC-certified forests. Recognizing that LEED would make faster inroads in U.S. construction with timber industry support, Wilson advocates a two-tiered system that gives partial credit when wood from well-managed forests that do not meet FSC criteria is used. He also recommends considering many life-cycle attributes when comparing wood and more rapidly renewable materials.

The USGBC is evaluating modifications to the LEED credits that pertain to rapidly renewable materials and wood certification. Owens points out that the term “renewable” should be considered in context. “If you're using wood for structural framing in a house that will exist for 100 years, ‘rapidly renewable’ might be 50 years, because the resource regenerates in less time than one cycle of its use.”



Green giant

Regardless of how wood will compare in the USGBC's analysis, there is much to appreciate about materials that regenerate more rapidly. In only five to six years, bamboo grows to a height of 40 feet and a diameter of 6 inches, and can be harvested without killing the root system, which then regenerates it. The hollow stalks are cut into strips which are dried, planed, and glued together to form durable flooring, plywood, and veneers. Some bamboo importers, such as EcoTimber and Smith & Fong,

CONTINUING EDUCATION



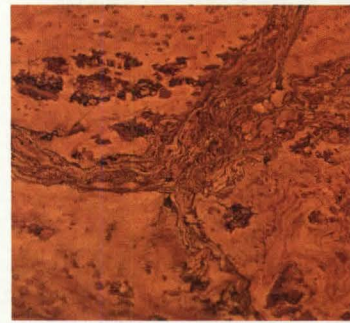
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/AIA Continuing Education article. To earn one AIA learning unit, including one hour of health, safety, and welfare credit, turn to page 156 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found on page 159.

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. Examine the sustainability claims of rapidly renewable building products.
2. Discuss the circumstances in production that influence the greenness of rapidly renewable materials.
3. Explain how some materials are easily regenerated.

B.J. Novitski, a frequent contributor to ARCHITECTURAL RECORD, writes about practice and sustainability. She can be reached at bjn@efn.org.



Bamboo, cultivated primarily on Chinese plantations (top left), is a grass that grows to a height of 40 feet and a diameter of 6 inches in as little as five or six years. Though it is a grass, it is a popular substitute for hardwood in applications such as flooring (far left) and furniture. The bark of cork oaks can be stripped every 10 years without damaging


the tree (top right). After stripping, the large slabs of bark are boiled, and bottle stoppers are punched from them. The leftover bark is ground up and pressed into sheets to make floor tiles (above).

now offer products without urea-formaldehyde and are encouraging Chinese foresters to move away from use of pesticides, herbicides, and chemical fertilizers.

Cork is the bark of cork oaks grown in the Mediterranean region. Unlike nearly every other tree species, it is not harmed by removal of its bark. A mature tree is stripped about once every 10 years and lives for an average of 16 strippings. The cork oak forests thrive without chemical herbicides, fertilizers, or irrigation and provide habitat for wildlife such as the threatened Bonelli's Eagle and Iberian lynx. After stripping, the large slabs of bark are boiled, and bottle stoppers are punched from them. The leftover material is then ground up, pressed into sheets, and cut into tiles for flooring. This dual-purpose production is critical to the cork industry. According to Wilson, the stopper industry might not be economically viable without the supplementary income from flooring products. And yet, if winemakers continue to seek alternatives to cork stoppers, the revenue from flooring might not be sufficient by itself to maintain the cork industry. "If the industry collapses," Wilson predicts, "whatever the land is converted to—say, housing or farmland—might be less environmentally sustainable than growing cork oak trees."

Wool for carpet and furnishings is a popular alternative to synthetic fabrics; it is prized for its beauty, natural origins, and biodegradability. Depending on the breed, a sheep can be shorn one to four times every two years, posing no harm to the animal. After shearing, the wool is spun into yarn and woven into carpets or other textiles. Much of the wool in the United States is imported from New Zealand, where farmers raise sheep without harmful pesticides, on land ill-suited for other agricultural purposes, so there is no competition with food production. But wool is often treated with chemicals to ward off moth and microbial attack. Some organic wool is grown domestically, removing the environmental burdens of ocean shipping.


Another natural fiber, cotton, is now being used for building insulation. For example, Bonded Logic, in Arizona, produces R-30 batts from postindustrial recycled denim, the scraps from manufacturing blue jeans, diverting about 200 tons of material per month from landfills. The fibers are treated with nontoxic borate for fire-, pest-, and mold-resistance. Then they are blended with binder fibers, heated, formed into solid batts, and cut to size. Any waste from this trimming is returned to the raw material supply. Although cotton is often grown with chemicals and heavy irrigation, it can



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Natural linoleum is formed from a variety of rapidly renewable materials, including linseed oil, wood flour, and pine rosin (above left). During production, the ingredients are heated, mixed, and rolled flat (left). The sheets are cooled, backed with jute, then dried and trimmed. Pigments that do not contain heavy metals are used to achieve a wide variety of colors and unusual flooring installations (above right).



Wheatboard (far left) and sunflower board (left) mix agricultural “waste” with urethane-based binders to create an alternative to wood particle board.



Cotton insulation (right) is produced with denim scraps from blue-jean manufacturing, diverting tons of material from landfills.

be argued that the environmental “burden” of the agricultural process falls to the first use, not to the postindustrial recovered material.

Linoleum has a long history of popularity and, unlike vinyl flooring, is not made from petroleum. For example, Forbo’s Marmoleum contains pine rosin, tapped from trees without affecting their growth, and linseed oil, to provide strength and flexibility. Linoleum also includes finely ground limestone and pigments made without heavy metals. Hardwood flour, from timber grown in controlled forests, binds the pigments and ensures a smooth surface. During production, the ingredients are heated, rolled flat, backed with jute, and trimmed. Forbo, based in Switzerland, has a reclamation program that composts used linoleum to make a soil amendment.

Waste not

Arguably more green than fast-growing materials are “products” that are actually agricultural waste. For example, the leftover straw from food harvesting has until recently been considered a nuisance. Farmers have had few options but to landfill it or to burn it, releasing greenhouse gases and other pollutants. And plowing straw back into fields actually increases the

need for nitrogen fertilizers. But now some of these materials are finding their way into building construction. Many qualify for LEED points for recycled content in addition to the credit for rapidly renewable materials.

Environ Biocomposites, in Minnesota, manufactures boards by combining wheat straw and sunflower hulls with urethane-based resin instead of the urea-formaldehyde binders traditionally used in wood particle board. The boards come in ½-, ¾-, and 1-inch thicknesses and are appropriate for the same interior applications as wood particle board.

Agriboard Industries, in Kansas, produces a composite structural panel from highly compressed wheat and rice straw sandwiched between oriented strand board (OSB) made from young-growth, rapidly growing hardwoods. The panels provide both structure and insulation in wood floors, walls, and roofs. Engineered at the factory with precut openings for doors, windows, electrical conduit, and ducts, they vastly reduce job-site waste. The manufacturing process combines heat and pressure, drawing lignin from the cell walls of the straw, and creating a natural binder that obviates the need for urea-formaldehyde or other additives. The result is a highly insulative panel that is resistant to insects, fire, and F-5 tornadoes; does not off-gas; and can eliminate more than 80 percent of the dimensional

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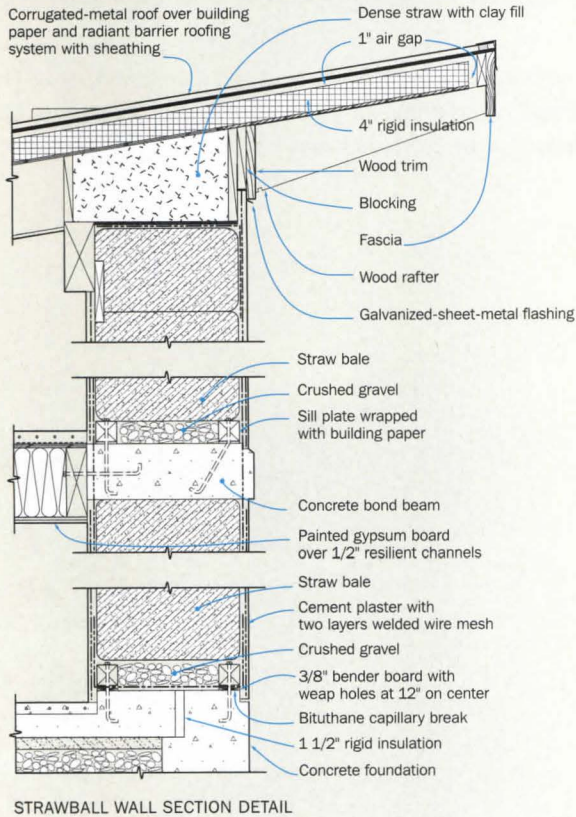
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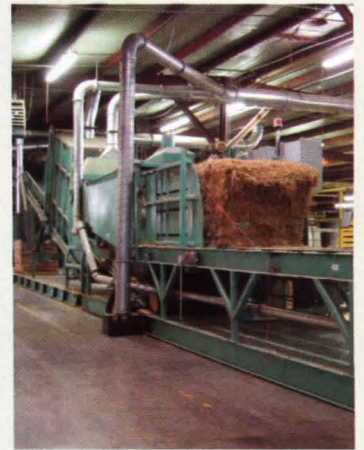


Building the future[®]





Oak Lodge (top left), a Jesuit retreat in California's Sierra Foothills designed by Siegel & Strain Architects, has walls of highly insulating straw bales covered by stucco. Details for incorporating the straw bale into standard construction (left) are evolving. Agriboard Industries subjects wheat and rice straw to intense pressure and heat as part of a manufacturing process (right) for panels (above) that provide structural strength and insulation.



lumber used in traditional construction, according to the manufacturer.

Baled straw can also be used in construction without any processing at all. One recent example is Oak Lodge, a Jesuit retreat in the Sierra Foothills, designed by Emeryville, California-based Siegel & Strain Architects. The designers chose straw-bale construction partly for its high insulating capacity, making evaporative cooling viable during very hot, dry summers. Eliminating mechanical refrigeration reduces the building's energy consumption and carbon emissions. Moreover, according to principal Henry Siegel, FAIA, the stucco on the interior and exterior provide substantial thermal mass and shear resistance to earthquakes. The bales are so tightly bound that they are effectively fire-resistant. At Oak Lodge, the straw bale is infill in a two-story, post-and-beam structure, held in place by rebar and heavy wire mesh. The bales come directly from nearby rice fields where, until recently, they would have been burned as waste.

As such materials become more common, standard details are emerging. Oak Lodge is Siegel & Strain's third straw-bale project, and Siegel explains that the firm's approach is evolving: "We used to place rebar down through the middle of the bales; now we put the rebar vertically on both sides and tie through the lathe to hold it together." He

credits the Ecological Building Network and the California Straw Building Association for promoting the sharing of successful detailing techniques.

Sorting it all out

With all these options, it's a daunting task to compare environmental impact of the various rapidly renewable materials with each other, let alone with competing conventional products. Owens explains that questions about where a material comes from, how it's used, how long it will last, and whether it has recycled content are "single-issue proxies for life-cycle-assessment-based thinking." Life-cycle assessment, or LCA, is a methodology that quantifies the environmental impact of a material by examining how it is grown, harvested, transported, maintained, and eventually disposed of, computing costs in energy and water use, air degradation, and other factors. The USGBC Materials and Resources Technical Advisory Group is grappling with the best way to incorporate what Owens calls "multi-attribute life-cycle screening" into LEED.

However, life-cycle assessment has its shortcomings, according to some sources. Although the methodology can provide a more standardized way of comparing diverse material options, different analyses



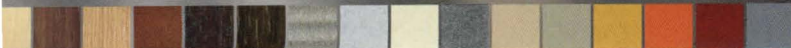
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might use different data sets, leading researchers to completely different conclusions, says New York City–based Cynthia Tyler, senior research scientist at Material ConneXion, an information source for innovative materials. In addition, an LCA typically considers no options besides disposal at the end of a material’s useful life. This “cradle-to-grave” analysis will essentially tell you only which option is less detrimental, she says.

Material ConneXion has recently teamed up with McDonough Braungart Design Chemistry and the Environmental Encouragement Protection Agency, organizations established by architect William McDonough and chemist Michael Braungart, respectively, to offer their Cradle to Cradle (C2C) material assessment, product development, and certification to manufacturers. McDonough and Braungart argue that when a product is made of appropriate materials and is designed so that its constituent parts can be recovered at the end of its useful life, any waste is “food.” The waste becomes raw material for the manufacture of more products, either by composting if biobased or by recycling if synthetic. The approach effectively closes the loop, eliminating the concept of waste.

Diverse standards make it hard for architects to know how to do the right thing. The field is further confused by “greenwashing,” or exaggerated claims made by some manufacturers. Tyler recommends that architects seek guidance from third-party certification organizations, such as FSC for sustainably harvested wood, the U.S. Department of

Agriculture for organic materials, GreenGuard for building products and furniture with low volatile organic compound emissions, or GreenSeal for building products evaluated by LCA. However, “each program has different criteria and certifies only certain products,” she cautions.

Another rating system that seeks to broaden the scope of green certification is The Pharos Project, which encourages participation from design professionals. The project’s goal is to cut through the confusing array of green standards and identify products that are good for the world, rather than “issue prohibitions on what is less bad,” according to its Web site.

One stumbling block to widespread adoption of sustainable materials is their up-front expense. “Most building products on the market made from rapidly renewable materials today are more expensive than their synthetic counterparts,” says Wilson, pointing to linoleum, which comes at a premium over vinyl flooring. However, a complete accounting of costs associated with a product would also include its societal costs, balancing out the pricing of rapidly renewable and synthetic materials, he says.

The laws of supply and demand may also bring the prices of rapidly renewable materials down as manufacturers respond to growing market interest in green products. And if the industry reaches a consensus on comprehensive and consistent evaluation methods, architects will have more choices when specifying sustainable materials and will be able to produce better buildings with smaller environmental footprints. ■



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INSTRUCTIONS

- ◆ Read the article “Rapidly Renewable Materials’ Complex Calculus” using the learning objectives provided.
- ◆ Complete the questions below, then fill in your answers on the next page.
- ◆ Fill out and submit the AIA/CES education reporting form on the next page or download the form at archrecord.construction.com to receive one AIA learning unit.

QUESTIONS

1. According to the LEED rating system for new construction projects, rapidly renewable materials are defined as which?
 - a. materials that regenerate in 10 years or less
 - b. materials that are nonrenewable
 - c. materials that regenerate in less than 50 years
 - d. old-growth timber
2. Life-cycle assessment quantifies the environmental impact of a material by which process?
 - a. by examining how it is grown
 - b. by examining how it is processed
 - c. by examining how it is disposed of
 - d. all of the above
3. Which is not a serious concern about bamboo processing?
 - a. fuel for shipping the product
 - b. the amount of labor it takes to install the finished material
 - c. toxicity of binders in the product
 - d. forestry practices
4. Why has a partial LEED credit been recommended for use of wood that comes from well-managed, non-FSC-certified forests?
 - a. to allow for two different types of trees
 - b. to gain more support for LEED from the timber industry
 - c. to make LEED certification easier
 - d. to give the U.S. Green Building Council more control over more forests
5. What makes bamboo a rapidly regenerated material?
 - a. the hollow stalks of bamboo are cut into small strips
 - b. the bamboo strips are glued together to form tough flooring
 - c. bamboo grows to a height of 40 feet
 - d. bamboo can be harvested without killing the root system
6. Why is cork harvested from the bark of cork oak trees considered renewable?
 - a. the cork oak forests are habitat for threatened wildlife
 - b. the cork oak forests thrive without chemical herbicides
 - c. the cork oak tree is not harmed by removal of its bark
 - d. the cork oak tree is grown near the wine producing areas
7. Which is the advantage of producing wool in New Zealand?
 - a. sheep can be shorn more times a year in New Zealand
 - b. sheep in New Zealand can be raised on land ill-suited for growing crops
 - c. New Zealand sheep have coarser wool
 - d. it is easier to dye the wool from New Zealand sheep
8. Linoleum is made from all except which?
 - a. linseed oil
 - b. limestone
 - c. petroleum
 - d. rosin
9. Which is not true of straw-bale construction?
 - a. it has high insulating capacity
 - b. it is effectively fire-resistant
 - c. its use can help create a building with reduced carbon emissions
 - d. no metal is used for reinforcing
10. The term *greenwashing* refers to which?
 - a. making all products in the building green
 - b. a product that complies with several green standards
 - c. exaggerated environmental marketing claims
 - d. a third-party certification organization

Program title: "Rapidly Renewable Materials' Complex Calculus," Architectural Record (04/08, page 148).

048EDIT1

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Designing for Sustainability: Cementitious-based Building Materials Contribute to LEED® Credits

Provided by Lafarge

As a core building material with far-reaching sustainable applications, concrete plays a critical global role in providing environmental, social and economic benefits. Concrete components can be used to contribute to the achievement of LEED credits in uses ranging from stormwater management to the improvement of indoor air quality. They do so, while also offering intriguing possibilities for versatile design innovations using shape, color and texture.

What is Concrete?

Concrete is the oldest engineered building material and one of the most widely consumed materials on earth. In its basic form, it comprises a mixture of portland cement, aggregates and water. Historically, portland cement has been the principle cementitious material at approximately 10 to 15 percent by mass weight.

Proponents of sustainable design have criticized the use of concrete because of the energy-intensiveness and generation of carbon dioxide (CO₂) in portland cement manufacture.

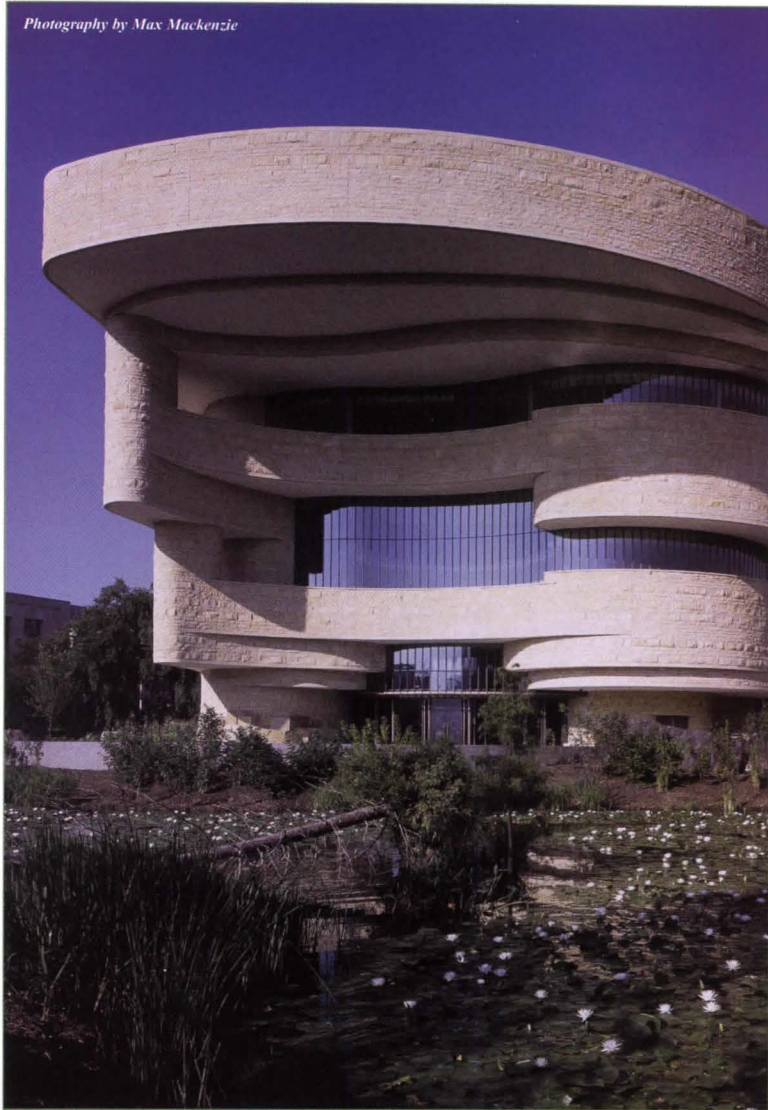
Through the cement industry's aggressive efforts to reduce emissions through innovations in manufacturing, usage of waste-derived raw materials and the extraction of energy from industrial waste fuel or biofuels, attributable man-made CO₂ emissions have been reduced by 33 percent, while energy efficiency has increased by the same amount.

Yet, despite such innovations, portland cement remains an energy-intensive building material. The increasing use of alternative raw materials as a partial replacement for portland cement in most concrete mixtures today, though, has had a positive environmental impact. Known as Supplementary Cementitious Materials (SCMs), they enhance the strength and versatility of concretes and increase the

many ways in which concrete can contribute to LEED credits. The three most commonly used SCMs are **slag cement**, **fly ash** and **silica fume**.

Slag cement is a reclaimed, recyclable industrial non-metallic byproduct from an iron blast furnace. Fly ash is a byproduct of coal-fired furnaces at power generation facilities. Silica fume is a byproduct of producing silicon metal or ferrosilicon alloys.

Photography by Max Mackenzie



National Museum of the American Indian, Washington, D.C. by Douglas Cardinal (Blackfoot) of Ottawa, architect and project designer and GBQC Architects, Philadelphia, and architect Johnpaul Jones (Cherokee/Choctaw) design architects. Slag cement was used in the concrete mix.

CONTINUING EDUCATION



Use the learning objectives below to focus your study as you read **Designing for Sustainability: Cementitious-based Building Materials Contribute to LEED® Credits**. To earn one AIA/CES

Learning Unit, including one hour of health safety welfare credit, answer the questions on page 163, then follow the reporting instructions or go to ceu.construction.com and follow the reporting instructions.

Learning Objectives

After reading this article, you should be able to:

- Explain concrete and cementitious materials' role in designing for sustainability.
- Discover how concrete applications meet sustainability requirements.
- Identify where concrete and cementitious building materials contribute to earning LEED® credits.

SCMs are proportioned within concrete and cement-based building materials as individual components or blended, interground or a combination thereof, with portland cement. Since they are recycled industrial materials, they enable the concrete industry to employ thousands of millions of tons of byproduct that would otherwise be landfilled. Moreover, their use reduces the volume of portland cement required to make concrete, thereby decreasing the amount of energy associated with cement production, lowering emissions of greenhouse gases and reducing the amount of virgin material required for the *manufacture* of concrete.

A life cycle inventory performed in 2006 by Construction Technology Laboratories, Skokie, IL, found that when slag cement replaces 50 percent of the portland cement in 7,500 psi concrete, the energy required to produce one cubic yard of concrete is reduced by 37 percent; carbon dioxide emissions are reduced by 46 percent; and virgin material used is reduced by 15 percent.

Characteristics of Concrete Today

Workability. In general, SCMs will enhance concrete's plastic properties such as workability and placeability. Designers like to

control concrete finishes and SCMs reduce surface imperfections and segregation in stripped formwork. More importantly, SCMs enhance the hardened properties of concrete by increasing ultimate compressive strength, decreasing permeability, and enhancing long-term durability.

Permeability is the measure of ease by which water, air and other substances such as chloride, sulfate and other deleterious ions enter concrete through pores in the cement paste fraction. SCMs' smaller particle sizes and chemical activities greatly reduce permeability. Chemical processes such as the corrosion of embedded steel, sulfate attack, and alkali-silica reaction are greatly reduced, preventing the premature deterioration of concrete structures.

Color. The surface color of hardened concrete may be enriched by SCMs. Surface color and texture of cementitious building materials help the designer control glare and reduce or improve heat absorption of surfaces. Some silica fumes may give concrete a slightly bluish or dark gray tint and fly ash may impart a tan color when used in large quantities. Slag cement can make concrete lighter and pigmented concretes brighter in color. It may impart an initial bluish or greenish undertone that disappears over time as the concrete surface oxidizes. The designer's control of color can impact sustainable design initiatives.

Life cycle assessments. A life cycle assessment (LCA) is a tool for the systematic evaluation of the environmental impacts of a product or system through its lifespan. "Life cycle" refers to the analysis of raw material production, manufacture, distribution, use and disposal including all intervening transportation steps. This analysis extends from the extraction and processing of raw materials through to manufacture, delivery, and use, and finally on to waste management. The goal of LCA is to compare the environmental and economic performance of products and services, to select the most sustainable system.

Cradle-to-cradle is another way of thinking about life cycles. "If the grave of one cycle can be the cradle of its own or another's, the life cycle is called cradle-to-cradle," says Julie Buffenbarger, LEED AP,

The Verdesian

© Jeff Goldberg/ESTO



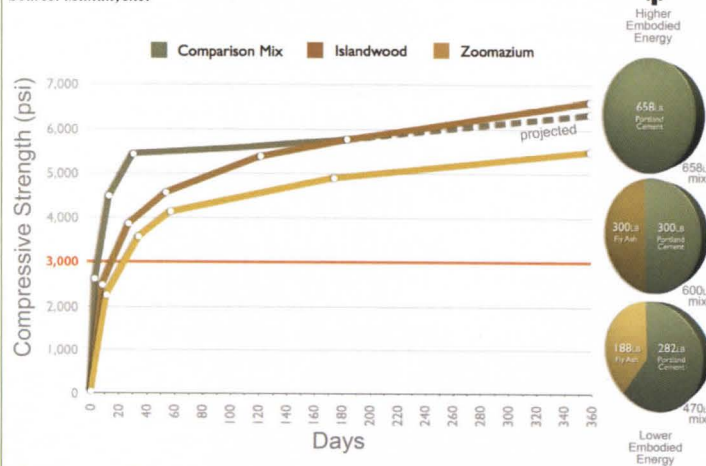
Opened in 2006, the LEED Platinum-certified 24-story, 299,000 ft² Verdesian in Battery Park, New York City, designed by Pelli Clarke Pelli Architects and developed by the Albanese Organization, exceeds New York City energy efficiency standards by almost 40 percent.

Concrete contributed to the Platinum certification in two major areas: namely the recycled content and regional materials credits of the Materials and Resources (MR) category.

The material costs of the concrete used in the foundation and superstructure amounted to approximately \$1.5 million; the concrete contained on average 10 percent pre-consumer recycled content in the form of slag cement (45 percent of the cement was replaced with ground granulated blast-furnace slag). Of the \$17 million total cost of materials permanently installed in the building, the concrete component contributed about one percent of the cost. Even though one percent sounds low, it was a sizeable contribution since only 10 percent was required to earn one LEED credit. With the addition of 100 percent recycled steel for rebar and other recycled materials, such as wood used in millwork, the project received one point for the MR Recycled Content Category. In the category of Regional Materials, the concrete helped earn two points because all components of the concrete mix were manufactured and extracted within 500 miles of New York City.

Compressive Strengths

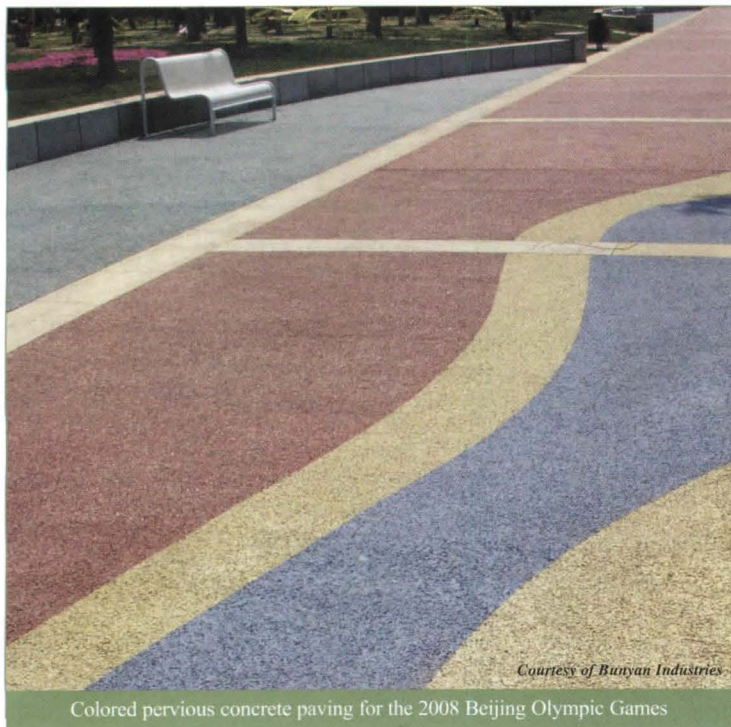
Source: Mithun, Inc.



Concrete Test Data

Data compiled by Mithun / provided by General Testing Laboratories, Inc., Fred Hill Materials, and Mayes Testing Engineering, Inc.

Mithun, Inc., Seattle, tested fly ash concrete mix for over 365 days in two LEED Gold environmental education facilities, IslandWood, Bainbridge Island, WA (2001) and Zoomazium at Seattle's Woodland Park Zoo (2006).



Courtesy of Buryan Industries

Colored pervious concrete paving for the 2008 Beijing Olympic Games

engineering and architectural specialist, Lafarge, Cement Division. “Such is the case with concrete when the end of its life finally arrives; it is recyclable and can be turned into new concrete by crushing it into aggregate.”

In addition to LCA, the sustainable construction industry benefits from an analysis of Life Cycle Costing (LCC) (a.k.a. whole life costing), which determines the total cost of ownership, i.e., the sum of

all the costs associated with construction, including acquisition, installation, operation, maintenance, refurbishment, and disposal costs.

Concrete rates highly when the architect reviews both the LCA and LCC factors. When concrete buildings are designed appropriately, they offer much lower predictable operational energy (heating, cooling, and lighting) and maintenance costs per year over other building materials throughout the life of a building.

How Concrete Contributes to Sustainable Design and LEED Credits

There are several sustainable initiatives, which have established performance and rating models for building materials.

The most widely adopted green building rating system in the United States is the U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) rating system, which provides a suite of standards for environmentally sustainable construction. For the purposes of this continuing education course, concrete and cementitious building materials’ contribution to sustainable construction will focus upon LEED Version 2.2 for New Construction and Major Renovation.

Sustainable Sites (SS)

► Brownfield Redevelopment (SS Credit 3; 1 point)

Intent: *Rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.*

Cement and SCMs are often used as construction components for brownfield redevelopment. Solidification and/or stabilization of damaged sites can be achieved by mixing cementitious materials with contaminated media or encapsulating waste particles with an impermeable coating.

► Site Development Protect or Restore Habitat (SS Credit 5.1)

Intent: *Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.*

► Site Development Maximize Open Space (SS Credit 5.2)

Intent: *Provide a high ratio of open space to development footprint to promote biodiversity.*

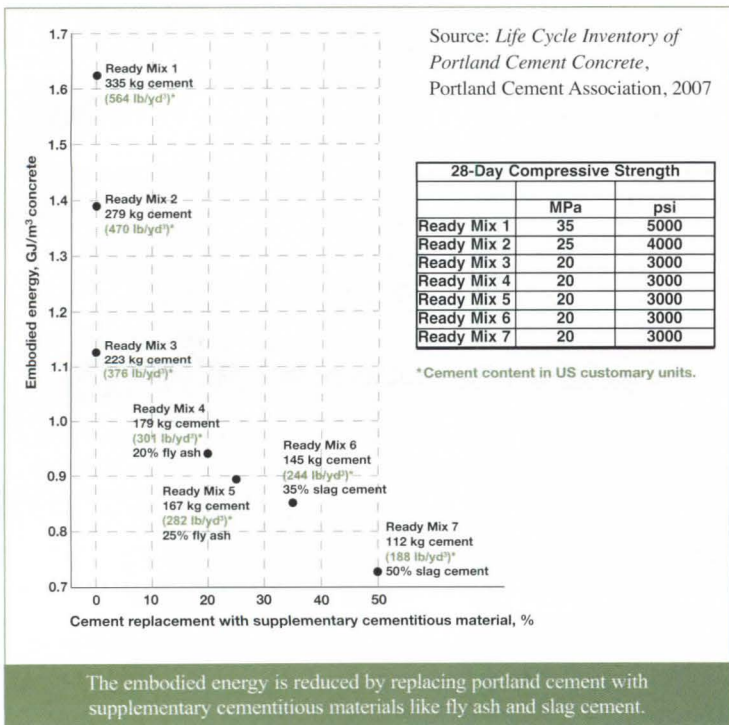
The use of concrete and cementitious-based building materials can contribute to maximizing open space and limiting site disturbance by design and during construction. Underground or under-building concrete parking structures reduce the amount of land needed for parking lots.

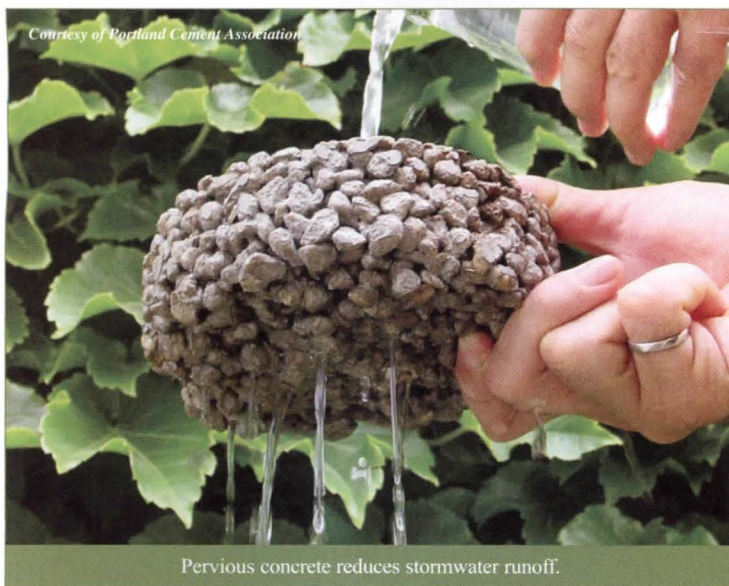
► Stormwater Management: Quantity and Quality Control (SS Credit 6.1 and Credit 6.2; 1-2 points)

Intent: *Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants.*

Surface run-off causes flooding, damage to waterways and diminishes groundwater levels. Because it is not filtered through the ground on its way to rivers and coastal waters, it also carries pollutants such as pesticides, toxic chemicals and, in some older cities with combined sewers, sewage.

Local agencies, responding to growing federal and state regulatory pressure, are already instituting tough requirements and publishing





Pervious concrete reduces stormwater runoff.

Best Management Practice (BMP) guides. The Environmental Protection Agency's (EPA) BMP manual lists an array of structural and green approaches such as green roofs, porous and pervious pavements, and retention and detention basins.

Concrete offers a number of applications for draining and filtering stormwater:

- *Pervious or permeable concrete* is formed by removing all or a major portion of the fine aggregate and binding the remaining larger aggregate by a relatively small amount of cement paste. When hardened, typically between 15 to 35 percent of the concrete volume are voids, allowing water to drain at a rate of 5 gal/ft²/min or 200 L/m²/min through the concrete. Designing pervious concrete with detention systems will allow for higher amounts of rainfall to be collected. Pervious concrete must be suitably designed for freeze/thaw climates.

- *Permeable and open grid pavement systems.* Another option is to use concrete pavers with large voids through which vegetation can grow. Water infiltrates through a joint spacer arrangement filled with soil, grass or stone; an open grid allows for growth of vegetation. They are appropriate for light load parking, plazas and walkways in any climate. They are usually more cost-effective than a separate detention facility in some urbanized areas where the existing impervious area is greater than 50 percent and space is limited. Permeable interlocking concrete pavements can reduce runoff to zero for the most frequent storms. Pavers may be modular pre-cast or cast-in-place.

- *Rainwater harvesting systems.* For irrigation and for holding captured stormwater prior to release back into the landscape or reuse within the site are often constructed of precast concrete.

► **Heat Island Effect: Non-Roof and Roof (SS Credit 7.1 and Credit 7.2; 1-2 points)**

Intent: Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

Many U.S. cities and suburbs have air temperatures up to 10 °F (5.6 °C) warmer than surrounding natural land cover. Heat islands form as cities replace natural land cover with impermeable pavement,

buildings, and other structures. Built areas absorb more of the sun's heat than do natural surfaces, causing surface and air temperatures to rise.

Under its Green Alley initiative, Chicago has embarked on retrofitting its 1,900 miles of alleys with environmentally sustainable permeable concrete or porous road-building materials. Goals are to reduce the heat island effect, reduce flow and pollution from runoff, recharge the underground water table and recycle materials.

Heat island effect is recorded by a composite index called the Solar Reflectance Index (SRI), a measure of a surface's reflectance (albedo) and its emissivity (release of heat) on the surface temperature. SRI is defined with a standard black surface of 0 and a standard white surface of 100. ■

McMaster University Engineering and Graduate Studies Building

Located in Hamilton, Ontario, the new 125,600 ft² McMaster University Engineering and Graduate Studies Building (designed by Vermeulen/Hind Architects, Dundas, Ontario), exemplifies current building engineering and sustainable design trends.

With its reinforced concrete flat slab and column structure, one of the project's greatest potential environmental impacts was due to cement manufacturing's typically high green house gas (GHG) emissions. Structural engineers Halcrow Yolles, Toronto, Ontario, developed a concrete design utilizing slag cement, which was used to replace 20 percent of the cement required for floors and columns and 50 percent of the cement for the elliptical walls in the teaching presentation rooms. Total reduction in GHGs was calculated at over 300 metric tons. The project is scheduled for completion in spring 2009.

The building is targeting LEED Canada NC Gold certification (LEED Canada is a close adaptation of the USGBC LEED system). While using slag cement as a replacement for regular cement does not in itself result in a scorecard point, this strategy does contribute to the following credits: MRC4 Recycled Content; MRC5 Regional Materials; EQ4.2 Low emitting paints

and coatings (using water-borne sealers for exposed concrete finishes).

In addition, concrete is expected to contribute towards ID credits for exceptional regional content and green education innovation.



This article continues online at ceu.construction.com

See Quiz on the Next Page

To receive AIA/CES credit, you are required to read the additional online text, which can be found at cei.construction.com. The quiz questions below include information from this online reading.

Program title: "Designing for Sustainability: Cementitious-based Building Materials Contribute to LEED® Credits" (04/08, page 159). AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through April 2010). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online, go to cei.construction.com**

Learning Objectives

After reading this article, you should be able to:

- Explain concrete and cementitious materials' role in designing for sustainability
- Discover how concrete applications meet sustainability requirements
- Identify where concrete and cementitious building materials contribute to earning LEED® credits

Questions

1. The preferred concrete mixture for sustainable projects would contain

- a. portland cement, aggregates and water.
- b. SCMs, aggregates, portland cement and water.
- c. aggregates, SCMs and water.
- d. sand, SCMs and portland cement.

2. When slag cement replaces 50 percent of portland cement, the energy required to produce 1 cu yd of 7,500 psi concrete mix is reduced by

- a. 23 percent.
- b. 15 percent.
- c. 37 percent.
- d. 46 percent.

3. The addition of SCMs in concrete

- a. does not affect workability.
- b. enhances life cycle assessment but decreases workability.
- c. always increases permeability.
- d. affects color

4. Life cycle assessment (LCA) is a tool for

- a. assessing the most efficient means of production through distribution.
- b. thinking about the product from cradle to grave.
- c. evaluating the environmental impacts of a product through its lifespan.
- d. calculating the benefits of recycling.

5. The Solar Reflectance Index

- a. records heat island effect.
- b. is a measure of absorption of solar heat.
- c. should be under 29 to meet LEED requirements.
- d. is defined so that standard white is 0.

6. Which surfaces have a higher surface reflectance?

- a. Light-colored with course aggregate finish
- b. Light-colored with smoother finishes
- c. Dark-colored with course aggregate finish
- d. Those with a low albedo value

7. Concrete thermal mass of a building contributes to optimizing energy performance by

- a. speeding transfer of heat through the building.
- b. increasing temperature fluctuations.
- c. storing energy thus shifting demand to off-peak periods.
- d. reflecting energy created by occupants.

8. The use of SCMs in concrete mixtures

- a. provide easy inclusion of pre-consumer recycled materials.
- b. increases post-consumer waste.
- c. reduces CO₂ production and energy requirements needed for cement manufacture.
- d. Both a. and c.

9. LEED credits are given for concrete components extracted, processed and manufactured

- a. within 100 miles of the project site.
- b. within 500 miles of the project site.
- c. within 1,000 miles of the project site.
- d. within the United States.

10. Cementitious-based building materials

- a. emit very low or no volatile components.
- b. offer limited finishing options.
- c. always require interior finishes.
- d. offer a wide range of colors but few textures.

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Material resources used: Article: This article addresses issues concerning health and safety.

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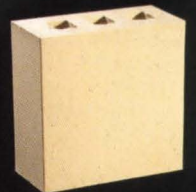
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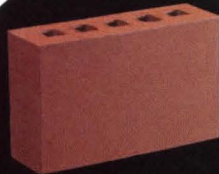
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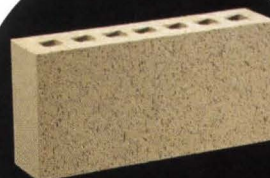
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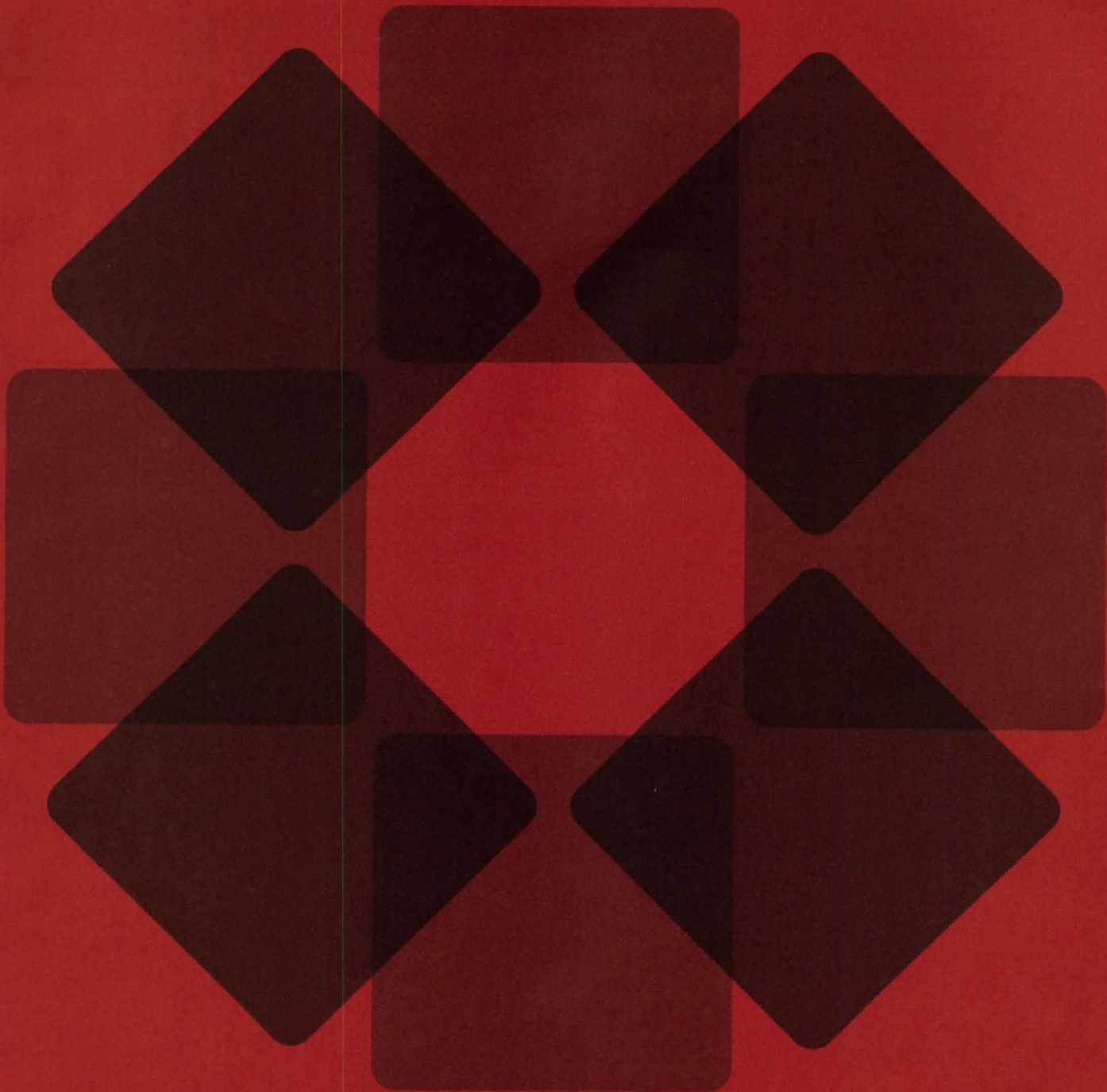
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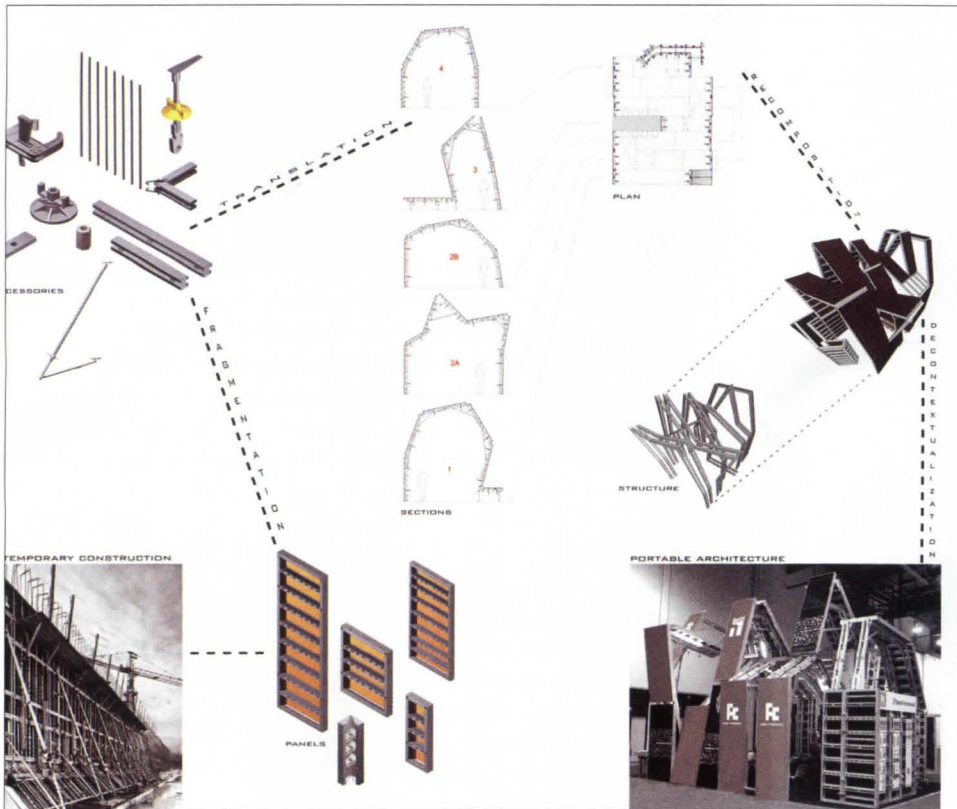
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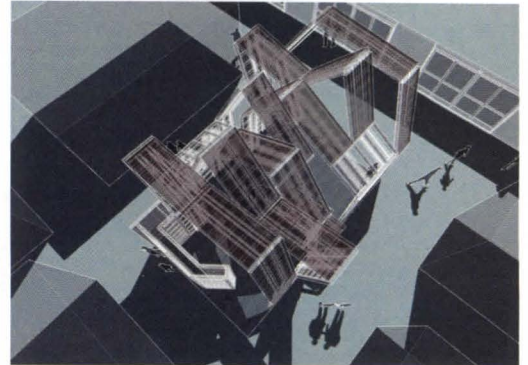
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Product Focus Concrete & Masonry

From decorative to structural, this month's roundup represents the state of the art and technology involved in such innovative materials and processes as versatile steel-frame formworks, light-transmitting concrete panels, special flooring finishes, and veneer cladding systems. *Linda C. Lentz*



At the World of Concrete, held in Las Vegas from January 22 to 25, Italian manufacturer Farina Casseforme showcased its Destil Formwork System, a sophisticated series of modular concrete framing components, in a visually compelling pavilion (above), designed by L.A.-based Italian architect Marcello Pozzi.



Flexible Italian formworks system is transformed into its own traveling exhibition

Intrigued by a rough architectural aesthetic, Italian architect Marcello Pozzi, principal of the L.A.-based MLL0, gladly took on the challenge of designing a pavilion to introduce the heavy-duty construction wares of Farina Casseforme at the World of Concrete. This being the Italian company's first foray into the U.S. market, the booth needed to convey its product and service offerings in the typical instant required to garner attention at such an exhibition.

To Pozzi, the solution was apparent. "My idea was basically to use the language of the formworks to create the installation. On a job

site they would be temporary. But I saw them as having the consistency and weight of real construction." In this way, he explains, "They became the architecture of the pavilion—the actual walls, ceiling, table, and desks."

Indeed, the Destil Formwork System is a comprehensive lineup of modular 400-pound steel frames backed by phenolic-resin-treated plywood and engineered to hold fluid tons of concrete up to a pressure of 80 kilograms per square meter. In the real world, they are used to form walls, columns, and slabs during construction. As the

dynamic structural element of the pavilion, they were presented out of context and appeared light and buoyant, simultaneously demonstrating their efficiency, functionality, and flexibility.

The company can provide standard heights of approximately 48" and 118"; special-order sizes of 54", 106", and 130"; and custom sizes and shapes, such as special angles, corners, and circular walls. A generous range of interchangeable accessories, clamps, and points of connection allows for numerous configurations of the steel frame modules in any position. To assure

things run smoothly, the system is supported by full technical assistance pre- and postsale.

In designing the pavilion, Pozzi worked in close collaboration with Ottavio Farina, who directed the engineering team to solve the issues of height and stability, and graphic designer Emanuele Gipponi, who created the billboard-inspired logos—a salute to L.A.

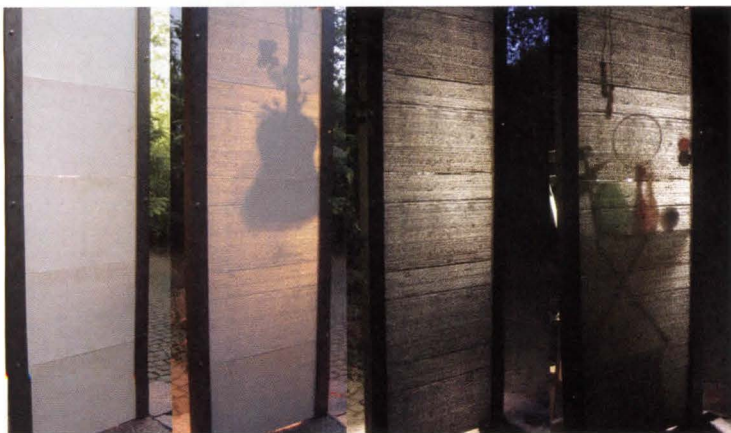
As for the system, according to Pozzi, "It is very simple; moreover, its modularity allows you to do almost anything." Farina Casseforme, San Donato Milanese, Italy. www.farinacasseforme.it **CIRCLE 211**

Products Concrete & Masonry



◀ Finishing touch

Developed for numerous interior effects and applications, QC Concrete Dye is a translucent, micronized, chemically inert, nonreactive pigment that penetrates deep into a concrete overlay surface or slab and permeates the pores of the substrate. The vibrant colorations leave no film or coating to wear away. Available in solvent-based and LEED-qualified water-based versions, it comes in 16 field-dilutable hues. QC Construction Products, Madera, Calif. www.qcconstructionproducts.com **CIRCLE 212**



▲ Sheer dichotomy

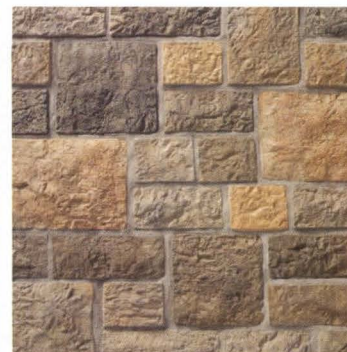
Defying all previous assumptions, TranslucentConcrete by Andreas Bittis for the German manufacturer Florack is a high-density product that can be fabricated in up to 48" x 79" panels at about 3/4" thick. (Other versions of this material are available in smaller 24" x 48" sheets.) A combination of optical fibers (5 percent) and fine concrete, this light-transmitting material maintains the structural integrity of the concrete. Florack, Heinsberg, Germany. www.andreasbittis.de **CIRCLE 214**

► LEED-ing the way

A patented dry method of polished concrete-floor or surface restoration, the VOC-free FGS PermaShine System gains points for the LEED certification of a building through the LEED for New Renovations Version 2.2 Green Building Rating System. Besides reducing waste and energy by refurbishing a preexisting surface, the system extracts and retains dust during the grinding process. L&M Construction Chemicals, Omaha, Neb. www.fgs-permashine.com **CIRCLE 216**



For more information, circle item numbers on Reader Service Card or go to architecturalrecord.com/products/.



▲ Nature's clone

Notable for its realistic stone appearance, ProStone Manufactured Stone Veneer is a cementitious product that provides the aesthetic and structural properties of the real thing without the typical costs. Manufactured to comply with all major building codes and AC-51, for both residential and commercial projects, ProStone components are available in more than a dozen natural shades and textural combinations to suit a variety of architectural styles. Additionally, it comes with a 25-year limited warranty. Owens Corning Masonry Products, Toledo, Ohio. www.owenscorning.com **CIRCLE 213**

► Secure hold

Engineered to meet the new stringent International Building Code (IBC) requirement of strength, the Power-Stud + SD2 carbon-steel bolt is a one-piece, fully threaded wedge anchor with a stainless-steel clip designed for concrete and other masonry applications. Available in a full range of lengths and diameters, this bolt is said to have significantly more holding power than the company's previous version of this product. Power Fasteners, Brewster, N.Y. www.powers.com **CIRCLE 215**



▼ ▶ Rock-solid veneer

Appropriate for numerous residential and commercial projects, interior and exterior, Realstone Systems natural stone veneer panels are fabricated in hand-selected, split slate, quartz, limestone, and sandstone. Available in five profiles and shades, such as the new Accent Stone (below), each modular panel measures 6" by 24" and weighs between 8 and 14.5 pounds. Configurations include corner pieces (above), cut with fingered ends, and precut outlet panels. Realstone Systems, Troy, Mich. www.realstonesystems.com **CIRCLE 217**





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Product Briefs

► Streamlined cuisine

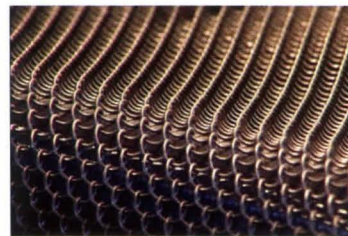
Notable for its singular engineering and uncompromised aesthetic in the realm of kitchens, Bulthaup is constantly evolving its designs. The b3 monoblock extends the company's Minimalist philosophy in the form of a seamless, stainless-steel island or peninsula—handle-free. It can float in a room as its own entity, complete with sink, cooktop, and undercounter appliances, or balanced by a wall of full-height, built-in storage, ovens, and refrigeration. Optional fronts include wood, linoleum, aluminum, and laminate. Bulthaup, Roseland, N.J.

www.bulthaup.com **CIRCLE 218**



◀ Chain metal

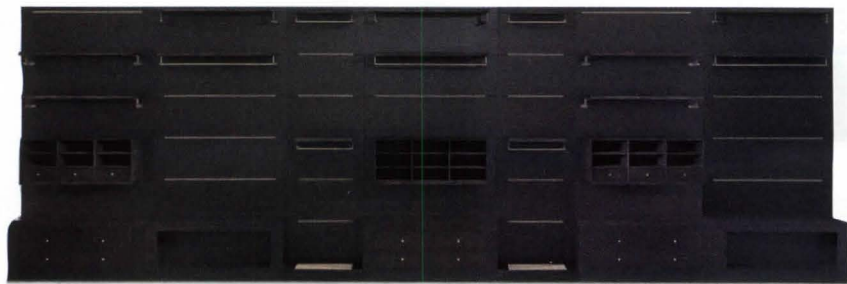
Made of recycled scrap metal, this versatile woven-wire fabric diffuses and enhances light without blocking the ventilation or views. Appropriate for such substantial installations as multistory draperies in hotels and exterior cladding, it is also ideal for residential window treatments and room dividers. A variety of metals and finishes are available, including stainless steel, solid brass, aluminum, brite nickel, and copper-clad steel. The lightweight panels do not fade or darken and adapt to most standard hardware. Cascade Coil Drapery, Tualatin, Ohio. www.cascadecoil.com **CIRCLE 219**



► Windows of opportunity

Welcome news for fenestration specifiers: Weather Shield has expanded its line of exterior window and door wood-casing options. The expanded offering—for the Collections, Legacy, Weather Shield, and HR 175 product lines—includes hundreds of configurations in one- and two-piece systems, composed of flat casing and back band, as well as multiple subsill and sill nose options. The casings can be ordered primed or in one of the eight standard or 47 designer colors of the Accentuals palette, and in several wood species with sanded and stained finishes. Weather Shield, Medford, Wisc. www.weathershield.com **CIRCLE 220**





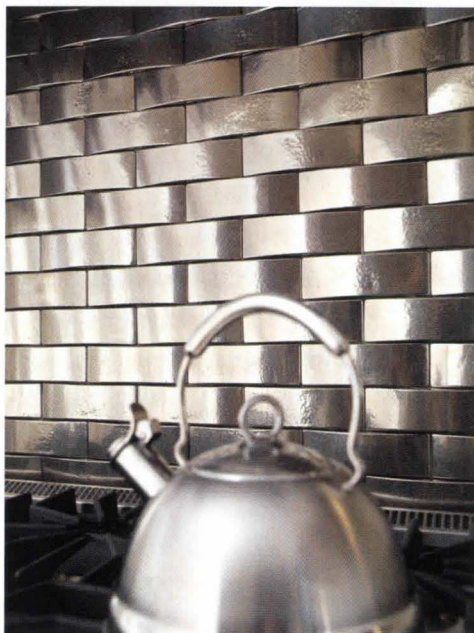
▲ Modular storage expansion

Originally designed by architect Chi Wing Lo in 1995 as a modular storage unit, the Oli system has been augmented for built-in use in walk-in closets and dressing rooms. Aptly named after the Greek word *olos*, meaning whole/together/entire, Oli is available in dark stained or natural maple and aluminum finishes. Adding to its versatility, the expanded collection can be customized with shelves, hanging bars, pull-out shelves, drawers, or cubbies, and accessorized with containers and coat hangers. Giorgetti, Teaneck, N.J. www.giorgettiusa.com **CIRCLE 221**

► Bronze variations

Made of solid bronze, the TT620 2" x 6" Arched Border tile is fabricated in either silicon bronze (which is made up of copper, silicon, and zinc, resulting in coppery gold hues) or white bronze (a combination of copper, manganese, nickel, and zinc for a silvery color). Several hand-applied patinas are available in each. These include white bronze light (right and bottom) and silicon bronze light (below). Rocky Mountain Hardware, Halley, Idaho. www.rockymountainhardware.com

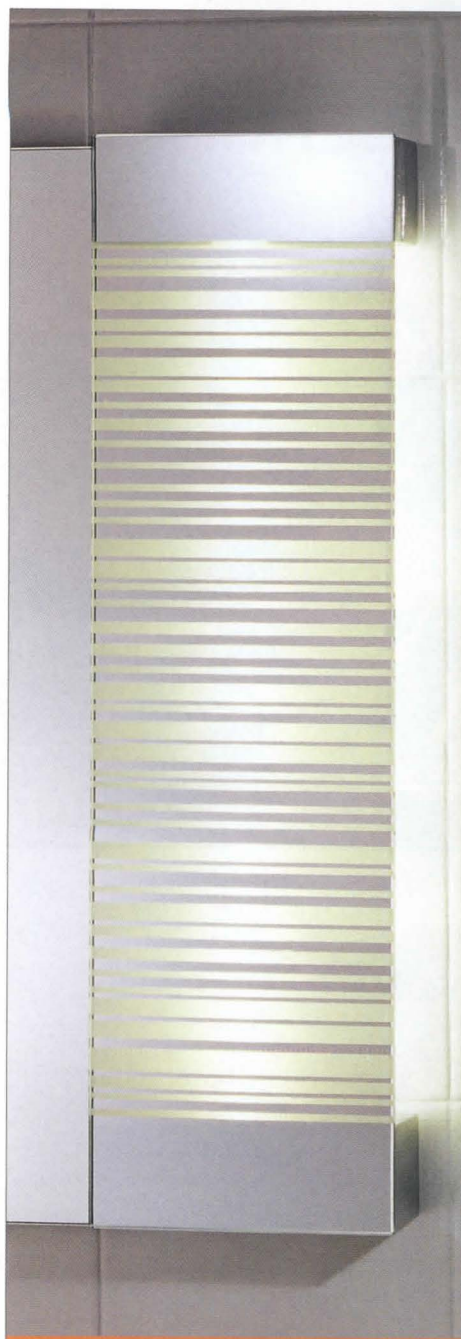
CIRCLE 222



◀ A natural collaboration

As part of Bentley Prince Street's Mission Zero initiative, with a goal of eliminating any negative impact on the environment by the year 2020, the company has collaborated with ecosensitive designer Joanne De Palma to develop its new Mythic Journey Collection. Available as broadloom or 18" carpet tiles, all five nature-inspired patterns are manufactured from 50 percent recycled nylon. Its backing, too, is a special latex formulation that recovers mineral residuals from the paper-recycling industry in an environmentally friendly manner. Bentley Prince Street, Los Angeles.

www.bentleyprincestreet.com **CIRCLE 223**



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Product Briefs

► A clear view

An aesthetically pleasing alternative to frequently used institutional-looking products such as wired glass, FireLite ceramic glass is ideal for highly visible fire-rated locations. This UL-listed translucent glazing is fire-rated for up to 90 minutes and passes the required hose stream test. Additionally, it is $\frac{3}{16}$ " thick, available in large sizes, and can be installed in standard fire-rated frames. Technical Glass Products, Federal Way, Wash. www.fireglass.com **CIRCLE 224**



◀ Ecotextural wall coverings

One of a series of GreenSpec-certified wall coverings designed by textile artist Docey Lewis, the "Intertwined" Maganda (shown in Green Tea) is hand woven in the Philippines from Abaca, a species of banana, sustainably grown and harvested with no synthetic fertilizers or pesticides. The fiber is extremely durable, flexible, and resistant to water damage, making this wall covering ideal for a variety of climates and installations. Silk Dynasty, Mountain View, Calif. www.silkdynasty.com

CIRCLE 225

► Sustainable resilience

Manufactured with a patent-pending technology that reduces the use of fossil fuel, Migrations BioBased Tile is made from limestone, 10 percent preconsumer recycled material, and the company's proprietary polymer BioStride, a product of domestically grown corn. Compared to standard composition tile, it is five times more impact-resistant and two-and-a-half times more crack-resistant. Moreover, it meets the nation's most stringent indoor air quality requirements. Armstrong, Lancaster, Penn. www.armstrong.com **CIRCLE 226**



◀ Cooling trends

Special technology built into the Trane ComfortLink II system connects select components of the company's residential HVAC products, enabling them to digitally communicate with one another. Designed to run its own self-diagnostics, this install-friendly intelligent system includes a communicating comfort control; the option of remote telephone access from anywhere in the world with a telephone access module; and Charge Assist, a device that quickly and easily ensures the proper refrigerant charge—automatically. Trane, Tyler, Tex.

www.trane.com **CIRCLE 227**



For more information, circle item numbers on Reader Service Card or go to architecturalrecord.com/products/.

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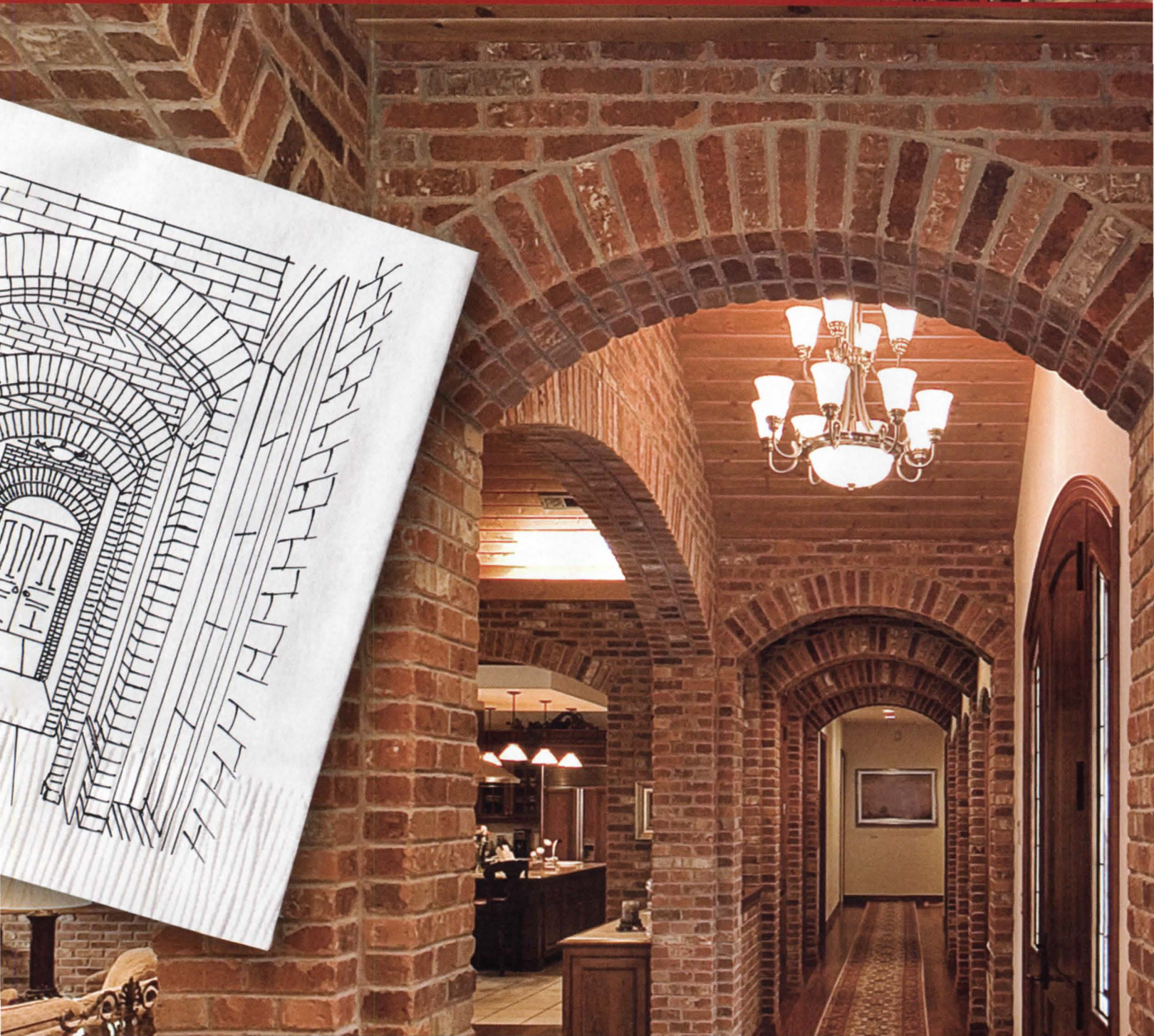
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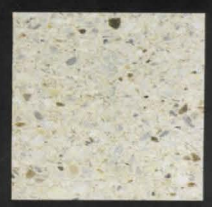
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Product Resources On the Web



www.bendheimwall.com

Bendheim Wall Systems, a leading provider of channel-glass wall systems and the exclusive distributor of Lamberts channel-glass wall systems has launched a new web site. In it, you'll find a wealth of detailed product information, technical data, and an extensive library of award-winning installations and LEED projects. It also offers a standard three-part specification that can be tailored to suit each project and frame system.



www.siematic.com

SieMatic has received the top Red Dot Design Award in communication design for its newly revamped Web site. Maintaining the company's cutting-edge design standard, the site features user-friendly, intuitive menus; quick navigation; and detailed information on the company, its products, collections, kitchen planning, news, events, dealers, and distributors—even who might be reselling display models.

www.designguide.com

This award-winning online resource and forum for the building and design industries has just launched a new platform with compelling visuals and state-of-the-art features. The site hosts more than 10,000 professionals who showcase their design services and projects. It's also a terrific source to locate thousands of building-product and furnishings manufacturers as well as numerous building codes.



www.rewardwalls.com

This manufacturer of insulated concrete forms has upped the ante on its informative Web site with special areas to address the needs of architects, developers, and construction professionals. The intuitive menus facilitate browsing for detailed product manuals and information, design support, code evaluations, CSI specifications, technical services—even a primer on the product category for the uninitiated.



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Product Resources On the Web



www.sunguardglass.com

In an effort to assist design professionals and specifiers, manufacturer Guardian Glass has updated its Web site with a performance comparison tool that facilitates the selection and comparison of its products based on user-specified performance criteria. The site also includes a comprehensive project database featuring buildings with SunGuard glass, and a new Google map that shows exactly where each is located.

www.carbonneutralroofing.com

With a section devoted to architects, Green River and Black Hawk's new Web site focuses on the environmental and energy-saving benefits of its cedar-shake roofing—in particular, the Reserve Collection, certified to be Carbon Neutral by the Athena Institute, a nonprofit organization that assists the building community with evaluating the environmental impacts of materials and products.

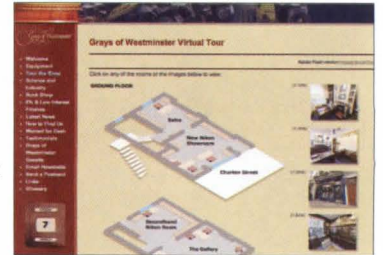


www.dacor.com

Dacor's new Web portal is notable for its enhanced interactive tools and easy-to-use navigation tools that highlight the design details of its distinctive kitchen appliances. You will find detailed lists of the company's product offerings with full-color images, the features of each, specifications, lists of requisite and optional accessories, manuals, and abundant showroom locations. The Customer Care section discusses warranties, service, and parts.

www.graysofwestminster.co.uk/tour

To demonstrate the capabilities of its sophisticated design and presentation software, VectorWorks is directing potential users to visit the work of U.K. architect Michael Eleftheriades, who developed a visit to Grays of Westminster, a London shop specializing in Nikon equipment, using VectorWorks Architect. For information and to see other case studies, visit www.vectorworks.net.



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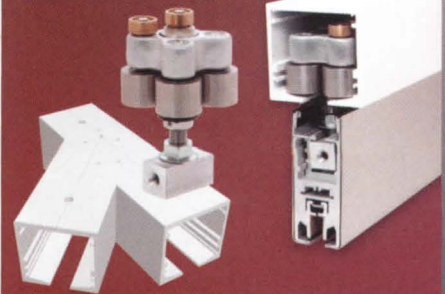


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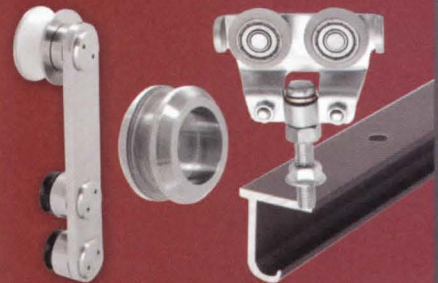
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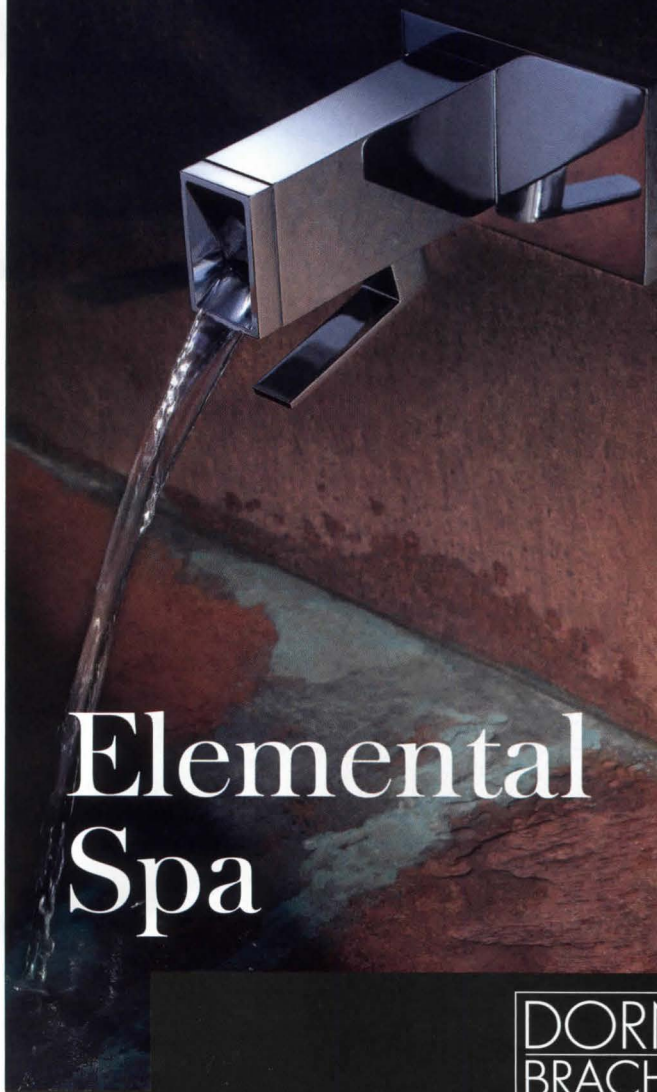
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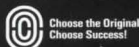
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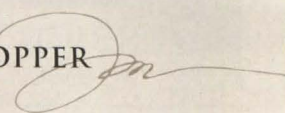


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Dates & Events

New and Upcoming Exhibitions

Affordable Housing:

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April 2–May 14, 2008

At the Kibel Gallery, University of Maryland. Call 301/405-8000 or visit www.arch.umd.edu.

CCCP: Cosmic Communist Constructions Photographed Los Angeles

April 11–May 17, 2008

A photographic exhibition documenting obscure Soviet architecture by French photographer Frédéric Chaubin. At Pop-up Storefront at Paperchase Printing. Call 212/431-5795 or visit www.storefrontnews.org.

Shreddings 3: defuragu Los Angeles

May 29–June 29, 2008

ah'bé landscape architects is an award-winning, Culver City, California-based landscape-architecture firm known for creating artful and vibrant urban spaces that engage ideas of sustainability and ecological responsibility as they interact with the natural and constructed world. Defuragu is ah'bé's third and final installation that calls attention to the amount of resources used by a design firm through the creation of an expressive landscape made from the office's recycled and shredded materials. At the Japanese American Cultural and Community Center (JACCC). For more information, call 213/628-2725 or visit www.jaccc.org.

Ongoing Exhibitions

Contemporary Architectural Drawings New York City

Through April 20, 2008

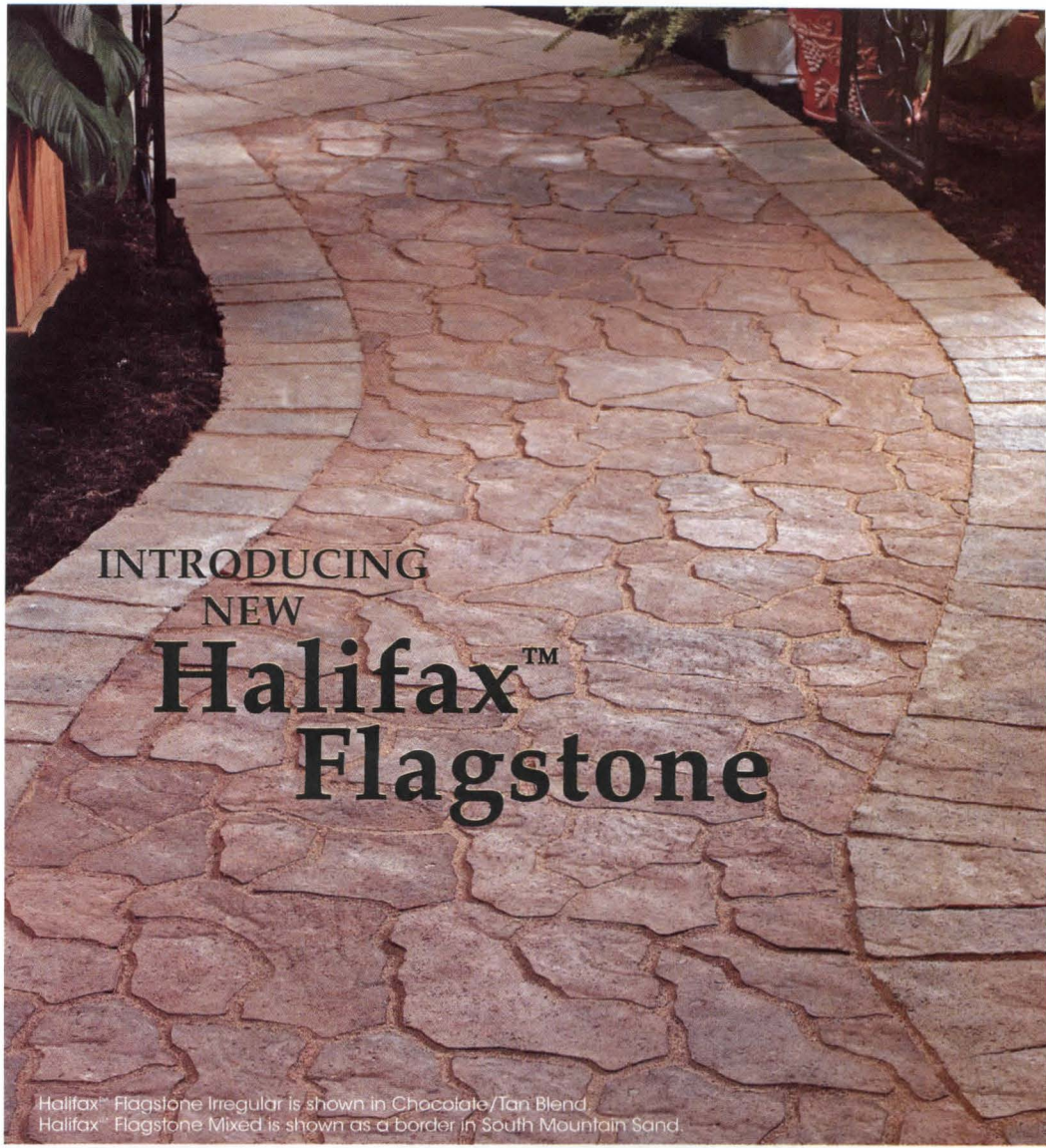
Contemporary Architectural Drawings presents a counterpoint to the concurrent exhibition of the meticulously detailed renderings of Richard Morris Hunt and highlights the work of 10 pre-eminent contemporary architects: Bruce Fowle, Richard Gluckman, Hugh Hardy, Richard Meier, Cesar Pelli, James Stewart Polshek, Kevin Roche, Laurinda Hope Spear, Bartholomew Voorsanger,

and Samuel G. White. In concert with the Hunt exhibition, *Contemporary Architectural Drawings* exposes the architects' current creative methods, which incorporate, among other things, computer rendering, photography, and even film and video, expanding the conventional definition of architectural drawing. At the National Academy of Design. For more information, call 212/369-4880 or visit www.nationalacademy.org.

Russel Wright: Living with Good Design St. Paul, Minn.

Through April 20, 2008

An exhibition of the work of Russel Wright, who made prolific and lasting contributions to shaping the lifestyle of the American middle class, ranging from the interior space of housewares, furniture, and fabrics to the exterior environment of landscape design. At the Goldstein



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Dates & Events

Museum of Art, McNeal Hall. For more information on the exhibition, call 612/626-9068 or visit www.design.umn.edu.

Design Life Now: National Design Triennial Houston

Through April 20, 2008

This exhibition presents the experimental projects, emerging ideas, major buildings, new products, and media that were at the center of contemporary culture from 2003 to 2006. Inaugurated in

2000, the triennial seeks out and presents the most innovative American designs from the prior three years in a variety of fields, including product design, architecture, furniture, film, graphics, new technologies, animation, science, medicine, and fashion. At Houston's Contemporary Arts Museum. For more information, call 713/284-8250 or visit www.camh.org.

Studio as Muse: Herzog & de Meuron's Design for the New Parrish Art Museum New York City

Through May 2, 2008

This exhibition displays 130 study models, material samples, and short videos detailing Herzog & de Meuron's design process for the innovative new Parrish Art Museum in Southampton, New York. At the Architectural League of New York. Call 212/753-1722 or visit www.archleague.org.

David Macaulay: The Art of Drawing Architecture Washington, D.C.

Through May 4, 2008

Trained as an architect, Macaulay has long been fascinated by large-scale constructions, and his accessible illustrations teach viewers to see and understand the architectural and engineering processes behind structures. This exhibition focuses on the artist's use of drawing to research historic buildings, to render architecture from engaging perspectives, to reveal underlying structures, and to critique and redesign—in a playful manner—the contemporary landscape of American architecture. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Do We Dare Squander Chicago's Great Architectural Heritage? Chicago

Through May 9, 2008

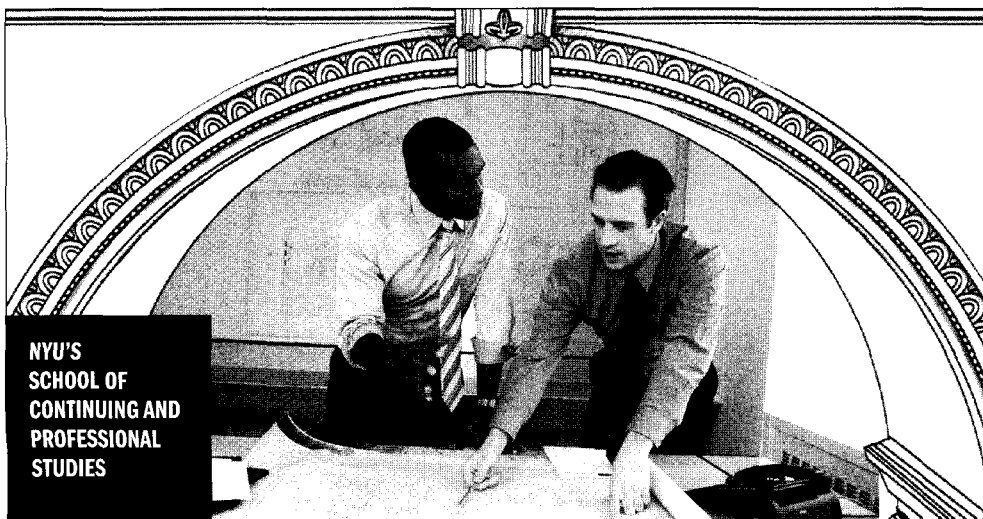
This exhibition examines the role of historic preservation in Chicago and the motivation of its proponents. At the Chicago Architecture Foundation. Call 312/922-3432 or visit www.architecture.org.

Building China: Five Projects, Five Stories New York City

Through May 31, 2008

Created by curator Wei Wei Shannon of People's Architecture and cocurator Shi Jian, this exhibition examines the exploratory work of five emerging architects in China. Revealing the process behind the country's building practices, the exhibition includes information about the architects' relationships with their clients and the bidding process in their homeland. At the Center for Architecture's Judith and Walter Hunt Gallery and the Mezzanine Gallery. For additional information about the show, call 212/683-0023 or visit www.aiany.org.

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July 20, 2008

Launching in advance of the July 20 opening of Home Delivery: Fabricating the Modern Dwelling—an exhibition exploring factory-produced architecture—is a special online project documenting the planning, fabrication, delivery, and assembly of five architectural works specially commissioned for the exhibition. The five houses will be installed one at a time on MoMA's vacant west lot beginning in early June. This process will continue until the exhibition's public opening and will be visible to the public from the city streets. Beginning March 14, visitors to www.moma.org will be able to access an online journal that features daily updates—through text, photos, and video—on each architect's process and progress. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

Lectures, Conferences, and Symposia

The Chicago Bird Agenda: Bird Safe Building Design Aspects Chicago

April 8, 2008

A lecture with Sarah Beazley, City of Chicago, Department of Environment (DOE); Jeanne Gang, Studio Gang Architects; Annette Prince, Chicago Bird Collision Monitors. At the Chicago Architecture Foundation. Call 312/922-3432, x 224 or visit www.architecture.org.

If You Build It ... Will They Come Conference: Assessing and Underwriting Critical Housing Needs New Orleans

April 9–10, 2008

This event will explore techniques and methodologies used by developers, debt and equity underwriters, public agencies, and market analysts to determine where long-term markets exist for their developments. New Orleans was chosen to host this event to highlight solutions to the critical short- and long-term housing and redevelopment needs impacted by natural disaster, shrinking markets, and other development challenges. At the Chateau Sonesta Hotel. Call 202/939-1750 or visit www.housingonline.com.

Andrea Palladio from Rome to Baltimore Baltimore

April 11, 2008

A one-day symposium on Andrea Palladio in

which authoritative speakers from around the world will address a wide variety of topics. At the Walters Art Museum. Call 410/526-5589 or visit www.museums.jhu.edu.

Next Exit: The Shifting Landscape of Suburbia Minneapolis

April 24, 2008

Population growth, immigration, and transportation are among the many factors city planners, designers, and developers confront as they pre-

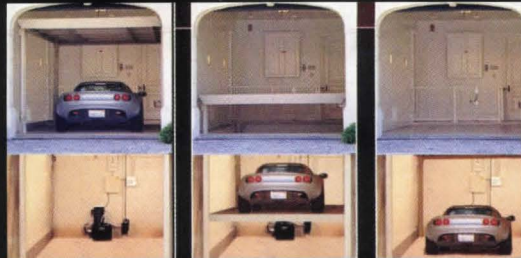
pare for the next million people to move into Minnesota's suburbs. This panel discussion will cover the challenges and successes of new suburban design, how suburbs are becoming destination environments, and the cultural implications of these shifts. At the Walker Art Center. Call 612/375-7600 or visit www.walkerart.org.

Storefront for Art and Architecture 25th Anniversary Benefit New York City

April 29, 2008

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Dates & Events

A gala event honoring Kyong Park and Shirin Neshat to be held at the new Diane von Furstenberg Studio designed by Work Architecture Company. For more information, call 212/431-5795 or visit www.storefrontnews.org.

Global Environmental Contextualism

Chicago

April 30, 2008

A lecture with Adrian Smith, FAIA, and Gordon Gill, AIA, Partners, Adrian Smith + Gordon Gill Architecture. At the Chicago Architecture

Foundation. Call 312/922-3432, x 224, or visit www.architecture.org.

ARTiculations lecture: Buckminster Fuller Lives On Scottsdale, Ariz.

May 1, 2008

Michael Ben-Eli will discuss Bucky Fuller's futuristic principles of Design Science and relate his visionary ideas to the challenge of sustainability today. Fuller was one of the most remarkable minds of the 20th century—an engineer, archi-

tect, mathematician, designer, poet, philosopher, motivational speaker, utopian thinker, and (of course) inventor of the geodesic dome. Ben-Eli, his former student and close associate, graduated from the Architectural Association, London, and received his Ph.D. from the Institute of Cybernetics, Brunel University, London. At Scottsdale Museum of Contemporary Art. Call 480/994-2787 or visit www.sccarts.org.

Competitions

The 12th Annual Portland CANstruction Design Competition Portland, Oregon

April 22–27, 2008

The 12th Annual Portland CANstruction Design Competition combines the competitive spirit of design-build competition with a unique way to help feed hungry people. Competing teams, led by architects and engineers, showcase their talents by designing giant sculptures made entirely out of canned foods. At the close of the exhibitions, all of the food used in the structures is donated to the Oregon Food Bank for distribution to pantries, shelters, soup kitchens, elderly centers, and day-care centers. At Pioneer Place Mall. For more information, call 503/471-6833 or visit www.canstruction.org.

Reinventing Grand Army Plaza

Deadline: April 25, 2008

Home to powerful architecture, the Soldiers' and Sailors' Arch, the elegant Bailey Fountain, the entrance to Frederick Law Olmsted's Prospect Park, and a transit hub, the sum of these parts is emphatically less than the whole. Submissions to this competition will inform the program for a new schematic plan for the plaza, to be created in partnership with the New York City Departments of Parks and Recreation and Transportation. Visit www.grandarmyplaza.org or www.designtrust.org.

2008 AIA, California Council Design Awards

Registration Deadline: April 25, 2008

Submission Deadline: May 23, 2008

Each year since 1982, The American Institute of Architects, California Council (AIACC) has celebrated outstanding architecture through the AIACC Design Awards Program. The AIACC continues this tradition by inviting you to submit your firm's recent work. The AIACC has partnered with Savings By Design, recognizing exceptional

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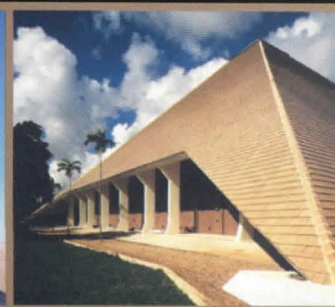
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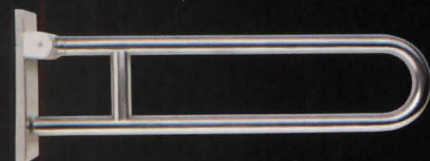
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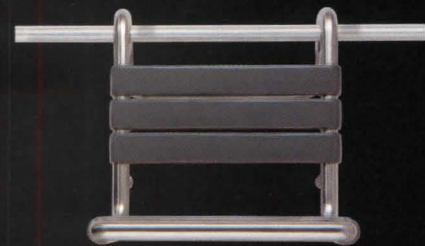




Grab bar



Hinged support rail



Hinged seat

Dates & Events

design, environmental sensitivity, and energy efficiency, and The American Society of Landscape Architects, California Council, recognizing distinguished achievements of architects and landscape architects in urban design, city planning, and community development. Visit www.aiacc.org for additional information.

International Architecture Competition for Sustainable Housing

Deadline: April 28, 2008

The 3rd International Architecture Competition presents architects with the task of creating energy-efficient, single-family detached housing in Russia that minimizes climate-change emissions and can withstand temperature extremes, yet is affordable to build and to buy. Visit www.livingsteel.org/extremehousing.

White House Redux

Deadline: April 2008

The original White House design, by James Hoban, was the result of a competition held in 1792. Over the centuries, presidents have added rooms, facilities, and new wings, turning the White House into the labyrinthine complex it is today. What would a White House designed in 2008, the year of election of the 44th president of the United States, look like? White House Redux is a global call for ideas. For more information, visit www.storefrontnews.org.

2008 National Student Steel Bridge Competition

May 23-24, 2008

This competition will take place at the University of Florida in Gainesville, Florida. Visit www.2008steelbridge.com for more information.

International Design Competition for the Magok Waterfront, Seoul, Korea

Project Design Submission Period:

June 5, 2008

The goal of the competition is to transform the area of Magok into a tourist, commerce, and environmentally friendly waterfront area, in line with Seoul's Han River Renaissance Project, through the participation and input of various professionals and experts from Korea and abroad. Visit www.magokwaterfront.org.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.

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The editors of **ARCHITECTURAL RECORD** announce the **2008 RECORD INTERIORS** awards program. Entry is open to any architect registered in the U.S. or abroad. Of particular interest are interiors projects that incorporate innovation in program, building technology, form, and materials. Projects must be built. The fee is U.S. \$65 per submission; please make checks or money orders payable to ARCHITECTURAL RECORD (we cannot accept credit cards or wire transfers). Submissions must include plan(s), photographs (prints or color laser, no slides or CDs), a brief project description, and entry form—all firmly bound in a 9-by-12-inch folder. Ring, spiral, perfect, or book binding, as well as portfolios with attached sleeves are acceptable options. Entries submitted as loose pages will be disqualified. Your submission must be postmarked no later than April 30, 2008. Anonymity is not necessary. Selected entries will be featured in 2008 RECORD INTERIORS. Other submissions will be returned or scheduled for a future issue. Please be sure to include a pre-addressed envelope with an air bill for the return of your materials. Allow 10 weeks for notification.

Submissions should be mailed to: Linda Ransey, RECORD HOUSES / ARCHITECTURAL RECORD, Two Penn Plaza, Ninth Floor, New York, NY 10121. This form must be included with your submission. If you have any questions, please e-mail: Linda Ransey at linda_ransey@mcgraw-hill.com

Good Design Is Good Business.

The editors of *BusinessWeek* and *Architectural Record* invite you to enter the **2008 BusinessWeek/Architectural Record Awards**

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For more information and an entry form, go to archrecord.construction.com/features/bwarAwards/. Entries must be postmarked no later than May 15, 2008.



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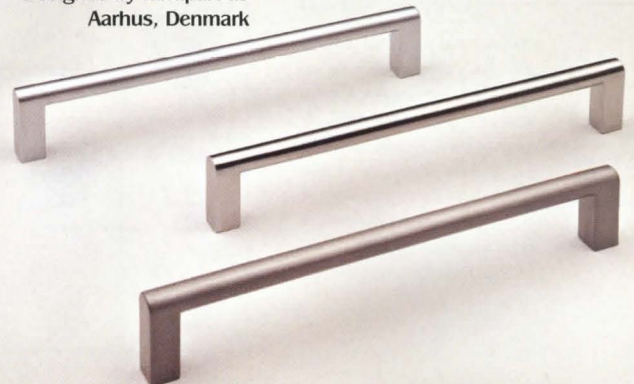
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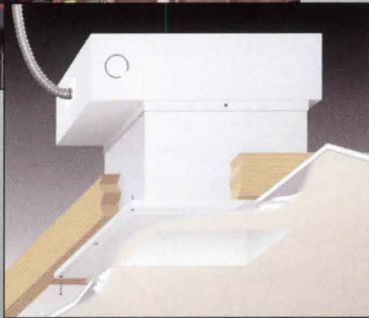
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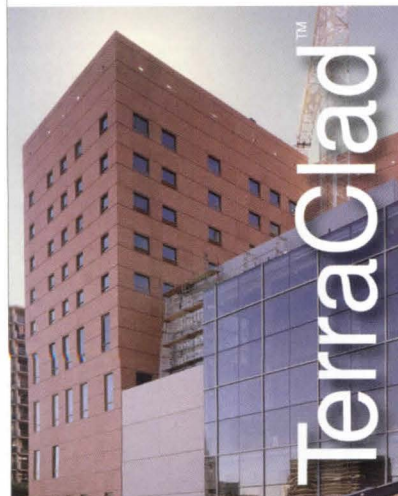


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Roofing Slate

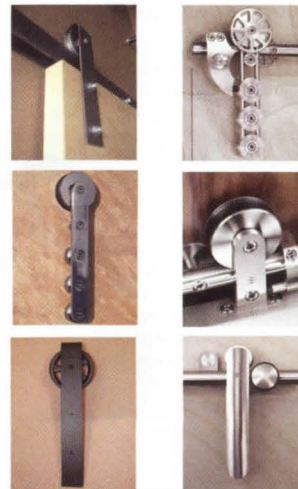


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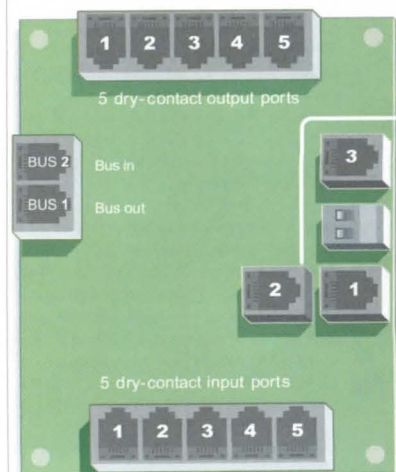


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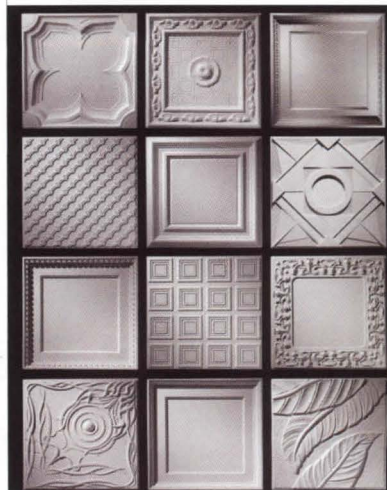


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Ornamental Plaster Ceiling Tiles

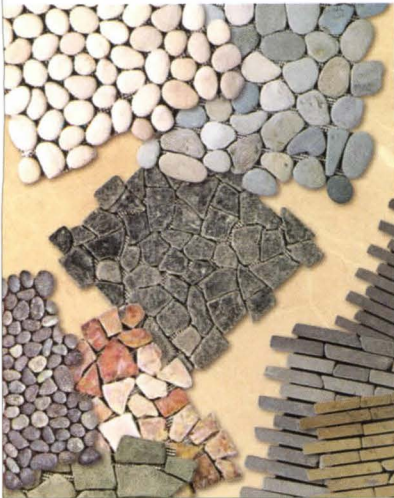


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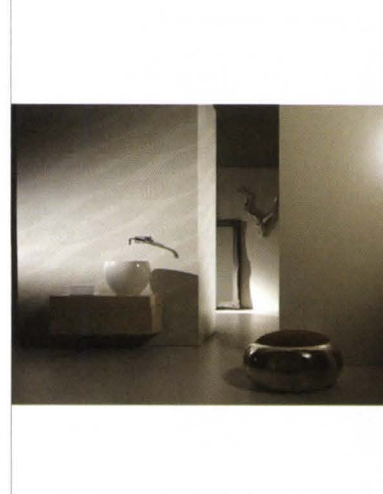


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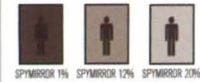
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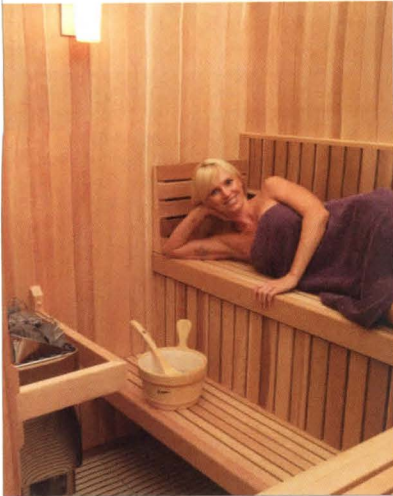


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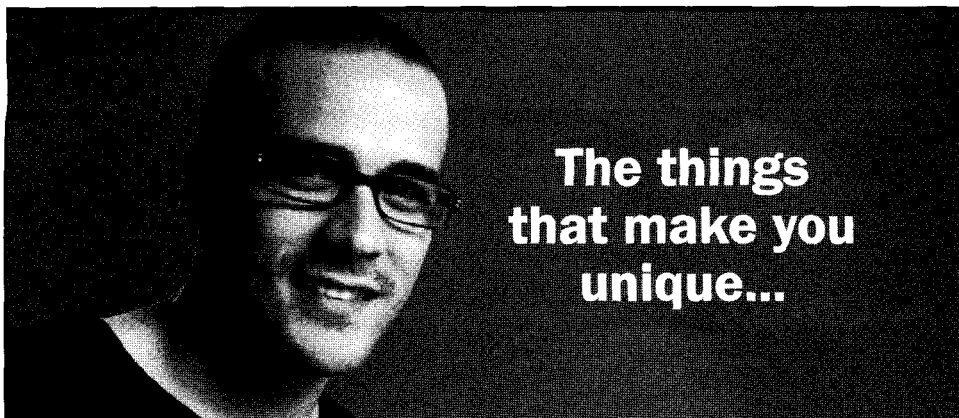
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AIA

Notice of AIA Candidates and Convention Business Items

Candidates for Institute Offices

Elections for the Institute's 2009 First Vice President/2010 President-elect, two 2008–2010 Vice Presidents, and 2008–2010 Secretary will be held at the AIA 2008 National Convention and Design Exposition, which will take place May 15–17, 2008, in Boston.

If no candidate for First Vice President or Secretary obtains a majority of the votes cast during the initial round of voting on May 15–16, a run-off election will take place on May 17, 2008. The following members have declared themselves candidates for national office (with candidates to be certified no later than March 14, 2008):

For First Vice President

George H. Miller, FAIA (AIA New York Chapter)
Miguel A. Rodriguez, AIA (AIA Miami Chapter)

For Vice President

Maureen A. Guttman, AIA (AIA Pittsburgh Chapter)
Walter J. Hainsfurther, AIA (AIA Northeast Illinois Chapter)
Pamela J. Loeffelman, FAIA (AIA New York Chapter)
John Maudlin-Jeronimo, FAIA (AIA Potomac Valley Chapter)

For Secretary

Stephen K. Loos, AIA (AIA Colorado North Chapter)
Leslie J. Thomas, AIA (AIA New Hampshire Chapter)
Enrique Woodroffe, FAIA (AIA Tampa Chapter)

Proposed Bylaws Amendments

The AIA Board of Directors is sponsoring one amendment to the Institute's Bylaws, and that amendment is scheduled for consideration by the delegates at the annual business meeting in Boston on May 17, 2008. Bylaws amendments require approval by an affirmative vote of no less than two-thirds of all votes accredited to be cast at the meeting.

Bylaws Amendment 08-A—Elimination of Supplemental Dues

Section 3.141 of the Institute's Bylaws provides that "[e]very Architect member who is an owner or manager in an organization using architects to perform services for the public" must pay not only regular dues, but also supplemental dues. Supplemental dues are based on the total number of registered architects employed by the Architect member's firm, in an amount determined in accordance with the Institute's Bylaws and the Rules of the Board. (*AIA Bylaws, Section 3.142.*)

The Board is sponsoring an amendment to eliminate supplemental dues effective beginning with the 2009 budget cycle. The amendment, if adopted, will not affect the authority of AIA components to charge supplemental dues to their own members.

Resolutions

The delegates at the AIA 2008 National Convention and Design Exposition will be asked to consider resolutions, which require approval by a majority vote of the delegates present and voting. The deadline for submitting resolutions was February 29, 2008.

For candidates' statements and the full text of the proposed Bylaws amendments and resolutions, visit the AIA Web site at www.aia.org.

There's been a lot of talk about changes in our climate lately. CO₂ emissions, dwindling resources, and energy usage are growing concerns in every walk of life. AIA Architects, in particular, want to address those concerns. We strongly believe that the time for talk has passed, and now it is time to walk the walk.

Buildings currently account for nearly half of all greenhouse gas emissions, a fact we simply cannot ignore. As architects we are uniquely poised to provide the leadership and guidance needed to provide solutions to reduce that footprint. By using sustainable design practices, materials, and techniques, we can play an active role in, well... saving the world.

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201		AAF <i>archfoundation.org</i>	8-9	7	S Guardian SunGuard <i>sunguardglass.com</i>	55	35	OMNIA <i>omniindustries.com</i>
193	85	S Advance Lifts <i>advancelifts.com</i>	144A-D		Gypsum Association <i>gypsum.org</i>	52	34	S Pella Windows & Doors <i>pella.com</i>
77	49	S AGC Interedge <i>afgglass.com</i>	171	66	Hampstead Lighting <i>hampsteadlighting.com</i>	4	3	S Pine Hall Brick Co Inc <i>pinehallbrick.com</i>
158, 204		AIA <i>aia.org</i>	185	78	Hanover Architectural Products <i>hanoverpavers.com</i>	14	10	S PPG <i>ppgideascapescapes.com</i>
205, 207		AIA <i>aia.org</i>	86	52	Hansgrohe <i>hansgrohe-usa.com</i>	70	44	Precision Component Systems <i>pcscustomhome.com</i>
155	59	ALNO <i>alnousa.com</i>	176A-B		Hanson Brick <i>hansonbrick.com</i>	146	55	Quality Stone Veneer <i>qualitystoneveneer.com</i>
187	80	American Custom Lifts <i>aclifts.com</i>	6	5	S HDI Railing Systems <i>hdirailings.com</i>	33	20	Quikrete <i>quikrete.com</i>
19		Architectural Record <i>archrecord.construction.com</i>	194	89	Headwaters Resources <i>flyash.com</i>	203	92	S Rakks <i>rakks.com</i>
180	72	ArcusStone <i>arcusstone.com</i>	190	83	HEWI <i>hafele.com</i>	203	93	Rejuvenation Inc <i>rejuvenation.com</i>
83	50	Arpa USA <i>arpausa.com</i>	cov2-1	145	Hunter Douglas Contract <i>hunterdouglascontract.com</i>	175	68	Robinson Brick Company <i>robinsonbrick.com</i>
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157	60	B-K Lighting <i>bklighting.com</i>	26-27	17	Italian Trade Commission <i>marblefromitaly.com</i>	76	48	S Roppe Corporation <i>roppe.com</i>
164	62	S Belden Brick Company, The <i>beldenbrick.com</i>	184	76	Jack Arnold Architect <i>jackarnold.com</i>	194	91	S Salisbury Industries <i>mailboxes.com</i>
179	71	Belgard <i>belgard.biz</i>	75	47	S JELD-WEN Windows & Doors <i>jeld-wen.com</i>	cov-3	94	S Samsung Staron Surfaces <i>getstaron.com</i>
67	42	S Bobrick <i>bobrick.com</i>	51	33	S Kawneer Company Inc <i>kawneer.com</i>	17	11	S Schott Corporation <i>us.schott.com</i>
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147	56	bulthaup <i>bulthaup.com</i>	63	40	Kingsley-Bate <i>kingsleybate.com</i>	151	57	Simpson Strong-Tie Company Inc <i>simpsonstrongwall.com</i>
193	87	Cascade Coil Drapery <i>cascapecoil.com</i>	39	23	Kohler <i>kohler.com</i>	190		Skyscraper Museum, The <i>skyscraper.org</i>
153	58	CEMEX <i>cemexusa.com</i>	18	12	S KONE <i>kone.com</i>	31	19	S Sloan Valve Company <i>sloanvalve.com</i>
73	45	S CENTRIA Architectural Systems <i>centria.com</i>	159-163	61	Lafarge North America <i>lafargenorthamerica.com</i>	42	26	Steel Joist Institute <i>steeljoist.org</i>
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183	75	Dornbracht <i>dornbracht</i>	144, 174		McGraw-Hill Construction <i>construction.com</i>	46	30	S Uponor <i>uponor-usa.com</i>
193, 194	88, 90	Doug Mockett & Company Inc <i>mockett.com</i>	176, 194		McGraw-Hill Construction <i>construction.com</i>	28	18	Valcucine <i>valcucinena.com</i>
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173	67	Florim Ceramiche SPA <i>florim.it</i>	47	31	S Nana Wall Systems Inc <i>nanawall.com</i>	182		World Architecture Festival <i>worldarchitecturefestival.com</i>
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If that isn't enough, try this... gather a group of compatriots with the idea of visiting one of Boston's fine eateries once the show closes. The opportunities for engaging local Bostonians in conversation about yourself are numerous. The only thing better than the feeling of saying "I'm an architect" is the camaraderie you share by announcing "We're architects!"

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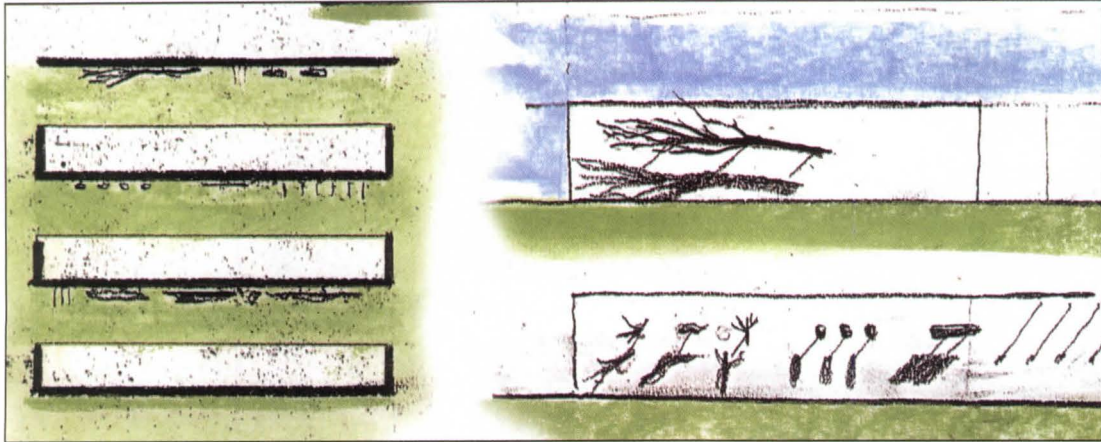
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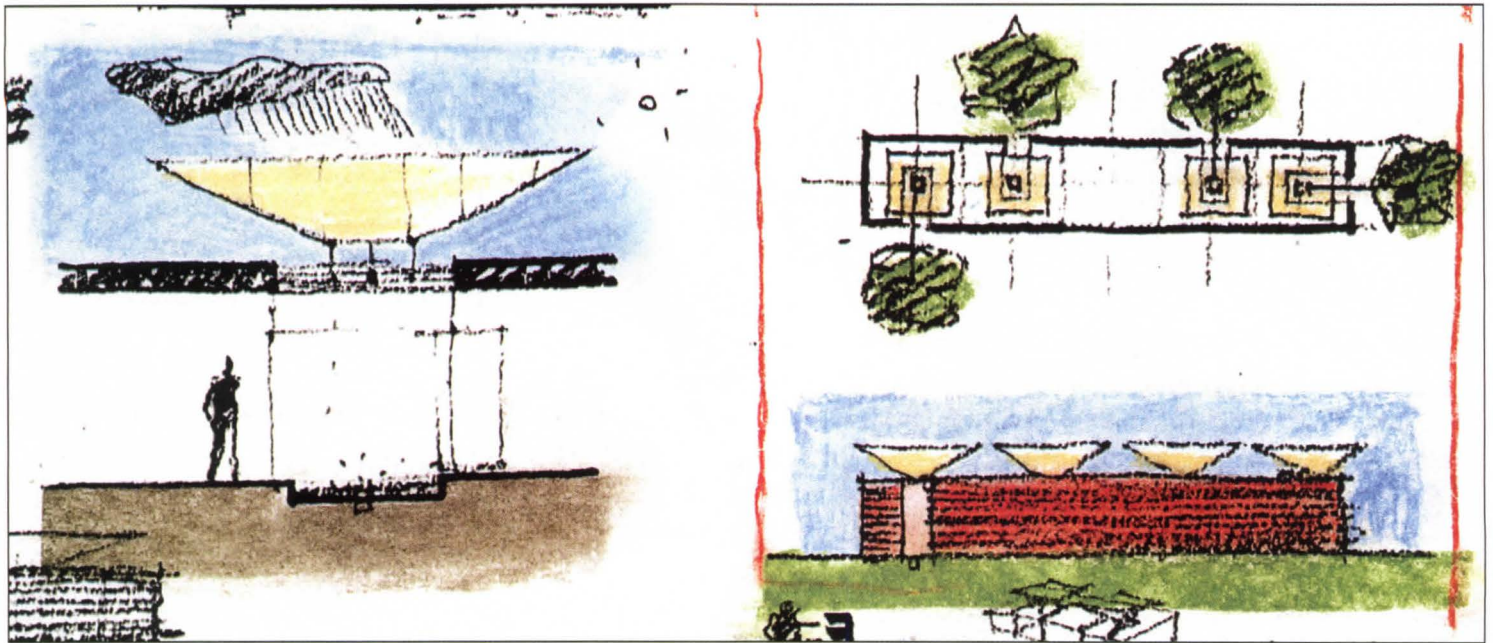
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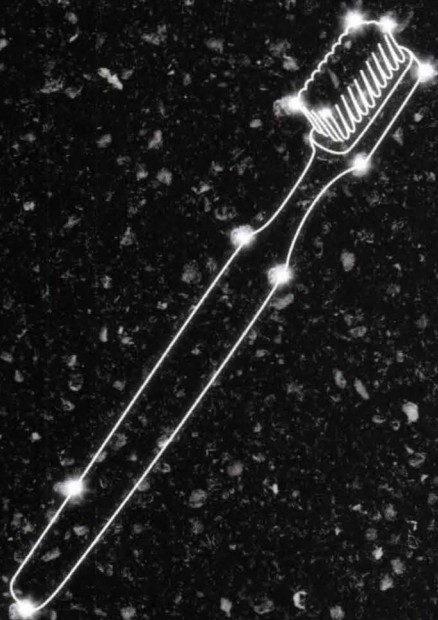
Sketch No.1 (left), charcoal, pencil, and pastel, 2007; Sketch, No.2 (below), charcoal, pencil, and pastel, 2007.



Sketching that links light with land

Most Texans try to stay out of the sun. Max Levy, FAIA, finds ways to play with the intense Texas light and other natural elements in his design process, exploring his thoughts with sketches. Born in Fort Worth and trained as an architect at the University of California, Berkeley, Levy currently practices in Dallas. With daily demands of the office, Levy says he must be aggressive in finding time to draw, sometimes drifting into a reverie. In these unselfconscious explorations, as he describes them, he investigates potential relationships occurring between nature and a given architectural intervention. With *Sketch No. 1*, Levy ornaments structures by attaching natural objects to courtyard walls. As the sun repositions itself throughout the day, he says, “The objects’ shadows morph across the wall in unison” to animate the architecture. This work led Levy to design a house where he has attached protruding metal leaves to the walls, which cast rotating shadows on the building. The result, he says, is a “habitable sundial ... which does not tell you precisely the time [of day], but something about the passage of time.”

In *Sketch No. 2*, Levy probes the way architecture can act as an “intermediary between the land and sky,” linking, for example, a tree to the surrounding atmosphere and landscape. This sketch influenced another house design where Levy directed the flow of rainfall to a rain pull and then to a quarry pond in such a way that the “building became allied with the pond.” *Jennifer Richter*

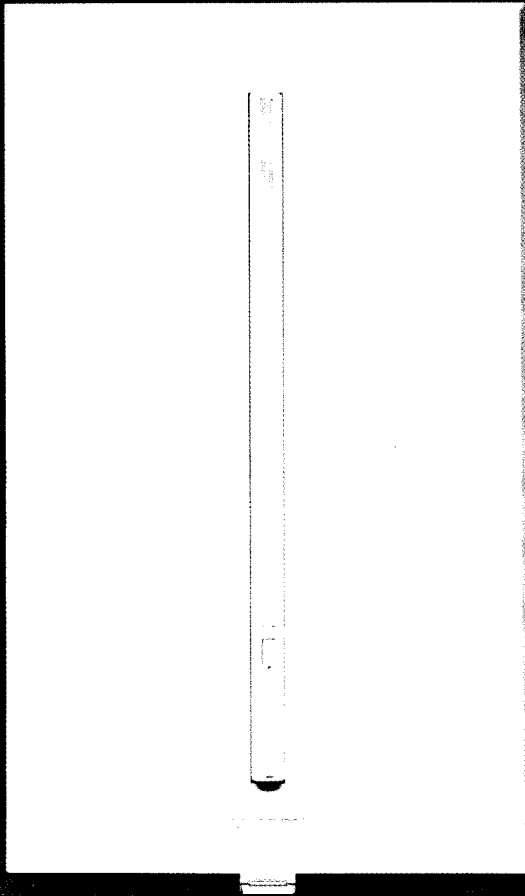


Toothbrush Major
(Located in the Lavatory Nebula)

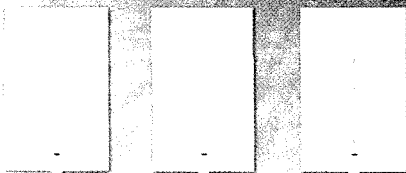
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